Transient and lightning protection systems
Export GmbH & Co KG

2019/2020

Building Connections
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## Planning and mounting aids

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OBO Construct planning aids

Digital selection aids for earthing systems and surge protection
The OBO Construct electronic planning aids are programs developed to support electrical installation engineers and planners in the design of electrical installation systems. In particular, in complex areas such as surge protection and earthing, there are countless technical and standard general conditions to be observed. The two OBO Construct programs for earthing and surge protection systems should provide active help here. Systematic polls simplify the search for suitable products and guaranteed surge protection systems and earthing systems which fulfil the standards.

OBO Construct for surge protection
This online tool aids you in the project-orientated selection and connection of suitable surge protection systems and provides you with information on the OBO surge protection systems. You can create your personal materials list, connection diagram and invitation to tender texts quickly, efficiently and in a targeted manner for complete surge protection in the fields of energy technology, photovoltaics, telecommunication, MSR, TV, HF and data technology. The result can be exported easily into Excel format for further processing.

Benefits
- Work aid independent of time and place
- Transmit planning requirements to complete product systems
- Find suitable products quickly and simply
- Calculate material and parts lists automatically
- Download configuration results as Excel or Word files

OBO Construct for earthing systems
The digital selection aid can be used for the easy planning and configuration of earthing systems. The simple and intuitive user guidance leads you through the individual components of the earthing system step by step. The software then automatically calculates the amounts required and the matching accessories. The application can be opened on any end device irrespective of its operating system – be it smartphone, tablet or desktop PC.
Lightning protection guide. Safely routed.

Reference work and planning aid for electrical installation engineers and technical planners

At OBO Bette mann, we can look back on more than 90 years of experience in the field of lightning and surge protection. This experience and, of course, the latest standards and technical innovations have flowed into the company’s new lightning protection guide. The brochure allows you to plan installations in the field of lightning and surge protection faster and more easily.

It contains a balanced mixture of both basic and expert knowledge, as well as planning and selection aids for the protection of buildings and systems.

The new lightning protection guide can be requested by calling +49 23 73 89 - 17 00 and is also available at the address below for download:
http://obo.eu/Leitfaden

Topics

• Basic principles
• The external lightning protection system
• Air-termination and down-conductor systems
• Examples and selection aids for wind load calculation conform with Eurocode 1+3
• Earthing systems with foundation earther to current DIN 18014
• The internal lightning protection system
• Equipotential bonding systems
• Overvoltage protection systems
• Current standards
• New selection and planning aids
• Examples
OBO TBS seminars: First-hand knowledge
With a comprehensive programme of training courses and seminars on the subject of surge voltage and lightning protection systems, OBO is able to support its customers with specialist knowledge from a single source. Alongside the basic theoretical principles, the programme also deals with practical implementation in everyday applications. Special calculation and application examples round off the comprehensive programme of knowledge transfer.

Invitations to tender on the Internet at www.ausschreiben.de
More than 10,000 entries from the cable support systems, fire protection systems, connection and fastening systems, transient and lightning protection systems, cable routing systems, device systems and underfloor systems can be recalled for free. Regular updates and extensions mean that you always have a comprehensive overview of the OBO products. All the current file formats (PDF, DOC, GAEB, HTML, TEXT, XML, ÖNORM) are available.

Invitations to tender, product information and data sheets
We can make life easier for you, with our comprehensive selection of materials designed for practical applications, which provide you with effective support with the planning and calculation of a project. These include:
- Invitations to tender
- Product information
- Data sheets
- Data sheets

Invitations to tender for lightning protection/earthing at the highest level:
OBO manufacturers products to RAL GZ642-5 and is dedicated to compliance with the RAL directives. Lightning protection and earthing products can be used for invitations to tender according to RAL.

These documents are continually updated and can be downloaded for free at any time from the Internet download area at www.obo-bettermann.com.
Customer service and credibility
Friendliness, reliability and competence create acceptance, credibility and lasting working relationships. These shared values arise from OBO's consistent orientation around the wishes and needs of its customers. Close partnerships with customers is OBO's foremost priority.

Help and advice
Answers to questions about products and installation, planning advice for complex projects – OBO's staff will help you through every phase of your project, no matter what field it is in. We are constantly improving the support we provide in every phase of collaboration, laying the foundations for genuine partnerships.

Speed and reliability
Optimised procedures and highly developed logistics ensure that OBO products are in the right place at the right time, anywhere in the world. OBO offers comprehensive support for large-scale projects, from planning all the way to installation.

Lightning protection guide
Free order and download from www.obo.de
Our dependency on electrical and electronic equipment continues to increase, in both our professional or private lives. Data networks in companies or emergency facilities such as hospitals and fire stations are lifelines for an essential real time information exchange. Sensitive databases, e.g. in banks or media publishers, need reliable transmission paths.

It is not only lightning strikes that pose a latent threat to these systems. More and more frequently, today’s electronic aids are damaged by surge voltages caused by remote lightning discharges or switching operations in large electrical systems. During thunderstorms too, high volumes of energy are instantaneously released. These voltage peaks can penetrate a building through all manner of conductive connections and cause enormous damage.
Financial implications of lightning and surge voltage damage

Financial loss can only be considered in isolation in cases where no legal or insurance requirements relating to personal safety apply.

**Substantial losses result from the destruction of electrical devices, notably:**
- Computers and servers
- Telephone systems
- Fire alarm systems
- Monitoring systems
- Lift, garage door and roller shutter drives
- Consumer electronics
- Kitchen appliances

Further costs can also be incurred due to outages and consequential damage in relation to:
- Loss of data
- Production outage
- Loss of contactability (Internet, telephone, fax)
- Defective heating systems
- Costs due to faults and false alarms in fire and burglar alarm systems

**Financial losses are on the rise**
Current statistics and estimates of insurance companies show: Damage levels caused by surges—excluding consequential or outage costs—long since reached drastic levels due to the growing dependency on electronic "aids". It’s no surprise, then, that property insurers are checking more and more claims and stipulating the use of devices to protect against surges. Information on protection measures can be found in e.g. the German Directive VDS 2010.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of lightning and surge voltage damage cases</th>
<th>Paid damages for lightning and surge voltage damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>490,000</td>
<td>€310 million</td>
</tr>
<tr>
<td>2006</td>
<td>550,000</td>
<td>€340 million</td>
</tr>
<tr>
<td>2007</td>
<td>520,000</td>
<td>€330 million</td>
</tr>
<tr>
<td>2008</td>
<td>480,000</td>
<td>€350 million</td>
</tr>
<tr>
<td>2009</td>
<td>490,000</td>
<td>€340 million</td>
</tr>
<tr>
<td>2010</td>
<td>330,000</td>
<td>€220 million</td>
</tr>
<tr>
<td>2011</td>
<td>440,000</td>
<td>€330 million</td>
</tr>
<tr>
<td>2012</td>
<td>410,000</td>
<td>€330 million</td>
</tr>
<tr>
<td>2013</td>
<td>340,000</td>
<td>€240 million</td>
</tr>
<tr>
<td>2014</td>
<td>410,000</td>
<td>€340 million</td>
</tr>
<tr>
<td>2015</td>
<td>350,000</td>
<td>€240 million</td>
</tr>
<tr>
<td>2016</td>
<td>300,000</td>
<td>€210 million</td>
</tr>
</tbody>
</table>

Number of instances of damage from lightning and surge voltages and amounts paid out by home and contents insurance companies; source: GDV · Extrapolation based on industry and risk statistics; numbers rounded to the nearest 10,000 or €10 million.
Lightning and surge protection standards

When planning and executing a lightning protection system, it is necessary to observe all relevant national annexes and take account of any special circumstances or applications and the safety stipulations in the relevant country-specific supplements.

A lightning and surge protection system consists of several systems, each tailored to each of the others. At its most basic, a lightning and surge protection system consists of one internal and one external lightning protection system.

These, in turn, can be categorised as follows:
- Air-termination devices
- Down-conductors
- Earthing systems
- Area shielding
- Separation distance
- Lightning protection equipotential bonding system

These systems must be carefully selected for the application at hand, and used in a coordinated way. Installation of the systems takes place according to various application and product standards. The supplements to the international IEC guidelines and harmonised European versions of the various country-specific translations often contain additional informative information specific to the country in question.

Product standards
To ensure that the components can withstand the loads to which they are likely to be exposed in application, they must be checked against the respective product standard for external and internal lightning protection.

External and internal lightning protection systems

<table>
<thead>
<tr>
<th>External lightning protection</th>
<th>Internal lightning protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air-termination units</td>
<td>Lightning protection equipotential bonding</td>
</tr>
<tr>
<td>Down-conductors</td>
<td></td>
</tr>
<tr>
<td>Earthing</td>
<td>Separation distance</td>
</tr>
<tr>
<td>Area shielding</td>
<td></td>
</tr>
</tbody>
</table>

External and internal lightning protection systems
<table>
<thead>
<tr>
<th>Standard</th>
<th>German supplement</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>VDE 0185-305-1 (IEC 62305-1)</td>
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<td>Protection against lightning – Part 1: General principles</td>
</tr>
<tr>
<td>VDE 0185-305-2 (IEC 62305-2)</td>
<td></td>
<td>Protection against lightning – Part 2: Risk management</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>Lightning risk in Germany</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Calculation aids for estimating the risk of damage for buildings</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Additional information on use of EN 62305-2</td>
</tr>
<tr>
<td>VDE 0185-305-3 (IEC 62305-3)</td>
<td></td>
<td>Protection against lightning – Part 3: Protection of structures and people</td>
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<tr>
<td>1</td>
<td></td>
<td>Additional information on use of EN 62305-3</td>
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<tr>
<td>2</td>
<td></td>
<td>Additional information for building structures</td>
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<tr>
<td>3</td>
<td></td>
<td>Additional information for the testing and servicing of lightning protection systems</td>
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<td>Use of metal roofs in lightning protection systems</td>
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<td>Lightning and surge protection in PV power supply systems</td>
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<td>VDE 0185-305-4 (IEC 62305-4)</td>
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<td>Protection against lightning – Part 4: Electrical and electronic systems within structures</td>
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<tr>
<td>1</td>
<td></td>
<td>Distribution of the lightning current</td>
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<tr>
<td>VDE 0675-6-11 (IEC 61643-11)</td>
<td></td>
<td>Low-voltage surge protection devices – Part 11: Surge protection devices connected to low-voltage power systems</td>
</tr>
<tr>
<td>VDE 0100-534 (IEC 60364-5-53)</td>
<td></td>
<td>Low-voltage electrical installations - Part 5-53: Selection and erection of electrical equipment – Isolation, switching and control – Clause 534: Devices for protection against surge voltages</td>
</tr>
<tr>
<td>VDE 0100-443 (IEC 60364-4-44)</td>
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<td>Low-voltage electrical installations – Part 4-44: Protection for safety – Protection against voltage disturbances and electromagnetic disturbances – Clause 443: Protection against surge voltages of atmospheric origin or due to switching</td>
</tr>
<tr>
<td>VDE 0100-712 (IEC 60364-7-712)</td>
<td></td>
<td>Requirements for operational premises, special rooms and systems – Solar photovoltaic (PV) power supply systems</td>
</tr>
</tbody>
</table>

**Key lightning protection standards and specifications**

<table>
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<tr>
<th>Product standards</th>
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<td>VDE 0185-561-1 (IEC 62561-1)</td>
<td>Lightning protection system components – Requirements for connection components</td>
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<tr>
<td>VDE 0185-561-2 (IEC 62561-2)</td>
<td>Lightning protection system components – Requirements for conductors and earthers</td>
</tr>
<tr>
<td>VDE 0185-561-3 (IEC 62561-3)</td>
<td>Lightning protection system components – Requirements for spark gaps</td>
</tr>
<tr>
<td>VDE 0185-561-4 (IEC 62561-4)</td>
<td>Lightning protection system components – Requirements for holders</td>
</tr>
<tr>
<td>VDE 0185-561-5 (IEC 62561-5)</td>
<td>Lightning protection system components – Requirements for inspection boxes and earthing penetrations</td>
</tr>
<tr>
<td>VDE 0185-561-6 (IEC 62561-6)</td>
<td>Lightning protection system components – Requirements for lightning strike counters</td>
</tr>
<tr>
<td>VDE 0185-561-7 (IEC 62561-7)</td>
<td>Lightning protection system components – Requirements for earthing enhancing compounds</td>
</tr>
<tr>
<td>IEC TS 62561-8</td>
<td>Lightning protection system components – Requirements for components for insulated lightning protection systems</td>
</tr>
<tr>
<td>VDE 0675-6-11 (IEC 61643-11)</td>
<td>Surge protection devices for use in low-voltage power systems – Requirements and test methods</td>
</tr>
<tr>
<td>VDE 0845-3-1 (IEC 61643-21)</td>
<td>Surge protection for use in telecommunications and signalling networks</td>
</tr>
</tbody>
</table>

**Lightning protection and surge protection components**
Gradual surge reduction with lightning protection zones

**Lightning protection zone concept**

The lightning protection zone concept described in international standard IEC 62305-4 (DIN VDE 0185 Part 4) has proved to be practical and efficient. This concept is based on the principle of gradually reducing surges to a safe level before they reach the terminal device and cause damage. In order to achieve this situation, a building's entire energy network is split into lightning protection zones (LPZ = Lightning Protection Zone). Installed at each transition from one zone to another is a surge arrester for equipotential bonding. These arrestors correspond to the requirement class in question.

<table>
<thead>
<tr>
<th>Lightning protection zone</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPZ 0 A</td>
<td>Unprotected zone outside the building. Direct lightning strike, no shielding against electromagnetic interference pulses LEMP (Lightning Electromagnetic Pulse).</td>
</tr>
<tr>
<td>LPZ 0 B</td>
<td>Through the area protected by the external lightning protection system. No shielding against LEMP.</td>
</tr>
<tr>
<td>LPZ 1</td>
<td>Zone inside the building. Low partial lightning energies possible.</td>
</tr>
<tr>
<td>LPZ 2</td>
<td>Zone inside the building. Low surges possible.</td>
</tr>
<tr>
<td>LPZ 3</td>
<td>Zone inside the building (can also be the metal housing of a consumer). No interference pulses through LEMP or surges present.</td>
</tr>
</tbody>
</table>
Choosing the right surge protection devices

The classification of surge protection devices into types means they can be matched to different requirements with regard to location, protection level and current-carrying capacity. The table provides an overview of the zone transitions. It also shows which OBO surge protection devices can be installed in the energy supply network and their respective function.

<table>
<thead>
<tr>
<th>Zone transition</th>
<th>Protection device and device type</th>
<th>Product example</th>
<th>Product figure</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPZ 0 B to LPZ 1</td>
<td>Protection device for lightning protection equipotential bonding in accordance with VDE 0185-305 (IEC 62305) for direct or close lightning strikes. Devices: Type 1+2 (Class I+II), e.g. CCF Compact. Max. protection level according to standard: 1.5 kV. OBO protection level: &lt; 1.5 kV. Installation e.g. in the main distributor/at building entry.</td>
<td>MCF Compact Item no.: 5096987</td>
<td><img src="image1" alt="MCF Compact" /></td>
</tr>
<tr>
<td>LPZ 1 to LPZ 2</td>
<td>Protection device for lightning protection equipotential bonding in accordance with VDE 0185-305 (IEC 62305) for direct or close lightning strikes. Devices: Type 2 (Class II), e.g. V20. Max. protection level according to standard: 1.5 kV. OBO protection level: &lt; 1.3 kV. Installation e.g. in the main distributor/at building entry.</td>
<td>V20 Item no.: 5095253</td>
<td><img src="image2" alt="V20" /></td>
</tr>
<tr>
<td>LPZ 2 to LPZ 3</td>
<td>Protection device, designed for surge protection of portable consumers at sockets and power supplies. Devices: Type 3 (Class III), e.g. ÜSM-A. Max. protection level according to standard: 1.5 kV. OBO protection level: &lt; 1.3 kV. Installation e.g. on the end consumer.</td>
<td>ÜSM-A Item no.: 5092451</td>
<td><img src="image3" alt="ÜSM-A" /></td>
</tr>
</tbody>
</table>
BET – testing centre for lightning protection, electrical engineering and support systems

**BET with countless tasks**
Whereas previously only lightning current, environmental and electrical testing had been possible at BET, the BET Test Centre is now also a competent partner for the testing of cable support systems. This combination has made it necessary to revise the meaning of the name. If BET previously stood for “Blitzschutz- und EMV-Technologiezentrum” (Lightning protection and EMC technology centre), since 2009 these letters have meant BET Test Centre for lightning protection, electrical engineering and support systems.

**Test generator for lightning current tests**
The test generator planned in 1994 and completed in 1996 makes it possible to carry out lightning current tests at up to 200 kA. The generator was planned and constructed in cooperation with Soest Technical College. Due to the intensive planning and scientific support in the construction of the test system, it has worked for 20 years without errors and meets current standardised test requirements.

**Testing tasks**
The main load of the testing generator is generated through the testing of products from the TBS product division. For this, developmental tests of new developments, modifications to existing OBO products and also comparison tests with competitive products are carried out. These include lightning protection components, surge protection devices and lightning arrestors. Tests for lightning protection components are carried out according to DIN EN 62561-1, for spark gaps according to DIN EN 62561-3 and for lightning and surge protection devices according to DIN EN 61643-11. This is only a small amount of the testing standards used for tests in the BET Test Centre.
Certification

In development, manufacture and marketing, the products of OBO Bettermann are subject to high, standardised quality standards and international standards. For decades now, OBO Bettermann has operated ISO 9001-certified quality management, which also fulfils the high requirements of the ATEX 2014/34/EU directive for EX products. In addition, OBO has run certified energy management according to ISO 50001 and is a long-standing member of Industrieverband Feuerverzinken e.V.

The BET Test Centre is a testing laboratory, recognised and certified by VDE, for the execution of countless international standards for lighting protection systems.
Types of pulse and their characteristics

Testing types for lightning and surge protection

Both lightning current tests and surge voltage tests can be carried out at up to 20 kV. A hybrid generator is used for these tests, which was also developed as part of a cooperation with the Soest Technical College. EMC testing of cable support systems can also be carried out using this test generator. All kinds of cable routing and cable support systems of up to 8 m length can be tested without any difficulties. Tests for electrical conductivity according to IEC 61537 are also carried out.

Simulation of real environmental conditions

To carry out standardised tests on components intended for external use, they must be pretreated under real environmental conditions. This takes place in a salt spray trough and a sulphur dioxide testing chamber. Depending on the test, the test length and the concentration of the salt spray or sulphur dioxide in the testing chambers may vary. This means that it is possible to conduct tests according to IEC 60068-2-52, ISO 7253, ISO 9227 and EN ISO 6988.

Testing cable support systems

The well-known KTS testing system, newly installed in the BET Test Centre, allows the investigation of the load capacities of any cable support system manufactured by OBO. The basis for this is IEC 61537 and VDE 0639. In the BET Test Centre, OBO Bettermann has a testing department in which products can be tested according to standards, even during the development phase.
Diese Anlage ist mit Überspannungsschutzgeräten ausgerüstet.

Bei Isolationsmessungen bitte die OBO Schutzmodule herausziehen bzw. abklemmen.

System contains overvoltage protection devices. Please remove or disconnect the OBO protectors during isolation tests.
## Surge protection energy technology, arrester type 1+2

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combination arrester MCF Compact</td>
<td>21</td>
</tr>
<tr>
<td>MCD combination arrester</td>
<td>24</td>
</tr>
<tr>
<td>Combination arrester in VG housing</td>
<td>31</td>
</tr>
<tr>
<td>V50 combination arrester</td>
<td>42</td>
</tr>
<tr>
<td>Accessories, upper parts and bases</td>
<td>72</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge protection energy technology, arrester, type 1+2

- Type 1+2 SPD: \( I_{\text{imp}} = 25 \text{ kA per pole and up to 100 kA in total} \)
- Protection level: \(< 1.5 \text{ kV}, \text{ usable in coordination with type 3 SPD} \)
- Usable in buildings with lightning protection class 1–4
- Quality according to EN 61643-11 certified by an external testing institute
- Universally usable for industry, offices, commercial and residential buildings
- System protection up to 315 A usable without separate fusing
- Remote signalling, potential-free changeover (RS)
- Variants in three to three-pole+NPE versions
- Operating instructions always available online via QR code
- Space savings of up to 25% (compared to MCD variant)
LightningController Compact - MCF100

<table>
<thead>
<tr>
<th>Type</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCF100-3+NPE+FS</td>
<td>3+N/PE</td>
<td>IP20</td>
<td>1</td>
<td>99.500</td>
<td>5096987</td>
</tr>
</tbody>
</table>

Combination arrestor, lightning current and surge arrestor, type 1+2

- Protection level < 1.5 kV
- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 100 kA (10/350), 3+NPE
- Line following current quenching 50 kA Ipeak, arrestor backup fuse to 315 A gL/gG
- Fulfils the requirements of the VDEW directive and E VDE-AR-N 4100 for use in pre-meter area
- Encapsulated, non-extinguishing spark gap arrestor for use in distributor housings

Application: Industrial systems and buildings with external lightning protection of the highest class I to IV.

---

MCF100-3+NPE+FS

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449

<table>
<thead>
<tr>
<th>Nominal voltage AC (50 / 60 Hz) Ue</th>
<th>Maximum continuous voltage AC</th>
<th>Nominal discharge current (8/20 µs) Imax</th>
<th>Maximum discharge current (8/20 µs) Iimp</th>
<th>Lightning surge current (10/350 µs)</th>
<th>Total discharge current (10/350)</th>
<th>Protection level [L-N] U0</th>
<th>Max. mains-side overcurrent protection</th>
<th>Short-circuit withstand for max. mains-side overcurrent protection Tc</th>
<th>Operating temperature range</th>
<th>Protection rating</th>
<th>Approvals</th>
</tr>
</thead>
<tbody>
<tr>
<td>230 V</td>
<td>255 V</td>
<td>35 kA</td>
<td>50 kA</td>
<td>25 kA</td>
<td>100 kA</td>
<td>1.5 kV</td>
<td>315</td>
<td>50 kA eff</td>
<td>-40 °C to +80 °C</td>
<td>IP20</td>
<td>VDE</td>
</tr>
</tbody>
</table>

Cable cross-section, flexible (fine-wire): 1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire): 1.5 - 35 mm²
Cable cross-section, flexible (fine-wire): 1.5 - 35 AWG
Rigid cable cross-section (single wire/multiwire): 1.5 - 35 AWG
LightningController Compact for TN-C networks

LightningController Compact - MCF75

Combination arrestor, lightning current and surge arrestor, type 1+2

- Protection level < 1.5 kV
- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 75 kA (10/350), 3-pole
- Line following current quenching 50 kA Ipeak, arrester backup fuse to 315 A gL/gG
- Fulfils the requirements of the VDEW directive and EVDE-AR-N 4100 for use in pre-meter area
- Encapsulated, non-extinguishing spark gap arrester for use in distributor housings

Application: Industrial systems and buildings with external lightning protection of the highest class I to IV.

Dimensions

Connection options

MCF75-3+FS

SPD to EN 61643-11
SPD to IEC 61643-11
SPD to UL 1449
Nominal voltage AC (50 / 60 Hz) $U_n$
Maximum continuous voltage AC $U_C$
Nominal discharge current (8/20 µs) $I_{8/20}$
Maximum discharge current (8/20 µs) $I_{max}$
Lightning surge current (10/350 µs) $I_{10/350}$
Total discharge current (10/350) $I_{total}$
Max. mains-side overcurrent protection 315
Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
Operating temperature range $T_a$
Protection rating IP20
Approvals VDE
Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²
Cable cross-section, flexible (fine-wire) 1.5 - 35 AWG
Rigid cable cross-section (single wire/multiwire) 1.5 - 35 AWG

Always indicate the item number when ordering.
Surge protection device for energy technology, arrester, type 1 (industry)

- Type 1+2 SPD – VDE-tested
- Connectable lightning current and surge arrestors
- High arresting capacity up to 50 kA (10/350) per pin
- Combination arrestors for buildings with lightning protection system
- Simple standard DIN rail mounting
- Labelled connections
- Usable in systems with lightning protection class 1–4

The combination lightning current arrestors MCD 50 meet the type 1 requirement class according to IEC 61643-11. These devices protect low-voltage consumer systems from overvoltages of all types and are available in single-pole to four-pole versions. The voltage-limiting, high-performance spark gaps provide several benefits. A short response time, a low protection level and high current leakage capability with long service life.
Combination arrestor, 3-pole + NPE

Completely pre-terminated and ready for connection, consisting of:
3 x MCD 50-B: Coordinated lightning current arrestor, type 1+2 to EN 61643-11 and
1 x MCD 125-B/NPE: Coordinated N-PE spark gap, type 1+2 to EN 61643-11. For interface 0 to 2 (LPZ) in accordance with lightning protection zone concept to IEC 61312-1 and/or VDE 0185-305.

- Lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 50 kA (10/350) per pole and up to 125 kA (10/350) in total
- Protection level < 1.7 kV allows device protection
- Short-circuit resistance 10 kA, arrester backup fuse to 500 A gL/gG
- Suitable for use in pre-meter area according to the VDEW directive
- Encapsulated, non-extinguishing spark gap

Application: Industrial systems and buildings with external lightning protection of the highest class I to IV.

### Specifications

<table>
<thead>
<tr>
<th>MCD 50-B 3+1</th>
<th>255</th>
<th>3 + NPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>V</td>
<td>Version</td>
</tr>
<tr>
<td>MCD 50-B</td>
<td>255</td>
<td>3 + NPE</td>
</tr>
</tbody>
</table>

Combination arrestor, lightning current arrestor, type 1+2, 4-pole, for use in TT and TN-S networks.
Combination arrestor MCD, type 1+2, 255 V, for TN-S and TT networks

Combination arrestor, 3-pole + NPE with function display

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage</th>
<th>Version</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCD 50-B 3+1-OS</td>
<td>255</td>
<td>3 + NPE</td>
<td>122.000</td>
</tr>
</tbody>
</table>

Combination arrestor, type 1+2, 4-pole, with visual function display, for use in TN-S and TT networks.

Completely pre-terminated and ready for connection, consisting of:
- 3 x MCD 50-B_OS: Type 1+2 (Class B) coordinated lightning current arrestor EN 61643-11.
- 1 x MCD 125-B/NPE: Coordinated N-PE spark gap, type 1+2 EN 61643-11 for use in TN-S and TT systems.

Interface 0 to 1 according to lightning protection zone concept according to IEC 61312-1 and VDE 0185-305.

- Lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 50 kA (10/350) per pole and up to 125 kA (10/350) in total
- Protection level < 1.7 kV allows device protection
- Short-circuit resistance 10 kA, arrestor backup fuse to 500 A gl/gG
- Power consumption < 26 mW/pole
- Suitable for use in pre-meter area according to the VDEW directive
- Encapsulated, non-extinguishing spark gap

Application: Industrial systems and buildings with external lightning protection of Classes I to IV.

MCD 50-B 3+1-OS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage</td>
<td>230 V</td>
</tr>
<tr>
<td>Max. continuous operating voltage</td>
<td>255 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 1+2</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class I+II</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>0±2</td>
</tr>
<tr>
<td>Impulse discharge current (10/350)</td>
<td>50 kA</td>
</tr>
<tr>
<td>Total discharge current (10/350)</td>
<td>125 kA</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>50 kA</td>
</tr>
<tr>
<td>Arrester surge current (8/20) [total]</td>
<td>125 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>&lt; 1.7 kV</td>
</tr>
<tr>
<td>Protection level (N-PE)</td>
<td>&lt; 1.5 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>&lt;100 ns</td>
</tr>
<tr>
<td>Follow current quenching capacity left</td>
<td>10 kA</td>
</tr>
<tr>
<td>Follow current quenching capacity (eff) [N-PE]</td>
<td>0.1 kA</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>500 A</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40 to +85 °C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>8</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Approvals</td>
<td>VDE</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>10 - 50 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>10 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>10 - 25 mm²</td>
</tr>
</tbody>
</table>
Combination arrestor, 3-pole

Combination arrestor, 3-pole, for use in TN-C networks.

Completely pre-terminated and ready for connection, consisting of:

- 3 x MCD 50-B: Type 1+2 (Class B) coordinated lightning current arrestor EN 61643-11. For interface 0 to 2 (LPZ) in accordance with lightning protection zone concept to IEC 61312-1 and/or VDE 0185-305.
- Lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 50 kA (10/350) per pole and up to 150 kA (10/350) in total
- Protection level < 1.7 kV allows device protection
- Short-circuit resistance 10 kA, arrester backup fuse to 500 A gl/gG
- Suitable for use in pre-meter area according to the VDEW directive
- Encapsulated, non-extinguishing spark gaps

Application: Industrial systems and buildings with external lightning protection of the highest class I to IV.

**Dimensions**

**Connection options**

<table>
<thead>
<tr>
<th>MCD 50-B 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nominal voltage</strong></td>
</tr>
<tr>
<td><strong>U_n</strong></td>
</tr>
<tr>
<td>230 V</td>
</tr>
<tr>
<td><strong>SPD to EN 61643-11</strong></td>
</tr>
<tr>
<td><strong>Type</strong></td>
</tr>
<tr>
<td>1+2</td>
</tr>
<tr>
<td><strong>SPD to IEC 61643-11</strong></td>
</tr>
<tr>
<td><strong>Version</strong></td>
</tr>
<tr>
<td>Class I+II</td>
</tr>
<tr>
<td><strong>Lightning protection zone LPZ</strong></td>
</tr>
<tr>
<td><strong>0-2</strong></td>
</tr>
<tr>
<td><strong>Impulse discharge current (10/350)</strong></td>
</tr>
<tr>
<td><strong>I_imp</strong></td>
</tr>
<tr>
<td>50 kA</td>
</tr>
<tr>
<td><strong>Total discharge current (10/350)</strong></td>
</tr>
<tr>
<td><strong>I_total</strong></td>
</tr>
<tr>
<td>150 kA</td>
</tr>
<tr>
<td><strong>Nominal discharge current (8/20)</strong></td>
</tr>
<tr>
<td><strong>I_n</strong></td>
</tr>
<tr>
<td>50 kA</td>
</tr>
<tr>
<td><strong>Arrester surge current (8/20) (total)</strong></td>
</tr>
<tr>
<td><strong>I_total 8/20</strong></td>
</tr>
<tr>
<td>150 kA</td>
</tr>
<tr>
<td><strong>Voltage protection level</strong></td>
</tr>
<tr>
<td><strong>U_p</strong></td>
</tr>
<tr>
<td>&lt; 1.7 kV</td>
</tr>
<tr>
<td><strong>Response time</strong></td>
</tr>
<tr>
<td><strong>I_t</strong></td>
</tr>
<tr>
<td>&lt; 100 ns</td>
</tr>
<tr>
<td><strong>Follow current quenching capacity leff</strong></td>
</tr>
<tr>
<td><strong>I_eff</strong></td>
</tr>
<tr>
<td>10 kA</td>
</tr>
<tr>
<td><strong>Maximum back-up fuse</strong></td>
</tr>
<tr>
<td><strong>I_max</strong></td>
</tr>
<tr>
<td>500 A</td>
</tr>
<tr>
<td><strong>Temperature range</strong></td>
</tr>
<tr>
<td><strong>C</strong></td>
</tr>
<tr>
<td>-40 °C to +85 °C</td>
</tr>
<tr>
<td><strong>Division unit TE (17.5 mm)</strong></td>
</tr>
<tr>
<td><strong>D</strong></td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td><strong>Protection rating</strong></td>
</tr>
<tr>
<td><strong>IP20</strong></td>
</tr>
<tr>
<td><strong>Approvals</strong></td>
</tr>
<tr>
<td><strong>VDE</strong></td>
</tr>
<tr>
<td><strong>Connection cross-section rigid</strong></td>
</tr>
<tr>
<td><strong>10 - 50 mm²</strong></td>
</tr>
<tr>
<td><strong>Connection cross-section, multi-wire</strong></td>
</tr>
<tr>
<td><strong>10 - 35 mm²</strong></td>
</tr>
<tr>
<td><strong>Connection cross-section, flexible</strong></td>
</tr>
<tr>
<td><strong>10 - 25 mm²</strong></td>
</tr>
</tbody>
</table>
Combination arrestor MCD, type 1+2, 255 V, for TN-C networks

Combination arrestor, 3-pole with function display

Highest continuous voltage

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCD 50-B 3-OS</td>
<td>255</td>
<td>3-pole</td>
<td>1</td>
<td>118.000</td>
<td>5096835</td>
</tr>
</tbody>
</table>

Combination arrestor set, type 1+2, 3-pole, with visual function display, for use in TN-C networks:

- Lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 50 kA (10/350) per pole and up to 150 kA (10/350) in total
- Protection level < 1.7 kV allows device protection
- Short-circuit resistance 10 kA, arrester backup fuse to 500 A gL/gG
- Power consumption < 26 mW/pole
- Suitable for use in pre-meter area according to the VDEW directive
- Encapsulated, non-extinguishing spark gaps

Application: Industrial systems and buildings with external lightning protection of Classes I to IV.

MCD 50-B 3-OS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 1+2</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class I+II</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>0-2</td>
</tr>
<tr>
<td>Impulse discharge current (10/350)</td>
<td>50 kA</td>
</tr>
<tr>
<td>Total discharge current (10/350)</td>
<td>150 kA</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>50 kA</td>
</tr>
<tr>
<td>Arrester surge current (8/20) [total]</td>
<td>150 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>&lt; 1.7 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>&lt;100 ns</td>
</tr>
<tr>
<td>Follow current quenching capacity left</td>
<td>10 kA</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>500 A</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40 – +85 °C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>6</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Approvals</td>
<td>VDE</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>10 – 50 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>10 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>10 - 25 mm²</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Combination arrestor MCD, type 1+2, 255 V

Combination arrestor, 1-pole

- Lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 50 kA (10/350) per pole and up to 150 kA (10/350) in total
- Protection level < 1.7 kV allows device protection
- Short-circuit resistance 10 kA, arrester backup fuse to 500 A gL/gG
- Suitable for use in pre-meter area according to the VDEW directive
- Encapsulated, non-extinguishing spark gaps

Application: Industrial systems and buildings with external lightning protection of Classes I to IV.

Dimensions

Connection options

Combination arrestor, lightning current arrestor, type 1+2, for use in TN and TT networks

- Lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 50 kA (10/350) per pole and up to 150 kA (10/350) in total
- Protection level < 1.7 kV allows device protection
- Short-circuit resistance 10 kA, arrester backup fuse to 500 A gL/gG
- Suitable for use in pre-meter area according to the VDEW directive
- Encapsulated, non-extinguishing spark gaps

Application: Industrial systems and buildings with external lightning protection of Classes I to IV.

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Nominal voltage (V)</th>
<th>Protection rating</th>
<th>Weight (kg per 100 pieces)</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCD 50-B</td>
<td>255</td>
<td>230</td>
<td>SPD to EN 61643-11 Type 1+2</td>
<td>34.4</td>
<td>5096849</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dimensions</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Connection options</th>
</tr>
</thead>
</table>

Always indicate the item number when ordering.
Combination arrestor, 1-pole with function display

Combination arrestor, type 1+2, 1-pole, for use in TN and TT networks:

MCD 50-B-OS: Coordinated lightning current arrestor, Type 1 (Class B) to EN 61643-11 with visual function display. For interface 0 to 2 (LPZ) in accordance with lightning protection zone concept to IEC 61312-1 and/or DIN VDE 0185-305.

- Arresting capacity 50 kA (10/350 µs) per pole
- Power consumption < 26 mW/pole
- Protection level < 1.3 kV
- Line follow current quenching 25 kA Ipeak
- Incl. plug caps for identifying the connections
- Encapsulated, non-extinguishing spark gap
- Can be used in standard distributor housings.

Application: Compact surge protection concepts and installations in a distributor.

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCD 50-B-OS</td>
<td>255</td>
<td>1-pole</td>
<td>1 pcs</td>
<td>34.800</td>
<td>5096852</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MCD 50-B-OS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage $U_{N}$</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
</tr>
<tr>
<td>Impulse discharge current (10/350) $I_{imp}$</td>
</tr>
<tr>
<td>Total discharge current (10/350) $I_{total}$</td>
</tr>
<tr>
<td>Nominal discharge current (8/20) $I_{N8/20}$</td>
</tr>
<tr>
<td>Arrestor surge current (8/20) [total]</td>
</tr>
<tr>
<td>Voltage protection level $U_{P}$</td>
</tr>
<tr>
<td>Response time $t_{R}$</td>
</tr>
<tr>
<td>Follow current quenching capacity left $I_{Q}$</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
</tr>
<tr>
<td>Temperature range $\theta$</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
</tr>
<tr>
<td>Protection rating</td>
</tr>
<tr>
<td>Approvals</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Combination arrestor, 1-pole NPE

Combination arrestor, lightning current arrestor, type 1+2, N-PE, for use in TN-S and TT networks.

- MCD 125-B/NPE: Coordinated N-PE spark gap, type 1+2 to EN 61643-11. For interface 0 to 2 (LPZ) in accordance with lightning protection zone concept to IEC 61312-1 and/or VDE 0185-305.
  - Arresting capacity 125 kA (10/350 µs)
  - Conforms to VDN Directive 2nd Edition 2004
  - Incl. plug caps for identifying the connections
  - Protection level < 1.5 kV, allows device protection
  - Encapsulated, non-extinguishing spark gap

Application: Industrial systems and buildings with external lightning protection of Classes I to IV.

Dimensions

Connection options

MCD 125-B NPE

<table>
<thead>
<tr>
<th>Nominal voltage</th>
<th>U_N</th>
<th>230 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 1+2</td>
<td></td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class I+II</td>
<td></td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>0–2</td>
<td></td>
</tr>
<tr>
<td>Impulse discharge current (10/350)</td>
<td>(I_{\text{imp}})</td>
<td>125 kA</td>
</tr>
<tr>
<td>Total discharge current (10/350)</td>
<td>(I_{\text{total}})</td>
<td>125 kA</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>(I_{\text{nom}})</td>
<td>125 kA</td>
</tr>
<tr>
<td>Arrestor surge current (8/20) [total]</td>
<td>(I_{\text{Total 8/20}})</td>
<td>125 kA</td>
</tr>
<tr>
<td>Protection level (N-PE)</td>
<td>&lt; 1,5 kV</td>
<td></td>
</tr>
<tr>
<td>Response time</td>
<td>(t_A)</td>
<td>&lt;100 ns</td>
</tr>
<tr>
<td>Follow current quenching capacity (eff) [N-PE]</td>
<td>(I_{\text{eff}})</td>
<td>0.1 kA</td>
</tr>
<tr>
<td>Temperature range</td>
<td>(\theta)</td>
<td>-40 to +65 °C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Protection rating</td>
<td>VDE</td>
<td></td>
</tr>
<tr>
<td>Approvals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>10 - 50 mm²</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>10 - 25 mm²</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>10 - 25 mm²</td>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Combination arrester in VG housing, for TN-S and TT networks

**VG housing with MCD 50-B/3+1**

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCD 50-B 3+1-VG</td>
<td>255 V</td>
<td>3 + NPE</td>
<td>1 pcs.</td>
<td>290.000</td>
<td>5096875</td>
</tr>
</tbody>
</table>

Combination arrester, pre-installed in IP65 housing for use in TN-S and TT networks.

VG...: Lightning arrester system solution type 1+2 according to DIN EN 61643-11.

- LightningController MCD 50-B and MCD 125-B/NPE mounted in insulating housing IP 65, sealable housing
- Pulsed current 125 kA (10/350 µs), BET-tested
- Conforms to requirements of VDN Directive
- Protection level < 1.7 kV (L-N) and < 1.5 kV (N-PE)
- Enclosed, non-extinguishing discharge gap
- Suitable for TN-S and TT network systems

Application example: The system solution is used in the pre-meter area according to VDN Directive.

**MCD 50-B 3+1-VG**

<table>
<thead>
<tr>
<th>Nominal voltage</th>
<th>$U_h$</th>
<th>230 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 1+2</td>
<td></td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class I+II</td>
<td></td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>0+2</td>
<td></td>
</tr>
<tr>
<td>Impulse discharge current (10/350)</td>
<td>$I_{lim}$</td>
<td>50 kA</td>
</tr>
<tr>
<td>Total discharge current (10/350)</td>
<td>$I_{tot}$</td>
<td>125 kA</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>$I_n$</td>
<td>50 kA</td>
</tr>
<tr>
<td>Arrestor surge current (8/20) [total]</td>
<td>$I_{lim, eff}$</td>
<td>125 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>$U_h$</td>
<td>&lt; 1.7 kV</td>
</tr>
<tr>
<td>Protection level (N-PE)</td>
<td>&lt; 1.5 kV</td>
<td></td>
</tr>
<tr>
<td>Response time</td>
<td>$t_{res}$</td>
<td>&lt;100 ns</td>
</tr>
<tr>
<td>Follow current quenching capacity left</td>
<td>$I_{f}$</td>
<td>10 kA</td>
</tr>
<tr>
<td>Follow current quenching capacity (eff) [N-PE]</td>
<td>$I_{f, eff}$</td>
<td>25 kA</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>$I_{f}$</td>
<td>500 A</td>
</tr>
<tr>
<td>Temperature range</td>
<td>$\theta$</td>
<td>-40 - +85 °C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP54</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>10 - 50 mm²</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>10 - 35 mm²</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>10 - 25 mm²</td>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Combination arrestor in VG housing, for TN-C networks

**VG housing with MCD 50-B/3**

- Lightning arrestor system solution type 1 according to EN 61643-11.
- LightningController MCD 50-B mounted in insulating housing IP 65, sealable housing
- Pulsed current 150 kA 10/350 μs / 50 kA (10/350) per pole, BET-tested
- Protection level < 1.7 kV
- Enclosed, non-extinguishing spark gaps
- Suitable for TN-C network systems

Application example: The system solution is used in the pre-meter area according to VDN Directive 2nd Edition 2004.

### Dimensions

- 300 mm x 170 mm x 300 mm

### Connection options

- Connection cross-section rigid: 10 - 50 mm²
- Connection cross-section, multi-wire: 10 - 35 mm²
- Connection cross-section, flexible: 10 - 25 mm²

### MCD 50-B 3-VG

<table>
<thead>
<tr>
<th>Nominal voltage</th>
<th>Uₙ</th>
<th>230 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 1+2</td>
<td></td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class I+II</td>
<td></td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>0-2</td>
<td></td>
</tr>
<tr>
<td>Impulse discharge current (10/350)</td>
<td>Iᵯₚ</td>
<td>50 kA</td>
</tr>
<tr>
<td>Total discharge current (10/350)</td>
<td>Iᵯₜₜ</td>
<td>150 kA</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>Iᵯₛₚₜ</td>
<td>50 kA</td>
</tr>
<tr>
<td>Arrestor surge current (8/20) [total]</td>
<td>Iᵯₜₜₜ</td>
<td>150 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>Uₘ</td>
<td>&lt; 1.7 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>tᵯ</td>
<td>&lt;100 ns</td>
</tr>
<tr>
<td>Follow current quenching capacity left</td>
<td>Iᵯᵣ</td>
<td>10 kA</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td></td>
<td>500 A</td>
</tr>
<tr>
<td>Temperature range</td>
<td>ø</td>
<td>-40°C to +85°C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Protection rating</td>
<td></td>
<td>IP54</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge protection energy technology, arrester, type 1+2: The plus of the V50 family

- Connectable lightning current and surge arrestors
- High arresting capacity up to 50 kA (10/350)
- Visual status display
- Available with optional remote signalling
- Vibration-proof
- For buildings with lightning protection
- Simple standard DIN rail mounting
- Labelled connections
- Usable in systems with lightning protection class III + IV
- Connectable NPE module
- Voltage encoding

Function and areas of use
The combination lightning current and surge arrestors V50 meet the type 1+2 requirement class according to IEC 61643-11. These devices protect low-voltage consumer systems from overvoltages of all types and are available in single-pole to four-pole versions. The use of high-performance varistors permits a rapid response time and a low protection level, without any line follow current. If circumstances are uncertain and there is a risk of fire from an overload, the internal cut-off unit disconnects the arrester from the mains if necessary. In addition, the QR code printed on the arrester allows direct access to the online installation instructions.

Always indicate the item number when ordering.
Combination arrestor V50, 1-pole 150 V

Lightning current combination arrestor, type 1+2

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

V50-1-150

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_{\text{n}}$ 120 V
- Maximum continuous voltage AC $U_{\text{c}}$ 150 V
- Nominal discharge current (8/20 $\mu$s) $I_{\text{L/N}}$ 30 kA
- Maximum discharge current (8/20 $\mu$s) $I_{\text{lim}}$ 50 kA
- Lightning surge current (10/350 $\mu$s) $I_{\text{lim}}$ 12.5 kA
- Total discharge current (10/350) $I_{\text{total}}$ — kA
- Arrestor surge current (8/20 $\mu$s) [total] $I_{\text{total}}$ — kA
- Protection level [L-N] $U_{\text{ep}}$ 0.8 kV
- Residual voltage [L-N] @ 1 kA $U_{\text{res}}$ 0.4 kV
- Residual voltage [L-N] @ 5 kA $U_{\text{res}}$ 0.5 kV
- Max. mains-side overcurrent protection 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range $T_{\text{a}}$ -40 - +80 °C
- Protection rating IP20
- Approvals UL, KEMA, ÖVE, VDE
- Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire) 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

Always indicate the item number when ordering.
Combination arrestor V50, 1-pole with FS 150 V

Combination arrestor V50, 150 V, type 1+2

Lightning current combination arrestor, type 1+2

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage AC (V)</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-1+FS-150</td>
<td>150</td>
<td>1</td>
<td>IP20</td>
<td>1</td>
<td>15.600</td>
<td>5093446</td>
</tr>
</tbody>
</table>

PA Polyamide

V50-1+FS-150

SPD to EN 61643-11  
SPD to IEC 61643-11  
SPD to UL 1449  
Nominal voltage AC (50 / 60 Hz)  
Maximum continuous voltage AC  
Nominal discharge current (8/20 µs)  
Maximum discharge current (8/20 µs)  
Lightning surge current (10/350 µs)  
Total discharge current (10/350)  
Arrestor surge current (8/20 µs)  
Protection level [L-N]  
Residual voltage [L-N]  
Residual voltage [L-N]  
Max. mains-side overcurrent protection  
Short-circuit withstand for max. mains-side overcurrent protection  
Operating temperature range  
Protection rating  
Approvals  
FM contacts  
Switching power AC  
Switching power DC  
Connection cross-section, FM terminals  
Connection cross-section, FM terminals  
Cable cross-section, flexible (fine-wire)  
Rigid cable cross-section (single wire/multiwire)  
Cable cross-section, flexible (fine-wire)  
Rigid cable cross-section (single wire/multiwire)  

Always indicate the item number when ordering.
Combination arrestor V50, 150 V, type 1+2, for TN-C networks

Lightning current combination arrestor, type 1+2

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lighting current equipotential bonding for buildings of class III and IV.

**Dimensions**

**Connection options**

**Highest continuous voltage (V), Pole version (P), Protection rating (Pr), Weight (kg), Pack. pcs., Item No.**

<table>
<thead>
<tr>
<th>Type</th>
<th>AC Pole version</th>
<th>Protection rating</th>
<th>Weight, kg/100 pcs.</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-3-150</td>
<td>150</td>
<td>IP20</td>
<td>43.500</td>
<td>1</td>
<td>5093442</td>
</tr>
</tbody>
</table>

PA Polyamide

OBO

Always indicate the item number when ordering.
Combination arrestor V50, 150 V, type 1+2, for TN-C networks

Combination arrestor V50, 3-pole with FS 150 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-3+FS-150</td>
<td>150</td>
<td>3</td>
<td>IP20</td>
<td>43.900</td>
<td>5093448</td>
</tr>
</tbody>
</table>

PA Polyamide

Lightning current combination arrestor, type 1+2

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

**V50-3+FS-150**

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_n$: 120 V
- Maximum continuous voltage AC $U_c$: 150 V
- Nominal discharge current (8/20 μs) $I_{\text{n, L-N}}$: 30 kA
- Maximum discharge current (8/20 μs) $I_{\text{max}}$: 50 kA
- Lightning surge current (10/350 μs) $I_{\text{imp}}$: 12.5 kA
- Total discharge current (10/350) $I_{\text{total}}$: 37.5 kA
- Arrestor surge current (8/20 μs) $I_{\text{total}}$: 120 kA
- Protection level [L-N]: $U_{\text{res}}$: 0.8 kV
- Residual voltage [L-N] 1 kA $U_{\text{res}}$: 0.4 kV
- Residual voltage [L-N] 5 kA $U_{\text{res}}$: 0.5 kV
- Max. mains-side overcurrent protection $U_c$: 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range $T_{\text{op}}$: -40 – +80 °C
- Protection rating IP20
- Approvals UL, KEMA, ÖVE, VDE
- Changeover
- FM contacts
- Switching power AC 230 V; 0.5 A
- Switching power DC 230 V; 0.1 A / 75 V; 0.5 A
- Connection cross-section, FM terminals 0.5 – 1.5 mm²
- Connection cross-section, FM terminals 21 – 16 AWG
- Cable cross-section, flexible (fine-wire) 1.5 – 35 mm²
- Rigid cable cross-section (single wire/multiwire) 15.5 – 35 mm²
- Cable cross-section, flexible (fine-wire) 16 – 2 AWG
- Rigid cable cross-section (single wire/multiwire) 16 – 2 AWG

Always indicate the item number when ordering.
Combination arrestor V50, 150 V, with NPE, type 1+2, for TN-S and TT networks

Combination arrestor V50, 1-pole + NPE 150 V

- Polyamide
- Lightning current combination arrestor, type 1+2
- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lighting current equipotential bonding for buildings of class III and IV.

V50-1+NPE-150

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_n$: 120 V
- Maximum continuous voltage AC $U_C$: 150 V
- Nominal discharge current (8/20 µs) $I_{8/20}$: 30 kA
- Maximum discharge current (8/20 µs) $I_{max}$: 50 kA
- Lightning surge current (10/350 µs) $I_{10/350}$: 12.5 kA
- Total discharge current (10/350) $I_{total}$: 25 kA
- Arrestor surge current (8/20 µs) $I_{total}$: - kA
- Protection level [L-N] $U_p$: 0.8 kV
- Combined voltage protection level [L-PE] $U_G / U_p$: 2.1 kV
- Residual voltage [L-N] @ 1 kA $U_{res}$: 0.4 kV
- Residual voltage [L-N] @ 5 kA $U_{res}$: 0.5 kV
- Max. mains-side overcurrent protection 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range $T_u$: -40 to +80 °C
- Protection rating IP20
- Approvals UL, ÖVE, VDE
- Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire) 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

Always indicate the item number when ordering.
Combination arrestor V50, 150 V, with NPE, type 1+2, for TN-S and TT networks

<table>
<thead>
<tr>
<th>Type</th>
<th>Protection rating</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-1+NPE+FS-150</td>
<td>1+N/PE</td>
<td>29.600</td>
<td>5093460</td>
</tr>
</tbody>
</table>

**PA** Polyamide

**Lightning current combination arrestor, type 1+2**

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

### Specifications

**V50-1+NPE+FS-150**

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_{\text{n}}$ = 120 V
- Maximum continuous voltage AC $U_{\text{c}}$ = 150 V
- Nominal discharge current (8/20 μs) $I_{\text{n}}/\text{L-N}$ = 30 kA
- Maximum discharge current (8/20 μs) $I_{\text{max}}$ = 50 kA
- Lightning surge current (10/350 μs) $I_{\text{lim}}$ = 12.5 kA
- Arrester surge current (8/20 μs) $I_{\text{lim}}$ = 12.5 kA
- Protection level [L-N] $U_{\text{p}}$ = 0.8 kV
- Combined voltage protection level [L-PE] $U_{\text{p,L-PE}}$ = 2.1 kV
- Residual voltage [L-N] @ 1 kA $U_{\text{res}}$ = 0.4 kV
- Residual voltage [L-PE] @ 5 kA $U_{\text{res}}$ = 0.5 kV
- Max. mains-side overcurrent protection 160 A gl/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range $T_{\text{op}}$ = -40 to +80 °C
- Protection rating IP20
- Approvals UL, KEMA, ÖVE, VDE
- FM contacts Changeover
- Switching power AC 230 V; 0.5 A
- Switching power DC 230 V; 0.1 A / 75 V; 0.5 A
- Connection cross-section, FM terminals 1.5 - 1.5 mm²
- Connection cross-section, FM terminals 21 - 16 AWG
- Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
- Cable cross-section, single wire/multiwire 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire) 16 - 2 AWG
- Cable cross-section, single wire/multiwire 16 - 2 AWG

Always indicate the item number when ordering.
Combination arrester V50, 150 V, with NPE, type 1+2, for TN-S and TT networks

Combination arrester V50, 3-pole + NPE 150 V

Lightning current combination arrester, type 1+2

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lighting current equipotential bonding for buildings of class III and IV.

V50-3+NPE-150

<table>
<thead>
<tr>
<th>SPD to EN 61643-11</th>
<th>Type 1+2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class III</td>
</tr>
<tr>
<td>SPD to UL 1449</td>
<td>Type 4</td>
</tr>
<tr>
<td>Nominal voltage AC (50 / 60 Hz)</td>
<td>U_n</td>
</tr>
<tr>
<td>Maximum continuous voltage AC</td>
<td>U_C</td>
</tr>
<tr>
<td>Nominal discharge current (8/20 µs)</td>
<td>I_n / L-N</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 µs)</td>
<td>I_imp</td>
</tr>
<tr>
<td>Lightning surge current (10/350 µs)</td>
<td>I_l</td>
</tr>
<tr>
<td>Total discharge current (10/350)</td>
<td>I_total</td>
</tr>
<tr>
<td>Arrestor surge current (8/20 µs) [total]</td>
<td>I_total</td>
</tr>
<tr>
<td>Protection level [L-N]</td>
<td>U_p</td>
</tr>
<tr>
<td>Combined voltage protection level [L-PE]</td>
<td>U_p / LPE</td>
</tr>
<tr>
<td>Residual voltage [L-N] @ 1 kA</td>
<td>U_res</td>
</tr>
<tr>
<td>Residual voltage [L-N] @ 5 kA</td>
<td>U_res</td>
</tr>
<tr>
<td>Max. mains-side overcurrent protection</td>
<td>160 A gL/gG</td>
</tr>
<tr>
<td>Short-circuit withstand for max. mains-side overcurrent protection</td>
<td>50 kA eff</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>T_u</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Approvals</td>
<td>UL, ÖVE, VDE</td>
</tr>
<tr>
<td>Cable cross-section, flexible (fine-wire)</td>
<td>1.5 - 35 mm²</td>
</tr>
<tr>
<td>Rigid cable cross-section (single wire/multiwire)</td>
<td>1.5 - 35 mm²</td>
</tr>
<tr>
<td>Cable cross-section, flexible (fine-wire)</td>
<td>16 - 2 AWG</td>
</tr>
<tr>
<td>Rigid cable cross-section (single wire/multiwire)</td>
<td>16 - 2 AWG</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Combination arrestor V50, 3-pole + NPE with FS 150 V

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lighting current equipotential bonding for buildings of class III and IV.

**Dimensions**

**Connection options**

---

**Combination arrestor V50, 3-pole + NPE with FS 150 V**

- **Type**: V50-3+N/PE+FS-150
- **Highest continuous voltage AC**: 150 V
- **Pole version**: 3+N/PE
- **Protection rating**: IP20
- **Weight kg/100 pcs.**: 56.300
- **Item No.**: 5093462

**Material**: PA Polyamide

---

**Lightning current combination arrester, type 1+2**

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449

**Technical Specifications**

- **Nominal voltage AC (50 / 60 Hz)**: U_n = 120 V
- **Maximum continuous voltage AC**: U_{ic} = 150 V
- **Nominal discharge current (8/20 µs)**: I_{n/L-N} = 30 kA
- **Maximum discharge current (8/20 µs)**: I_{max} = 50 kA
- **Lightning surge current (10/350 µs)**: I_{lmp} = 12.5 kA
- **Total discharge current (10/20 µs) [total]**: I_{total} = 80 kA
- **Protection level [L-N]**: U_{p} = 0.8 kV
- **Combined voltage protection level [L-PE]**: U_{p/L-PE} = 2.1 kV
- **Residual voltage [L-N] @ 1 kA**: U_{res} = 0.4 kV
- **Residual voltage [L-N] @ 5 kA**: U_{res} = 0.5 kV
- **Max. mains-side overcurrent protection**: 160 A gl/gG
- **Short-circuit withstand for max. mains-side overcurrent protection**: 50 kA eff
- **Operating temperature range**: -40°C to +80°C
- **Protection rating**: IP20

**Approvals**
- UL, KEMA, ÖVE, VDE
- Changeover

**Switching power AC**: 230 V; 0.5 A
**Switching power DC**: 230 V; 0.1 A / 75 V; 0.5 A
**Connection cross-section, FM terminals**: 1.5 - 15 mm²
**Connection cross-section, FM terminals**: 21 - 16 AWG
**Cable cross-section, flexible (fine-wire)**: 1.5 - 35 mm²
**Rigid cable cross-section (single wire/multiwire)**: 1.5 - 35 mm²
**Cable cross-section, flexible (fine-wire)**: 16 - 2 AWG
**Rigid cable cross-section (single wire/multiwire)**: 16 - 2 AWG

---

Always indicate the item number when ordering.
Combination arrestor V50, 280 V, type 1+2

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lighting current equipotential bonding for buildings of class III and IV.

<table>
<thead>
<tr>
<th>Type</th>
<th>Protection rating</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-1-280</td>
<td>IP20</td>
<td>1</td>
<td>16.400</td>
</tr>
</tbody>
</table>

**Dimensions**

**Connection options**

```
Connection diagram
```

**Features**

- Surge protection energy technology, ar-
- Restor, type 1+2

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage AC (50 / 60 Hz)</td>
<td>230 V</td>
</tr>
<tr>
<td>Maximum continuous voltage AC</td>
<td>280 V</td>
</tr>
<tr>
<td>Nominal discharge current (8/20 µs)</td>
<td>30 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 µs)</td>
<td>50 kA</td>
</tr>
<tr>
<td>Lightning surge current (10/350 µs)</td>
<td>12.5 kA</td>
</tr>
<tr>
<td>Total discharge current (10/350)</td>
<td>30 kA</td>
</tr>
<tr>
<td>Arrestor surge current (8/20 µs)</td>
<td>30 kA</td>
</tr>
<tr>
<td>Protection level [L-N]</td>
<td>1.3 kV</td>
</tr>
<tr>
<td>Residual voltage [L-N] @ 1 kA</td>
<td>0.7 kV</td>
</tr>
<tr>
<td>Residual voltage [L-N] @ 5 kA</td>
<td>0.8 kV</td>
</tr>
<tr>
<td>Max. mains-side overcurrent protection</td>
<td>160 A gL/gG</td>
</tr>
<tr>
<td>Short-circuit withstand for max. mains-side overcurrent protection</td>
<td>50 kA eff</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>-40°C to +80°C</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Approvals</td>
<td>UL, KEMA, ÖVE, VDE</td>
</tr>
</tbody>
</table>

**Cable cross-section**

- Flexible (fine-wire) 1.5 - 35 mm²
- Single wire/multiwire 1.5 - 35 mm²
- Flexible (fine-wire) 16 - 2 AWG
- Single wire/multiwire 16 - 2 AWG

Always indicate the item number when ordering.
Combination arrestor V50, 1-pole with FS 280 V

Highest continuous voltage AC V Pole version Protection rating Pack. pcs Weight kg/100 pcs. Item No.
V50-1+FS-280 280 1 IP20 1 16.600 5093502

PA Polyamide

Lightning current combination arrestor, type 1+2

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

V50-1+FS-280

SPD to EN 61643-11 Type 1+2
SPD to IEC 61643-11 Class II
SPD to UL 1449 Type 4
Nominal voltage AC (50 / 60 Hz) \( U_n \) 230 V
Maximum continuous voltage AC \( U_{\text{IC}} \) 280 V
Nominal discharge current \( (8/20 \mu s) \) \( I_{\text{IC,IN}} \) 30 kA
Maximum discharge current \( (8/20 \mu s) \) \( I\text{max} \) 50 kA
Lightning surge current \( (10/350 \mu s) \) \( I_{\text{IN}} \) 12.5 kA
Protection level \( [L-N] \) \( U_{\text{IC}} \) 1.3 kV
Residual voltage \( [L-N] \) \( U_{\text{IN}} \) 0.7 kV
Residual voltage \( [L-N] \) \( U_{\text{IC}} \) 0.8 kV
Max. mains-side overcurrent protection 160 A gL/gG
Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
Operating temperature range \( T_{\text{min}} \) -40 °C to +80 °C
Protection rating IP20
Approvals UL, KEMA, OVE, VDE
FM contacts Changeover
Switching power AC 230 V; 0.5 A
Switching power DC 230 V; 0.1 A / 75 V; 0.5 A
Connection cross-section, FM terminals 0.5 - 1.5 mm²
Connection cross-section, FM terminals 21 - 16 AWG
Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
Cable cross-section, flexible (multiwire) 16 - 2 AWG
Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

Dimensions

Connection options

Always indicate the item number when ordering.
Combination arrestor V50, 280 V

Type V50-3-280

Highest continuous voltage AC V

Protection rating

Weight kg/100 pcs.

Item No.

V50-3-280

280

3

IP20

1

46.500

5093511

Lightning current combination arrestor, type 1+2

• For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
• Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
• Modular, plug-in arrestor with cut-off unit and visual status display
• Locking mechanism with vibration protection and voltage keying
• Plastic to UL 94 V-0
• The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

V50-3-280

SPD to EN 61643-11

Type 1+2

SPD to IEC 61643-11

Class I+II

SPD to UL 1449

Type 4

Nominal voltage AC (50 / 60 Hz) U_n 230 V

Maximum continuous voltage AC U_C 280 V

Nominal discharge current (8/20 µs) I_n/80 30 kA

Maximum discharge current (8/20 µs) I_m/80 50 kA

Lightning surge current (10/350 µs) I_l 12.5 kA

Total discharge current (10/350) I_total 37.5 kA

Arrester surge current (8/20 µs) [total] I_{total} 120 kA

Protection level [L-N] U_p 1.3 kV

Residual voltage [L-N] @ 1 kA U_{res} 0.7 kV

Residual voltage [L-N] @ 5 kA U_{res} 0.8 kV

Max. mains-side overcurrent protection 160 A gL/gG

Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff

Operating temperature range T_a -40 - +80 °C

Protection rating IP20

Approvals UL, KEMA, ÖVE, VDE

Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²

Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²

Cable cross-section, flexible (fine-wire) 16 - 2 AWG

Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

Always indicate the item number when ordering.
Combination arrestor V50, 280 V, type 1+2, for TN-C networks

Combination arrestor V50, 3-pole with FS 280 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC (V)</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-3+FS-280</td>
<td>280</td>
<td>3</td>
<td>IP20</td>
<td>1</td>
<td>46.900</td>
<td>5093516</td>
</tr>
</tbody>
</table>

Lightning current combination arrestor, type 1+2

- Lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

V50-3+FS-280

- SPD to EN 61643-11, Type 1+2
- SPD to IEC 61643-11, Class II
- SPD to UL 1449, Type 4
- Nominal voltage AC (50 / 60 Hz) \( U_{\text{nom}} \) = 230 V
- Maximum continuous voltage AC \( U_{\text{max}} \) = 280 V
- Nominal discharge current (8/20 μs) \( I_{\text{L-N}} \) = 30 kA
- Maximum discharge current (8/20 μs) \( I_{\text{max}} \) = 50 kA
- Lightning surge current (10/350 μs) \( I_{\text{L-S}} \) = 12.5 kA
- Total discharge current (10/350) \( I_{\text{total}} \) = 37.5 kA
- Arrestor surge current (8/20 μs) [total] \( I_{\text{imp}} \) = 120 kA
- Protection level [L-N] \( U_{\text{res}} \) = 1.3 kV
- Residual voltage [L-N] \( U_{\text{res}} \) = 0.7 kV
- Residual voltage [L-N] \( U_{\text{res}} \) = 0.8 kV
- Max. mains-side overcurrent protection \( I_{\text{Imax}} \) = 160 A gL / gG
- Short-circuit withstand for max. mains-side overcurrent protection \( I_{\text{Imax}} \) = 50 kA eff
- Operating temperature range \( T_{\text{op}} \) = -40 - +80 °C
- Protection rating IP20
- Approvals UL, KEMA, OVE, VDE
- Changeover
- Switching power AC 230 V; 0.5 A
- Switching power DC 230 V; 0.1 A / 75 V; 0.5 A
- Connection cross-section, FM terminals 0.5 - 1.5 mm²
- Connection cross-section, FM terminals 21 - 16 AWG
- Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multwire) 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire) 16 - 2 AWG
- Rigid cable cross-section (single wire/multwire) 16 - 2 AWG

Always indicate the item number when ordering.
Combination arrestor V50, 280 V, type 1+2, for TN-S networks

**Combination arrestor V50, 4-pole 280 V**

- Lightning current arrestor, type 1+2
- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

**Dimensions**

**Connection options**

<table>
<thead>
<tr>
<th>Type</th>
<th>Protection rating</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-4-280</td>
<td>IP20</td>
<td>5093513</td>
</tr>
</tbody>
</table>

**V50-4-280**

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) \( U_n \): 230 V
- Maximum continuous voltage AC \( U_C \): 280 V
- Nominal discharge current (8/20 µs) \( I_{n/L-N} \): 30 kA
- Maximum discharge current (8/20 µs) \( I_{max} \): 50 kA
- Lightning surge current (10/350 µs) \( I_{imp} \): 12.5 kA
- Total discharge current (10/350) \( I_{total} \): 50 kA
- Arrestor surge current (8/20 µs) [total] \( I_{total} \): 160 kA
- Protection level [L-N] \( U_p \): 1.3 kV
- Residual voltage [L-N] @ 1 kA \( U_{res} \): 0.7 kV
- Residual voltage [L-N] @ 5 kA \( U_{res} \): 0.8 kV
- Max. mains-side overcurrent protection \( I_{max} \): 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection \( I_{max} \): 50 kA eff
- Operating temperature range \( T_{op} \): -40 to +80 °C
- Protection rating \( I_{imp} \): IP20
- Approvals: UL, KEMA, ÖVE, VDE
- Cable cross-section, flexible (fine-wire): 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire): 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire): 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire): 16 - 2 AWG

Always indicate the item number when ordering.
Combination arrestor V50, 4-pole with FS 280 V

<table>
<thead>
<tr>
<th>Type</th>
<th>AC Voltage</th>
<th>Pole Version</th>
<th>Protection Rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-4+FS-280</td>
<td>280 V</td>
<td>4</td>
<td>IP20</td>
<td>1</td>
<td>61.500</td>
<td>5093518</td>
</tr>
</tbody>
</table>

Lightning current combination arrestor, type 1+2

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

**V50-4+FS-280**

- SPD to EN 61643-11 Type 1+2
- SPD to IEC 61643-11 Class III
- SPD to UL 1449 Type 4

- Nominal voltage AC (50 / 60 Hz) \( U_n \) 230 V
- Maximum continuous voltage AC \( U_{nc} \) 280 V
- Nominal discharge current (8/20 \( \mu \)s) \( I_{n,8/20} \) 30 kA
- Maximum discharge current (8/20 \( \mu \)s) \( I_{max} \) 50 kA
- Lightning surge current (10/350 \( \mu \)s) \( I_{L,N} \) 12.5 kA
- Total discharge current (10/350) \( I_{tot} \) 160 kA
- Protection level [L-N] \( U_{res} \) 1.3 kV
- Residual voltage [L-N] 1 kA \( U_{res} \) 0.7 kV
- Residual voltage [L-N] 5 kA \( U_{res} \) 0.5 kV
- Max. mains-side overcurrent protection 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range \( T_{op} \) -40 - +80 °C
- Protection rating IP20
- Approvals UL, KEMA, OVE, VDE
- FM contacts Changeover
- Switching power AC 230 V; 0,5 A
- Switching power DC 230 V; 0,1 A / 75 V; 0,5 A
- Connection cross-section, FM terminals 0,5 - 1,5 mm²
- Connection cross-section, FM terminals 21 - 16 AWG
- Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire) 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

Always indicate the item number when ordering.
Combination arrestor V50, 280 V, with NPE, type 1+2, for TN-S and TT networks

Combination arrestor V50, 1-pole + NPE 280 V

- Lightning current combining arrester, type 1+2
  - For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
  - Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
  - Modular, plug-in arrestor with cut-off unit and visual status display
  - Locking mechanism with vibration protection and voltage keying
  - Plastic to UL 94 V-0
  - The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lighting current equipotential bonding for buildings of class III and IV.

<table>
<thead>
<tr>
<th>Type</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-1+NPE-280</td>
<td>1+N/PE</td>
<td>IP20</td>
<td>1</td>
<td>30.300</td>
<td>5093522</td>
</tr>
</tbody>
</table>

Lightning current combination arrester, type 1+2

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lighting current equipotential bonding for buildings of class III and IV.

V50-1+NPE-280

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_n = 230 \text{ V}$
- Maximum continuous voltage AC $U_C = 280 \text{ V}$
- Nominal discharge current (8/20 $\mu$s) $I_{\text{tr},1/20} = 30 \text{ kA}$
- Maximum discharge current (8/20 $\mu$s) $I_{\text{im},1/20} = 50 \text{ kA}$
- Lightning surge current (10/350 $\mu$s) $I_{\text{tr},10/350} = 12.5 \text{ kA}$
- Total discharge current (10/350 $\mu$s) $I_{\text{im},10/350} = 25 \text{ kA}$
- Arrester surge current (8/20 $\mu$s) $I_{\text{tr},8/20} = 80 \text{ kA}$
- Protection level [L-N] $U_p = 1.3 \text{ kV}$
- Combined voltage protection level [L-PE] $U_{\text{p},1/20}$ $2.5 \text{ kV}$
- Residual voltage [L-N] @ 1 kA $U_{\text{res},1} = 0.7 \text{ kV}$
- Residual voltage [L-N] @ 5 kA $U_{\text{res},5} = 0.8 \text{ kV}$
- Max. mains-side overcurrent protection $160 \text{ A gL/gG}$
- Short-circuit withstand for max. mains-side overcurrent protection $50 \text{ kA eff}$
- Operating temperature range $T_o = -40 \ldots +80 \text{ °C}$
- Protection rating IP20

- Approvals: UL, KEMA, ÖVE, VDE
- Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire) 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

Always indicate the item number when ordering.
Combination arrestor V50, 1-pole + NPE with FS 280 V

<table>
<thead>
<tr>
<th>Type</th>
<th>V50-1+NPE+FS-280</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest continuous voltage AC V</td>
<td>280</td>
<td>1+N/PE</td>
<td>IP20</td>
<td>1</td>
<td>30.600</td>
<td>5093531</td>
</tr>
</tbody>
</table>

Lightning current combination arrestor, type 1+2

• For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
• Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
• Modular, plug-in arrestor with cut-off unit and visual status display
• Locking mechanism with vibration protection and voltage keying
• Plastic to UL 94 V-0
• The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

**V50-1+NPE+FS-280**

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_{\text{nom}}$ 230 V
- Maximum continuous voltage AC $U_{\text{max}}$ 280 V
- Nominal discharge current (8/20 μs) $I_{\text{nom}}$ 30 kA
- Maximum discharge current (8/20 μs) $I_{\text{max}}$ 50 kA
- Lightning surge current (10/350 μs) $I_{\text{lightning}}$ 12.5 kA
- Total discharge current (10/350 μs) $I_{\text{total}}$ 25 kA
- Arrestor surge current (8/20 μs) $I_{\text{arrester}}$ 80 kA
- Protection level [L-N] $U_{\text{R}}$ 1.3 kV
- Combined voltage protection level [L-PE] $U_{\text{L-PE}}$ 2.5 kV
- Residual voltage [L-N] @ 1 kA $U_{\text{residual}}$ 0.7 kV
- Residual voltage [L-PE] @ 5 kA $U_{\text{residual}}$ 0.8 kV
- Max. mains-side overcurrent protection 160 A gl/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range $T_{\text{op}}$ -40 – +80 °C
- Protection rating IP20
- Approvals UL, KEMA, ÖVE, VDE
- FM contacts Changeover
- Switching power AC 230 V; 0.5 A
- Switching power DC 230 V; 0.1 A / 75 V; 0.5 A
- Connection cross-section, FM terminals 1.5 - 1.5 mm²
- Connection cross-section, FM terminals 21 - 16 AWG
- Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire) 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

Always indicate the item number when ordering.
Combination arrestor V50, 280 V, with NPE, type 1+2, for TN-S and TT networks

**Combination arrestor V50, 2-pole + NPE 280 V**

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

**Dimensions**

**Connection options**

**V50-2+NPE-280**

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) \( U_n \) 230 V
- Maximum continuous voltage AC \( U_C \) 280 V
- Nominal discharge current (8/20 μs) \( I_{\text{L-N}} \) 30 kA
- Maximum discharge current (8/20 μs) \( I_{\text{L-N max}} \) 50 kA
- Lightning surge current (10/350 μs) \( I_{\text{L-N}} \) 12.5 kA
- Total discharge current (10/350) \( I_{\text{total}} \) 37.5 kA
- Arrester surge current (8/20 μs) \( I_{\text{total}} \) 80 kA
- Protection level [L-N] \( U_p \) 1.3 kV
- Combined voltage protection level [L-PE] \( U_{\text{L-PE}} \) 2.5 kV
- Residual voltage [L-N] @ 1 kA \( U_{\text{max}} \) 0.7 kV
- Residual voltage [L-PE] @ 5 kA \( U_{\text{max}} \) 0.8 kV
- Max. mains-side overcurrent protection 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range \( T_o \) -40 – 80 °C
- Protection rating IP20
- Approvals UL, KEMA, ÖVE, VDE
- Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire) 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

Always indicate the item number when ordering.
Combination arrestor V50, 3-pole + NPE 280 V

Highest continuous voltage

<table>
<thead>
<tr>
<th>Type</th>
<th>AC Pole version</th>
<th>Protection rating</th>
<th>Pack. Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-3+NPE-280</td>
<td>280</td>
<td>3+N/PE IP20</td>
<td>1</td>
<td>58.800</td>
</tr>
</tbody>
</table>

Lightning current combination arrestor, type 1+2

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lighting current equipotential bonding for buildings of class III and IV.

V50-3+NPE-280

 SPD to EN 61643-11 | Type 1+2
 SPD to IEC 61643-11 | Class I+II
 SPD to UL 1449 | Type 4

Nominal voltage AC (50 / 60 Hz) $U_n$ | 230 V
Maximum continuous voltage AC $U_{	ext{AC}}$ | 280 V
Nominal discharge current (8/20 µs) $I_{	ext{IAC}}$ | 30 kA
Maximum discharge current (8/20 µs) $I_{\text{max}}$ | 50 kA
Lightning surge current (10/350 µs) $I_{\text{LS}}$ | 12.5 kA
Total discharge current (10/350) $I_{\text{tot}}$ | 50 kA
Arrestor surge current (8/20 µs) [total] $I_{\text{Atot}}$ | 80 kA
Protection level [L-N] $U_p$ | 1.3 kV
Combined voltage protection level [L-PE] $U_{\text{CP}}$ | 2.5 kV
Residual voltage [L-N] @ 1 kA $U_{\text{R}}$ | 0.7 kV
Residual voltage [L-N] @ 5 kA $U_{\text{R5}}$ | 1.8 kV
Max. mains-side overcurrent protection $I_{\text{GL/gG}}$ | 160 A
Short-circuit withstand for max. mains-side overcurrent protection $I_{\text{imp}}$ | 50 kA
Operating temperature range $T_o$ | -40 - +80 °C
Protection rating IP20
Approvals UL, KEMA, ÖVE, VDE
Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²
Cable cross-section, flexible (fine-wire) 16 - 2 AWG
Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

Always indicate the item number when ordering.
**Combination arrestor V50, 3-pole + NPE with FS 280 V**

- Lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

**Application:** Lighting current equipotential bonding for buildings of class III and IV.

---

### Connection options

- SPD to EN 61643-11: Type 1+2
- SPD to IEC 61643-11: Class III
- SPD to UL 1449: Type 4
- Nominal voltage AC (50 / 60 Hz): 230 V
- Maximum continuous voltage AC: 280 V
- Nominal discharge current (8/20 μs): 30 kA
- Maximum discharge current (8/20 μs): 50 kA
- Lightning surge current (10/350 μs): 12.5 kA
- Total discharge current (10/350): 50 kA
- Arrester surge current (8/20 μs): 80 kA
- Protection level [L-N]: 1.3 kV
- Combined voltage protection level [L-PE]: 2.5 kV
- Residual voltage [L-N] @ 1 kA: 0.7 kV
- Residual voltage [L-N] @ 5 kA: 0.8 kV
- Max. mains-side overcurrent protection: 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection: 50 kA eff
- Operating temperature range: -40 - +60 °C
- Protection rating: IP20
- Approvals: UL, KEMA, OVE, VDE
- FM contacts: Changeover

---

### Dimensions

- **Type 1+2**
- **Class I+II**
- **Type 4**
- **230 V**
- **280 V**
- **30 kA**
- **50 kA**
- **12.5 kA**
- **80 kA**
- **1.3 kV**
- **2.5 kV**
- **0.7 kV**
- **0.8 kV**
- **160 A gL/gG**
- **50 kA eff**
- **-40 - +60 °C**
- **IP20**

### Connection options

- SPD to EN 61643-11: Type 1+2
- SPD to IEC 61643-11: Class III
- SPD to UL 1449: Type 4
- Nominal voltage AC (50 / 60 Hz): 230 V
- Maximum continuous voltage AC: 280 V
- Nominal discharge current (8/20 μs): 30 kA
- Maximum discharge current (8/20 μs): 50 kA
- Lightning surge current (10/350 μs): 12.5 kA
- Total discharge current (10/350): 50 kA
- Arrester surge current (8/20 μs): 80 kA
- Protection level [L-N]: 1.3 kV
- Combined voltage protection level [L-PE]: 2.5 kV
- Residual voltage [L-N] @ 1 kA: 0.7 kV
- Residual voltage [L-N] @ 5 kA: 0.8 kV
- Max. mains-side overcurrent protection: 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection: 50 kA eff
- Operating temperature range: -40 - +60 °C
- Protection rating: IP20
- Approvals: UL, KEMA, OVE, VDE
- FM contacts: Changeover

---

### Weight

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-3+NPE+FS-280</td>
<td>59.300</td>
<td>5093533</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Combination arrestor V50, 320 V, type 1+2

- Polyamide
- Lightning current combination arrestor, type 1+2
  - For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
  - Modular, plug-in arrestor with cut-off unit and visual status display
  - Locking mechanism with vibration protection and voltage keying
  - Plastic to UL 94 V-0
  - The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lighting current equipotential bonding for buildings of class III and IV.

### Dimensions

- Width: 73 mm
- Height: 55 mm
- Depth: 17.8 mm

### Connection options

- Type V50-1-320
- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) \( U_{nc} \): 230 V
- Maximum continuous voltage AC \( U_c \): 320 V
- Nominal discharge current (8/20 µs) \( I_{lim} \): 30 kA
- Maximum discharge current (8/20 µs) \( I_{imp} \): 50 kA
- Lightning surge current (10/350 µs) \( I_{lim} \): 12.5 kA
- Total discharge current (10/350) \( I_{total} \): – kA
- Arrester surge current (8/20 µs) [total] \( I_{total} \): – kA
- Protection level [L-N] \( U_{p} \): 1.4 kV
- Residual voltage [L-N] @ 1 kA \( U_{res} \): 0.9 kV
- Residual voltage [L-N] @ 5 kA \( U_{res} \): 1.0 kV
- Max. mains-side overcurrent protection
  - 160 A gL/gG
  - 50 kA eff
- Short-circuit withstand for max. mains-side overcurrent protection
  - 50 kA eff
- Operating temperature range \( T_a \): –40 to +80 °C
- Protection rating IP20
- Approvals
  - UL, KEMA, ÖVE, VDE
  - Cable cross-section, flexible (fine-wire)
    - 1.5 – 35 mm²
  - Rigid cable cross-section (single wire/multiwire)
    - 1.5 – 35 mm²
  - Cable cross-section, flexible (fine-wire)
    - 16 – 2 AWG
  - Rigid cable cross-section (single wire/multiwire)
    - 16 – 2 AWG

Always indicate the item number when ordering.
Combination arrestor V50, type 1+2

**Highest continuous voltage**
- AC V: 320
- Pole version: 1
- Protection rating: IP20
- Weight: 17.200 kg
- Item No.: 5093546

**PA Polyamide**

Lightning current combination arrestor, type 1+2

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

---

**V50-1+FS-320**

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz): Uₐ = 230 V
- Maximum continuous voltage AC: Uₐ = 320 V
- Nominal discharge current (8/20 μs): Iₙₐₘₐₓ = 30 kA
- Maximum discharge current (8/20 μs): Iₘₐₓ = 50 kA
- Lightning surge current (10/350 μs): Iₘₐₓ = 12.5 kA
- Total discharge current (10/350) [total]: Iₘₐₓ = — kA
- Protection level [L-N]: Uₐ = 1.4 kV
- Residual voltage [L-N] @ 1 kA: Uₐ = 0.9 kV
- Residual voltage [L-N] @ 5 kA: Uₐ = 1.0 kV
- Max. mains-side overcurrent protection: 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection: 50 kA eff
- Operating temperature range: Tₑ = -40...+80 °C
- Protection rating: IP20
- Approvals: UL, KEMA, ÖVE, VDE
- FM contacts: Changeover
- Switching power AC: 230 V; 0.5 A
- Switching power DC: 230 V; 0.1 A / 75 V; 0.5 A
- Connection cross-section, FM terminals: 0.5...1.5 mm²
- Connection cross-section, FM terminals: 21...16 AWG
- Cable cross-section, flexible (fine-wire): 1.5...35 mm²
- Rigid cable cross-section (single wire/multewire): 15...35 mm²
- Cable cross-section, flexible (fine-wire): 16...2 AWG
- Rigid cable cross-section (single wire/multewire): 16...2 AWG

Always indicate the item number when ordering.
Combination arrestor V50, 320 V, type 1+2, for TN-C networks

**Combination arrestor V50, 3-pole 320 V**

- Lightning current combination arrestor, type 1+2
- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

**Application:** Lighting current equipotential bonding for buildings of class III and IV.

**Dimensions**

**Connection options**

<table>
<thead>
<tr>
<th>Type</th>
<th>V50-3-320</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
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</thead>
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<tr>
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<td>pcs.</td>
<td>kg/100 pcs.</td>
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<td>Polyamide</td>
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<td>48.900</td>
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</tbody>
</table>

Always indicate the item number when ordering.
Combination arrestor V50, 320 V, type 1+2, for TN-C networks

Combination arrestor V50, 3-pole with FS 320 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-3+FS-320</td>
<td>320</td>
<td>3</td>
<td>IP20</td>
<td>1</td>
<td>49.300</td>
<td>5093548</td>
</tr>
</tbody>
</table>

PA Polyamide

Lightning current combination arrestor, type 1+2

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

V50-3+FS-320

SPD to EN 61643-11 | Type 1+2
SPD to IEC 61643-11 | Class II
SPD to UL 1449 | Type 4
Nominal voltage AC (50 / 60 Hz) | Uₙ = 230 V
Maximum continuous voltage AC | Uₘ = 320 V
Nominal discharge current (8/20 μs) | Iₘₜₕ = 30 kA
Maximum discharge current (8/20 μs) | Iₘₙₘₙ = 50 kA
Lightning surge current (10/350 μs) | Iₘₙₘₙ = 12.5 kA
Total discharge current (10/350) | Iₘₙₜₜ = 37.5 kA
Arrestor surge current (8/20 μs) | Iₘₙₜₜ = 120 kA
Protection level [L-N] | Uₚ = 1.4 kV
Residual voltage [L-LN] ≤ 1 kA | Uₚₚ = 0.9 kV
Residual voltage [L-N] ≤ 5 kA | Uₚₚ = 1.0 kV
Max. mains-side overcurrent protection | 160 A gL/gG
Short-circuit withstand for max. mains-side overcurrent protection | 50 kA eff
Operating temperature range | -40 - +80 °C
Protection rating | IP20
Approvals | UL, KEMA, ÖVE, VDE
FM contacts | Changeover
Switching power AC | 230 V / 0.5 A
Switching power DC | 230 V / 0.1 A / 75 V / 0.5 A
Connection cross-section, FM terminals | 0.5 - 1.5 mm²
Connection cross-section, FM terminals | 21 - 16 AWG
Cable cross-section, flexible (fine-wire) | 1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire) | 1.5 - 35 mm²
Cable cross-section, flexible (fine-wire) | 16 - 2 AWG
Rigid cable cross-section (single wire/multiwire) | 16 - 2 AWG

Always indicate the item number when ordering.
Combination arrester V50, 1-pole + NPE 320 V

Lightning current combination arrester, type 1+2

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lighting current equipotential bonding for buildings of class III and IV.

V50-1+NPE-320

<table>
<thead>
<tr>
<th>Type</th>
<th>Protection level [L-N]</th>
<th>Combined voltage protection level [L-PE]</th>
<th>Nominal discharge current (8/20 µs)</th>
<th>Maximum discharge current (8/20 µs)</th>
<th>Lightning surge current (10/350 µs)</th>
<th>Total discharge current (10/350) [total]</th>
<th>Arrestor surge current (8/20 µs) [total]</th>
<th>Protection level [L-N]</th>
<th>Protection level [L-PE]</th>
<th>Residual voltage [L-N] @ 1 kA</th>
<th>Residual voltage [L-N] @ 5 kA</th>
<th>Max. mains-side overcurrent protection</th>
<th>Short-circuit withstand for max. mains-side overcurrent protection</th>
<th>Operating temperature range</th>
<th>Protection rating</th>
<th>Approvals</th>
<th>Cable cross-section, flexible (fine-wire)</th>
<th>Rigid cable cross-section (single wire/multiwire)</th>
<th>Cable cross-section, flexible (fine-wire)</th>
<th>Rigid cable cross-section (single wire/multiwire)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-1+NPE-320</td>
<td>230 V</td>
<td>2.5 kV</td>
<td>30 kA</td>
<td>50 kA</td>
<td>12.5 kA</td>
<td>— kA</td>
<td>— kA</td>
<td>1.4 kV</td>
<td>2.5 kV</td>
<td>0.9 kV</td>
<td>1.0 kV</td>
<td>160 A GL/GG</td>
<td>50 kA eff</td>
<td>-40 ~ +80 °C</td>
<td>IP20</td>
<td>UL, KEMA, ÖVE, VDE</td>
<td>1.5 ~ 35 mm²</td>
<td>16 ~ 2 AWG</td>
<td>16 ~ 2 AWG</td>
<td></td>
</tr>
</tbody>
</table>
Combination arrestor V50, 1-pole + NPE with FS 320 V

Combination arrestor V50, 320 V, with NPE, type 1+2, for TN-S and TT networks

Lightning current combination arrestor, type 1+2

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

<table>
<thead>
<tr>
<th>Type</th>
<th>V50-1+NPE+FS-320</th>
<th>AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA Polyamide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SPD to EN 61643-11
SPD to IEC 61643-11
SPD to UL 1449
Nominal voltage AC (50 / 60 Hz) U_n 230 V
Maximum continuous voltage AC U_c 320 V
Nominal discharge current (8/20 μs) I_max 30 kA
Maximum discharge current (8/20 μs) I_max 50 kA
Lightning surge current (10/350 μs) I_max 12.5 kA
Total discharge current (10/350) I_max kA
Protection level [L-N] U_p 1.4 kV
Combined voltage protection level [L-PE] U_p 2.5 kV
Residual voltage [L-N] @ 1 kA U_res 0.9 kV
Residual voltage [L-N] @ 5 kA U_res 1.0 kV
Max. mains-side overcurrent protection 160 A gl/gG
Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
Operating temperature range T_n -40° - +80° C
Protection rating [P] 20
Approvals UL, KEMA, ÖVE, VDE
Switching power AC 230 V; 0.5 A
Switching power DC 230 V; 0.1 A / 75 V; 0.5 A
Connection cross-section, FM terminals 1.5-1.5 mm²
Connection cross-section, FM terminals 21 - 16 AWG
Connection cross-section, flexible (fine-wire) 1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG
Rigid cable cross-section (flexible) 16 - 2 AWG

Always indicate the item number when ordering.
Combination arrester V50, 320 V, with NPE, type 1+2, for TN-S and TT networks

Dimensions

Connection options

V50-3+NPE-320

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Polyamide</th>
</tr>
</thead>
<tbody>
<tr>
<td>5093554</td>
<td>1</td>
<td>61.200</td>
<td>PA</td>
</tr>
</tbody>
</table>

Lightning current combination arrester, type 1+2

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

V50-3+NPE-320

SPD to EN 61643-11
SPD to IEC 61643-11
SPD to UL 1449
Nominal voltage AC (50 / 60 Hz) $U_n$ 230 V
Maximum continuous voltage AC $U_C$ 320 V
Nominal discharge current (8/20 µs) $I_{n/80}$ 30 kA
Maximum discharge current (8/20 µs) $I_{imp}$ 50 kA
Lightning surge current (10/350 µs) $I_{imp}$ 12.5 kA
Total discharge current (10/350) $I_{total}$ 50 kA
Arrester surge current (8/20 µs) [total] $I_{total}$ 80 kA
Protection level [L-N] $U_p$ 1.4 kV
Combined voltage protection level [L-PE] $U_{total}$ 2.5 kV
Residual voltage [L-N] @ 1 kA $U_{res}$ 0.9 kV
Residual voltage [L-PE] @ 5 kA $U_{res}$ 1.0 kV
Max. mains-side overcurrent protection 160 A gL/gG
Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
Operating temperature range $T_u$ -40...-80 °C
Protection rating IP20
Approvals UL, KEMA, ÖVE, VDE
Cable cross-section, flexible (fine-wire) 1.5...35 mm²
Rigid cable cross-section (single wire/multiwire) 1.5...35 mm²
Cable cross-section, flexible (fine-wire) 16...2 AWG
Rigid cable cross-section (single wire/multiwire) 16...2 AWG

Always indicate the item number when ordering.
Combination arrestor V50, 320 V, with NPE, type 1+2, for TN-S and TT networks

### Combination arrestor V50, 3-pole + NPE with FS 320 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC (V)</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-3+NPE+FS-320</td>
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<td>3+N/PE</td>
<td>IP20</td>
<td>1</td>
<td>61.700</td>
<td>5093562</td>
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</tbody>
</table>

**PA** Polyamide

Lightning current combination arrestor, type 1+2

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

#### V50-3+NPE+FS-320

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_n$ = 230 V
- Maximum continuous voltage AC $U_{in}$ = 320 V
- Nominal discharge current (8/20 μs) $I_{lim}$ = 30 kA
- Maximum discharge current (8/20 μs) $I_{max}$ = 50 kA
- Lightning surge current (10/350 μs) $I_{lim}$ = 12.5 kA
- Total discharge current (10/350 μs) $I_{max}$ = 50 kA
- Protector surge current (8/20 μs) $I_{lim}$ = 80 kA
- Protection level [L-N] $U_p$ = 1.4 kV
- Combined voltage protection level [L-PE] $U_{lim}$ = 2.5 kV
- Residual voltage [L-N] @ 1 kA $U_{res}$ = 0.9 kV
- Residual voltage [L-PE] @ 5 kA $U_{res}$ = 1.0 kV
- Max. mains-side overcurrent protection $160 \text{ A gl/gG}$
- Short-circuit withstand for max. mains-side overcurrent protection $50 \text{ kA eff}$
- Operating temperature range $-40 \text{ to } +80 \, ^\circ \text{C}$
- Protection rating IP20
- Approvals UL, KEMA, OVE, VDE
- FM contacts Changeover
- Switching power AC $230 \text{ V, } 0.5 \text{ A}$
- Switching power DC $230 \text{ V, } 0.1 \text{ A} / 75 \text{ V, } 0.5 \text{ A}$
- Connection cross-section, FM terminals 1.5 - 1.5 mm²
- Connection cross-section, FM terminals 21 - 16 AWG
- Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
- Cable cross-section, flexible (single wire/multiwire) 1.5 - 35 mm²
- Cable cross-section, flexible (single wire/multiwire) 16 - 2 AWG
- Cable cross-section, flexible (single wire/multiwire) 16 - 2 AWG

#### Dimensions

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Connection options</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>PE</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
**Combination arrestor V50, 385 V, type 1+2**

**Lightning current combination arrestor, type 1+2**

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

**Application:** Lightning current equipotential bonding for buildings of class III and IV.

### Dimensions

```
50
5.5 44
39
```

### Connection options

#### V50-1-385

<table>
<thead>
<tr>
<th>Type to EN 61643-11</th>
<th>Protection level [L-N]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1+2</td>
<td>U_p = 1.7 kV</td>
</tr>
</tbody>
</table>

| Nominal voltage AC (50 / 60 Hz) | U_{ac} | 350 V |
| Maximum continuous voltage AC | U_{AC} | 385 V |
| Nominal discharge current (8/20 μs) | I_{thAC} | 30 kA |
| Maximum discharge current (8/20 μs) | I_{max} | 50 kA |
| Lightning surge current (10/350 μs) | I_{thL} | 12.5 kA |
| Total discharge current (10/350) | I_{th} | — kA |
| Arrestor surge current (8/20 μs) [total] | I_{imp} | — kA |
| Protection level [L-N] | U_p | 1.7 kV |
| Residual voltage [L-N] @ 1 kA | U_{res} | 1.1 kV |
| Residual voltage [L-N] @ 5 kA | U_{res} | 1.2 kV |
| Max. mains-side overcurrent protection | 160 A gL/gG |
| Short-circuit withstand for max. mains-side overcurrent protection | 50 kA eff |
| Operating temperature range | T_{s} | -40 - 80 °C |
| Protection rating | IP20 |
| Approvals | UL, KEMA, ÖVE, VDE |
| Cable cross-section, flexible (fine-wire) | 1.5 - 35 mm² |
| Rigid cable cross-section (single wire/multiwire) | 1.5 - 35 mm² |
| Cable cross-section, flexible (fine-wire) | 16 - 2 AWG |
| Rigid cable cross-section (single wire/multiwire) | 16 - 2 AWG |

**Always indicate the item number when ordering.**
Combination arrestor V50, 385 V, type 1+2

Lightning current combination arrestor, type 1+2

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lighting current equipotential bonding for buildings of class III and IV.

V50-1+FS-385

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_{n}$: 350 V
- Maximum continuous voltage AC $U_{I}$: 385 V
- Nominal discharge current (8/20 μs) $I_{n}$/L-N: 30 kA
- Maximum discharge current (8/20 μs) $I_{m}$: 50 kA
- Lightning surge current (10/350 μs) $I_{l}$: 125 kA
- Total discharge current (10/350) $I_{t}$: — kA
- Protection level [L-N] $U_{p}$: 1.7 kV
- Residual voltage [L-N] $U_{res}$: 1.1 kV
- Residual voltage [L-N] @ 5 kA $U_{res}$: 1.2 kV
- Max. mains-side overcurrent protection $I_{total}$: 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection $I_{total}$: 50 kA eff
- Operating temperature range $T_{op}$: -40 – +80 °C
- Protection rating IP20
- Approvals UL, KEMA, ÖVE, VDE
- Changeover
- Switching power AC 230 V; 0.5 A
- Switching power DC 230 V; 0.1 A / 75 V; 0.5 A
- Connection cross-section, FM terminals 0.5 – 1.5 mm²
- Connection cross-section, FM terminals 21 – 16 AWG
- Cable cross-section, flexible (fine-wire) 1.5 – 35 mm²
- Rigid cable cross-section (single wire/multwire) 15 – 35 mm²
- Cable cross-section, flexible (fine-wire) 16 – 2 AWG
- Rigid cable cross-section (single wire/multwire) 16 – 2 AWG

Always indicate the item number when ordering.
Combination arrestor V50, 385 V, with NPE, type 1+2, for TN-S and TT networks

Highest continuous voltage

<table>
<thead>
<tr>
<th>Type</th>
<th>AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-1+NPE-385</td>
<td>385</td>
<td>1+N/PE</td>
<td>IP20</td>
<td>32.200</td>
<td>5093584</td>
</tr>
</tbody>
</table>

Polyamide

Lightning current combination arrestor, type 1+2

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lighting current equipotential bonding for buildings of class III and IV.
Combination arrestor V50, 385 V, with NPE, type 1+2, for TN-S and TT networks

Combination arrestor V50, 1-pole + NPE with FS 385 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack.</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-1+NPE+FS-385</td>
<td>385</td>
<td>1+N/PE</td>
<td>IP20</td>
<td>1</td>
<td>32.500</td>
<td>5093590</td>
</tr>
</tbody>
</table>

PA Polyamide

Lightning current combination arrestor, type 1+2

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lighting current equipotential bonding for buildings of class III and IV.

V50-1+NPE+FS-385

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) \( U_n \) = 230 V
- Maximum continuous voltage AC \( U_{IC} \) = 385 V
- Nominal discharge current (8/20 μs) \( I_{1/2} \) = 30 kA
- Maximum discharge current (8/20 μs) \( I_{max} \) = 50 kA
- Lightning surge current (10/350 μs) \( I_{LS} \) = 12.5 kA
- Total discharge current (10/350) \( I_{LTS} \) = -- kA
- Protection level [L-N] \( U_p \) = 1.7 kV
- Combined voltage protection level [L-PE] \( U_{CLP} \) = 2.5 kV
- Residual voltage [L-N@ 1 kA] \( U_{R1} \) = 1.1 kV
- Residual voltage [L-PE@ 5 kA] \( U_{R5} \) = 1.2 kV
- Max. mains-side overcurrent protection 160 A gl/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range \( T_o \) = -40 – +80 °C
- Protection rating IP20

- Approvals UL, KEMA, ÖVE, VDE
- Switching power AC 230 V; 0.5 A
- Switching power DC 230 V; 0.1 A / 75 V; 0.5 A
- Connection cross-section, FM terminals \( 1.5 - 1.5 \text{ mm}^2 \)
- Connection cross-section, FM terminals \( 21 - 16 \text{ AWG} \)
- Cable cross-section, flexible (fine-wire) \( 1.5 - 35 \text{ mm}^2 \)
- Cable cross-section, flexible (fine-wire) \( 16 - 2 \text{ AWG} \)
- Cable cross-section, flexible (fine-wire) \( 16 - 2 \text{ AWG} \)

Dimensions

Connection options

Always indicate the item number when ordering.
Combination arrester V50, 385 V, with NPE, type 1+2, for TN-S and TT networks

**Combination arrester V50, 3-pole + NPE 385 V**

![Image](image)

**Lightning current combination arrester, type 1+2**

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lightning current equipotential bonding for buildings of class III and IV.

### Connection options

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_n$ 230 V
- Maximum continuous voltage AC $U_C$ 385 V
- Nominal discharge current (8/20 μs) $I_{d/L-N}$ 30 kA
- Maximum discharge current (8/20 μs) $I_{imp}$ 50 kA
- Lightning surge current (10/350 μs) $I_{th}$ 12.5 kA
- Total discharge current (10/350) $I_{total}$ 50 kA
- Arrester surge current (8/20 μs) [total] $I_{total}$ 80 kA
- Protection level [L-N] $U_p$ 1.7 kV
- Combined voltage protection level [L-PE] $U_{th/LPE}$ 2.5 kV
- Residual voltage [L-N] @ 1 kA $U_{res}$ 1.1 kV
- Residual voltage [L-N] @ 5 kA $U_{res}$ 1.2 kV
- Max. mains-side overcurrent protection 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range $T_o$ -40 to 80 °C
- Protection rating IP20
- Approvals UL, KEMA, OVE, VDE
- Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire) 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

### Dimensions

- Dimensions

### Always indicate the item number when ordering.
Combination arrestor V50, 385 V, with NPE, type 1+2, for TN-S and TT networks

Combination arrestor V50, 3-pole + NPE with FS 385 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Protection rating</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-3+NPE+FS-385</td>
<td>IP20</td>
<td>65.000</td>
<td>5093592</td>
</tr>
</tbody>
</table>

PA Polyamide

Lightning current combination arrestor, type 1+2

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lighting current equipotential bonding for buildings of class III and IV.

V50-3+NPE+FS-385

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_n = 230$ V
- Maximum continuous voltage AC $U_c = 385$ V
- Nominal discharge current (8/20 μs) $I_{n/L-N} = 30$ kA
- Maximum discharge current (8/20 μs) $I_{max} = 50$ kA
- Lightning surge current (10/350 μs) $I_{lightning} = 12.5$ kA
- Total discharge current (10/350 μs) $I_{total} = 50$ kA
- Protection level [L-N] $U_{protection} = 1.7$ kV
- Combined voltage protection level [L-PE] $U_{protection/L-PE} = 2.5$ kV
- Residual voltage [L-N] $U_{residual/L-N} = 1.1$ kV
- Residual voltage [L-PE] $U_{residual/L-PE} = 1.2$ kV
- Max. mains-side overcurrent protection 160 A gl/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range $T_{op} = -40$ to $+80$ °C
- Protection rating IP20
- Approvals UL, KEMA, OVE, VDE
- Switching power AC 230 V; 0.5 A
- Switching power DC 230 V; 0.1 A / 75 V; 0.5 A
- Connection cross-section, FM terminals 0.5 - 1.5 mm²
- Connection cross-section, FM terminals 21 - 16 AWG
- Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

Always indicate the item number when ordering.
## Combination arrester V50 upper part, type 1+2

### Upper part V50 150 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Protection rating</th>
<th>Weight kg/100 pcs.</th>
<th>Item No</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-0-150</td>
<td>IP20</td>
<td>7.660</td>
<td>5093505</td>
</tr>
</tbody>
</table>

Upper part, lightning current combination arrester, type 1+2

- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole
- Modular, plug-in arrester with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic (UL 94 V-0)

### Upper part V50 280 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Protection rating</th>
<th>Weight kg/100 pcs.</th>
<th>Item No</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-0-280</td>
<td>IP20</td>
<td>8.500</td>
<td>5093508</td>
</tr>
</tbody>
</table>

Upper part, lightning current combination arrester, type 1+2

- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole
- Modular, plug-in arrester with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic (UL 94 V-0)

### Upper part V50 320 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Protection rating</th>
<th>Weight kg/100 pcs.</th>
<th>Item No</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-0-320</td>
<td>IP20</td>
<td>9.160</td>
<td>5093509</td>
</tr>
</tbody>
</table>

Upper part, lightning current combination arrester, type 1+2

- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole
- Modular, plug-in arrester with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic (UL 94 V-0)

### Upper part V50 385 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Protection rating</th>
<th>Weight kg/100 pcs.</th>
<th>Item No</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-0-385</td>
<td>IP20</td>
<td>10.510</td>
<td>5093510</td>
</tr>
</tbody>
</table>

Upper part, lightning current combination arrester, type 1+2

- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current discharge capacity of 12.5 kA (10/350) per pole
- Modular, plug-in arrester with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic (UL 94 V-0)

Always indicate the item number when ordering.
Upper part NPE-C50

For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)

- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lighting current equipotential bonding for buildings of class III and IV.

<table>
<thead>
<tr>
<th>Type</th>
<th>Protection rating</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C50-0-255</td>
<td>N/PE, IP20</td>
<td>1</td>
<td>7.215</td>
<td>5095609</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Combination arrestor V50, 3-pole 385 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Protection rating</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-3-385</td>
<td>IP20</td>
<td>52.200</td>
<td>5093574</td>
</tr>
</tbody>
</table>

- Polyamide
- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lighting current equipotential bonding for buildings of class III and IV.

### Dimensions

<table>
<thead>
<tr>
<th>Width</th>
<th>Height</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>35.4</td>
<td>53.4</td>
<td>44</td>
</tr>
</tbody>
</table>

### Connection options

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz): $U_n$ = 350 V
- Maximum continuous voltage AC: $U_C$ = 385 V
- Nominal discharge current (8/20 μs): $I_{L,N}$ = 30 kA
- Maximum discharge current (8/20 μs): $I_{max}$ = 50 kA
- Lightning surge current (10/350 μs): $I_{L}$ = 12.5 kA
- Total discharge current (10/350): $I_{total}$ = 37.5 kA
- Arrestor surge current (8/20 μs) [total]: $I_{total}$ = 120 kA
- Protection level [L-N]: $U_p$ = 1.7 kV
- Residual voltage [L-N] @ 1 kA: $U_{res}$ = 1.1 kV
- Residual voltage [L-N] @ 5 kA: $U_{res}$ = 1.2 kV
- Short-circuit withstand for max. mains-side overcurrent protection: 160 A gL/gG
- Operating temperature range: $T_a$ = -40°C to +80°C
- Protection rating: IP20
- Approvals: UL, KEMA, ÖVE, VDE
- Cable cross-section, flexible (fine-wire): 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire): 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire): 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire): 16 - 2 AWG

Always indicate the item number when ordering.
Combination arrestor V50, 3-pole with FS 385 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage AC (50 / 60 Hz)</th>
<th>Maximum continuous voltage AC</th>
<th>Nominal discharge current (8/20 µs)</th>
<th>Maximum discharge current (8/20 µs)</th>
<th>Lightning surge current (10/350 µs)</th>
<th>Total discharge current (8/20 µs) [total]</th>
<th>Protection level [L-N]</th>
<th>Residual voltage [L-N]</th>
<th>Protection rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-3+FS-385</td>
<td>385 V</td>
<td>385 V</td>
<td>30 kA</td>
<td>50 kA</td>
<td>12.5 kA</td>
<td>37.5 kA</td>
<td>1.7 kV</td>
<td>1.1 kV</td>
<td>IP20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Dimensions**

**Connection options**

Application: Lighting current equipotential bonding for buildings of class III and IV.

Lighting current combination arrestor, type 1+2

- For lightning current equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity of 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total
- Modular, plug-in arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling (FS) variants have a potential-free changeover contact for remote signalling

Application: Lighting current equipotential bonding for buildings of class III and IV.
**Combination arrestor upper part**

Combination arrestor, lightning current arrestor, type 1+2, upper part.

- Protection level < 1.7 kV, allows device protection
- Line current quenching capacity 10 kA
- Encapsulated, non-extinguishing spark gap

Application: Industrial systems and buildings with external lightning protection of Classes I to IV.

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Version</th>
<th>Pack</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCD 50-B 0</td>
<td>255</td>
<td>1-pole</td>
<td>1</td>
<td>19.200</td>
<td>5096822</td>
</tr>
</tbody>
</table>

**Upper part, combination arrestor with function display**

Combination arrestor, lightning current arrestor, type 1+2, upper part with visual display.

- Lightning current arresting capacity 50 kA (10/350)
- Power consumption < 26 mW/pole
- Protection level < 1.7 kV
- Line current quenching capacity 10 kA
- Encapsulated, non-extinguishing spark gap

Application: Installations of surge protection devices, type 1+2, in a distribution.

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Version</th>
<th>Pack</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCD 50-B 0-OS</td>
<td>255</td>
<td>1-pole</td>
<td>1</td>
<td>19.500</td>
<td>5096827</td>
</tr>
</tbody>
</table>

**Lightning arrestor/combination arrestor base**

MC 50-B/U: LightningController bottom section fit type:

- MC 50-B VDE
- MCD 50-B
- Including plug caps for identifying the connections

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Pack</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC 50-B U VDE</td>
<td>1-pole</td>
<td>1</td>
<td>18.000</td>
<td>5096839</td>
</tr>
</tbody>
</table>

**Accessories for lightning current arrestor**

MC-V...: Copper bridge 16 mm², suitable for bridging MC arrestors in side channel.

- V3 for 3-pole circuits
- V4 for 4-pole circuits

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC V3</td>
<td>10</td>
<td>1.700</td>
<td>5096884</td>
</tr>
<tr>
<td>MC V4</td>
<td>10</td>
<td>2.300</td>
<td>5096886</td>
</tr>
<tr>
<td>Copper</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Combination arrestor, protection set VA, type 1+2, for TN-S and TT network systems

Protection set MCD + V20 1-pole + NPE

<table>
<thead>
<tr>
<th>Protection set, lightning and surge arrestor combination, type 1+2</th>
</tr>
</thead>
<tbody>
<tr>
<td>• For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)</td>
</tr>
<tr>
<td>• Lightning current arresting capacity to 50 kA (10/350) per pole and up to 125 kA (10/350) N-PE</td>
</tr>
<tr>
<td>• Arrester, connectable, including connecting bridges, labelled connection terminals</td>
</tr>
<tr>
<td>• Encapsulated, non-extinguishing arrester for use in distributor housings</td>
</tr>
</tbody>
</table>

Application: Mobile telecommunications systems and industrial systems with special requirements.

**PS 2-B+C/TT+TNS**

- **Nominal voltage** $U_n$: 230 V
- **SPD to EN 61643-11** Type 1+2
- **SPD to IEC 61643-11** Class I-II
- **Lightning protection zone LPZ**: 0→2
- **Impulse discharge current (10/350)** $I_{imp}$: 50 kA
- **Total discharge current (10/350)** $I_{total}$: 100 kA
- **Nominal discharge current (8/20)** $I_n$: 50 kA
- **Arrester surge current (8/20) [total]** $I_{total 8/20}$: 100 kA
- **Maximum discharge current (8/20 μs)** $I_{max}$: 100 kA
- **Voltage protection level**: $U_p$: <1.3 kV
- **Response time**: $t_r$: <25 ns
- **Follow current quenching capacity (eff) [N-PE]** $I_{fi}$: 25 kA
- **Maximum back-up fuse**: 125 A
- **Temperature range**: $\theta$: -40 → +85 °C
- **Division unit TE (17.5 mm)**: 5
- **Protection rating**: IP20
- **Connection cross-section rigid**: 10 - 50 mm²
- **Connection cross-section, multi-wire**: 10 - 35 mm²
- **Connection cross-section, flexible**: 10 - 25 mm²

Always indicate the item number when ordering.
Protection set MCD + V20 3-pole + NPE

- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 50 kA (10/350) per pole and up to 125 kA (10/350) N-PE
- Arrestor, connectable, including connecting bridges, labelled connection terminals
- Encapsulated, non-extinguishing arrestor for use in distributor housings

Application: Mobile telecommunications systems and industrial systems with special requirements.

**Dimensions**

**Connection options**

<table>
<thead>
<tr>
<th>Nominal voltage</th>
<th>U_n</th>
<th>230 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 1+2</td>
<td></td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class I+II</td>
<td></td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>0-2</td>
<td></td>
</tr>
<tr>
<td>Impulse discharge current (10/350)</td>
<td>I_{imp}</td>
<td>50 kA</td>
</tr>
<tr>
<td>Total discharge current (10/350)</td>
<td>I_{total}</td>
<td>100 kA</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>I_n</td>
<td>50 kA</td>
</tr>
<tr>
<td>Arrestor surge current (8/20) (total)</td>
<td>I_{total surge}</td>
<td>100 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>I_{max}</td>
<td>100 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>U_p</td>
<td>&lt;1.3 kV</td>
</tr>
<tr>
<td>Protection level (N-PE)</td>
<td></td>
<td>&lt;1.5 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>t_A</td>
<td>&lt;25 ns</td>
</tr>
<tr>
<td>Follow current quenching capacity (eff) [N-PE]</td>
<td>I_{fi}</td>
<td>25 kA</td>
</tr>
<tr>
<td>Maximum backup fuse</td>
<td></td>
<td>125 A</td>
</tr>
<tr>
<td>Temperature range</td>
<td>Θ</td>
<td>-40 - +85 °C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Protection rating</td>
<td></td>
<td>IP20</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td></td>
<td>10 - 50 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td></td>
<td>10 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td></td>
<td>10 - 25 mm²</td>
</tr>
</tbody>
</table>
Combination arrester, protection set VA, type 1+2, for TN-S and TT network systems

Protection set MCD + V20 3-pole + NPE with remote signalling

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Version</th>
<th>Weight</th>
<th>Pack.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS4-B+C TNS+FS</td>
<td>255</td>
<td>3 + NPE</td>
<td>211.000</td>
<td>1</td>
<td>5089763</td>
</tr>
</tbody>
</table>

Series PS...: Protection Set, Type 1+2 (Class B+C) lightning and surge arrester to VDE 0675 Part 6-11 (DIN EN 61643-11).

- Arresting capacity 100 kA 10/350 μs BET tested
- Pre-mounted and ready for connection, including connecting bridges, connection terminals marked
- With remote signalling, potential-free NO contact, for function monitoring
- For use in TN-C network system

Note: Max. backup fuse (required only if not already fitted in network) 125 A gL/gG.

**PS4-B+C TNS+FS**

- Nominal voltage $U_{n}$ 230 V
- SPD to EN 61643-11 Type 1+2
- SPD to IEC 61643-11 Class I-II
- Lightning protection zone LPZ 0+2
- Impulse discharge current (10/350) $I_{imp}$ 50 kA
- Total discharge current (10/350) $I_{total}$ 100 kA
- Nominal discharge current (8/20) $I_{n}$ 50 kA
- Arrestor surge current (8/20) (total) $I_{total 8/20}$ 100 kA
- Maximum discharge current (8/20 μs) $I_{max}$ 25 kA
- Voltage protection level $U_{p}$ <1.3 kV
- Response time $t_{A}$ <25 ns
- Follow current quenching capacity (eff) [N-PE] $I_{fi}$ 25 kA
- Maximum back-up fuse 125 A
- Temperature range $\theta$ -40°C to +85°C
- Division unit TE (17.5 mm) 12
- Protection rating IP20
- Connection cross-section rigid 10 - 50 mm²
- Connection cross-section, multi-wire 10 - 35 mm²
- Connection cross-section, flexible 10 - 25 mm²

Always indicate the item number when ordering.
Combination arrestor, protection set, type 1+2 for TN-C network systems

Protection set MCD + V20 3-pole

- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 50 kA (10/350) per pole and up to 125 kA (10/350) N-PE
- Arrestor, connectable, including connecting bridges, labelled connection terminals
- Encapsulated, non-extinguishing arrestor for use in distributor housings

Application: Mobile telecommunications systems and industrial systems with special requirements.

---

**Dimensions**

**Connection options**

---

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS3+B+C TNC</td>
<td>255</td>
<td>3-pole</td>
<td>1 pcs.</td>
<td>158.000 kg/100 pcs.</td>
</tr>
</tbody>
</table>

Protection set, lightning and surge arrester combination, type 1+2

---

**PS3+B+C TNC**

- Nominal voltage \( U_\text{n} \): 230 V
- SPD to EN 61643-11 Type 1+2
- SPD to IEC 61643-11 Class I+II
- Lightning protection zone LPZ 0~2
- Impulse discharge current (10/350) \( I_{\text{imp}} \): 50 kA
- Total discharge current (10/350) \( I_{\text{total}} \): 100 kA
- Nominal discharge current (8/20) \( I_{\text{n}} \): 50 kA
- Arrestor surge current (8/20) (total) \( I_{\text{Total 8/20}} \): 100 kA
- Maximum discharge current (8/20) \( I_{\text{max}} \): 25 kA
- Voltage protection level \( U_{p} \): < 1.3 kV
- Response time \( t_{\text{A}} \): < 25 ns
- Follow current quenching capacity (eff) [N-PE] \( I_{\text{fi}} \): 125 A
- Maximum back-up fuse \( I_{\text{max}} \): 125 A
- Temperature range \( \beta \): -40°C to +85°C
- Division unit TE (17.5 mm) \( t_{\text{A}} \): 10
- Protection rating IP20
- Connection cross-section rigid: 10 - 50 mm²
- Connection cross-section, multi-wire: 10 - 35 mm²
- Connection cross-section, flexible: 10 - 25 mm²

---

Always indicate the item number when ordering.
Protection set MCD + V20 3-pole with remote signalling

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal voltage</th>
<th>SPD to EN 61643-11</th>
<th>SPD to IEC 61643-11</th>
<th>Lightning protection zone LPZ</th>
<th>Impulse discharge current (10/350)</th>
<th>Total discharge current (10/350)</th>
<th>Nominal discharge current (8/20)</th>
<th>Arrester surge current (8/20) [total]</th>
<th>Nominal discharge current (8/20)</th>
<th>Voltage protection level</th>
<th>Response time</th>
<th>Follow current quenching capacity (eff) [N-PE]</th>
<th>Maximum back-up fuse</th>
<th>Temperature range</th>
<th>Division unit TE (17.5 mm)</th>
<th>Protection rating</th>
<th>Connection cross-section rigid</th>
<th>Connection cross-section, multi-wire</th>
<th>Connection cross-section, flexible</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS3-B+C TNC+FS</td>
<td>230 V</td>
<td>Type 1-2</td>
<td>Class I-II</td>
<td>0-2</td>
<td>50 kA</td>
<td>100 kA</td>
<td>50 kA</td>
<td>100 kA</td>
<td>100 kA</td>
<td>&lt;1.3 kV</td>
<td>&lt;25 ns</td>
<td>25 kA</td>
<td>125 A</td>
<td>-40 - +85 °C</td>
<td>10</td>
<td>IP20</td>
<td>10 - 50 mm²</td>
<td>10 - 35 mm²</td>
<td>10 - 25 mm²</td>
</tr>
</tbody>
</table>

Series PS... Protection Set, Type 1+2 (Class B+C) lightning and surge arrester to VDE 0675 Part 6-11 (DIN EN 61643-11).

- Arresting capacity 100 kA 10/350 µs BET tested
- Pre-mounted and ready for connection, including connecting bridges, connection terminals marked
- With remote signalling, potential-free NO contact, for function monitoring
- For use in TN-C network system

Note: Max. backup fuse (required only if not already fitted in network) 125 A gL/gG.

Protection set MCD + V20 3-pole

Highest continuous voltage

**Nominal voltage**

- **Type 1-2**
- **Class I-II**

**Lightning protection zone LPZ**

- **0-2**

**Impulse discharge current (10/350)**

- **50 kA**

**Total discharge current (10/350)**

- **100 kA**

**Nominal discharge current (8/20)**

- **50 kA**

**Arrester surge current (8/20) [total]**

- **100 kA**

**Maximum discharge current (8/20 µs)**

- **100 kA**

**Voltage protection level**

- **<1.3 kV**

**Response time**

- **<25 ns**

**Follow current quenching capacity (eff) [N-PE]**

- **25 kA**

**Maximum back-up fuse**

- **125 A**

**Temperature range**

- **-40 - +85 °C**

**Division unit TE (17.5 mm)**

- **10**

**Protection rating**

- **IP20**

**Connection cross-section**

- Rigid: 10 - 50 mm²
- Multi-wire: 10 - 35 mm²
- Flexible: 10 - 25 mm²

Always indicate the item number when ordering.
Protection set MCD + V20 3-pole

- Combination arrestor, protection set, type 1+2 for TN-C network systems
- Surge protection energy technology, ar-restor, type 1+2

### Dimensions

![Dimensions Diagram]

### Connection options

![Connection options Diagram]

<table>
<thead>
<tr>
<th>Protection set MCD + V20 3-pole</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
</tr>
<tr>
<td>Impulse discharge current (10/350)</td>
</tr>
<tr>
<td>Total discharge current (10/350)</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
</tr>
<tr>
<td>Arrester surge current (8/20) (total)</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
</tr>
<tr>
<td>Voltage protection level</td>
</tr>
<tr>
<td>Response time</td>
</tr>
<tr>
<td>Follow current quenching capacity (eff) [N-PE]</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
</tr>
<tr>
<td>Temperature range</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
</tr>
<tr>
<td>Protection rating</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
</tr>
</tbody>
</table>

Application: Mobile telecommunications systems and industrial systems with special requirements.
Protection set MCD + V20 3-pole with remote signalling

Protection set, lightning and surge arrester combination, type 1+2

- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 50 kA (10/350) per pole and up to 125 kA (10/350) N-PE
- Arrestor, connectable, including connecting bridges, labelled connection terminals
- Encapsulated, non-extinguishing arrester for use in distributor housings

Application: Mobile telecommunications systems and industrial systems with special requirements.

### PS3-B+C-320+FS

**Nominal voltage** $U_n$ 320 V  
**SPD to EN 61643-11** Type 1+2  
**SPD to IEC 61643-11** Class I+II  
**Lightning protection zone LPZ** 0→2  
**Impulse discharge current (10/350)** $I_{imp}$ 50 kA  
**Total discharge current (10/350)** $I_{total}$ 100 kA  
**Nominal discharge current (8/20)** $I_n$ 100 kA  
**Arrester surge current (8/20) [total]** $I_{total surge}$ 100 kA  
**Maximum discharge current (8/20 μs)** $I_{max}$ 100 kA  
**Voltage protection level** $U_p$ <1.7 kV  
**Response time** $t_{fi}$ <25 ns  
**Follow current quenching capacity (eff) [N-PE]** $I_{quench}$ 25 kA  
**Maximum back-up fuse** 125 A  
**Temperature range** $\vartheta$ -40→+80 °C  
**Division unit TE (17.5 mm)** 10  
**Protection rating** IP20  
**Connection cross-section rigid** 10 - 50 mm²  
**Connection cross-section, multi-wire** 10 - 35 mm²  
**Connection cross-section, flexible** 10 - 25 mm²
Combination arrester, protection set VA, type 1+2, for TN and TT network systems

Protection set MCD + V20, leakage current-free, 3-pole + NPE

- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 50 kA (10/350) per pole and up to 125 kA (10/350) N-PE
- Free of leak current and suitable for use in pre-meter area according to the VDEW directive
- Arrester, connectable, including connecting bridges, labelled connection terminals
- Encapsulated, non-extinguishing arrester for use in distributor housings

Application: pre-meter area and industrial systems with special requirements.

PS4-VA TT+TNS

Nominal voltage $U_n$ 230 V
SPD to EN 61643-11 Type 1+2
SPD to IEC 61643-11 Class I
Lightning protection zone LPZ 0–2
Impulse discharge current (10/350) $I_{imp}$ 100 kA
Total discharge current (10/350) $I_{total}$ 100 kA
Nominal discharge current (8/20) $I_n$ 100 kA
Arrester surge current (8/20) total $I_{tot}$ 100 kA
Maximum discharge current (8/20) $I_{max}$ 100 kA
Voltage protection level $U_{p}$ <1.3 kV
Response time $t_A$ <25 ns
Follow current quenching capacity (eff) [N-PE] $I_{f}$ 25 kA
Maximum back-up fuse $I_B$ 125 A
Temperature range $\alpha$ -40 to +85 °C
Division unit TE (17.5 mm) 12
Protection rating IP20
Connection cross-section rigid 10 - 50 mm²
Connection cross-section, multi-wire 10 - 35 mm²
Connection cross-section, flexible 10 - 25 mm²

Always indicate the item number when ordering.
Protection set MCD + V20, leakage current-free, 3-pole + NPE with remote signalling

Protection set VA, lightning and surge arrester combination, type 1+2

- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 50 kA (10/350) per pole and up to 125 kA (10/350) N-PE
- Free of leak current and suitable for use in pre-meter area according to the VDEW directive
- Arrester, connectable, including connecting bridges, labelled connection terminals
- Encapsulated, non-extinguishing arrester for use in distributor housings

Application: pre-meter area and industrial systems with special requirements.

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal voltage</th>
<th>SPD to EN 61643-11</th>
<th>SPD to IEC 61643-11</th>
<th>Lightning protection zone LPZ</th>
<th>Impulse discharge current (10/350)</th>
<th>Total discharge current (10/350)</th>
<th>Nominal discharge current (8/20)</th>
<th>Arrestor surge current (B/20) [total]</th>
<th>Total discharge current (8/20)</th>
<th>Nominal discharge current (8/20)</th>
<th>Voltage protection level</th>
<th>Response time</th>
<th>Follow current quenching capacity (eff) [N-PE]</th>
<th>Maximum back-up fuse</th>
<th>Temperature range</th>
<th>Division unit TE (17.5 mm)</th>
<th>Protection rating</th>
<th>Connection cross-section rigid</th>
<th>Connection cross-section, multi-wire</th>
<th>Connection cross-section, flexible</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS4-VA TT+FS</td>
<td>230 V</td>
<td>Type 1+2</td>
<td>Class I</td>
<td>0-2</td>
<td>100 kA</td>
<td>100 kA</td>
<td>100 kA</td>
<td>100 kA</td>
<td>100 kA</td>
<td>100 kA</td>
<td>&lt;1.3 kV</td>
<td>&lt;25 ns</td>
<td>25 kA</td>
<td>125 A</td>
<td>-40°C - +85°C</td>
<td>12</td>
<td>IP20</td>
<td>10 - 50 mm²</td>
<td>10 - 35 mm²</td>
<td>10 - 25 mm²</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Combination arrester, protection set VA, type 1+2, for TN and TT network systems

Protection set MCD + V20, leakage current-free, 3-pole

- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Lightning current arresting capacity to 50 kA (10/350) per pole and up to 125 kA (10/350) N-PE
- Free of leak current and suitable for use in pre-meter area according to the VDEW directive
- Arrester, connectable, including connecting bridges, labelled connection terminals
- Encapsulated, non-extinguishing arrester for use in distributor housings

Application: pre-meter area and industrial systems with special requirements.

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal voltage Uᵢ</th>
<th>230 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
<td>SPD to IEC 61643-11</td>
<td>Type 1+2</td>
</tr>
<tr>
<td></td>
<td>Lightning protection zone LPZ</td>
<td>Class I</td>
</tr>
<tr>
<td></td>
<td>Impulse discharge current (10/350) Iᵢₑ</td>
<td>100 kA</td>
</tr>
<tr>
<td></td>
<td>Total discharge current (10/350) Iᵢₑ</td>
<td>100 kA</td>
</tr>
<tr>
<td></td>
<td>Nominal discharge current (8/20) Iᵢ</td>
<td>100 kA</td>
</tr>
<tr>
<td></td>
<td>Arrester surge current (8/20) total</td>
<td>100 kA</td>
</tr>
<tr>
<td></td>
<td>Maximum discharge current (8/20 μs)</td>
<td>100 kA</td>
</tr>
<tr>
<td></td>
<td>Voltage protection level Uᵢₑ</td>
<td>≤1.3 kV</td>
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<tr>
<td></td>
<td>Response time Iᵢₑ</td>
<td>≤25 ns</td>
</tr>
<tr>
<td></td>
<td>Follow current quenching capacity (eff) [N-PE] Iᵢₑ</td>
<td>25 kA</td>
</tr>
<tr>
<td></td>
<td>Maximum back-up fuse</td>
<td>125 A</td>
</tr>
<tr>
<td></td>
<td>Temperature range</td>
<td>-40...+85 °C</td>
</tr>
<tr>
<td></td>
<td>Division unit TE (17.5 mm)</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td></td>
<td>Connection cross-section rigid</td>
<td>10 - 50 mm²</td>
</tr>
<tr>
<td></td>
<td>Connection cross-section, multi-wire</td>
<td>10 - 35 mm²</td>
</tr>
<tr>
<td></td>
<td>Connection cross-section, flexible</td>
<td>10 - 25 mm²</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Protection set MCD + V20, leakage current-free, 3-pole with remote signalling

Protection set VA, lightning and surge arrestor combination, type 1+2

• For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
• Lightning current arresting capacity to 50 kA (10/350) per pole and up to 125 kA (10/350) N-PE
• Free of leak current and suitable for use in pre-meter area according to the VDEW directive
• Arrestor, connectable, including connecting bridges, labelled connection terminals
• Encapsulated, non-extinguishing arrestor for use in distributor housings

Application: pre-meter area and industrial systems with special requirements.

PS3-VA TNC+FS

Nominal voltage
SPD to EN 61643-11
SPD to IEC 61643-11
Lightning protection zone LPZ
Impulse discharge current (10/350)
Total discharge current (10/350)
Nominal discharge current (8/20)
Arrester surge current (8/20) [total]
Voltage protection level
Response time
Follow current quenching capacity (eff) [N-PE]
Maximum back-up fuse
Temperature range
Division unit TE (17.5 mm)
Protection rating
Connection cross-section rigid
Connection cross-section, multi-wire
Connection cross-section, flexible

Always indicate the item number when ordering.
Combination arrestor V50, 1-pole + NPE 280 V

Lightning current combination arrestor, type 1+2 to DIN EN 61643-11

- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Complete unit, pre-mounted and ready for connection in polycarbonate housing (IP66)
- Lightning current arresting capacity 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total

Application: Lightning protection equipotential bonding for buildings of Class III and IV. If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Dimensions

Connection options

<table>
<thead>
<tr>
<th>Type</th>
<th>Pole version</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
</table>
| VG-V50-1+NPE-280 | 1+N/PE      | 1     | 81.000 | 5093594  

Lightning current combination arrestor, type 1+2 to DIN EN 61643-11

- Complete unit, pre-mounted and ready for connection in polycarbonate housing (IP66)
- Lightning current arresting capacity 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total

Application: Lightning protection equipotential bonding for buildings of Class III and IV. If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Combination arrestor V50 in the housing, type 1+2, for TN-S and TT networks

Surge protection energy technology, ar-
restor, type 1+2

Always indicate the item number when ordering.
Combination arrestor V50 in the housing, type 1+2, for TN-S and TT networks

**Combination arrestor V50, 3-pole + NPE 280 V**

Highest continuous voltage AC Pole version Weight

<table>
<thead>
<tr>
<th>Type</th>
<th>AC V</th>
<th>Pole version</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VG-V50-3+NPE-280</td>
<td>280</td>
<td>3+N/PE</td>
<td>1 pcs.</td>
<td>110.000</td>
<td>5093596</td>
</tr>
</tbody>
</table>

Lightning current combination arrestor, type 1+2 to DIN EN 61643-11

- For lightning protection equipotential bonding to VDE 0185-305 (IEC 62305)
- Complete unit, pre-mounted and ready for connection in polycarbonate housing (IP66)
- Lightning current arresting capacity 12.5 kA (10/350) per pole and up to 50 kA (10/350) in total

Application: Lightning protection equipotential bonding for buildings of Class III and IV.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

**Dimensions**

**Connection options**

### VG-V50-3+NPE-280

<table>
<thead>
<tr>
<th>SPD to EN 61643-11</th>
<th>Type 1+2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class III</td>
</tr>
<tr>
<td>SPD to UL 1449</td>
<td>Type 4</td>
</tr>
</tbody>
</table>

Nominal voltage AC (50 / 60 Hz)

<table>
<thead>
<tr>
<th>Ue</th>
<th>230 V</th>
</tr>
</thead>
</table>

Maximum continuous voltage AC

<table>
<thead>
<tr>
<th>Uc</th>
<th>280 V</th>
</tr>
</thead>
</table>

Nominal discharge current (8/20 μs)

<table>
<thead>
<tr>
<th>In / L-N</th>
<th>30 kA</th>
</tr>
</thead>
</table>

Maximum discharge current (8/20 μs)

<table>
<thead>
<tr>
<th>Iimp</th>
<th>50 kA</th>
</tr>
</thead>
</table>

Lightning surge current (10/350 μs)

<table>
<thead>
<tr>
<th>Iimp</th>
<th>12.5 kA</th>
</tr>
</thead>
</table>

Total discharge current (10/350 μs) [total]

<table>
<thead>
<tr>
<th>Itotal</th>
<th>50 kA</th>
</tr>
</thead>
</table>

Protection level [L-N]

<table>
<thead>
<tr>
<th>Uimp</th>
<th>1.3 kV</th>
</tr>
</thead>
</table>

Residual voltage [L-N] @ 1 kA

<table>
<thead>
<tr>
<th>Ures</th>
<th>0.7 kV</th>
</tr>
</thead>
</table>

Residual voltage [L-N] @ 5 kA

<table>
<thead>
<tr>
<th>Ures</th>
<th>1.0 kV</th>
</tr>
</thead>
</table>

Max. mains-side overcurrent protection

160 A gL/gG

Short-circuit withstand for max. mains-side overcurrent protection

50 kA eff

Operating temperature range

-40 - +80 °C

Protection rating

IP66

Approvals

UL, ÖVE, VDE

Cable cross-section, flexible (fine-wire)

1.5 - 35 mm²

Rigid cable cross-section (single wire/multiwire)

1.5 - 35 mm²

Cable cross-section, flexible (fine-wire)

16 - 2 AWG

Rigid cable cross-section (single wire/multiwire)

16 - 2 AWG

Always indicate the item number when ordering.
Surge protection device for energy technology, arrester, type 1 (industry)

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lightning arrester MCF 35</td>
<td>89</td>
</tr>
<tr>
<td>Accessories MCF</td>
<td>100</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Type 1, lightning arrestor MCF 35

<table>
<thead>
<tr>
<th>1-pole with FS</th>
<th>3-pole with FS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volts</td>
<td>Item no.</td>
</tr>
<tr>
<td>440</td>
<td>5096974</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Lightning arrestors MC, 255 V

Lightning current arrestor, 1-pole

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage</th>
<th>Version</th>
<th>Pack. pcs.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC 50-B VDE</td>
<td>255</td>
<td>1-pole</td>
<td>1</td>
<td>34.400</td>
<td>5096847</td>
</tr>
</tbody>
</table>

MC 50-B VDE: Type 1 (Class B) lightning current arrestor in accordance with DIN EN 61643-11 for interface 0 to 1 (LPZ) to and/or in accordance with lightning protection concept to IEC 61313-1 and/or DIN VDE 0185-305 (IEC 62305)

- Upper part and base, plug-in upper part
- Arresting capacity 50 kA (10/350 µs) per pole
- Protection level < 2.0 kV
- Line following current quenching 25 kA ipeak
- Incl. plug caps for identifying the connections
- Encapsulated, non-extinguishing spark gap: can be used in standard distributor housings

Application example: Industrial plants; lightning current arrestor in accordance with VDN Directive for pre-meter area.
Note: Required as decoupling length for surge voltage protection of 5 m of cable.

**Dimensions**

**Connection options**

**MC 50-B VDE**

- Nominal voltage $U_n$ 230 V
- SPD to EN 61643-11 Type 1
- SPD to IEC 61643-11 Class I
- Lightning protection zone LPZ 0=1
- Impulse discharge current (10/350) $I_{imp}$ 50 kA
- Total discharge current (10/350) $I_{total}$ 50 kA
- Nominal discharge current (8/20) $I_n$ 50 kA
- Arrester surge current (8/20) [total] $I_{Total 8/20}$ 50 kA
- Voltage protection level $U_p$ < 2.0 kV
- Response time $t_A$ <100 ns
- Follow current quenching capacity (eff) [N-PE] $I_f$ 25 kA
- Maximum back-up fuse $I_{Bmax}$ 500 A
- Temperature range $\delta$ -40 to +85 °C
- Division unit TE (17.5 mm) 2
- Protection rating IP20
- Connection cross-section rigid 10 - 50 mm²
- Connection cross-section, multi-wire 10 - 35 mm²
- Connection cross-section, flexible 10 - 25 mm²
MC 50-B-OS: Type 1 (Class B) lightning current arrestor with visual function display in accordance with DIN EN 61643-11 for interface 0 to 1 (LPZ) in accordance with lightning protection concept to IEC 61313-1 and VDE 0185-305 (IEC 62305)

- Upper part and base, plug-in base
- Arresting capacity 50 kA (10/350 µs) per pole
- Protection level < 2.0 kV
- Power consumption < 26 mW/pole
- Line following current quenching 25 kA peak
- Incl. plug caps for identifying the connections
- Encapsulated, non-extinguishing spark gap: Can be used in standard distributor housings

Application example: Industrial systems.

Note: Required as decoupling length for surge voltage protection of 5 m of cable.

---

**MC 50-B-OS**

<table>
<thead>
<tr>
<th>Nominal voltage</th>
<th>U_n</th>
<th>230 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 1</td>
<td></td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class I</td>
<td></td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>0 to 1</td>
<td></td>
</tr>
<tr>
<td>Impulse discharge current (10/350)</td>
<td>I_{imp}</td>
<td>50 kA</td>
</tr>
<tr>
<td>Total discharge current (10/350)</td>
<td>I_{total}</td>
<td>50 kA</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>I_n</td>
<td>50 kA</td>
</tr>
<tr>
<td>Arrestor surge current (8/20) (total)</td>
<td>I_{Total 8/20}</td>
<td>50 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>U_{Up}</td>
<td>&lt; 2.0 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>t_A</td>
<td>&lt; 100 ns</td>
</tr>
<tr>
<td>Follow current quenching capacity (eff) [N-P E]</td>
<td>I_f</td>
<td>25 kA</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td></td>
<td>500 A</td>
</tr>
<tr>
<td>Temperature range</td>
<td>B</td>
<td>-40 °C to +85 °C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Protection rating</td>
<td></td>
<td>IP20</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td></td>
<td>10 - 50 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td></td>
<td>10 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td></td>
<td>10 - 25 mm²</td>
</tr>
</tbody>
</table>

---

Always indicate the item number when ordering.
### Lightning current arrestor, 3-pole

**Type** | **V** | **Version** | **Weight** | **Item No.**  
--- | --- | --- | --- | ---  
MC 50-B 3 | 255 | 3-pole | 117.000 | 5096876  

**Highest continuous voltage** | **Pack. kg/100 pcs.** | **Item No.**  
--- | --- | ---  
255 | 117.000 | 5096876  

**LightningController set, 3-pole, for use in TN-C networks:**

Completely pre-terminated and ready for connection, consisting of:
- **MC 50-B VDE**: Type 1 (Class B) lightning current arrester in accordance with DIN EN 61643-11 for interface 0 to 1 (LPZ) to and/or in accordance with lightning protection concept to IEC 61312-1 and/or DIN V VDE V 0185-305 (IEC 62305)

- VDE test marks
- Conforms to VDN Directive 2nd Edition 2004
- Upper part and base, plug-in upper part
- Arresting capacity 50 kA (10/350 µs) per pole
- Voltage protection level < 2.0 kV
- Line following current quenching 25 kA Ipeak
- Incl. plug caps for identifying the connections
- Encapsulated, non-extinguishing spark gap: can be used in standard distributor housings

**Application example**: Industrial plants; lightning current arrester in accordance with VDN Directive 2nd Edition 2004 for pre-meter area.

**Note**: Required as decoupling length for surge voltage protection of 5 m of cable.

**MC 50-B 3**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage</td>
<td>230 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 1</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class I</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>0→1</td>
</tr>
<tr>
<td>Impulse discharge current (10/350)</td>
<td>50 kA</td>
</tr>
<tr>
<td>Total discharge current (10/350)</td>
<td>150 kA</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>50 kA</td>
</tr>
<tr>
<td>Arrester surge current (8/20) [total]</td>
<td>150 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>&lt; 2.0 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>&lt;100 ns</td>
</tr>
<tr>
<td>Follow current quenching capacity (eff) [N-PE]</td>
<td>25 kA</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>500 A</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40°C to +85°C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>6</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>10 - 50 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>10 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>10 - 25 mm²</td>
</tr>
</tbody>
</table>

**Dimensions**

**Connection options**

---

Always indicate the item number when ordering.
Lightning current arrester, 1-pole NPE

MC 125-B NPE: For use in TN-S and TT systems as N-PE discharge gap, type 1 (Class B) IEC 61643, for interface 0 to 1 (LPZ) according to lightning protection zone concept to IEC 61312-1 and/or DIN V VDE V 0185 Part 4 for use as discharge gap between N and PE.

- VDE test mark
- Protection capability 125 kA 10/350 µs
- Including plug caps for identifying the connections
- Protection level <2.5 kV
- Enclosed, non-extinguishing discharge gap: can be used in normal commercial distributor housings

Application example: lightning arrester in accordance with VDN Directive for pre-meter area. Note: required as de-coupling length for overvoltage protection of 5 m of cable.

### MC 125-B NPE

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Pack.</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC 125-B NPE</td>
<td>255</td>
<td>1</td>
<td>52.000</td>
</tr>
</tbody>
</table>

MC 125-B NPE: For use in TN-S and TT systems as N-PE discharge gap, type 1 (Class B) IEC 61643, for interface 0 to 1 (LPZ) according to lightning protection zone concept to IEC 61312-1 and/or DIN V VDE V 0185 Part 4 for use as discharge gap between N and PE.

- VDE test mark
- Protection capability 125 kA 10/350 µs
- Including plug caps for identifying the connections
- Protection level <2.5 kV
- Enclosed, non-extinguishing discharge gap: can be used in normal commercial distributor housings

Application example: lightning arrester in accordance with VDN Directive for pre-meter area. Note: required as de-coupling length for overvoltage protection of 5 m of cable.

### MC 125-B NPE

<table>
<thead>
<tr>
<th>Nominal voltage</th>
<th>U_n</th>
<th>230 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 1</td>
<td></td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class I</td>
<td></td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>0-1</td>
<td></td>
</tr>
<tr>
<td>Impulse discharge current (10/350)</td>
<td>(I_{imp})</td>
<td>50 kA</td>
</tr>
<tr>
<td>Total discharge current (10/350)</td>
<td>(I_{total})</td>
<td>125 kA</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>(I_n)</td>
<td>50 kA</td>
</tr>
<tr>
<td>Arrestor surge current (8/20) [total]</td>
<td>(I_{total 8/20})</td>
<td>125 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>(U_p)</td>
<td>&lt; 2.5 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>(t_A)</td>
<td>&lt; 100 ns</td>
</tr>
<tr>
<td>Follow current quenching capacity (eff) [N-PE]</td>
<td>(I_{f})</td>
<td>0.1 kA</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>(--)</td>
<td>A</td>
</tr>
<tr>
<td>Temperature range</td>
<td>(b)</td>
<td>-40 to +85 °C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>10 - 50 mm²</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>10 - 35 mm²</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>10 - 25 mm²</td>
<td></td>
</tr>
</tbody>
</table>
Lightning current arrestor MC, 255 V for TN-S and TT networks

Lightning current arrestor, 3-pole + NPE

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Version</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC 50-B 3+1</td>
<td>255</td>
<td>3 + NPE</td>
<td>1 pcs</td>
<td>168.000</td>
</tr>
</tbody>
</table>

LightningController-Set, 4-pole, for use in TN-S and TT networks:

Completely pre-terminated and ready for connection, consisting of:
- MC 50-B VDE: Lightning current arrestor, type 1 (Class B) to EN 61643-11 for interface 0 to 1 (LPZ) according to lightning protection zone concept to IEC 61313-1 and DIN VDE 0185-305.
- MC 125-B/NPE: N-PE spark gap, type 1 (Class B) to IEC 61643 for use in TN-S and TT systems.

- VDE test marks
- Conforms to VDN Directive 2nd Edition 2004
- Upper part and base, plug-in upper part
- Arresting capacity 125 kA 10/350 µs
- Voltage protection level < 2.0 kV
- Line following current quenching 25 kA Ipeak
- Incl. plug caps for identifying the connections
- Encapsulated, non-extinguishing spark gap: can be used in standard distributor housings


Note: Required as decoupling length for surge voltage protection of 5 m of cable.

**MC 50-B 3+1**

- Nominal voltage $U_n$: 230 V
- SPD to EN 61643-11: Type 1
- SPD to IEC 61643-11: Class I
- Lightning protection zone LPZ: 0→1
- Impulse discharge current (10/350) $I_{imp}$: 50 kA
- Total discharge current (10/350) $I_{total}$: 125 kA
- Nominal discharge current (8/20) $I_n$: 50 kA
- Arrester surge current (8/20) [total] $I_{total 8/20}$: 125 kA
- Voltage protection level $U_p$: < 2.0 kV
- Response time $t_A$: < 100 ns
- Follow current quenching capacity (eff) [N-PE] $I_f$: 25 kA
- Maximum back-up fuse: 500 A
- Temperature range $t$: -40 → +85 °C
- Division unit TE (17.5 mm): 8
- Protection rating IP20
- Connection cross-section rigid: 10 - 50 mm²
- Connection cross-section, multi-wire: 10 - 35 mm²
- Connection cross-section, flexible: 10 - 25 mm²

Always indicate the item number when ordering.
Surge protection device for energy technology, arrester, type 1 (industry)

- Lightning current and surge arrestors
- High arresting capacity up to 35 kA (10/350) per pole
- Arrestors for buildings with lightning protection system
- Visual status display
- With remote signalling
- Simple standard DIN rail mounting
- Labelled connections
- Usable in systems with lightning protection class I-IV

The MCF lightning current arrestors meet the type 1 requirement class according to IEC 61643-11. These devices protect low-voltage systems and consumer systems against any kind of surge voltages. The voltage-limiting carbon spark gap provides multiple benefits. A short response time, a low protection level and high current leakage capability with long service life. In addition, the devices do not produce any line follow current. If circumstances are uncertain and there is a risk of fire from overloads, the cut-off unit disconnects the arrester safely from the mains.

Lightning current and surge arrester MCF 35

Always indicate the item number when ordering.
Lightning arrester MCF 35, 400/690 V for power networks

**Lightning arrester MCF 35, 400/690 V, 1-pole with IR**

![Image of lightning arrester](image)

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Version</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCF 35-1+FS-440</td>
<td>440</td>
<td>1-pole</td>
<td>1</td>
<td>98.000</td>
<td>5096974</td>
</tr>
</tbody>
</table>

- **Highest continuous voltage**
- **Weight**
- **Item No.**

**AlG Cast aluminium**

**Lightning arrester type 1**

- For lightning protection equipotential bonding to DIN EN 62305 (IEC 62305)
- Lightning current arresting capacity 35 kA (10/350) per pole
- Follow current extinguishing 50 kAeff, arrester back-up fuse up to 400 A gL/gG
- Encapsulated, non-extinguishing spark gap arrester for use in distributor housings
- Cut-off unit with visual indicator
- Remote signalling with potential-free changeover contact

**Application:** Without exception for 400/690 V network systems

<table>
<thead>
<tr>
<th>MCF 35-1+FS-440</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nominal voltage</strong></td>
</tr>
<tr>
<td><strong>Max. continuous operating voltage</strong></td>
</tr>
<tr>
<td><strong>SPD to EN 61643-11</strong></td>
</tr>
<tr>
<td><strong>SPD to IEC 61643-11</strong></td>
</tr>
<tr>
<td><strong>Impulse discharge current (10/350)</strong></td>
</tr>
<tr>
<td><strong>Nominal discharge current (8/20)</strong></td>
</tr>
<tr>
<td><strong>Voltage protection level</strong></td>
</tr>
<tr>
<td><strong>Follow current quenching capacity eff</strong></td>
</tr>
<tr>
<td><strong>Maximum back-up fuse</strong></td>
</tr>
<tr>
<td><strong>Protection rating</strong></td>
</tr>
<tr>
<td><strong>Response time</strong></td>
</tr>
<tr>
<td><strong>Temperature range</strong></td>
</tr>
</tbody>
</table>

**Dimensions**

**Connection options**

Always indicate the item number when ordering.
**Lightning arrestor MCF 35, 400/690 V for power networks**

**Lightning arrestor MCF 35, 400/690 V, 3-pole with IR**

- Fully assembled 3-pole connection unit
- For lightning protection equipotential bonding according to DIN EN 62305 (IEC 62305)
- Lightning current arresting capacity 35 kA (10/350) per pole
- Line following current quenching 50 kAeff, arrestor back-up fuse up to 400 A gL/gG
- Encapsulated, non-extinguishing spark gap arrestor for use in distributor housings
- Cut-off unit with visual indicator
- Remote signalling with potential-free changeover contact
- For finished mounting on busbars and walls

**Application:** Without exception for 400/690 V power systems

### Dimensions

![Dimensions](image)

### Connection options

![Connection options](image)

**MCF 35-P3+FS-440**

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCF 35-P3+FS-440</td>
<td>440 V</td>
<td>3-pole</td>
<td>1</td>
<td>400.000</td>
<td>5096976</td>
</tr>
</tbody>
</table>

**AlG Cast aluminium**

**Lightning arrestor type 1**

- Fully assembled 3-pole connection unit
- For lightning protection equipotential bonding according to DIN EN 62305 (IEC 62305)
- Lightning current arresting capacity 35 kA (10/350) per pole
- Line following current quenching 50 kAeff, arrestor back-up fuse up to 400 A gL/gG
- Encapsulated, non-extinguishing spark gap arrestor for use in distributor housings
- Cut-off unit with visual indicator
- Remote signalling with potential-free changeover contact
- For finished mounting on busbars and walls

**Application:** Without exception for 400/690 V power systems
Combination arrester in VG housing for TN-S and TT network systems

**VG housing with MC 50-B/3+1**

- Lightning arrester system solution Type 1 (Class B) to DIN EN 61643-11.
- LightningController MC 50-B/VDE and MC 125-B/NPE installed in insulating housing IP 65, sealable housing
- Pulsed current 100 kA 10/350 µs BET-tested
- Conforms to requirements of VDN Directive, 2nd Edition 2004
- Protection level < 2.0 kV
- Enclosed, non-extinguishing discharge gap
- Suitable for TNS and TT network systems

Application example: the system solution is used in the pre-meter area according to VDN Directive, 2nd Edition 2004.

**Dimensions**

**Connection options**

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal voltage</th>
<th>U_{nom}</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VG 4-B TNS+TT</td>
<td>230 V</td>
<td></td>
<td>3 + NPE</td>
<td>1</td>
<td>290.000</td>
<td>5089200</td>
</tr>
</tbody>
</table>

**VG 4-B TNS+TT**

- Nominal voltage $U_{nom}$: 230 V
- SPD to EN 61643-11 Type 1
- SPD to IEC 61643-11 Class I
- Lightning protection zone LPZ: 0–1
- Impulse discharge current (10/350): $I_{imp}$: 50 kA
- Total discharge current (10/350): $I_{total}$: 125 kA
- Nominal discharge current (8/20): $I_{nom}$: 50 kA
- Arrestor surge current (8/20) [total]: $I_{total}$: 125 kA
- Voltage protection level $U_{up}$: <2.0 kV
- Response time: $t_{A}$: <100 ns
- Follow current quenching capacity left: $I_{fie}$: 12.5 kA
- Follow current quenching capacity (eff) [N-PE]: $I_{fi}$: 25 kA
- Maximum backup fuse: 500 A
- Temperature range $\theta$: -40 - -85 °C
- Division unit TE (17.5 mm): 8
- Protection rating: IP54
- Connection cross-section rigid: 10 - 50 mm²
- Connection cross-section, multi-wire: 10 - 35 mm²
- Connection cross-section, flexible: 10 - 25 mm²

Always indicate the item number when ordering.
Combination arrester in VG housing for TN-S and TT network systems

VG housing with MC 50-B/3

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VG 3-B TNC</td>
<td>255</td>
<td>3-pole</td>
<td>5089212</td>
</tr>
</tbody>
</table>

VG...: Lightning arrester system solution Type 1 (Class B) to DIN EN 61643-11.

- LightningController MC 50-B/VDE installed in insulating housing IP 65, sealable housing
- Pulsed current 100 kA 10/350 µs BET-tested
- Conforms to requirements of VDN Directive, 2nd Edition 2004
- Protection level < 2.0 kV
- Enclosed, non-extinguishing discharge gap
- Suitable for TNC network systems

Application example: the system solution is used in the pre-meter area according to VDN Directive, 2nd Edition 2004.

### VG 3-B TNC

- **Nominal voltage** $U_{n}$: 230 V

#### SPD to EN 61643-11
- Type 1

#### SPD to IEC 61643-11
- Class I

#### Lightning protection zone LPZ
- 0→1

#### Impulse discharge current ($10/350$) $I_{imp}$: 50 kA

#### Total discharge current ($10/350$) $I_{total}$: 150 kA

#### Nominal discharge current ($8/20$) $I_{n}$: 50 kA

#### Arrestor surge current ($8/20$) [total] $I_{Total 8/20}$: 150 kA

#### Voltage protection level $U_{p}$: < 2.0 kV

#### Response time $t_{A}$: < 100 ns

#### Follow current quenching capacity left $I_{off}$: 12.5 kA

#### Maximum back-up fuse $I_{F}$: 500 A

#### Temperature range $\vartheta$: -40°C to +85°C

#### Division unit TE (17.5 mm): 6

#### Protection rating IP54

#### Connection cross-section rigid: 10 - 50 mm²

#### Connection cross-section, multi-wire: 10 - 35 mm²

#### Connection cross-section, flexible: 10 - 25 mm²

Always indicate the item number when ordering.
### Upper part, lightning current arrester

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC 50-B 0 VDE</td>
<td>255</td>
<td>1</td>
<td>24.000</td>
<td>5096820</td>
</tr>
</tbody>
</table>

MC 50-B/0: LightningController, upper part

### Upper part, lightning current arrester with function display

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC 50-B 0-OS</td>
<td>255</td>
<td>1</td>
<td>19.500</td>
<td>5096825</td>
</tr>
</tbody>
</table>

MC 50-B/0 OS: LightningController, upper part

Capacity: < 1mW

Always indicate the item number when ordering.
**Lightning arrestor/combination arrestor base**

- **MC 50-B U VDE**
  - 1-pole
- **MCD 50-B**
- Including plug caps for identifying the connections

### Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC 50-B U VDE</td>
<td>1</td>
<td>18.000</td>
<td>5096839</td>
</tr>
</tbody>
</table>

**Decoupling inductivity**

- LC 63: Decoupling inductivity.
  - Compact design in a 35 mm housing
  - Two connection options for input and output
  - Nominal load current 63 A
  - Nominal inductivity 5 µH

### Application Example
Application example: in combination with MC 50-B VDE and V 20-C for line lengths of less than 5 m.

### Accessories for lightning current arrester

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC V3</td>
<td>10</td>
<td>1.700</td>
<td>5096884</td>
</tr>
<tr>
<td>MC V4</td>
<td>10</td>
<td>2.300</td>
<td>5096886</td>
</tr>
</tbody>
</table>

**MC-V...**: Copper bridge 16 mm², suitable for bridging MC arrestors in side channel.

- V3 for 3-pole circuits
- V4 for 4-pole circuits

Always indicate the item number when ordering.
Mounting plate, 1-pole

- Mounting plate for installation of the arrestor MCF 35-1+FS-440
- Prefabricated hole pattern for mounting the arrestor on busbars
- Required screws for installation the arrestor enclosed

V2A Stainless steel, grade 304

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCF-MS-P1</td>
<td>19.600</td>
<td>5096992</td>
</tr>
</tbody>
</table>

Mounting plate 1-pole M10

- Mounting plate with threaded connector M10
- Mounting plate with threaded M10 connector to install the arrestor MCF 35-1+FS-440
- M10 bolts for direct installation of the arrestor on busbars
- Required screws for installation enclosed

V2A Stainless steel, grade 304

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCF-MS-M10</td>
<td>14.200</td>
<td>5096990</td>
</tr>
</tbody>
</table>

Mounting plate, 3-pole

- Mounting plate 3-pole for installation of the arrestor MCF 35-1+FS-440
- Prefabricated hole pattern for mounting the arrestor on busbars
- Suitable for wall mounting
- Required screws for installation enclosed

V2A Stainless steel, grade 304

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCF-MS-P3</td>
<td>99.800</td>
<td>5096994</td>
</tr>
</tbody>
</table>
V20 Überspannungsableiter Typ 2

V20 surge arrester type 2
Surge protection energy technology, type 2 arrester

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surge arrester V20</td>
<td>107</td>
</tr>
<tr>
<td>System solution, surge arrester V20 in housing</td>
<td>158</td>
</tr>
<tr>
<td>Accessories, upper parts and bases V20</td>
<td>161</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge protection energy technology, arrestor, type 2
The plus of the V20 family

- Connectable surge arrester
- High arresting capacity
- Visual status display
- Available with optional remote signalling
- Vibration-proof
- Simple standard DIN rail mounting
- Labelled connections
- Voltage encoding

Function and areas of use
The surge arrestors V20 meet the type 2 requirement class according to IEC 61643-11. These devices protect low-voltage consumer systems from overvoltages of all types and are available in single-pole to four-pole versions. The use of high-performance varistors permits a rapid response time and a low protection level, without any line follow current. If circumstances are uncertain and there is a risk of fire from an overload, the internal cut-off unit disconnects the arrester from the mains if necessary. In addition, the QR code printed on the arrester allows direct access to the online installation instructions.

Surge arrester V20

Always indicate the item number when ordering.
### Surge arrester V20 in 75 V, type 2

**Surge arrester V20, 1-pole 75 V**

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage (V)</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight (kg/100 pcs.)</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-1-75</td>
<td>75</td>
<td>IP20</td>
<td></td>
<td>1</td>
<td>11.500</td>
<td>5095141</td>
</tr>
</tbody>
</table>

Surge arrester, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

#### V20-1-75

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_{n}$: 60 V
- Maximum continuous voltage AC $U_{m}$: 75 V
- Nominal discharge current (8/20 µs) $I_{10/20}$: 20 kA
- Maximum discharge current (8/20 µs) $I_{max}$: 40 kA
- Arrestor surge current (8/20 µs) [total] $I_{total}$: 40 kA
- Protection level [L-N] $U_{min}$: 0.5 kV
- Residual voltage [L-N] @ 1 kA $U_{res}$: 0.3 kV
- Residual voltage [L-N] @ 5 kA $U_{res}$: 0.4 kV
- Max. mains-side overcurrent protection $I_{max}$: 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection $I_{t}$: 25 kA
- Operating temperature range $T_{o}$: -40 to +80 °C
- Protection rating IP20
- Approvals: UL, OVE, VDE, KEMA
- Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
- Cable cross-section, flexible (fine wire) 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

Always indicate the item number when ordering.
Surge arrester V20 in 75 V, type 2, for TN-S networks

Surge arrester V20, 2-pole, 75 V

For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

Dimensions

Connection options

Surge arrester, type 2

V20-2-75

<table>
<thead>
<tr>
<th>Type</th>
<th>Protection rating</th>
<th>Pole version</th>
<th>Weight</th>
<th>Pack.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-2-75</td>
<td>IP20</td>
<td>2</td>
<td>22.800</td>
<td>1</td>
<td>5095142</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrestor V20 in 150 V, type 2

Surge arrestor V20, 1-pole, 150 V

- Surge arrestor V20, 1-pole, 150 V
- Dimensions
- Connection options

Surge arrestor, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

V20-1-150

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2</td>
<td></td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II</td>
<td></td>
</tr>
<tr>
<td>SPD to UL 1449</td>
<td>Type 4</td>
<td></td>
</tr>
<tr>
<td>Nominal voltage AC (50 / 60 Hz)</td>
<td>$U_n$</td>
<td>120 V</td>
</tr>
<tr>
<td>Maximum continuous voltage AC</td>
<td>$U_C$</td>
<td>150 V</td>
</tr>
<tr>
<td>Nominal discharge current (8/20 µs)</td>
<td>$I_{8/20}$</td>
<td>20 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 µs)</td>
<td>$I_{max}$</td>
<td>40 kA</td>
</tr>
<tr>
<td>Arrestor surge current (8/20 µs) [total]</td>
<td>$I_{tot}$</td>
<td>40 kA</td>
</tr>
<tr>
<td>Protection level [L-N] @ 1 kA</td>
<td>$U_{res}$</td>
<td>0.5 kV</td>
</tr>
<tr>
<td>Residual voltage [L-N] @ 5 kA</td>
<td>$U_{res}$</td>
<td>0.6 kV</td>
</tr>
<tr>
<td>Max. mains-side overcurrent protection</td>
<td>160 A gL/gG</td>
<td></td>
</tr>
<tr>
<td>Short-circuit withstand for max. mains-side overcurrent protection</td>
<td>50 kA eff</td>
<td></td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>$I_{op}$</td>
<td>-40 - +80°C</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
<td></td>
</tr>
<tr>
<td>Approvals</td>
<td>UL, ÖVE, VDE, KEMA</td>
<td></td>
</tr>
<tr>
<td>Cable cross-section, flexible (fine-wire)</td>
<td>1.5 - 35 mm²</td>
<td></td>
</tr>
<tr>
<td>Rigid cable cross-section (single wire/multiwire)</td>
<td>16 - 2 AWG</td>
<td></td>
</tr>
<tr>
<td>Cable cross-section, flexible (fine-wire)</td>
<td>16 - 2 AWG</td>
<td></td>
</tr>
<tr>
<td>Rigid cable cross-section (single wire/multiwire)</td>
<td>16 - 2 AWG</td>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
**Surge arrestor V20, 2-pole, 150 V**

- **Highest continuous voltage AC**: 150 V
- **Pole version**: 2
- **Protection rating**: IP20
- **Weight**: 23.600 kg/100 pcs.
- **Item No.**: 5095152

Surge arrestor, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

---

**V20-2-150**

- SPD to EN 61643-11: Type 2
- SPD to IEC 61643-11: Class II
- SPD to UL 1449: Type 4
- Nominal voltage AC (50 / 60 Hz): \(U_n\) 120 V
- Maximum continuous voltage AC: \(U_{IC}\) 150 V
- Nominal discharge current (8/20 µs): \(I_{L-N}\) 20 kA
- Maximum discharge current (8/20 µs): \(I_{max}\) 40 kA
- Arrestor surge current (8/20 µs) [total]: \(I_{tot}\) 80 kA
- Protection level [L-N]: \(U_{R}\) 0.2 kV
- Residual voltage [L-N] @ 1 kA: \(U_{Res}\) 0.5 kV
- Residual voltage [L-N] @ 5 kA: \(U_{Res}\) 0.6 kV
- Max. mains-side overcurrent protection: 160 A gl/GG
- Short-circuit withstand for max. mains-side overcurrent protection: 50 kA eff
- Operating temperature range: \(T_{op}\) -40 \(^\circ\)C to +80 \(^\circ\)C
- Protection rating: IP20
- Approvals: UL, OVE, VDE, KEMA
- Cable cross-section, flexible (fine-wire): 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire): 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire): 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire): 16 - 2 AWG

---

Always indicate the item number when ordering.
**Surge arrestor V20, 2-pole + NPE, 150 V**

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

### Dimensions

**Connection options**

### V20-2+NPE-150

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_{in}$: 120 V
- Maximum continuous voltage AC $U_C$: 150 V
- Nominal discharge current (8/20 μs) $I_{lim}$: 20 kA
- Maximum discharge current (8/20 μs) $I_{max}$: 40 kA
- Arrester surge current (8/20 μs) [total] $I_{tot}$: 60 kA
- Protection level [L-N] $U_{res}$: 0.8 kV
- Combined voltage protection level [L-P-E] $U_{res}$: 1.2 kV
- Residual voltage [L-N] @ 1 kA $U_{res}$: 0.5 kV
- Residual voltage [L-N] @ 5 kA $U_{res}$: 0.6 kV
- Max. mains-side overcurrent protection 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range $T_a$: -40 to +80 °C
- Protection rating IP20
- Approvals UL, OVE, VDE, KEMA
- Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire) 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

### Specification Table

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5955232</td>
<td>1</td>
<td>32.800</td>
</tr>
</tbody>
</table>

**Always indicate the item number when ordering.**

- Surge protection energy technology, arrestor, type 2
**Surge arrester V20, 2-pole + NPE and FS, 150 V**

**Surge arrester V20 in 150 V, type 2, for TN-S networks**

**Type** V20-2+N/PE+FS-150

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

---

**V20-2+NPE+FS-150**

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz): \( U_{\text{n}} \) 120 V
- Maximum continuous voltage AC: \( U_{\text{c}} \) 150 V
- Nominal discharge current (8/20 µs): \( I_{\text{n-L/N}} \) 20 kA
- Maximum discharge current (8/20 µs): \( I_{\text{max}} \) 40 kA
- Arrestor surge current (8/20 µs) [total]: \( I_{\text{total}} \) 60 kA
- Protection level [L-N]: \( U_{\text{p}} \) 0.8 kV
- Combined voltage protection level [L-PE]: \( U_{\text{p-L/PE}} \) 1.2 kV
- Residual voltage [L-N] @ 1 kA: \( U_{\text{res}} \) 0.5 kV
- Residual voltage [L-N] @ 5 kA: \( U_{\text{res}} \) 0.6 kV
- Max. mains-side overcurrent protection: 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection: 50 kA eff
- Operating temperature range: \( T_{\text{op}} \) -40 to +80 °C
- Protection rating: IP20
- Approvals: UL, OVE, VDE, KEMA
- Switching power AC: 230 V; 0.5 A
- Switching power DC: 230 V; 0.1 A / 75 V; 0.5 A
- Connection cross-section, FM terminals: 0.5 – 1.5 mm²
- Connection cross-section, FM terminals: 21 – 16 AWG
- Cable cross-section, flexible (fine-wire): 1.5 – 35 mm²
- Rigid cable cross-section (single wire/multiwire): 1.5 – 35 mm²
- Cable cross-section, flexible (fine-wire): 16 – 2 AWG
- Rigid cable cross-section (single wire/multiwire): 16 – 2 AWG

---

**Dimensions**

**Connection options**

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Always indicate the item number when ordering.
Surge arrestor V20, 3-pole, 150 V

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

<table>
<thead>
<tr>
<th>Type</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-3-150</td>
<td>3</td>
<td>IP20</td>
<td>1</td>
<td>5095153</td>
</tr>
</tbody>
</table>

Surge arrestor, type 2

V20-3-150

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_{n}$ 120 V
- Maximum continuous voltage AC $U_{C}$ 150 V
- Nominal discharge current (8/20 µs) $i_{\text{L-N}}$ 20 kA
- Maximum discharge current (8/20 µs) $i_{\text{max}}$ 40 kA
- Arrestor surge current (8/20 µs) [total] $i_{\text{lim}}$ 120 kA
- Residual voltage [L-N] @ 1 kA $U_{\text{res}}$ 0,5 kV
- Residual voltage [L-N] @ 5 kA $U_{\text{res}}$ 0,6 kV
- Max. mains-side overcurrent protection 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range $T_{a}$ -40 - +80 °C
- Protection rating IP20
- Approvals UL, OVE, VDE, KEMA
- Cable cross-section, flexible (fine-wire) 1,5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire) 1,5 - 35 mm²
- Cable cross-section, flexible (fine-wire) 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

Always indicate the item number when ordering.
Surge arrestor V20 in 150 V, type 2, TN-S and TT networks

Surge arrestor V20, 1-pole+ NPE, 150 V

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

<table>
<thead>
<tr>
<th>Type</th>
<th>Protection rating</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-1+NPE-150-1</td>
<td>IP20</td>
<td>1</td>
<td>23.300</td>
<td>5095231</td>
</tr>
</tbody>
</table>

Surge arrestor, type 2

- Surge protection energy technology, arrestor, type 2

V20-1+NPE-150

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_{\text{ac}}$: 120 V
- Maximum continuous voltage AC $U_{\text{ac}}$: 150 V
- Nominal discharge current (8/20 µs) $I_{\text{L-N}}$: 20 kA
- Maximum discharge current (8/20 µs) $I_{\text{max}}$: 40 kA
- Arrestor surge current (8/20 µs) [total] $I_{\text{total}}$: 60 kA
- Protection level [L-N] $U_p$: 0.8 kV
- Combined voltage protection level [L-PE] $U_{\text{p, L-PE}}$: 1.2 kV
- Residual voltage [L-N] @ 1 kA $U_{\text{res}}$: 0.5 kV
- Residual voltage [L-N] @ 5 kA $U_{\text{res}}$: 0.6 kV
- Max. mains-side overcurrent protection $I_{\text{max}}$: 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection $I_{\text{total}}$: 50 kA eff
- Operating temperature range $T_{\text{op}}$: -40 - +80 °C
- Protection rating IP20
- Approvals UL, ÖVE, VDE, KEMA
- Cable cross-section, flexible (fine-wire): 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire): 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire): 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire): 16 - 2 AWG

Always indicate the item number when ordering.
Surge arrester V20, 3-pole + NPE, 150 V

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

### Dimensions

![Dimensions Diagram](image)

### Connection options

![Connection Options Diagram](image)

### Connection options

- SPD to EN 61643-11 Type 2
- SPD to IEC 61643-11 Class II
- SPD to UL 1449 Type 4
- Nominal voltage AC (50 / 60 Hz) $U_n$ 120 V
- Maximum continuous voltage AC $U_C$ 150 V
- Nominal discharge current (8/20 µs) $I_{th/n}$ 20 kA
- Maximum discharge current (8/20 µs) $I_{max}$ 40 kA
- Arrester surge current (8/20 µs) [total] $I_{total}$ 60 kA
- Combined voltage protection level [L-PE] $U_{res}$ 1.2 kV
- Residual voltage [L-N] @ 1 kA $U_{res}$ 0.5 kV
- Residual voltage [L-N] @ 5 kA $U_{res}$ 0.6 kV
- Max. mains-side overcurrent protection 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range $T_o$ -40°C to +80°C
- Protection rating IP20
- Approvals UL, OVE, VDE, KEMA
- Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire) 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

### Surge arrester, type 2

<table>
<thead>
<tr>
<th>Type</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-3+NPE-150</td>
<td>3+N/PE</td>
<td>IP20</td>
<td>42.700</td>
<td>5095233</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrester V20 in 150 V, type 2, TN-S and TT networks

# Surge arrester V20, 3-pole+ NPE and FS, 150 V

![Diagram of Surge arrester V20](image)

**Highest continuous voltage**

<table>
<thead>
<tr>
<th>Type</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-3+NPE+FS-150</td>
<td>3+N/PE</td>
<td>IP20</td>
<td>1</td>
<td>43.300</td>
<td>5095321</td>
</tr>
</tbody>
</table>

Surge arrester, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

---

V20-3+NPE+FS-150

**SPD to EN 61643-11**

**SPD to IEC 61643-11**

**SPD to UL 1449**

Nominal voltage AC (50 / 60 Hz) $U_{N}$ 120 V

Maximum continuous voltage AC $U_{IC}$ 150 V

Nominal discharge current (8/20 µs) $I_{N1/(8/20)}$ 20 kA

Maximum discharge current (8/20 µs) $I_{max}$ 40 kA

Arrester surge current (8/20 µs) [total] $I_{surf}$ 60 kA

Protection level [L-N] $U_{U}$ 0.8 kV

Combined voltage protection level [L-PE] $U_{U/L-PE}$ 1.2 kV

Residual voltage [L-N] @ 1 kA $U_{res}$ 0.5 kV

Residual voltage [L-N] @ 5 kA $U_{res}$ 0.6 kV

Max. mains-side overcurrent protection 160 A gL/gG

Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff

Operating temperature range $T_{u}$ -40 – +80 °C

Protection rating IP20

Approvals UL, ÖVE, VDE, KEMA

Switching power AC 230 V; 0.5 A

Switching power DC 230 V; 0.1 A / 75 V; 0.5 A

Connection cross-section, FM terminals 0.5 – 1.5 mm²

Connection cross-section, FM terminals 21 – 16 AWG

Rigid cable cross-section (single wire/multiwire) 1.5 – 35 mm²

Cable cross-section, flexible (fine-wire) 16 - 2 AWG

Cable cross-section, flexible (fine-wire) 16 - 2 AWG

Always indicate the item number when ordering.
Surge arrestor V20 in 280 V, type 2

Surge arrestor V20, 1-pole, 280 V

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

V20-1-280

<table>
<thead>
<tr>
<th>Type</th>
<th>Protection rating</th>
<th>Nominal voltage AC (50 / 60 Hz)</th>
<th>Nominal discharge current (8/20 µs)</th>
<th>Maximum continuous voltage AC</th>
<th>Maximum discharge current (8/20 µs)</th>
<th>Arrestor surge current (8/20 µs) [total]</th>
<th>Residual voltage [L-N] @ 1 kA</th>
<th>Residual voltage [L-N] @ 5 kA</th>
<th>Max. mains-side overcurrent protection</th>
<th>Short-circuit withstand for max. mains-side overcurrent protection</th>
<th>Operating temperature range</th>
<th>Protection rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-1-280</td>
<td>IP20</td>
<td>230 V</td>
<td>40 kA</td>
<td>280 V</td>
<td>40 kA</td>
<td>40 kA</td>
<td>0.8 kV</td>
<td>1.0 kV</td>
<td>160 A gL/gG</td>
<td>50 kA eff</td>
<td>-40 to +80 °C</td>
<td>IP20</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrestor V20 in 280 V, type 2

Surge arrestor V20, 1-pole with remote signalling, 280 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-1+FS-280</td>
<td>280</td>
<td>1</td>
<td>IP20</td>
<td>1</td>
<td>13.100</td>
<td>5095281</td>
</tr>
</tbody>
</table>

Surge arrestor, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

---

V20-1+FS-280

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II</td>
</tr>
<tr>
<td>SPD to UL 1449</td>
<td>Type 4</td>
</tr>
<tr>
<td>Nominal voltage AC (50 / 60 Hz)</td>
<td>U_n = 230 V</td>
</tr>
<tr>
<td>Maximum continuous voltage AC</td>
<td>U_c = 280 V</td>
</tr>
<tr>
<td>Nominal discharge current (8/20 µs)</td>
<td>I_{L-N} = 20 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 µs)</td>
<td>I_{nom} = 40 kA</td>
</tr>
<tr>
<td>Arrestor surge current (8/20 µs) [total]</td>
<td>I_{total} = 40 kA</td>
</tr>
<tr>
<td>Protection level [L-N] @ 1 kA</td>
<td>U_{res} = 0.8 kV</td>
</tr>
<tr>
<td>Residual voltage [L-N] @ 5 kA</td>
<td>U_{res} = 1.0 kV</td>
</tr>
<tr>
<td>Max. mains-side overcurrent protection</td>
<td>160 A gL/gG</td>
</tr>
<tr>
<td>Short-circuit withstand for max. mains-side overcurrent protection</td>
<td>50 kA eff</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>T_o = -40 - +80 °C</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Approvals</td>
<td>UL, ÖVE, VDE, KEMA</td>
</tr>
<tr>
<td>FM contacts</td>
<td>Changeover</td>
</tr>
<tr>
<td>Switching power AC</td>
<td>230 V; 0,5 A</td>
</tr>
<tr>
<td>Switching power DC</td>
<td>230 V; 0,1 A / 75 V; 0,5 A</td>
</tr>
<tr>
<td>Connection cross-section, FM terminals</td>
<td>0,5 - 1,5 mm²</td>
</tr>
<tr>
<td>Connection cross-section, FM terminals</td>
<td>21 - 16 AWG</td>
</tr>
<tr>
<td>Cable cross-section, flexible (fine-wire)</td>
<td>1.5 - 35 mm²</td>
</tr>
<tr>
<td>Rigidity cable cross-section (single wire/multiwire)</td>
<td>16 - 2 AWG</td>
</tr>
<tr>
<td>Cable cross-section, flexible (fine-wire)</td>
<td>16 - 2 AWG</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrester V20 in 280 V, type 2, for TN-S networks

Surge arrester V20, 2-pole, 280 V

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>25.600</td>
<td>5095162</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Surge arrester, type 2

Nominal voltage AC (50 / 60 Hz) $U_n$ 230 V
Maximum continuous voltage AC $U_C$ 280 V
Nominal discharge current (8/20 μs) $I_{L-N}$ 20 kA
Maximum discharge current (8/20 μs) $I_{max}$ 40 kA
Arrester surge current (8/20 μs) [total] $I_{total}$ 80 kA
Protection level [L-N] $U_{res}$ 0.8 kV
Residual voltage [L-N] @ 1 kA $U_{res}$ 1.0 kV
Max. mains-side overcurrent protection 160 A gL/gG
Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
Operating temperature range $T_o$ -40 - +80 °C
Protection rating IP20
Approvals UL, OVE, VDE, KEMA
Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²
Cable cross-section, flexible (fine-wire) 16 - 2 AWG
Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

Always indicate the item number when ordering.
Surge arrestor V20 in 280 V, type 2, for TN-S networks

Surge arrestor V20, 2-pole with remote signalling, 280 V

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity up to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

V20-2+FS-280

<table>
<thead>
<tr>
<th>SPD to EN 61643-11</th>
<th>Type 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II</td>
</tr>
<tr>
<td>SPD to UL 1449</td>
<td>Type 4</td>
</tr>
</tbody>
</table>

- Nominal voltage AC (50 / 60 Hz) $U_{\text{n}}$ 230 V
- Maximum continuous voltage AC $U_{\text{m}}$ 280 V
- Nominal discharge current (8/20 µs) $I_{\text{n,L-N}}$ 20 kA
- Maximum discharge current (8/20 µs) $I_{\text{mmax}}$ 40 kA
- Arrestor surge current (8/20 µs) $I_{\text{max}}$ 80 kA
- Protection level [L-N] $U_{\text{res,L-N}}$ 1.3 kV
- Residual voltage [L-N] @ 1 kA $U_{\text{res,L-N}}$ 0.8 kV
- Residual voltage [L-N] @ 5 kA $U_{\text{res,L-N}}$ 1.0 kV
- Max. mains-side overcurrent protection $I_{\text{max}}$ 160 A gl/l/2
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range $T_{\text{op}}$ -40 - +80 °C
- Protection rating IP20
- Approvals UL, OVE, VDE, KEMA
- FM contacts Changeover
- Switching power AC $230 \text{ V} ; 0.5 \text{ A}$
- Switching power DC $230 \text{ V} ; 0.1 \text{ A} / 75 \text{ V} ; 0.5 \text{ A}$
- Connection cross-section, FM terminals $0.5 - 1.5 \text{ mm}^2$
- Connection cross-section, FM terminals $21 - 16 \text{ AWG}$
- Cable cross-section, flexible (fine-wire) $1.5 - 35 \text{ mm}^2$
- Cable cross-section, flexible (multiwire) $1.5 - 35 \text{ mm}^2$
- Cable cross-section, rigid (fine-wire) $16 - 2 \text{ AWG}$
- Cable cross-section, rigid (multiwire) $16 - 2 \text{ AWG}$

Always indicate the item number when ordering.
Surge arrestor V20 in 280 V, type 2, for TN-S networks

Surge arrestor V20, 2-pole + NPE, 280 V

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal voltage (50 / 60 Hz)</th>
<th>Protection rating</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-2+NPE-280</td>
<td>280 V</td>
<td>2+N/PE</td>
<td>1</td>
<td>34.600</td>
<td>5095252</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrester V20, 2-pole + NPE and remote signalling, 280 V

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

---

### Specifications:

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal voltage AC (50/60 Hz)</th>
<th>Maximum continuous voltage AC</th>
<th>Nominal discharge current (8/20 μs)</th>
<th>Maximum discharge current (8/20 μs)</th>
<th>Arrester surge current (8/20 μs) [total]</th>
<th>Protection level [L-N]</th>
<th>Combined voltage protection level [L-PE]</th>
<th>Residual voltage [L-N] @ 1 kA</th>
<th>Residual voltage [L-N] @ 5 kA</th>
<th>Max. mains-side overcurrent protection</th>
<th>Short-circuit withstand for max. mains-side overcurrent protection</th>
<th>Protection rating</th>
<th>Operating temperature range</th>
<th>Connection cross-section, FM terminals</th>
<th>Switching power AC</th>
<th>Switching power DC</th>
</tr>
</thead>
</table>
Surge arrester V20 in 280 V, type 2, for TN-C networks

**Surge arrester V20, 3-pole, 280 V**

### Connection options

- SPD to EN 61643-11: Type 2
- SPD to IEC 61643-11: Class II
- SPD to UL 1449: Type 4

### Nominal voltage AC (50 / 60 Hz)

- Un: 230 V

### Maximum continuous voltage AC

- Um: 280 V

### Nominal discharge current (8/20 μs)

- Imax: 20 kA

### Maximum discharge current (8/20 μs)

- Imax: 40 kA

### Arrester surge current (8/20 μs) [total]

- Is: 120 kA

### Residual voltage [L-N] @ 1 kA

- Ures: 0.8 kV

### Residual voltage [L-N] @ 5 kA

- Ures: 1.0 kV

### Max. mains-side overcurrent protection

- Max. mains-side overcurrent protection: 160 A gL/gG

### Short-circuit withstand for max. mains-side overcurrent protection

- Short-circuit withstand: 50 kA eff

### Operating temperature range

- Operating temperature range: -40 - +80 °C

### Protection rating

- Protection rating: IP20

### Approvals

- Approvals: UL, VDE, KEMA

### Cable cross-section, flexible (fine-wire)

- 1.5 - 35 mm²

### Rigid cable cross-section (single wire/multiwire)

- 1.5 - 35 mm²

### Cable cross-section, flexible (fine-wire)

- 16 - 2 AWG

### Rigid cable cross-section (single wire/multiwire)

- 16 - 2 AWG

**Dimensions**

- Dimensions: 90 x 53.4 x 45 mm

**Application:** Equipotential bonding in main and sub-distributions.

**Surge arrester, type 2**

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

**Surge arrester, type 2**

- Nominal voltage AC (50 / 60 Hz)
- Protection level [L-N]
- Residual voltage [L-N] @ 1 kA
- Residual voltage [L-N] @ 5 kA
- Max. mains-side overcurrent protection
- Short-circuit withstand for max. mains-side overcurrent protection
- Operating temperature range
- Protection rating

**Connection options**

- Connection options: 280 V

**Always indicate the item number when ordering.**

---

**Item No.: 5095163**
Surge arrester V20, 3-pole with remote signalling, 280 V

**Type V20-3+FS-280**

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-3+FS-280</td>
<td>280</td>
<td>3</td>
<td>IP20</td>
<td>36.400</td>
<td>5095283</td>
</tr>
</tbody>
</table>

Surge arrester, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

**V20-3+FS-280**

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_n$: 230 V
- Maximum continuous voltage AC $U_{ac}$: 280 V
- Nominal discharge current (8/20 µs) $I_{lim}$: 20 kA
- Maximum discharge current (8/20 µs) $I_{lim}$: 40 kA
- Arrestor surge current (8/20 µs) [total] $I_{imp}$: 120 kA
- Protection level [L-N] $U_{res}$: 0.8 kV
- Residual voltage [L-N] @ 1 kA $U_{res}$: 1.3 kV
- Residual voltage [L-N] @ 5 kA $U_{res}$: 1.0 kV
- Max. mains-side overcurrent protection 160 A glL/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range $T_o$: -40 to +80 °C
- Protection rating IP20
- Approvals UL, OVE, VDE, KEMA
- FM contacts Changeover
- Switching power AC 230 V: 0.5 A
- Switching power DC 230 V: 0.1 A / 75 V: 0.5 A
- Connection cross-section, FM terminals 0.5 - 1.5 mm²
- Connection cross-section, FM terminals 21 - 16 AWG
- Cable cross-section, flexible (tine-wire) 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²
- Cable cross-section, flexible (tine-wire) 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

Always indicate the item number when ordering.
Surge arrestor V20 in 280 V, type 2, TN-S networks

**Surge arrestor V20, 4-pole, 280 V**

![Surge arrestor V20 in 280 V, type 2, TN-S networks](image)

**Dimensions**

![Dimensions](image)

**Connection options**

![Connection options](image)

**Surge arrestor, type 2**

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

**Application:** Equipotential bonding in main and sub-distributions.

**V20-4-280**

<table>
<thead>
<tr>
<th>SPD to EN 61643-11</th>
<th>Type 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II</td>
</tr>
<tr>
<td>SPD to UL 1449</td>
<td>Type 4</td>
</tr>
<tr>
<td>Nominal voltage AC (50 / 60 Hz)</td>
<td>$U_n$</td>
</tr>
<tr>
<td>Maximum continuous voltage AC</td>
<td>$U_C$</td>
</tr>
<tr>
<td>Nominal discharge current (8/20 μs)</td>
<td>$I_{L-N}$</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>$I_{max}$</td>
</tr>
<tr>
<td>Arrestor surge current (8/20 μs) [total]</td>
<td>$I_{total}$</td>
</tr>
<tr>
<td>Residual voltage [L-N] @ 1 kA</td>
<td>$U_{res}$</td>
</tr>
<tr>
<td>Residual voltage [L-N] @ 5 kA</td>
<td>$U_{res}$</td>
</tr>
<tr>
<td>Max. mains-side overcurrent protection</td>
<td>160 A gl/Gg</td>
</tr>
<tr>
<td>Short-circuit withstand for max. mains-side overcurrent protection</td>
<td>50 kA eff</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>$T_o$</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Approvals</td>
<td>UL, VDE, KEMA</td>
</tr>
</tbody>
</table>

**Cable cross-section, flexible (fine-wire)**

- 1.5 - 35 mm²

**Cable cross-section, flexible (fine-wire)**

- 16 - 2 AWG

**Cable cross-section, single wire/multiwire**

- 16 - 2 AWG

Always indicate the item number when ordering.
## Surge arrester V20, 4-pole with remote signalling, 280 V

**Type 2**

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity up to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

### Specifications

<table>
<thead>
<tr>
<th>Type 2</th>
<th>Voltage</th>
<th>Protection</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-4+FS-280</td>
<td>280</td>
<td>IP20</td>
<td>47.500</td>
<td>5095284</td>
</tr>
</tbody>
</table>

**Dimensions**

**Connection options**

**Overlay**

---

### V20-4+FS-280

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_{n}$ 230 V
- Maximum continuous voltage AC $U_{m}$ 280 V
- Nominal discharge current (8/20 µs) $I_{m,n}$ 20 kA
- Maximum discharge current (8/20 µs) $I_{m}$ 40 kA
- Arrester surge current (8/20 µs) [total] $I_{tm}$ 160 kA
- Protection level [L-N] $U_{r}$ 1.3 kV
- Residual voltage [L-N] @ 1 kA $U_{res}$ 0.8 kV
- Residual voltage [L-N] @ 5 kA $U_{res}$ 1.0 kV
- Max. mains-side overcurrent protection 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range $T_{o}$ -40 - +80 °C
- Protection rating IP20
- Approvals UL, OVE, VDE, KEMA
- FM contacts Changeover
- Switching power AC 230 V; 0,5 A
- Switching power DC 230 V; 0,1 A / 75 V; 0,5 A
- Connection cross-section, FM terminals 0,5 - 1,5 mm²
- Connection cross-section, FM terminals 21 - 16 AWG
- Cable cross-section, flexible (line-wire) 1.5 - 35 mm²
- Cable cross-section, flexible (line-wire) 16 - 2 AWG
- Cable cross-section, rigid (line-wire) 16 - 2 AWG
- Cable cross-section, rigid (line-wire) 16 - 2 AWG

---

Always indicate the item number when ordering.
Surge arrestor V20, 1-pole + NPE, 280 V

**Dimensions**

- **Height:** 45 mm
- **Width:** 25.6 mm
- **Depth:** 29 mm
- **Height:** 73 mm

**Connection options**

- **Type:** V20-1+NPE-280
- **Pole version:** 1+N/PE
- **Protection rating:** IP20

**Surge arrestor, type 2**

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

**Application:** Equipotential bonding in main and sub-distributions.

---

**Highest continuous voltage**

<table>
<thead>
<tr>
<th>Type</th>
<th>Pole version</th>
<th>Protection rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-1+NPE-280</td>
<td>1+N/PE</td>
<td>IP20</td>
</tr>
</tbody>
</table>

**Surge arrestor, type 2**

- Item No.: 5095251
- Weight: 24.300 kg/100 pcs.

---

**V20-1+NPE-280**

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_{nc}$: 230 V
- Maximum continuous voltage $U_c$: 280 V
- Nominal discharge current (8/20 $\mu$s) $I_{L-N}$: 20 kA
- Maximum discharge current (8/20 $\mu$s) $I_{res}$: 40 kA
- Arrestor surge current (8/20 $\mu$s) [total] $I_{total}$: 60 kA
- Protection level [L-N] $U_{res}$: 1.3 kV
- Combined voltage protection level [L-PE] $U_{res}$/L-PE: 1.5 kV
- Residual voltage [L-N] @ 1 kA $U_{res}$: 0.8 kV
- Residual voltage [L-N] @ 5 kA $U_{res}$: 1.0 kV
- Max. mains-side overcurrent protection: 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection: 50 kA eff
- Operating temperature range $T_{u}$: -40 ± 80 °C
- Protection rating: IP20
- Approvals: UL, OVE, VDE, KEMA
- Cable cross-section, flexible (fine-wire): 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire): 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire): 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire): 16 - 2 AWG

---

Always indicate the item number when ordering.
**Surge arrestor V20, 1-pole + NPE and remote signalling, 280 V**

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal voltage (280 V)</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-1+NPE+FS-280</td>
<td>280</td>
<td>1+N/PE</td>
<td>IP20</td>
<td>1</td>
<td>24.6</td>
<td>5095331</td>
</tr>
</tbody>
</table>

Surge arrestor, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

**V20-1+NPE+FS-280**

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_n = 230$ V
- Maximum continuous voltage AC $U_{cc} = 280$ V
- Nominal discharge current (8/20 μs) $I_{n/L-N} = 20$ kA
- Maximum discharge current (8/20 μs) $I_{max} = 40$ kA
- Arrestor surge current (8/20 μs) [total] $I_{t/n} = 60$ kA
- Protection level [L-N] $U_p = 1.3$ kV
- Combined voltage protection level [L-PE] $U_{/L-PE} = 1.5$ kV
- Residual voltage [L-N] @ 1 kA $U_{res} = 0.8$ kV
- Residual voltage [L-N] @ 5 kA $U_{res} = 1.0$ kV
- Max. mains-side overcurrent protection 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range $T_u = -40 \text{ to } +80^\circ C$
- Protection rating IP20
- Approvals UL, OVE, VDE, KEMA
- Switching power AC 230 V; 0.5 A
- Switching power DC 230 V; 0.1 A / 75 V; 0.5 A
- Connection cross-section, FM terminals 0.5 - 1,5 mm²
- Connection cross-section, FM terminals 20 – 16 AWG
- Rigid cable cross-section (single wire/multwire) 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multwire) 16 - 2 AWG
- Rigid cable cross-section (single wire/multwire) 16 - 2 AWG
# Surge arrester V20, 3-pole + NPE, 280 V

![Surge arrester V20](image)

### Dimensions

- Width: 70 mm
- Height: 29 mm
- Depth: 44 mm

### Connection options

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449

### Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>V20-3+NPE-280</td>
</tr>
<tr>
<td>Nominal voltage AC</td>
<td>230 V</td>
</tr>
<tr>
<td>Maximum continuous voltage AC</td>
<td>280 V</td>
</tr>
<tr>
<td>Nominal discharge current (8/20 μs)</td>
<td>40 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>60 kA</td>
</tr>
<tr>
<td>Arrestor surge current (8/20 μs) [total]</td>
<td>1.3 kV</td>
</tr>
<tr>
<td>Combined voltage protection level [L-PE]</td>
<td>1.5 kV</td>
</tr>
<tr>
<td>Residual voltage [L-N] @ 1 kA</td>
<td>0.8 kV</td>
</tr>
<tr>
<td>Residual voltage [L-N] @ 5 kA</td>
<td>1.0 kV</td>
</tr>
<tr>
<td>Max. mains-side overcurrent protection</td>
<td>160 A gL/gG</td>
</tr>
<tr>
<td>Short-circuit withstand for max. mains-side overcurrent protection</td>
<td>50 kA eff</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>-40°C to +80°C</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Approvals</td>
<td>UL, OVE, VDE, KEMA</td>
</tr>
<tr>
<td>Cable cross-section, flexible (fine-wire)</td>
<td>1.5 - 35 mm²</td>
</tr>
<tr>
<td>Rigid cable cross-section (single wire/multiwire)</td>
<td>1.5 - 35 mm²</td>
</tr>
<tr>
<td>Cable cross-section, flexible (fine-wire)</td>
<td>16 - 2 AWG</td>
</tr>
<tr>
<td>Rigid cable cross-section (single wire/multiwire)</td>
<td>16 - 2 AWG</td>
</tr>
</tbody>
</table>

### Application

- Equipotential bonding in main and sub-distributions.

Always indicate the item number when ordering.
Surge arrestor V20 in 280 V, type 2, TN-S and TT networks

Surge arrestor V20, 3-pole + NPE and remote signalling, 280 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-3+NPE+FS-280</td>
<td>3+N/PE</td>
<td>IP20</td>
<td>1</td>
<td>46.300</td>
<td>5095333</td>
</tr>
</tbody>
</table>

Surge arrestor, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

V20-3+NPE+FS-280

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_n = 230$ V
- Maximum continuous voltage AC $U_{dc} = 280$ V
- Nominal discharge current (8/20 $\mu$s) $I_{d(L-N)} = 20$ kA
- Maximum discharge current (8/20 $\mu$s) $I_{max} = 10$ kA
- Arrestor surge current (8/20 $\mu$s) [total] $I_{PM} = 1.3$ kV
- Combined voltage protection level [L-PE] $U_{L-PE} = 1.5$ kV
- Residual voltage [L-N] @ 1 kA $U_{L-N} = 0.8$ kV
- Residual voltage [L-N] @ 5 kA $U_{L-N} = 1.0$ kV
- Max. mains-side overcurrent protection 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range $T_o = -40$ to $+80^\circ$C
- Protection rating IP20
- Approvals UL, OVE, VDE, KEMA
- Switching power AC 230 V, 0.5 A
- Switching power DC 230 V, 0.1 A / 75 V, 0.5 A
- Connection cross-section, FM terminals 0.5 - 1.5 mm²
- Connection cross-section, FM terminals 21 – 16 AWG
- Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire) 16 - 2 AWG
- Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

Always indicate the item number when ordering.
# Surge arrester V20 in 320 V, type 2

**Surge arrester V20, 1-pole, 320 V**

- CE EAL type 2 LFZ T-2
- IP20
- CE LVD
- UL 60695-1-12
- UL 94 V-0
- UL 1449
- VDE 0884-5
- VDE 0100-443 (IEC 60364-4-44)
- EN 50160
- EN 61643-11
- UL 1741

<table>
<thead>
<tr>
<th>Type</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-1-320</td>
<td>320</td>
<td>IP20</td>
<td>1</td>
<td>13.000</td>
<td>5095171</td>
</tr>
</tbody>
</table>

Surge arrester, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

**Dimensions**

**Connection options**

**V20-1-320**

<table>
<thead>
<tr>
<th>SPD to EN 61643-11</th>
<th>Type 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II</td>
</tr>
<tr>
<td>SPD to UL 1449</td>
<td>Type 4</td>
</tr>
<tr>
<td>Nominal voltage AC (50 / 60 Hz)</td>
<td>$U_n$ 230 V</td>
</tr>
<tr>
<td>Maximum continuous voltage AC</td>
<td>$U_C$ 320 V</td>
</tr>
<tr>
<td>Nominal discharge current (8/20 μs)</td>
<td>$I_{I/LN}$ 20 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>$I_{I/n}$ 40 kA</td>
</tr>
<tr>
<td>Arrester surge current (8/20 μs) [total]</td>
<td>$I_{I/total}$ 40 kA</td>
</tr>
<tr>
<td>Protection level [L-N]</td>
<td>$U_{res}$ 1.4 kV</td>
</tr>
<tr>
<td>Residual voltage [L-N] @ 1 kA</td>
<td>$U_{res}$ 1.0 kV</td>
</tr>
<tr>
<td>Residual voltage [L-N] @ 5 kA</td>
<td>$U_{res}$ 1.2 kV</td>
</tr>
<tr>
<td>Max. mains-side overcurrent protection</td>
<td>160 A glG</td>
</tr>
<tr>
<td>Short-circuit withstand for max. mains-side overcurrent protection</td>
<td>50 kA eff</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>$T_a$ -40 - +80 °C</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Approvals</td>
<td>UL, VDE, KEMA</td>
</tr>
<tr>
<td>Cable cross-section, flexible (fine-wire)</td>
<td>1.5 - 35 mm²</td>
</tr>
<tr>
<td>Rigid cable cross-section (single wire/multiwire)</td>
<td>16 - 2 AWG</td>
</tr>
<tr>
<td>Cable cross-section, flexible (fine-wire)</td>
<td>16 - 2 AWG</td>
</tr>
<tr>
<td>Rigid cable cross-section (single wire/multiwire)</td>
<td>16 - 2 AWG</td>
</tr>
</tbody>
</table>
Surge arrestor V20, 1-pole with remote signalling, 320 V

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

V20-1+FS-320
SPD to EN 61643-11
SPD to IEC 61643-11
SPD to UL 1449
Nominal voltage AC (50 / 60 Hz) \( U_n \) 230 V
Maximum continuous voltage AC \( U_{cc} \) 320 V
Nominal discharge current (8/20 \( \mu \)s) \( I_{lim} \) 20 kA
Maximum discharge current (8/20 \( \mu \)s) \( I_{max} \) 40 kA
Arrestor surge current (8/20 \( \mu \)s) [total] \( I_{total} \) 40 kA
Protection level [L-N] \( U_{res} \) 1.4 kV
Residual voltage [L-N] @ 1 kA \( U_{res} \) 1.0 kV
Residual voltage [L-N] @ 5 kA \( U_{res} \) 1.2 kV
Max. mains-side overcurrent protection 160 A gL/gG
Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
Operating temperature range \( T_o \) -40 - +80 °C
Protection rating IP20
Approvals UL, OVE, VDE, KEMA
FM contacts Changeover
Switching power AC 230 V; 0,5 A
Switching power DC 230 V; 0,1 A / 75 V; 0,5 A
Connection cross-section, FM terminals 0,5 - 1,5 mm²
Connection cross-section, FM terminals 21 - 16 AWG
Cable cross-section, flexible (line-wire) 1.5 - 35 mm²
Cable cross-section, flexible (line-wire) 16 - 2 AWG
Rigid cable cross-section (single wire/multwire) 16 - 2 AWG
Rigid cable cross-section (single wire/multwire) 16 - 2 AWG

Always indicate the item number when ordering.
Surge arrester V20 in 320 V, type 2, for TN-C networks

Surge arrester V20, 3-pole, 320 V

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

<table>
<thead>
<tr>
<th>Type</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-3-320</td>
<td>3</td>
<td>IP20</td>
<td>1</td>
<td>36.300</td>
<td>5095173</td>
</tr>
</tbody>
</table>

Surge arrester, type 2

- Nominal voltage AC (50 / 60 Hz)
- Maximum continuous voltage AC
- Nominal discharge current (8/20 μs)
- Maximum discharge current (8/20 μs)
- Arrestor surge current (8/20 μs) [total]
- Residual voltage [L-N] @ 1 kA
- Residual voltage [L-N] @ 5 kA
- Max. mains-side overcurrent protection
- Short-circuit withstand for max. mains-side overcurrent protection
- Operating temperature range
- Protection rating
- Approvals
- Cable cross-section, flexible (fine-wire)
- Rigid cable cross-section (single wire/multiwire)
- Cable cross-section, flexible (fine-wire)
- Rigid cable cross-section (single wire/multiwire)

Always indicate the item number when ordering.
Surge arrestor V20 in 320 V, type 2, for TN-C networks

Surge arrestor V20, 3-pole with remote signalling, 320 V

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity up to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variant (FS) has a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

**V20-3+FS-320**

<table>
<thead>
<tr>
<th>Type</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-3+FS-320</td>
<td>3</td>
<td>IP20</td>
<td>1</td>
<td>36.700</td>
<td>5095293</td>
</tr>
</tbody>
</table>

**Surge arrestor, type 2**

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) \( U_{\text{N}} \): 230 V
- Maximum continuous voltage AC \( U_{\text{Imax}} \): 320 V
- Nominal discharge current (8/20 μs) \( I_{\text{L-N}} \): 20 kA
- Maximum discharge current (8/20 μs) \( I_{\text{Imax}} \): 40 kA
- Arrestor surge current (8/20 μs) \( I_{\text{Imax}} \): 120 kA
- Residual voltage [L-N] @ 1 kA \( U_{\text{res}} \): 1.4 kV
- Residual voltage [L-N] @ 5 kA \( U_{\text{res}} \): 1.2 kV
- Max. mains-side overcurrent protection \( I_{\text{max}} \): 160 A gl/gG
- Short-circuit withstand for max. mains-side overcurrent protection \( I_{\text{max}} \): 50 kA eff
- Operating temperature range \( T_{\text{op}} \): -40 \( - +80^\circ \) C
- Protection rating: IP20
- Approvals: UL, OVE, VDE, KEMA
- FM contacts: Changeover
- Switching power AC: 230 V; 0.5 A
- Switching power DC: 230 V; 0.1 A / 75 V; 0.5 A
- Connection cross-section, FM terminals: 0.5 - 1.5 mm²
- Connection cross-section, FM terminals: 21 - 16 AWG
- Cable cross-section, flexible (fine-wire): 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multwire): 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire): 16 - 2 AWG
- Rigid cable cross-section (single wire/multwire): 16 - 2 AWG
Surge arrestor V20 in 320 V, type 2, TN-S and TT networks

Surge arrestor V20, 1-pole + NPE, 320 V

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.
Surge arrestor V20 in 320 V, type 2, TN-S and TT networks

Surge arrestor V20, 1-pole + NPE and remote signalling, 320 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-1+NPE+FS-320</td>
<td>320</td>
<td>1+N/PE</td>
<td>IP20</td>
<td>1</td>
<td>24.700</td>
<td>5095341</td>
</tr>
</tbody>
</table>

Surge arrestor, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

V20-1+NPE+FS-320

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) \( U_{\text{n}} \):
  - 230 V
- Maximum continuous voltage AC \( U_{\text{c}} \):
  - 320 V
- Nominal discharge current (8/20 μs) \( I_{\text{n},L-N} \):
  - 20 kA
- Maximum discharge current (8/20 μs) \( I_{\text{max}} \):
  - 40 kA
- Arrester surge current (8/20 μs) [total] \( I_{\text{total}} \):
  - 60 kA
- Protection level [L-N] \( U_{\text{p}} \):
  - 1.4 kV
- Combined voltage protection level [L-PE] \( U_{\text{p},LPE} \):
  - 1.7 kV
- Residual voltage [L-N] @ 1 kA \( U_{\text{res}} \):
  - 1.0 kV
- Residual voltage [L-N] @ 5 kA \( U_{\text{res}} \):
  - 1.2 kV
- Max. mains-side overcurrent protection
  - 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection
  - 50 kA eff
- Operating temperature range \( T_{\text{op}} \):
  - -40 – +80 °C
- Protection rating \( IP_{20} \)
- Approvals
  - UL, OVE, VDE, KEMA
- Changeover
- Switching power AC
  - 230 V, 0.5 A
- Switching power DC
  - 230 V, 0.1 A / 75 V, 0.5 A
- Connection cross-section, FM terminals
  - 0.5 - 1.5 mm²
- Connection cross-section, FM terminals
  - 21 – 16 AWG
- Rigid cable cross-section (single wire/multiwire)
  - 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire)
  - 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire)
  - 16 - 2 AWG

Always indicate the item number when ordering.
Surge arrester V20, 3-pole + NPE, 320 V

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

<table>
<thead>
<tr>
<th>Type</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-3+NPE-320</td>
<td>3+N/PE</td>
<td>IP20</td>
<td>1</td>
<td>46.100</td>
<td>5095263</td>
</tr>
</tbody>
</table>

Surge arrester, type 2

V20-3+NPE-320

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_n$ 230 V
- Maximum continuous voltage AC $U_C$ 320 V
- Nominal discharge current (8/20 μs) $I_{lim}$ 20 kA
- Maximum discharge current (8/20 μs) $I_{lim}$ 40 kA
- Arrester surge current (8/20 μs) [total] $I_{lim}$ 60 kA
- Protection level [L-N] $U_v$ 1.4 kV
- Combined voltage protection level [L-PE] $U_v$ 1.7 kV
- Residual voltage [L-N] @ 1 kA $U_{res}$ 1.0 kV
- Residual voltage [L-N] @ 5 kA $U_{res}$ 1.2 kV
- Max. mains-side overcurrent protection 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range $T_o$ -40 - +80 °C
- Protection rating IP20
- Approvals UL, OVE, VDE, KEMA
- Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire) 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

Always indicate the item number when ordering.
## Surge arrestor V20, 3-pole + NPE and remote signalling, 320 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-3+NPE+FS-320</td>
<td>320</td>
<td>+N/PE</td>
<td>IP20</td>
<td>1</td>
<td>46.600</td>
<td>5095343</td>
</tr>
</tbody>
</table>

Surge arrestor, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20 μs) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

### V20-3+NPE+FS-320

<table>
<thead>
<tr>
<th>SPD to EN 61643-11</th>
<th>Type 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II</td>
</tr>
<tr>
<td>SPD to UL 1449</td>
<td>Type 4</td>
</tr>
</tbody>
</table>

**Nominal voltage AC (50 / 60 Hz)**

- **Uₚ**: 230 V

**Maximum continuous voltage AC**

- **Uᵦ**: 320 V

**Nominal discharge current (8/20 μs)**

- **Iₚ/L-N**: 20 kA

**Maximum discharge current (8/20 μs)**

- **Iᵦ/ᵦ**: 40 kA

**Arrester surge current (8/20 μs) [total]**

- **Iᵦ**: 60 kA

**Protection level [L-N]**

- **Uᵦ**: 1.4 kV

**Combined voltage protection level [L-PE]**

- **Uᵦ/L-PE**: 1.7 kV

**Residual voltage [L-N] @ 1 kA**

- **Uᵦ**: 1.0 kV

**Residual voltage [L-N] @ 5 kA**

- **Uᵦ**: 1.2 kV

**Max. mains-side overcurrent protection**

- 160 A gL/gG

**Short-circuit withstand for max. mains-side overcurrent protection**

- 50 kA eff

**Operating temperature range**

- **Tᵦ**: -40 – +80 °C

**Protection rating**

- IP20

**Approvals**

- UL, OVE, VDE, KEMA

**FM contacts**

- Changeover

**Switching power AC**

- 230 V; 0.5 A

**Switching power DC**

- 230 V; 0.1 A / 75 V; 0.5 A

**Connection cross-section, FM terminals**

- 0.5 - 1.5 mm²

**Connection cross-section, FM terminals**

- 21 – 16 AWG

**Rigid cable cross-section (single wire/multiwire)**

- 1.5 - 35 mm²

**Cable cross-section, flexible (fine-wire)**

- 16 - 2 AWG

**Cable cross-section, flexible (multiwire)**

- 16 - 2 AWG

### Dimensions

![Dimensions Diagram](image)

### Connection options

![Connection Options Diagram](image)

Always indicate the item number when ordering.
Surge arrestor V20, 1-pole, 385 V

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

V20-1-385

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449

Nominal voltage AC (50 / 60 Hz) $U_n$ 230 V
Maximum continuous voltage AC $U_C$ 385 V
Nominal discharge current (8/20 µs) $I_{lim}$ 20 kA
Maximum discharge current (8/20 µs) $I_{lim}$ 40 kA
Arrester surge current (8/20 µs) [total] $I_{lim}$ 40 kA
Protection level [L-N] $U_{res}$ 1.7 kV
Residual voltage [L-N] @ 1 kA $U_{res}$ 1.2 kV
Residual voltage [L-N] @ 5 kA $U_{res}$ 1.4 kV
Max. mains-side overcurrent protection 160 A gL/gG
Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
Operating temperature range $T_a$ -40 - +80 °C
Protection rating IP20
Approvals UL, VDE, KEMA
Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²
Cable cross-section, flexible (fine-wire) 16 - 2 AWG
Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

Always indicate the item number when ordering.
Surge arrestor V20 in 385 V, type 2, TN-S networks

**Surge arrestor V20, 2-pole, 385 V**

<table>
<thead>
<tr>
<th>Type V20-2-385</th>
<th>Nominal voltage AC (50 / 60 Hz)</th>
<th>Uₚₕ</th>
<th>230 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pole version</td>
<td>Maximum continuous voltage AC</td>
<td>Uₚₚ</td>
<td>385 V</td>
</tr>
<tr>
<td>Protection rating</td>
<td>Nominal discharge current (8/20 μs)</td>
<td>Iₚₚₚ</td>
<td>20 kA</td>
</tr>
<tr>
<td>Protection rating</td>
<td>Maximum discharge current (8/20 μs)</td>
<td>Iₚₚₚₚ</td>
<td>40 kA</td>
</tr>
<tr>
<td>Protection rating</td>
<td>Arrestor surge current (8/20 μs) [total]</td>
<td>Iₚₚₚₚₚ</td>
<td>80 kA</td>
</tr>
<tr>
<td>Protection rating</td>
<td>Residual voltage [L-N] @ 1 kA</td>
<td>Uᵣₚ</td>
<td>1.7 kV</td>
</tr>
<tr>
<td>Protection rating</td>
<td>Residual voltage [L-N] @ 5 kA</td>
<td>Uᵣₚₚ</td>
<td>1.4 kV</td>
</tr>
<tr>
<td>Protection rating</td>
<td>Max. mains-side overcurrent protection</td>
<td>Imₚₚ</td>
<td>160 A glG</td>
</tr>
<tr>
<td>Protection rating</td>
<td>Short-circuit withstand for max. mains-side overcurrent protection</td>
<td>Imₚₚ</td>
<td>50 kA eff</td>
</tr>
<tr>
<td>Protection rating</td>
<td>Operating temperature range</td>
<td>Tᵣ</td>
<td>-40...+80 °C</td>
</tr>
<tr>
<td>Protection rating</td>
<td>Approval</td>
<td>UL, OVE, VDE, KEMA</td>
<td></td>
</tr>
<tr>
<td>Protection rating</td>
<td>Cable cross-section, flexible (fine-wire)</td>
<td>1.5 - 35 mm²</td>
<td></td>
</tr>
<tr>
<td>Protection rating</td>
<td>Rigid cable cross-section (single wire/multiwire)</td>
<td>1.5 - 35 mm²</td>
<td></td>
</tr>
<tr>
<td>Protection rating</td>
<td>Cable cross-section, flexible (fine-wire)</td>
<td>16 - 2 AWG</td>
<td></td>
</tr>
<tr>
<td>Protection rating</td>
<td>Rigid cable cross-section (single wire/multiwire)</td>
<td>16 - 2 AWG</td>
<td></td>
</tr>
</tbody>
</table>

**Application:** Equipotential bonding in main and sub-distributions.

**Dimensions:**

**Connection options:**

**For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)**

- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Always indicate the item number when ordering.
Surge arrester V20 in 385 V, type 2, TN-S networks

Surge arrester V20, 2-pole with remote signalling, 385 V

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

<table>
<thead>
<tr>
<th>Type</th>
<th>AC Pole Version</th>
<th>Protection Rating</th>
<th>Pack.</th>
<th>Weight (kg/100 pcs.)</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-2+FS-385</td>
<td>385</td>
<td>2</td>
<td>IP20</td>
<td>1</td>
<td>26.700</td>
</tr>
</tbody>
</table>

Surge arrester, type 2

- Nominal voltage AC (50 / 60 Hz) $U_n$ 230 V
- Maximum continuous voltage AC $U_C$ 385 V
- Nominal discharge current (8/20 μs) $I_{(8/20)}$ 20 kA
- Maximum discharge current (8/20 μs) $I_{max}$ 40 kA
- Arrester surge current (8/20 μs) [total] $I_{total}$ 80 kA
- Residual voltage [L-N] @ 1 kA $U_{res}$ 1.2 kV
- Residual voltage [L-N] @ 5 kA $U_{res}$ 1.4 kV
- Max. mains-side overcurrent protection 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range $T_a$ -40 - +80 °C
- Protection rating IP20
- Approvals UL, VDE, KEMA
- Switching power AC 230 V; 0.5 A
- Switching power DC 230 V; 0.1 A / 75 V; 0.5 A
- Connection cross-section, FM terminals 0.6 - 1.5 mm²
- Connection cross-section, FM terminals 21 - 16 AWG
- Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire) 16 - 2 AWG
- Cable cross-section, single wire/multiwire 16 - 2 AWG

Connection options

Always indicate the item number when ordering.
Surge arrestor V20, 1-pole + NPE, 385 V

Surge arrestor, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

V20-1+NPE-385

 SPD to EN 61643-11 | Type 2
 SPD to IEC 61643-11 | Class II
 SPD to UL 1449 | Type 4
 Nominal voltage AC (50 / 60 Hz) | $U_n$ = 230 V
 Maximum continuous voltage AC | $U_{max}$ = 385 V
 Nominal discharge current (8/20 μs) | $I_{L-N}$ = 20 kA
 Maximum discharge current (8/20 μs) | $I_{nom}$ = 40 kA
 Arrestor surge current (8/20 μs) (total) | $I_{total}$ = 60 kA
 Protection level [L-N] | $U_{L-N}$ = 1.7 kV
 Combined voltage protection level [L-PE] | $U_{L-PE}$ = 1.9 kV
 Residual voltage [L-N] @ 1 kA | $U_{res}$ = 1.2 kV
 Residual voltage [L-N] @ 5 kA | $U_{res}$ = 1.4 kV
 Max. mains-side overcurrent protection | 160 A gL/gG
 Short-circuit withstand for max. mains-side overcurrent protection | 50 kA eff
 Operating temperature range | $T_o$ = -40 - +80 °C
 Protection rating | IP20
 Approvals | UL, OVE, VDE, KEMA
 Cable cross-section, flexible (fine-wire) | 1.5 - 35 mm²
 Rigid cable cross-section (single wire/multiwire) | 1.5 - 35 mm²
 Cable cross-section, flexible (fine-wire) | 16 - 2 AWG
 Rigid cable cross-section (single wire/multiwire) | 16 - 2 AWG

Always indicate the item number when ordering.
Surge arrester V20 in 385 V, type 2, for TN-S and TT networks

Surge arrester V20, 3-pole + NPE, 385 V

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

V20-3+NPE-385
SPD to EN 61643-11
SPD to IEC 61643-11
SPD to UL 1449
Nominal voltage AC (50 / 60 Hz) \( U_n \) 230 V
Maximum continuous voltage AC \( U_C \) 385 V
Nominal discharge current (8/20 \( \mu s \)) \( I_{(8/20)} \) 20 kA
Maximum discharge current (8/20 \( \mu s \)) \( I_{\text{max}} \) 40 kA
Arrester surge current (8/20 \( \mu s \)) [total] \( I_{\text{total}} \) 60 kA
Protection level [L-N] \( U_{r}\) 1.7 kV
Combined voltage protection level [L-PE] \( U_{p/\text{LPE}} \) 1.9 kV
Residual voltage [L-N] @ 1 kA \( U_{\text{res}} \) 1.2 kV
Residual voltage [L-N] @ 5 kA \( U_{\text{res}} \) 1.4 kV
Max. mains-side overcurrent protection 160 A gL/gG
Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
Operating temperature range \( T_{\text{op}} \) -40 - +80 °C
Protection rating IP20
Approvals UL, OVE, VDE, KEMA
Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²
Cable cross-section, flexible (fine-wire) 16 - 2 AWG
Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG
Surge arrestor V20, 3-pole + NPE and remote signalling, 385 V

Surge arrestor type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

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**V20-3+NPE+FS-385**

<table>
<thead>
<tr>
<th>Type</th>
<th>Protection rating</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-3+NPE+FS-385</td>
<td>IP20</td>
<td>47.500</td>
<td>5095353</td>
</tr>
</tbody>
</table>

Surge arrestor, type 2

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_{n}$: 230 V
- Maximum continuous voltage AC $U_{m}$: 385 V
- Nominal discharge current (8/20 μs) $I_{n/L-N}$: 20 kA
- Maximum discharge current (8/20 μs) $I_{max}$: 40 kA
- Arrestor surge current (8/20 μs) [total] $I_{total}$: 60 kA
- Protection level [L-N] $U_{p}$: 1.7 kV
- Combined voltage protection level [L-PE] $U_{p/L-PE}$: 1.9 kV
- Residual voltage [L-N] @ 1 kA $U_{res}$: 1.2 kV
- Residual voltage [L-N] @ 5 kA $U_{res}$: 1.5 kV
- Max. mains-side overcurrent protection 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range $T_{op}$: -40 to +80 °C
- Protection rating IP20
- Approvals: UL, OVE, VDE, KEMA
- Switching power AC 230 V; 0.5 A
- Switching power DC 230 V; 0.1 A / 75 V; 0.5 A
- Connection cross-section, FM terminals 0.5 - 1.5 mm²
- Connection cross-section, FM terminals 21 – 16 AWG
- Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire) 16 - 2 AWG
- Cable cross-section, flexible (fine-wire) 16 - 2 AWG

Always indicate the item number when ordering.
Surge arrestor V20 in 385 V, type 2, for TN-C networks

Surge arrestor V20, 3-pole, 385 V

### Highest continuous voltage

<table>
<thead>
<tr>
<th>Type</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-3-385</td>
<td>3</td>
<td>IP20</td>
<td>35.600</td>
<td>5095193</td>
</tr>
</tbody>
</table>

Surge arrestor, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.
Surge arrester V20 in 385 V, type 2, for TN-C networks

### Surge arrester V20, 3-pole with remote signalling, 385 V

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-3+FS-385</td>
<td>385</td>
<td>3</td>
<td>IP20</td>
<td>37.600</td>
<td>5095303</td>
</tr>
</tbody>
</table>

**Surge arrester, type 2**

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

**V20-3+FS-385**

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) \( U_n \): 230 V
- Maximum continuous voltage AC \( U_{IC} \): 385 V
- Nominal discharge current (8/20 \( \mu \)s) \( I_{TH} \): 20 kA
- Maximum discharge current (8/20 \( \mu \)s) \( I_{TH} \): 40 kA
- Arrestor surge current (8/20 \( \mu \)s) [total] \( I_{TH} \): 120 kA
- Protection level [L-N] @ 1 kA \( U_{R} \): 1.7 kV
- Residual voltage [L-N] @ 5 kA \( U_{R} \): 1.4 kV
- Max. mains-side overcurrent protection: 160 A gl/gG
- Short-circuit withstand for max. mains-side overcurrent protection: 50 kA eff
- Operating temperature range \( T_o \): -40 - +80 °C
- Protection rating: IP20
- Approvals: UL, VDE, KEMA
- FM contacts: Changeover
- Switching power AC: 230 V; 0.5 A
- Switching power DC: 230 V; 0.1 A / 75 V; 0.5 A
- Connection cross-section, FM terminals: 0.5 - 1.5 mm²
- Connection cross-section, FM terminals: 21 - 16 AWG
- Cable cross-section, flexible (fine-wire): 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire): 16 - 2 AWG
- Cable cross-section, flexible (fine-wire): 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire): 16 - 2 AWG

**Dimensions**

**Connection options**

Always indicate the item number when ordering.
Surge arrestor V20 in 385 V, type 2, for TN-S networks

**Surge arrestor V20, 4-pole, 385 V**

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

**Dimensions**

**Connection options**

<table>
<thead>
<tr>
<th>Type</th>
<th>V20-4-385</th>
<th>Protection rating</th>
<th>Item No.</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>385</td>
<td>4</td>
<td></td>
<td>1</td>
<td>48,600</td>
</tr>
</tbody>
</table>

Surge arrestor, type 2

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_n$
- Maximum continuous voltage AC $U_c$
- Nominal discharge current (8/20 µs) $I_{\text{L-N}}$
- Maximum discharge current (8/20 µs) $I_{\text{max}}$
- Arrester surge current (8/20 µs) [total] $I_{\text{total}}$
- Residual voltage [L-N] @ 1 kA $U_{\text{res}}$
- Residual voltage [L-N] @ 5 kA $U_{\text{res}}$
- Max. mains-side overcurrent protection 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range $T_a$ -40 - +80 °C
- Protection rating IP20
- Approvals UL, OVE, VDE, KEMA
- Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG
- Cable cross-section, flexible (fine-wire) 16 - 2 AWG

Always indicate the item number when ordering.
Surge arrestor V20, 4-pole with remote signalling, 385 V

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

V20-4+FS-385

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal voltage AC (50 / 60 Hz)</th>
<th>Nominal discharge current (8/20 μs)</th>
<th>Maximum continuous voltage AC</th>
<th>Maximum discharge current (8/20 μs)</th>
<th>Protection level [L-N] @ 1 kA</th>
<th>Protection level [L-N] @ 5 kA</th>
<th>Max. mains-side overcurrent protection</th>
<th>Short-circuit withstand for max. mains-side overcurrent protection</th>
<th>Operating temperature range</th>
<th>Protection rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to EN 61643-11</td>
<td>Uₘₜₐₜ</td>
<td>Iₘₜₐₜ</td>
<td>Uₘₜₐₜ</td>
<td>Iₘₜₐₜ</td>
<td>Uₘₜₐₜ</td>
<td>Uₘₜₐₜ</td>
<td>160 A gl/gG</td>
<td>50 kA eff</td>
<td>-40°C to +80°C</td>
<td>IP20</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Type 4</td>
<td></td>
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</tr>
<tr>
<td>SPD to UL 1449</td>
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<td></td>
</tr>
<tr>
<td>Nominal voltage AC (50 / 60 Hz)</td>
<td>Uₘₜₐₜ</td>
<td>230 V</td>
<td>20 kA</td>
<td>385 V</td>
<td>160 kA</td>
<td>1.7 kV</td>
<td>1,4 kV</td>
<td>160 A gl/gG</td>
<td>50 kA eff</td>
<td>-40°C to +80°C</td>
</tr>
<tr>
<td>Maximum continuous voltage AC</td>
<td>Uₘₜₐₜ</td>
<td>230 V</td>
<td>20 kA</td>
<td>385 V</td>
<td>160 kA</td>
<td>1.7 kV</td>
<td>1,4 kV</td>
<td>160 A gl/gG</td>
<td>50 kA eff</td>
<td>-40°C to +80°C</td>
</tr>
<tr>
<td>Nominal discharge current (8/20 μs)</td>
<td>Iₘₜₐₜ</td>
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<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>Iₘₜₐₜ</td>
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<tr>
<td>Arrestor surge current (8/20 μs) [total]</td>
<td>Iₘₜₐₜ</td>
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<tr>
<td>Protection level [L-N]</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Residual voltage [L-N] @ 1 kA</td>
<td>Uₘₜₐₜ</td>
<td>1,2 kV</td>
<td>1,4 kV</td>
<td>1,6 kA</td>
<td></td>
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</tr>
<tr>
<td>Residual voltage [L-N] @ 5 kA</td>
<td>Uₘₜₐₜ</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Max. mains-side overcurrent protection</td>
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<td></td>
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</tr>
<tr>
<td>Short-circuit withstand for max. mains-side overcurrent protection</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Operating temperature range</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Protection rating</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrestor V20 in 440 V, type 2

Surge arrestor V20, 1-pole, 440 V

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

V20-1-440

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_n$ 400 V
- Maximum continuous voltage AC $U_C$ 440 V
- Nominal discharge current (8/20 µs) $I_{\text{L-N}}$ 20 kA
- Maximum discharge current (8/20 µs) $I_{\text{max}}$ 40 kA
- Arrestor surge current (8/20 µs) [total] $I_{\text{total}}$ 40 kA
- Protection level [L-N] $U_{\text{res}}$ 2 kV
- Residual voltage [L-N] @ 1 kA $U_{\text{res}}$ 1.5 kV
- Residual voltage [L-N] @ 5 kA $U_{\text{res}}$ 1.8 kV
- Max. mains-side overcurrent protection 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range $T_o$ -40 to +80 °C
- Protection rating IP20
- Approvals UL
- Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire) 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

Always indicate the item number when ordering.
Surge arrestor V20, 1-pole, 550 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-1-550</td>
<td>550</td>
<td>1</td>
<td>IP20</td>
<td>1</td>
<td>14.300</td>
<td>5095211</td>
</tr>
</tbody>
</table>

Surge arrestor, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signaling variants (FS) have a potential-free changeover contact for remote signaling

Application: Equipotential bonding in main and sub-distributions.

---

### V20-1-550

- SPD to EN 61643-11: Type 2
- SPD to IEC 61643-11: Class II
- SPD to UL 1449: Type 4
- Nominal voltage AC (50 / 60 Hz): \( U_\text{N} = 400 \) V
- Maximum continuous voltage AC: \( U_\text{c} = 550 \) V
- Nominal discharge current (8/20 \( \mu \)s): \( I_{\text{r,L-N}} = 15 \) kA
- Maximum discharge current (8/20 \( \mu \)s): \( I_{\text{max}} = 40 \) kA
- Arrestor surge current (8/20 \( \mu \)s) [total]: \( I_{\text{total}} = 40 \) kA
- Protection level [L-N]: \( U_{\text{res}} = 2.4 \) kV
- Residual voltage [L-N] @ 1 kA: \( U_{\text{res}} = 1.7 \) kV
- Residual voltage [L-N] @ 5 kA: \( U_{\text{res}} = 2.1 \) kV
- Max. mains-side overcurrent protection: \( 160 \) A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection: 50 kA eff
- Operating temperature range: \(-40 \text{ to } +80\) °C
- Protection rating: IP20
- Approvals: UL
- Cable cross-section, flexible (fine-wire): \( 1.5 - 35 \) mm²
- Rigid cable cross-section (single wire/multiwire): \( 1.5 - 35 \) mm²
- Cable cross-section, flexible (fine-wire): \( 16 - 2 \) AWG
- Rigid cable cross-section (single wire/multiwire): \( 16 - 2 \) AWG

Always indicate the item number when ordering.
Surge arrester V20 in 550 V, type 2, for TN-S networks

Surge arrester V20, 2-pole, 550 V

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

V20-2-550

<table>
<thead>
<tr>
<th>Nominal voltage AC (50 / 60 Hz)</th>
<th>U_n</th>
<th>400 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum continuous voltage AC</td>
<td>U_c</td>
<td>550 V</td>
</tr>
<tr>
<td>Nominal discharge current (8/20 µs)</td>
<td>I_{th/N}</td>
<td>15 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 µs)</td>
<td>I_{max}</td>
<td>40 kA</td>
</tr>
<tr>
<td>Arrestor surge current (8/20 µs) [total]</td>
<td>I_{total}</td>
<td>80 kA</td>
</tr>
<tr>
<td>Protection level [L-N]</td>
<td>U_{res}</td>
<td>2.4 kV</td>
</tr>
<tr>
<td>Residual voltage [L-N] @ 1 kA</td>
<td>U_{res}</td>
<td>1.7 kV</td>
</tr>
<tr>
<td>Residual voltage [L-N] @ 5 kA</td>
<td>U_{res}</td>
<td>2.1 kV</td>
</tr>
<tr>
<td>Max. mains-side overcurrent protection</td>
<td>160 A gL/gG</td>
<td></td>
</tr>
<tr>
<td>Short-circuit withstand for max. mains-side overcurrent protection</td>
<td>50 kA eff</td>
<td></td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>T_o</td>
<td>-40°C to +80°C</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
<td></td>
</tr>
<tr>
<td>Approvals</td>
<td>UL</td>
<td></td>
</tr>
<tr>
<td>Cable cross-section, flexible (fine-wire)</td>
<td>1.5 - 35 mm²</td>
<td></td>
</tr>
<tr>
<td>Rigid cable cross-section (single wire/multiwire)</td>
<td>1.5 - 35 mm²</td>
<td></td>
</tr>
<tr>
<td>Cable cross-section, flexible (fine-wire)</td>
<td>16 - 2 AWG</td>
<td></td>
</tr>
<tr>
<td>Rigid cable cross-section (single wire/multiwire)</td>
<td>16 - 2 AWG</td>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrestor V20 in 550 V, type 2, for TN-S networks

Surge arrestor V20, 2-pole with remote signalling, 550 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage</th>
<th>Pole</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-2+FS-550</td>
<td>550 V</td>
<td>2</td>
<td>IP20</td>
<td>1</td>
<td>27.30</td>
<td>5095312</td>
</tr>
</tbody>
</table>

Surge arrestor, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

V20-2+FS-550

- SPD to EN 61643-11: Type 2
- SPD to IEC 61643-11: Class II
- SPD to UL 1449: Type 4

- Nominal voltage AC (50 / 60 Hz): $U_n = 480 \text{ V}$
- Maximum continuous voltage AC: $U_{\text{in}} = 550 \text{ V}$
- Nominal discharge current (8/20 µs): $I_{\text{n,L-N}} = 15 \text{ kA}$
- Maximum discharge current (8/20 µs): $I_{\text{max}} = 40 \text{ kA}$
- Arrestor surge current (8/20 µs) [total]: $I_{\text{sur}} = 80 \text{ kA}$
- Protection level [L-N]: $U_{\text{res}} = 2.4 \text{ kV}$
- Residual voltage [L-N] @ 1 kA: $U_{\text{res}} = 1.7 \text{ kV}$
- Residual voltage [L-N] @ 5 kA: $U_{\text{res}} = 2.1 \text{ kV}$
- Max. mains-side overcurrent protection: $160 \text{ A glL/gG}$
- Short-circuit withstand for max. mains-side overcurrent protection: $50 \text{ kA eff}$
- Operating temperature range: $T_o = -40 \text{ °C to } +80 \text{ °C}$
- Protection rating: IP20
- Approvals: UL
- FM contacts: Changeover
- Switching power AC: 230 V: 0.5 A
- Switching power DC: 230 V: 0.1 A / 75 V: 0.5 A
- Connection cross-section, FM terminals: 0.5 - 1.5 mm²
- Connection cross-section, FM terminals: 21 - 16 AWG
- Cable cross-section, flexible (fine-wire): 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire): 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire): 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire): 16 - 2 AWG

Always indicate the item number when ordering.
Surge arrestor V20 in 550 V, type 2, for TN-C networks

Surge arrestor V20, 3-pole, 550 V

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

V20-3-550
- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_c$ 400 V
- Maximum continuous voltage AC $U_c$ 550 V
- Nominal discharge current (8/20 µs) $I_{lim}$ 15 kA
- Maximum discharge current (8/20 µs) $I_{lim}$ 40 kA
- Arrestor surge current (8/20 µs) $I_{lim}$ 120 kA
- Residual voltage [L-N] @ 1 kA $U_{res}$ 1.7 kV
- Residual voltage [L-N] @ 5 kA $U_{res}$ 2.1 kV
- Max. mains-side overcurrent protection 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range $T_o$ -40 - +80 °C
- Protection rating IP20
- Approvals UL
- Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire) 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

Always indicate the item number when ordering.
Surge arrester V20, 3-pole with remote signalling, 550 V

<table>
<thead>
<tr>
<th>Type</th>
<th>AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-3+FS-550</td>
<td>550</td>
<td>3</td>
<td>IP20</td>
<td>1</td>
<td>38.500</td>
<td>5095313</td>
</tr>
</tbody>
</table>

Surge arrester, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

V20-3+FS-550

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) \( U_{N} \): 480 V
- Maximum continuous voltage AC \( U_{C} \): 550 V
- Nominal discharge current (8/20 µs) \( I_{L-N} \): 15 kA
- Maximum discharge current (8/20 µs) \( I_{max} \): 40 kA
- Arrestor surge current (8/20 µs) [total] \( I_{max} \): 120 kA
- Protection level [L-N] @ 1 kA \( U_{res} \): 2.4 kV
- Residual voltage [L-N] @ 5 kA \( U_{res} \): 2.1 kV
- Max. mains-side overcurrent protection: 160 A glGgLGlG
- Short-circuit withstand for max. mains-side overcurrent protection: 50 kA eff
- Operating temperature range \( T_{op} \): -40 - +80 °C
- Protection rating: IP20
- Approvals: UL
- FM contacts: Changeover
- Switching power AC: 230 V, 0.5 A
- Switching power DC: 230 V, 0.1 A / 75 V, 0.5 A
- Connection cross-section, FM terminals: 0.5 - 1.5 mm²
- Connection cross-section, FM terminals: 21 - 16 AWG
- Cable cross-section, flexible (fine-wire): 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire): 16 - 2 AWG
- Rigid cable cross-section (single wire/multwire): 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multwire): 16 - 2 AWG
Surge arrestor V20 in 550 V, type 2, for TN-S networks

## Surge arrestor V20, 4-pole, 550 V

- **CE**, **EN**
- **Pack. pcs.**
- **Item No.**

<table>
<thead>
<tr>
<th>Type</th>
<th>Protection rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-4-550</td>
<td>IP20</td>
</tr>
</tbody>
</table>

**Dimensions**

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrestor with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

**Application:** Equipotential bonding in main and sub-distributions.

### Connection options

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449

### Nominal values

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5095214</td>
<td>Surge arrestor, type 2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Protection rating</th>
<th>Nominal voltage AC (50 / 60 Hz)</th>
<th>Maximum continuous voltage AC</th>
<th>Nominal discharge current (8/20 μs)</th>
<th>Maximum discharge current (8/20 μs)</th>
<th>Arrestor surge current (8/20 μs) [total]</th>
<th>Residual voltage [L-N] @ 1 kA</th>
<th>Residual voltage [L-N] @ 5 kA</th>
<th>Max. mains-side overcurrent protection</th>
<th>Short-circuit withstand for max. mains-side overcurrent protection</th>
<th>Operating temperature range</th>
<th>Protection rating</th>
<th>Approvals</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-4-550</td>
<td>Type 2</td>
<td>550 V</td>
<td>15 kA</td>
<td>40 kA</td>
<td>160 kA</td>
<td>2.4 kV</td>
<td>1.7 kV</td>
<td>2.1 kV</td>
<td>160 A gL/gG</td>
<td>50 kA eff</td>
<td>-40 - +80 °C</td>
<td>IP20</td>
<td>UL</td>
</tr>
</tbody>
</table>

**Cable cross-section, flexible (fine-wire):**

- 1.5 - 35 mm²

**Cable cross-section, rigid (fine-wire):**

- 16 - 2 AWG
Surge arrester V20 in 550 V, type 2, for TN-S networks

Surge arrester V20, 4-pole with remote signalling, 550 V

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrester with cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic to UL 94 V-0
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

Application: Equipotential bonding in main and sub-distributions.

<table>
<thead>
<tr>
<th>Type</th>
<th>AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-4+FS-550</td>
<td>550</td>
<td>4</td>
<td>IP20</td>
<td>1</td>
<td>50.300</td>
<td>5095314</td>
</tr>
</tbody>
</table>

V20-4+FS-550
- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_n = 1480$ V
- Maximum continuous voltage AC $U_{cm} = 550$ V
- Nominal discharge current (8/20 $\mu$s) $I_{L-N} = 15$ kA
- Maximum discharge current (8/20 $\mu$s) $I_{max} = 40$ kA
- Arrestor surge current (8/20 $\mu$s) [total] $I_{max} = 160$ kA
- Protection level [L-N] $U_r = 2.4$ kV
- Residual voltage [L-N] @ 1 kA $U_{res} = 1.7$ kV
- Residual voltage [L-N] @ 5 kA $U_{res} = 2.1$ kV
- Max. mains-side overcurrent protection 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
- Operating temperature range $T_r = -40$ - +80 $^\circ$C
- Protection rating IP20
- Approvals UL
- FM contacts Changeover
- Switching power AC 230 V; 0.5 A
- Switching power DC 230 V; 0.1 A / 75 V; 0.5 A
- Connection cross-section, FM terminals 0.5 - 1.5 mm²
- Connection cross-section, FM terminals 21 - 16 AWG
- Cable cross-section, flexible (fine-wire) 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire) 16 - 2 AWG
- Cable cross-section, flexible (multiwire) 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

Always indicate the item number when ordering.
System solution, surge arrestor V20 in housing, 1-pole + NPE, 280 V

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Complete unit, pre-mounted and ready for connection in polycarbonate housing (IP66)
- Arresting capacity to 40 kA (8/20) per pole through high-performance varistors

Application: Equipotential bonding in main and sub-distributors.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

---

**Dimensions**

**Connection options**

---

**VG-V20-1+NPE-280**

<table>
<thead>
<tr>
<th>Type</th>
<th>Pole version</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VG-V20-1+NPE-280</td>
<td>1+N/PE</td>
<td>1</td>
<td>74.000</td>
<td>5095381</td>
</tr>
</tbody>
</table>

Surge arrestor, type 2, according DIN EN 61643-11

---

**Connection options**

---

**Capacity:**
- Nominal voltage AC (50 / 60 Hz): $U_n$ = 230 V
- Maximum continuous voltage AC: $U_C$ = 280 V
- Nominal discharge current (8/20 μs): $I_{n8/20}$ = 20 kA
- Maximum discharge current (8/20 μs): $I_{m8/20}$ = 40 kA
- Arrestor surge current (8/20 μs) [total]: $I_{t8/20}$ = 60 kA
- Residual voltage [L-N] @ 1 kA: $U_{res}$ = 0.7 kV
- Residual voltage [L-N] @ 5 kA: $U_{res}$ = 0.9 kV
- Max. mains-side overcurrent protection: 160 A gL/gG
- Short-circuit withstand for max. mains-side overcurrent protection: 50 kA eff
- Operating temperature range: $T_a$ = -40 - +80 °C
- Protection rating: IP66

---

**Approvals:**
- ÖVE, UL
- Cable cross-section, flexible (fine-wire): 1.5 - 35 mm²
- Rigid cable cross-section (single wire/multiwire): 1.5 - 35 mm²
- Cable cross-section, flexible (fine-wire): 16 - 2 AWG
- Rigid cable cross-section (single wire/multiwire): 16 - 2 AWG

---

**Always indicate the item number when ordering.**
Surge arrester V20 in 550 V, type 2, for TN-S and TT networks

System solution, surge arrester V20 in housing, 3-pole + NPE, 280 V

<table>
<thead>
<tr>
<th>Type</th>
<th>AC V</th>
<th>Pole version</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VG-V20-3+NPE-280</td>
<td>280</td>
<td>3+N/PE</td>
<td>1</td>
<td>96.000</td>
<td>5095383</td>
</tr>
</tbody>
</table>

Surge arrester, type 2, according DIN EN 61643-11

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Complete unit, pre-mounted and ready for connection in polycarbonate housing (IP66)
- Arresting capacity to 40 kA (8/20) per pole through high-performance varistors

Application: Equipotential bonding in main and sub-distributors.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

VG-V20-3+NPE-280

<table>
<thead>
<tr>
<th>SPD to EN 61643-11</th>
<th>Type 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II</td>
</tr>
<tr>
<td>SPD to UL 1449</td>
<td>Type 4</td>
</tr>
</tbody>
</table>

Nominal voltage AC (50 / 60 Hz) \( U_{\text{n}} \) 230 V
Maximum continuous voltage AC \( U_{\text{c}} \) 280 V
Nominal discharge current (8/20 µs) \( I_{\text{n}} \) 20 kA
Maximum discharge current (8/20 µs) \( I_{\text{max}} \) 40 kA
Arrester surge current (8/20 µs) \( I_{\text{sur}} \) 60 kA
Protection level [L-N] \( U_{\text{res}} \) 1.3 kV
Residual voltage [L-N] @ 1 kA \( U_{\text{res}} \) 0.7 kV
Residual voltage [L-N] @ 5 kA \( U_{\text{res}} \) 0.9 kV
Max. mains-side overcurrent protection 160 A gL/gG
Short-circuit withstand for max. mains-side overcurrent protection 50 kA eff
Operating temperature range \( T_{\text{op}} \) -40 - +80 °C
Protection rating IP66
Approvals ÖVE, UL
Cable cross-section, flexible (line-wire) 1.5 - 35 mm²
Rigid cable cross-section (single wire/multiwire) 1.5 - 35 mm²
Cable cross-section, flexible (line-wire) 16 - 2 AWG
Rigid cable cross-section (single wire/multiwire) 16 - 2 AWG

Always indicate the item number when ordering.
Upper part V20 75 V

- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular, plug-in upper part with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic (UL 94 V-0)

**Dimensions**

<table>
<thead>
<tr>
<th>Type</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-0-75</td>
<td>1</td>
<td>IP20</td>
<td>3.600</td>
<td>5095360</td>
</tr>
</tbody>
</table>

Upper part V20 150 V

- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular, plug-in upper part with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic (UL 94 V-0)

**Dimensions**

<table>
<thead>
<tr>
<th>Type</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-0-150</td>
<td>1</td>
<td>IP20</td>
<td>4.160</td>
<td>5095362</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Upper part V20 280 V

- Higher continuous voltage AC V
- Protection rating IP20
- Weight kg/100 pcs. 5.000
- Item No. 5095364

- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular, plug-in upper part with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic (UL 94 V-0)

Upper part V20 320 V

- Higher continuous voltage AC V
- Protection rating IP20
- Weight kg/100 pcs. 5.100
- Item No. 5095366

- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular, plug-in upper part with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic (UL 94 V-0)
Surge arrestor V20 upper parts, type 2

**Upper part V20 385 V**

- Nominal voltage AC (50 / 60 Hz) $U_n = 230$ V
- Maximum continuous voltage AC $U_c = 385$ V
- Nominal discharge current (8/20 $\mu$s) $I_{max} = 20$ kA
- Maximum discharge current (8/20 $\mu$s) $I_{max} = 40$ kA
- Operating temperature range $T_o = -40-+80$ °C
- Protection rating IP20

**Approvals**
- UL, ÖVE, VDE, KEMA

**Upper part, surge arrestor, type 2**

- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular, plug-in upper part with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic (UL 94 V-0)

**Upper part V20 440 V**

- Nominal voltage AC (50 / 60 Hz) $U_n = 400$ V
- Maximum continuous voltage AC $U_c = 440$ V
- Nominal discharge current (8/20 $\mu$s) $I_{max} = 20$ kA
- Maximum discharge current (8/20 $\mu$s) $I_{max} = 40$ kA
- Operating temperature range $T_o = -40-+80$ °C
- Protection rating IP20

**Approvals**
- UL, ÖVE, VDE, KEMA

**Upper part, surge arrestor, type 2**

- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular, plug-in upper part with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic (UL 94 V-0)
Upper part V20 550 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-0-550</td>
<td>1</td>
<td>IP20</td>
<td>6.360</td>
<td>5095372</td>
</tr>
</tbody>
</table>

Upper part, surge arrester, type 2

- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular, plug-in upper part with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic (UL 94 V-0)

V20-0-550

<table>
<thead>
<tr>
<th>SPD to EN 61643-11</th>
<th>Type 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II</td>
</tr>
<tr>
<td>SPD to UL 1449</td>
<td>Type 4</td>
</tr>
<tr>
<td>Nominal voltage AC (50 / 60 Hz) $U_c$</td>
<td>400 V</td>
</tr>
<tr>
<td>Maximum continuous voltage AC $U_{550}$</td>
<td>550 V</td>
</tr>
<tr>
<td>Nominal discharge current (8/20 $\mu$s) $I_{\text{nom}}$</td>
<td>20 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 $\mu$s) $I_{\text{max}}$</td>
<td>40 kA</td>
</tr>
<tr>
<td>Operating temperature range $T_o$</td>
<td>-40°C to +80°C</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Approvals</td>
<td>UL</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Upper part C20 280 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C20-0-255</td>
<td>N/PE</td>
<td>IP20</td>
<td>1</td>
<td>3.680</td>
<td>5095600</td>
</tr>
</tbody>
</table>

Upper part, N-PE surge arrester, type 2

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrester with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- Plastic (UL 94 V-0)

Application: Equipotential bonding in main and sub-distributors.

C20-0-255

- SPD to EN 61643-11
- SPD to IEC 61643-11
- SPD to UL 1449
- Nominal voltage AC (50 / 60 Hz) $U_n$ = 230 V
- Maximum continuous voltage AC $U_C$ = 255 V
- Nominal discharge current (8/20 μs) $I_{lim}$ = 20 kA
- Maximum discharge current (8/20 μs) $I_{max}$ = 40 kA
- Operating temperature range $T_o$ = -40 °C to +80 °C
- Protection rating IP20
- Approvals UL, OVE, VDE, KEMA

Always indicate the item number when ordering.
Surge arrestor V20, 150 V

Surge arrestor, 1-pole

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage</th>
<th>Version</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C 1-150</td>
<td>150</td>
<td>1-pole</td>
<td>1</td>
<td>11.300</td>
<td>5094677</td>
</tr>
</tbody>
</table>

Surge arrestor, type 2, 150 V

- VDE-tested
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 40 kA (8/20) per pole
- Arrestor, connectable with dynamic cut-off unit and visual function display
- Encapsulated, non-extinguishing zinc oxide varistor arrestor for use in distributor housings
- Base with multiple connection terminals

Application: Equipotential bonding (LPZ 1 to 2) and device protection in main and sub-distributors.

<table>
<thead>
<tr>
<th>V20-C 1-150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
</tr>
<tr>
<td>Arrester surge current (8/20) (total)</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
</tr>
<tr>
<td>Voltage protection level</td>
</tr>
<tr>
<td>Response time</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
</tr>
<tr>
<td>Temperature range</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
</tr>
<tr>
<td>Protection rating</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrestor, 2-pole

- VDE-tested
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 40 kA (8/20) per pole
- Arrestor, connectable with dynamic cut-off unit and visual function display
- Encapsulated, non-extinguishing zinc oxide varistor arrestor for use in distributor housings
- Base with multiple connection terminals

Application: Equipotential bonding (LPZ 1 to 2) and device protection in main and sub-distributors.

### Dimensions

![Dimensions diagram]

### Connection options

![Connection options diagram]

### Specifications

**V20-C 2-150**

- Nominal voltage: $U_n = 130$ V
- SPD to EN 61643-11: Type 2
- SPD to IEC 61643-11: Class II
- Lightning protection zone LPZ: 1→2
- Nominal discharge current (8/20): $I_{\text{nom}} = 20$ kA
- Arrestor surge current (8/20) [total]: $I_{\text{total}} = 40$ kA
- Maximum discharge current (8/20 $\mu$s): $I_{\text{max}} = 40$ kA
- Voltage protection level: $U_{\text{LPZ}} = 1$ kV
- Response time: $t_A < 25$ ns
- Maximum back-up fuse: 125 A
- Temperature range: $\theta = -40 \text{ to } +80$ °C
- Division unit TE (17.5 mm): 2
- Protection rating: IP20
- Connection cross-section rigid: 2.5 - 35 mm²
- Connection cross-section, multi-wire: 2.5 - 35 mm²
- Connection cross-section, flexible: 2.5 - 25 mm²

### Ordering Information

- Always indicate the item number when ordering.

<table>
<thead>
<tr>
<th>Type</th>
<th>Nom.</th>
<th>Item No.</th>
<th>Weight</th>
<th>Pack.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C 2-150</td>
<td>150 V, 2-pole</td>
<td>5094679</td>
<td>21.300</td>
<td>1 pcs.</td>
</tr>
</tbody>
</table>
Surge arrester V20, 150 V, type 2, for TN-C networks

Surge arrester, 3-pole

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage</th>
<th>Version</th>
<th>Pack. kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C 3-150</td>
<td>150 V</td>
<td>3-pole</td>
<td>1</td>
<td>5094680</td>
</tr>
</tbody>
</table>

Surge arrester, type 2, 150 V

- VDE-tested
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 40 kA (8/20) per pole
- Arrestor, connectable with dynamic cut-off unit and visual function display
- Encapsulated, non-extinguishing zinc oxide varistor arrestor for use in distributor housings
- Base with multiple connection terminals

Application: Equipotential bonding (LPZ 1 to 2) and device protection in main and sub-distributors.

V20-C 3-150

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage</td>
<td>130 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II</td>
</tr>
<tr>
<td>Lightning protection zone</td>
<td>LPZ 1–2</td>
</tr>
<tr>
<td>Nominal discharge current</td>
<td>20 kA</td>
</tr>
<tr>
<td>Arrester surge current (8/20)</td>
<td>60 kA</td>
</tr>
<tr>
<td>Maximum discharge current</td>
<td>40 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>≤ 0.8 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>&lt; 25 ns</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>125 A</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40°C to +80°C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>3</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Connection cross-section</td>
<td>2.5 – 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section,</td>
<td></td>
</tr>
<tr>
<td>multi-wire</td>
<td>2.5 – 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section,</td>
<td></td>
</tr>
<tr>
<td>flexible</td>
<td>2.5 – 25 mm²</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrestor V20 in 150 V, type 2, for TN-S and TT networks

Surge arrester, 3-pole + NPE with remote signalling

- With new MultiBase base with multiple connection terminals
- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- VDE-tested
- Suitable for TN and TT network systems
- Plug-in upper part, upper part can be separated from base without tool
- With remote signalling, potential-free changeover contact, for function monitoring
- Incl. thermal and dynamic cut-off unit
- With visual fault display
- High current conductivity and long service life
- Labelled connections

Application example: Residential buildings, single-family homes and industry

V 20-C 3+NPE+FS

Nominal voltage \( U_n \) | 130 V
---|---
SPD to EN 61643-11 | Type 2
SPD to IEC 61643-11 | Class II
Lightning protection zone LPZ | 1→2
Nominal discharge current (8/20) \( I_{\text{nom}} \) | 20 kA
Arrester surge current (8/20) \[\text{total}\] \( I_{\text{nom, 8/20}} \) | 80 kA
Maximum discharge current (8/20 \( \mu \)s) \( I_{\text{max}} \) | 40 kA
Voltage protection level \( U_{\text{up}} \) | \(< 0,8 \text{kV}\)
Response time \( t_{\text{A}} \) | \(< 25 \text{ ns}\)
Maximum back-up fuse | 125 A
Temperature range \( \theta \) | -40 - +80 °C
Division unit TE (17.5 mm) | 4
Protection rating | IP20
Connection cross-section rigid | 2.5 - 35 mm²
Connection cross-section, multi-wire | 2.5 - 35 mm²
Connection cross-section, flexible | 2.5 - 25 mm²

Always indicate the item number when ordering.
Surge arrestor V20 in 150 V, type 2, for TN-S and TT networks

Surge arrestor, 1-pole + NPE

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C 1+NPE-150</td>
<td>150</td>
<td>1+NPE</td>
<td>1</td>
<td>1</td>
<td>5094639</td>
</tr>
</tbody>
</table>

V 20-C/...: Type 2 (Class C) surge arrestor to EN 61643-11 (VDE 0675 Parts 6–11).

- With new MultiBase base with multiple connection terminals
- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- VDE-tested
- Suitable for TN and TT network systems
- Plug-in upper part, upper part can be separated from base without tool
- Incl. thermal and dynamic cut-off unit
- With visual fault display
- High current conductivity and long service life
- Labelled connections

Application example: Residential buildings, single-family homes and industry

<table>
<thead>
<tr>
<th>V20-C 1+NPE-150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
</tr>
<tr>
<td>Arrester surge current (8/20)</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
</tr>
<tr>
<td>Voltage protection level</td>
</tr>
<tr>
<td>Response time</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
</tr>
<tr>
<td>Temperature range</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
</tr>
<tr>
<td>Protection rating</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrestor V20 in 150 V, type 2, for TN-S and TT networks

Surge arrester, 3-pole + NPE

- With new MultiBase base with multiple connection terminals
- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- VDE-tested
- Suitable for TN and TT network systems
- Plug-in upper part; upper part can be separated from base without tool
- Incl. thermal and dynamic cut-off unit
- With visual fault display
- High current conductivity and long service life
- Labelled connections

Application example: Residential buildings, single-family homes and industry

V 20-C/...: Surge protection device Type 2 (Class C) according to VDE 0675 Parts 6–11 (DIN EN 61643-11), designed for surge voltage protection to DIN VDE 0100 part 443 for protecting low voltage consumer systems from transient surge voltage due to atmospheric discharges and switching actions.

- Plug-in upper part: upper part can be separated from base without tools
- Including thermal and dynamic cut-off unit
- Visual function display
- Nominal/maximum arresting surge current 20 kA/40 kA
- High current conductivity and long service life
- Protection level at 20 kA < 1.4 kV
- 5 year warranty

Application: Industrial buildings and housing in any standard distributor housing

**V20-C 3+NPE-150**

<table>
<thead>
<tr>
<th>Highest continuous voltage</th>
<th>Weight</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C 3+NPE-150 150 V</td>
<td></td>
<td>1</td>
<td>5094644</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrester V20 in 280 V, type 2, for TN-S and TT networks

Surge arrester, 3-pole + NPE with acoustic signalling

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Version</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C 3+NPE+AS</td>
<td>280</td>
<td>3 + NPE</td>
<td>1</td>
<td>57.000</td>
<td>5096397</td>
</tr>
</tbody>
</table>

V 20-C/...: Surge protection device Type 2 (Class C) to VDE 0675 part 6-11 (DIN EN 61643-11) with acoustic signalling.

- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- With acoustic signalling for function monitoring, signal tone can be shut down for 24 h
- VDE-tested
- Suitable for TN and TT network systems
- Plug-in upper part; upper part can be separated from base without tools
- Including thermal and dynamic separating device
- With visual display of defects
- High current conductivity and long service life

V20-C 3+NPE+AS

<table>
<thead>
<tr>
<th>Nominal voltage</th>
<th>U_N</th>
<th>230 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2</td>
<td></td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II</td>
<td></td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1→2</td>
<td></td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>I_D</td>
<td>20 kA</td>
</tr>
<tr>
<td>Arrestor surge current (8/20) [total]</td>
<td>I_total</td>
<td>80 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>I_peak</td>
<td>40 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>U_P</td>
<td>&lt; 1,3 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>t_A</td>
<td>&lt; 25 ns</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>I_N</td>
<td>125 A</td>
</tr>
<tr>
<td>Temperature range</td>
<td>T</td>
<td>-40 - +80 °C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>2.5 - 35 mm²</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>2.5 - 35 mm²</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>2.5 - 25 mm²</td>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrestor V20 in 280 V, type 2, for TN-S and TT networks

**Surge arrestor, 1-pole + NPE**

- Surge protection device Type 2 (Class C) to VDE 0675 part 6-11 (DIN EN 61643-11).
- With new MultiBase base part and Multi-connection clamps
- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- VDE-tested
- Suitable for TN- and TT network systems
- Plug-in upper part: upper part can be separated from base without tools
- Including thermal and dynamic separating device
- With visual display of defects
- High current conductivity and long service life
- Marked connections

Application example: residential buildings, single-family homes without outer lightning protection system.

**Dimensions**

**Connection options**

---

**V20-C 1+NPE-280**

- Nominal voltage $U_n$: 230 V
- SPD to EN 61643-11 Type 2
- SPD to IEC 61643-11 Class II
- Lightning protection zone LPZ 1→2
- Nominal discharge current (8/20) $I_{\text{nom}}$: 20 kA
- Arrester surge current (8/20) $I_{\text{total}}$: 40 kA
- Maximum discharge current (8/20 μs) $I_{\text{max}}$: 40 kA
- Voltage protection level $U_p$: < 1.3 kV
- Response time $t_A$: < 25 ns
- Maximum back-up fuse: 125 A
- Temperature range $\vartheta$: -40 - +80 °C
- Division unit TE (17.5 mm): 2
- Protection rating: IP20
- Connection cross-section rigid: 2.5 - 35 mm²
- Connection cross-section, multi-wire: 2.5 - 35 mm²
- Connection cross-section, flexible: 2.5 - 25 mm²

---

**Always indicate the item number when ordering.**
### Combination arrester C25, 1-pole+NPE

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 25-B+C 1</td>
<td>NPE</td>
<td>12.500</td>
<td>5095606</td>
</tr>
</tbody>
</table>

C 25-B+C/.+NPE: Plug-in total discharge gap for use between neutral lines (N) and protector (PE). Suitable for use in combination with:

- CombiController Type V 25-B+C
- SurgeController Type V 20-C
- SurgeController Type V 10-C

### C 25-B+C 1

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage</td>
<td>230 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 1+2</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class I+II</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>0–2</td>
</tr>
<tr>
<td>Lightning impulse current (10/350) (N-PE)</td>
<td>25 kA</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>30 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>50 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>U&lt;sub&gt;pp&lt;/sub&gt; &lt;1,2 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>t&lt;sub&gt;R&lt;/sub&gt; &lt; 100 ns</td>
</tr>
<tr>
<td>Follow current quenching capacity (eff) [N-PE]</td>
<td>I&lt;sub&gt;fi&lt;/sub&gt; 0.1 kA</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>I&lt;sub&gt;B&lt;/sub&gt; A</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40 → +80 °C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>1</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>2.5 - 25 mm²</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrester V20 in 280 V, type 2, for TN-S and TT networks

Surge arrester, 3-pole + NPE

- With new MultiBase base part and Multi-connection clamps
- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- VDE-tested
- Suitable for TN- and TT network systems
- Plug-in upper part: upper part can be separated from base without tools
- Including thermal and dynamic separating device
- With visual display of defects
- High current conductivity and long service life
- Marked connections

Application example: residential buildings, single-family homes without outer lightning protection system.

### V20-C 3+NPE-280

<table>
<thead>
<tr>
<th>Nominal voltage $U_n$</th>
<th>230 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1→2</td>
</tr>
<tr>
<td>Nominal discharge current (8/20) $I_{n}$</td>
<td>20 kA</td>
</tr>
<tr>
<td>Arrester surge current (8/20) [total] $I_{\text{arre}}$</td>
<td>50 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs) $I_{\text{max}}$</td>
<td>40 kA</td>
</tr>
<tr>
<td>Voltage protection level $U_{\text{p}}$</td>
<td>$&lt; 1,3$ kV</td>
</tr>
<tr>
<td>Response time $t_{A}$</td>
<td>$&lt; 25$ ns</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>125 A</td>
</tr>
<tr>
<td>Temperature range $\vartheta$</td>
<td>-40 - +80 °C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>4</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>2.5 - 25 mm²</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrestor, 1-pole

**Highest continuous voltage**

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C 1-280</td>
<td>280</td>
<td>1</td>
<td>12.000</td>
<td>5094618</td>
</tr>
</tbody>
</table>

Surge arrestor, type 2, 280 V

- VDE-tested
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 40 kA (8/20) per pin
- Arrestor, connectable with dynamic cut-off unit and visual function display
- Encapsulated, non-extinguishing zinc oxide varistor arrestor for use in distributor housings
- Base with multiple connection terminals

Application: Equipotential bonding (LPZ 1 to 2) and device protection in main and subdistributors.

**V20-C 1-280**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage</td>
<td>230 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1 → 2</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>10 kA</td>
</tr>
<tr>
<td>Arrester surge current (8/20) (total)</td>
<td>20 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>40 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>U_p ≤ 1.3 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>t_r &lt; 25 ns</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>125 A</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40 - +80 °C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>1</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>2.5 - 25 mm²</td>
</tr>
</tbody>
</table>

**Dimensions**

**Connection options**
Surge arrestor V20, 280 V, type 2, for TN-S networks

Surge arrestor, 2-pole, with acoustic signalling

V 20-C/...: Surge protection device Type 2 (Class C) to VDE 0675 part 6-11 (DIN EN 61643-11) with acoustic signalling.

- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- VDE-tested
- Suitable for TN network systems
- With acoustic signalling for function monitoring, signal tone can be shut down for 24 h
- Plug-in upper part; upper part can be separated from base without tools
- Including thermal and dynamic separating device
- With visual display of defects
- High current conductivity and long service life
- Marked connections

Application example: residential buildings, single-family homes

Dimensions

Connection options

V20-C 2+AS-280

Nominal voltage \( U_{in} \) 230 V
SPD to EN 61643-11 Type 2
SPD to IEC 61643-11 Class II
Lightning protection zone LPZ 1→2
Nominal discharge current (8/20) \( I_d \) 20 kA
Arrester surge current (8/20) [total] \( I_{total 8/20} \) 40 kA
Maximum discharge current (8/20 μs) \( I_{max} \) 40 kA
Voltage protection level \( U_p \) < 1.3 kV
Response time \( t_A \) < 25 ns
Maximum back-up fuse 125 A
Temperature range \( \theta \) -40 - +80 °C
Division unit TE (17.5 mm) 3
Protection rating IP20
Connection cross-section rigid 2.5 - 35 mm²
Connection cross-section, multi-wire 2.5 - 35 mm²
Connection cross-section, flexible 2.5 - 25 mm²

Always indicate the item number when ordering.
Surge arrester, 3-pole

Highest continuous voltage

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C 3-280</td>
<td>3-pole</td>
<td>1</td>
<td>33.500</td>
<td>5094624</td>
</tr>
</tbody>
</table>

Surge arrester, type 2, 280 V

- VDE-tested
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 40 kA (8/20) per pin
- Arrestor, connectable with dynamic cut-off unit and visual function display
- Encapsulated, non-extinguishing zinc oxide varistor arrestor for use in distributor housings
- Base with multiple connection terminals

Application: Equipotential bonding (LPZ 1 to 2) and device protection in main and subdistributors.

V20-C 3-280

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage</td>
<td>230 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1 → 2</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>20 kA</td>
</tr>
<tr>
<td>Arrester surge current (8/20) (total)</td>
<td>60 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>40 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>&lt; 1.3 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>&lt; 25 ns</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>125 A</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40 - +80 °C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>3</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>2.5 - 25 mm²</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrestor, 3-pole, with acoustic signalling

- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- VDE-tested
- Suitable for TN network systems
- With acoustic signalling for function monitoring, signal tone can be shut down for 24 h
- Plug-in upper part; upper part can be separated from base without tools
- Including thermal and dynamic separating device
- With visual display of defects
- High current conductivity and long service life
- Marked connections

Application example: residential buildings, single-family homes

V20-C...: Surge protection device Type 2 (Class C) to VDE 0675 part 6-11 (DIN EN 61643-11) with acoustic signalling.

- Nominal voltage: 230 V
- SPD to EN 61643-11
- SPD to IEC 61643-11
- Lightning protection zone LPZ 1 → 2
- Nominal discharge current (8/20): \( I_{\text{In}} \) 20 kA
- Arrester surge current (8/20) [total]: \( I_{\text{t,surge}} \) 60 kA
- Maximum discharge current (8/20 μs): \( I_{\text{Imax}} \) 40 kA
- Voltage protection level: \( U_{\text{p}} \) < 1.3 kV
- Response time: \( t_{\text{A}} \) < 25 ns
- Maximum back-up fuse: 125 A
- Temperature range: \( \vartheta \) -40 - +80 °C
- Division unit TE (17.5 mm)
- Protection rating: IP20
- Connection cross-section rigid: 2.5 - 35 mm²
- Connection cross-section, multi-wire: 2.5 - 35 mm²
- Connection cross-section, flexible: 2.5 - 25 mm²

Always indicate the item number when ordering.
Surge arrestor V20, 280 V, type 2, for TN-C networks

Surge arrestor, 3-pole with fuse monitoring

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C 3+FS-SÜ</td>
<td>280</td>
<td>3-pole</td>
<td>1</td>
<td>45.000</td>
<td>5096251</td>
</tr>
</tbody>
</table>

V 20-C/...: Surge protection device Type 2 (Class C) to VDE 0675 part 6-11 (DIN EN 61643-11), ready-for-connection with remote signalling and voltage monitoring.

- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- VDE-tested
- Suitable for TN network systems
- With voltage monitoring of phases and function monitoring of arrestor upper part, remote signalling
- Plug-in upper part; upper part can be separated from base without tools
- Including thermal and dynamic separating device
- With visual display of defects
- High current conductivity and long service life

V20-C 3+FS-SÜ

<table>
<thead>
<tr>
<th>Nominal voltage U_n</th>
<th>230 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1→2</td>
</tr>
<tr>
<td>Nominal discharge current (8/20) I_n</td>
<td>20 kA</td>
</tr>
<tr>
<td>Arrestor surge current (8/20) (total) I_total</td>
<td>60 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs) I_{max}</td>
<td>40 kA</td>
</tr>
<tr>
<td>Voltage protection level U_p</td>
<td>&lt; 1.3 kV</td>
</tr>
<tr>
<td>Response time t_A</td>
<td>&lt; 25 ns</td>
</tr>
<tr>
<td>Maximum back-up fuse I_6</td>
<td>125 A</td>
</tr>
<tr>
<td>Temperature range θ</td>
<td>-40 - +80 °C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>4</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
</tbody>
</table>

Connection options:

- Connection cross-section rigid 2.5 - 35 mm²
- Connection cross-section, multi-wire 2.5 - 35 mm²
- Connection cross-section, flexible 2.5 - 25 mm²

Always indicate the item number when ordering.
Surge arrestor V20, 280 V, type 2, for TN-S networks

Surge arrestor, 4-pole

- VDE-tested
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 40 kA (8/20) per pin
- Arrestor, connectable with dynamic cut-off unit and visual function display
- Encapsulated, non-extinguishing zinc oxide varistor arrestor for use in distributor housings
- Base with multiple connection terminals

Application: Equipotential bonding (LPZ 1 to 2) and device protection in main and subdistributors.

### Dimensions

Connection options

### V20-C 4-280

<table>
<thead>
<tr>
<th>Nominal voltage $U_{n}$</th>
<th>230 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1→2</td>
</tr>
<tr>
<td>Nominal discharge current (8/20) $I_{n}$</td>
<td>20 kA</td>
</tr>
<tr>
<td>Arrester surge current (8/20) (total) $I_{f_{max}}$</td>
<td>80 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs) $I_{f_{max}}$</td>
<td>40 kA</td>
</tr>
<tr>
<td>Voltage protection level $U_{p}$</td>
<td>&lt; 1.3 kV</td>
</tr>
<tr>
<td>Response time $t_{R}$</td>
<td>&lt; 25 ns</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>125 A</td>
</tr>
<tr>
<td>Temperature range $\theta$</td>
<td>-40 → +80 °C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>4</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>2.5 - 25 mm²</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrester, 4-pole with acoustic signalling

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Version</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C 4+AS-280</td>
<td>280</td>
<td>4-pole</td>
<td>1</td>
<td>57.000</td>
<td>5096391</td>
</tr>
</tbody>
</table>

V 20-C/...: Surge protection device Type 2 (Class C) to VDE 0675 part 6-11 (DIN EN 61643-11) with acoustic signalling.

- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- VDE-tested
- Suitable for TN network systems
- With acoustic signalling for function monitoring, signal tone can be shut down for 24 h
- Plug-in upper part; upper part can be separated from base without tools
- Including thermal and dynamic separating device
- With visual display of defects
- High current conductivity and long service life
- Marked connections

Application example: residential buildings, single-family homes

**V20-C 4+AS-280**

Nominal voltage $U_n$ 230 V

 SPD to EN 61643-11 Type 2

 SPD to IEC 61643-11 Class II

Lightning protection zone LPZ 1→2

Nominal discharge current (8/20) $I_n$ 20 kA

Arrester surge current (8/20) $I_{total}$ 80 kA

Maximum discharge current (8/20 μs) $I_{max}$ 40 kA

Voltage protection level $U_p$ $<$ 1.3 kV

Response time $t_R$ $<$ 25 ns

Maximum back-up fuse 125 A

Temperature range $\theta$ $-$40 - +80 °C

Division unit TE (17.5 mm) 5

Protection rating IP20

Connection cross-section rigid 2.5 - 35 mm²

Connection cross-section, multi-wire 2.5 - 35 mm²

Connection cross-section, flexible 2.5 - 25 mm²

Always indicate the item number when ordering.
Surge arrestor V20, 280 V, type 2, for TN-S networks

Surge arrestor, 4-pole with fuse monitoring

V 20-C/...: Surge protection device Type 2 (Class C) to VDE 0675 part 6-11 (DIN EN 61643-11), ready-for-connection with remote signalling and voltage monitoring.

- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- VDE-tested
- Suitable for TN network systems
- With voltage monitoring of phases and function monitoring of arrestor upper part, remote signalling
- Plug-in upper part; upper part can be separated from base without tools
- Including thermal and dynamic separating device
- With visual display of defects
- High current conductivity and long service life

V20-C 4+FS-SÜ

Nominal voltage \( U_{\text{in}} \) | 230 V
---|---
SPD to EN 61643-11 | Type 2
SPD to IEC 61643-11 | Class II
Lightning protection zone LPZ | 1-2
Nominal discharge current (8/20) \( I_{\text{lim}} \) | 20 kA
Arrester surge current (8/20) (total) \( I_{\text{lim, total}} \) | 80 kA
Maximum discharge current (8/20 μs) \( I_{\text{lim, total}} \) | 40 kA
Voltage protection level \( U_{\text{p}} \) | < 1.3 kV
Response time \( t_{\text{A}} \) | < 25 ns
Maximum back-up fuse | 125 A
Temperature range \( \theta \) | -40 °C ↔ +80 °C
Division unit TE (17.5 mm) | G
Protection rating | IP20
Connection cross-section rigid | 2.5 - 35 mm²
Connection cross-section, multi-wire | 2.5 - 35 mm²
Connection cross-section, flexible | 2.5 - 25 mm²

Dimensions

Connection options

Always indicate the item number when ordering.
Surge arrestor V20, 385 V, type 2

Surge arrestor, 1-pole

- VDE-tested
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 40 kA (8/20) per pin
- Arrestor, connectable with dynamic cut-off unit and visual function display
- High-performance varistor technology

Application: Equipotential bonding (LPZ 1 to 2) in main and subdistributors.

### V20-C 1-385

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal voltage Uₜₐ</th>
<th>SPD to EN 61643-11</th>
<th>SPD to IEC 61643-11</th>
<th>Lightning protection zone LPZ</th>
<th>Nominal discharge current (8/20) Iₜₐ</th>
<th>Arrester surge current (8/20) Iₜₐ (total)</th>
<th>Maximum discharge current (8/20 μs) Iₜ₉₀</th>
<th>Voltage protection level Uₚ</th>
<th>Response time tₚ</th>
<th>Maximum back-up fuse</th>
<th>Temperature range</th>
<th>Division unit TE (17.5 mm)</th>
<th>Protection rating</th>
<th>Connection cross-section rigid</th>
<th>Connection cross-section, multi-wire</th>
<th>Connection cross-section, flexible</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C 1-385</td>
<td>350 V</td>
<td>Type 2</td>
<td>Class II</td>
<td>1→2</td>
<td>20 kA</td>
<td>20 kA</td>
<td>40 kA</td>
<td>&lt;1,7 kV</td>
<td>&lt;25 ns</td>
<td>125 A</td>
<td>-40 to +80 °C</td>
<td>1</td>
<td>IP20</td>
<td>2.5 - 35 mm²</td>
<td>2.5 - 35 mm²</td>
<td>2.5 - 25 mm²</td>
</tr>
</tbody>
</table>

Dimensions

Connection options

Always indicate the item number when ordering.
Surge arrester V20, 385 V, type 2, for TN-S networks

Surge arrester, 2-pole

- VDE-tested
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 40 kA (8/20) per pin
- Arrestor, connectable with dynamic cut-off unit and visual function display
- High-performance varistor technology

Application: Equipotential bonding (LPZ 1 to 2) in main and subdistributors.

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C 2-385</td>
<td>385</td>
<td>2-pole</td>
<td>1</td>
<td>23.700</td>
<td>5094704</td>
</tr>
</tbody>
</table>

Surge arrester, type 2, 385 V

Dimensions

Connection options

V20-C 2-385

- Nominal voltage $U_n$: 350 V
- SPD to EN 61643-11: Type 2
- SPD to IEC 61643-11: Class II
- Lightning protection zone LPZ: 1→2
- Nominal discharge current (8/20): $I_{\text{nom}}$: 20 kA
- Arrestor surge current (8/20) [total]: $I_{\text{nom},8/20}$: 40 kA
- Maximum discharge current (8/20 μs): $I_{\text{max},8/20}$: 40 kA
- Voltage protection level: $U_p$: < 1.7 kV
- Response time: $t_A$: < 25 ns
- Maximum back-up fuse: 125 A
- Temperature range: 0 -40 to +80 °C
- Division unit TE (17.5 mm): 2
- Protection rating: IP20
- Connection cross-section rigid: 2.5 - 35 mm²
- Connection cross-section, multi-wire: 2.5 - 35 mm²
- Connection cross-section, flexible: 2.5 - 25 mm²

Always indicate the item number when ordering.
Surge arrestor V20, 385 V, type 2, for TN-C networks

Surge arrestor, 3-pole

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal voltage</th>
<th>SPD to EN 61643-11</th>
<th>SPD to IEC 61643-11</th>
<th>Lightning protection zone LPZ</th>
<th>Nominal discharge current (8/20)</th>
<th>Arrester surge current (8/20) [total]</th>
<th>Maximum discharge current (8/20 μs)</th>
<th>Voltage protection level</th>
<th>Response time</th>
<th>Maximum back-up fuse</th>
<th>Temperature range</th>
<th>Division unit TE (17.5 mm)</th>
<th>Protection rating</th>
<th>Connection cross-section rigid</th>
<th>Connection cross-section, multi-wire</th>
<th>Connection cross-section, flexible</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C 3-385</td>
<td>385 V</td>
<td>Type 2</td>
<td>Class II</td>
<td>1→2</td>
<td>20 kA</td>
<td>60 kA</td>
<td>40 kA</td>
<td>&lt; 1,7 kV</td>
<td>&lt; 25 ns</td>
<td>125 A</td>
<td>-40 to +80 °C</td>
<td>IP20</td>
<td>2.5 - 35 mm²</td>
<td>Connection cross-section rigid</td>
<td>Connection cross-section, multi-wire</td>
<td>Connection cross-section, flexible</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrestor V20, 385 V, type 2, for TN-C networks

V20-C 3+FS-385

Nominal voltage $U_n$ 350 V
SPD to EN 61643-11 | Type 2
SPD to IEC 61643-11 | Class II
Lightning protection zone LPZ 1→2
Nominal discharge current (8/20) $I_{\text{nom}}$ 20 kA
Arrester surge current (8/20) [total] $I_{\text{total 8/20}}$ 60 kA
Maximum discharge current (8/20 μs) $I_{\text{max 8/20}}$ 40 kA
Voltage protection level $U_p$ < 1.7 kV
Response time $t_A$ < 25 ns
Maximum back-up fuse 125 A
Temperature range $\theta$ -40 - +80 °C
Division unit TE (17.5 mm) 3
Protection rating IP20
Connection cross-section rigid 2.5 - 35 mm²
Connection cross-section, multi-wire 2.5 - 35 mm²
Connection cross-section, flexible 2.5 - 25 mm²

Always indicate the item number when ordering.
Surge arrestor V20, 385 V, type 2, for TN-S networks

Surge arrestor, 4-pole

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Version</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C 4-385</td>
<td>385</td>
<td>4-pole</td>
<td>1</td>
<td>44.000</td>
<td>5094708</td>
</tr>
</tbody>
</table>

Surge arrestor, type 2, 385 V

- VDE-tested
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 40 kA (8/20) per pin
- Arrestor, connectable with dynamic cut-off unit and visual function display
- High-performance varistor technology

Application: Equipotential bonding (LPZ 1 to 2) in main and subdistributors.

V20-C 4-385

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage</td>
<td>350 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1→2</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>20 kA</td>
</tr>
<tr>
<td>Arrester surge current (8/20) [total]</td>
<td>80 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>40 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>&lt; 1.7 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>&lt; 25 ns</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>125 A</td>
</tr>
<tr>
<td>Temperature range</td>
<td>40 – +80 °C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>4</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>2.5 – 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>2.5 – 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>2.5 – 25 mm²</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrestor V20 in 385 V, type 2, for TN-S and TT networks

Surge arrestor, 1-pole + NPE

- With new MultiBase base part and Multi-connection clamps
- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- VDE-tested
- Suitable for TN- and TT network systems
- Plug-in upper part: upper part can be separated from base without tools
- Including thermal and dynamic separating device
- With visual display of defects
- High current conductivity and long service life
- Marked connections

Application example: residential buildings, single-family homes without outer lightning protection system.

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Version</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C 1+NPE-385</td>
<td>385</td>
<td>1-NPE</td>
<td>1</td>
<td>23.300</td>
<td>5094666</td>
</tr>
</tbody>
</table>

V 20-C/...: Surge protection device Type 2 (Class C) to VDE 0675 part 6-11 (DIN EN 61643-11).

Dimensions

Connection options

V20-C 1+NPE-385

- Nominal voltage \( U_n \): 350 V
- SPD to EN 61643-11: Type 2
- SPD to IEC 61643-11: Class II
- Lightning protection zone LPZ: Type 2
- Nominal discharge current (8/20) \( I_{\text{L}} \): 20 kA
- Arrester surge current (8/20) \( I_{\text{Total 8/20}} \): 40 kA
- Maximum discharge current (8/20 μs) \( I_{\text{peak 8/20}} \): 40 kA
- Voltage protection level \( U_p \): \(< 1.7 \text{kV} \)
- Response time \( t_A \): \(< 25 \text{ns} \)
- Maximum back-up fuse: 125 A
- Temperature range: \(-40 \text{ to } +80 \degree \text{C} \)
- Division unit TE (17.5 mm): 2
- Connection cross-section rigid: 2.5 - 35 mm²
- Connection cross-section, multi-wire: 2.5 - 35 mm²
- Connection cross-section, flexible: 2.5 - 25 mm²

Always indicate the item number when ordering.
Surge arrestor V20 in 385 V, type 2, for TN-S and TT networks

**Surge arrestor, 3-pole + NPE**

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C 3+NPE-385</td>
<td>385</td>
<td>3+NPE</td>
<td>1</td>
<td>42.600</td>
<td>5094668</td>
</tr>
</tbody>
</table>

V 20-C/...: Surge protection device Type 2 (Class C) to VDE 0675 part 6-11 (DIN EN 61643-11).

- With new MultiBase base part and Multi-connection clamps
- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- VDE-tested
- Suitable for TN- and TT network systems
- Plug-in upper part; upper part can be separated from base without tools
- Including thermal and dynamic separating device
- With visual display of defects
- High current conductivity and long service life
- Marked connections

Application example: residential buildings, single-family homes without outer lightning protection system.

**V20-C 3+NPE-385**

<table>
<thead>
<tr>
<th>Nominal voltage $U_n$</th>
<th>350 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1→2</td>
</tr>
<tr>
<td>Nominal discharge current (8/20) $I_n$</td>
<td>20 kA</td>
</tr>
<tr>
<td>Arrestor surge current (8/20) $I_{tA}$</td>
<td>80 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs) $I_{tA, max}$</td>
<td>40 kA</td>
</tr>
<tr>
<td>Voltage protection level $U_p$</td>
<td>&lt; 1.7 kV</td>
</tr>
<tr>
<td>Response time $t_A$</td>
<td>&lt; 25 ns</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>125 A</td>
</tr>
<tr>
<td>Temperature range $\theta$</td>
<td>-40 - +80 °C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>4</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>2.5 - 25 mm²</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrestor V20 in 385 V, type 2, for TN-S and TT networks

Surge arrestor, 3-pole + NPE with remote signalling

- With new MultiBase base part and Multi-connection clamps
- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- VDE-tested
- Suitable for TN- and TT- network systems
- Plug-in upper part; upper part can be separated from base without tools
- With remote signalling, potential-free changeover contact, for function monitoring
- Including thermal and dynamic separating device
- With visual display of defects
- High current conductivity and long service life
- Marked connections

Application example: residential buildings, single-family homes

V20-C 3+NPEFS38
Nominal voltage \(U_{\text{n}}\) | 350 V
SPD to EN 61643-11 | Type 2
SPD to IEC 61643-11 | Class II
Lightning protection zone LPZ | 1 → 2
Nominal discharge current (8/20) \(I_{\text{in}}\) | 20 kA
Arrester surge current (8/20) (total) \(I_{\text{total 8/20}}\) | 80 kA
Maximum discharge current (8/20 μs) \(I_{\text{peak 8/20}}\) | 40 kA
Voltage protection level \(U_{\text{p}}\) | < 1.7 kV
Response time \(t_{\text{A}}\) | < 25 ns
Maximum back-up fuse \(I_{\text{M}}\) | 125 A
Temperature range \(\theta\) | -40 → +80 °C
Division unit TE (17.5 mm) | 4
Protection rating | IP20
Connection cross-section rigid | 2.5 - 35 mm²
Connection cross-section, multi-wire | 2.5 - 35 mm²
Connection cross-section, flexible | 2.5 - 25 mm²

Always indicate the item number when ordering.
Surge arrestor V20, type 2, 550 V

- VDE-tested
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 40 kA (8/20) per pin
- Arrestor, connectable with dynamic cut-off unit and visual function display
- High-performance varistor technology

Application: Equipotential bonding (LPZ 1 to 2) in main and subdistributors.

---

**V20-C 1-550**

<table>
<thead>
<tr>
<th>Nominal voltage</th>
<th>$U_{nom}$</th>
<th>500 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2</td>
<td></td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II</td>
<td></td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1–2</td>
<td></td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>$I_{disch}$</td>
<td>15 kA</td>
</tr>
<tr>
<td>Arrester surge current (8/20) (total)</td>
<td>$I_{total}^{8/20}$</td>
<td>15 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>$I_{max}^{8/20}$</td>
<td>40 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>$U_{p}$</td>
<td>&lt; 2.4 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>$t_A$</td>
<td>&lt; 25 ns</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>$I_{fuse}$</td>
<td>125 A</td>
</tr>
<tr>
<td>Temperature range</td>
<td>$\theta$</td>
<td>-40 to +80 °C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Protection rating</td>
<td></td>
<td>IP20</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td></td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td></td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td></td>
<td>2.5 - 25 mm²</td>
</tr>
</tbody>
</table>

---

Always indicate the item number when ordering.
Surge arrester, 2-pole

- VDE-tested
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 40 kA (8/20) per pin
- Arrestor, connectable with dynamic cut-off unit and visual function display
- High-performance varistor technology

Application: Equipotential bonding (LPZ 1 to 2) in main and subdistributors.

### Dimensions

### Connection options

### Technical Data

**V20-C 2-550**

<table>
<thead>
<tr>
<th>Nominal voltage</th>
<th>U_{n}</th>
<th>500 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2</td>
<td></td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II</td>
<td></td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1-2</td>
<td></td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>I_{D}</td>
<td>15 kA</td>
</tr>
<tr>
<td>Arrester surge current (8/20) [total]</td>
<td>I_{TAL}</td>
<td>40 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>I_{TMA}</td>
<td>30 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>U_{p}</td>
<td>&lt; 2.4 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>t_{A}</td>
<td>&lt; 25 ns</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>125 A</td>
<td></td>
</tr>
<tr>
<td>Temperature range</td>
<td>θ</td>
<td>-40 - +80 °C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>2.5 - 35 mm²</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>2.5 - 35 mm²</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>2.5 - 25 mm²</td>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrestor V20, 550 V, type 2, for TN-C networks

Surge arrestor, 3-pole

Highest continuous voltage

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C 3-550</td>
<td>550</td>
<td>3-pole</td>
<td>1</td>
<td>36.000</td>
<td>5094715</td>
</tr>
</tbody>
</table>

Surge arrestor, type 2, 550 V

• VDE-tested
• For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
• Arresting capacity to 40 kA (8/20) per pin
• Arrestor, connectable with dynamic cut-off unit and visual function display
• High-performance varistor technology

Application: Equipotential bonding (LPZ 1 to 2) in main and subdistributors.

V20-C 3-550

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage</td>
<td>500 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1→2</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>15 kA</td>
</tr>
<tr>
<td>Arrester surge current (8/20) [total]</td>
<td>45 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>40 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>Uₚ ≤ 2.4 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>tₚ ≤ 25 ns</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>125 A</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40 – +80 °C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>3</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>2.5 – 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>2.5 – 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>2.5 – 25 mm²</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrester, 3-pole with remote signalling

- With new MultiBase base part and Multi-connection clamps
- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- VDE-tested
- Suitable for TN network systems
- Plug-in upper part; upper part can be separated from base without tools
- With remote signalling, potential-free changeover contact, for function monitoring
- Including thermal and dynamic separating device
- With visual display of defects
- High current conductivity and long service life
- Marked connections

Application example: residential buildings, single-family homes

---

### Surge arrester V20, 550 V, type 2, for TN-C networks

#### V20-C 3+FS-550

<table>
<thead>
<tr>
<th>Highest continuous voltage</th>
<th>Type</th>
<th>Version</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-pole + FS</td>
<td>550</td>
<td>3-pole + FS</td>
<td>1</td>
<td>36.200</td>
<td>5094792</td>
</tr>
</tbody>
</table>

V 20-C/...: Surge protection device Type 2 Class C) to VDE 0675 part 6-11 (DIN EN 61643-11).

#### Dimensions

#### Connection options

Nominal voltage $U_n$ 500 V

SPD to EN 61643-11 Type 2

SPD to IEC 61643-11 Class II

Lightning protection zone LPZ 1–2

Nominal discharge current (8/20) $I_n$ 15 kA

Arrester surge current (8/20) $I_{tas}$ 45 kA

Maximum discharge current (8/20 μs) $I_{max}$ 40 kA

Voltage protection level $U_p$ ≤ 2.4 kV

Response time $t_A$ < 25 ns

Maximum back-up fuse 125 A

Temperature range $\vartheta$ -40 to +80 °C

Division unit TE (17.5 mm) 3

Protection rating IP20

Connection cross-section rigid 2.5 - 35 mm²

Connection cross-section, multi-wire 2.5 - 35 mm²

Connection cross-section, flexible 2.5 - 25 mm²

Always indicate the item number when ordering.
Surge arrestor V20, 550 V, type 2, for TN-S networks

Surge arrestor, 4-pole

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal voltage</th>
<th>SPD to EN 61643-11</th>
<th>SPD to IEC 61643-11</th>
<th>Lightning protection zone LPZ</th>
<th>Nominal discharge current (8/20)</th>
<th>Arrestor surge current (8/20) [total]</th>
<th>Maximum discharge current (8/20 μs)</th>
<th>Voltage protection level</th>
<th>Response time</th>
<th>Maximum back-up fuse</th>
<th>Temperature range</th>
<th>Division unit TE (17.5 mm)</th>
<th>Protection rating</th>
<th>Connection cross-section rigid</th>
<th>Connection cross-section, multi-wire</th>
<th>Connection cross-section, flexible</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C 4-550</td>
<td>550 V</td>
<td>Type 2</td>
<td>Class II</td>
<td>1–2</td>
<td>15 kA</td>
<td>60 kA</td>
<td>40 kA</td>
<td>&lt; 2.4 kV</td>
<td>&lt; 25 ns</td>
<td>125 A</td>
<td>-40 – +80 °C</td>
<td>4</td>
<td>IP20</td>
<td>2.5 – 35 mm²</td>
<td>2.5 – 35 mm²</td>
<td>2.5 – 25 mm²</td>
</tr>
</tbody>
</table>

Surge arrestor, type 2, 550 V

- VDE-tested
- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 40 kA (8/20) per pin
- Arrestor, connectable with dynamic cut-off unit and visual function display
- High-performance varistor technology

Application: Equipotential bonding (LPZ 1 to 2) in main and subdistributors.

Always indicate the item number when ordering.
MultiBase base MB25

- VDE-tested
- Suitable for TN, TT and IT network systems
- NPE spark gap designed for max 440 V AC (IEC 60364-5-53)
- Arresting capacity of the spark gap MB25 up to 25 kA (10/350)
- Labelled connections
- Vibration-proof through Shock Guard
- Particularly suitable for use in wind power plants

Application example: Industrial and wind power plants

---

**MB25-3+NPE**

- Nominal voltage $U_{In}$: 400 V
- SPD to EN 61643-11
- SPD to IEC 61643-11
- Lightning protection zone LPZ: 0-2
- Nominal discharge current (8/20) $I_{In}$: 50 kA
- Arrester surge current (8/20) [total] $I_{Total 8/20}$: 50 kA
- Maximum discharge current (8/20 $\mu$s) $I_{max 8/20}$: 50 kA
- Voltage protection level $U_{pp}$: <2.0 kV
- Response time $t\alpha$: 100 ns
- Maximum back-up fuse 125 A
- Temperature range $\theta$: -40 - +80 °C
- Division unit TE (17.5 mm): I4
- Protection rating IP20
- Connection cross-section rigid: 2.5 - 35 mm²
- Connection cross-section, multi-wire: 2.5 - 35 mm²
- Connection cross-section, flexible: 2.5 - 35 mm²

---

Always indicate the item number when ordering.
Surge arrestor V20, type 2, leakage current-free version

Surge arrestor, 1-pole, leakage current-free

V 20-VA/...: Surge protection device Type 2 Class C) to VDE 0675 part 6-11 (DIN EN 61643-11).

- With new MultiBase base part and Multi-connection clamps
- Suitable for use in the pre-meter area (absolutely free of leakage current)
- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- Suitable for TN-C network systems
- Plug-in upper part; upper part can be separated from base without tools
- Including thermal and dynamic separating device
- With visual display of defects
- High current conductivity and long service life
- Marked connections

Application example: residential buildings, single-family homes

V20-VA 1-385

Nominal voltage $U_n$ 350 V
SPD to EN 61643-11 Type 2
SPD to IEC 61643-11 Class II
Lightning protection zone LPZ 1→2
Nominal discharge current (8/20) $I_{\text{lim}}$ 20 kA
Arrester surge current (8/20) $I_{\text{total}8/20}$ 20 kA
Maximum discharge current (8/20 μs) $I_{\text{lim}8/20}$ 25 kA
Voltage protection level $U_p$ $< 1.8$ kV
Response time $t_A$ $< 100$ ns
Temperature range $\vartheta$ -40 → +80 °C
Division unit TE (17.5 mm) 1
Protection rating IP20
Connection cross-section rigid 2.5 - 35 mm²
Connection cross-section, multi-wire 2.5 - 35 mm²
Connection cross-section, flexible 2.5 - 25 mm²

Always indicate the item number when ordering.
Cover, surge arrester 75 V

- **Highest continuous voltage DC**: 75 V
- **U max DC**: 100 V
- **Version**: 1-pole

**Connection options**

**V20-C 0-75**

- Max. continuous operating voltage: $U_c = 75$ V
- U max DC: $U_{\text{DC}} = 100$ V
- SPD to EN 61643-11: Type 2
- SPD to IEC 61643-11: Class II
- Lightning protection zone (LPZ): 1–2
- Nominal discharge current (8/20 μs): $I_n = 15$ kA
- Maximum discharge current (8/20 μs): $I_{\text{max}} = 40$ kA
- Voltage protection level: $U_i < 0.5$ kV
- Response time: $t_A < 25$ ns
- Maximum back-up fuse: 125 A
- Temperature range: $\theta = -40$ to $+80$ °C
- Protection rating: IP 20
- Division unit TE (17.5 mm)

Always indicate the item number when ordering.

Cover, surge arrester 150 V

- **Highest continuous voltage DC**: 150 V
- **U max DC**: 200 V
- **Version**: 1-pole

**Connection options**

**V20-C 0-150**

- Max. continuous operating voltage: $U_c = 150$ V
- U max DC: $U_{\text{DC}} = 200$ V
- SPD to EN 61643-11: Type 2
- SPD to IEC 61643-11: Class II
- Lightning protection zone (LPZ): 1–2
- Nominal discharge current (8/20 μs): $I_n = 20$ kA
- Maximum discharge current (8/20 μs): $I_{\text{max}} = 40$ kA
- Voltage protection level: $U_i < 0.8$ kV
- Response time: $t_A < 25$ ns
- Maximum back-up fuse: 125 A
- Temperature range: $\theta = -40$ to $+80$ °C
- Protection rating: IP 20
- Division unit TE (17.5 mm)

Always indicate the item number when ordering.
Cover, surge arrester 280 V

V20-C 0-280

Max. continuous operating voltage $U_{\text{c}}$ 280 V
U max DC $U_{\text{DC}}$ 350 V
SPD to EN 61643-11 Type 2
SPD to IEC 61643-11 Class II
Lightning protection zone LPZ 1→2
Nominal discharge current (8/20) $I_{\text{n}}$ 20 kA
Maximum discharge current (8/20 μs) $I_{\text{max}}$ 40 kA
Voltage protection level $U_p$ < 1.3 kV
Response time $t_A$ < 25 ns
Maximum back-up fuse 125 A
Temperature range $\theta$ -40 - +80 °C
Protection rating IP 20
Division unit TE (17.5 mm) 1

Upper part – type 2 surge arrester

- Plug-in upper part: upper part can be separated from base without tools
- Including thermal and dynamic separating device and visual fault display
- High current conductivity and long service life

Cover, surge arrester 320 V

V20-C 0-320

Max. continuous operating voltage $U_{\text{c}}$ 320 V
U max DC $U_{\text{DC}}$ 420 V
SPD to EN 61643-11 Type 2
SPD to IEC 61643-11 Class II
Lightning protection zone LPZ 1→2
Nominal discharge current (8/20) $I_{\text{n}}$ 20 kA
Maximum discharge current (8/20 μs) $I_{\text{max}}$ 40 kA
Voltage protection level $U_p$ < 1.4 kV
Response time $t_A$ < 25 ns
Maximum back-up fuse 125 A
Temperature range $\theta$ -40 - +80 °C
Protection rating IP 20
Division unit TE (17.5 mm) 1

Upper part – type 2 surge arrester

- Plug-in upper part: upper part can be separated from base without tools
- Including thermal and dynamic separating device and visual fault display
- High current conductivity and long service life

Always indicate the item number when ordering.
### Combination arrestor C25, 1-pole+NPE

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Version</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 25-B+C</td>
<td>230 V</td>
<td>NPE</td>
<td>12.500</td>
<td>5095606</td>
</tr>
</tbody>
</table>

C 25-B+C/-NPE: Plug-in total discharge gap for use between neutral lines (N) and protector (PE). Suitable for use in combination with:

- CombiController Type V 25-B+C
- SurgeController Type V 20-C
- SurgeController Type V 10-C

### Connection options

C 25-B+C 1

- Nominal voltage: 230 V
- SPD to EN 61643-11: Type 1+2
- SPD to IEC 61643-11: Class I+II
- Lightning protection zone LPZ: 0–2
- Lightning impulse current (10/350) (N-PE): I<sub>lim</sub> = 25 kA
- Nominal discharge current (8/20): I<sub>n</sub> = 50 kA
- Maximum discharge current (8/20 μs): I<sub>max</sub> = 30 kA
- Voltage protection level: U<sub>p</sub> < 1.2 kV
- Response time: t<sub>A</sub> < 100 ns
- Follow current quenching capacity (eff) [N-PE]: I<sub>f</sub> = 0.1 kA
- Maximum back-up fuse: — A
- Temperature range: -40 - +80 °C
- Division unit TE (17.5 mm): 1
- Protection rating: IP20
- Connection cross-section rigid: 2.5 - 35 mm²
- Connection cross-section, multi-wire: 2.5 - 35 mm²
- Connection cross-section, flexible: 2.5 - 25 mm²

### Cover, total spark gap between N and PE 255 V

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Version</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 25-B+C</td>
<td>230 V</td>
<td>NPE</td>
<td>5.300</td>
<td>5095603</td>
</tr>
</tbody>
</table>

C 25-B+C/-NPE: Plug-in total discharge gap for use between N and PE. Suitable for use in combination with:

- CombiController Type V 25-B+C
- SurgeController Type V 20-C
- SurgeController Type V 10-C

### Connection options

C 25-B+C 0

- Nominal voltage: 230 V
- SPD to EN 61643-11: Type 1+2
- SPD to IEC 61643-11: Class I+II
- Lightning protection zone LPZ: 0–2
- Lightning impulse current (10/350) (N-PE): I<sub>lim</sub> = 25 kA
- Nominal discharge current (8/20): I<sub>n</sub> = 50 kA
- Maximum discharge current (8/20 μs): I<sub>max</sub> = 30 kA
- Voltage protection level: U<sub>p</sub> < 1.2 kV
- Response time: t<sub>A</sub> < 100 ns
- Follow current quenching capacity (eff) [N-PE]: I<sub>f</sub> = 0.1 kA
- Maximum back-up fuse: 160 A
- Temperature range: -40 - +80 °C
- Division unit TE (17.5 mm): 1
- Protection rating: IP20
- Connection cross-section rigid: 2.5 - 35 mm²
- Connection cross-section, multi-wire: 2.5 - 35 mm²
- Connection cross-section, flexible: 2.5 - 25 mm²

Accessories, upper parts and bases V20

Always indicate the item number when ordering.
Upper part, surge protection, leak current-free

**V20-VA 0**

- Suitable for use in the pre-meter area (absolutely free of leakage current)
- Plug-in upper part; upper part can be separated from base without tools

**Cover, surge arrester 335 V**

- Plug-in upper part: upper part can be separated from base without tools
- Including thermal and dynamic separating device and visual fault display
- High current conductivity and long service life
### Cover, surge arrester 385 V

- **Highest continuous voltage**
- **U max DC**
- **Version**
- **Weight**

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>V</th>
<th>Version</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C 0-385</td>
<td>385</td>
<td>505</td>
<td>1-pole</td>
<td>1</td>
<td>5.826</td>
<td>5099995</td>
</tr>
</tbody>
</table>

**Upper part – type 2 surge arrester**

- Plug-in upper part: upper part can be separated from base without tools
- Including thermal and dynamic separating device and visual fault display
- High current conductivity and long service life

### Connection options

**V20-C 0-385**

| Max. continuous operating voltage $U_c$ | 385 V |
| U max DC $U_{DC}$ | 505 V |
| SPD to EN 61643-11 | Type 2 |
| SPD to IEC 61643-11 | Class II |
| Lightning protection zone LPZ | 1→2 |
| Nominal discharge current (8/20 μs) $I_{nom}$ | 20 kA |
| Maximum discharge current (8/20 μs) $I_{max}$ | 40 kA |
| Voltage protection level $U_i$ | <1.7 kV |
| Response time $t_A$ | <25 ns |
| Maximum back-up fuse | 125 A |
| Temperature range $\vartheta$ | -40 - +80 °C |
| Protection rating | IP 20 |
| Division unit TE (17.5 mm) | 1 |

### Cover, surge arrester 440 V

- **Highest continuous voltage**
- **U max DC**
- **Version**
- **Weight**

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>V</th>
<th>Version</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C 0-440</td>
<td>440</td>
<td>585</td>
<td>1-pole</td>
<td>1</td>
<td>6.452</td>
<td>5099706</td>
</tr>
</tbody>
</table>

**Upper part – type 2 surge arrester**

- Plug-in upper part: upper part can be separated from base without tools
- Including thermal and dynamic separating device and visual fault display
- High current conductivity and long service life

### Connection options

**V20-C 0-440**

| Max. continuous operating voltage $U_c$ | 440 V |
| U max DC $U_{DC}$ | 585 V |
| SPD to EN 61643-11 | Type 2 |
| SPD to IEC 61643-11 | Class II |
| Lightning protection zone LPZ | 1→2 |
| Nominal discharge current (8/20 μs) $I_{nom}$ | 20 kA |
| Maximum discharge current (8/20 μs) $I_{max}$ | 40 kA |
| Voltage protection level $U_i$ | <2.0 kV |
| Response time $t_A$ | <25 ns |
| Maximum back-up fuse | 125 A |
| Temperature range $\vartheta$ | -40 - +80 °C |
| Protection rating | IP 20 |
| Division unit TE (17.5 mm) | 1 |

Always indicate the item number when ordering.
Cover, surge arrester 550 V

Upper part – type 2 surge arrester

• Plug-in upper part: upper part can be separated from base without tools
• Including thermal and dynamic separating device and visual fault display
• High current conductivity and long service life

V20-C 0-550

Max. continuous operating voltage $U_{\text{c}}$ 550 V
U max DC $U_{\text{DC}}$ 745 V
SPD to EN 61643-11 Type 2
SPD to IEC 61643-11 Class II
Lightning protection zone LPZ 1–2
Nominal discharge current (8/20) $I_{\text{n}}$ 15 kA
Maximum discharge current (8/20 μs) $I_{\text{max}}$ 40 kA
Voltage protection level $U_{\text{p}}$ < 2.4 kV
Response time $t_{\text{A}}$ < 25 ns
Maximum back-up fuse 125 A
Temperature range $\vartheta$ -40°C to +80°C
Protection rating IP 20
Division unit TE (17.5 mm) 1

Connection options

Always indicate the item number when ordering.
**MultiBase base**

- Suitable for V25-B+C, V20-C and V10-C
- Pre-mounted and ready for connection
- For TN systems
- Multifunction terminals for easy circuit of series-mounted devices
- Upper parts can be rotated through 180 degrees

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Dividing unit</th>
<th>TE (17.5 mm)</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB 1</td>
<td>1-pole</td>
<td>1</td>
<td></td>
<td>1</td>
<td>7.000</td>
<td>5096648</td>
</tr>
<tr>
<td>MB 2</td>
<td>2-pole</td>
<td>2</td>
<td></td>
<td>1</td>
<td>11.200</td>
<td>5096653</td>
</tr>
<tr>
<td>MB 3</td>
<td>3-pole</td>
<td>3</td>
<td></td>
<td>1</td>
<td>16.000</td>
<td>5096665</td>
</tr>
<tr>
<td>MB 4</td>
<td>4-pole</td>
<td>4</td>
<td></td>
<td>1</td>
<td>21.000</td>
<td>50966680</td>
</tr>
</tbody>
</table>

**Base, MultiBase with remote signalling**

- Suitable for V 25-B+C, V 20-C and V10-C
- Pre-mounted and ready for connection
- Multifunction terminals for easy connection to series-mounted devices
- Upper parts can be rotated through 180 degrees
- With remote signalling, potential-free NO contact, for function monitoring

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Dividing unit</th>
<th>TE (17.5 mm)</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB 1+FS</td>
<td>1-pole</td>
<td>1</td>
<td></td>
<td>1</td>
<td>6.700</td>
<td>5096649</td>
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<tr>
<td>MB 2+FS</td>
<td>2-pole</td>
<td>2</td>
<td></td>
<td>1</td>
<td>11.700</td>
<td>5096654</td>
</tr>
<tr>
<td>MB 3+FS</td>
<td>3-pole</td>
<td>3</td>
<td></td>
<td>1</td>
<td>16.500</td>
<td>5096667</td>
</tr>
<tr>
<td>MB 4+FS</td>
<td>4-pole</td>
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<td></td>
<td>1</td>
<td>21.000</td>
<td>50966682</td>
</tr>
</tbody>
</table>

**MultiBase base + NPE**

- Suitable for V 25-B+C, V 20-C and V10-C
- Pre-mounted and ready for connection
- Multifunction terminals for easy connection to series-mounted devices
- Upper parts can be rotated through 180 degrees
- For TN-S and TT network systems

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Dividing unit</th>
<th>TE (17.5 mm)</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB 1+NPE</td>
<td>1+NPE</td>
<td>2</td>
<td></td>
<td>1</td>
<td>11.500</td>
<td>5096650</td>
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<tr>
<td>MB 2+NPE</td>
<td>2+NPE</td>
<td>3</td>
<td></td>
<td>1</td>
<td>16.100</td>
<td>5096655</td>
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<tr>
<td>MB 3+NPE</td>
<td>3+NPE</td>
<td>4</td>
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<td>1</td>
<td>20.000</td>
<td>5096669</td>
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</tbody>
</table>

**Base, MultiBase + NPE with remote signalling**

- Suitable for V 25-B+C, V 20-C and V10-C
- Pre-mounted and ready for connection
- Multifunction terminals for easy connection to series-mounted devices
- Upper parts can be rotated through 180 degrees
- With remote signalling, potential-free NO contact, for function monitoring
- 3+1 protection circuit for TN-S and TT network systems

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Dividing unit</th>
<th>TE (17.5 mm)</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB 1+NPE+FS</td>
<td>1+NPE+FS</td>
<td>2</td>
<td></td>
<td>1</td>
<td>11.600</td>
<td>5096651</td>
</tr>
<tr>
<td>MB 2+NPE+FS</td>
<td>2+NPE+FS</td>
<td>3</td>
<td></td>
<td>1</td>
<td>16.000</td>
<td>5096657</td>
</tr>
<tr>
<td>MB 3+NPE+FS</td>
<td>3+NPE+FS</td>
<td>4</td>
<td></td>
<td>1</td>
<td>21.000</td>
<td>5096671</td>
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</table>
Base, MultiBase with acoustic signalling

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C U-2 AS</td>
<td>22.000</td>
<td>5096413</td>
</tr>
<tr>
<td>V20-C U-3 AS</td>
<td>29.000</td>
<td>5096421</td>
</tr>
<tr>
<td>V20-C U-4 AS</td>
<td>35.000</td>
<td>5096448</td>
</tr>
<tr>
<td>V20-C U-3+NPE-AS</td>
<td>32.500</td>
<td>5096372</td>
</tr>
</tbody>
</table>

- Suitable for V 25-B+C, V 20-C and V 10-C
- With remote signalling, potential-free changeover contact, for function monitoring
- With acoustic signalling for function monitoring, signal tone can be shut down for 24 h
- Pre-mounted and ready for connection

Base, MultiBase + NPE with fuse monitoring

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C U-3+NPE</td>
<td>30.000</td>
<td>5096370</td>
</tr>
</tbody>
</table>

- Suitable for V 25-B+C, V 20-C and V 10-C
- With voltage monitoring of phases and function monitoring of arrestor upper part, remote signalling
- With remote signalling, potential-free changeover contact, for function monitoring
- For TN-S and TT network systems
- Pre-mounted and ready for connection

Always indicate the item number when ordering.
Remote signalling replacement connector for MultiBase

<table>
<thead>
<tr>
<th>Type</th>
<th>MB-FS</th>
<th>2-pole</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item No.</td>
<td>5096693</td>
<td></td>
</tr>
<tr>
<td>Pack pcs</td>
<td>25</td>
<td></td>
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<tr>
<td>Weight kg/100 pcs</td>
<td>0.310</td>
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</tr>
</tbody>
</table>

Replacement telephony connector, 2-pole version, for MultiBase base

Connection terminal for through-wiring

<table>
<thead>
<tr>
<th>Type</th>
<th>AS 3x16</th>
<th>Light grey</th>
<th>3 x 16 mm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item No.</td>
<td>5012010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pack pcs</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight kg/100 pcs</td>
<td>2.474</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Connection terminal type: AS 3 x 16

Connection cross-section: 3 x 1.5 - 16 sq mm rigid/multiple strands
3 x 1.5 - 10 sq mm fine-wire/with wire end sleeve
Stripping length: 16 mm
Rec. tightening torque: 1.2 Nm
Nominal current: 50 A
Width: 17.5 mm (1 TE)

For EMC-optimised V through-wiring to IEC 60364-5-53 (VDE 0100-534).
### Surge protection energy technology, arrester, type 2+3

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surge arrester V10 Compact</td>
<td>211</td>
</tr>
<tr>
<td>Accessories, upper parts and bases V10</td>
<td>216</td>
</tr>
<tr>
<td>Compact surge protection</td>
<td>231</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Type 2+3, surge arrester V10 Compact

3-pole + NPE
Volts Item no. Page
255 5093380 212
255 5093380 212
385 5093384 213

Type 2+3, surge arrester V10 Compact with remote/acoustic signalling

3-pole + NPE + FS
3-pole + NPE + AS
Volts Item no. Page Volts Item no. Page
255 5093382 215 255 5093391 214

Type 2+3, surge arrester ÜSM-LED

IP20
IP65
Volts Item no. Page Volts Item no. Page
255 5092 43 1 233 255 5092 43 3 234
255 5092 43 3 234 255 5092 42 6 253
255 5092 42 6 253 255 5092 42 4 254
255 5092 42 4 254 255 5092 42 2 255
255 5092 42 2 255

Type 2+3, surge arrester V10 upper parts

Upper part
Volts Item no. Page
280 5093402 222
280 5093402 222
320 5093404 223
385 5093406 224

Always indicate the item number when ordering.
Surge protection device, compact module, type 2+3

- Surge protection in subdistributors to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity up to 60 kA (8/20) in total
- Integrated 3+1 solution for TN and TT network systems on 45 mm module width
- High-performance varistor technology
- Including thermic and dynamic cut-off unit and visual function display
- Optionally with -AS acoustic signalling or -FS remote signalling

Application: Substorey distribution as well as device protection in rotational current systems.

### Surge arrester Compact 150 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V10 COMPACT 150</td>
<td>3 + NPE</td>
<td>15.800</td>
<td>5093378</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Nominal voltage</th>
<th>Uₐ</th>
<th>SPD to EN 61643-11</th>
<th>Type 2+3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uₐ</td>
<td>130 V</td>
<td>SPD to IEC 61643-11</td>
<td>Class II-III</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1→3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Nominal discharge current (8/20) | Iₘₜₕₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜₜportion of the document. The page contains information about a surge arrester model, which is part of a broader catalog. The surge arrester model discussed is the V10 COMPACT 150, featuring a nominal voltage of 150 V, and it is a compact module, type 2+3. It is indicated to be suitable for use in subdistributors to VDE 0100-443 (IEC 60364-4-44). The surge arrester is designed to provide protection in systems with TN and TT network configurations, with a module width of 45 mm. It utilizes high-performance varistor technology and includes thermic and dynamic cut-off units and visual function displays. Additionally, it can be optionally equipped with acoustic signalling or remote signalling through a visual function display.

#### Technical Specifications

- **Nominal Voltage**: 130 V
- **SPD to EN 61643-11**, Type 2+3
- **SPD to IEC 61643-11**, Class II-III
- **Lightning protection zone LPZ**: 1→3
- **Nominal discharge current (8/20)**: 10 kA
- **Arrester surge current (8/20)**: 60 kA
- **Maximum discharge current (8/20)**: 20 kA
- **Voltage protection level**: Uₚ ≤ 0.7 kV
- **Response time**: τ ≤ 25 ns
- **Maximum back-up fuse**: 63 A
- **Temperature range**: θ : -40 - +80 °C
- **Division unit TE (17.5 mm)**: 2.5
- **Protection rating**: IP20
- **Connection cross-section rigid**: 2.5 - 10 mm²
- **Connection cross-section, multi-wire**: 2.5 - 10 mm²
- **Connection cross-section, flexible**: 2.5 - 10 mm²

These specifications are important for ensuring the surge arrester meets the necessary safety and performance standards for use in electrical distribution systems. Always indicate the item number when ordering the surge arrester model discussed.
Surge arrester Compact 255 V

- Surge protection in subdistributors to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity up to 60 kA (8/20) in total
- Integrated 3+1 solution for TN and TT network systems on 45 mm module width
- High-performance varistor technology
- Including thermic and dynamic cut-off unit and visual function display
- Optionally with -AS acoustic signalling or -FS remote signalling

Application: Sub/storey distribution as well as device protection in rotational current systems.

V10 COMPACT 255

Nominal voltage $U_n$ 230 V
SPD to EN 61643-11 Type 2+3
SPD to IEC 61643-11 Class II+III
Lightning protection zone LPZ 1–3
Nominal discharge current (8/20) $I_d$ 10 kA
Arrester surge current (8/20) [total] $I_{\text{total 8/20}}$ 60 kA
Maximum discharge current (8/20 μs) $I_{\text{max 8/20}}$ 20 kA
Voltage protection level $U_p$ < 1.1 kV
Response time $t_A$ < 25 ns
Maximum back-up fuse 63 A
Temperature range 0 -40 - +80 °C
Division unit TE (17.5 mm) 2.5
Protection rating IP20
Connection cross-section rigid 2.5 - 10 mm²
Connection cross-section, multi-wire 2.5 - 10 mm²
Connection cross-section, flexible 2.5 - 10 mm²
Surge arrestor V10 Compact 385 V

Surge protection device, compact module, type 2+3

- Surge protection in subdistributors to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity up to 60 kA (8/20) in total
- Integrated 3+1 solution for TN and TT network systems on 45 mm module width
- High-performance varistor technology
- Including thermic and dynamic cut-off unit and visual function display
- Optionally with -AS acoustic signalling or -FS remote signalling

Application: Sub/storey distribution as well as device protection in rotational current systems.

<table>
<thead>
<tr>
<th>V10 COMPACT 385</th>
<th>385 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2+3</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II-III</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1→3</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>10 kA</td>
</tr>
<tr>
<td>Arrestor surge current (8/20)</td>
<td>60 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>20 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>≤ 1.5 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>&lt; 25 ns</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>63 A</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40 - +80 °C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>2.5</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>2.5 - 10 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>2.5 - 10 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>2.5 - 10 mm²</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrestor Compact with acoustic signalling

Surge protection device, compact module, type 2+3

- Surge protection in subdistributors to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity up to 60 kA (8/20) in total
- Integrated 3+1 solution for TN and TT network systems on 45 mm module width
- High-performance varistor technology
- Including thermic and dynamic cut-off unit and visual function display
- ...-AS version with additional acoustic defect signalling (switchable)

Application: Sub/storey distribution as well as device protection in rotational current systems.

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal voltage</th>
<th>Version</th>
<th>Designation</th>
<th>Pack pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V10 COMPACT-AS</td>
<td>230 V</td>
<td>3 + NPE</td>
<td>with acoustic signalling</td>
<td>1</td>
<td>15.800</td>
<td>5093391</td>
</tr>
</tbody>
</table>

Surge protection device, compact module, type 2+3

- Surge protection in subdistributors to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity up to 60 kA (8/20) in total
- Integrated 3+1 solution for TN and TT network systems on 45 mm module width
- High-performance varistor technology
- Including thermic and dynamic cut-off unit and visual function display
- ...-AS version with additional acoustic defect signalling (switchable)

Application: Sub/storey distribution as well as device protection in rotational current systems.

V10 COMPACT-AS

Nominal voltage \( U_n \) = 230 V
SPD to EN 61643-11 | Type 2-3
SPD to IEC 61643-11 | Class II-III
Lightning protection zone LPZ | 1-3
Nominal discharge current (8/20) \( I_n \) = 10 kA
Arrester surge current (8/20) [total] \( I_{\text{max, 8/20}} \) = 60 kA
Maximum discharge current (8/20 μs) \( I_{\text{max, 8/20}} \) = 20 kA
Voltage protection level \( U_p \) = < 1,1 kV
Response time \( t_A \) = < 25 ns
Maximum back-up fuse = 63 A
Temperature range \( \Theta \) = -40 : +80 °C
Division unit TE (17.5 mm) = 2.5
Protection rating = IP20
Connection cross-section rigid = 2.5 - 10 mm²
Connection cross-section, multi-wire = 2.5 - 10 mm²
Connection cross-section, flexible = 2.5 - 10 mm²

Always indicate the item number when ordering.
Surge arrestor Compact with remote signalling

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V10 COMPACT-FS</td>
<td>255</td>
<td>3 + NPE</td>
<td>1</td>
<td>17.300</td>
</tr>
</tbody>
</table>

Surge protection device, compact module, type 2+3

- Surge protection in subdistributors to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity up to 60 kA (8/20) in total
- Integrated 3+1 solution for TN and TT network systems on 45 mm module width
- High-performance varistor technology
- Including thermic and dynamic cut-off unit and visual function display
- ...-FS version with potential-free changeover contact for remote signalling

Application: Sub/storey distribution as well as device protection in rotational current systems.

V10 COMPACT-FS
Nominal voltage $U_N$ 230 V
SPD to EN 61643-11 Type 2+3
SPD to IEC 61643-11 Class II-III
Lightning protection zone LPZ 1–3
Nominal discharge current (8/20) $I_d$ 10 kA
Arrestor surge current (8/20) $I_{total}$ 60 kA
Maximum discharge current (8/20 μs) $I_{max}$ 20 kA
Voltage protection level $U_p$ $< 1.1$ kV
Response time $t_A$ $< 25$ ns
Maximum back-up fuse 63 A
Temperature range $\theta$ $-40$ – $+80$ °C
Division unit TE (17.5 mm) 2.5
Protection rating IP20
Connection cross-section rigid 2.5 – 10 mm²
Connection cross-section, multi-wire 2.5 – 10 mm²
Connection cross-section, flexible 2.5 – 10 mm²

Always indicate the item number when ordering.
Connecting bridge for V10 Compact 200 mm

- 4-pole version (L1; L2; L3; N)
- Conductor: H07V-K 4 mm²
- V10 Compact connection via pin contact (diameter: 2.7 mm)
- FI protection switch connection via flat contact (4 x 1.5 mm)

Dimensions

Connection options

Connecting bridge for V10 Compact 400 mm

- 4-pole version (L1; L2; L3; N)
- Conductor: H07V-K 4 mm²
- V10 Compact connection via pin contact (diameter: 2.7 mm)
- FI protection switch connection via flat contact (4 x 1.5 mm)

Dimensions

Always indicate the item number when ordering.
**Surge arrester V10 3-pole + NPE 280 V**

**Highest continuous voltage**

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V10-C 3+NPE</td>
<td>37.800</td>
<td>5094920</td>
</tr>
</tbody>
</table>

V 10-C/... lightning and surge protection device type 2+3 (Class C+D) to VDE 0675 part 6-11 (DIN EN 61643-11) to overvoltage protection to DIN VDE 0100 part 443.

- With new MultiBase base part and Multi-connection clamps
- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- Suitable for any TN and TT network systems
- Plug-in arrester with dynamic separating device
- With visual function display
- Version FS with remote signalling, potential-free changeover contact, for function monitoring
- High current conductivity and long service life
- Marked connections

Application example: residential buildings, single-family homes

### V10-C 3+NPE

**Nominal voltage**

| $U_{\text{nom}}$ | 230 V |

**SPD to EN 61643-11**

Type 2+3

**SPD to IEC 61643-11**

Class II-III

**Lightning protection zone LPZ**

1→3

**Nominal discharge current (8/20)**

$I_{\text{nom}}$ 10 kA

**Arrester surge current (8/20) [total]**

$I_{\text{Total 8/20}}$ 40 kA

**Maximum discharge current (8/20 μs)**

$I_{\text{max 8/20 μs}}$ 20 kA

**Voltage protection level**

$U_{\text{p}}$ ≤ 1.1 kV

**Response time**

$t_{\text{A}}$ ≤ 25 ns

**Maximum back-up fuse**

125 A

**Temperature range**

0 °C - 40 °C

**Division unit TE (17.5 mm)**

4

**Protection rating**

IP20

**Connection cross-section rigid**

2.5 - 35 mm²

**Connection cross-section, multi-wire**

2.5 - 35 mm²

**Connection cross-section, flexible**

2.5 - 25 mm²

Always indicate the item number when ordering.
Surge arrester V10, 280 V, type 2+3

Surge arrester V10 3-pole + NPE with remote signalling 280 V

V 10-C/...: lightning and surge protection device type 2+3 (Class C+D) to VDE 0675 part 6-11 (DIN EN 61643-11) to overvoltage protection to DIN VDE 0100 part 443.

- With new MultiBase base part and Multi-connection clamps
- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- Suitable for any TN and TT network systems
- Plug-in arrester with dynamic separating device
- With visual function display
- Version FS with remote signalling, potential-free changeover contact, for function monitoring
- High current conductivity and long service life
- Marked connections

Application example: residential buildings, single-family homes

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>V10-C 3+NPE+FS</td>
<td>280</td>
<td>3 + NPE</td>
<td>1</td>
<td>37.900</td>
</tr>
</tbody>
</table>

V10-C 3+NPE+FS

Nominal voltage $U_N$ | 230 V
SPD to EN 61643-11 | Type 2-3
SPD to IEC 61643-11 | Class II+III
Lightning protection zone LPZ | 1=3
Nominal discharge current (8/20) $I_{dN}$ | 10 kA
Arrester surge current (8/20) total $I_{tmax}$ | 40 kA
Maximum discharge current (8/20 μs) $I_{tmax}$ | 20 kA
Voltage protection level $U_p$ | ≤ 1.1 kV
Response time $t_A$ | <25 ns
Maximum back-up fuse | 125 A
Temperature range $\theta$ | -40 - +80 °C
Division unit TE (17.5 mm) | 4
Protection rating | IP20
Connection cross-section rigid | 2.5 - 35 mm²
Connection cross-section, multi-wire | 2.5 - 35 mm²
Connection cross-section, flexible | 2.5 - 25 mm²

Always indicate the item number when ordering.
**Surge arrester V10 1-pole + NPE 280 V**

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Version</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V10-C 1+NPE-280</td>
<td>280</td>
<td>1+NPE</td>
<td>1 22.200</td>
<td>5093418</td>
</tr>
</tbody>
</table>

V 10-C/...: lightning and surge protection device type 2+3 (Class C+D) to VDE 0675 part 6-11 (DIN EN 61643-11) to overvoltage protection to DIN VDE 0100 part 443.

- With new MultiBase base part and Multi-connection clamps
- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- Suitable for any TN and TT network systems
- Plug-in arrester with dynamic separating device
- With visual function display
- Version FS with remote signalling, potential-free changeover contact, for function monitoring
- High current conductivity and long service life
- Marked connections

Application example: residential buildings, single-family homes

**V10-C 1+NPE-280**

<table>
<thead>
<tr>
<th>Nominal voltage</th>
<th>Uₐ₀</th>
<th>230 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2+3</td>
<td></td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II-III</td>
<td></td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1+3</td>
<td></td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>Iₙ</td>
<td>10 kA</td>
</tr>
<tr>
<td>Arrester surge current (8/20) [total]</td>
<td>Iₘₐₓ</td>
<td>40 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>Iₘₐₓ</td>
<td>20 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>Uₘₐₓ</td>
<td>&lt; 1,1 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>tₐ</td>
<td>&lt; 25 ns</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>Iₑ</td>
<td>125 A</td>
</tr>
<tr>
<td>Temperature range</td>
<td>₀</td>
<td>-40 - +80 °C</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>2.5 - 35 mm²</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>2.5 - 35 mm²</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>2.5 - 35 mm²</td>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge arrester V10, 320 V, type 2+3

Surge arrester V10 3-pole + NPE 320 V

- With new MultiBase base part and Multi-connection clamps
- Complete unit consisting of upper part and base, pre-mounted and ready for connection
- Suitable for any TN and TT network systems
- Plug-in arrester with dynamic separating device
- With visual function display
- Version FS with remote signalling, potential-free changeover contact, for function monitoring
- High current conductivity and long service life
- Marked connections

Application example: residential buildings, single-family homes

**V10-C 3+NPE-320**

| Nominal voltage | U_n | 320 V
| SPD to EN 61643-11 | Type 2+3
| SPD to IEC 61643-11 | Class II + III
| Lightning protection zone LPZ | 1 + 3
| Nominal discharge current (8/20) | I_{1n} | 10 kA
| Arrester surge current (8/20) [total] | I_{t_{8/20}} | 40 kA
| Maximum discharge current (8/20 μs) | I_{\text{tmax, }8/20} | 20 kA
| Voltage protection level | U_p | < 1.2 kV
| Response time | t_A | < 25 μs
| Maximum back-up fuse | 125 A
| Temperature range | θ | -40 - +80 °C
| Division unit TE (17.5 mm) | 4
| Protection rating | IP20
| Connection cross-section rigid | 2.5 - 35 mm²
| Connection cross-section, multi-wire | 2.5 - 35 mm²
| Connection cross-section, flexible | 2.5 - 25 mm²

Always indicate the item number when ordering.
Upper part, surge arrestor V10 280 V

Upper part, surge arrestor V10 280 V

Upper part – V10-C/...: Type 2+3 surge arrestor to EN 61643-11

- Plug-in upper part: upper part can be separated from base without tools
- Including thermal and dynamic separating device and visual fault display
- High current conductivity and long service life

**V10-C 0-150**

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Max. continuous operating voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>V10-C 0-150</td>
<td>1-pole</td>
<td>150 V</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>SPD to EN 61643-11</th>
<th>SPD to IEC 61643-11</th>
<th>Lightning protection zone LPZ</th>
<th>Nominal discharge current (8/20)</th>
<th>Arrestor surge current (8/20)</th>
<th>Maximum discharge current (8/20)</th>
<th>Voltage protection level</th>
<th>Response time</th>
<th>Maximum back-up fuse</th>
<th>Temperature range</th>
<th>Division unit TE (17.5 mm)</th>
<th>Protection rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>V10-C 0-150</td>
<td>1-pole</td>
<td>Type 2+3</td>
<td>Class II-III</td>
<td>1</td>
<td>10 kA</td>
<td>10 kA</td>
<td>20 kA</td>
<td>&lt; 0.7 kV</td>
<td>&lt; 25 ns</td>
<td>125 A</td>
<td>-40 – +80 °C</td>
<td>1</td>
<td>IP20</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Upper part, surge arrestor V10 280 V

Upper part – V 10-C/...: Type 2+3 surge arrestor to EN 61643-11

• Plug-in upper part; upper part can be separated from base without tools
• Including thermal and dynamic separating device and visual fault display
• High current conductivity and long service life

Dimensions

Connection options

V10-C 0-280

Max. continuous operating voltage \(U_c\) | 280 V
SPD to EN 61643-11 | Type 2+3
SPD to IEC 61643-11 | Class II+III
Lightning protection zone LPZ | 1–3
Nominal discharge current (8/20) \(I_d\) | 10 kA
Arrester surge current (8/20) (total) \(I_{\text{max}, 8/20}\) | 10 kA
Maximum discharge current (8/20 μs) \(I_{\text{max}, 8/20}\) | 20 kA
Voltage protection level \(U_p\) | \(< 1.1 \text{kV}\)
Response time \(t_A\) | \(< 25 \text{ ns}\)
Maximum back-up fuse | 125 A
Temperature range \(\theta\) | -40 - +80 °C
Division unit TE (17.5 mm) | 1
Protection rating | IP20

Accessories, upper parts and bases V10

Always indicate the item number when ordering.
Upper part, surge arrester V10 320 V

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Version</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V10-C 0-320</td>
<td>320</td>
<td>1-pole</td>
<td>1</td>
<td>5093404</td>
</tr>
</tbody>
</table>

Upper part – V 10-C/...: Type 2+3 surge arrester to EN 61643-11

- Plug-in upper part; upper part can be separated from base without tools
- Including thermal and dynamic separating device and visual fault display
- High current conductivity and long service life

### V10-C 0-320

- Max. continuous operating voltage \( U_c \): 320 V
- SPD to EN 61643-11: Type 2+3
- SPD to IEC 61643-11: Class II-III
- Lightning protection zone LPZ: 1→3
- Nominal discharge current \( I_n \): 10 kA
- Arrester surge current \( I_{total} \): 10 kA
- Maximum discharge current \( I_{max} \): 20 kA
- Voltage protection level \( U_p \): < 1.2 kV
- Response time \( t_a \): < 25 ns
- Maximum back-up fuse: 125 A
- Temperature range: 0 -40 - +80 °C
- Division unit TE (17.5 mm): 1
- Protection rating: IP20

Always indicate the item number when ordering.
**Upper part, surge arrestor V10 385 V**

- Plug-in upper part; upper part can be separated from base without tools
- Including thermal and dynamic separating device and visual fault display
- High current conductivity and long service life

### Dimensions

![Dimensions Diagram]

### Connection options

![Connection Options Diagram]

### Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>Version</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V10-C 0-385</td>
<td>385</td>
<td>1-pole</td>
<td>30</td>
<td>3.630</td>
<td>5093406</td>
</tr>
</tbody>
</table>

Upper part – V 10-C/...: Type 2+3 surge arrestor to EN 61643-11

- Max. continuous operating voltage $U_L$ 385 V
- SPD to EN 61643-11 Type 2+3
- SPD to IEC 61643-11 Class II+III
- Lightning protection zone LPZ 1–3
- Nominal discharge current (8/20) $I_n$ 10 kA
- Arrestor surge current (8/20) [total] $I_{max, 8/20}$ 10 kA
- Maximum discharge current (8/20 μs) $I_{max, 8/20}$ 20 kA
- Voltage protection level $U_p$ ≤ 1,5 kV
- Response time $t_A$ ≤ 25 ns
- Maximum back-up fuse 125 A
- Temperature range $\theta$ -40 - +80 °C
- Division unit TE (17.5 mm) 1
- Protection rating IP20

Always indicate the item number when ordering.
Base, MultiBase with remote signalling

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Dividing unit</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB 1+FS</td>
<td>1-pole</td>
<td>TE (17.5 mm)</td>
<td>6.700</td>
<td>5096649</td>
</tr>
<tr>
<td>MB 2+FS</td>
<td>2-pole</td>
<td>1</td>
<td>11.700</td>
<td>5096654</td>
</tr>
<tr>
<td>MB 3+FS</td>
<td>3-pole</td>
<td>1</td>
<td>16.500</td>
<td>5096667</td>
</tr>
<tr>
<td>MB 4+FS</td>
<td>4-pole</td>
<td>1</td>
<td>21.000</td>
<td>5096682</td>
</tr>
</tbody>
</table>

- Suitable for V 25-B+C, V 20-C and V10-C
- Pre-mounted and ready for connection
- Multifunction terminals for easy connection to series-mounted devices
- Upper parts can be rotated through 180 degrees
- With remote signalling, potential-free NO contact, for function monitoring

MultiBase base + NPE

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Dividing unit</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB 1+NPE</td>
<td>1+NPE</td>
<td>TE (17.5 mm)</td>
<td>11.500</td>
<td>5096650</td>
</tr>
<tr>
<td>MB 2+NPE</td>
<td>2+NPE</td>
<td>1</td>
<td>16.100</td>
<td>5096655</td>
</tr>
<tr>
<td>MB 3+NPE</td>
<td>3+NPE</td>
<td>1</td>
<td>20.000</td>
<td>5096669</td>
</tr>
</tbody>
</table>

- Suitable for V 25-B+C, V 20-C and V10-C
- Pre-mounted and ready for connection
- Multifunction terminals for easy connection to series-mounted devices
- Upper parts can be rotated through 180 degrees
- For TN-S and TT network systems

Always indicate the item number when ordering.
Base, MultiBase + NPE with remote signalling

- Suitable for V 25-B+C, V 20-C and V10-C
- Pre-mounted and ready for connection
- Multifunction terminals for easy connection to series-mounted devices
- Upper parts can be rotated through 180 degrees
- With remote signalling, potential-free NO contact, for function monitoring
- 3+1 protection circuit for TN-S and TT network systems

Dimensions

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Dividing unit TE (17.5 mm)</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB 1+NPE+FS</td>
<td>1+NPE</td>
<td>2</td>
<td>1</td>
<td>11.600</td>
<td>5096651</td>
</tr>
<tr>
<td>MB 2+NPE+FS</td>
<td>2+NPE</td>
<td>3</td>
<td>1</td>
<td>16.000</td>
<td>5096657</td>
</tr>
<tr>
<td>MB 3+NPE+FS</td>
<td>3+NPE</td>
<td>4</td>
<td>1</td>
<td>21.000</td>
<td>5096671</td>
</tr>
</tbody>
</table>

Base, MultiBase with acoustic signalling

- Suitable for V 25-B+C, V 20-C and V10-C
- With remote signalling, potential-free changeover contact, for function monitoring
- With acoustic signalling for function monitoring, signal tone can be shut down for 24 h
- Pre-mounted and ready for connection

Dimensions

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C U-2 AS</td>
<td>2-pole</td>
<td>1</td>
<td>23.000</td>
</tr>
<tr>
<td>V20-C U-3 AS</td>
<td>3-pole</td>
<td>1</td>
<td>29.000</td>
</tr>
<tr>
<td>V20-C U-4 AS</td>
<td>4-pole</td>
<td>1</td>
<td>35.000</td>
</tr>
<tr>
<td>V20-C U-3+NPE-AS</td>
<td>3+NPE</td>
<td>1</td>
<td>32.500</td>
</tr>
</tbody>
</table>

Accessories, upper parts and bases V10

Surge protection energy technology, arrestor, type 2+3

Always indicate the item number when ordering.
**Base, MultiBase + NPE with fuse monitoring**

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C U-3+NPE</td>
<td>1</td>
<td>30.000</td>
<td>50986370</td>
</tr>
</tbody>
</table>

- Suitable for V 25-B+C, V 20-C and V 10-C
- With voltage monitoring of phases and function monitoring of arrester upper part, remote signalling
- With remote signalling, potential-free changeover contact, for function monitoring
- For TN-S and TT network systems
- Pre-mounted and ready for connection

**Copper bridges with step width 17.6 mm**

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>KB MB</td>
<td>10</td>
<td>0.900</td>
<td>5089660</td>
</tr>
</tbody>
</table>

The bridges KB MB permit parallel connection of bases and poles of the MultiBase bases. The bridges are available in various widths.

Always indicate the item number when ordering.
Copper bridges with step width 53.4 mm

The bridges KB... permit parallel connection of bases and poles of the MultiBase bases. The bridges are available in various widths.

Remote signalling replacement connector for MultiBase

Replacement telephony connector, 2-pole version, for MultiBase base
Connection terminal for through-wiring

<table>
<thead>
<tr>
<th>Colour</th>
<th>Version</th>
<th>Type</th>
<th>Connection cross-section:</th>
<th>Stripping length:</th>
<th>Rec. tightening torque:</th>
<th>Nominal current:</th>
<th>Width:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light grey</td>
<td>3 x 16 mm²</td>
<td>AS 3 x 16</td>
<td>3 x 1.5 - 16 sq mm rigid/multiple strands</td>
<td>16 mm</td>
<td>1.2 Nm</td>
<td>50 A</td>
<td>17.5 mm</td>
</tr>
</tbody>
</table>

For EMC-optimised V through-wiring to IEC 60364-5-53 (VDE 0100-534).

Always indicate the item number when ordering.
Surge protection energy technology, arrestor, type 2+3: The plus for LED street lighting

+ Surge arrestors with high arresting capacity
+ High arresting capacity of 10 kA to 20 kA
+ Visual status display
+ Labelled connections
+ Optional switch-off of the LED luminaires after surge protection fails

Function and areas of use

The surge arrester ÜSM-LED 230 meets the type 2+3 requirement class according to IEC 61643-11. This device protects lighting systems against any kind of surge voltages. The voltage-limiting, high-performance zinc oxide varistor provides several benefits. An extremely short response time, a low protection level and high current leakage capability with long service life. It can be used in the mast connection box or in LED luminaires.

Compact Surge protection
Surge protection for LED systems 230V

ÜSM-LED 230

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal voltage</th>
<th>SPD to EN 61643-11</th>
<th>SPD to IEC 61643-11</th>
<th>Lightning protection zone LPZ</th>
<th>Nominal discharge current (8/20)</th>
<th>Arrestor surge current (8/20) [total]</th>
<th>Maximum discharge current (8/20 μs)</th>
<th>Voltage protection level</th>
<th>Response time</th>
<th>Maximum back-up fuse</th>
<th>Temperature range</th>
<th>Protection rating</th>
<th>Connecting cable length</th>
</tr>
</thead>
<tbody>
<tr>
<td>ÜSM-LED 230</td>
<td>230 V</td>
<td>Type 2+3</td>
<td>Class II+III</td>
<td>1→3</td>
<td>10 kA</td>
<td>20 kA</td>
<td>20 kA</td>
<td>1,3 kV</td>
<td>&lt; 25 ns</td>
<td>16 A</td>
<td>-15 °C to +60 °C</td>
<td>IP20</td>
<td>0.09 m</td>
</tr>
</tbody>
</table>

ÜSM-LED 440

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal voltage</th>
<th>SPD to EN 61643-11</th>
<th>SPD to IEC 61643-11</th>
<th>Lightning protection zone LPZ</th>
<th>Nominal discharge current (8/20)</th>
<th>Arrestor surge current (8/20) [total]</th>
<th>Maximum discharge current (8/20 μs)</th>
<th>Voltage protection level</th>
<th>Response time</th>
<th>Maximum back-up fuse</th>
<th>Temperature range</th>
<th>Protection rating</th>
<th>Connecting cable length</th>
</tr>
</thead>
<tbody>
<tr>
<td>ÜSM-LED 440</td>
<td>440 V</td>
<td>Type 2+3</td>
<td>Class II+III</td>
<td>1→3</td>
<td>10 kA</td>
<td>20 kA</td>
<td>20 kA</td>
<td>1,8 kV</td>
<td>&lt; 25 ns</td>
<td>16 A</td>
<td>-15 °C to +60 °C</td>
<td>IP20</td>
<td>0.09 m</td>
</tr>
</tbody>
</table>

Surge protection module type 2+3 to DIN EN 61643-11 for 230/400 V power grids. Appropriate for the protection of LED lighting.

- With visual function display
- Small size for the installation in the pole or in the LED lamp head
- 1+NPE protective circuit with a maximum discharge capacity of 20 kA
- Surge limitation under 1,300 V or 1,000 V @ 5 kA
- Available with or without cut-off function of the lamp in case of malfunction

Application: Universally deployable in all lighting systems
Surge protection for LED systems 230 V 65

Surge protection module type 2+3 to DIN EN 61643-11 for 230/400 V power grids.

- Appropriate for the protection of LED lighting and the LED driver.
- With visual function display
- Small size for the installation in the mast connection box
- IP65 and with 25 cm connection cable
- 1+NPE protective circuit with a maximum discharge capacity of 20 kA
- Surge limitation under 1,300 V or 1,000 V @ 5 kA
- Available with or without cut-off function of the lamp in case of malfunction

Application: Universally deployable in all lighting systems

ÜSM-LED 230-65

| Type          | Nominal voltage Uₐ | SPD to EN 61643-11 | SPD to IEC 61643-11 | Lightning protection zone LPZ | Nominal discharge current (8/20) Iₘₕₕₕ | Arrestor surge current (8/20) [total] Iₘₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕₕ₅

Always indicate the item number when ordering.
Surge protection for LED systems ÜSM-20-230I1P+PE

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ÜSM-20-230I1P+PE</td>
<td>255</td>
<td>1-pole + NPE for PC I</td>
<td>1</td>
<td>4.100</td>
<td>5092431</td>
</tr>
</tbody>
</table>

Surge protection module type 2+3 to DIN EN 61643-11 for 230/400 V power grids.

- With function display and switch-off of the load circuit when a SPD fails
- Small size for the installation in the pole connection box or upstream of the LED driver
- 1+NPE protective circuit with a maximum discharge capacity of 20 kA
- Reduction of overvoltage to under 1,300 V or 1,000 V @ 5 kA
- With or without luminaire switch-off in case of defect

Application: In the cable transition box, junction boxes, cable duct to underfloor systems

**ÜSM-20-230I1P+PE**

- Nominal voltage $U_n$: 230 V
- SPD to EN 61643-11: Type 2+3
- SPD to IEC 61643-11: Class II-III
- Lightning protection zone LPZ: 1→2
- Nominal discharge current (8/20) $I_{n}$: 10 kA
- Arrester surge current (8/20) $I_{total}$: 20 kA
- Maximum discharge current (8/20 μs) $I_{max}$: 20 kA
- Voltage protection level $U_{p}$: 1.3 kV
- Response time $t_{A}$: < 25 ns
- Maximum back-up fuse: 16 A
- Temperature range: $θ$: -15 - +60 °C
- Protection rating: IP20
- Connecting cable length: 0.09 m

```
Always indicate the item number when ordering.
```
Surge protection for LED systems ÜSM-20-230I1PE65

Surge protection module type 2+3 to DIN EN 61643-11 for 230/400 V power grids. Appropriate for the protection of LED lighting.

- With function display and switch-off of the load circuit when a SPD fails
- Small size for the installation in the pole connection box or upstream of the LED driver
- 1+NPE protective circuit with a maximum discharge capacity of 20 kA
- Reduction of overvoltage to under 1,300 V or 1,000 V @ 5 kA
- With or without luminaire switch-off in case of defect

Application: In the cable transition box, junction boxes, cable duct to underfloor systems

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight/kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ÜSM-20-230I1PE65</td>
<td>1-pole + NPE for PC I</td>
<td>1</td>
<td>8.300</td>
<td>5092433</td>
</tr>
</tbody>
</table>

Surge protection module type 2+3 to DIN EN 61643-11 for 230/400 V power grids. Appropriate for the protection of LED lighting.

- With function display and switch-off of the load circuit when a SPD fails
- Small size for the installation in the pole connection box or upstream of the LED driver
- 1+NPE protective circuit with a maximum discharge capacity of 20 kA
- Reduction of overvoltage to under 1,300 V or 1,000 V @ 5 kA
- With or without luminaire switch-off in case of defect

Application: In the cable transition box, junction boxes, cable duct to underfloor systems

ÜSM-20-230I1PE65

<table>
<thead>
<tr>
<th>Nominal voltage</th>
<th>Uₙ</th>
<th>230 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2+3</td>
<td></td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II+III</td>
<td></td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1-2</td>
<td></td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>Iₛ</td>
<td>10 kA</td>
</tr>
<tr>
<td>Arrestor surge current (8/20) [total]</td>
<td>Iₘₘ₈ₙₙ₈₉₀₂₀</td>
<td>20 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>Iₘₘ₈₉₀₂₀</td>
<td>20 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>Uₘ</td>
<td>1.5 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>tₑ</td>
<td>&lt; 25 ns</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td></td>
<td>16 A</td>
</tr>
<tr>
<td>Temperature range</td>
<td>ϑ</td>
<td>-15 - +60 °C</td>
</tr>
<tr>
<td>Protection rating</td>
<td></td>
<td>IP65</td>
</tr>
<tr>
<td>Connecting cable length</td>
<td></td>
<td>0.25 m</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Blitzbarriere
VF 24
AC/DC

OK
Replace

$U_N$: 24 V
$I_L$: 20 A
$I_n (8/20)$: 700 A
$I_{max} (8/20)$: 2 kA
$U_p$: $\leq$ 130 V
IP20

Art.-Nr. 5097 60 7
## Surge protection
### Energy technology, type 3 arrester

<table>
<thead>
<tr>
<th>Description</th>
<th>Item Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine power protection, connectable</td>
<td>240</td>
</tr>
<tr>
<td>Fine power protection, fixed installation</td>
<td>247</td>
</tr>
<tr>
<td>Fine power protection, series installation</td>
<td>259</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Type 3, fine power protection FC, connectable

- **Schuko**
  - Volts: 230
  - Item no.: 5092800
  - Page: 240

- **Schuko + TV**
  - Volts: 230
  - Item no.: 5092808
  - Page: 241

- **Schuko + SAT**
  - Volts: 230
  - Item no.: 5092816
  - Page: 242

- **Schuko + TAE**
  - Volts: 230
  - Item no.: 5092824
  - Page: 243

- **Schuko + ISDN**
  - Volts: 230
  - Item no.: 5092812
  - Page: 244

- **Schuko + RJ**
  - Volts: 230
  - Item no.: 5092828
  - Page: 245

- **Socket bar**
  - Volts: 230
  - Item no.: 5092701
  - Page: 246

Type 3, fine power protection ÜSM, fixed installation

- **Direct connection**
  - Volts: 150
  - Item no.: 5092451
  - Page: 247

  - Volts: 230
  - Item no.: 5092466
  - Page: 247

- **V connection**
  - Volts: 230
  - Item no.: 5092460
  - Page: 248

- **For GB2 and GB3 mounting boxes**
  - Volts: 230
  - Item no.: 5092472
  - Page: 249

- **Schuko**
  - Volts: 230
  - Item no.: 5092441
  - Page: 250

Type 3, fine power protection ÜSS, Modul 45

- **Visual signalling**
  - Volts: 230
  - Item no.: 6117473
  - Page: 251

- **Acoustic signalling**
  - Volts: 230
  - Item no.: 6117465
  - Page: 252

Always indicate the item number when ordering.
### Type 3, fine power protection VF, series installation

**2-pole**

<table>
<thead>
<tr>
<th>Volts</th>
<th>Item no</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>5097453</td>
<td>259</td>
</tr>
<tr>
<td>24</td>
<td>5097607</td>
<td>260</td>
</tr>
<tr>
<td>48</td>
<td>5097615</td>
<td>261</td>
</tr>
<tr>
<td>60</td>
<td>5097623</td>
<td>262</td>
</tr>
<tr>
<td>110</td>
<td>5097631</td>
<td>263</td>
</tr>
<tr>
<td>230</td>
<td>5097650</td>
<td>264</td>
</tr>
</tbody>
</table>

### Type 3, fine power protection VF, series installation with remote signalling

**2-pole + FS**

<table>
<thead>
<tr>
<th>Volts</th>
<th>Item no</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>5097820</td>
<td>265</td>
</tr>
<tr>
<td>230</td>
<td>5097858</td>
<td>266</td>
</tr>
</tbody>
</table>

### Type 3, fine power protection VF, series installation with leakage current-free signalling

**2-pole + FS leakage current-free**

<table>
<thead>
<tr>
<th>Volts</th>
<th>Item no</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>230</td>
<td>5097939</td>
<td>267</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
FineController FC-D for protective contact socket

- Adapter
- Disconnection device and function display
- Child lock through increased finger touch protection

Dimensions

Connection options

<table>
<thead>
<tr>
<th>Connection options</th>
<th>EN</th>
<th>Pure white</th>
<th>Pack pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC-D</td>
<td>EN</td>
<td>Pure white</td>
<td>1</td>
<td>11.000</td>
</tr>
</tbody>
</table>

Type 3 surge protection device to EN 61643-11, intended for use in protective contact sockets.

- Nominal voltage $U_n = 230$ V
- Max. continuous operating voltage $U_{op} = 275$ V
- SPD to EN 61643-11 Type 3
- SPD to IEC 61643-11 Class III
- Lightning protection zone LPZ 2-3
- Nominal discharge current (8/20) $I_{disch} = 3$ kA
- Protection level (L-N) $< 1.2$ kV
- Protection level (N-PE) $< 1.5$ kV
- Maximum back-up fuse $16$ A
- Response time $t_R < 25$ ns

Always indicate the item number when ordering.
## FineController FC-TV for video, TV and hi-fi systems

<table>
<thead>
<tr>
<th>Type</th>
<th>Country version</th>
<th>Colour</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC-TV-D</td>
<td>EN</td>
<td>Pure white</td>
<td>1</td>
<td>17.000</td>
<td>5092808</td>
</tr>
</tbody>
</table>

Type 3 combined surge protection to EN 61643-11, designed for use on Schuko sockets and video, TV and hi-fi systems with IEC adapter.

- **Adapter**
- **Disconnection device and function display**
- **Child lock through increased finger contact protection**
- **Incl. 0.5 m connection cable in white (double screen)**
- **Maximum continuous voltage, TV connection 72 V DC / 1.5 A (25 °C)**
- **Limit frequency: 2.5 GHz (75 Ohm system)**

Note: The technical data in the table below refer to the power supply.

### FC-TV-D

- **Nominal voltage** \( U_{\text{N}} \) 230 V
- **Max. continuous operating voltage** \( U_{\text{L}} \) 275 V
- **SPD to EN 61643-11** Type 3
- **SPD to IEC 61643-11** Class III
- **Lightning protection zone LPZ** 2→3
- **Nominal discharge current (8/20)** \( I_{\text{D}} \) 3 kA
- **Protection level (L-N)** < 1.2 kV
- **Protection level (N-PE)** < 1.5 kV
- **Maximum back-up fuse** 16 A
- **Response time** \( t_{\text{R}} \) < 25 ns

**Dimensions**

**Connection options**

always indicate the item number when ordering.
FineController FC-SAT for SAT systems and receivers

Type 3 combined surge protection to EN 61643-11, designed for use on satellite systems and receivers.

- Adapter
- Disconnection device and function display
- Child lock through increased finger contact protection
- Included 0.5 m connection cable in white (double screen)
- Maximum continuous voltage, TV connection 72 V DC / 1.5 A (25 °C)
- Limit frequency: 2.5 GHz (75 Ohm system)

Note: The technical data in the table below refer to the power supply.

<table>
<thead>
<tr>
<th>Type</th>
<th>Colour</th>
<th>Pack. pcs</th>
<th>kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC-SAT-D</td>
<td>Pure white</td>
<td>1</td>
<td>16.000</td>
<td>5092816</td>
</tr>
</tbody>
</table>

Type 3 combined surge protection to EN 61643-11, designed for use on satellite systems and receivers.

- Adapter
- Disconnection device and function display
- Child lock through increased finger contact protection
- Included 0.5 m connection cable in white (double screen)
- Maximum continuous voltage, TV connection 72 V DC / 1.5 A (25 °C)
- Limit frequency: 2.5 GHz (75 Ohm system)

Note: The technical data in the table below refer to the power supply.

<table>
<thead>
<tr>
<th>Type</th>
<th>Connection options</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC-SAT-D</td>
<td></td>
</tr>
<tr>
<td>Nominal voltage $U_{n}$</td>
<td>230 V</td>
</tr>
<tr>
<td>Max. continuous operating voltage $U_{m}$</td>
<td>275 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 3</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class III</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>2 to 3</td>
</tr>
<tr>
<td>Nominal discharge current (8/20) $I_{d}$</td>
<td>3 kA</td>
</tr>
<tr>
<td>Protection level (L-N)</td>
<td>&lt; 1.2 kV</td>
</tr>
<tr>
<td>Protection level (N-PE)</td>
<td>&lt; 1.5 kV</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>16 A</td>
</tr>
<tr>
<td>Response time $t_{A}$</td>
<td>&lt; 25 ns</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
FineController FC-TAE for telephone systems and terminals

**Type** FC-TAE-D | **Country** EN | **Colour** Pure white
| **Pack.** | **Weight** | **Item No.** |
| pcs. | kg/100 pcs. | |
| 1 | 18.000 | 5092824 |

Type 3 combined surge protection to EN 61643-11, designed for use in telephone systems with TAE connection (telephones upstream of the NTBA/DSL splitter).

- Adapter connector
- Cut-off unit and function display
- Child lock through increased finger contact protection
- Incl. 0.5 m connection cable TAE / RJ11
- Maximum continuous voltage, TAE connection 200 V DC / 1.5 A (25 °C)
- Limit frequency: type 4 MHz / VDSL up to 46 MBit/s

Note: The technical data in the table below refers to the power supply.

**FC-TAE-D**

- **Nominal voltage** \(U_n\) 230 V
- **Max. continuous operating voltage** \(U_l\) 275 V
- **SPD to EN 61643-11** Type 3
- **SPD to IEC 61643-11** Class III
- **Lightning protection zone LPZ** 2→3
- **Nominal discharge current (8/20)** \(I_{\text{D}}\) 3 kA
- **Protection level (L-N)** \(V_{\text{L}}\) < 1.2 kV
- **Protection level (N-PE)** \(V_{\text{N}}\) < 1.5 kV
- **Maximum back-up fuse** 16 A
- **Response time** \(t_{\text{R}}\) < 25 ns

**Dimensions**

**Connection options**

Always indicate the item number when ordering.
FineController FC-ISDN for ISDN telephone systems and terminals

Type 3 combined surge protection to EN 61643-11 designed for use in ISDN / DSS 1 telephone systems and terminals.

- Adapter
- Disconnection device and function display
- Child lock through increased finger contact protection
- Incl. 0.5 m connection cable RJ12
- Maximum continuous voltage, ISDN connection 6 V DC / 1.5 A (25 °C)
- Limit frequency: Type 300 kHz

Note: The technical data in the table below refer to the power supply.

---

### Dimensions

---

### Connection options

---

### FC-ISDN-D

<table>
<thead>
<tr>
<th>Nominal voltage $U_c$</th>
<th>230 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. continuous operating voltage $U_{op}$</td>
<td>275 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 3</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class III</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>2 → 3</td>
</tr>
<tr>
<td>Nominal discharge current (8/20) $I_{\text{th}}$</td>
<td>3 kA</td>
</tr>
<tr>
<td>Protection level (L-N)</td>
<td>$&lt; 1.2$ kV</td>
</tr>
<tr>
<td>Protection level (N-PE)</td>
<td>$&lt; 1.5$ kV</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>16 A</td>
</tr>
<tr>
<td>Response time $t_{\text{tr}}$</td>
<td>$&lt; 25$ ns</td>
</tr>
</tbody>
</table>

---

Always indicate the item number when ordering.
FineController FC-RJ-D for telephone systems with RJ12

<table>
<thead>
<tr>
<th>Type</th>
<th>Colour</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC-RJ-D</td>
<td>Pure white</td>
<td>18.000</td>
<td>5092828</td>
</tr>
</tbody>
</table>

Type 3 combined surge protection to EN 61643-11
designed for use in telephone systems and terminals with RJ12 connection.

- Adapter
- Disconnection device and function display
- Child lock through increased finger contact protection
- Incl. 0.5 m connection cable RJ12
- Maximum continuous voltage, RJ connection 200 V DC / 1.5 A (25 °C)
- Limit frequency: Typ. 4 MHz / DSL-compatible

Note: The technical data in the table below refer to the power supply.

### FC-RJ-D

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage</td>
<td>U_n = 230 V</td>
</tr>
<tr>
<td>Max. continuous operating voltage</td>
<td>U_c = 275 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 3</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class III</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>2→3</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>I_d = 3 kA</td>
</tr>
<tr>
<td>Protection level (L-N)</td>
<td>&lt; 1.2 kV</td>
</tr>
<tr>
<td>Protection level (N-PE)</td>
<td>&lt; 1.5 kV</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>16 A</td>
</tr>
<tr>
<td>Response time</td>
<td>t_d &lt; 25 ns</td>
</tr>
</tbody>
</table>

**Dimensions**

**Connection options**

Always indicate the item number when ordering.
surge protection device CNS 3 D

CNS 3-D: Type 3 surge protection device to DIN EN 61643-11, intended for use in protective contact sockets.

- With visual and audible signalling, function display
- 3-way socket
- Length of connection cable: 2 m
- Y circuit for high electrical safety

Application: For example, the protection of PCs, printers, copiers, fax machines, etc.

CNS 3-D-D

<table>
<thead>
<tr>
<th>Nominal voltage</th>
<th>Uₐ</th>
<th>230 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. continuous operating voltage</td>
<td>Uᵦ</td>
<td>255 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 3</td>
<td></td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class III</td>
<td></td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>2→3</td>
<td></td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>Iₘ</td>
<td>2.5 kA</td>
</tr>
<tr>
<td>Protection level (L-N)</td>
<td>&lt;</td>
<td>1,0 kV</td>
</tr>
<tr>
<td>Protection level (N-PE)</td>
<td>&lt;</td>
<td>1,5 kV</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td></td>
<td>16 A</td>
</tr>
<tr>
<td>Response time</td>
<td>tₚ</td>
<td>&lt;25 ns</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge protection module 230 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Signalling on device</th>
<th>Version</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ÜSM-A</td>
<td>Audible</td>
<td>Acoustic function display</td>
<td>1</td>
<td>5092451</td>
</tr>
<tr>
<td>ÜSM-A-150</td>
<td>Audible</td>
<td>Acoustic function display</td>
<td>1</td>
<td>5092466</td>
</tr>
</tbody>
</table>

Surge protection module type 3 to DIN EN 61643-11 for 230 V power grids.

- With acoustic defect signal
- With low construction height
- Halogen-free plastic (UL 94 V-0)
- Y circuit

Application: Universally applicable for all installation systems.

### ÜSM-A

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage (UN)</td>
<td>230 V</td>
</tr>
<tr>
<td>Max. continuous operating voltage (UC)</td>
<td>255 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 3</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class III</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>2–3</td>
</tr>
<tr>
<td>Nominal discharge current (8/20) (IL)</td>
<td>3 kA</td>
</tr>
<tr>
<td>Protection level (L-N)</td>
<td>&lt; 1,3 kV</td>
</tr>
<tr>
<td>Protection level (N-PE)</td>
<td>&lt; 1,5 kV</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>16 A</td>
</tr>
<tr>
<td>Response time (tA)</td>
<td>&lt; 25 ns</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-15 - +60 °C</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs) (Imax)</td>
<td>6 kA</td>
</tr>
<tr>
<td>Rated current (IL)</td>
<td>16 A</td>
</tr>
</tbody>
</table>

### ÜSM-A-150

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage (UN)</td>
<td>150 V</td>
</tr>
<tr>
<td>Max. continuous operating voltage (UC)</td>
<td>170 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 3</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class III</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>2–3</td>
</tr>
<tr>
<td>Nominal discharge current (8/20) (IL)</td>
<td>3 kA</td>
</tr>
<tr>
<td>Protection level (L-N)</td>
<td>&lt; 1,3 kV</td>
</tr>
<tr>
<td>Protection level (N-PE)</td>
<td>&lt; 1,5 kV</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>16 A</td>
</tr>
<tr>
<td>Response time (tA)</td>
<td>&lt; 25 ns</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-15 - +60 °C</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs) (Imax)</td>
<td>6 kA</td>
</tr>
<tr>
<td>Rated current (IL)</td>
<td>16 A</td>
</tr>
</tbody>
</table>
Surge protection device 230 V for through wiring

Surge protection device type 3 to DIN EN 61643-11 for 230 V networks.

- With acoustic defect signal
- With 2 strands for continuous wiring
- With low construction height
- Halogen-free plastic (UL 94 V-0)
- Y circuit

Application: Universally applicable for all installation systems.

### Dimensions

### Connection options

#### ÜSM-A-2

<table>
<thead>
<tr>
<th>Nominal voltage</th>
<th>$U_n$</th>
<th>230 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. continuous operating voltage</td>
<td>$U_c$</td>
<td>255 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 3</td>
<td></td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class III</td>
<td></td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>$2\rightarrow 3$</td>
<td></td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>$I_{\text{DIN}}$</td>
<td>3 kA</td>
</tr>
<tr>
<td>Protection level (L-N)</td>
<td>$&lt; 1.3 \text{kV}$</td>
<td></td>
</tr>
<tr>
<td>Protection level (N-PE)</td>
<td>$&lt; 1.5 \text{kV}$</td>
<td></td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>16 A</td>
<td></td>
</tr>
<tr>
<td>Response time</td>
<td>$t_A$</td>
<td>$&lt; 25 \text{ ns}$</td>
</tr>
<tr>
<td>Temperature range</td>
<td>$\theta$</td>
<td>$-15 \rightarrow +60 \degree \text{C}$</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>$I_{\text{m}}$</td>
<td>6 kA</td>
</tr>
<tr>
<td>Rated current</td>
<td>$I_1$</td>
<td>16 A</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
### Surge protection module 230 V with holder for GB2 and GB3 mounting boxes

- **Surge protection module type 3 to DIN EN 61643-11 for 230 V power grids.**
  - With acoustic defect signal
  - With low construction height and Y circuit
  - ÜSM with halogen-free plastic (UL 94 V-0)
  - Holder with separating retainer function for GB2 / GB3 mounting boxes and universal supports UT3 and UT4

**Application:** Universally applicable for all installation systems.

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
<th>Pack. pcs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ÜSM-A-4 Audible incl. holder with partition function</td>
<td>2.000</td>
<td>5092472</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signalling on device</th>
<th>Version</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
<th>Pack. pcs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ÜSM-A-4 Audible</td>
<td>incl. holder with partition function</td>
<td>2.000</td>
<td>5092472</td>
<td>1</td>
</tr>
</tbody>
</table>

**Nominal voltage**

- **230 V**

**Max. continuous operating voltage**

- **255 V**

**SPD to EN 61643-11**

- **Type 3**

**SPD to IEC 61643-11**

- **Class III**

**Lightning protection zone LPZ**

- **2–3**

**Nominal discharge current (8/20)**

- **3 kA**

**Maximum discharge current (8/20 μs)**

- **6 kA**

**Protection level (L-N)**

- **< 1,3 kV**

**Protection level (N-PE)**

- **< 1,5 kV**

**Maximum backup fuse**

- **16 A**

**Response time**

- **t<sub>A</sub> < 25 ns**

**Temperature range**

- **-15 - +60 °C**

**Dimensions**

- **Height:** 110 mm
- **Width:** 30 mm

**Connection options**

- **Blue:** N
- **Green/yellow:** PE
- **Brown:** L

---

Always indicate the item number when ordering.
Fine power protection 230 V protective contact sockets

Surge protection / fine power protection, type 3, to EN 61643-11 for protective contact sockets.

- Thermal cut-off unit with acoustic defect signalling
- Y protection circuit for increased safety
- Mounting through snapping onto the support ring of the socket
- Halogen-free plastic (UL 94 V-0)
- Labelling of the socket with supplied sign

Application: For retrofitting on standard Schuko sockets.

<table>
<thead>
<tr>
<th>Type</th>
<th>Signalling on device</th>
<th>Weight/kg/100 pcs.</th>
<th>Pack pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ÜSM-ST-230-1P+PE</td>
<td>Audible Acoustic function display</td>
<td>1.770</td>
<td>1</td>
<td>5092441</td>
</tr>
</tbody>
</table>

ÜSM-ST-230-1P+PE

Nominal voltage $U_n$ 230 V
Max. continuous operating voltage $U_i$ 255 V
SPD to EN 61643-11 Type 3
SPD to IEC 61643-11 Class III
Lightning protection zone LPZ 2->3
Nominal discharge current (8/20) $I_{\text{n}}$ 3 kA
Maximum discharge current (8/20 μs) $I_{\text{max}}$ 5 kA
Protection level (L-N) $\leq 1.5$ kV
Protection level (N-PE) $\leq 1.5$ kV
Maximum back-up fuse 16 A
Response time $t_A$ 25 μs
Temperature range $\theta$ -5 - +40 °C

Always indicate the item number when ordering.
Fine power protection for Modul 45 with acoustic function display

Signalling on device | Version
---|---
Visual | Visual function display

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ÜSS 45-O-RW</td>
<td>1 pcs.</td>
<td>2.411 kg/100 pcs.</td>
<td>6117473</td>
</tr>
</tbody>
</table>

Surge protection / network fine protection, type 3, according to EN 61643-11 for installation in Rapid 45 trunking, device installation trunking and underfloor systems.

- Version-O with acoustic function display
- Quick and easy mounting
- Low construction width of 22.5 mm

Application: The surge protection device secures downstream and nearby sockets.

ÜSS 45-O-RW

- Nominal voltage $U_n$: 230 V
- Max. continuous operating voltage $U_{op}$: 255 V
- SPD to EN 61643-11 Type 3
- SPD to IEC 61643-11 Class III
- Lightning protection zone LPZ: 2→3
- Nominal discharge current (8/20) $I_{DL}$: 2.5 kA
- Protection level (L-N): $< 1.5$ kV
- Protection level (N-PE): $< 1.5$ kV
- Maximum backup fuse: 16 A
- Response time $t_r$: 25 ns
- Temperature range $\theta$: -25 - +45 °C

Always indicate the item number when ordering.

Connection options:

Dimensions:

Dimensions: 22.5 mm x 100 mm x 11 mm x 35 mm
Fine power protection for Modul 45 with acoustic function display

Surge protection / network fine protection, type 3, according to EN 61643-11 for installation in Rapid 45 trunking, device installation trunking and underfloor systems.

- Version-A with acoustic function display (switchable signal tone)
- Quick and easy mounting
- Low construction width of 22.5 mm

Application: The surge protection device secures downstream and nearby sockets.

**Dimensions**

**Connection options**

**ÜSS 45-A-RW**

- Nominal voltage $U_n$: 230 V
- Max. continuous operating voltage $U_{op}$: 255 V
- SPD to EN 61643-11: Type 3
- SPD to IEC 61643-11: Class III
- Lightning protection zone LPZ: 2→3
- Nominal discharge current (8/20) $I_{d}$: 2.5 kA
- Protection level (L-N): $< 1.5$ kV
- Protection level (N-PE): $< 1.5$ kV
- Maximum back-up fuse: 16 A
- Response time $t_r$: 25 ns
- Temperature range $\theta$: -25 to +45 °C

**Connection options**

Always indicate the item number when ordering.

**Signalling on device**

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ÜSS 45-A-RW</td>
<td>Audible Acoustic function display</td>
<td>2.800</td>
</tr>
</tbody>
</table>

**Dimensions**

<table>
<thead>
<tr>
<th>Connection options</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>100</td>
</tr>
<tr>
<td>N</td>
<td>22.5</td>
</tr>
<tr>
<td>PB</td>
<td>36</td>
</tr>
</tbody>
</table>

**Connection options**

- **ÜSS 45-A-RW**
  - Nominal voltage $U_n$: 230 V
  - Max. continuous operating voltage $U_{op}$: 255 V
  - SPD to EN 61643-11: Type 3
  - SPD to IEC 61643-11: Class III
  - Lightning protection zone LPZ: 2→3
  - Nominal discharge current (8/20) $I_{d}$: 2.5 kA
  - Protection level (L-N): $< 1.5$ kV
  - Protection level (N-PE): $< 1.5$ kV
  - Maximum back-up fuse: 16 A
  - Response time $t_r$: 25 ns
  - Temperature range $\theta$: -25 to +45 °C
Surge protection module ÜSM-10-230I2P+PE

Surge protection module type 2+3 to DIN EN 61643-11 for 230/400 V power grids. Appropriate for the protection of electronic devices and LED drivers.

- For luminaires with 2 phases (power reduction)
- With function display and switch-off of the load circuit when a SPD fails
- Small size for the installation in the pole connection box or upstream of the LED driver
- Protective circuit with a maximum arresting capacity of 10 kA
- Reduction of overvoltage to under 1,300 V (protection level)
- For LED luminaires with PE connection

Application: In the cable transition box, junction boxes, cable duct to underfloor systems

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ÜSM-10-230I2P+PE</td>
<td>255</td>
<td>1</td>
<td>4.400</td>
<td>5092426</td>
</tr>
</tbody>
</table>

ÜSM-10-230I2P+PE

- Nominal voltage $U_N$: 230 V
- SPD to EN 61643-11 Type 2+3
- SPD to IEC 61643-11 Class II-III
- Lightning protection zone LPZ: 1→2
- Nominal discharge current (8/20) $I_{\text{nom}}$: 5 kA
- Arrester surge current (8/20) [total] $I_{\text{total}}$: 10 kA
- Maximum discharge current (8/20 μs) $I_{\text{max}}$: 10 kA
- Voltage protection level $U_p$: 1.3 kV
- Response time $t_A$: < 25 ns
- Maximum back-up fuse: 16 A
- Temperature range: $-15$ - $+60 \degree C$
- Protection rating: IP20
- Connecting cable length: 0.09 m

Always indicate the item number when ordering.
Surge protection module ÜSM-10-230I2P-0

Surge protection module type 2+3 to DIN EN 61643-11 for 230/400 V power grids. Appropriate for the protection of electronic devices and LED drivers.

- For luminaires with 2 phases (power reduction)
- With function display and switch-off of the load circuit when a SPD fails
- Small size for the installation in the pole connection box or upstream of the LED driver
- Protective circuit with a maximum arresting capacity of 10 kA
- Reduction of overvoltage to under 1,300 V (protection level)
- For protection insulated luminaires (PC II) without PE connection

Application: In the cable transition box, junction boxes, cable duct to underfloor systems

---

ÜSM-10-230I2P-0

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ÜSM-10-230I2P-0</td>
<td>255 2-pole without NPE for PC II</td>
<td>1</td>
<td>4.100</td>
<td>5092424</td>
</tr>
</tbody>
</table>

Surge protection module type 2+3 to DIN EN 61643-11 for 230/400 V power grids. Appropriate for the protection of electronic devices and LED drivers.

- For luminaires with 2 phases (power reduction)
- With function display and switch-off of the load circuit when a SPD fails
- Small size for the installation in the pole connection box or upstream of the LED driver
- Protective circuit with a maximum arresting capacity of 10 kA
- Reduction of overvoltage to under 1,300 V (protection level)
- For protection insulated luminaires (PC II) without PE connection

Application: In the cable transition box, junction boxes, cable duct to underfloor systems
Surge protection module ÜSM-10-230I1P+PE

- With function display and switch-off of the load circuit when a SPD fails
- Small size for the installation in the pole connection box or upstream of the LED driver
- Use in the LED luminaire head upstream of the LED driver
- Protective circuit with a maximum arresting capacity of 10 kA
- Reduction of overvoltage to under 1,300 V (protection level)
- For LED luminaires with PE connection

Application: In the cable transition box, junction boxes, cable duct to underfloor systems

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>ÜSM-10-230I1P+PE</td>
<td>255</td>
<td>1 pole + NPE for PC I</td>
<td>1 pcs</td>
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<tr>
<td>Item No.</td>
<td></td>
<td></td>
<td>5092422</td>
</tr>
</tbody>
</table>

Surge protection module type 2+3 to DIN EN 61643-11 for 230/400 V power grids. Appropriate for the protection of electronic devices and LED drivers.

- Nominal voltage
- SPD to EN 61643-11
- SPD to IEC 61643-11
- Lightning protection zone LPZ
- Nominal discharge current (8/20)
- Arrestor surge current (8/20) total
- Maximum discharge current (8/20 μs)
- Voltage protection level
- Response time
- Maximum back-up fuse
- Temperature range
- Protection rating
- Connecting cable length

Always indicate the item number when ordering.
**Surge protection module ÜSM-10-230I1P-0**

- Surge protection module type 2+3 to DIN EN 61643-11 for 230/400 V power grids.
- Appropriate for the protection of electronic devices and LED drivers.
  - With function display and switch-off of the load circuit when a SPD fails
  - Small size for the installation in the pole connection box or upstream of the LED driver
  - Protective circuit with a maximum arresting capacity of 10 kA
  - Reduction of overvoltage to under 1,300 V (protection level)
  - For protection insulated luminaires (PC II) without PE connection

**Application:** In the cable transition box, junction boxes, cable duct to underfloor systems

---

**ÜSM-10-230I1P-0**

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>ÜSM-10-230I1P-0</td>
<td>255</td>
<td>1-pole without NPE for PC II</td>
<td>1 pcs.</td>
</tr>
</tbody>
</table>

Surge protection module type 2+3 to DIN EN 61643-11 for 230/400 V power grids.

**Connection options**

- L
- L'
- N

**Dimensions**

- Length: 100 mm
- Width: 39 mm
- Height: 24 mm

**Connection options**

- 1-pole without NPE for PC II

**ÜSM-10-230I1P-0**

- **Nominal voltage** $U_n$: 230 V
- **SPD to EN 61643-11** type 2+3
- **SPD to IEC 61643-11** Class II+III
- **Lightning protection zone** LPZ 1→2
- **Nominal discharge current (8/20)** $I_{diss}$: 5 kA
- **Arrester surge current (8/20) [total]** $I_{surge}$: 10 kA
- **Maximum discharge current (8/20 μs)** $I_{max}$: < 25 ns
- **Voltage protection level** $U_p$: 1.3 kV
- **Response time** $t_r$: < 25 ns
- **Maximum back-up fuse** 16 A
- **Temperature range** $\vartheta$: -15 - +60 °C
- **Protection rating** 1P20
- **Connecting cable length** 0.09 m

Always indicate the item number when ordering.
Surge protection for LED systems ÜSM-20-230I1P+PE

Surge protection module type 2+3 to DIN EN 61643-11 for 230/400 V power grids. Appropriate for the protection of LED lighting.

- With function display and switch-off of the load circuit when a SPD fails
- Small size for the installation in the pole connection box or upstream of the LED driver
- 1+NPE protective circuit with a maximum discharge capacity of 20 kA
- Reduction of overvoltage to under 1,300 V or 1,000 V @ 5 kA
- With or without luminaire switch-off in case of defect

Application: In the cable transition box, junction boxes, cable duct to underfloor systems

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage V</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ÜSM-20-230I1P+PE</td>
<td>255</td>
<td>1</td>
<td>4.100</td>
<td>5092431</td>
</tr>
</tbody>
</table>

ÜSM-20-230I1P+PE

- Nominal voltage $U_n$ 230 V
- SPD to EN 61643-11 Type 2+3
- SPD to IEC 61643-11 Class II-III
- Lightning protection zone LPZ 1→2
- Nominal discharge current (8/20) $I_{n}$ 10 kA
- Arrester surge current (8/20) [total] $I_{total,8/20}$ 20 kA
- Maximum discharge current (8/20 μs) $I_{max}$ 20 kA
- Voltage protection level $U_p$ 1.3 kV
- Response time $t_s < 25 \text{ ns}$
- Maximum back-up fuse 16 A
- Temperature range $\theta$ -15 - +60 °C
- Protection rating IP20
- Connecting cable length 0.09 m
Surge protection for LED systems ÜSM-20-230I1PE65

Surge protection module type 2+3 to DIN EN 61643-11 for 230/400 V power grids. Appropriate for the protection of LED lighting.

- With function display and switch-off of the load circuit when a SPD fails
- Small size for the installation in the pole connection box or upstream of the LED driver
- 1+NPE protective circuit with a maximum discharge capacity of 20 kA
- Reduction of overvoltage to under 1,300 V or 1,000 V @ 5 kA
- With or without luminaire switch-off in case of defect

Application: In the cable transition box, junction boxes, cable duct to underfloor systems

| ÚSM-20-230I1PE65 | 255 | 1-pole + NPE for PC I | 1 | 8.300 | 5092433 |

Surge protection module type 2+3 to DIN EN 61643-11 for 230/400 V power grids. Appropriate for the protection of LED lighting.

- With function display and switch-off of the load circuit when a SPD fails
- Small size for the installation in the pole connection box or upstream of the LED driver
- 1+NPE protective circuit with a maximum discharge capacity of 20 kA
- Reduction of overvoltage to under 1,300 V or 1,000 V @ 5 kA
- With or without luminaire switch-off in case of defect

Application: In the cable transition box, junction boxes, cable duct to underfloor systems
MCR protection for 2-pole power supply, 12 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack. pc.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VF12-AC DC</td>
<td>1</td>
<td>9.000</td>
<td>5097453</td>
</tr>
</tbody>
</table>

Surge protection device / fine protection type 3 to EN 61643-11

- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

VF12-AC DC

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>U max AC</td>
<td>13.5 V</td>
</tr>
<tr>
<td>U max DC</td>
<td>18 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type III</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td></td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>2→3</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>0.7 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>2 kA</td>
</tr>
<tr>
<td>Rated current</td>
<td>20 A</td>
</tr>
<tr>
<td>Protection level wire-wire</td>
<td>&lt;110 V</td>
</tr>
<tr>
<td>Protection level wire-earth</td>
<td>&lt;1200 V</td>
</tr>
<tr>
<td>Response time</td>
<td>&lt;25 ns</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40 - +80 °C</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP 20</td>
</tr>
<tr>
<td>Connection unit TE (17.5 mm)</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>0.14 - 2.5 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>0.14 - 2.5 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>0.14 - 2.5 mm²</td>
</tr>
<tr>
<td>Approvals</td>
<td>UL</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
MCR protection for 2-pole for power supply, 24 V

Surge protection device / fine protection type 3 to EN 61643-11

- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

VF24-AC/DC

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VF24-AC/DC</td>
<td>34</td>
<td>1</td>
</tr>
</tbody>
</table>

Highest continuous voltage

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VF24-AC/DC</td>
<td>34</td>
<td>1</td>
</tr>
</tbody>
</table>

---

Fine power protection, series installation
MCR protection for 2-pole for power supply, 48 V

Surge protection device / fine protection type 3 to EN 61643-11

- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

**VF48-AC/DC**

<table>
<thead>
<tr>
<th>Type</th>
<th>u&lt;sub&gt;AC&lt;/sub&gt;</th>
<th>u&lt;sub&gt;DC&lt;/sub&gt;</th>
<th>U&lt;sub&gt;max&lt;/sub&gt; AC</th>
<th>U&lt;sub&gt;max&lt;/sub&gt; DC</th>
<th>SPD to EN 61643-11</th>
<th>SPD to IEC 61643-11</th>
<th>Lightning protection zone LPZ</th>
<th>Nominal discharge current (8/20)</th>
<th>Maximum discharge current (8/20 μs)</th>
<th>Rated current</th>
<th>Protection level wire-wire</th>
<th>Protection level wire-earth</th>
<th>Protection level wire-earth</th>
<th>Response time</th>
<th>Temperature range</th>
<th>Protection rating</th>
<th>Approval</th>
</tr>
</thead>
<tbody>
<tr>
<td>VF48-AC/DC</td>
<td>60 V</td>
<td>80 V</td>
<td>175 V</td>
<td>120 V</td>
<td>Type 3</td>
<td>Class III</td>
<td>2→3</td>
<td>0.7 kA</td>
<td>2 kA</td>
<td>20 A</td>
<td>&lt;220 V</td>
<td>&lt;1200 V</td>
<td>&lt;25 ns</td>
<td>-40°C to +80°C</td>
<td>IP 20</td>
<td>UL</td>
<td></td>
</tr>
</tbody>
</table>
**MCR protection for 2-pole for power supply, 60 V**

- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

**Dimensions**

**Connection options**

---

**VF60-AC/DC**

<table>
<thead>
<tr>
<th>Type</th>
<th>U max AC</th>
<th>U max DC</th>
<th>SPD to EN 61643-11</th>
<th>SPD to IEC 61643-11</th>
<th>Lightning protection zone LPZ</th>
<th>Nominal discharge current (8/20)</th>
<th>Maximum discharge current (8/20 μs)</th>
<th>Rated current</th>
<th>Protection level wire-wire</th>
<th>Protection level wire-earth</th>
<th>Response time</th>
<th>Temperature range</th>
<th>Protection rating</th>
<th>Division unit TE (17.5 mm)</th>
<th>Connection cross-section rigid</th>
<th>Connection cross-section, multi-wire</th>
<th>Connection cross-section, flexible</th>
</tr>
</thead>
<tbody>
<tr>
<td>VF60-AC/DC</td>
<td>80 V</td>
<td>110 V</td>
<td>Type 3</td>
<td>Class III</td>
<td>2~3</td>
<td>0.7 kA</td>
<td>2 kA</td>
<td>20 A</td>
<td>&lt;280 V</td>
<td>≤1200 V</td>
<td>≤25 ns</td>
<td>-40 - +80 °C</td>
<td>IP 20</td>
<td>1</td>
<td>0.14 - 2.5 mm²</td>
<td>0.14 - 2.5 mm²</td>
<td>0.14 - 2.5 mm²</td>
</tr>
</tbody>
</table>
MCR protection for 2-pole for power supply, 110 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VF110-AC DC</td>
<td>1</td>
<td>8.000</td>
<td>5097631</td>
</tr>
</tbody>
</table>

Surge protection device / fine protection type 3 to EN 61643-11

- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

**VF110-AC DC**

- U max AC $U_{AC}$ 150 V
- U max DC $U_{DC}$ 200 V
- SPD to EN 61643-11 Type 3
- SPD to IEC 61643-11 Class III
- Lightning protection zone LPZ 2⇒3
- Nominal discharge current (8/20) $I_{\text{n}}$ 2 kA
- Maximum discharge current (8/20 μs) $I_{\text{max}}$ 6.5 kA
- Rated current $I_{\text{N}}$ 20 A
- Protection level wire-wire $<500 \text{ V}$
- Protection level wire-earth $<1400 \text{ V}$
- Response time $t_{\text{A}}$ $<25 \text{ ns}$
- Temperature range $\vartheta$ $-40\degree\text{C} - +80\degree\text{C}$
- Protection rating IP 20
- Division unit TE (17.5 mm)
- Connection cross-section rigid 0.14 - 2.5 mm²
- Connection cross-section, multi-wire 0.14 - 2.5 mm²
- Connection cross-section, flexible 0.14 - 2.5 mm²

Always indicate the item number when ordering.
MCR protection for 2-pole for power supply, 230 V

Surge protection device / fine protection type 3 to EN 61643-11

- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

Dimensions

Connection options

VF230-AC/DC

<table>
<thead>
<tr>
<th>Type</th>
<th>Uc AC</th>
<th>Uc DC</th>
<th>Imax</th>
<th>IL</th>
<th>tA</th>
<th>ϑ</th>
</tr>
</thead>
<tbody>
<tr>
<td>VF230-AC/DC</td>
<td>255</td>
<td>350</td>
<td>2.5</td>
<td>20</td>
<td>&lt;1000</td>
<td>&lt;1400</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5097650</td>
<td>1</td>
<td>8.000</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
MCR protection for 2-pole power supply with remote signalling, 24 V AC/DC

<table>
<thead>
<tr>
<th>Type</th>
<th>VF24-AC/DC-FS</th>
<th>34</th>
<th></th>
<th></th>
<th></th>
<th>Item No.</th>
<th>5097820</th>
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<tbody>
<tr>
<td>Highest</td>
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<td></td>
<td></td>
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<td></td>
<td>Weight</td>
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<tr>
<td>continuous</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>voltage</td>
<td>24 V</td>
</tr>
<tr>
<td>Pack. pcs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>pcs</td>
<td>1</td>
</tr>
<tr>
<td>Weight kg/100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>pcs</td>
<td>6.620</td>
</tr>
</tbody>
</table>

Surge protection / fine power protection, type 3, to EN 61643-11 with remote signalling

- With remote signalling, potential-free changeover contact, for function monitoring
- Suitable for DC and AC systems
- With visual function display
- With easy mounting, screwless connection terminals
- In space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rails in any standard distributor housing.

VF24-AC/DC-FS

- **U max AC**: 34 V
- **U max DC**: 46 V
- SPD to EN 61643-11: Type 3
- SPD to IEC 61643-11: Class III
- Lightning protection zone LPZ: 2→3
- Nominal discharge current (8/20): $I_n = 0.7 \text{ kA}$
- Maximum discharge current (8/20 μs): $I_{\text{max}} = 2 \text{ kA}$
- Rated current: $I_b = 20 \text{ A}$
- Protection level wire-wire: $< 160 \text{ V}$
- Protection level wire-earth: $< 1200 \text{ V}$
- Response time: $t_A < 25 \text{ ns}$
- Temperature range: $\theta = -40 \text{ to } +80 \text{ °C}$
- Protection rating: IP 20
- Division unit TE (17.5 mm): 1
- Connection cross-section rigid: 0.14 - 2.5 mm²
- Connection cross-section, multi-wire: 0.14 - 2.5 mm²
- Connection cross-section, flexible: 0.14 - 2.5 mm²

Always indicate the item number when ordering.
MCR protection for 2-pole power supply with remote signalling, 230 V AC

Surge protection / fine power protection, type 3, to EN 61643-11 with remote signalling

- With remote signalling, potential-free changeover contact, for function monitoring
- Suitable for AC systems
- With visual function display
- With easy mounting, screwless connection terminals
- In space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rails in any standard distributor housing.

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage V</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VF230-AC-FS</td>
<td>255</td>
<td>1</td>
<td>6.910</td>
<td>5097838</td>
</tr>
</tbody>
</table>

 VF230-AC-FS
U max AC | Uc AC | 255 V
U max DC | Uc DC | V
SPD to EN 61643-11 | Type 3
SPD to IEC 61643-11 | Class III
Lightning protection zone LPZ | 2–3
Nominal discharge current (8/20 μs) | Iₘₘₙ | 2.5 kA
Maximum discharge current (8/20 μs) | Iₘ₈ | 7 kA
Rated current | Iₘ₈ | 20 A
Protection level wire-wire | Iₘ₈ | <1060 V
Protection level wire-earth | Iₘ₈ | <1400 V
Response time | tₐ | <25 ns
Temperature range | θ | -40 - +80 °C
Protection rating | IP | 20
Division unit TE (17.5 mm) | 1
Connection cross-section rigid | 0.14 - 2.5 mm²
Connection cross-section, multi-wire | 0.14 - 2.5 mm²
Connection cross-section, flexible | 0.14 - 2.5 mm²

Always indicate the item number when ordering.
MCR protection for 2-pin for power supply with leak current-free remote signalling, 230 V AC/DC

Type 3 surge protection/fine network protection to EN 61643-11 with leak current-free remote signalling
• With remote signalling: potential-free NC contact for function monitoring
• With installation-friendly, screwless connection terminals
• In space-saving 17.5 mm grid
• Y circuit

Application: Universal use on 35 mm DIN profile rails in any standard distributor housing.

VF2-230-AC/DC-FS

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>VF2-230-AC/DC-FS</td>
</tr>
<tr>
<td>U max AC</td>
<td>255 V</td>
</tr>
<tr>
<td>U max DC</td>
<td>350 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 3</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class III</td>
</tr>
<tr>
<td>Lightning protection zone</td>
<td>LPZ 2–3</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>2.5 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>7 kA</td>
</tr>
<tr>
<td>Rated current</td>
<td>20 A</td>
</tr>
<tr>
<td>Protection level wire-wire</td>
<td>&lt; 1000 V</td>
</tr>
<tr>
<td>Protection level wire-earth</td>
<td>&lt; 1400 V</td>
</tr>
<tr>
<td>Response time</td>
<td>&lt; 25 ns</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40 - +80 °C</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP 20</td>
</tr>
<tr>
<td>Division unit</td>
<td>TE (17.5 mm)</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>0.14 - 2.5 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>0.14 - 2.5 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>0.14 - 2.5 mm²</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Photovoltaic systems

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>272</td>
<td>Lightning current and surge arrester, type 1+2, photovoltaic systems 1,500 V DC</td>
</tr>
<tr>
<td>274</td>
<td>Lightning current and surge arrester, type 1+2, photovoltaic systems 1,000 V DC</td>
</tr>
<tr>
<td>276</td>
<td>Lightning current and surge arrester, type 1+2, photovoltaic systems 900 V DC</td>
</tr>
<tr>
<td>278</td>
<td>Lightning current and surge arrester, type 1+2, photovoltaic systems 600 V DC</td>
</tr>
<tr>
<td>280</td>
<td>Surge arrester, type 2, photovoltaics 1,500 V DC</td>
</tr>
<tr>
<td>283</td>
<td>Surge arrester, type 2, photovoltaics 1,000 V DC</td>
</tr>
<tr>
<td>284</td>
<td>Surge arrester, type 2, photovoltaics 600 V DC</td>
</tr>
<tr>
<td>286</td>
<td>Photovoltaic system solution with 2/3 MPP trackers</td>
</tr>
<tr>
<td>287</td>
<td>Photovoltaic system solution with 1 MPP tracker</td>
</tr>
<tr>
<td>296</td>
<td>Photovoltaic system solution with fuses</td>
</tr>
<tr>
<td>299</td>
<td>Photovoltaic system solution with circuit breaker</td>
</tr>
<tr>
<td>303</td>
<td>Photovoltaic upper parts</td>
</tr>
<tr>
<td>307</td>
<td>Photovoltaic bases</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
### Type 1+2, combination arrestor, PV system

**Y circuit**

<table>
<thead>
<tr>
<th>Volts</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,500</td>
<td>5094240</td>
<td>272</td>
</tr>
<tr>
<td>1,000</td>
<td>5094230</td>
<td>274</td>
</tr>
<tr>
<td>900</td>
<td>5097447</td>
<td>275</td>
</tr>
<tr>
<td>600</td>
<td>5093623</td>
<td>278</td>
</tr>
</tbody>
</table>

### Type 1+2, combination arrestor with remote signalling, PV system

**Y circuit + FS**

<table>
<thead>
<tr>
<th>Volts</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,500</td>
<td>5094242</td>
<td>273</td>
</tr>
<tr>
<td>1,000</td>
<td>5094232</td>
<td>275</td>
</tr>
<tr>
<td>900</td>
<td>5097448</td>
<td>277</td>
</tr>
<tr>
<td>600</td>
<td>5093625</td>
<td>279</td>
</tr>
</tbody>
</table>

### Type 2, surge arrestor, PV system

**Y circuit**

<table>
<thead>
<tr>
<th>Volts</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,500</td>
<td>5094210</td>
<td>280</td>
</tr>
<tr>
<td>1,000</td>
<td>5094608</td>
<td>282</td>
</tr>
<tr>
<td>600</td>
<td>5094605</td>
<td>284</td>
</tr>
</tbody>
</table>

### Type 2, surge arrestor with remote signalling, PV system

**Y circuit + FS**

<table>
<thead>
<tr>
<th>Volts</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,500</td>
<td>5094212</td>
<td>281</td>
</tr>
<tr>
<td>1,000</td>
<td>5094574</td>
<td>283</td>
</tr>
<tr>
<td>600</td>
<td>5094576</td>
<td>308</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Type 1+2, PV system solution

<table>
<thead>
<tr>
<th>WR with 1 MPP</th>
<th>WR with 2 MPPs</th>
<th>WR with 2 MPPs</th>
<th>WR with 3 MPPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volts</td>
<td>Item no.</td>
<td>Page</td>
<td></td>
</tr>
<tr>
<td>900</td>
<td>5088591</td>
<td>286</td>
<td></td>
</tr>
<tr>
<td>900</td>
<td>5088566</td>
<td>288</td>
<td></td>
</tr>
<tr>
<td>900</td>
<td>5088576</td>
<td>292</td>
<td></td>
</tr>
<tr>
<td>900</td>
<td>5088579</td>
<td>293</td>
<td></td>
</tr>
</tbody>
</table>

Type 2, PV system solution

<table>
<thead>
<tr>
<th>WR with 1 MPP</th>
<th>WR with 2 MPPs</th>
<th>WR with 2 MPPs</th>
<th>WR with 3 MPPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volts</td>
<td>Item no.</td>
<td>Page</td>
<td></td>
</tr>
<tr>
<td>1,000</td>
<td>5088593</td>
<td>287</td>
<td></td>
</tr>
<tr>
<td>1,000</td>
<td>5088568</td>
<td>289</td>
<td></td>
</tr>
<tr>
<td>1,000</td>
<td>5088582</td>
<td>290</td>
<td></td>
</tr>
<tr>
<td>1,000</td>
<td>5088585</td>
<td>295</td>
<td></td>
</tr>
</tbody>
</table>

Type 2, PV system solution with fuse

<table>
<thead>
<tr>
<th>Unequipped holder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volts</td>
</tr>
<tr>
<td>900</td>
</tr>
<tr>
<td>1,000</td>
</tr>
</tbody>
</table>

PV system solution with circuit breaker

<table>
<thead>
<tr>
<th>Type 1+2</th>
<th>Type 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volts</td>
<td>Item no.</td>
</tr>
<tr>
<td>900</td>
<td>5088635</td>
</tr>
<tr>
<td>900</td>
<td>5088660</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
PV type 1+2 lightning current and surge protection

PV complete block 1500V DC

- Lightning protection equipotential bonding according to IEC 62305 (VDE 0185-305)
- Surge protection according to IEC 60364-7-712 (VDE 0100-712)
- Arresting capacity to 12.5 kA (10/350) and 40 kA (8/20)
- Error-resistant Y circuit with status display
- The FS variant possesses a potential-free changeover contact for remote signalling

Application: Lightning current and surge protection devices for PV systems.

V-PV-T1+2-1500

U max DC  |  Version  |  Pack. pcs  |  Weight kg/100 pcs.
--- | --- | --- | ---
1500 | Y configuration | 1 | 49.200 | 5094240

Type 1+2 combination arrester for lightning and surge protection of PV systems.

Dimensions

Connection options

V-PV-T1+2-1500

U max DC  |  Uc DC |  Iimp |  In |  Imax |  Up |  tA |  ϑ
--- | --- | --- | --- | --- | --- | --- | ---
1500 V | 6.25 kA | 20 kA | 40 kA | < 4.5 kV | < 25 ns | -40 - 80 °C | IP20

Connection cross-section rigid  |  2.5 - 35 mm²
Connection cross-section, multi-wire  |  2.5 - 35 mm²
Connection cross-section, flexible  |  2.5 - 35 mm²

Always indicate the item number when ordering.
PV complete block 1500V DC with remote signalling

<table>
<thead>
<tr>
<th>Type</th>
<th>DC</th>
<th>Version</th>
<th>Pack.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V-PV-T1+2-1500FS</td>
<td>1500</td>
<td>Y configuration + RS</td>
<td>1</td>
<td>5094242</td>
</tr>
</tbody>
</table>

Type 1+2 combination arrester for lightning and surge protection of PV systems.

- Lightning protection equipotential bonding according to IEC 62305 (VDE 0185-305)
- Surge protection according to IEC 60364-7-712 (VDE 0100-712)
- Arresting capacity to 12.5 kA (10/350) and 40 kA (8/20)
- Error-resistant Y circuit with status display
- The FS variant possesses a potential-free changeover contact for remote signalling

Application: Lightning current and surge protection devices for PV systems.

---

V-PV-T1+2-1500FS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>U max DC</td>
<td>1500 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 1+2</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>0-3</td>
</tr>
<tr>
<td>Impulse discharge current (10/350)</td>
<td>I&lt;sub&gt;imp&lt;/sub&gt; 6.25 kA</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>I&lt;sub&gt;n&lt;/sub&gt; 20 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>I&lt;sub&gt;max&lt;/sub&gt; 40 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>U&lt;sub&gt;p&lt;/sub&gt; &lt; 4.5 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>t&lt;sub&gt;a&lt;/sub&gt; &lt; 25 ns</td>
</tr>
<tr>
<td>Temperature range</td>
<td>θ  -40 - 80 °C</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>4</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>2.5 - 35 mm²</td>
</tr>
</tbody>
</table>

Dimensions

Connection options

---

Always indicate the item number when ordering.
PV type 1+2 lightning current and surge protection

PV complete block 1000V DC

Type 1+2 combination arrester according to EN 50539-11 for lightning and surge protection of PV systems.

- Lightning protection equipotential bonding according to IEC 62305 (VDE 0185-305)
- Surge protection according to IEC 60364-7-712 (VDE 0100-712)
- Arrestering capacity to 12.5 kA (10/350) and 40 kA (8/20)
- Error-resistant Y circuit with status display
- The FS variant possesses a potential-free changeover contact for remote signalling

Application: Lightning current and surge protection devices for PV systems.

V-PV-T1+2-1000

Dimensions

Connection options

V-PV-T1+2-1000

| Connection cross-section rigid | 2.5 - 35 mm² |
| Connection cross-section, multi-wire | 2.5 - 35 mm² |
| Connection cross-section, flexible | 2.5 - 35 mm² |

Always indicate the item number when ordering.
PV complete block 1000V DC with remote signalling

<table>
<thead>
<tr>
<th>Type</th>
<th>U max</th>
<th>DC</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V-PV-T1+2-1000FS</td>
<td>1000 V</td>
<td>Y configuration + RS</td>
<td>1</td>
<td>41.200 kg/100 pcs.</td>
<td>5094232</td>
<td></td>
</tr>
</tbody>
</table>

Type 1+2 combination arrester according to EN 50539-11 for lightning and surge protection of PV systems.

- Lightning protection equipotential bonding according to IEC 62305 (VDE 0185-305)
- Surge protection according to IEC 60364-7-712 (VDE 0100-712)
- Arresting capacity to 12.5 kA (10/350) and 40 kA (8/20)
- Error-resistant Y circuit with status display
- The FS variant possesses a potential-free changeover contact for remote signalling

Application: Lightning current and surge protection devices for PV systems.

V-PV-T1+2-1000FS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>U max DC</td>
<td>1000 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 1+2</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>0→3</td>
</tr>
<tr>
<td>Impulse discharge current (10/350)</td>
<td>Ilimp</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>Im</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>Imax</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>Uc</td>
</tr>
<tr>
<td>Response time</td>
<td>tA</td>
</tr>
<tr>
<td>Temperature range</td>
<td>ϑ</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>4</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>2.5 - 35 mm²</td>
</tr>
</tbody>
</table>

always indicate the item number when ordering.
PV combination arrestor V25, 900 V DC

- Complete unit, consisting of plug-in varistor arrestor with cut-off unit
- Error-resistant Y circuit to VDE 0100-712 (EN 50539-12)
- Surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity up to 7 kA (10/350) and 50 kA (8/20) per pole
- Low DC protection level: < 3.0 kV and Voc max = 900 V DC
- With visual function display for use in distributor housings

Application: PV systems with lightning protection system

### Dimensions

### Connection options

---

**V25-B+C 3-PH900**

<table>
<thead>
<tr>
<th>U max DC</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>900 V DC</td>
<td>3-pole for PV systems</td>
<td>1</td>
<td>42.200 kg/100 pcs.</td>
</tr>
</tbody>
</table>

V25 combination arrestor, type 1+2, for photovoltaic systems

- Type
- Uc DC
- Iimp
- In
- Imax
- Up
- tA
- ϑ
PV combination arrestor V25, 900 V DC with remote signalling

<table>
<thead>
<tr>
<th>Type</th>
<th>U max DC V</th>
<th>Version</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V25-B+C 3PHFS900</td>
<td>900</td>
<td>3-pole for PV systems with RS</td>
<td>1</td>
<td>53.500</td>
<td>5097448</td>
</tr>
</tbody>
</table>

V25 combination arrestor, type 1+2, for photovoltaic systems

- Complete unit, consisting of plug-in varistor arrestor with cut-off unit
- Error-resistant Y circuit to VDE 0100-712 (EN 50539-12)
- Surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity up to 7 kA (10/350) and 50 kA (8/20) per pole
- Low DC protection level: < 3.0 kV and Voc max = 900 V DC
- With visual function display for use in distributor housings

Application: PV systems with lightning protection system

### V25-B+C 3PHFS900

- **U max DC:** 900 V
- **Uc DC:** 900 V
- **Iimp:** 7 kA
- **In:** 30 kA
- **Imax:** 50 kA
- **Up:** < 3.0 kV
- **tA:** < 25 ns
- **ϑ:** -40 - +80 °C
- **Protection rating:** IP 20
- **Division unit TE (17.5 mm):** 4
- **Connection cross-section rigid:** 2.5 - 35 mm²
- **Connection cross-section, multi-wire:** 2.5 - 35 mm²
- **Connection cross-section, flexible:** 2.5 - 25 mm²

Always indicate the item number when ordering.
PV combination arrester V50, 600 V DC

- Complete unit, consisting of plug-in varistor arrester with cut-off unit
- Error-resistant Y circuit to VDE 0100-712 (EN 50539-12)
- Surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity up to 12.5 kA (10/350) and 50 kA (8/20) per pole
- Low DC protection level: < 2.6 kV and Voc max = 600 V DC
- With visual function display for use in distributor housings

Application: PV systems with lightning protection system

### V50-B+C 3-PH600

<table>
<thead>
<tr>
<th>Type</th>
<th>U max DC</th>
<th>Version</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-B+C 3-PH600</td>
<td>600 V</td>
<td>3-pole for PV systems</td>
<td>41.000</td>
<td>5093623</td>
</tr>
</tbody>
</table>

V50 combination arrester, type 1+2, for photovoltaic systems

<table>
<thead>
<tr>
<th>Connection options</th>
</tr>
</thead>
</table>

Always indicate the item number when ordering.
PV combination arrestor V50, 600 V DC with remote signalling

<table>
<thead>
<tr>
<th>Type</th>
<th>U max DC</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-B+C 3PHFS600</td>
<td>600 V</td>
<td>3-pole for PV systems with FS</td>
<td>1</td>
<td>49.600</td>
<td>5093625</td>
</tr>
</tbody>
</table>

V50 combination arrestor, type 1+2, for photovoltaic systems

- Complete unit, consisting of plug-in varistor arrestor with cut-off unit
- Error-resistant Y circuit to VDE 0100-712 (EN 50539-12)
- Surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arrester capacity up to 12.5 kA (10/350) and 50 kA (8/20) per pole
- Low DC protection level: < 2.6 kV and Voc max = 600 V DC
- With visual function display for use in distributor housings

Application: PV systems with lightning protection system

### V50-B+C 3PHFS600

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>U max DC</td>
<td>600 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 1+2</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>0-2</td>
</tr>
<tr>
<td>Impulse discharge current (10/350)</td>
<td>12.5 kA</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>30 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>50 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>Uc &lt; 2.6 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>t ≤ 25 ns</td>
</tr>
<tr>
<td>Temperature range</td>
<td>ϑ -40 - +80 °C</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP 20</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>4</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>2.5 - 25 mm²</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
PV type 2 surge protection complete block

PV complete block 1500V DC

- Surge protection according to IEC 60364-7-712 (VDE 0100-712)
- Arresting capacity of 20 kA per pole and up to 40 kA (8/20)
- Error-resistant Y circuit with status display
- The FS variant possesses a potential-free changeover contact for remote signalling

Application: Surge protection devices for PV systems.

### Dimensions

<table>
<thead>
<tr>
<th>Connection options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
</tr>
</tbody>
</table>

### Dimensions

<table>
<thead>
<tr>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
</tr>
</tbody>
</table>

### Connection options

<table>
<thead>
<tr>
<th>Connection options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
</tr>
</tbody>
</table>

### V-PV-T2-1500

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>U max DC</td>
<td></td>
<td>1500 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2</td>
<td></td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1-3</td>
<td></td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>Iₙ</td>
<td>20 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>Iₘₚ</td>
<td>40 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>Uₙ</td>
<td>&lt; 4.5 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>tₕ</td>
<td>&lt; 25 ns</td>
</tr>
<tr>
<td>Temperature range</td>
<td>ϑ</td>
<td>-40 - 80 °C</td>
</tr>
<tr>
<td>Protection rating</td>
<td></td>
<td>IP20</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td></td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td></td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td></td>
<td>2.5 - 35 mm²</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
PV complete block 1500V DC with remote signalling

Type 2 surge protection for PV plants.

- Surge protection according to IEC 60364-7-712 (VDE 0100-712)
- Arresting capacity of 20 kA per pole and up to 40 kA (8/20)
- Error-resistant Y circuit with status display
- The FS variant possesses a potential-free changeover contact for remote signalling

Application: Surge protection devices for PV systems.

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V-PV-T2-1500+FS</td>
<td>Y configuration + RS</td>
<td>34.400</td>
<td>5094212</td>
</tr>
</tbody>
</table>

V-PV-T2-1500+FS

- U max DC: 1500 V
- SPD to EN 61643-11 Type 2
- Lightning protection zone LPZ 1–3
- Nominal discharge current (8/20) I<sub>n</sub>: 20 kA
- Maximum discharge current (8/20 μs) I<sub>max</sub>: 40 kA
- Voltage protection level U<sub>p</sub>: < 4.5 kV
- Response time t<sub>A</sub>: < 25 ns
- Temperature range ϑ: -40 - 80 °C
- Protection rating IP20
- Division unit TE (17.5 mm) 4
- Connection cross-section rigid: 2.5 - 35 mm²
- Connection cross-section, multi-wire: 2.5 - 35 mm²
- Connection cross-section, flexible: 2.5 - 35 mm²

Always indicate the item number when ordering.
PV surge protection V20, 1,000 V DC

V20 surge arrester, type 2, for photovoltaic systems

- Complete unit, consisting of plug-in varistor arrester with cut-off unit
- Error-resistant Y circuit to VDE 0100-712 (EN 50539-12)
- Surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- V20-C 3-PH-1000 tested to EN 50539-11 (VDE / KEMA)
- Arresting capacity to 40 kA (8/20) per pole
- Low DC protection level: ≤ 4.0 kV and Voc max = 1,000 V DC
- With visual function display for use in distributor housings

Application: PV systems with or without separate lightning protection system

<table>
<thead>
<tr>
<th>V20-C 3-PH-1000</th>
<th>U max DC</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 V DC</td>
<td>3-pole for PV systems</td>
<td></td>
</tr>
</tbody>
</table>

Connection options:
- 3-pole for PV systems

Dimensions:
- 100 x 54 x 90 mm

Connection options:
- 2.5 - 35 mm² rigid
- 2.5 - 35 mm² multi-wire
- 2.5 - 25 mm² flexible

Always indicate the item number when ordering.
PV surge protection V20, 1,000 V DC with remote signalling

V20 surge arrester, type 2, for photovoltaic systems

- Complete unit, consisting of plug-in varistor arrester with cut-off unit
- Error-resistant Y circuit to VDE 0100-712 (EN 50539-12)
- Surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- V20-C 3-PH-1000 tested to EN 50539-11 (VDE / KEMA)
- Arresting capacity to 40 kA (8/20) per pole
- Low DC protection level: < 4.0 kV and Voc max = 1,000 V DC
- With visual function display for use in distributor housings

Application: PV systems with or without separate lightning protection system

<table>
<thead>
<tr>
<th>Type</th>
<th>U max DC V</th>
<th>Version</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C 3PHFS-1000</td>
<td>1000</td>
<td>3-pole for PV systems with FS</td>
<td>44.500</td>
<td>5094574</td>
</tr>
</tbody>
</table>

V20-C 3PHFS-1000

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>U max DC</td>
<td>1000 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1-2</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>I₀ 20 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 µs)</td>
<td>Iₘ₉ 40 kA</td>
</tr>
<tr>
<td>Voltage protection level Uₚ</td>
<td>&lt; 4.0 kV</td>
</tr>
<tr>
<td>Response time ₜₚ</td>
<td>&lt; 25 ns</td>
</tr>
<tr>
<td>Temperature range θ</td>
<td>-40°C to +80°C</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP 20</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>4</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>2.5 - 35 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>2.5 - 25 mm²</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
PV surge protection V20, 600 V DC

- Complete unit, consisting of plug-in varistor arrestor with cut-off unit
- Error-resistant Y circuit for use according to VDE 0100-712 (EN 50539-12)
- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 40 kA (8/20) per pole
- Low DC protection level: < 2.6 kV (Voc max = 600 V DC)
- Arrestor, connectable with thermodynamic cut-off unit and visual function display
- Encapsulated, zinc oxide varistor arrestor for use in distributor housings

Application: PV systems with or without separate lightning protection system

V20-C 3PH-600

- SP4 to EN 61643-11
- Lightning protection zone LPZ 1-2
- Nominal discharge current (8/20) Iₙ 20 kA
- Maximum discharge current (8/20 μs) Iₘₚ₉₉ 40 kA
- Voltage protection level Uᵢₘ < 2.6 kV
- Response time tᵢₘ < 25 ns
- Temperature range θ -40 - +80 °C
- Protection rating IP 20
- Division unit TE (17.5 mm)
- Connection cross-section rigid 2.5 - 35 mm²
- Connection cross-section, multi-wire 2.5 - 35 mm²
- Connection cross-section, flexible 2.5 - 25 mm²

Dimensions

61,5
54
90

Connection options

Always indicate the item number when ordering.
Connection terminal for through-wiring

Connection terminal type: AS 3 x 16

<table>
<thead>
<tr>
<th>Colour</th>
<th>Version</th>
<th>Type</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light grey</td>
<td>3 x 16 mm²</td>
<td>AS 3x16</td>
<td>5</td>
<td>2.474</td>
<td>5012010</td>
</tr>
</tbody>
</table>

- Connection cross-section: 3 x 1.5 - 16 sq mm rigid/multiple strands
- 3 x 1.5 - 10 sq mm fine-wire/with wire end sleeve
- Stripping length: 16 mm
- Rec. tightening torque: 1.2 Nm
- Nominal current: 50 A
- Width: 17.5 mm (1 TE)

For EMC-optimised V through-wiring to IEC 60364-5-53 (VDE 0100-534).

Always indicate the item number when ordering.
PV system solution, type 1+2, for inverter with 1 MPP trackers, 900 V DC

System solution for photovoltaic inverter with 1 MPP tracker

- Varistor arrestor, connectable with cut-off unit in error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 2.6 kV (Voc max = 600 V DC with V50-B+C/0-300PV / V20-C/0-300PV)
- Low DC protection level: < 3.0 kV (Voc max = 900 V DC with V25-B+C/0-450PV)
- Low DC protection level: < 4.0 kV (Voc max = 1,000 V DC with V20-C/0-500PV)
- For each protection device, there are 10 terminals up to 6 mm² pre-mounted in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP65), UV-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems.

If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!
PV system solution, type 2, for inverter with 1 MPP trackers, 1,000 V DC

System solution for photovoltaic inverter with 1 separate MPP tracker

- Varistor arrester, connectable with cut-off unit in error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 4.0 kV (Uoc max = 1,000 V DC with V20-C/0-500PV)
- Low DC protection level: < 3.0 kV (Uoc max = 900 V DC with V25-B+C/0-450PV)
- Per protection device, there are 8 terminals up to 6 mm² pre-mounted in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP65), UV-resistant for the use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems. If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

<table>
<thead>
<tr>
<th>Type</th>
<th>U max DC</th>
<th>Version</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VG-V20-C3-PH1000</td>
<td>1000</td>
<td>Type 1-2 in housing with terminals</td>
<td>87</td>
<td>5088593</td>
</tr>
</tbody>
</table>

VG-V20-C3-PH1000

- U max DC 1000 V
- SPD to EN 61643-11
- Lightning protection zone LPZ 1→2
- Nominal discharge current (8/20) 40 kA
- Maximum discharge current (8/20 μs) Imax 40 kA
- Voltage protection level Uc < 4.0 kV
- Response time tA < 25 ns
- Connection cross-section rigid 1.5 - 16 mm²
- Connection cross-section, flexible 1.5 - 10 mm²
- Temperature range θ -40 - +80 °C
- Protection rating IP66

Always indicate the item number when ordering.
PV system solution, type 1+2, for inverter with 2 MPP trackers, 900 V DC

- Varistor arrestor, connectable with disconnecting device in error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 4.0 kV (Uoc max = 1,000 V DC with V20-C/0-500PV)
- Low DC protection level: < 3.0 kV (Uoc max = 900 V DC with V25-B+C/0-450PV)
- Per protection device, there are 4 terminals up to 6 mm² pre-mounted in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP66), UV-resistant for the use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

<table>
<thead>
<tr>
<th>Type</th>
<th>U max DC</th>
<th>Version</th>
<th>Weight Pack. kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VG-BCPV900K 22</td>
<td>900</td>
<td>For two MPP and with terminal connection</td>
<td>1</td>
<td>220.000</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
PV system solution, type 2, for inverter with 2 MPP trackers, 1,000 V DC

System solution for photovoltaic inverter with 2 separate MPP trackers

- Varistor arrester, connectable with disconnecting device in error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 4.0 kV (Uoc max = 1,000 V DC with V20-C/0-500PV)
- Low DC protection level: < 3.0 kV (Uoc max = 900 V DC with V25-B+C/0-450PV)
- Per protection device, there are 4 terminals up to 6 mm² pre-mounted in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP66), UV-resistant for the use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems. If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

### VG-CPV1000K 22

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>U max DC</td>
<td>1000 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1–2</td>
</tr>
<tr>
<td>Nominal discharge current (8/20) Iₘ</td>
<td>20 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs) Iₘ₉₀</td>
<td>40 kA</td>
</tr>
<tr>
<td>Voltage protection level Uₚ</td>
<td>&lt; 4.0 kV</td>
</tr>
<tr>
<td>Response time tₐ</td>
<td>&lt; 25 ns</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40°C - +80°C</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP65</td>
</tr>
</tbody>
</table>
PV system solution for inverter with 2 MPP trackers and connection terminals

PV system solution, type 2, for inverter with 2 MPP trackers, 1,000 V DC

System solution for photovoltaic inverter with 2 separate MPP trackers

- Varistor arrester, connectable with disconnecting device in error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 3.0 kV (Uoc max = 900 V DC with V25-B+C/0-450PV)
- Per protection device there are 6 terminals up to 6 mm² pre-mounted in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP65), UV-resistant for the use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems.

If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

Dimensions

Connection options

<table>
<thead>
<tr>
<th>Type</th>
<th>U max DC</th>
<th>Version</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VG-CPV 1000K 330</td>
<td>1000 V</td>
<td>For two MPP and with terminal connection</td>
<td>1</td>
<td>5088582</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
PV housing for inverter with 3 MPP trackers, type 1+2, 900 V DC

System solution with MC4 connector for photovoltaic inverter with 3 separate MPP trackers

- Varistor arrester, connectable with cut-off unit in error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 4.0 kV (Voc max = 1,000 V DC with V20-C/0-500PV)
- Low DC protection level: < 3.0 kV (Voc max = 900 V DC with V25-B+C/0-450PV)
- Two PV string inputs (MC4 plug connector) at one MPP inverter input, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP65), UV-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems. If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

### VG-BC DCPH900-31

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>U max DC</td>
<td>900 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 1+2</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>0 to 2</td>
</tr>
<tr>
<td>Impulse discharge current (10/350)</td>
<td>Iimp = 7 kA</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>Ii = 30 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>Imax = 60 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>Uc = &lt; 3.0 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>tA = &lt; 25 ns</td>
</tr>
<tr>
<td>Temperature range</td>
<td>θ = -40 to +80 °C</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP65</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.

Item No. | 5088629

Weight kg/100 pcs. | 542.000

System solution with MC4 connector for photovoltaic inverter with 3 separate MPP trackers

• Varistor arrester, connectable with cut-off unit in error-resistant Y circuit to VDE 0100-712 (50539-12)
• Low DC protection level: < 4.0 kV (Voc max = 1,000 V DC with V20-C/0-500PV)
• Low DC protection level: < 3.0 kV (Voc max = 900 V DC with V25-B+C/0-450PV)
• Two PV string inputs (MC4 plug connector) at one MPP inverter input, up to 30 A DC per terminal
• Pre-mounted in polycarbonate housing (IP65), UV-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems. If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!
PV system solution, type 1+2, for inverter with 2 MPP trackers, 900 V DC

System solution for photovoltaic inverter with 2 separate MPP trackers

- Varistor arrester, connectable with disconnecting device in error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 3.0 kV (Uoc max = 900 V DC with V25-B+C/0-450PV)
- Per protection device there are 6 terminals up to 6 mm² pre-mounted in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP65), UV-resistant for the use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

<table>
<thead>
<tr>
<th>Type</th>
<th>U max DC V</th>
<th>Version</th>
<th>Weight Pack. kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VG-BCPV 900K 330</td>
<td>900</td>
<td>For two MPP and with terminal connection</td>
<td>1</td>
<td>5088576</td>
</tr>
</tbody>
</table>

For two MPP and with terminal connection

Dimensions

Connection options

Always indicate the item number when ordering.
PV system solution for inverter with 2/3 MPP trackers and connection terminals

**PV system solution, type 1+2, for inverter with 3 MPP trackers, 900 V DC**

<table>
<thead>
<tr>
<th>Type</th>
<th>U max DC</th>
<th>Uc max DC</th>
<th>Iimp</th>
<th>In</th>
<th>Imax</th>
<th>Up</th>
<th>tA</th>
<th>ϑ</th>
</tr>
</thead>
<tbody>
<tr>
<td>VG-BCPV 900K 333</td>
<td>900</td>
<td>900</td>
<td>7 kA</td>
<td>30 kA</td>
<td>60 kA</td>
<td>&lt; 3.0 kV</td>
<td>&lt; 25 ns</td>
<td>-40 - +80 °C</td>
</tr>
</tbody>
</table>

System solution for photovoltaic inverter with 3 separate MPP trackers

- Varistor arrestor, connectable with cut-off unit in error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 3.0 kV (Voc max = 900 V DC with V25-B+C/0-450PV)
- Per protection device there are 6 terminals up to 6 mm² pre-mounted in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP65), UV-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems. If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

** VG-BCPV 900K 333 **

- U max DC: 900 V
- SPD to EN 61643-11 Type 1+2
- Lightning protection zone LPZ 0-2
- Impulse discharge current (10/350): I_{imp} = 7 kA
- Nominal discharge current (8/20): I_{n} = 30 kA
- Maximum discharge current (8/20 µs): I_{max} = 60 kA
- Voltage protection level: U_{p} = < 3.0 kV
- Response time: t_{A} = < 25 ns
- Temperature range: -40 - +80 °C
- Protection rating: IP65

Dimensions:
- Width: 300 mm
- Height: 12 mm
- Depth: 300 mm

Connection options:
- Connection options for DC protection.
PV system solution for inverter with 2/3 MPP trackers and connection terminals

### PV system solution, type 2, for inverter with 2 MPP trackers, 1,000 V DC

**System solution for photovoltaic inverter with 2 separate MPP trackers**
- Varistor arrestor, connectable with disconnecting device in error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 3.0 kV (Uoc max = 900 V DC with V25-B+C/0-450PV)
- Per protection device there are 6 terminals up to 6 mm² pre-mounted in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP65), UV-resistant for the use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems. If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

---

**Dimensions**

**Connection options**

---

**VG-CPV 1000K 330**

<table>
<thead>
<tr>
<th><strong>Type</strong></th>
<th><strong>U max DC</strong></th>
<th><strong>Version</strong></th>
<th><strong>Weight (kg/100 pcs)</strong></th>
<th><strong>Item No.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>VG-CPV 1000K 330</td>
<td>1000 V</td>
<td>For two MPP and with terminal connection</td>
<td>1</td>
<td>1488.000</td>
</tr>
</tbody>
</table>

---

**Surge protection, photovoltaics**
PV system solution, type 2, for inverter with 3 MPP trackers, 1,000 V DC

System solution for photovoltaic inverter with 3 separate MPP trackers
• Varistor arrestor, connectable with cut-off unit in error-resistant Y circuit to VDE 0100-712 (50539-12)
• Low DC protection level: < 3.0 kV (Voc max = 900 V DC with V25-B+C/0-450PV)
• Per protection device there are 6 terminals up to 6 mm² pre-mounted in the housing, up to 30 A DC per terminal
• Pre-mounted in polycarbonate housing (IP65), UV-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems. If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

<table>
<thead>
<tr>
<th>Type</th>
<th>U max DC</th>
<th>Version</th>
<th>Weight Pack.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VG-CPV 1000K 333</td>
<td>1000</td>
<td>333</td>
<td>528.000 kg/100 pcs</td>
<td>5088585</td>
</tr>
</tbody>
</table>

For three MPP and with terminal connection

<table>
<thead>
<tr>
<th>Nominal discharge current (8/20 μs)</th>
<th>Maximum discharge current (8/20 μs)</th>
<th>Voltage protection level</th>
<th>Response time</th>
<th>Temperature range</th>
<th>Protection rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iₕ</td>
<td>Iₘₕ</td>
<td>Uₘ ≤ 4.0 kV</td>
<td>tₐ = &lt; 25 ns</td>
<td>-40 °C ~ 80 °C</td>
<td>IP65</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Photovoltaic housing with 4 fuses 10 A

System solution for photovoltaic fuses for photovoltaic inverters with 1 MPP tracker

- Error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 4.0 kV (Voc max = 1,000 V DC with V20-C/0-500PV)
- Item no.: 5088651: (+) poles protected via 4 photovoltaic fuses 10 x 38 mm 10 A, 1,000 V DC protected
- Item no.: 5088654: (+) poles protected via 4 photovoltaic fuses 10 x 38 mm (unequipped), 1,000 V DC protected
- 4 (-) poles via terminal up 6 mm² switched in parallel in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP65), weather-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems. If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

**VG-C DCPH1000-4S**

<table>
<thead>
<tr>
<th>Type</th>
<th>U max DC</th>
<th>Version</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>VG-C DCPH1000-4S</td>
<td>1000 V</td>
<td>Type 2 in housing</td>
<td>1.0 kg</td>
</tr>
</tbody>
</table>

**Dimensions**

**Connection options**

For DC protection of the inverter in photovoltaic systems. If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

**VG-C DCPH1000-4S**

- U max DC: 1000 V
- SPD to EN 61643-11
- Type 2
- Nominal discharge current (8/20) I<sub>n</sub>: 20 kA
- Maximum discharge current (8/20 μs) I<sub>Imax</sub>: 40 kA
- Voltage protection level U<sub>p</sub>: < 4.0 kV
- Response time t<sub>A</sub>: < 25 ns
- Connection cross-section rigid: 0.5 - 6 mm²
- Connection cross-section, flexible: 0.5 - 6 mm²
- Temperature range: 0 - +80 °C
- Protection rating: IP 65

Always indicate the item number when ordering.
Photovoltaic housing with 4 fuse holders, unequipped

System solution for photovoltaic fuses for photovoltaic inverters with 1 MPP tracker

- Error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 4.0 kV (Voc max = 1,000 V DC with V20-C/0-500PV)
- Item no.: 5088651: (+) poles protected via 4 photovoltaic fuses 10 x 38 mm 10 A, 1,000 V DC protected
- Item no.: 5088654: (+) poles protected via 4 photovoltaic fuses 10 x 38 mm (unequipped), 1,000 V DC protected
- 4 (-) poles via terminal up 6 mm² switched in parallel in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP65), weather-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems. If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

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**VG-C PV1000KS4**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>U max DC</td>
<td>1000 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1–2</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>20 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>40 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>&lt; 4.0 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>&lt; 25 ns</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>0.5 - 6 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>0.5 - 6 mm²</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40 to +80 °C</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP 65</td>
</tr>
</tbody>
</table>

---

**Type**

<table>
<thead>
<tr>
<th>U max DC</th>
<th>Version</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 V</td>
<td>Type 2</td>
<td>5088654</td>
</tr>
</tbody>
</table>

**Dimensions**

---

**Connection options**

---

Always indicate the item number when ordering.
PV system solution with fuse holder

Photovoltaic housing with 4 fuse holders, V25, 900 V

System solution for photovoltaic fuses for photovoltaic inverters with 1 MPP tracker

- Error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 4.0 kV (Voc max = 1,000 V DC with V20-C/0-500PV)
- Item no.: 5088654: (+) poles protected via 4 photovoltaic fuses 10 x 38 mm (unequipped), 1,000 V DC protected
- Item no.: 5088640: (+) poles protected via 4 photovoltaic fuses 10 x 38 mm (unequipped), 900 V DC protected
- 4 (-) poles via terminal up 6 mm² switched in parallel in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP65), UV-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems, if there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

### Dimensions

- 900 V
- Type 1+2
- 7 kA
- 30 kA
- < 3,0 kV
- < 25 ns
- 0.5 - 6 mm²
- -40 - +80 °C
- IP 65

### Connection options

- Type VG-BC PV900KS4
- U max DC 900 V
- SPD to EN 61643-11
- Lightning protection zone LPZ Type 1+2
- Impulse discharge current (10/350) Iimp 7 kA
- Nominal discharge current (8/20) In 30 kA
- Maximum discharge current (8/20 μs) Imax 60 kA
- Voltage protection level Uc DC < 3,0 kV
- Response time tA < 25 ns
- Connection cross-section rigid 0.5 - 6 mm²
- Connection cross-section, flexible 0.5 - 6 mm²
- Temperature range 0 - +80 °C
- Protection rating IP 65

### Table of Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>U max DC V</th>
<th>Version</th>
<th>Weight (kg per 100 PCS)</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VG-BC PV900KS4</td>
<td>900</td>
<td>1+2</td>
<td>0.500</td>
<td>5088640</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
PV system solution, type 1+2, to 900 V DC with circuit breaker (32 A)

System solution for circuit breaker photovoltaic inverter with 1 MPP tracker

- Varistor arrestor, connectable with cut-off unit in error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 3.0 kV (Voc max = 900 V DC with V25-B+C/0-450PV)
- Circuit breaker (1,000 V; 32 A) for secure switch-off of the DC string cable
- Per protection device there is 1 terminal up to 6 mm² pre-mounted in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP65), UV-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems, if there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

### VG-BC DC-TS900

<table>
<thead>
<tr>
<th>U max DC</th>
<th>Uc DC</th>
<th>900 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 1+2</td>
<td></td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>0–2</td>
<td></td>
</tr>
<tr>
<td>Impulse discharge current (10/350) Iimp</td>
<td>7 kA</td>
<td></td>
</tr>
<tr>
<td>Nominal discharge current (8/20) Iₘ</td>
<td>30 kA</td>
<td></td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs) Iₘ₉₉</td>
<td>50 kA</td>
<td></td>
</tr>
<tr>
<td>Voltage protection level Uₖ</td>
<td>&lt; 3.0 kV</td>
<td></td>
</tr>
<tr>
<td>Response time tₖ</td>
<td>&lt; 25 ns</td>
<td></td>
</tr>
<tr>
<td>Temperature range ϑ</td>
<td>-40 °C to +80 °C</td>
<td></td>
</tr>
<tr>
<td>Protection rating IP65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connection cross-section String</td>
<td>0.5 - 10</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section PE</td>
<td>0.5 - 10</td>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
**PV system solution with circuit breaker**

**PV system solution, type 2, to 1,000 V DC with circuit breaker (32 A)**

System solution for circuit breaker photovoltaic inverter with 1 MPP tracker

- Varistor arrester, connectable with cut-off unit in error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 4.0 kV (Voc max = 1,000 V DC with V20-B+C/0-500PV)
- Circuit breaker (1,000 V; 32 A) for secure switch-off of the DC string cable
- Per protection device, there is 1 terminal up to 6 mm² pre-mounted in the housing, up to 30 A DC per terminal
- Pre-mounted in polycarbonate housing (IP65), UV-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems. If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

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**VG-C DC-TS1000**

<table>
<thead>
<tr>
<th>U max DC (V)</th>
<th>Uc DC</th>
<th>1000 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2</td>
<td></td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1-2</td>
<td></td>
</tr>
<tr>
<td>Nominal discharge current (8/20 μs) Iₘₙ</td>
<td>20 kA</td>
<td></td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs) Iₘₙ₉</td>
<td>40 kA</td>
<td></td>
</tr>
<tr>
<td>Voltage protection level Uₜ</td>
<td>&lt; 4.0 kV</td>
<td></td>
</tr>
<tr>
<td>Response time tₜ</td>
<td>&lt; 25 ns</td>
<td></td>
</tr>
<tr>
<td>Temperature range ϑ</td>
<td>-40 °C to +80 °C</td>
<td></td>
</tr>
<tr>
<td>Protection rating IP65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connection cross-section String</td>
<td>0.5 - 10</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section PE</td>
<td>2.5 - 35</td>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Photovoltaic housing, type 1+2, with MC connector 900 V DC

System solution with MC4 connector for photovoltaic inverter with 1 MPP tracker

- Varistor arrester, connectable with cut-off unit in error-resistant Y circuit to VDE 0100-712 (50539-12)
- Low DC protection level: < 2.6 kV (Voc max = 600 V DC with V50-B+C/0-300PV / V20-C/0-300PV)
- Low DC protection level: < 3.0 kV (Voc max = 900 V DC with V25-B+C/0-450PV)
- Low DC protection level: < 4.0 kV (Voc max = 1,000 V DC with V20-C/0-500PV)
- One PV string input (MC4 plug connector) at one MPP inverter input, up to 15 A DC MC4 connector
- Pre-mounted in polycarbonate housing (IP65), weather-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems. If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

VG-C DCPH-Y1000

<table>
<thead>
<tr>
<th>U max DC</th>
<th>Uc DC</th>
<th>Up</th>
<th>tA</th>
<th>ϑ</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 V</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SPD to EN 61643-11
- Type 2

Lightning protection zone LPZ
- 1–2

Nominal discharge current (8/20) In
- 20 kA

Maximum discharge current (8/20 μs) Imax
- 40 kA

Voltage protection level Uc
- < 4.0 kV

Response time τa
- < 25 ns

Temperature range θ
- -40 °C to +80 °C

Protection rating ϑ
- IP65

Always indicate the item number when ordering.
Photovoltaic housing with connection terminals, unequipped

System solution for photovoltaic inverter with 3 separate MPP trackers, unequipped

- Varistor arrester, connectable with cut-off unit in error-resistant Y circuit to VDE 0100-712 (50539-12)
- 5088609: Two PV string inputs (MC4 plug connector) at an MPP inverter input, IN up to 15 A DC per MC4 connector
- 5088573: Per protection device there are 6 terminals up to 6 mm² pre-mounted in the housing, IN up to 30 A DC per terminal
- Unequipped, order covers separately
- Pre-mounted in polycarbonate housing (IP65), UV-resistant for use outside, including cable gland kit

For DC protection of the inverter in photovoltaic systems.
If there is a danger of condensation forming through wind, ice, temperature or sunlight, further measures may be necessary!

**VG-BCPV U K 333**

<table>
<thead>
<tr>
<th>U max DC</th>
<th>U, DC</th>
<th>1000 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection cross-section rigid</td>
<td>0.5 - 10 mm²</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>0.5 - 6 mm²</td>
<td></td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40 to 80 °C</td>
<td></td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP65</td>
<td></td>
</tr>
</tbody>
</table>

Dimensions

Connection options

Always indicate the item number when ordering.
PV cover - lightning and surge arrester, type 1+2

<table>
<thead>
<tr>
<th>Type</th>
<th>U max DC V</th>
<th>Version</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-B+C 0-300PV</td>
<td>300</td>
<td>1-pole, PV upper part with Y base to 600 V DC</td>
<td>1</td>
<td>8.200</td>
<td>5093726</td>
</tr>
</tbody>
</table>

V50-B+C/...PV: CombiController upper part, type 1+2, combination arrester for photovoltaic systems

- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 12.5 kA (10/350) and 50 kA (8/20) per pole
- Low DC protection level: < 1.3 kV per pole (Y circuit: 2.6 kV and Voc max = 600 V DC)
- Arrestor, connectable with thermodynamic cut-off unit and visual function display
- Encapsulated, zinc oxide varistor arrester for use in distributor housings
- High current carrying capacity with long lifespan

Application: PV systems with or without separated insulated lightning protection system

**V50-B+C 0-300PV**

- U max DC: 300 V
- SPD to EN 61643-11: Type 1+2
- SPD to IEC 61643-11: Class I+II
- Lightning protection zone LPZ: 0→2
- Nominal discharge current (8/20): \( I_n \) = 30 kA
- Impulse discharge current (10/350): \( I_{imp} \) = 12.5 kA
- Maximum discharge current (8/20 μs): \( I_{max} \) = 50 kA
- Voltage protection level: \( U_p \) = < 1.3 kV
- Response time: \( t_A \) = <25 ns
- Maximum back-up fuse: 125 A
- Temperature range: -40 to +80 °C
- Protection rating: IP 20
- Division unit TE (17.5 mm): 1

Always indicate the item number when ordering.
PV cover - lightning and surge arrester, type 1+2

V25-B+C 0-450PV: CombiController upper part, type 1+2, combination arrester for photovoltaic systems

- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arrester capacity to 7 kA (10/350) and 50 kA (8/20) per pole
- Low DC protection level: < 1.5 kV per pole (Y circuit: 3.0 kV and Voc max = 900 V DC)
- Arrester, connectable with thermodynamic cut-off unit and visual function display
- Encapsulated, zinc oxide varistor arrester for use in distributor housings
- High current carrying capacity with long lifespan

Application: PV systems with or without separated insulated lightning protection system

V25-B+C 0-450PV

<table>
<thead>
<tr>
<th>Type</th>
<th>U max DC V</th>
<th>Version</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V25-B+C 0-450PV</td>
<td>450</td>
<td>1-pole, PV upper part with Y base to 900 V DC</td>
<td>1</td>
<td>9.500</td>
<td>5097085</td>
</tr>
</tbody>
</table>

- SPD to IEC 61643-11
- SPD to EN 61643-11
- Lightning protection zone LPZ 0→2
- Nominal discharge current (8/20) Iₘ₈₂₀ < 30 kA
- Impulse discharge current (10/350) Iₘᵢₙ ≤ 7 kA
- Maximum discharge current (8/20 μs) Iₘ₈₂₀ ≤ 50 kA
- Voltage protection level Uₚ ≤ 1.5 kV
- Response time tₐ ≤ 25 ns
- Maximum back-up fuse 160 A
- Temperature range 0 → 40°C - +80°C
- Protection rating IP 20
- Division unit TE (17.5 mm)

Always indicate the item number when ordering.
PV cover - surge arrester, type 2

V20-C 0-300PV
U max DC 300 V
Version 1-pole, PV upper part with Y base to 600 V DC

<table>
<thead>
<tr>
<th>Type</th>
<th>U max DC</th>
<th>Version</th>
<th>Pack. kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C 0-300PV</td>
<td>300 V</td>
<td>1-pole, PV upper part with Y base to 600 V DC</td>
<td>5.500 pcs.</td>
<td>5099611</td>
</tr>
</tbody>
</table>

V20-C...PV: SurgeController upper part, type 2, surge arrester for photovoltaic systems

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 40 kA (8/20) per pin
- Low DC protection level: < 1.3 kV per pole (Y circuit: 2.6 kV and Voc max = 600 V DC)
- Arrestor, connectable with thermodynamic cut-off unit and visual function display
- Encapsulated, non-extinguishing zinc oxide varistor arrester for use in distributor housings
- High current carrying capacity with long lifespan

Application example: PV systems with or without separated insulated lightning protection system

V20-C 0-300PV
U max DC Uc DC 300 V
SPD to EN 61643-11 Type 2
SPD to IEC 61643-11 Class II
Lightning protection zone LPZ 1→2
Nominal discharge current (8/20) I<sub>n</sub> 20 kA
Maximum discharge current (8/20 μs) I<sub>lim</sub> 40 kA
Voltage protection level U<sub>up</sub> < 1.3 kV
Response time t<sub>a</sub> < 25 ns
Maximum back-up fuse 125 A
Temperature range θ -40 - +80 °C
Protection rating IP 20
Division unit TE (17.5 mm) 1

Dimensions

Connection options

Always indicate the item number when ordering.
**PV cover - surge arrester, type 2**

- For surge voltage protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 40 kA (8/20) per pin
- Low DC protection level: < 1.3 kV per pole (Y circuit: 2.6 kV and Voc max = 600 V DC)
- Arrester, connectable with thermodynamic cut-off unit and visual function display
- Encapsulated, non-extinguishing zinc oxide varistor arrester for use in distributor housings
- High current carrying capacity with long lifespan

Application example: PV systems with or without separated insulated lightning protection system

**V20-C 0-500PV**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>U max DC</td>
<td>500 V DC</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class II</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1–2</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>20 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>40 kA</td>
</tr>
<tr>
<td>Voltage protection level</td>
<td>U &lt; 2.0 kV</td>
</tr>
<tr>
<td>Response time</td>
<td>t &lt; 25 ns</td>
</tr>
<tr>
<td>Maximum back-up fuse</td>
<td>125 A</td>
</tr>
<tr>
<td>Temperature range</td>
<td>0 –40 °C to +80 °C</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP 20</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>1</td>
</tr>
</tbody>
</table>

---

**PV lightning and surge protection upper parts**

**Surge protection, photovoltaics**

Always indicate the item number when ordering.
### PV base, 3-pole in Y circuit

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C U-3PH-Y</td>
<td>Bottom part for photovoltaic systems up to Uoc = 1,000 V (Y-circuit)</td>
<td>1</td>
<td>17.000</td>
<td>5096647</td>
</tr>
</tbody>
</table>

- Suitable for V 25-B+C upper parts type 1+2 combination arrester
- Suitable for V 20-C upper parts type 2 surge arrester
- Protection circuit against transverse and longitudinal voltages
- Y-protection circuit
- Low protection level < 4.0 kV (Uoc max = 1,000 V DC with V20-C/0-440)
- Low protection level < 3.0 kV (Uoc max = 900 V DC with V25-B+C/0-385)
- Low protection level < 2.6 kV (Uoc max = 600 V DC with V50-C/0-280)

**Indicated connectors**

**Application:** In photovoltaic systems between PH modules and inverters.

### PV base, 3-pole in Y circuit with remote signalling

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C U-3PH-Y-FS</td>
<td>Base for photovoltaic systems up to Voc=1,000 V (Y circuit)</td>
<td>1</td>
<td>25.000</td>
<td>5096646</td>
</tr>
</tbody>
</table>

- Suitable for V 50-B+C and V25-B+C upper parts, type 1+2 combination arrester
- Suitable for V 20-C upper parts, type 2, surge arrester
- Protection circuit against transverse and longitudinal voltages
- Y circuit
- Low protection level < 4.0 kV (Voc max = 1,000 V DC with V20-C/0-440)
- Low protection level < 3.0 kV (Voc max = 900 V DC with V25-B+C/0-385)
- Low protection level < 2.6 kV (Voc max = 600 V DC with V50-C/0-280)
- -FS with remote signalling, potential-free changeover contact, for function monitoring
- Labelled connections

**Application:** In photovoltaic systems between PH modules and inverters.

### PV base, 3-pole in Y circuit with remote signalling

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C U-3PH-Y-FS</td>
<td>Base for photovoltaic systems up to Voc=1,000 V (Y circuit)</td>
<td>1</td>
<td>25.000</td>
<td>5096646</td>
</tr>
</tbody>
</table>

- Suitable for V 50-B+C and V25-B+C upper parts, type 1+2 combination arrester
- Suitable for V 20-C upper parts, type 2, surge arrester
- Protection circuit against transverse and longitudinal voltages
- Y circuit
- Low protection level < 4.0 kV (Voc max = 1,000 V DC with V20-C/0-440)
- Low protection level < 3.0 kV (Voc max = 900 V DC with V25-B+C/0-385)
- Low protection level < 2.6 kV (Voc max = 600 V DC with V50-C/0-280)
- -FS with remote signalling, potential-free changeover contact, for function monitoring
- Labelled connections

**Application:** In photovoltaic systems between PH modules and inverters.

### PV base, 3-pole in Y circuit with remote signalling

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
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</thead>
<tbody>
<tr>
<td>V20-C U-3PH-Y-FS</td>
<td>Base for photovoltaic systems up to Voc=1,000 V (Y circuit)</td>
<td>1</td>
<td>25.000</td>
<td>5096646</td>
</tr>
</tbody>
</table>

- Suitable for V 50-B+C and V25-B+C upper parts, type 1+2 combination arrester
- Suitable for V 20-C upper parts, type 2, surge arrester
- Protection circuit against transverse and longitudinal voltages
- Y circuit
- Low protection level < 4.0 kV (Voc max = 1,000 V DC with V20-C/0-440)
- Low protection level < 3.0 kV (Voc max = 900 V DC with V25-B+C/0-385)
- Low protection level < 2.6 kV (Voc max = 600 V DC with V50-C/0-280)
- -FS with remote signalling, potential-free changeover contact, for function monitoring
- Labelled connections

**Application:** In photovoltaic systems between PH modules and inverters.

### PV base, 3-pole in Y circuit with remote signalling

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-C U-3PH-Y-FS</td>
<td>Base for photovoltaic systems up to Voc=1,000 V (Y circuit)</td>
<td>1</td>
<td>25.000</td>
<td>5096646</td>
</tr>
</tbody>
</table>

- Suitable for V 50-B+C and V25-B+C upper parts, type 1+2 combination arrester
- Suitable for V 20-C upper parts, type 2, surge arrester
- Protection circuit against transverse and longitudinal voltages
- Y circuit
- Low protection level < 4.0 kV (Voc max = 1,000 V DC with V20-C/0-440)
- Low protection level < 3.0 kV (Voc max = 900 V DC with V25-B+C/0-385)
- Low protection level < 2.6 kV (Voc max = 600 V DC with V50-C/0-280)
- -FS with remote signalling, potential-free changeover contact, for function monitoring
- Labelled connections

**Application:** In photovoltaic systems between PH modules and inverters.
PV surge protection V20, 600 V DC with remote signalling

V20 surge arrestor, type 2, for PV systems

- Complete unit, consisting of plug-in varistor arrestor with cut-off unit
- Error-resistant Y circuit for use according to VDE 0100-712 (EN 50539-12)
- For surge protection equipotential bonding to VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity to 40 kA (8/20) per pole
- Low DC protection level: < 2.6 kV (Voc max = 600 V DC)
- Arrestor, connectable with thermodynamic cut-off unit and visual function display
- Encapsulated, zinc oxide varistor arrestor for use in distributor housings

Application: PV systems with or without separate lightning protection system

### Dimensions

<table>
<thead>
<tr>
<th>Width</th>
<th>Height</th>
<th>Depth</th>
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</thead>
<tbody>
<tr>
<td>61.5</td>
<td>72</td>
<td>90</td>
</tr>
</tbody>
</table>

### Connection options

- 600 V
- Type 2
- Pole for PV systems: Y circuit with FS
- Connection cross-section rigid: 2.5 - 35 mm²
- Connection cross-section, multi-wire: 2.5 - 35 mm²
- Connection cross-section, flexible: 2.5 - 25 mm²

### V20-C 3PHFS-600

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
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<tbody>
<tr>
<td>U max DC</td>
<td>600 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 2</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1-2</td>
</tr>
<tr>
<td>Nominal discharge current (8/20) Iₜ</td>
<td>20 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs) Iₜ₉₀₀</td>
<td>40 kA</td>
</tr>
<tr>
<td>Voltage protection level Uᵢ</td>
<td>&lt; 2.6 kV</td>
</tr>
<tr>
<td>Response time tₜ</td>
<td>&lt; 25 ns</td>
</tr>
<tr>
<td>Temperature range θ</td>
<td>-40 - +80 °C</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP 20</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>4</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.

Item No.: 5094576

Pack. pcs.: 1

Weight kg/100 pcs.: 41.500

Connection options: 600 V 3-pole for PV systems; Y circuit with FS

---

**Specifications**

- Type 2 surge arrestor for PV systems
- Complete unit with plug-in varistor arrestor and cut-off unit
- Error-resistant Y circuit as per VDE 0100-712 (EN 50539-12)
- Conforms to surge protection equipotential bonding as per VDE 0100-443 (IEC 60364-4-44)
- Arresting capacity of 40 kA (8/20) per pole
- Low DC protection level at 600 V DC: < 2.6 kV
- Connectable with thermodynamic cut-off unit and visual function display
- Encapsulated zinc oxide varistor arrestor for use in distributor housings

**Application**

PV systems with or without separate lightning protection system

**Technical Details**

- U max DC: 600 V
- SPD to EN 61643-11: Type 2
- Lightning protection zone LPZ: 1-2
- Nominal discharge current (8/20): 20 kA
- Maximum discharge current (8/20 μs): 40 kA
- Voltage protection level: Uᵢ < 2.6 kV
- Response time: tₜ < 25 ns
- Temperature range: -40 - +80 °C
- Protection rating: IP 20
- Division unit TE (17.5 mm): 4
- Connection cross-section rigid: 2.5 - 35 mm²
- Connection cross-section, multi-wire: 2.5 - 35 mm²
- Connection cross-section, flexible: 2.5 - 25 mm²

**Ordering Information**

Always indicate the item number when ordering.

Item No.: 5094576

Pack. pcs.: 1

Weight kg/100 pcs.: 41.500

Connection options: 600 V 3-pole for PV systems; Y circuit with FS

---

**Diagram**

- Illustration of the PV surge protection V20, 600 V DC with remote signalling
- Diagram shows the components and connections

---

**Additional Information**

- CE marking indicates conformity with European directives
- EAL indicates electrical approval
- IEC denotes International Electrotechnical Commission standards
- V20 series for PV systems

---

**Notes**

- Always check compatibility and local regulations before installation
- Ensure proper installation and maintenance
- Consult technical manuals for detailed instructions
| Surge protection for telecommunication systems | 315 |
| Surge protection for LSA-Plus systems | 327 |
| Coaxial protection devices for high-frequency applications | 333 |
| Surge protection for network technology and CCTV camera systems | 348 |
| MCR protection 2-pole power supply | 363 |
| MCR protection FRD/FLD/TKS-B lightning protection barriers | 375 |
| MCR protection MDP, in series terminal format | 393 |
### Data technology, network technology and CCTV camera systems

#### Eth. RJ45
<table>
<thead>
<tr>
<th>Type</th>
<th>Item no.</th>
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<tr>
<td>CAT6A/E-A</td>
<td>5081800</td>
<td>348</td>
</tr>
<tr>
<td>ND-CAT6/E-F</td>
<td>5081802</td>
<td>354</td>
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<tr>
<td>ND-CAT6/E-B</td>
<td>5081804</td>
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#### BNC/CCTV

<table>
<thead>
<tr>
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<tbody>
<tr>
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<tr>
<td>Fine</td>
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<tr>
<td>Fine</td>
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#### RJ45/4-pole

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<td>RJ11</td>
<td>5081977</td>
<td>322</td>
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<td>RJ45</td>
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<td>5081984</td>
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#### PND combined protection device

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<td>C-RS</td>
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### Measurement and control technology

#### FRD

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<td>5098514</td>
<td>380</td>
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<tr>
<td>48</td>
<td>5098522</td>
<td>381</td>
</tr>
<tr>
<td>110</td>
<td>5098557</td>
<td>382</td>
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<td>48</td>
<td>5098522</td>
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#### FRD-2

<table>
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#### FLD

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<td>385</td>
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<tr>
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<td>5098611</td>
<td>386</td>
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<td>48</td>
<td>5098630</td>
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</tr>
<tr>
<td>110</td>
<td>5098646</td>
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</table>

#### MDP 2-pole

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
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#### MDP 3-pole

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#### MDP 4-pole

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<tbody>
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<td>5098450</td>
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#### MDP, 10 A, 2-pole

<table>
<thead>
<tr>
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<th>Item no.</th>
<th>Page</th>
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</thead>
<tbody>
<tr>
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<tr>
<td>24</td>
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#### MDP, 10 A, 4-pole

<table>
<thead>
<tr>
<th>Volts</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
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<td>12</td>
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<td>24</td>
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#### MDP EX 4-pole

<table>
<thead>
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<th>Volts</th>
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<tr>
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#### FDB 2-pole 24 V

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
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#### FDB 3-pole 24 V

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<tr>
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<tr>
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Always indicate the item number when ordering.
Telecommunications, fixed mounting

<table>
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<tr>
<th>Technology</th>
<th>Item no.</th>
<th>Page</th>
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<tbody>
<tr>
<td>VDSL</td>
<td>0-225</td>
<td>315</td>
</tr>
<tr>
<td>ISDN + Analogue</td>
<td>0-100</td>
<td>316</td>
</tr>
<tr>
<td>TAE</td>
<td>0-75</td>
<td>318</td>
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<tr>
<td>DIN rail</td>
<td>0-75</td>
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Telecommunications, cable adapter

<table>
<thead>
<tr>
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<tbody>
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<td>180</td>
<td>327</td>
</tr>
<tr>
<td>LSA basic + fine protection</td>
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<td>329</td>
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<tr>
<td></td>
<td>180</td>
<td>328</td>
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</table>

High-frequency technology, coaxial arrestors

<table>
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<tr>
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<th>Item no.</th>
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<td>BNC</td>
<td>M/F</td>
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<td>W/W</td>
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<td></td>
<td>M/M</td>
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<td>N</td>
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<td>W/W</td>
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</table>

Always indicate the item number when ordering.
Surge protection devices for telecommunications applications: The plus of the combination protection devices

+ Simple installation
+ Low protection level
+ High arresting capability
+ High bandwidth
+ Wide range of uses

The data cable protection devices for telecommunications applications are available as combination protection and fine protection. Depending on the application, from DSL through to analogue communication, the devices are used for direct intermediate switching into the data cable, meaning that they can easily be retrofitted in existing installations. The devices differ in their connection technology and transmission cable and are thus optimised for their appropriate applications, in order to cause the lowest attenuation level possible.

Combined protection device for VDSL, ISDN and DSL systems

Always indicate the item number when ordering.
## Combination protection device for VDSL systems

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Highest continuous voltage DC V</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TD-2D-V</td>
<td>125</td>
<td>180</td>
<td>2</td>
<td>Terminal</td>
<td>9.500</td>
<td>5081698</td>
</tr>
</tbody>
</table>

Plastic

Data cable protection device for telecommunications equipment

- Low protection level at a high current load
- "Push-in" clamps for quick installation
- Bandwidth-optimised for secure transmission up to 225 MHz
- Surface mounting

Application: Ideal for all DSL systems, IP connections, ISDN or analogue telecommunications

### TD-2D-V

- **Maximum continuous voltage AC** $U_c$: 125 V
- **Maximum continuous voltage DC** $U_c$: 180 V
- **Category**: Type 1+2+3 / D1+2+C1
- **Number of poles**: 2
- **Rated current** $I$: 0.5 A
- **Capacity (wire-wire)**: <10 pF
- **Capacity (wire-earth)**: <20 pF
- **Series resistance per wire**: $2.2 \Omega \pm 5 \%$
- **Impulse durability wire-wire**: C2: 15 kV / 7,5 kA (8/20µs)
- **Impulse durability wire-earth**: C2: 15 kV / 7,5 kA (8/20µs)
- **Impulse discharge current (10/350)** $I_{imp}$: 2,5 kA
- **Total discharge current (8/20)**: 22,5 kA
- **Total discharge current (10/350)**: D1: 7,5 kA
- **Protection level wire-wire**: <350 V
- **Protection level wire-earth**: <600 V
- **Protection level shield-earth (S-PE)**: 1 – V
- **Frequency range**: 0 – 225 MHz
- **Insertion loss** $S_{21}$: ≤3 dB
- **Temperature range**: -40 – +80 °C
- **Installation type**: Surface-mounted
- **Connection system**: Terminal
- **Protection rating**: IP54
- **Shielding connection available**: Yes
- **Connection cross-section, flexible**: 0.14 – 1 mm²
- **Connection cross-section, multi-wire**: 0.14 – 1 mm²
- **Connection cross-section rigid**: 0.08 – 1.5 mm²
- **Testing standard**: IEC 61643-21

---

Always indicate the item number when ordering.
Combination protection device TD-4/I for ISDN and DSL systems

Data cable protection device for telecommunications equipment

- Low protection level at a high current load
- "Push-in" terminals for quick installation
- Bandwidth-optimised for secure transmission
- Surface mounting
- Visual function display

Application: DSL systems, IP connections, ISDN or analogue telecommunications

**TD-4/I**

| Maximum continuous voltage AC \( U_{AC} \) | 120 V |
| Maximum continuous voltage DC \( U_{DC} \) | 170 V |
| Category | Type 1+2+3 / D1+C2+C1 |
| Number of poles | 4 |
| Rated current | ≤ 0.2 A |
| Capacity (wire-wire) | < 50 pF |
| Capacity (wire-earth) | < 10 pF |
| Series resistance per wire | ≤ 0.15 Ω |
| Impulse durability wire-wire | C2: 18 kV / 9 kA \( (8/20\mu s) \) |
| Impulse durability wire-earth | C2: 18 kV / 9 kA \( (8/20\mu s) \) |
| Impulse discharge current \( (10/350) \) | \( I_{lim} \) 2.5 kA |
| Total discharge current \( (8/20) \) | 25 kA |
| Total discharge current \( (10/350) \) | D1: 12.5 kA |
| Protection level wire-wire | ≤ 300 V |
| Protection level wire-earth | ≤ 650 V |
| Protection level shield-earth (S-PE) | 850 V |
| Frequency range | 0 – 100 MHz |
| Insertion loss | \( S_{21} \) ≤ 3 dB |
| Temperature range | \( \theta \) -40...+80 °C |
| Installation type | Surface-mounted |
| Connection system | Terminal |
| Protection rating | IEP54 |
| Shielding connection available | Yes |
| Connection cross-section, flexible | 0.14...0.75 mm² |
| Connection cross-section, multi-wire | 0.14...0.75 mm² |
| Connection cross-section rigid | 0.14...0.75 mm² |
| Testing standard | IEC 61643-21 |

Always indicate the item number when ordering.
Combination protection device for ISDN and DSL systems

| Type             | Highest continuous voltage AC V | Highest continuous voltage DC V | Number of poles | Connec- | Pack. | Weight kg/100 pcs. | Item No. |
|------------------|--------------------------------|--------------------------------|-----------------|system   | pcs.  |-------------------|----------|
| TD-41-TAE-F      | 170                            | 120                            | 4               | Terminal| 1     | 12.300             | 5081692  |

Plastic

Data cable protection device for telecommunications equipment

- Low protection level at a high current load
- "Push-in" terminals for quick installation
- Bandwidth-optimised for secure transmission
- Preinstalled TAE socket for Plug & Play
- Surface mounting
- Visual function display

Application: DSL systems, IP connections, ISDN or analogue telecommunications

**TD-41-TAE-F**

- Maximum continuous voltage AC \( U_c \): 120 V
- Maximum continuous voltage DC \( U_c \): 170 V
- Category: Type 1+2+3 / D1+C2+C1
- Number of poles: 4
- Rated current \( I \): 0.2 A
- Capacity (wire-wire): <50 pF
- Capacity (wire-earth): <10 pF
- Series resistance per wire: 9 Ω ± 10 %
- Impulse durability wire-wire: C2: 18 kV / 9 kA (8/20µs)
- Impulse durability wire-earth: C2: 18 kV / 9 kA (8/20µs)
- Impulse discharge current (10/350): \( I_{imp} \): 2.5 kA
- Total discharge current (8/20): 25 kA
- Total discharge current (10/250): \( D_1 \): 12.5 kA
- Protection level wire-wire: <300 V
- Protection level wire-earth: <650 V
- Protection level shield-earth (S-PE): 850 V
- Frequency range: 0 - 100 MHz
- Insertion loss \( S_{21} \): ≤3 dB
- Temperature range: -40°C to +80°C
- Installation type: Surface-mounted
- Connection system: Terminal
- Protection rating: IP20
- Shielding connection available: Yes
- Connection cross-section, flexible: 0.14 - 0.75 mm²
- Connection cross-section, multi-wire: 0.14 - 0.75 mm²
- Connection cross-section rigid: 0.14 - 0.75 mm²
- Testing standard: IEC 61643-21

Always indicate the item number when ordering.
Combination protection device TD-2/D-HS for ISDN and DSL systems

- Low protection level at high current load
- Screwless terminals or connectable
- Bandwidth-optimised for secure transmission
- Quick mounting onto DIN rail for a telephone line
- Visual function display

Application: DSL systems, ISDN or analogue telecommunication

<table>
<thead>
<tr>
<th>Type</th>
<th>Maximum continuous voltage AC $U_{AC}$</th>
<th>Maximum continuous voltage DC $U_{DC}$</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TD-2/D-HS</td>
<td>120 V</td>
<td>170 V</td>
<td>2</td>
<td>Terminal</td>
<td>1</td>
<td>4.800</td>
<td>5081694</td>
</tr>
</tbody>
</table>

Plastic

Data cable protection devices for telecommunication systems

Testing standard: IEC 61643-21

<table>
<thead>
<tr>
<th>Connection options</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge protection devices for telecommunications applications: The plus of the fine protection devices RJ11-Tele and RJ45 Tele

+ Simple installation
+ Low protection level
+ High arresting capability
+ High bandwidth
+ Wide range of uses

Function and applications
The data cable protection devices for telecommunications applications are available as combination protection and fine protection. Depending on the application, from DSL through to analogue communication, the devices are used for direct intermediate switching into the data cable, meaning that they can easily be retrofitted in existing installations. The devices differ in their connection technology and transmission cable and are thus optimised for their appropriate applications, in order to cause the lowest attenuation level possible.

Combination and fine protection device for analogue cables

Always indicate the item number when ordering.
Combination protection device TELE 4-C for ISDN RJ11

Data line protection device for analogue telecommunications systems

- In aluminium housing
- With 2-stage protection circuit
- Simple mounting
- Incl. 150 mm connection cable with RJ11 and/or RJ45 connectors
- Optimised bandwidth for TC systems
- DIN rail mounting with DLS-BS accessories (5082 38 2)

Application: For analogue telecommunication systems

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>RJ11-TELE 4-C</td>
</tr>
<tr>
<td>Version</td>
<td>RJ11</td>
</tr>
<tr>
<td>Number of poles</td>
<td>4</td>
</tr>
<tr>
<td>Series resistance per wire</td>
<td>8.2 Ω ± 10 %</td>
</tr>
<tr>
<td>Maximum continuous voltage AC</td>
<td>U_L = 120 V</td>
</tr>
<tr>
<td>Maximum continuous voltage DC</td>
<td>U_L = 170 V</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>Type 1+2+3 / D1+C2+C1</td>
</tr>
<tr>
<td>Total discharge current (8/20)</td>
<td>4 kA</td>
</tr>
<tr>
<td>Total discharge current (10/350)</td>
<td>1.5 kA</td>
</tr>
<tr>
<td>Protection level wire-earth</td>
<td>≤600 V</td>
</tr>
<tr>
<td>Protection level, wire-earth at 1 kV/µs (C3)</td>
<td>U_L &lt; 245 V</td>
</tr>
<tr>
<td>Frequency range</td>
<td>0 - 12 MHz</td>
</tr>
<tr>
<td>Insertion loss</td>
<td>S21 ≤ 3 dB</td>
</tr>
<tr>
<td>Temperature range</td>
<td>0 - 80 °C</td>
</tr>
<tr>
<td>Installation type</td>
<td>Connector/cable adapter</td>
</tr>
<tr>
<td>Connection system</td>
<td>RJ11</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP40</td>
</tr>
<tr>
<td>Earthing via</td>
<td>Connection cable</td>
</tr>
<tr>
<td>Testing standard</td>
<td>IEC 61643-21</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Surge protection for telecommunication systems

Fine protection device TELE 4-F for ISDN RJ11

Data line protection device for analogue telecommunications systems

- In aluminium housing
- With 2-stage protection circuit
- Simple mounting
- Incl. 150 mm connection cable with RJ11 and/or RJ45 connectors
- Optimised bandwidth for TC systems
- DIN rail mounting with DLS-BS accessories (5082 38 2)

Application: For analogue telecommunication systems

**Dimensions**

**Connection options**

**RJ11-TELE 4-F**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum continuous voltage AC</td>
<td>120 V</td>
</tr>
<tr>
<td>Maximum continuous voltage DC</td>
<td>170 V</td>
</tr>
<tr>
<td>Category</td>
<td>Type 2+3 / C2+C1</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>1-3</td>
</tr>
<tr>
<td>Number of poles</td>
<td>4</td>
</tr>
<tr>
<td>Series resistance per wire</td>
<td>2.2 Ω ± 10 %</td>
</tr>
<tr>
<td>Total discharge current (8/20)</td>
<td>4 kA</td>
</tr>
<tr>
<td>Total discharge current (10/350)</td>
<td>1 kA</td>
</tr>
<tr>
<td>Protection level wire-wire</td>
<td>&lt;300 V</td>
</tr>
<tr>
<td>Protection level wire-earth</td>
<td>&lt;600 V</td>
</tr>
<tr>
<td>Protection level, wire-earth at 1 kV/µs (C3)</td>
<td>&lt;245 V</td>
</tr>
<tr>
<td>Frequency range</td>
<td>0 - 18 MHz</td>
</tr>
<tr>
<td>Insertion loss</td>
<td>&lt;3 dB</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40 - +80 °C</td>
</tr>
<tr>
<td>Installation type</td>
<td>Connector/cable adapter</td>
</tr>
<tr>
<td>Connection system</td>
<td>RJ11</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP40</td>
</tr>
<tr>
<td>Earthing via</td>
<td>Connection cable</td>
</tr>
<tr>
<td>Testing standard</td>
<td>IEC 61643-21</td>
</tr>
</tbody>
</table>

**Connection options**

*Fine protection, 4 wires* | *RJ11* | *Pack.* | *Weight* | *Item No.* |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>RJ11-TELE 4-F</td>
<td>Fine protection, 4 wires</td>
<td>RJ11</td>
<td>1</td>
<td>14.000</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Combination protection device TELE 4-C for ISDN RJ45

Data line protection device for analogue telecommunications systems

- In aluminium housing
- With 2-stage protection circuit
- Simple mounting
- Incl. 150 mm connection cable with RJ11 and/or RJ45 connectors
- Optimised bandwidth for TC systems
- DIN rail mounting with DLS-BS accessories (5082 38 2)

Application: For analogue telecommunication systems

<table>
<thead>
<tr>
<th>Type</th>
<th>Connection system</th>
<th>Weight kg/100 pcs</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RJ45-TELE 4-C</td>
<td>Combi protection, 4 wires</td>
<td>14.000</td>
<td>1</td>
<td>5081982</td>
</tr>
</tbody>
</table>

**RJ45-TELE 4-C**

- Maximum continuous voltage AC: $U_c = 120$ V
- Maximum continuous voltage DC: $U_c = 170$ V
- Category: Type 1+2+3 / D1+C2+C1
- Lightning protection zone LPZ: 0→3
- Number of poles: 4
- Series resistance per wire: $8.2 \Omega \pm 10\%$
- Total discharge current (8/20): 4 kA
- Total discharge current (10/350): 1.5 kA
- Protection level wire-earth: $<300$ V
- Protection level, wire-earth at 1 kV/µs (C3): $U_e < 245$ V
- Frequency range: 0 - 12 MHz
- Insertion loss: $S_{21} < 3$ dB
- Temperature range: $0 - +80$ °C
- Installation type: Connector/cable adapter
- Connection system: RJ45
- Protection rating: IP40
- Earthing via: Connection cable
- Testing standard: IEC 61643-21

Always indicate the item number when ordering.
Fine protection device TELE 4-F for ISDN RJ45

Data line protection device for analogue telecommunications systems

- In aluminium housing
- With 2-stage protection circuit
- Simple mounting
- Incl. 150 mm connection cable with RJ11 and/or RJ45 connectors
- Optimised bandwidth for TC systems
- DIN rail mounting with DLS-BS accessories (5082 38 2)

Application: For analogue telecommunication systems

---

**Dimensions**

**Connection options**

**Surge protection for telecommunication systems**

---

**Surge protection, data and information technology**
Surge protection devices for industrial telecommunications applications

- Simple installation
- Protection up to ten two-core wires
- Low protection level
- High arresting capacity
- High broadband in basic protection
- Wide range of uses

In particular with multi-wire cable systems, such as telecommunications distribution systems, the LSA surge voltage components offer rapid, adequate protection. The LSA system offers both basic protection modules and fine protection modules to protect up to ten two-core wires per connection strip. These are split up into separating and connection strips and must be selected according to the application.

LSA-Plus technology
Basic and fine protection

Always indicate the item number when ordering.
LSA-B-MAG: LSA basic protection magazine for use in multi-core data cable systems, MCR systems and telephone switchboards.

- Basic protection
- Equipped with 20 gas charge tubes
- Max. voltage: 180 V

Application: Directly on LSA-Plus separating strips or connection strips (e.g. OBO LSA-A-LEI (5084 00 8) or OBO LSA-T-LEI (5084 01 2)).

**LSA-B-MAG**

<table>
<thead>
<tr>
<th>Type</th>
<th>Installation type</th>
<th>Number of poles</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSA-B-MAG</td>
<td>LSA-Plus, connectable</td>
<td>20</td>
<td>8.600</td>
<td>5084020</td>
</tr>
</tbody>
</table>

**Dimensions**

**Connection options**

**LSA-B-MAG**

- Maximum continuous voltage AC $U_{IC}$: 120 V
- Maximum continuous voltage DC $U_{IC}$: 180 V
- Lightning protection zone LPZ: 0→2
- Number of poles: 20
- Rated current: 1 A
- Impulse durability wire-wire: C2: 10 kV / 5 kA (8/20µs)
- Impulse durability wire-earth: C2: 10 kV / 5 kA (8/20µs)
- Total discharge current (8/20): 10 kA
- Total discharge current (10/350): 1 kA
- Protection level @ C1: <750 V
- Temperature range: -40 → +80 °C
- Installation type: LSA-Plus, connectable
- Connection system: Other
- Protection rating: IP20
- Testing standard: IEC 61643-21

Always indicate the item number when ordering.
Combination protection device LSA BF 180

- Basic and fine protection
- Rough protection using fail-safe technology.
- With PTC protection components against overcurrent.
- Max. voltage: 24 V

Application: Directly on LSA-Plus barrier strip or connection rails with earthing rail (e.g. OBO LSA-A-LEI (5084 00 8) or OBO LSA-T-LEI (5084 01 2), and OBO LSA-E (5084 03 2))

LSA-BF-180

- Maximum continuous voltage AC: $U_{\text{IL}}$: 120 V
- Maximum continuous voltage DC: $U_{\text{IL}}$: 180 V
- Category: Type 1+2+3 / D1+C2+C1
- Number of poles: 2
- Rated current: $I_{\text{IL}}$: 0.12 A
- Impulse durability wire-wire: $C_2$: 5 kV / 2.5 kA (8/20 µs)
- Impulse durability wire-earth: $C_2$: 5 kV / 2.5 kA (8/20 µs)
- Total discharge current (8/20): 5 kA
- Total discharge current (10/350): 0.5 kA
- Protection level wire-wire: <300 V
- Protection level wire-earth: <300 V
- Temperature range: $T$: -40 ... +80 °C
- Installation type: LSA-Plus, connectable
- Connection system: Other
- Protection rating: IP20
- Testing standard: IEC 61643-21

Dimensions

Connection options

Always indicate the item number when ordering.
Combination protection device LSA BF 24

<table>
<thead>
<tr>
<th>Type</th>
<th>Installation type</th>
<th>Number of poles</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSA-BF-24</td>
<td>LSA-Plus, connectable</td>
<td>2</td>
<td>1</td>
<td>0.500</td>
<td>5084028</td>
</tr>
</tbody>
</table>

LSA-BF 24: LSA basic and fine protection, for application in MCR systems

- Basic and fine protection
- Rough protection using fail-safe technology.
- With PTC protection components against overcurrent.
- Max. voltage: 24 V

Application: Directly on LSA-Plus barrier strip or connection rails with earthing rail (e.g. OBO LSA-A-LEI (5084 00 8) or OBO LSA-T-LEI (5084 01 2), and OBO LSA-E (5084 03 2))

### LSA-BF-24

- Maximum continuous voltage AC $U_{AC}$: 15 V
- Maximum continuous voltage DC $U_{DC}$: 24 V
- Lightning protection zone LPZ: 0→3
- Number of poles: 2
- Rated current: $I_{R}$: 0.12 A
- Impulse durability wire-wire: $C_2$: 5 kV / 2.5 kA (8/20μs)
- Impulse durability wire-earth: $C_2$: 5 kV / 2.5 kA (8/20μs)
- Total discharge current (8/20): 5 kA
- Total discharge current (10/350): 0.5 kA
- Protection level wire-wire: $<70$ V
- Protection level wire-earth: $<70$ V
- Temperature range: $-40$→$+80$ °C
- Installation type: LSA-Plus, connectable
- Connection system: Other
- Protection rating: IP20
- Testing standard: IEC 61643-21

Surge protection, data and information technology

Always indicate the item number when ordering.
Surge protection for LSA-Plus systems

LSA connection strip

- **LSA-A-LEI**
  - Colour: grey
  - Pack. pcs: 1
  - Item No.: 5084008
  - Weight kg/100 pcs.: 5.100

  - For use with protection element LSA-B-MAG
  - Fastening to mounting trough LSA-M
  - Colour: grey
  - Clampable cross-sections 0.14-0.5 (AWG 26 to 20)

LSA separating strip

- **LSA-T-LEI**
  - Colour: white
  - Pack. pcs: 1
  - Item No.: 5084012
  - Weight kg/100 pcs.: 5.400

  LSA-T-LEI: LSA separating strip 2/10 for attaching up to ten double-cores.
  - For use with protection element LSA-BF-180, LSA-BF-24, LSA-B-MAG
  - Fastening to mounting trough LSA-M
  - Colour: white
  - Clampable cross-sections 0.14-0.5 (AWG 26 to 20)

LSA earthing strip

- **LSA-E-LEI**
  - Colour: red
  - Pack. pcs: 1
  - Item No.: 5084016
  - Weight kg/100 pcs.: 6.500

  LSA-E-LEI: LSA earthing strip, 40-pin for attaching earth lines or screens to the earth connection.
  - Complete with connection line, green-yellow, 1.5 mm²
  - Colour: red

LSA earthing rail

- **LSA-E**
  - Pack. pcs: 1
  - Item No.: 5084032
  - Weight kg/100 pcs.: 1.000

  LSA-E: Earth rail as earth connection between overvoltage protectors LFS-BF... (1 DA) and distributor connector LSA-...-LEI.

LSA installation trough

- **LSA-M**
  - Steel
  - Pack. pcs: 1
  - Item No.: 5084036
  - Weight kg/100 pcs.: 7.800

  LSA-M: Installation trough for 5 connection or separating strips. Grid 22.5 mm.
  - Depth: 22 mm; 30 mm; 50 mm

Always indicate the item number when ordering.
LSA simple tool

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSA-TOOL</td>
<td>1</td>
<td>0.600</td>
<td>5084040</td>
</tr>
</tbody>
</table>

LSA-TOOL: Simple tool for soldering, bolting and stripping-free connection of cores, without cutter.

LSA protective housing

<table>
<thead>
<tr>
<th>Colour</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSA-G</td>
<td>1</td>
<td>57.500</td>
<td>5084048</td>
</tr>
</tbody>
</table>

Polyamide

Protective housing for a LSA 10 DA bar

- Protective housing for 10 wire pairs
- Housing can be locked
- Incl. key
- 4x cable fixing
- Light grey

Always indicate the item number when ordering.
Surge protection for high frequency applications: the plus of the DS family

- Coaxial protection devices
- Optimum protection for sensitive systems
- Low insertion attenuation and low return loss at different wave resistances
- High bandwidth

The coaxial protection devices of type DS offer optimum protection of sensitive systems, based on coaxial plug connections. The low insertion attenuation and low return attenuation at different wave resistances offer ideal protection for any application. In accordance with their structure, the protection devices are switched into the application in series, and are connected to the local equipotential bonding. The direct shield earthing avoids reducing of the shield performance.

Always indicate the item number when ordering.
## Coaxial protection devices for S-UHF connection: male/female

<table>
<thead>
<tr>
<th>Type</th>
<th>Frequency range</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-UHF M/W</td>
<td>0 - 1,3 GHz</td>
<td>1</td>
<td>7.000</td>
<td>5093023</td>
</tr>
</tbody>
</table>

### Coaxial data cable protection devices

- Basic protection
- High pulsed current carrying capacity 2 x 2.5 kA (10/350 µs)
- Simple installation (adapter plug), m = male, f = female connector
- Various plug combinations
- With UHF connector
- Optimised transmission behaviour
- Including OBO M25 Quick clip for simple installation

### S-UHF M/W

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum continuous voltage AC Uₜ</td>
<td>130 V</td>
</tr>
<tr>
<td>Maximum continuous voltage DC Uₜ</td>
<td>185 V</td>
</tr>
<tr>
<td>Category</td>
<td>Type 1+2 / D1+C2</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>0→2</td>
</tr>
<tr>
<td>Number of poles</td>
<td>1</td>
</tr>
<tr>
<td>Rated current Iₚ</td>
<td>10 A</td>
</tr>
<tr>
<td>Wave resistance Z_s</td>
<td>50 Ω</td>
</tr>
<tr>
<td>Impulse durability wire-earth</td>
<td>C₂: 10 kV / 5 kA (8/20 µs)</td>
</tr>
<tr>
<td>Impulse discharge current (10/350) Iₚₙₗₙ</td>
<td>2.5 kA</td>
</tr>
<tr>
<td>Total discharge current (8/20) Iₚₚₙ</td>
<td>10 kA</td>
</tr>
<tr>
<td>Total discharge current (10/350) Iₚₚₚₚ</td>
<td>5 kA</td>
</tr>
<tr>
<td>Protection level</td>
<td>&lt;800 V</td>
</tr>
<tr>
<td>Frequency range</td>
<td>0 - 1,3 GHz</td>
</tr>
<tr>
<td>Insertion loss S₁</td>
<td>≤0.2 dB</td>
</tr>
<tr>
<td>Return loss S₂</td>
<td>≥14 dB</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40 - +80 °C</td>
</tr>
<tr>
<td>Installation type</td>
<td>Connector/cable adapter</td>
</tr>
<tr>
<td>Connection system</td>
<td>UHF</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP40</td>
</tr>
<tr>
<td>Shielding connection available</td>
<td>Yes</td>
</tr>
<tr>
<td>Shield connection</td>
<td>Direct</td>
</tr>
<tr>
<td>Testing standard</td>
<td>IEC 61643-21</td>
</tr>
</tbody>
</table>

### Dimensions

- Dimensions: [Dimensions Image]

### Connection options

- Connection options: [Connection Options Image]

Always indicate the item number when ordering.
Coaxial protection devices for S-UHF connection: female/female

Coaxial data cable protection devices

- Basic protection
- High pulsed current carrying capacity 2 x 2.5 kA (10/350 µs)
- Simple installation (adapter plug), m = male/ f = female connector
- Various plug combinations
- With UHF connector
- Optimised transmission behaviour
- Including OBO M25 Quick clip for simple installation

### Dimensions

- 25 mm
- 65 mm

### Connection options

<table>
<thead>
<tr>
<th>Type</th>
<th>Frequency range</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-UHF W/W</td>
<td>0 - 1.3 GHz</td>
<td>1</td>
<td>7.000</td>
<td>5093015</td>
</tr>
</tbody>
</table>

S-UHF W/W

- Maximum continuous voltage AC $U_{AC}$: 130 V
- Maximum continuous voltage DC $U_{DC}$: 185 V
- Category: Type 1+2 / D1+C2
- Lightning protection zone LPZ 0→2
- Number of poles: 1
- Rated current $I$: 10 A
- Wave resistance $Z$: 50 Ω
- Impulse durability wire-earth $C_2$: 10 kV / 5 kA (8/20µs)
- Impulse durability wire-earth $C_2$: 10 kV / 5 kA (8/20µs)
- Impulse discharge current (10/350) $I_{imp}$: 2.5 kA
- Total discharge current (8/20):<br>$I_{imp}$: 10 kA
- Total discharge current (10/350):<br>$I_{imp}$: 5 kA
- Protection level: <800 V
- Frequency range 0 - 1.3 GHz
- Insertion loss $S_2$: ≤0,2 dB
- Return loss $S_1$: ≥14 dB
- Temperature range: $-40$ to $+80$ °C
- Installation type: Connector/cable adapter
- Connection system: UHF
- Protection rating: IP40
- Shielding connection available: Yes
- Shield connection: Direct
- Testing standard: IEC 61643-21

Always indicate the item number when ordering.
Coaxial protection devices for transmission and receiving technology

Coaxial protection device for BNC connection: male/female

<table>
<thead>
<tr>
<th>Type</th>
<th>Frequency range</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS-BNC M/W</td>
<td>0 - 2,2 GHz</td>
<td>6.500</td>
<td>5093252</td>
</tr>
</tbody>
</table>

Coaxial data cable protection devices

- Basic protection
- High pulsed current carrying capacity 2 x 2.5 kA (10/350 µs)
- Simple installation (adapter plug), m = plug, f = female connector
- Various plug combinations
- With BNC connector
- Optimised transmission behaviour
- Including OBO M25 Quick clip for simple installation

<table>
<thead>
<tr>
<th>DS-BNC M/W</th>
<th>Maximum continuous voltage AC $U_{AC}$</th>
<th>130 V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maximum continuous voltage DC $U_{DC}$</td>
<td>185 V</td>
</tr>
<tr>
<td>Category</td>
<td>Lightning protection zone LPZ</td>
<td>Type 1+2 / D1+C2</td>
</tr>
<tr>
<td>Number of poles</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Rated current $I_r$</td>
<td></td>
<td>10 A</td>
</tr>
<tr>
<td>Wave resistance $Z_w$</td>
<td></td>
<td>50 Ω</td>
</tr>
<tr>
<td>Impulse durability wire-wire $I_{imp}$</td>
<td>C2: 10 kV / 5 kA (8/20µs)</td>
<td></td>
</tr>
<tr>
<td>Impulse durability wire-earth $I_{imp}$</td>
<td>C2: 10 kV / 5 kA (8/20µs)</td>
<td></td>
</tr>
<tr>
<td>Impulse discharge current (10/350) $I_{max}$</td>
<td>2.5 kA</td>
<td></td>
</tr>
<tr>
<td>Total discharge current (8/20) $I_{max}$</td>
<td>10 kA</td>
<td></td>
</tr>
<tr>
<td>Total discharge current (10/350) $I_{max}$</td>
<td>5 kA</td>
<td></td>
</tr>
<tr>
<td>Protection level $I_{max}$</td>
<td>≤800 V</td>
<td></td>
</tr>
<tr>
<td>Frequency range $f$</td>
<td>0 - 2,2 GHz</td>
<td></td>
</tr>
<tr>
<td>Insertion loss $S_{il}$</td>
<td>≤0.95 dB</td>
<td></td>
</tr>
<tr>
<td>Return loss $S_{rl}$</td>
<td>≥14 dB</td>
<td></td>
</tr>
<tr>
<td>Temperature range $T$</td>
<td>-40 - +80 °C</td>
<td></td>
</tr>
<tr>
<td>Installation type</td>
<td>Connector/cable adapter</td>
<td></td>
</tr>
<tr>
<td>Connection system</td>
<td>BNC</td>
<td></td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP40</td>
<td></td>
</tr>
<tr>
<td>Shielding connection available</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Shield connection</td>
<td>Direct</td>
<td></td>
</tr>
<tr>
<td>Testing standard</td>
<td>IEC 61643-21</td>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Coaxial protection device for BNC connection: female/female

- Basic protection
- High pulsed current carrying capacity 2 x 2.5 kA (10/350 µs)
- Simple installation (adapter plug), m = plug, f = female connector
- Various plug combinations
- With BNC connector
- Optimised transmission behaviour
- Including OBO M25 Quick clip for simple installation

Dimensions

Connection options

DS-BNC W/W

<table>
<thead>
<tr>
<th>Maximum continuous voltage AC</th>
<th>U_{AC}</th>
<th>130 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum continuous voltage DC</td>
<td>U_{DC}</td>
<td>185 V</td>
</tr>
<tr>
<td>Category</td>
<td>Type</td>
<td>1+2 / D1+C2</td>
</tr>
<tr>
<td>Lightning protection zone</td>
<td>LPZ</td>
<td>0-2</td>
</tr>
<tr>
<td>Number of poles</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Rated current</td>
<td>I_{ill}</td>
<td>10 A</td>
</tr>
<tr>
<td>Wave resistance</td>
<td>Z_{in}</td>
<td>50 Ω</td>
</tr>
<tr>
<td>Impulse durability wire-wire</td>
<td>C2: 10 kV / 5 kA (8/20µs)</td>
<td></td>
</tr>
<tr>
<td>Impulse durability wire-earth</td>
<td>C2: 10 kV / 5 kA (8/20µs)</td>
<td></td>
</tr>
<tr>
<td>Impulse discharge current (10/350)</td>
<td>I_{(10/350)}</td>
<td>2.5 kA</td>
</tr>
<tr>
<td>Total discharge current (8/20)</td>
<td>I_{(8/20)}</td>
<td>10 kA</td>
</tr>
<tr>
<td>Total discharge current (10/350)</td>
<td>I_{(10/350)}</td>
<td>5 kA</td>
</tr>
<tr>
<td>Protection level</td>
<td></td>
<td>&lt;800 V</td>
</tr>
<tr>
<td>Frequency range</td>
<td></td>
<td>0 - 2.2 GHz</td>
</tr>
<tr>
<td>Insertion loss</td>
<td>S_{21}</td>
<td>≤0,95 dB</td>
</tr>
<tr>
<td>Return loss</td>
<td>S_{11}</td>
<td>≥14 dB</td>
</tr>
<tr>
<td>Temperature range</td>
<td></td>
<td>-40 → +80 °C</td>
</tr>
</tbody>
</table>

Testing standard

| IEC 81643-21 |
Coaxial protection devices for transmission and reception technology

Coaxial protection device for BNC connection: male/male

### Specifications:

<table>
<thead>
<tr>
<th>Type</th>
<th>Frequency range</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS-BNC M/M</td>
<td>0 - 2.2 GHz</td>
<td>7.000</td>
<td>5093260</td>
</tr>
</tbody>
</table>

Coaxial data cable protection devices

- Basic protection
- High pulsed current carrying capacity 2 x 2.5 kA (10/350 µs)
- Simple installation (adapter plug), m = plug f = female connector
- Various plug combinations
- With BNC connector
- Optimised transmission behaviour
- Including OBO M25 Quick clip for simple installation

### Technical Data:

- **DS-BNC M/M**
  - Maximum continuous voltage AC: U_\text{AC} = 130 V
  - Maximum continuous voltage DC: U_\text{DC} = 185 V
  - Category: Type 1+2 / D1+C2
  - Number of poles: 1
  - Rated current: I_r = 10 A
  - Wave resistance: Z_\text{e} = 50 Ω
  - Impulse durability wire-wire: C2: 10 kV / 5 kA (8/20µs)
  - Impulse durability wire-earth: C2: 10 kV / 5 kA (8/20µs)
  - Impulse discharge current (10/350): I_{\text{imp}} = 2.5 kA
  - Total discharge current (8/20): I_{\text{disch}} = 10 kA
  - Total discharge current (10/350): I_{\text{disch}} = 5 kA
  - Protection level: P < 800 V
  - Frequency range: \text{f} = 0 - 2.2 GHz
  - Insertion loss: S_{21} = ≤ 0.95 dB
  - Return loss: S_{11} = ≥ 14 dB
  - Temperature range: \text{T} = -40 - +80 °C
  - Installation type: Connector/cable adapter
  - Connection system: BNC
  - Protection rating: IP40
  - Shielding connection available: Yes
  - Shield connection: Direct
  - Testing standard: IEC 61643-21

---

Always indicate the item number when ordering.
Coaxial protection devices for transmission and reception technology

Coaxial protection device for N connection: male/female

- High pulsed current carrying capacity 2 x 2.5 kA (10/350)
- Simple mounting (adapter plug), m = plug® = female connector
- Optimised transmission behaviour
- 5-year guarantee
- With N connector
- Including OBO M25 Quick clip for simple installation

Dimensions

DS-N M/W

<table>
<thead>
<tr>
<th>Type</th>
<th>Frequency range</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS-N M/W</td>
<td>0 - 3 GHz</td>
<td>1</td>
<td>5093996</td>
</tr>
</tbody>
</table>

Coaxial data cable protection devices

- Connection system
- Frequency range
- Item No.

Connection options

DS-N M/W

- Maximum continuous voltage AC: Uc = 130 V
- Maximum continuous voltage DC: Uc = 185 V
- Category: Type 1+2 / D1+C2
- Lightning protection zone LPZ: 0-2
- Number of poles: 1
- Rated current: I = 10 A
- Wave resistance: Z = 50 Ω
- Impulse durability wire-wire: C2: 10 kV / 5 kA (B/20μs)
- Impulse durability wire-earth: C2: 10 kV / 5 kA (B/20μs)
- Impulse discharge current (10/350): Iimp = 2.5 kA
- Total discharge current (B/20): Iimp = 10 kA
- Total discharge current (10/350): Iimp = 5 kA
- Protection level: <800 V
- Insertion loss: S21 ≤ 0.62 dB
- Return loss: S11 ≥ 14 dB
- Temperature range: -40°C to +80°C
- Connection type: Connector/cable adapter
- Connection system: N
- Protection rating: IP40
- Shielding connection available: Yes
- Shield connection: Direct
- Testing standard: IEC 61643-21

Always indicate the item number when ordering.
Coaxial protection devices for transmission and reception technology

Coaxial protection device for N connection: female/female

<table>
<thead>
<tr>
<th>Type</th>
<th>Frequency range</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS-N W/W N</td>
<td>0 - 3 GHz</td>
<td>1</td>
<td>11.500</td>
<td>5093988</td>
</tr>
</tbody>
</table>

Coaxial data cable protection devices

- High pulsed current carrying capacity 2 x 2.5 kA (10/350)
- Simple mounting (adapter plug), m = plug / f = female connector
- Optimised transmission behaviour
- 5-year guarantee
- With N connector
- Including OBO M25 Quick clip for simple installation

Component features:

- Maximum continuous voltage AC $U_{ac}$: 130 V
- Maximum continuous voltage DC $U_{dc}$: 185 V
- Category: Type 1+2 / D1+C2
- Number of poles: 1
- Rated current $I$: 10 A
- Wave resistance $Z$: 50 Ω
- Impulse durability wire-wire $C_2$: 10 kV / 5 kA (8/20µs)
- Impulse durability wire-earth $C_2$: 10 kV / 5 kA (8/20µs)
- Impulse discharge current (10/350) $I_{imp}$: 2.5 kA
- Total discharge current (8/20): 10 kA
- Total discharge current (10/350): 5 kA
- Protection level: $<800$ V
- Frequency range: 0 - 3 GHz
- Insertion loss $S_{21}$: ≤0.62 dB
- Return loss $S_{11}$: ≥14 dB
- Temperature range: -40 - +80 °C
- Installation type: Connector/cable adapter
- Connection system: N
- Protection rating: IP40
- Shielding connection available: Yes
- Shield connection: Direct
- Testing standard: IEC 61643-21

Always indicate the item number when ordering.
Coaxial protection devices for transmission and reception technology

Coaxial protection device for N connection up to 6 GHz: Male/female

- With N-Connector, male/female
- High impulse current load capacity: 2.5 kA (10/350)
- Simple mounting (adapter), m = connector, w = socket
- Low protection level at high current loads
- Optimum transmission behaviour:
  - Low reflection behaviour
  - Bandwidth-optimised for secure transmission up to 6 GHz
- Available in 50 Ω technology

Application: For example: SAT-TV C band, WiMAX, WLAN applications, DVB-T2

Dimensions

Connection options

DS-N-6 M/W

- Maximum continuous voltage AC $U_{ac}$: 50 V
- Maximum continuous voltage DC $U_{dc}$: 70 V
- Category: Type 1+2 / D1+C2
- Lightning protection zone LPZ 0-2
- Number of poles 1
- Rated current $I$: 10 A
- Wave resistance $Z$: 50 Ω
- Impulse durability wire-wire $C_2$: 10 kV / 5 kA (8/20μs)
- Impulse durability wire-earth $C_2$: 10 kV / 5 kA (8/20μs)
- Impulse discharge current (10/350) $I_{imp}$: 2.5 kA
- Protection level $<750$ V
- Frequency range 0 - 6 GHz
- Insertion loss $S_{21}$: <0.1 dB
- Return loss $S_{11}$: >22 dB
- Temperature range $\vartheta$: -40 to +80 °C
- Installation type Connector/cable adapter
- Connection system N
- Protection rating IP65/67
- Shielding connection available Yes
- Shield connection Direct
- Testing standard IEC 61643-21

<table>
<thead>
<tr>
<th>Type</th>
<th>Frequency range</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS-N-6 M/W</td>
<td>N 0 - 6 GHz</td>
<td>1</td>
<td>7.830</td>
<td>5093998</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Coaxial protection device for TNC connection: male/female

<table>
<thead>
<tr>
<th>Type</th>
<th>Frequency range</th>
<th>Connection system</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS-TNC M/W</td>
<td>0 - 4 GHz</td>
<td>TNC</td>
<td>9.000</td>
<td>1</td>
<td>5093270</td>
</tr>
</tbody>
</table>

Coaxial data cable protection devices

- Basic protection
- High pulsed current carrying capacity 2 x 2.5 kA (10/350 µs)
- Simple installation (adapter plug), m = plug, f = female connector
- Various plug combinations
- With TNC connector
- Optimised transmission behaviour
- Including OBO M25 Quick clip for simple installation

**DS-TNC M/W**

- Maximum continuous voltage AC $U_c$: 130 V
- Maximum continuous voltage DC $U_c$: 185 V
- Category: Type 1+2 / D1+C2
- Number of poles: 1
- Rated current $I_r$: 10 A
- Wave resistance $Z$: 50 Ω
- Impulse durability wire-wire $I_{imp}$: 10 kV / 5 kA (8/20 µs)
- Impulse durability wire-earth $I_{imp}$: 10 kV / 5 kA (8/20 µs)
- Impulse discharge current (10/350) $I_{disp}$: 2.5 kA
- Total discharge current (8/20): 10 kA
- Total discharge current (10/350): 5 kA
- Protection level $S_{11}$: ≤ 0.5 dB
- Return loss $S_{21}$: ≥ 14 dB
- Temperature range: -40 - 80 °C
- Installation type: Connector/cable adapter
- Connection system: TNC
- Protection rating: IP40
- Shielding connection available: Yes
- Shield connection: Direct
- Testing standard: IEC 61643-21

Always indicate the item number when ordering.
Coaxial protection device for 7/16 connection: male/female

- Basic protection
- Simple mounting (adapter)
- Optimum transmission
- High pulse load capacity
- With 7/16 connector

Application: to protect mobile telephony applications.

DS-7 16 M/W

<table>
<thead>
<tr>
<th>Type</th>
<th>Frequency range</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS-7 16 M/W</td>
<td>7/16 0 - 3 GHz</td>
<td>1</td>
<td>95.500</td>
<td>5093171</td>
</tr>
</tbody>
</table>

Coaxial data protection device

Dimensions

Connection options

DS-7 16 M/W

- Maximum continuous voltage AC: $U_{AC} = 130 \text{ V}$
- Maximum continuous voltage DC: $U_{DC} = 185 \text{ V}$
- Category: Type 1+2 / D1+C2
- Lightning protection zone LPZ: 0 - 2
- Number of poles: 1
- Rated current: $I = 10 \text{ A}$
- Wave resistance: $Z = 50 \Omega$
- Impulse durability wire-wire: C2: 10 kV / 5 kA (8/20µs)
- Impulse durability wire-earth: C2: 10 kV / 5 kA (8/20µs)
- Impulse discharge current (10/350): $I_{imp} = 2.5 \text{ kA}$
- Total discharge current (8/20): $I_{total} = 10 \text{ kA}$
- Total discharge current (10/350): $I_{total} = 5 \text{ kA}$
- Protection level: $< 800 \text{ V}$
- Insertion loss: $S_{11} \leq 0.95 \text{ dB}$
- Return loss: $S_{21} \geq 14 \text{ dB}$
- Temperature range: $-40 \text{ to } +80 \text{ °C}$
- Installation type: Connector/cable adapter
- Connection system: 7/16
- Protection rating: IP40
- Shielding connection available: Yes
- Shield connection: Direct
- Testing standard: IEC 61643-21

Always indicate the item number when ordering.
Coaxial protection device for F connection: male/female

### Connection Options
- Basic protection
- High pulsed current carrying capacity 2 x 2.5 kA (10/350 µs)
- Simple installation (adapter plug), m = plug, f = female connector
- Various plug combinations
- With F connector
- Optimised transmission behaviour
- Including OBO M25 Quick clip for simple installation

Application: Protection of TV and SAT systems, multi-switches, receivers and DVB-T(2)

### Technical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>DS-F M/W</td>
</tr>
<tr>
<td>Connection system</td>
<td>F</td>
</tr>
<tr>
<td>Frequency range</td>
<td>0 - 3,4 GHz</td>
</tr>
<tr>
<td>Weight kg/100 pcs.</td>
<td>9.000</td>
</tr>
<tr>
<td>Item No.</td>
<td>5099275</td>
</tr>
</tbody>
</table>

Coaxial data cable protection devices

- Maximum continuous voltage AC: 130 V
- Maximum continuous voltage DC: 185 V
- Lightning protection zone LPZ: 0 - 2
- Number of poles: 1
- Rated current: 5 A
- Wave resistance: 75 Ω
- Impulse durability wire-wire: C2: 10 kV / 5 kA (8/20µs)
- Impulse durability wire-earth: C2: 10 kV / 5 kA (8/20µs)
- Impulse discharge current (10/350): I_{imp} = 1 kA
- Total discharge current (8/20): 10 kA
- Total discharge current (10/350): 2 kA
- Protection level: <800 V
- Frequency range: 0 - 3.4 GHz
- Insertion loss: S_{21} ≤0.9 dB
- Return loss: S_{11} ≥14 dB
- Temperature range: -40 - +80 °C
- Installation type: Connector/cable adapter
- Connection system: F
- Protection rating: IP40
- Shielding connection available: Yes
- Shield connection: Direct
- Testing standard: IEC 61643-21

Always indicate the item number when ordering.
Coaxial protection devices for transmission and reception technology

Coaxial protection device for F connection: female/female

- Basic protection
- High pulsed current carrying capacity 2 x 2.5 kA (10/350 µs)
- Simple installation (adapter plug), m = plug/f = female connector
- Various plug combinations
- With F connector
- Optimised transmission behaviour
- Including OBO M25 Quick clip for simple installation

Application: Protection of TV and SAT systems, multi-switches, receivers and DVB-T(2)

- Dimensions

Coaxial data cable protection devices

<table>
<thead>
<tr>
<th>Type</th>
<th>Frequency range</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS-F W/W</td>
<td>F 0 - 3,4 GHz</td>
<td>1</td>
<td>9.000</td>
<td>5093272</td>
</tr>
</tbody>
</table>

DS-F W/W

- Maximum continuous voltage AC \( U_{\text{AC}} \): 130 V
- Maximum continuous voltage DC \( U_{\text{DC}} \): 185 V
- Category: Type 1+2 / D1+C2
- Lightning protection zone LPZ: 0→2
- Number of poles: 1
- Rated current \( I_{\text{R}} \): 5 A
- Wave resistance \( Z_{\text{w}} \): 75 Ω
- Impulse durability wire-wire \( C2 \): 10 kV / 5 kA (8/20µs)
- Impulse durability wire-earth \( C2 \): 10 kV / 5 kA (8/20µs)
- Impulse discharge current (10/350) \( I_{\text{imp}} \): 1 kA
- Total discharge current (8/20): 10 kA
- Total discharge current (10/350): 2 kA
- Protection level: <800 V
- Frequency range: 0 - 3,4 GHz
- Insertion loss \( S_{11} \): ≤0,9 dB
- Return loss \( S_{11} \): ≥14 dB
- Temperature range: -40 → +80 °C
- Installation type: Connector/cable adapter
- Connection system: F
- Protection rating: IP40
- Shielding connection available: Yes
- Shield connection: Direct
- Testing standard: IEC 61643-21

Always indicate the item number when ordering.
Coaxial protection device for SMA connection: female/female

Coaxial data cable protection devices

- High pulsed current carrying capacity 2 x 2.5 kA (10/350)
- Simple mounting (adapter plug), m = plug f = female connector
- Optimised transmission behaviour
- 5-year guarantee
- With SMA connector
- Including OBO M25 Quick clip for simple installation
- 50 Ω technology

Application: Radio and data technology with SMA connector

**DS-SMA W/W**

<table>
<thead>
<tr>
<th>Type</th>
<th>Frequency range</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS-SMA W/W SMA</td>
<td>0 - 3.7 GHz</td>
<td>1</td>
<td>7.500</td>
<td>5093277</td>
</tr>
</tbody>
</table>

**Connection options**

- UC
- IL
- ZL
- Iimp
- S11
- S21
- ϑ

**Dimensions**

- Ø 27.8
- 44.6

**Connection system**

- SMA

**Testing standard**

- IEC 61643-21

**Always indicate the item number when ordering.**
Coaxial protection device for SAT and cable multiswitch

- Protects up to four SAT lines
- Protects one terrestrial line, e.g. DVB-T.
- Simple mounting using screws and holder
- With F-connector
- Optimum transmission behaviour with 75 Ohm technology.

Application: Protection of TV and SAT systems, multi-switches, receivers and DVB-T receivers

TV 4+1

- Maximum continuous voltage Vc | SAT inputs $U_{cin}$: 22 V
- Maximum continuous voltage Vc | terrestrial input $U_{cin}$: 70 V
- Category: Type 2+3 / C2+C1
- Lightning protection zone LPZ: I 1-3
- Number of poles: 5
- Rated current: $I_n$: 2 A
- Wave resistance: $Z_w$: 75 Ω
- Nominal discharge current | SAT inputs: $I_{up}$: 300 A
- Lightning impulse current | terrestrial input: $I_{imp}$: 11 kA
- Protection level | SAT inputs at In: $U_{protection}$: <45 V
- Protection level | terrestrial input at In: $U_{protection}$: <500 V
- Frequency range: 0.5 - 2.8 GHz
- Insertion loss: $S_21$: <3 dB
- Return loss: $S_11$: >30 dB
- Temperature range: $\theta$: -40°C to +80°C
- Installation type: Surface-mounted
- Connection system: F
- Protection rating: IP10
- Shielding connection available: Yes
- Shield connection: Direct
- Earthing via: Connection cable
- Testing standard: IEC 61643-21

Dimensions

Connection options

Always indicate the item number when ordering.
The "Net Defender" permits the use of Power over Ethernet with nominal currents of up to 1 A and optimised surge protection in the channel up to 10 GBit/s. This corresponds to a Channel Performance according to ISO/IEC 11801 Amd. 2 of Class EA or CAT 6A to TIA/ANSI. Of course, reverse compatibility is also guaranteed. To ensure easy installation, the "Net Defender" can be snapped directly onto the DIN rail and uses it to create the necessary equipotential bonding. Alternatively, terminal protection using a separately connectable earthing line is possible.
Surge protection for network technology

Surge protection for high-speed networks up to 10 GBit (Class EA/CAT6A)

Data cable protection device for high-speed networks
• High-quality RJ45 sockets
• Low protection level at high current load
• Earthing via DIN rail or connection cable
• Support of Power over Ethernet + to 1 A
• Tested transmission quality in networks up to 10 GBit (Class EA) or CAT6A
• Rapid installation through plug-in version
• Incl. DIN rail fastening set and earthing cable

Application example: 10 GBit Ethernet, 10/100 MBit Ethernet, PoE applications, IP camera systems, ISDN S0 interfaces

ND-CAT6A/EA

Maximum continuous voltage AC, \( U_{L} \): 41 V
Maximum continuous voltage DC, \( U_{L} \): 58 V
Category: Type 2+3 / C2+C1
Channel performance ISO/IEC: Class EA
Channel performance ANSI/EA: CAT 6A
Number of poles: 8
Rated current: \( I_{L} \): 1 A
Impulse durability wire-wire: \( C1: 0.3 \text{kV} / 0.15 \text{kA} (8/20\mu s) \)
Impulse durability wire-earth: \( C2: 2 \text{kV} / 1 \text{kA} (8/20\mu s) \)
Total discharge current \((8/20) \): 7 kA
Protection level wire-wire: <120 V
Protection level wire-earth: <700 V
Frequency range: >500 MHz
Temperature range: \(-40°C - +80°C\)
Installation type: Connector/cable adapter
Connection system: RJ45 8(8)
Protection rating: IP10
Shielding connection available: Yes
Shielding connection: Direct
Earthing via: Connection cable / DIN rail
Testing standard: IEC 61643-21

Dimensions

Connection options

Always indicate the item number when ordering.
Fine protection 8-F for Ethernet networks (Class D/CAT 5)

Universal data cable protection device for network technology and telecommunication systems

- In aluminium housing
- Protection for 8 cores
- With two-stage protective circuit
- Simple mounting
- With RJ45 Western connector
- Incl. 150 mm connection cable with RJ45 connectors
- Cat 5e network technology, 10BaseT, 100BaseT, 1000BaseT
- DIN rail mounting with accessories DLS-BS (5082 38 2)

Application: For analogue, ISDN, DSL systems, Ethernet Twisted Pair.

**RJ45 S-ATM 8-F**

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Connection system</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RJ45 S-ATM 8-F</td>
<td>Fine protection</td>
<td>8 wires + shield</td>
<td>14.000</td>
<td>5081990</td>
</tr>
</tbody>
</table>

**Maximum continuous voltage AC** \(U_{AC}\) 4.2 V

**Maximum continuous voltage DC** \(U_{DC}\) 6.2 V

**Category** Type 2+3 / C2+C1

**Lightning protection zone** LPZ 1–3

**Channel performance ISO/IEC** Class D

**Channel performance ANSI/ETA** CAT 5e

**Number of poles** 8

**Rated current** \(I\) 1 A

**Impulse durability wire-wire** C2: 3 kV / 1.5 kA (8/20µs)

**Impulse durability wire-earth** C2: 3 kV / 1.5 kA (8/20µs)

**Total discharge current** (8/20) 7.5 kA

**Protection level wire-wire** <40 V

**Protection level wire-earth** <900 V

**Frequency range** >155 MHz

**Temperature range** \(\theta\) -40 - +80 °C

**Installation type** Connector/cable adapter

**Connection system** RJ45 8(B)

**Protection rating** IP40

**Shielding connection available** Yes

**Shield connection** Direct

**Earthing via:** Connection cable

**Testing standard** IEC 61643-21

---

**Surge protection for network technology**

---

**Dimensions**

**Connection options**

---

Always indicate the item number when ordering.
Combination arrestor for 10Base2-/10Base5 networks

Data line protection device for coaxial Ethernet network systems

- In aluminium housing
- BNC connector m/f
- Simple mounting with adapter plug
- Two-stage protection circuit
- DIN rail mounting with DLS-BS accessories (5082 38 2)

Application: Protecting video signals; cameras and/or CCTV units, Cheapernet, 10BASE2, 10BASE5

<table>
<thead>
<tr>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>ca. 115</td>
</tr>
<tr>
<td>64</td>
</tr>
<tr>
<td>38</td>
</tr>
<tr>
<td>25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Connection options</th>
</tr>
</thead>
<tbody>
<tr>
<td>KOAX B-E2 MF-C</td>
</tr>
<tr>
<td>Maximum continuous voltage AC</td>
</tr>
<tr>
<td>Maximum continuous voltage DC</td>
</tr>
<tr>
<td>Category</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
</tr>
<tr>
<td>Number of poles</td>
</tr>
<tr>
<td>Rated current</td>
</tr>
<tr>
<td>Series resistance per wire</td>
</tr>
<tr>
<td>Wave resistance</td>
</tr>
<tr>
<td>Impulse durability wire-wire</td>
</tr>
<tr>
<td>Impulse durability wire-earth</td>
</tr>
<tr>
<td>Impulse discharge current</td>
</tr>
<tr>
<td>Total discharge current</td>
</tr>
<tr>
<td>Total discharge current</td>
</tr>
<tr>
<td>Protection level wire-wire</td>
</tr>
<tr>
<td>Protection level wire-earth</td>
</tr>
<tr>
<td>Frequency range</td>
</tr>
<tr>
<td>Insertion loss</td>
</tr>
<tr>
<td>Return loss</td>
</tr>
<tr>
<td>Temperature range</td>
</tr>
<tr>
<td>Installation type</td>
</tr>
<tr>
<td>Connection system</td>
</tr>
<tr>
<td>Protection rating</td>
</tr>
<tr>
<td>Shielding connection available</td>
</tr>
<tr>
<td>Shield connection</td>
</tr>
<tr>
<td>Earthing via</td>
</tr>
<tr>
<td>Testing standard</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
## Fine protection for 10Base2-/10Base5 networks

### Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Connection system</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>KOAX B-E2 MF-F</td>
<td>Fine protection</td>
<td>BNC</td>
<td>1</td>
<td>9.800</td>
<td>5082432</td>
</tr>
</tbody>
</table>

Data line protection device for coaxial Ethernet network systems

- In aluminium housing
- BNC connector m/f
- Simple mounting with adapter plug
- Two-stage protection circuit
- DIN rail mounting with DLS-BS accessories (5082 38 2)

Application: Protecting video signals; cameras and/or CCTV units, Cheapernet, 10BASE2, 10BASE5

### KOAX B-E2 MF-F

- Maximum continuous voltage AC $U_{AC}$: 4.2 V
- Maximum continuous voltage DC $U_{DC}$: 6.2 V
- Category: Type 2+3 / C2+C1
- Number of poles: 1
- Rated current $I$: 1 A
- Wave resistance $Z_L$: 75 Ω
- Impulse durability wire-wire $C1$: 1 kV / 0.5 kA (8/20 µs)
- Impulse durability wire-earth $C2$: 10 kV / 5 kA (8/20 µs)
- Impulse discharge current (10/350) $I_{imp}$: – kA
- Total discharge current (8/20): 10 kA
- Total discharge current (10/350): – kA
- Protection level wire-wire: <40 V
- Protection level wire-earth: <600 V
- Frequency range: 0 - 70 MHz
- Insertion loss $S_{21}$: ≤1 dB
- Return loss $S_{11}$: >14 dB
- Temperature range: -20 - +80 °C
- Installation type: Connector/cable adapter
- Connection system: BNC
- Protection rating: IP40
- Shielding connection available: Yes
- Shield connection: Direct
- Earthing via: Connection cable
- Testing standard: IEC 61643-21

### Dimensions

- Width: 38 mm
- Depth: 64 mm
- Height: 28 mm

### Connection options
Data cable protection device for coaxial TV / camera systems

- In aluminium housing
- BNC connector socket/socket
- Simple mounting with adapter plug
- Two-stage protection circuit
- DIN rail mounting with DLS-BS accessories (5082 38 2)

Application: Protection of CCTV, video signals; cameras and/or TV systems

Dimensions

Connection options

KOAX B-E2 FF-F

<table>
<thead>
<tr>
<th>Maximum continuous voltage AC</th>
<th>Uc</th>
<th>4.2 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum continuous voltage DC</td>
<td>Uc</td>
<td>6.2 V</td>
</tr>
<tr>
<td>Category</td>
<td>Type 2+3 / C2+C1</td>
<td></td>
</tr>
<tr>
<td>Number of poles</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Rated current</td>
<td>1 A</td>
<td></td>
</tr>
<tr>
<td>Series resistance per wire</td>
<td>z0</td>
<td>75 Ω</td>
</tr>
<tr>
<td>Wave resistance</td>
<td>Zs</td>
<td>75 Ω</td>
</tr>
<tr>
<td>Impulse durability wire-wire</td>
<td>C1: 1 kV / 0.5 kA (8/20µs)</td>
<td></td>
</tr>
<tr>
<td>Impulse durability wire-earth</td>
<td>C2: 10 kV / 5 kA (8/20µs)</td>
<td></td>
</tr>
<tr>
<td>Impulse discharge current (10/350)</td>
<td>Iimp</td>
<td>- kA</td>
</tr>
<tr>
<td>Total discharge current (8/20)</td>
<td>10 kA</td>
<td></td>
</tr>
<tr>
<td>Total discharge current (10/350)</td>
<td>- kA</td>
<td></td>
</tr>
<tr>
<td>Protection level wire-wire</td>
<td>&lt;40 V</td>
<td></td>
</tr>
<tr>
<td>Protection level wire-earth</td>
<td>&lt;600 V</td>
<td></td>
</tr>
<tr>
<td>Frequency range</td>
<td>0 - 160 MHz</td>
<td></td>
</tr>
<tr>
<td>Insertion loss</td>
<td>S21</td>
<td>≤1.7 dB</td>
</tr>
<tr>
<td>Return loss</td>
<td>S11</td>
<td>&gt;14 dB</td>
</tr>
<tr>
<td>Temperature range</td>
<td>0 - 80 °C</td>
<td></td>
</tr>
<tr>
<td>Installation type</td>
<td>Connector/cable adapter</td>
<td></td>
</tr>
<tr>
<td>Connection system</td>
<td>BNC</td>
<td></td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP40</td>
<td></td>
</tr>
<tr>
<td>Shielding connection available</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Shield connection</td>
<td>Direct</td>
<td></td>
</tr>
<tr>
<td>Earthing via</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Testing standard</td>
<td>IEC 61643-21</td>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Fastening set for DIN profile rail

<table>
<thead>
<tr>
<th>Type</th>
<th>For mounting:</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLS-BS</td>
<td>Coax B-E2/...</td>
<td>1</td>
<td>5.000</td>
<td>5082382</td>
</tr>
<tr>
<td></td>
<td>Coax N-E5/...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RJ 11-Tele/4/...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RJ 45 S/...</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DLS-BS: The attachment set is designed for DIN profile rail and wall mounting and can be used for the data cable protection devices listed below:

- Coax B-E2/...
- Coax N-E5/...
- RJ 11-Tele/4/...
- RJ 45 S/...

Always indicate the item number when ordering.
Surge protection for network technology

Surge protection for high-speed networks up to 1 GBit (Class ND-CAT6/E-F)

Data cable protection device for high-speed networks
• High-quality RJ45 sockets
• Low protection level at high current load
• Earthing via DIN rail or connection cable
• Support of Power over Ethernet + to 1 A
• Tested transmission quality in networks up to 10 GBit (Class EA) or CAT6A
• Rapid installation through plug-in version
• Incl. DIN rail fastening set and earthing cable

Application example: 10 GBit Ethernet, 10/100 MBit Ethernet, PoE applications, IP camera systems, ISDN S0 interfaces

ND-CAT6/E-F
Maximum continuous voltage AC \( U_{\text{AC}} \) \( 41 \) V
Maximum continuous voltage DC \( U_{\text{DC}} \) \( 58 \) V
Category Type 2+3 / C2+C1
Lightning protection zone LPZ 1–3
Channel performance ISO/IEC Class E
Channel performance Ans/EA CAT 6
Number of poles 8
Rated current \( I_{\text{m}} \) \( 1 \) A
Impulse durability wire-wire \( \text{C1}: 0.3 \text{kV} / 0.15 \text{kA (8/20)} \mu\text{s} \)
Impulse durability wire-earth \( \text{C2}: 3 \text{kV} / 1.5 \text{kA (8/20)} \mu\text{s} \)
Total discharge current (8/20) \( 5 \) kA
Protection level wire-wire \( 10 \) kA
Protection level wire-earth \( 
< 1.1 \text{kA (8/20)} \mu\text{s} \)
Protection level wire-earth \( < 0.9 \text{kA (8/20)} \mu\text{s} \)
Frequency range \( > 250 \text{ MHz} \)
Temperature range \( -40 \text{ to } +80 \degree \text{C} \)
Installation type Connector/cable adapter
Connection system RJ45 8(8)
Protection rating IP10
Shielding connection available Yes
Shield connection Direct
Earthing via: Connection cable / DIN rail
Testing standard IEC 61643-21

ND-CAT6/E-B
Maximum continuous voltage AC \( U_{\text{AC}} \) \( 46 \) V
Maximum continuous voltage DC \( U_{\text{DC}} \) \( 65 \) V
Category Type 1 / D1
Lightning protection zone LPZ 0–1
Channel performance ISO/IEC Class E
Channel performance Ans/EA CAT 6
Number of poles 8
Rated current \( I_{\text{m}} \) \( 1 \) A
Impulse durability wire-wire \( \text{C2}: 3 \text{kV} / 1.5 \text{kA (8/20)} \mu\text{s} \)
Impulse durability wire-earth \( \text{C2}: 3 \text{kV} / 1.5 \text{kA (8/20)} \mu\text{s} \)
Total discharge current (8/20) \( 10 \) kA
Protection level wire-wire \( < 1.1 \text{kA (8/20)} \mu\text{s} \)
Protection level wire-earth \( < 0.9 \text{kA (8/20)} \mu\text{s} \)
Frequency range \( > 250 \text{ MHz} \)
Temperature range \( -40 \text{ to } +80 \degree \text{C} \)
Installation type Connector/cable adapter
Connection system RJ45 8(8)
Protection rating IP10
Shielding connection available Yes
Shield connection Direct
Earthing via: Connection cable / DIN rail
Testing standard IEC 61643-21

Connection options

Always indicate the item number when ordering.
## Basic protection for 4-wire information technology systems with RJ45

![Image of data line protection device](attachment:device_image.png)

**Data line protection device for IT systems**

- In aluminium housing
- RJ45 connector
- Incl. 150 mm connection cable with RJ45 connectors
- Simple mounting using adapter
- 2-stage protection circuit
- DIN rail mounting with DLS-BS accessories (5082 38 2)

**Application:** Twisted Pair, control circuits, RJ45 communication cables

### Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>Connection system</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RJ45 S-E100 4-B</td>
<td>Basic protection, 4 wires + shield</td>
<td>14.000</td>
<td>5081001</td>
</tr>
</tbody>
</table>

### Technical Details

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum continuous voltage AC</td>
<td>120 V</td>
</tr>
<tr>
<td>Maximum continuous voltage DC</td>
<td>170 V</td>
</tr>
<tr>
<td>Category</td>
<td>Type 1+2 / D1+C2</td>
</tr>
<tr>
<td>Number of poles</td>
<td>4</td>
</tr>
<tr>
<td>Rated current</td>
<td>1 A</td>
</tr>
<tr>
<td>Series resistance per wire</td>
<td></td>
</tr>
<tr>
<td>Impulse durability wire-earth</td>
<td>≤ 0.5 kA</td>
</tr>
<tr>
<td>Impulse durability wire-earth (10/350) / Iimp</td>
<td>≤ 7.5 kA</td>
</tr>
<tr>
<td>Total discharge current (8/20)</td>
<td>≤ 2.5 kA</td>
</tr>
<tr>
<td>Total discharge current (10/350)</td>
<td>≤ 850 V</td>
</tr>
<tr>
<td>Frequency range</td>
<td>0 - 463 MHz</td>
</tr>
<tr>
<td>Insertion loss</td>
<td>≤ 3 dB</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40 - +80 °C</td>
</tr>
<tr>
<td>Installation type</td>
<td>Connector/cable adapter</td>
</tr>
<tr>
<td>Connection system</td>
<td>RJ45</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP40</td>
</tr>
<tr>
<td>Shielding connection available</td>
<td>Yes</td>
</tr>
<tr>
<td>Shield connection</td>
<td>Indirect</td>
</tr>
<tr>
<td>Earthing via</td>
<td>Connection cable</td>
</tr>
<tr>
<td>Testing standard</td>
<td>IEC 61643-21</td>
</tr>
</tbody>
</table>

**Dimensions**

![Dimensions Image](attachment:dimensions_image.png)

**Connection options**

![Connection options Image](attachment:connection_options_image.png)
Combination arrester for 4-wire information technology systems with RJ45

- In aluminium housing
- RJ45 connector
- Incl. 150 mm connection cable with RJ45 connectors
- Simple mounting using adapter
- 2-stage protection circuit
- DIN rail mounting with DLS-BS accessories (5082 38 2)

Application: Twisted Pair, control circuits, RJ45 communication cables

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Connection system</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RJ45 S-E100 4-C</td>
<td>Combined protection, 4 wires + shield</td>
<td>RJ45</td>
<td>1</td>
<td>14.000</td>
<td>5081003</td>
</tr>
</tbody>
</table>

Data line protection device for IT systems

- Surge protection for data technology

---

**Dimensions**

**Connection options**

```
+---+---+---+---+
|   |   |   |   |
|   |   |   | 3 |
|   |   | 2 |   |
+---+---+---+---+
    |   |   | 1 |
    |   | 4 |   |
    | 5 |   |   |
    |   |   | 6 |
```

**RJ45 S-E100 4-C**

- Maximum continuous voltage AC: \( U_{\text{AC}} \) = 4.2 V
- Maximum continuous voltage DC: \( U_{\text{DC}} \) = 6.2 V
- Category: Type I+2+3 / D1+C2+C1
- Lightning protection zone LPZ: 0-2
- Number of poles: 4
- Rated current: \( I_{\text{R}} \) = 0.3 A
- Series resistance per wire: \( R_{\text{S}} \) = 4.7 Ω ± 10%
- Impulse durability wire-wire: \( I_{\text{S2}} \) = 3 kV / 1.5 kA (8/20µs)
- Impulse durability wire-earth: \( I_{\text{S2}} \) = 3 kV / 1.5 kA (8/20µs)
- Impulse discharge current (10/350): \( I_{\text{imp}} \) = 1.5 kA
- Total discharge current (8/20): 7.5 kA
- Total discharge current (10/350): 2.5 kA
- Protection level wire-wire: <70 V
- Protection level wire-earth: <850 V
- Frequency range: 0 - 109 MHz
- Insertion loss: \( S_{\text{IL}} \) = ≤3 dB
- Temperature range: \( T_{\text{op}} \) = -40 - +80 °C
- Installation type: Connector/cable adapter
- Connection type: RJ45
- Protection rating: IP40
- Shielding connection available: Yes
- Shield connection: Indirect
- Earthing via: Connection cable
- Testing standard: IEC 81643-21

Always indicate the item number when ordering.
Fine protection for 4-wire information technology systems with RJ45

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Connection system</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RJ45 S-E100 4-F</td>
<td>Fine protection, 4 wires + shield</td>
<td>RJ45</td>
<td>14.000</td>
<td>5081006</td>
</tr>
</tbody>
</table>

Data line protection device for IT systems

- In aluminium housing
- RJ45 connector
- Incl. 150 mm connection cable with RJ45 connectors
- Simple mounting using adapter
- 2-stage protection circuit
- DIN rail mounting with DLS-BS accessories (5082 38 2)

Application: Twisted Pair, control circuits, RJ45 communication cables

### RJ45 S-E100 4-F

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum continuous voltage AC</td>
<td>( U_{AC} ) 4.2 V</td>
</tr>
<tr>
<td>Maximum continuous voltage DC</td>
<td>( U_{DC} ) 6.2 V</td>
</tr>
<tr>
<td>Category</td>
<td>Type 2+3 / C2+C1</td>
</tr>
<tr>
<td>Number of poles</td>
<td>4</td>
</tr>
<tr>
<td>Rated current</td>
<td>1 A</td>
</tr>
<tr>
<td>Series resistance per wire</td>
<td>( R )</td>
</tr>
<tr>
<td>Impulse durability wire-wire</td>
<td>( I_{\text{imp}}^{10/350} ) C1: 1 kV / 0.5 kA (8/20µs)</td>
</tr>
<tr>
<td>Impulse durability wire-earth</td>
<td>( I_{\text{imp}}^{10/350} ) C1: 1 kV / 0.5 kA (8/20µs)</td>
</tr>
<tr>
<td>Impulse discharge current (10/350) ( I_{\text{imp}} )</td>
<td>kA</td>
</tr>
<tr>
<td>Total discharge current (8/20)</td>
<td>2.5 kA</td>
</tr>
<tr>
<td>Total discharge current (10/350)</td>
<td>( I_{\text{imp}} ) kA</td>
</tr>
<tr>
<td>Protection level wire-wire</td>
<td>(&lt;40 \text{ V} )</td>
</tr>
<tr>
<td>Protection level wire-earth</td>
<td>(&lt;750 \text{ V} )</td>
</tr>
<tr>
<td>Frequency range</td>
<td>( 0 - 100 \text{ MHz} )</td>
</tr>
<tr>
<td>Insertion loss</td>
<td>( S_{21} ) 3 dB</td>
</tr>
<tr>
<td>Temperature range</td>
<td>( -40 - +80 \text{ °C} )</td>
</tr>
<tr>
<td>Installation type</td>
<td>Connector/cable adapter</td>
</tr>
<tr>
<td>Connection system</td>
<td>RJ45</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP40</td>
</tr>
<tr>
<td>Shielding connection available</td>
<td>Yes</td>
</tr>
<tr>
<td>Shield connection</td>
<td>Indirect</td>
</tr>
<tr>
<td>Earthing via</td>
<td>Connection cable</td>
</tr>
<tr>
<td>Testing standard</td>
<td>IEC 61643-21</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
**Fine protection for 9-pole RS232 interface**

Data cable protection devices, serial interfaces

- Various connection technologies available
- Low protection level

Application: PLC, alarm systems, controllers

**Dimensions**

**Connection options**

<table>
<thead>
<tr>
<th>Type</th>
<th>Version</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD09-V24</td>
<td>9 SUB-D-9; V24 RS232</td>
<td></td>
</tr>
</tbody>
</table>

**Highest continuous voltage**

- Type V
- Version

**Pack. pcs. kg/100 pcs. Item No.**

- 1 6.000 5080093

**Max. continuous operating voltage** $U_c = 18 \text{ V}$

**Lightning protection zone LPZ** Type 3 / C1

**Number of poles** 9

**Impulse durability wire-wire** 0.34 kA (8/20µs)

**Impulse durability wire-earth** 0.34 kA (8/20µs)

**Protection level wire-wire** $<50 \text{ V}$

**Protection level wire-earth** $<50 \text{ V}$

**Protection level, wire-earth at 1 kV/µs (C3)** $U_p <25 \text{ V}$

**Temperature range** $0^\circ\text{C} - 80^\circ\text{C}$

**Installation type** Connector/cable adapter

**Connection system** D-Sub 9 pole

**Protection rating** IP40

**Shielding connection available** Yes

**Shield connection** Direct

**Testing standard** IEC 61643-21

Always indicate the item number when ordering.
Fine protection for 15-pole RS232 interface

Data cable protection devices, serial interfaces

- Various connection technologies available
- Low protection level

Application: PLC, alarm systems, controllers

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage (V)</th>
<th>Version</th>
<th>Pack. (pcs)</th>
<th>Weight (kg/100 pcs.)</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD15-V24 15</td>
<td>18</td>
<td>SUB-D-15; V24 RS232</td>
<td>1</td>
<td>7.000</td>
<td>5080150</td>
</tr>
</tbody>
</table>

SD15-V24 15
Max. continuous operating voltage $U_c$ 18 V
Category Type 3 / C1
Lightning protection zone LPZ 2→3
Number of poles 15
Impulse durability wire-wire 0.34 kA (8/20µs)
Impulse durability wire-earth 0.34 kA (8/20µs)
Protection level wire-wire $<50$ V
Protection level wire-earth $<50$ V
Protection level wire-earth at 1 kV/µs (C3) $U_e < 25$ V
Temperature range $0 - 40 - 80$ °C
Installation type Connector/cable adapter
Connection system D-Sub 15 pole
Protection rating IP40
Shielding connection available Yes
Shield connection Direct
Testing standard IEC 61643-21

Always indicate the item number when ordering.
Fine protection for 9-pole RS485 interface

- Various connection technologies available
- Low protection level

Application: PLC, alarm systems, controllers

Dimensions

Connection options

<table>
<thead>
<tr>
<th>SD09-V11 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. continuous operating voltage $U_L$</td>
</tr>
<tr>
<td>Category</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
</tr>
<tr>
<td>Number of poles</td>
</tr>
<tr>
<td>Impulse durability wire-wire</td>
</tr>
<tr>
<td>Impulse durability wire-earth</td>
</tr>
<tr>
<td>Protection level wire-wire</td>
</tr>
<tr>
<td>Protection level wire-earth</td>
</tr>
<tr>
<td>Protection level, wire-earth at 1 kV/µs (C3) $U_L$</td>
</tr>
<tr>
<td>Temperature range</td>
</tr>
<tr>
<td>Installation type</td>
</tr>
<tr>
<td>Connection system</td>
</tr>
<tr>
<td>Protection rating</td>
</tr>
<tr>
<td>Shielding connection available</td>
</tr>
<tr>
<td>Shield connection</td>
</tr>
<tr>
<td>Testing standard</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Fine protection for energy systems, series installation: the plus of the VF family

- High arresting capacity
- Low protection level
- Usable in AC/DC applications
- Simple mounting using screwless terminals
- UL-listed

The lightning barriers of type VF are fine protection devices, used for single-phase energy technology systems. Besides the low protection level, these devices also have a visual display, which will indicate defective surge protection. If required, remote signalling is also available using a changeover contact and an NC contact.

Protection for 2-pole power supplies
### MCR protection for 2-pole power supply, 12 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VF12-AC DC</td>
<td>13.5 V</td>
<td>5097453</td>
</tr>
</tbody>
</table>

Surge protection device / fine protection type 3 to EN 61643-11

- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

### Technical Specifications

- **VF12-AC DC**
  - U\text{max} AC: 13.5 V
  - U\text{max} DC: 18 V
  - SPD to EN 61643-11: Type 3
  - SPD to IEC 61643-11: Class III
  - Lightning protection zone LPZ: 2→3
  - Nominal discharge current (8/20 μs): \(i_{\text{n}}\) 0.7 kA
  - Maximum discharge current (8/20 μs): \(i_{\text{max}}\) 2 kA
  - Rated current: \(I_e\) 20 A
  - Protection level wire-wire: \(U_{\text{c}}\) <110 V
  - Protection level wire-earth: \(U_{\text{c}}\) <1200 V
  - Response time: \(t_{\text{A}}\) <25 ns
  - Temperature range: \(\theta\) -40 - +80 °C
  - Protection rating: IP 20
  - Division unit TE (17.5 mm)
  - Connection cross-section rigid: 0.14 - 2.5 mm²
  - Connection cross-section, multi-wire: 0.14 - 2.5 mm²
  - Connection cross-section, flexible: 0.14 - 2.5 mm²
  - Approvals: UL

### Dimensions

[Diagram of dimensions]

Always indicate the item number when ordering.
MCR protection for 2-pole power supply, 24 V

- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

Type | VF24-AC/DC | 34
--- | --- | ---
Highest continuous voltage | V | Pack. pcs. | Weight kg/100 pcs. | Item No.
VF24-AC/DC | 34 | 1 | 8.000 | 5097607

Surge protection device / fine protection type 3 to EN 61643-11

- Nominal discharge current (8/20 μs) \( I_n \) 0.7 kA
- Maximum discharge current (8/20 μs) \( I_{max} \) 2 kA
- Rated current \( I_l \) 20 A
- Protection level wire-wire \( \leq 130 \) V
- Protection level wire-earth \( \leq 1200 \) V
- Response time \( t_A \) \( < 25 \) ns
- Temperature range \( \theta \) \(-40 - +80 \) °C
- Protection rating | IP 20
- Division unit TE (17.5 mm) | 1
- Connection cross-section rigid | 0.14 - 2.5 mm²
- Connection cross-section, multi-wire | 0.14 - 2.5 mm²
- Connection cross-section, flexible | 0.14 - 2.5 mm²
- Approvals | UL

Always indicate the item number when ordering.
MCR protection for 2-pole power supply, 48 V

MCR protection for 2-pole for power supply

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VF48-AC/DC</td>
<td>pcs</td>
<td>kg/100 pcs.</td>
<td>5097615</td>
</tr>
</tbody>
</table>

Surge protection device / fine protection type 3 to EN 61643-11

- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

**VF48-AC/DC**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>$U_{\text{max AC}}$</td>
<td>60 V</td>
</tr>
<tr>
<td>$U_{\text{max DC}}$</td>
<td>80 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 3</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class III</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>2–3</td>
</tr>
<tr>
<td>Nominal discharge current (8/20) $I_{\text{n}}$</td>
<td>0.7 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs) $I_{\text{max}}$</td>
<td>2 kA</td>
</tr>
<tr>
<td>Rated current $I_{\text{r}}$</td>
<td>20 A</td>
</tr>
<tr>
<td>Protection level wire-wire</td>
<td>&lt;220 V</td>
</tr>
<tr>
<td>Protection level wire-earth</td>
<td>&lt;1200 V</td>
</tr>
<tr>
<td>Response time $t_{\text{A}}$</td>
<td>&lt;25 ns</td>
</tr>
<tr>
<td>Temperature range $\theta$</td>
<td>-40 - +80 °C</td>
</tr>
<tr>
<td>Protection rating $IP_{\text{20}}$</td>
<td></td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>1</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>0.14 - 2.5 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>0.14 - 2.5 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>0.14 - 2.5 mm²</td>
</tr>
<tr>
<td>Approvals</td>
<td>UL</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
MCR protection for 2-pole power supply, 60 V

Surge protection device / fine protection type 3 to EN 61643-11

- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

**Dimensions**

**Connection options**

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VF60-AC/DC</td>
<td>1</td>
<td>8.000</td>
<td>5097623</td>
</tr>
</tbody>
</table>

**VF60-AC/DC**

- **U max AC** $U_{AC}$ 80 V
- **U max DC** $U_{DC}$ 110 V
- **SPD to EN 61643-11** Type 3
- **SPD to IEC 61643-11** Class III
- **Lightning protection zone LPZ** 2 → 3
- **Nominal discharge current (8/20)** $I_n$ 0.7 kA
- **Maximum discharge current (8/20 μs)** $I_{max}$ 2 kA
- **Rated current** $I_L$ 20 A
- **Protection level wire-wire** $<280$ V
- **Protection level wire-earth** $<1200$ V
- **Response time** $t_A$ $<25$ ns
- **Temperature range** $\theta$ -40 to +80 °C
- **Protection rating** IP 20
- **Division unit TE (17.5 mm)** 1
- **Connection cross-section rigid** 0.14 - 2.5 mm²
- **Connection cross-section, multi-wire** 0.14 - 2.5 mm²
- **Connection cross-section, flexible** 0.14 - 2.5 mm²

Always indicate the item number when ordering.
**MCR protection for 2-pole power supply, 110 V**

**VF110-AC DC**

<table>
<thead>
<tr>
<th>Type</th>
<th>U&lt;sub&gt;max&lt;/sub&gt; AC</th>
<th>U&lt;sub&gt;max&lt;/sub&gt; DC</th>
<th>U&lt;sub&gt;c&lt;/sub&gt; AC</th>
<th>U&lt;sub&gt;c&lt;/sub&gt; DC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VF110-AC DC</strong></td>
<td>150 V</td>
<td>200 V</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

### Dimensions

- **Height:** 80 mm
- **Width:** 60.5 mm
- **Depth:** 75 mm

### Connection options

- Connection cross-section rigid: 0.14 - 2.5 mm²
- Connection cross-section, multi-wire: 0.14 - 2.5 mm²
- Connection cross-section, flexible: 0.14 - 2.5 mm²

Always indicate the item number when ordering.
MCR protection for 2-pole power supply, 230 V

- Suitable for DC and AC voltage systems
- With visual function display
- With installation-friendly, screwless connection terminals
- In a space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rail in every normal commercially available distributor housing.

VF230-AC/DC

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VF230-AC/DC</td>
<td>1</td>
<td>8.000</td>
<td>5097650</td>
</tr>
</tbody>
</table>

Surge protection device / fine protection type 3 to EN 61643-11

<table>
<thead>
<tr>
<th>Highest continuous voltage V</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>255</td>
<td>1</td>
<td>8.000</td>
<td>5097650</td>
</tr>
</tbody>
</table>

Dimensions

Connection options

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Weight kg/100 pcs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5097650</td>
<td>8.000</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
**MCR protection for 2-pole power supply with remote signalling, 12 V AC/DC**

<table>
<thead>
<tr>
<th>Type</th>
<th>Item No.</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Highest continuous voltage V</th>
</tr>
</thead>
<tbody>
<tr>
<td>VF12-AC/DC-FS</td>
<td>5097454</td>
<td>1</td>
<td>6.400</td>
<td>13.5</td>
</tr>
</tbody>
</table>

Surge protection / fine power protection, type 3, to EN 61643-11 with remote signalling

- With remote signalling, potential-free changeover contact, for function monitoring
- Suitable for DC and AC systems
- With visual function display
- With easy mounting, screwless connection terminals
- In space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rails in any standard distributor housing.

VF12-AC/DC-FS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>U max AC</td>
<td>Uc AC 13.5 V</td>
</tr>
<tr>
<td>U max DC</td>
<td>Uc DC 18 V</td>
</tr>
<tr>
<td>SPD to EN 61643-11</td>
<td>Type 3</td>
</tr>
<tr>
<td>SPD to IEC 61643-11</td>
<td>Class III</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>2~3</td>
</tr>
<tr>
<td>Nominal discharge current (8/20)</td>
<td>In 0.7 kA</td>
</tr>
<tr>
<td>Maximum discharge current (8/20 μs)</td>
<td>Imax 2 kA</td>
</tr>
<tr>
<td>Rated current</td>
<td>In 20 A</td>
</tr>
<tr>
<td>Protection level wire-wire</td>
<td>Uc &lt;110 V</td>
</tr>
<tr>
<td>Protection level wire-earth</td>
<td>Uc &lt;1200 V</td>
</tr>
<tr>
<td>Response time</td>
<td>tA &lt;25 ns</td>
</tr>
<tr>
<td>Temperature range</td>
<td>θ -40 ~ +80 °C</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP 20</td>
</tr>
<tr>
<td>Division unit TE (17.5 mm)</td>
<td>1</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>0.14 - 2.5 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>0.14 - 2.5 mm²</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>0.14 - 2.5 mm²</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
MCR protection for 2-pole power supply with remote signalling, 24 V AC/DC

- Surge protection / fine power protection, type 3, to EN 61643-11 with remote signalling
- With remote signalling, potential-free changeover contact, for function monitoring
- Suitable for DC and AC systems
- With visual function display
- With easy mounting, screwless connection terminals
- In space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rails in any standard distributor housing.

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VF24-AC/DC-FS</td>
<td>1 kg/100 pcs.</td>
<td>5097820</td>
</tr>
</tbody>
</table>

Surge protection / fine power protection, type 3, to EN 61643-11 with remote signalling

- Always indicate the item number when ordering.
MCR protection for 2-pole for power supply with remote signalling, 12 V AC/DC

<table>
<thead>
<tr>
<th>Type</th>
<th>U max AC</th>
<th>U max DC</th>
<th>SPD to EN 61643-11</th>
<th>SPD to IEC 61643-11</th>
<th>Lightning protection zone LPZ</th>
<th>Nominal discharge current (8/20 μs)</th>
<th>Maximum discharge current (8/20 μs)</th>
<th>Rated current</th>
<th>Protection level wire-wire</th>
<th>Protection level wire-earth</th>
<th>Response time</th>
<th>Temperature range</th>
<th>Protection rating</th>
<th>Division unit TE (17.5 mm)</th>
<th>Connection cross-section rigid</th>
<th>Connection cross-section, multi-wire</th>
<th>Connection cross-section, flexible</th>
</tr>
</thead>
<tbody>
<tr>
<td>VF48-AC/DC-FS</td>
<td>60 V</td>
<td>80 V</td>
<td>Type</td>
<td>3</td>
<td>Class III</td>
<td>2→3</td>
<td>Iₚ,AC = 0,7 kA</td>
<td>IₘAX = 2 kA</td>
<td>I₀ = 20 A</td>
<td>Uₚ,AC = 220 V</td>
<td>Uₚ,DC = &lt;1200 V</td>
<td>tₐ = &lt;25 ns</td>
<td>Δ = -40...+80 °C</td>
<td>IP 20</td>
<td>1</td>
<td>0.14 - 2.5 mm²</td>
<td>0.14 - 2.5 mm²</td>
</tr>
</tbody>
</table>

Surge protection / fine power protection, type 3, to EN 61643-11 with remote signalling

- With remote signalling, potential-free changeover contact, for function monitoring
- Suitable for DC and AC systems
- With visual function display
- With easy mounting, screwless connection terminals
- In space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rails in any standard distributor housing.

Always indicate the item number when ordering.
MCR protection for 2-pole power supply with remote signalling, 230 V AC

Surge protection / fine power protection, type 3, to EN 61643-11 with remote signalling

- With remote signalling, potential-free changeover contact, for function monitoring
- Suitable for AC systems
- With visual function display
- With easy mounting, screwless connection terminals
- In space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rails in any standard distributor housing.

### VF230-AC-FS

<table>
<thead>
<tr>
<th>Type</th>
<th>Uc AC</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VF230-AC-FS</td>
<td>255 V</td>
<td>6.910</td>
<td>509788</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
MCR protection for 2-pin for power supply with leak current-free remote signalling, 230 V AC/DC

<table>
<thead>
<tr>
<th>Type</th>
<th>U max AC</th>
<th>U max DC</th>
<th>Weight</th>
<th>Pack.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VF2-230-AC/DC-FS</td>
<td>255 V</td>
<td>350 V</td>
<td>6.000</td>
<td>1 pcs.</td>
<td>5097939</td>
</tr>
</tbody>
</table>

Type 3 surge protection/fine network protection to EN 61643-11 with leak current-free remote signalling

- With remote signalling: potential-free NC contact for function monitoring
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- Y circuit

Application: Universal use on 35 mm DIN profile rails in any standard distributor housing.

VF2-230-AC/DC-FS

- U max AC: 255 V
- U max DC: 350 V
- SPD to EN 61643-11: Type 3
- SPD to IEC 61643-11: Class III
- Lightning protection zone LPZ: 2→3
- Nominal discharge current (8/20 μs): In
- Maximum discharge current (8/20 μs): Imax
- Rated current: In
- Protection level wire: 2 < 1000 V
- Protection level wire-earth: < 1400 V
- Response time: tA < 25 ns
- Temperature range: 40 to +80 °C
- Protection rating: IP 20
- Division unit TE (17.5 mm): 1
- Connection cross-section rigid: 0.14 - 2.5 mm²
- Connection cross-section, multi-wire: 0.14 - 2.5 mm²
- Connection cross-section, flexible: 0.14 - 2.5 mm²

Always indicate the item number when ordering.
MCR protection for two-core systems: the plus of the FRD/FLD family

- High arresting capacity
- Low noise
- Universal application
- Simple mounting using screwless terminals
- High bandwidth
- UL-listed

The use of lightning barriers in two-core wire systems is commonplace. These surge protection devices are used from telecommunications cables through bus systems up to measurement and control technology. Surge protection technology allows flexible protection for all kinds of applications. All the devices have both a low protection level and a high arresting capacity.

Basic and combination protection for two-core systems

Always indicate the item number when ordering.
Basic protection for two-core systems with HF applications 120 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Highest continuous voltage DC V</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TKS-B</td>
<td>120</td>
<td>170</td>
<td>2</td>
<td>Terminal</td>
<td>1</td>
<td>4.400</td>
<td>5097976</td>
</tr>
</tbody>
</table>

Basic protection for measuring, control and regulation technology and telecommunication systems.

- Basic protection for lightning protection equipotential bonding
- High impulse arresting capacity 6 kA (10/350)
- With easy-to-mount, screwless connection terminals
- In a space-saving 17.5 mm grid

Application: Universal use on 35 mm DIN rails in standard distributor housings.

**TKS-B**

- Maximum continuous voltage AC \( U_{\text{AC}} \): 120 V
- Maximum continuous voltage DC \( U_{\text{DC}} \): 170 V
- Category: Type 1+2 / D1+C2
- Number of poles: 2
- Rated current: \( \leq 20 \) A
- Series resistance per wire: —
- Impulse durability wire-wire: C2: 18 kV / 9 kA
- Impulse durability wire-earth: C2: 18 kV / 9 kA
- Total discharge current (8/20): 18 kA
- Total discharge current (10/350): D1: 6 kA
- Protection level wire-wire: <950 V
- Protection level wire-earth: <800 V
- Temperature range: -40°C to +80°C
- Installation type: DIN rail
- Connection system: Terminal
- Division unit TE (17.5 mm): 1
- Protection rating: IP20
- Connection cross-section, flexible: 0.14 - 2.5 mm²
- Connection cross-section, multi-wire: 0.14 - 2.5 mm²
- Connection cross-section rigid: 0.14 - 2.5 mm²
- Earthing via: Connection cable
- Testing standard: IEC 61643-21

Always indicate the item number when ordering.
Combination protection for two-core systems with HF applications 5 V

Surge protection for use in measuring, control and regulation systems.

- Basic, medium and fine protection
- Two-stage protection circuit with high lightning current carrying capacity
- High transmission frequency up to 100 MHz
- Suitable for all bus systems (e.g. Profibus)
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid

Application: Multipurpose use on any 35 mm DIN profile rail in every commercially available distribution housing.

### FRD 5 HF

<table>
<thead>
<tr>
<th>Type</th>
<th>Maximum continuous voltage AC</th>
<th>Maximum continuous voltage DC</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Weight (kg/100 pcs.)</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRD 5 HF</td>
<td>4 V</td>
<td>6 V</td>
<td>2</td>
<td>Terminal</td>
<td>4.400</td>
<td>5098571</td>
</tr>
</tbody>
</table>

**Highest continuous voltage**

**Type**

- **AC**
- **DC**

**Number of poles**

**Connection system**

**Weight (kg/100 pcs.)**

**Item No.**

---

**Dimensions**

- 17.5 mm grid

---

**Connection options**

- Terminal

---

Always indicate the item number when ordering.
Combination protection for two-core systems with HF applications 24 V

<table>
<thead>
<tr>
<th>Type</th>
<th>FRD 24 HF</th>
<th>Highest continuous voltage AC</th>
<th>Highest continuous voltage DC</th>
<th>Number of poles</th>
<th>Connec- tion system</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>19</td>
<td>28</td>
<td>2</td>
<td>Terminal</td>
<td>1</td>
<td>4.400</td>
<td>5098575</td>
<td></td>
</tr>
</tbody>
</table>

Surge protection for use in measuring, control and regulation systems.

- Basic, medium and fine protection
- Two-stage protection circuit with high lightning current carrying capacity
- High transmission frequency up to 100 MHz
- Suitable for all bus systems (e.g. Profibus)
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid

Application: Multipurpose use on any 35 mm DIN profile rail in every commercially available distribution housing.

**FRD 24 HF**

- Maximum continuous voltage AC $U_c$: 19 V
- Maximum continuous voltage DC $U_c$: 28 V
- Category: Type 1+2+3 / D1+C2+C1
- Lightning protection zone LPZ: 0→3
- Number of poles: 2
- Rated current: 0.45 A
- Series resistance per wire: $2.2 \Omega \pm 10\%$
- Impulse durability wire-wire: C2: 18 kV / 9 kA (8/20 µs)
- Impulse durability wire-earth: C2: 18 kV / 9 kA (8/20 µs)
- Total discharge current (8/20): 18 kA
- Total discharge current (10/350): D1: 6 kA
- Protection level wire-wire: <120 V
- Protection level wire-earth: <650 V
- Temperature range: $-40 - +80 °C$
- Installation type: DIN rail 35 mm
- Connection system: Terminal
- Division unit TE (17.5 mm): 1
- Protection rating: IP20
- Connection cross-section, flexible: 0.14 - 2.5 mm²
- Connection cross-section, multiwire: 0.14 - 2.5 mm²
- Connection cross-section rigid: 0.14 - 2.5 mm²
- Earthing via: Terminal
- Testing standard: IEC 61643-21
- Approvals: UL

Always indicate the item number when ordering.
Medium and fine protection FRD for two-core systems 5 V

Surge protection for use in measurement and control technology

- Medium and fine protection
- Standard design for double core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With ohmic decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

### Dimensions

#### Connection options

<table>
<thead>
<tr>
<th>FRD 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
</tr>
<tr>
<td>V</td>
</tr>
<tr>
<td>Number of poles</td>
</tr>
<tr>
<td>Connection system</td>
</tr>
<tr>
<td>Pack, pcs.</td>
</tr>
<tr>
<td>Weight kg/100 pcs.</td>
</tr>
</tbody>
</table>

Surge protection for use in measurement and control technology

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>5 - 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of poles</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Connection system</td>
<td>Terminal</td>
<td></td>
</tr>
<tr>
<td>Pack, pcs.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Weight kg/100 pcs.</td>
<td>5098492</td>
<td></td>
</tr>
</tbody>
</table>

- Maximum continuous voltage AC \( U_c = 5 \text{ V} \)
- Maximum continuous voltage DC \( U_c = 8 \text{ V} \)
- Category Type 1+2+3 / D1+C2+C1
- Lightning protection zone LPZ 0 → 3
- Rated current \( I = 0.2 \text{ A} \)
- Series resistance per wire 15 \( \Omega \ ± 10\% \)
- Impulse durability wire-wire \( C1: 1 \text{ kV} / 0.5 \text{ kA} (8/20 \mu s) \)
- Impulse durability wire-earth \( C2: 10 \text{ kV} / 5 \text{ kA} (8/20 \mu s) \)
- Total discharge current \( (8/20) \) 10 \text{ kA} \)
- Total discharge current \( (10/350) \) 3 \text{ kA} \)
- Protection level wire-wire \(<15 \text{ V} \)
- Protection level wire-earth \(<600 \text{ V} \)
- Temperature range \(-40 → +80 \text{ °C} \)
- Installation type DIN rail 35 mm
- Connection system Terminal
- Division unit TE (17.5 mm) 1
- Protection rating IP20
- Connection cross-section, flexible \( 0.14 → 2.5 \text{ mm}^2 \)
- Connection cross-section, multi-wire \( 0.14 → 2.5 \text{ mm}^2 \)
- Connection cross-section rigid \( 0.14 → 2.5 \text{ mm}^2 \)
- Earthing via: Terminal
- Testing standard IEC 61643-21
- Approvals UL

Always indicate the item number when ordering.
Medium and fine protection FRD for two-core systems 12 V

<table>
<thead>
<tr>
<th>Type</th>
<th>FRD 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage AC</td>
<td>9 V</td>
</tr>
<tr>
<td>Voltage DC</td>
<td>13 V</td>
</tr>
<tr>
<td>Number of poles</td>
<td>2</td>
</tr>
<tr>
<td>Connection system</td>
<td>Terminal</td>
</tr>
<tr>
<td>Pack.</td>
<td>1 pcs</td>
</tr>
<tr>
<td>Weight</td>
<td>5.100 kg/100 pcs.</td>
</tr>
<tr>
<td>Item No.</td>
<td>5098506</td>
</tr>
</tbody>
</table>

Surge protection for use in measurement and control technology

- Medium and fine protection
- Standard design for double core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With ohmic decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

**FRD 12**

- Maximum continuous voltage AC: $U_c = 9$ V
- Maximum continuous voltage DC: $U_c = 13$ V
- Category: Type 1+2+3 / D1+C2+C1
- Number of poles: 2
- Rated current: $I = 0.2$ A
- Series resistance per wire: $R = 15 \Omega \pm 10\%$
- Impulse durability wire-wire: $C1: 1$ kV / $0.5$ kA ($8/20\mu$s)
- Impulse durability wire-earth: $C2: 10$ kV / $5$ kA ($8/20\mu$s)
- Total discharge current ($8/20$): $I_{dc} = 10$ kA
- Total discharge current ($10/350$): $I_{dc} = 3$ kA
- Protection level wire-wire: $<30$ V
- Protection level wire-earth: $<600$ V
- Temperature range: $-40$ to $+80$ °C
- Installation type: DIN rail 35 mm
- Connection system: Terminal
- Division unit TE (17.5 mm): 1
- Protection rating: IP20
- Connection cross-section, flexible: $0.14 - 2.5$ mm²
- Connection cross-section, multiwire: $0.14 - 2.5$ mm²
- Connection cross-section, rigid: $0.14 - 2.5$ mm²
- Earthing via: Terminal
- Testing standard: IEC 61643-21
- Approvals: UL

Always indicate the item number when ordering.
Medium and fine protection FRD for two-core systems 24 V

Surge protection for use in measurement and control technology

- Medium and fine protection
- Standard design for double core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With ohmic decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC</th>
<th>Highest continuous voltage DC</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRD 24</td>
<td>19</td>
<td>28</td>
<td>2</td>
<td>Terminal</td>
<td>5.100</td>
<td>5098514</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Medium and fine protection FRD for two-core systems 48 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Highest continuous voltage DC V</th>
<th>Number of poles</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRD 48</td>
<td>37</td>
<td>53</td>
<td>2</td>
<td>Terminal</td>
<td>1</td>
<td>5.100</td>
</tr>
</tbody>
</table>

Surge protection for use in measurement and control technology

- Medium and fine protection
- Standard design for double core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With ohmic decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

FRD 48

- Maximum continuous voltage AC: 37 V
- Maximum continuous voltage DC: 53 V
- Category: Type 1+2+3 / D1+C2+C1
- Number of poles: 2
- Rated current: 0.2 A
- Series resistance per wire: 15 Ω ± 10 %
- Impulse durability wire-wire: C2: 5 kV / 2.5 kA (8/20µs)
- Impulse durability wire-earth: C2: 10 kV / 5 kA (8/20µs)
- Total discharge current (8/20): 10 kA
- Total discharge current (10/350): D1: 3 kA
- Protection level wire-wire: <140 V
- Protection level wire-earth: <600 V
- Temperature range: -40 – +80 °C
- Installation type: DIN rail 35 mm
- Connection system: Terminal
- Division unit TE (17.5 mm): 1
- Protection rating: IP20
- Connection cross-section, flexible: 0.14 - 2.5 mm²
- Connection cross-section, multiwire: 0.14 - 2.5 mm²
- Connection cross-section rigid: 0.14 - 2.5 mm²
- Earthing via: Terminal
- Testing standard: IEC 61643-21
- Approvals: UL

Always indicate the item number when ordering.
Medium and fine protection FRD for two-core systems 110 V

Surge protection for use in measurement and control technology

- Medium and fine protection
- Standard design for double core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With ohmic decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

**FRD 110**

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC</th>
<th>Highest continuous voltage DC</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRD 110</td>
<td>86</td>
<td>122</td>
<td>2</td>
<td>Terminal</td>
<td>1</td>
<td>5.100</td>
<td>50988557</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Medium and fine protection FRD 2 for two-core systems 24 V

Surge protection for use in measurement and control technology

- Medium and fine protection
- Standard design for double core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With ohmic decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

FRD 2-24

Maximum continuous voltage AC \( U_{\text{AC}} \): 19 V
Maximum continuous voltage DC \( U_{\text{DC}} \): 28 V
Category: Type 2+3 / C2+C1
Number of poles: 2
Rated current: \( I_{\text{R}} \): 0.2 A
Series resistance per wire: 15 Ω ± 10 %
Impulse durability wire-wire: C2: 5 kV / 2,5 kA (8/20µs)
Impulse durability wire-earth: C2: 5 kV / 2,5 kA (8/20µs)
Total discharge current (8/20): 5 kA
Total discharge current (10/350): – kA
Protection level wire-wire: <120 V
Protection level wire-earth: <80 V
Temperature range: \(-40 \text{ to } +80 \, ^\circ\text{C}\)
Installation type: DIN rail 35 mm
Connection system: Terminal
Division unit TE (17.5 mm): 1
Protection rating: IP20
Connection cross-section, flexible: 0.14 – 2.5 mm²
Connection cross-section, multi-wire: 0.14 – 2.5 mm²
Connection cross-section rigid: 0.14 – 2.5 mm²
Earthing via: Terminal
Testing standard: IEC 61643-21
Approvals: –
Medium and fine protection FLD for two-core systems 5 V

Surge protection for use in measurement and control technology

- Medium and fine protection
- Standard design for single core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With inductive decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Highest continuous voltage DC V</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLD 5</td>
<td></td>
<td></td>
<td>2</td>
<td>Terminal</td>
<td>1</td>
<td>5.200</td>
<td>5098600</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maximum continuous voltage AC V</th>
<th>Maximum continuous voltage DC V</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uc 5</td>
<td></td>
<td>2</td>
<td>Terminal</td>
<td>5.200</td>
<td>5098600</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Highest continuous voltage AC V</th>
<th>Highest continuous voltage DC V</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1+2+3 / D1+C2+C1</td>
<td></td>
<td></td>
<td>2</td>
<td>Terminal</td>
<td></td>
<td>5098600</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of poles</th>
<th>Connection system</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Terminal</td>
<td></td>
<td>5098600</td>
</tr>
</tbody>
</table>

**FLD 5**

- Maximum continuous voltage AC: Uc 5 V
- Maximum continuous voltage DC: Uc 8 V
- Category: Type 1+2+3 / D1+C2+C1
- Lightning protection zone: LPZ 0~3
- Number of poles: 2
- Rated current: Ic 1 A
- Series inductivity per wire: 120 µH ± 20 %
- Impulse durability wire-wire: C1: 1 kV / 0.5 kA (8/20µs)
- Impulse durability wire-earth: C2: 10 kV / 5 kA (8/20µs)
- Total discharge current (8/20): 10 kA
- Total discharge current (10/350): D1: 3 kA
- Protection level wire-wire: <15 V
- Protection level wire-earth: <600 V
- Temperature range: -40°C to +80°C
- Installation type: DIN rail 35 mm
- Connection system: Terminal
- Division unit TE (17.5 mm): 1
- Earthing via: Terminal
- Testing standard: IEC 61643-21
- Approvals: UL
Medium and fine protection FLD for two-core systems 12 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Highest continuous voltage DC V</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLD 12</td>
<td>9</td>
<td>13</td>
<td>2</td>
<td>Terminal</td>
<td>1</td>
<td>5.200</td>
<td>5098603</td>
</tr>
</tbody>
</table>

Surge protection for use in measurement and control technology

- Medium and fine protection
- Standard design for single core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With inductive decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

**FLD 12**

- Maximum continuous voltage AC $U_{cc}$: 9 V
- Maximum continuous voltage DC $U_{ce}$: 13 V
- Category: Type 1+2+3 / D1+C2+C1
- Number of poles: 2
- Rated current: 1 A
- Series inductivity per wire: $120 \mu H \pm 20 \%$
- Impulse durability wire-wire: C1: 1 kV / 0.5 kA (8/20µs)
- Impulse durability wire-earth: C2: 10 kV / 5 kA (8/20µs)
- Total discharge current (8/20): 10 kA
- Total discharge current (10/350): D1: 3 kA
- Protection level wire-wire: <30 V
- Protection level wire-earth: <800 V
- Temperature range: $-40 \degree C$ to $+80 \degree C$
- Installation type: DIN rail 35 mm
- Connection system: Terminal
- Division unit TE (17.5 mm): 1
- Protection rating: IP20
- Connection cross-section, flexible: 0.14 - 2.5 mm²
- Connection cross-section, multi-wire: 0.14 - 2.5 mm²
- Connection cross-section rigid: 0.14 - 2.5 mm²
- Earthing via: Terminal
- Testing standard: IEC 61643-21
- Approvals: UL

Always indicate the item number when ordering.
**MCR protection for two-core systems**

**Medium and fine protection FLD for two-core systems 24 V**

- Surge protection for use in measurement and control technology
  - Medium and fine protection
  - Standard design for single core systems
  - Two-stage protection circuit
  - With installation-friendly, screwless connection terminals
  - In space-saving 17.5 mm grid
  - With inductive decoupling in the longitudinal branch

**Application:** Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

### Dimensions

**Connection options**

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC</th>
<th>Highest continuous voltage DC</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLD 24</td>
<td>19 V</td>
<td>28 V</td>
<td>2</td>
<td>Terminal</td>
<td>1</td>
<td>5098611</td>
</tr>
</tbody>
</table>

### FLD 24

- Maximum continuous voltage AC \( U_{\text{c}} \): 19 V
- Maximum continuous voltage DC \( U_{\text{c}} \): 28 V
- Category: Type 1+2+3 / D1+C2+C1
- Lightning protection zone LPZ: 0→3
- Rated current \( I_{\text{c}} \): 1 A
- Series inductivity per wire: 120 \( \mu \)H ± 20 %
- Impulse durability wire-wire: C2: 5 kV / 2.5 kA (8/20\( \mu \)s)
- Impulse durability wire-earth: C2: 10 kV / 5 kA (8/20\( \mu \)s)
- Total discharge current (8/20): 10 kA
- Total discharge current (10/350): D1: 3 kA
- Protection level wire-wire: <60 V
- Protection level wire-earth: <600 V
- Temperature range: \(-40 ^\circ\text{C} \rightarrow +80 ^\circ\text{C}\)
- Installation type: DIN rail 35 mm
- Connection system: Terminal
- Division unit TE (17.5 mm): 1
- Protection rating: IP20
- Connection cross-section, flexible: 0.14 - 2.5 mm²
- Connection cross-section, multiwire: 0.14 - 2.5 mm²
- Connection cross-section rigid: 0.14 - 2.5 mm²
- Earthing via: Terminal
- Testing standard: IEC 61643-21
- Approvals: UL

Always indicate the item number when ordering.
Medium and fine protection FLD for two-core systems 48 V

Surge protection for use in measurement and control technology

- Medium and fine protection
- Standard design for single core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With inductive decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Highest continuous voltage DC V</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLD 48</td>
<td>37</td>
<td>53</td>
<td>2</td>
<td>Terminal</td>
<td>1</td>
<td>5.200</td>
<td>5098630</td>
</tr>
</tbody>
</table>

FLD 48

Maximum continuous voltage AC \( U_{\text{c}} \) 37 V
Maximum continuous voltage DC \( U_{\text{c}} \) 53 V
Category Type 1+2+3 / D1+C2+C1
Number of poles 2
Rated current \( I_{\text{L}} \) 1 A
Series inductivity per wire 120 \( \mu \) H ± 20 %
Impulse durability wire-ground \( C_{2} \): 5 kV / 2.5 kA (8/20\( \mu \)s)
Impulse durability wire-earth \( C_{2} \): 10 kV / 5 kA (8/20\( \mu \)s)
Total discharge current (8/20) 10 kA
Total discharge current (10/350) \( D_{1} \): 3 kA
Protection level wire-ground <140 V
Protection level wire-earth <600 V
Protection level wire-earth <600 V
Temperature range \( -40 \) to \( +80 \) °C
Installation type DIN rail 35 mm
Connection system Terminal
Division unit TE (17.5 mm) 1
Protection rating IP20
Connection cross-section, flexible 0.14 - 2.5 mm²
Connection cross-section, multi-wire 0.14 - 2.5 mm²
Connection cross-section rigid 0.14 - 2.5 mm²
Earthing via: Terminal
Testing standard IEC 61643-21
Approvals UL

Always indicate the item number when ordering.
MCR protection for two-core systems

**Medium and fine protection FLD for two-core systems 110 V**

- Medium and fine protection
- Standard design for single core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With inductive decoupling in the longitudinal branch

**Application:** Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

**Dimensions**

**Connection options**

**Surge protection for use in measurement and control technology**

- Type 1+2+3 / D1+C2+C1
- 0 → 3
- 120 µH ± 20 %
- C1: 1 kV / 0.5 kA (8/20µs)
- C2: 10 kV / 5 kA (8/20µs)
- 10 kA
- D1: 3 kA
- <300 V
- Protection level wire-earth
- <600 V
- Temperature range: -40 → +80 °C
- Installation type: DIN rail 35 mm
- Connection system: Terminal
- Division unit TE (17.5 mm)
- Protection rating: IP20
- Connection cross-section, flexible: 0.14 - 2.5 mm²
- Connection cross-section, multi-wire: 0.14 - 2.5 mm²
- Connection cross-section rigid: 0.14 - 2.5 mm²
- Earthing via: Terminal
- Testing standard: IEC 61643-21
- Approvals: UL

**FLD 110**

<table>
<thead>
<tr>
<th>Type</th>
<th>Maximum continuous voltage AC</th>
<th>Maximum continuous voltage DC</th>
<th>Number of poles</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLD 110</td>
<td>86 V</td>
<td>122 V</td>
<td>2</td>
<td>5.200</td>
<td>5098646</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Medium and fine protection FLD 2 for two-core systems 12 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Highest continuous voltage DC V</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLD 2-12</td>
<td>9</td>
<td>13</td>
<td>2</td>
<td>Terminal</td>
<td>1</td>
<td>5.100</td>
<td>5098808</td>
</tr>
</tbody>
</table>

Surge protection for use in measurement and control technology

- Medium and fine protection
- Standard design for single core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With inductive decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

FLD 2-12

- Maximum continuous voltage AC $U_{\text{ac}}$: 9 V
- Maximum continuous voltage DC $U_{\text{dc}}$: 13 V
- Category: Type 2+3 / C2+C1
- Number of poles: 2
- Rated current: 1 A
- Series inductivity per wire: $120 \mu\text{H} \pm 10\%$
- Impulse durability wire-wire: $C1: 1 \text{kV} / 0.5 \text{kA} (8/20\mu\text{s})$
- Impulse durability wire-earth: $C1: 1 \text{kV} / 0.5 \text{kA} (8/20\mu\text{s})$
- Total discharge current (8/20): 1 kA
- Total discharge current (10/350): $<60 \text{V}$
- Protection level wire-wire: $<60 \text{V}$
- Protection level wire-earth: $<30 \text{V}$
- Temperature range: $-40^\circ\text{C} \text{ to } +80^\circ\text{C}$
- Installation type: DIN rail 35 mm
- Connection system: Terminal
- Division unit TE (17.5 mm): 1
- Protection rating: IP20
- Connection cross-section, flexible: 0.14 - 2.5 mm²
- Connection cross-section, multiwire: 0.14 - 2.5 mm²
- Connection cross-section rigid: 0.14 - 2.5 mm²
- Earthing via: Terminal
- Testing standard: IEC 61643-21
- Approvals: UL
Medium and fine protection FLD 2 for two-core systems

Surge protection for use in measurement and control technology

- Medium and fine protection
- Standard design for single core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With inductive decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

**FLD 2-24**

<table>
<thead>
<tr>
<th>Highest continuous voltage AC</th>
<th>Highest continuous voltage DC</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>28 V</td>
<td>19 V</td>
<td>2</td>
<td>Terminal</td>
<td>1</td>
<td>5.100</td>
<td>5098816</td>
</tr>
</tbody>
</table>

Surge protection for measurement and control technology

- Medium and fine protection
- Standard design for single core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With inductive decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

**FLD 2-24**

<table>
<thead>
<tr>
<th>Connection options</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>L</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>L</td>
</tr>
<tr>
<td>PE</td>
</tr>
</tbody>
</table>

Maximum continuous voltage AC: 28 V
Maximum continuous voltage DC: 19 V
Category: Type 2+3 / C2+C1
Lightning protection zone LPZ: 1–3
Number of poles: 2
Rated current: 1 A
Series inductivity per wire: 120 µH ± 10 %
Impulse durability wire-wire: C1: 1 kV / 0,5 kA (8/20µs)
Impulse durability wire-earth: C1: 1 kV / 0,5 kA (8/20µs)
Total discharge current (8/20): 1 kA
Total discharge current (10/350): — kA
Protection level wire-wire: <120 V
Protection level wire-earth: <50 V
Temperature range: -40°C to +80°C
Installation type: DIN rail 35 mm
Connection system: Terminal
Division unit TE (17.5 mm): 1
Protection rating: IP20
Connection cross-section, flexible: 0.14 - 2.5 mm²
Connection cross-section, multi-wire: 0.14 - 2.5 mm²
Connection cross-section rigid: 0.14 - 2.5 mm²
Earthing via: Terminal
Testing standard: IEC 61643-21
Approvals: UL

Always indicate the item number when ordering.
Medium and fine protection FLD 2 for two-core systems 110 V

Surge protection for use in measurement and control technology

- Medium and fine protection
- Standard design for single core systems
- Two-stage protection circuit
- With installation-friendly, screwless connection terminals
- In space-saving 17.5 mm grid
- With inductive decoupling in the longitudinal branch

Application: Universal use on any 35 mm DIN profile rail in every commercially available distributor housing.

### FLD 2-110

<table>
<thead>
<tr>
<th>Type</th>
<th>Maximum continuous voltage AC</th>
<th>Maximum continuous voltage DC</th>
<th>Category</th>
<th>Number of poles</th>
<th>Rated current</th>
<th>Series inductivity per wire</th>
<th>Impulse durability wire-wire</th>
<th>Impulse durability wire-earth</th>
<th>Total discharge current (8/20)</th>
<th>Total discharge current (10/350)</th>
<th>Protection level wire-wire</th>
<th>Protection level wire-earth</th>
<th>Temperature range</th>
<th>Installation type</th>
<th>Connection system</th>
<th>Division unit TE (17.5 mm)</th>
<th>Protection rating</th>
<th>Connection cross-section, flexible</th>
<th>Connection cross-section, multi-wire</th>
<th>Connection cross-section rigid</th>
<th>Earthing via:</th>
<th>Testing standard</th>
<th>Approvals</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLD 2-110</td>
<td>86 V</td>
<td>122 V</td>
<td>Type 2+3 / C2+C1</td>
<td>2</td>
<td>1 A</td>
<td>120 µH ± 10 %</td>
<td>C2: 5 kV / 2.5 kA (8/20µs)</td>
<td>C2: 5 kV / 2.5 kA (8/20µs)</td>
<td>5 kA</td>
<td></td>
<td>&lt;500 V</td>
<td>&lt;300 V</td>
<td>-40 ~ +80 °C</td>
<td>DIN rail 35 mm</td>
<td>Terminal</td>
<td>1</td>
<td>IP20</td>
<td>0.14 ~ 2.5 mm²</td>
<td>0.14 ~ 2.5 mm²</td>
<td>0.14 ~ 2.5 mm²</td>
<td>Terminal</td>
<td>IEC 61643-21</td>
<td>UL</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
MCR protection for multi-wire systems (testable): the plus of the MDP family

- Protection device for multi-wire systems (4-pole)
- Direct shield earthing
- Easy-mounting, screwless connection terminals
- Space-saving width of just 8.1 mm
- Versions with nominal currents up to 10 A
- High frequency bandwidth up to 100 MHz
- UL-listed

Besides the high current capacity, the lightning barriers of type MDP offer a narrow installation width of just 8 mm. A separate screen connection permits shield attachment on both sides of the equipotential bonding, thus optimising the shield effect against capacitive and inductive couplings. Depending on the version, a nominal current of up to 10 A can be applied to the devices, meaning that they are thus ideally suited to use in special applications, such as slip ring transmitters or heating systems in wind power systems. When installed, all the MDPs can be checked using LifeControl.
### Series protection device, 2-pole, 5 V version

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage AC (V)</th>
<th>Voltage DC (V)</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDP-2 D-5-T</td>
<td>7</td>
<td>10</td>
<td>2</td>
<td>Terminal</td>
<td>1</td>
<td>6.000</td>
<td>5098404</td>
</tr>
</tbody>
</table>

MDP...-D-5-T: Lightning barrier with test function; 5 V version

- Nominal load current 0.58 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High frequency range of 0–100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

### MDP-2 D-5-T

- Maximum continuous voltage AC \( U_{\text{ac}} \): 7 V
- Maximum continuous voltage DC \( U_{\text{dc}} \): 10 V
- Category: Type 1+2+3 / D1+C2+C1
- Number of poles: 2
- Rated current: 0.58 A
- Series resistance per wire: 2.3\( \Omega \) ± 5 %
- Impulse durability wire-to-wire: \( C_1: 0.5 \text{ kV} / 0.25 \text{ kA} (8/20\mu \text{s}) \)
- Impulse durability wire-to-earth: \( C_2: 5 \text{ kV} / 2.5 \text{ kA} (8/20\mu \text{s}) \)
- Total discharge current (8/20): 5 kA
- Total discharge current (10/350): \( D_1: 1 \text{ kA} \)
- Protection level wire-to-wire: <35 V
- Protection level wire-to-earth: <800 V
- Frequency range: 0 – 100 MHz
- Temperature range: -40 – +80 °C
- Installation type: DIN rail 35 mm
- Connection system: Terminal
- Protection rating: IP20
- Shielding connection available: Yes
- Shield connection: Direct
- Connection cross-section, flexible: 0.14 – 2.5 mm²
- Connection cross-section, multi-wire: 0.14 – 1.5 mm²
- Connection cross-section rigid: 0.14 – 2.5 mm²
- Earthing via: DIN rail
- Testing standard: IEC 61643-21
- Approvals: UL
Series protection device, 3-pole, 5 V version

- Nominal load current 0.58 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High frequency range of 0–100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.
Series protection device, 4-pole, 5 V version

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Highest continuous voltage DC V</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDP-4 D-5-T</td>
<td>7</td>
<td>10</td>
<td>4</td>
<td>Terminal</td>
<td>1</td>
<td>6.000</td>
<td>5098411</td>
</tr>
</tbody>
</table>

MDP... D-5-T: Lightning barrier with test function; 5 V version

- Nominal load current 0.58 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High frequency range of 0–100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

**MDP-4 D-5-T**

- **Maximum continuous voltage AC** \( U_{\text{L}} \): 7 V
- **Maximum continuous voltage DC** \( U_{\text{L}} \): 10 V
- **Category**: Type 1+2+3 / D1+C2+C1
- **Number of poles**: 4
- **Rated current**: \( I_{\text{L}} \): 0.58 A
- **Series resistance per wire**: 2.35 \( \Omega \) ± 5 %
- **Impulse durability wire-wire**: C1: 0.5 kV / 0.25 kA (8/20\( \mu \)s)
- **Impulse durability wire-earth**: C2: 5 kV / 2.5 kA (8/20\( \mu \)s)
- **Total discharge current (8/20)**: 10 kA kA
- **Total discharge current (10/350)**: D1: 2kA kA
- **Protection level wire-wire**: <35 V
- **Protection level wire-earth**: <800 V
- **Frequency range**: 0 – 100 MHz
- **Temperature range**: 5 - 40 - +80 °C
- **Installation type**: DIN rail 35 mm
- **Connection system**: Terminal
- **Protection rating**: IP20
- **Shielding connection available**: Yes
- **Shield connection**: Direct
- **Connection cross-section, flexible**: 0.14 - 2.5 mm²
- **Connection cross-section, multi-wire**: 0.14 - 1.5 mm²
- **Connection cross-section rigid**: 0.14 - 2.5 mm²
- **Earthing via**: DIN rail
- **Testing standard**: IEC 61643-21
- **Approvals**: UL

Always indicate the item number when ordering.
Series protection device, 2-pole, 24 V version

- Nominal load current 0.58 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High bandwidth to 100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Highest continuous voltage DC V</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDP-2 D-24-T</td>
<td>20</td>
<td>28</td>
<td>2</td>
<td>Terminal</td>
<td>1</td>
<td>6.000</td>
<td>5098422</td>
</tr>
</tbody>
</table>

MPD-.. D-24-T: Lightning barrier with test function; 24 V version

Always indicate the item number when ordering.
Series protection device, 3-pole, 24 V version

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Highest continuous voltage DC V</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDP-3 D-24-T</td>
<td>20</td>
<td>28</td>
<td>3</td>
<td>Terminal</td>
<td>1</td>
<td>6.000</td>
<td>5098427</td>
</tr>
</tbody>
</table>

MDP... D-24-T: Lightning barrier with test function; 24 V version

- Nominal load current 0.58 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High bandwidth to 100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

**MDP-3 D-24-T**

- Maximum continuous voltage AC: 20 V
- Maximum continuous voltage DC: 28 V
- Category: Type 1+2+3 / D1+C2+C1
- Lighting protection zone LPZ: 0–3
- Number of poles: 3
- Rated current: 0.58 A
- Series resistance per wire: 2.35 Ω ± 5 %
- Impulse durability wire-wire: C1: 0.5 kV / 0.25 kA (8/20µs)
- Impulse durability wire-earth: C2: 5 kV / 2.5 kA (8/20µs)
- Total discharge current (8/20): 7.5 kA
- Total discharge current (10/350): D1: 1.5 kA
- Protection level wire-wire: <55 V
- Protection level wire-earth: <800 V
- Frequency range: 0 – 100 MHz
- Temperature range: -40 - +80 °C
- Installation type: DIN rail 35 mm
- Connection system: Terminal
- Protection rating: IP20
- Shielding connection available: Yes
- Shielding connection: Direct
- Connection cross-section, flexible: 0.14 - 2.5 mm²
- Connection cross-section, multi-wire: 0.14 - 1.5 mm²
- Connection cross-section rigid: 0.14 - 2.5 mm²
- Earthing via: DIN rail
- Testing standard: IEC 61643-21
- Approvals: UL

Always indicate the item number when ordering.
Series protection device, 4-pole, 24 V version

- Nominal load current 0.58 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High bandwidth to 100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

### MDP-4 D-24-T

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Highest continuous voltage DC V</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Weight kg</th>
<th>Pack pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDP-4 D-24-T</td>
<td>20</td>
<td>28</td>
<td>4</td>
<td>Terminal</td>
<td>1</td>
<td>5,800</td>
<td>5098431</td>
</tr>
</tbody>
</table>

MDP-... D-24-T: Lightning barrier with test function; 24 V version

<table>
<thead>
<tr>
<th>Connection options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum continuous voltage AC U_1: 20 V</td>
</tr>
<tr>
<td>Maximum continuous voltage DC U_2: 28 V</td>
</tr>
<tr>
<td>Category Type 1+2+3 / D1+C2+C1</td>
</tr>
<tr>
<td>Lightning protection zone LPZ 0→3</td>
</tr>
<tr>
<td>Number of poles 4</td>
</tr>
<tr>
<td>Rated current I: 0.58 A</td>
</tr>
<tr>
<td>Series resistance per wire 2.35 Ω ± 5 %</td>
</tr>
<tr>
<td>Impulse durability wire-wire C1: 0.5 kV / 0.25 kA (8/20µs)</td>
</tr>
<tr>
<td>Impulse durability wire-earth C2: 5 kV / 2.5 kA (8/20µs)</td>
</tr>
<tr>
<td>Total discharge current (8/20) 10 kA</td>
</tr>
<tr>
<td>Total discharge current (10/350) D1: 2 kA</td>
</tr>
<tr>
<td>Protection level wire-wire &lt;55 V</td>
</tr>
<tr>
<td>Protection level wire-earth &lt;800 V</td>
</tr>
<tr>
<td>Frequency range 0 - 100 MHz</td>
</tr>
<tr>
<td>Temperature range 0 - 80 °C</td>
</tr>
<tr>
<td>Installation type DIN rail 35 mm</td>
</tr>
<tr>
<td>Connection system Terminal</td>
</tr>
<tr>
<td>Protection rating IP20</td>
</tr>
<tr>
<td>Shielding connection available Yes</td>
</tr>
<tr>
<td>Shield connection Direct</td>
</tr>
<tr>
<td>Connection cross-section, flexible 0.14 - 2.5 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire 0.14 - 1.5 mm²</td>
</tr>
<tr>
<td>Connection cross-section rigid 0.14 - 2.5 mm²</td>
</tr>
<tr>
<td>Earthing via: DIN rail</td>
</tr>
<tr>
<td>Testing standard IEC 61643-21</td>
</tr>
<tr>
<td>Approvals UL</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
**Series protection device, 2-pole, 48 V version**

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC</th>
<th>Highest continuous voltage DC</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDP-2 D-48-T</td>
<td>41 V</td>
<td>58 V</td>
<td>2</td>
<td>Terminal</td>
<td>1</td>
<td>6.000</td>
<td>5098442</td>
</tr>
</tbody>
</table>

**MDP-2 D-48-T: Lightning barrier with test function; 48 V version**

- Nominal load current 0.58 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High bandwidth to 100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

**MDP-2 D-48-T**

- **Maximum continuous voltage AC** $U_{\text{C}}$: 41 V
- **Maximum continuous voltage DC** $U_{\text{C}}$: 58 V
- **Category** Type 1+2+3 / D1+C2+C1
- **Lightning protection zone LPZ**: 0–3
- **Number of poles**: 2
- **Rated current** $I_{\text{c}}$: 0.58 A
- **Series resistance per wire** $R$: 2.35 $\Omega \pm 5\%$
- **Impulse durability wire-wire** $C_{1}$: 0.5 kV / 0.25 kA (8/20µs)
- **Impulse durability wire-earth** $C_{2}$: 5 kV / 2.5 kA (8/20µs)
- **Total discharge current (8/20)** $I_{\text{D820}}$: 5 kA
- **Total discharge current (10/350)** $I_{\text{D10350}}$: 1 kA
- **Protection level wire-wire** $\vartheta$: <95 V
- **Protection level wire-earth** $\vartheta$: <800 V
- **Frequency range** $f$: 0 - 100 MHz
- **Temperature range** $\vartheta$: -40 - +80 °C
- **Installation type** DIN rail 35 mm
- **Connection system** Terminal
- **Protection rating** IP20
- **Shielding connection available** Yes
- **Shield connection** Direct
- **Connection cross-section, flexible** 0.14 - 2.5 mm²
- **Connection cross-section, multi-wire** 0.14 - 1.5 mm²
- **Connection cross-section rigid** 0.14 - 2.5 mm²
- **Earthing via:** DIN rail
- **Testing standard** IEC 61643-21
- **Approvals** UL

Always indicate the item number when ordering.
Series protection device, 3-pole, 48 V version

- Nominal load current 0.58 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High bandwidth to 100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

**Dimensions**

**Connection options**

**Connection options**

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Highest continuous voltage DC V</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDP-3 D-48-T</td>
<td>41</td>
<td>58</td>
<td>3</td>
<td>Terminal</td>
<td>1</td>
<td>02098446</td>
</tr>
</tbody>
</table>

MDP...-D-48-T: Lightning barrier with test function; 48 V version

<table>
<thead>
<tr>
<th>Connection type</th>
<th>Wire-wire</th>
<th>Wire-earth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated current</td>
<td>0.58 A</td>
<td>2.35 Ω ± 5 %</td>
</tr>
<tr>
<td>Impulse durability wire-wire</td>
<td>C1: 0.5 kV / 0.25 kA (8/20µs)</td>
<td>C2: 5 kV / 2.5 kA (8/20µs)</td>
</tr>
<tr>
<td>Total discharge current (8/20)</td>
<td>7.5 kA</td>
<td></td>
</tr>
<tr>
<td>Total discharge current (10/350)</td>
<td>D1: 1.5 kA</td>
<td></td>
</tr>
<tr>
<td>Protection level wire-wire</td>
<td>&lt;95 V</td>
<td></td>
</tr>
<tr>
<td>Protection level wire-earth</td>
<td>&lt;800 V</td>
<td></td>
</tr>
<tr>
<td>Frequency range</td>
<td>0 - 100 MHz</td>
<td></td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40 - +80 °C</td>
<td></td>
</tr>
<tr>
<td>Installation type</td>
<td>DIN rail 35 mm</td>
<td></td>
</tr>
<tr>
<td>Connection system</td>
<td>Terminal</td>
<td></td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
<td></td>
</tr>
<tr>
<td>Shielding connection available</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Shield connection</td>
<td>Direct</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>0.14 - 2.5 mm²</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>0.14 - 1.5 mm²</td>
<td></td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>0.14 - 2.5 mm²</td>
<td></td>
</tr>
<tr>
<td>Earthing via</td>
<td>DIN rail</td>
<td></td>
</tr>
<tr>
<td>Testing standard</td>
<td>IEC 61643-21</td>
<td></td>
</tr>
<tr>
<td>Approvals</td>
<td>UL</td>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Series protection device, 4-pole, 48 V version

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Highest continuous voltage DC V</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDP-4 D-48-T</td>
<td>41</td>
<td>58</td>
<td>4</td>
<td>Terminal</td>
<td>1</td>
<td>5.800</td>
<td>5098450</td>
</tr>
</tbody>
</table>

MDP...-D-48-T: Lightning barrier with test function; 48 V version

- Nominal load current 0.58 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High bandwidth to 100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

MDP-4 D-48-T

- Maximum continuous voltage AC: Uₘₐₓ = 41 V
- Maximum continuous voltage DC: Uₘₐₓ = 58 V
- Category: Type 1+2+3 / D1+C2+C1
- Lightning protection zone LPZ: 0→3
- Number of poles: 4
- Rated current: Iₘₐₓ = 0.58 A
- Series resistance per wire: 2.35 Ω ± 5 %
- Impulse durability wire-wire: C1: 0.5 kV / 0.25 kA (8/20µs)
- Impulse durability wire-earth: C2: 5 kV / 2.5 kA (8/20µs)
- Total discharge current (8/20): 10 kA
- Total discharge current (10/350): D1: 2 kA
- Protection level wire-wire: <95 V
- Protection level wire-earth: <800 V
- Frequency range: 0 - 100 MHz
- Temperature range: -40 - +80 °C
- Installation type: DIN rail 35 mm
- Connection system: Terminal
- Protection rating: IP20
- Shielding connection available: Yes
- Shield connection: Direct
- Connection cross-section, flexible: 0.14 - 2.5 mm²
- Connection cross-section, multi-wire: 0.14 - 1.5 mm²
- Connection cross-section rigid: 0.14 - 2.5 mm²
- Earthing via: DIN rail
- Testing standard: IEC 61643-21
- Approvals: UL

Always indicate the item number when ordering.
### MCR protection for multi-wire systems (testable) to 10 A

**Series protection device, 4-pole, 5 V version**

- Nominal load current 10 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High bandwidth to 100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Highest continuous voltage DC V</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDP-4 D-5-T-10</td>
<td>7</td>
<td>10</td>
<td>4</td>
<td>Terminal</td>
<td>1</td>
<td>7.200</td>
<td>5098413</td>
</tr>
</tbody>
</table>

MDP-4 D-5-T-10: Lightning barrier with test function; 5 V version

- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

**MDP-4 D-5-T-10**

- Maximum continuous voltage AC: $U_c = 7$ V
- Maximum continuous voltage DC: $U_c = 10$ V
- Category: Type $1+2+3 / D_1+C_2+C_1$
- Lightning protection zone LPZ: $0-3$
- Number of poles: 4
- Rated current: $I_r = 10$ A
- Series resistance per wire: $-$
- Impulse durability wire-wire: $C_1: 0.5$ kV / $0.25$ kA (8/20µs)
- Total discharge current (8/20): $10$ kA
- Total discharge current (10/350): $D_1: 2$ kA
- Protection level wire-wire: $<45$ V
- Protection level wire-earth: $<800$ V
- Frequency range: $0 - 100$ MHz
- Temperature range: $-40^\circ$C to $+80^\circ$C
- Installation type: DIN rail
- Connection system: Terminal
- Protection rating: IP20
- Shielding connection available: Yes
- Shielding connection: Direct
- Connection cross-section, flexible: $0.14 - 2.5$ mm²
- Connection cross-section, multi-wire: $0.14 - 1.5$ mm²
- Connection cross-section rigid: $0.14 - 2.5$ mm²
- Earthing via: DIN rail
- Testing standard: IEC 61643-21
- Approvals: UL

Always indicate the item number when ordering.
Series protection device, 2-pole, 12 V version

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Highest continuous voltage DC V</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Weight kg</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDP-2 D-12-T-10</td>
<td>10.5</td>
<td>15</td>
<td>2</td>
<td>Terminal</td>
<td>6.000</td>
<td>5098415</td>
</tr>
</tbody>
</table>

MDP_... D-12-T-10: Lightning barrier with test function; 12 V version

- Nominal load current 10 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High bandwidth to 100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

<table>
<thead>
<tr>
<th>MDP-2 D-12-T-10 Maximum continuous voltage AC $U_c$</th>
<th>10.5 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum continuous voltage DC $U_c$</td>
<td>15 V</td>
</tr>
<tr>
<td>Category</td>
<td>Type 1+2+3 / D1+C2+C1</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td>0→3</td>
</tr>
<tr>
<td>Number of poles</td>
<td>2</td>
</tr>
<tr>
<td>Rated current</td>
<td>10 A</td>
</tr>
<tr>
<td>Series resistance per wire</td>
<td>—</td>
</tr>
<tr>
<td>Impulse durability wire-wire</td>
<td>D1: 0.5 kV / 0.25 kA (8/20µs)</td>
</tr>
<tr>
<td>Total discharge current (8/20)</td>
<td>5 kA</td>
</tr>
<tr>
<td>Total discharge current (10/350)</td>
<td>D1: 1 kA</td>
</tr>
<tr>
<td>Protection level wire-wire</td>
<td>≤55 V</td>
</tr>
<tr>
<td>Protection level wire-earth</td>
<td>≤800 V</td>
</tr>
<tr>
<td>Frequency range</td>
<td>0 - 100 MHz</td>
</tr>
<tr>
<td>Temperature range</td>
<td>5 -40°C</td>
</tr>
<tr>
<td>Installation type</td>
<td>DIN rail</td>
</tr>
<tr>
<td>Connection system</td>
<td>Terminal</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP20</td>
</tr>
<tr>
<td>Shielding connection available</td>
<td>Yes</td>
</tr>
<tr>
<td>Shielding connection</td>
<td>Direct</td>
</tr>
<tr>
<td>Connection cross-section, flexible</td>
<td>0.14 - 2.5 mm²</td>
</tr>
<tr>
<td>Connection cross-section, multi-wire</td>
<td>0.14 - 1.5 mm²</td>
</tr>
<tr>
<td>Connection cross-section rigid</td>
<td>0.14 - 2.5 mm²</td>
</tr>
<tr>
<td>Earthing via</td>
<td>DIN rail</td>
</tr>
<tr>
<td>Testing standard</td>
<td>IEC 61643-21</td>
</tr>
<tr>
<td>Approvals</td>
<td>UL</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Series protection device, 4-pole, 12 V version

- Nominal load current 10 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High bandwidth to 100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Highest continuous voltage DC V</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDP-4 D-12-T-10</td>
<td>10.5</td>
<td>15</td>
<td>4</td>
<td>Terminal</td>
<td>1</td>
<td>6.000</td>
<td>5098419</td>
</tr>
</tbody>
</table>

MDP-... D-12-T-10: Lightning barrier with test function; 12 V version

Connection options:

1. Maximum continuous voltage AC $U_a$: 10.5 V
2. Maximum continuous voltage DC $U_c$: 15 V
3. Category: Type 1+2+3 / D1+C2+C1
4. Lightning protection zone LPZ: 0→3
5. Number of poles: 4
6. Rated current: $I_r$: 10 A
7. Series resistance per wire: $R_s$:
8. Impulse durability wire-wire: $C_1$: 0.5 kV / 0.25 kA (8/20 μs)
9. Total discharge current (8/20): $I_{8/20}$: 10 kA
10. Total discharge current (10/350): $I_{10/350}$: 2 kA
11. Protection level wire-wire: $P_l$: <55 V
12. Protection level wire-earth: $P_{le}$: <800 V
13. Frequency range: 0 → 100 MHz
14. Temperature range: $\theta$: -40 → +80 °C
15. Installation type: DIN rail
16. Connection system: Terminal
17. Protection rating: IP20
18. Shielding connection available: Yes
19. Earthing via: DIN rail
20. Testing standard: IEC 61643-21
21. Approvals: UL

Always indicate the item number when ordering.
# Series protection device, 2-pole, 24 V version

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Highest continuous voltage DC V</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDP-2 D-24-T-10</td>
<td>20</td>
<td>28</td>
<td>2</td>
<td>Terminal</td>
<td>1</td>
<td>6.000</td>
<td>5098425</td>
</tr>
</tbody>
</table>

MDP-2 D-24-T-10: Lightning barrier with test function; 24 V version

- Nominal load current 10 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High bandwidth to 100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

---

**MDP-2 D-24-T-10**

- Maximum continuous voltage AC: 20 V
- Maximum continuous voltage DC: 28 V
- Category: Type 1+2+3 / D1+C2+C1
- Number of poles: 2
- Rated current: 10 A
- Series resistance per wire: —
- Impulse durability wire-wire: C1: 0.5 kV / 0.25 kA (8/20µs)
- Total discharge current (8/20): 5 kA
- Total discharge current (10/350): D1: 1 kA
- Protection level wire-wire: <70 V
- Protection level wire-earth: <800 V
- Frequency range: 0 - 100 MHz
- Temperature range: -40 - +80 °C
- Installation type: DIN rail
- Connection system: Terminal
- Protection rating: IP20
- Shielding connection available: Yes
- Shield connection: Direct
- Connection cross-section, flexible: 0.14 - 2.5 mm²
- Connection cross-section, multi-wire: 0.14 - 1.5 mm²
- Connection cross-section rigid: 0.14 - 2.5 mm²
- Earthing via: DIN rail
- Testing standard: IEC 61643-21
- Approvals: UL

---

Always indicate the item number when ordering.
Series protection device, 4-pole, 24 V version

- Nominal load current 10 A
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- Protection circuit testable with Life Control
- High bandwidth to 100 MHz
- UL-listed (4DG1)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC</th>
<th>Highest continuous voltage DC</th>
<th>Number of poles</th>
<th>Connection system</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDP-4 D-24-T-10</td>
<td>20 V</td>
<td>28 V</td>
<td>4</td>
<td>Terminal</td>
<td>1</td>
<td>7.200</td>
<td>5098433</td>
</tr>
</tbody>
</table>

MDP.. D-24-T-10: Lightning barrier with test function; 24 V version

- Protection for multi-wire systems (testable) to 10 A
- Surge protection, data and information technology

Always indicate the item number when ordering.
Accessories for MCR protection

Earthing strip

Connecting bridge for 8 mm lightning barriers

- Length of bridge can be adjusted
- Material: Copper
- Allows quick equipotential bonding

Application: Parallel switching of the MDP lightning barriers

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VB-MDP 10-MD</td>
<td>1</td>
<td>2.300</td>
<td>5098470</td>
</tr>
</tbody>
</table>

| Replacement connector for VF remote signalling

Replacement telephony connector, 3-pin version, for VF variant

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VF-FS 3-pole</td>
<td>25</td>
<td>0.320</td>
<td>5098475</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Combined protection device 2in1 for CCTV camera systems

- Protection of power and data interface in a single device
- In aluminium housing
- Simple mounting with adapter plug
- Two-stage protection circuit
- Two-pole power connection for the power interface
- RJ45 connection for the data interface
- With remote signalling (RS) and LED operation display
- Incl. DIN rail fastening set

Application: Protection of CCTV, video signals; (IP) cameras and/or TV systems

### PND-2in1-C-RS

<table>
<thead>
<tr>
<th>Type</th>
<th>Maximum continuous voltage (L-N) V</th>
<th>Maximum discharge current (8/20 μs) kA</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PND-2in1-C-RS</td>
<td>230</td>
<td>10</td>
<td>1</td>
<td>27.000</td>
<td>5081064</td>
</tr>
</tbody>
</table>

Combination protection device

Data cable protection devices for coaxial and IP-based TV / camera systems

- In aluminium housing
- Simple mounting with adapter plug
- Two-stage protection circuit
- Two-pole power connection for the power interface
- RJ45 connection for the data interface
- With remote signalling (RS) and LED operation display
- Incl. DIN rail fastening set

Application: Protection of CCTV, video signals; (IP) cameras and/or TV systems
Combined protection device 3in1 for CCTV camera systems

<table>
<thead>
<tr>
<th>Type</th>
<th>Maximum continuous voltage (L-N) V</th>
<th>Maximum discharge current (8/20 μs) kA</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PND-3in1-C-RS</td>
<td>230</td>
<td>10</td>
<td>29.900</td>
<td>1</td>
<td>5081066</td>
</tr>
</tbody>
</table>

Combination protection device

Data cable protection devices for coaxial and IP-based TV / camera systems

- Protection of power and data interfaces in a single device
- In aluminium housing
- Simple mounting with adapter plug
- Two-stage protection circuit
- Two-pole power connection for the power interface
- Screwless terminal and BNC connection for the data and video interface
- With remote signalling (RS) and LED operation display
- Incl. hat rail fastening set

Application: Protection of CCTV, video signals; (IP) cameras and/or TV systems

PND-3in1-C-RS

Lightning protection zone LPZ: 0~2
Earthing via: Connection cable / DIN rail
Protection rating: IP20
Power
SPD to IEC 61643-11: Class I+II
SPD to EN 61643-11: Type 1+2
Maximum continuous voltage (L-N) \( U_c \): 230 V
Rated current \( I_r \): 10 A
Voltage protection level \( U_p \): <1,2 kV
Nominal discharge current (8/20 μs) \( I_{\text{imp}} \): 5 kA
Maximum discharge current (8/20 μs) \( I_{\text{imp}} \): 10 kA
Impulse discharge current (10/350) \( I_{\text{imp}} \): 1.5 kA
Data
Maximum continuous voltage AC \( U_c \): 5.65 V
Maximum continuous voltage DC \( U_c \): 8 V
SPD to IEC 61643-21: Class I+II / D1+C2
Category: Type 1+2 / D1+C2
Impulse durability wire - wire: C2: 10 kV / 5 kA (8/20μs)
Impulse durability wire - earth: C2: 10 kV / 5 kA (8/20μs)
Lightning impulse current (10/350) \( I_{\text{imp}} \): 1 kA
Protection level wire-earth: <450 V
Protection level wire-wire: <65 V
Frequency range: 0-100 MHz
Video
Maximum continuous voltage AC \( U_c \): 5.65 V
Maximum continuous voltage DC \( U_c \): 8 V
SPD to IEC 61643-21: Class I+II / D1+C2
Category: Type 1/2 / D1+C2
Impulse durability wire - earth: C2: 10 kV / 5 kA (8/20μs)
Impulse durability wire - wire: C2: 10 kV / 5 kA (8/20μs)
Lightning impulse current (10/350) \( I_{\text{imp}} \): 1 kA
Protection level wire-earth: <90 V
Protection level wire-wire: <150 V
Frequency range: 0-100 MHz
Screen connection: Yes
Screening: Direct
Temperature range: \(-20\degree - +80\degree C\)

Always indicate the item number when ordering.
### Surge protection, Ex protection

<table>
<thead>
<tr>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series protection device, 4-pole, 5 V</td>
<td>413</td>
</tr>
<tr>
<td>Series protection device, 4-pole, 24 V</td>
<td>414</td>
</tr>
<tr>
<td>Series protection device, 4-pole, 48 V</td>
<td>415</td>
</tr>
<tr>
<td>MCR protection, 2-pole 24 V</td>
<td>417</td>
</tr>
<tr>
<td>MCR protection, 3-pole 24 V</td>
<td>418</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
MCR protection for Ex areas: the plus of the MDP Ex family

- Protection device for multi-wire systems (4-pole)
- Direct shield earthing
- Easy-mounting, screwless connection option
- Space-saving width of just 8.7 mm
- Ex-tested for intrinsically safe measuring circuits
- High frequency bandwidth up to 100 MHz

Surge protection in potentially explosive areas is an important topic. Here, it is important to protect costly measuring technology against the influence of surge voltages through atmospheric discharge. OBO lightning barriers are tested for intrinsic safety (ia) and are independently certified. With a high arresting capacity of 10 kA, they offer optimum protection for four-pole measurement and control applications. Different voltage variants offer a wide range of applications.

Always indicate the item number when ordering.
Series protection device, 4-pole, 5 V version, Ex-tested

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous AC voltage</th>
<th>Highest continuous DC voltage</th>
<th>Number of poles</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDP-4 D-5-EX</td>
<td>7 V</td>
<td>10 V</td>
<td>4</td>
<td>5.800</td>
<td>5098412</td>
</tr>
</tbody>
</table>

MDP-4 D...-EX : Lightning barrier for intrinsically safe measuring circuits

- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- High frequency range of 0-100 MHz
- ATEX approval: II 2(1) G Ex ia [ia Ga] IIC T4 (BVS 11 ATEX E 131 X)
- UL-listed (4UM2)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

**MDP-4 D-5-EX**

- Maximum continuous voltage AC \( U_{AC} \): 7 V
- Maximum continuous voltage DC \( U_{DC} \): 10 V
- Category: Type 1+2+3 / D1+C2+C1
- Lightning protection zone LPZ: 0-3
- Number of poles: 4
- Rated current \( I \): 0.58 A
- Series resistance per wire: 2.35 \( \Omega \pm 5 \% \)
- Impulse durability wire-wire: C1: 0.5 kV / 0.25 kA (8/20\( \mu \)s)
- Impulse durability wire-earth: C2: 5 kV / 2.5 kA (8/20\( \mu \)s)
- Total discharge current (8/20): 10 kA
- Total discharge current (10/350): D1: 2 kA
- Protection level wire-wire: \(< 35 \) V
- Protection level wire-earth: \(< 800 \) V
- Frequency range: 0-100 MHz
- Temperature range: \(-40 \text{ to } +80 ^\circ\) C
- Installation type: DIN rail
- Connection system: Terminal
- Protection rating: IP20
- Shielding connection available: Yes
- Shield connection: Direct
- Connection cross-section, flexible: 0.14 - 2.5 mm\(^2\)
- Connection cross-section, multi-wire: 0.14 - 1.5 mm\(^2\)
- Connection cross-section rigid: 0.14 - 2.5 mm\(^2\)
- Earthing via: DIN rail
- EX approval: II 2(1)G Ex ia [ia Ga] IIC T4 Gb
- Testing standard: IEC 61643-21
- Approvals: UL

Always indicate the item number when ordering.
Series protection device, 4-pole, 24 V version, Ex-tested

MDP-4 D-24-EX

- Lightning barrier for intrinsically safe measuring circuits
- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- High frequency range of 0-100 MHz
- ATEX approval: II 2(1) G Ex ia [ia Ga] IIC T4 (BVS 11 ATEX E 131 X)
- UL-listed (4UM2)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Highest continuous voltage DC V</th>
<th>Number of poles</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDP-4 D-24-EX</td>
<td>20</td>
<td>28</td>
<td>4</td>
<td>1</td>
<td>5.800</td>
<td>5098432</td>
</tr>
</tbody>
</table>

MDP-4 D-24-EX

- Maximum continuous voltage AC $U_c$: 20 V
- Maximum continuous voltage DC $U_c$: 28 V
- Category: Type 1+2+3 / D1+C2+C1
- Lightning protection zone LPZ 0-3
- Number of poles: 4
- Rated current $I$: 0.58 A
- Series resistance per wire: $2.35 \Omega \pm 5\%$
- Impulse durability wire-wire: $C1: 0.5 \text{ kV} / 0.25 \text{ kA} (8/20\mu s)$
- Impulse durability wire-earth: $C2: 5 \text{ kV} / 2.5 \text{ kA} (8/20\mu s)$
- Total discharge current (8/20): 10 kA
- Total discharge current (10/350): D1: 2 kA
- Protection level wire-wire: < 55 V
- Protection level wire-earth: < 800 V
- Frequency range: 0-100 MHz
- Temperature range: $\theta$: $-40 \text{ to } +80 \degree C$
- Installation type: DIN rail
- Connection system: Terminal
- Protection rating: IP20
- Shielding connection available: Yes
- Shield connection: Direct
- Connection cross-section, flexible: 0.14 - 2.5 mm²
- Connection cross-section, multi-wire: 0.14 - 1.5 mm²
- Connection cross-section rigid: 0.14 - 2.5 mm²
- Earthing via: DIN rail
- EX approval: II 2(1) G Ex ia [ia Ga] IIC T4 Gb
- Testing standard: IEC 61643-21
- Approvals: UL

Always indicate the item number when ordering.
Series protection device, 4-pole, 48 V version, Ex-tested

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC</th>
<th>Highest continuous voltage DC</th>
<th>Number of poles</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDP-4 D-48-EX</td>
<td>41 V</td>
<td>58 V</td>
<td>4</td>
<td>5.800</td>
<td>5098452</td>
</tr>
</tbody>
</table>

MDP-4 D...-EX : Lightning barrier for intrinsically safe measuring circuits

- Protection device for multi-wire systems
- Direct shield earthing and screwless connection terminals
- Space-saving width of just 8.7 mm
- High frequency range of 0-100 MHz
- ATEX approval: II 2(1) G Ex ia [ia Ga] IIC T4 (BVS 11 ATEX E 131 X)
- UL-listed (4UM2)

Application: Universal use on 35 mm DIN profile rail in any standard distribution housing.

### MDP-4 D-48-EX

- **Maximum continuous voltage AC**: 41 V
- **Maximum continuous voltage DC**: 58 V
- **Category**: Type 1+2+3 / D1+C2+C1
- **Lightning protection zone LPZ**: 0→3
- **Number of poles**: 4
- **Rated current**: \( \leq 0.58 \) A
- **Series resistance per wire**: 2,35 \( \Omega \) ± 5 %
- **Impulse durability wire-wire**: C1: 0.5 KV / 0.25 kA (8/20μs)
- **Impulse durability wire-earth**: C2: 5 KV / 2.5 kA (8/20μs)
- **Total discharge current (8/20)**: 10 kA
- **Total discharge current (10/350)**: D1: 2 kA
- **Protection level wire-wire**: < 95 V
- **Protection level wire-earth**: <800 V
- **Frequency range**: 0-100 MHz
- **Temperature range**: \( -40 - +80 \) °C
- **Installation type**: DIN rail
- **Connection system**: Terminal
- **Protection rating**: IP20
- **Shielding connection available**: Yes
- **Shield connection**: Direct
- **Connection cross-section, flexible**: 0.14 - 2.5 mm²
- **Connection cross-section, multi-wire**: 0.14 - 1.5 mm²
- **Connection cross-section rigid**: 0.14 - 2.5 mm²
- **Earthing via**: DIN rail
- **EX approval**: II 2(1)G Ex ia [ia Ga] IIC T4 Gb
- **Testing standard**: IEC 61643-21
- **Approvals**: UL

Always indicate the item number when ordering.
MCR protection for explosive areas

- For potentially explosive areas
- Two or three-pole protection of various sensors
- Metric or NPT thread
- Robust VA housing
- High arresting capacity

With the Petrol Field Protector for data cable protection devices, OBO Bettermann can offer a surge protection device for sensors in potentially explosive areas. The Petrol Field Protector permits two or three-pole protection for all kinds of sensors. The protection device can be fastened directly on the sensor and wired in using the appropriate metric or NPT thread. The robust VA housing means that aggressive atmospheres are no problem. The intrinsic safety of the Petrol Field Protector was independently tested and certified. The Petrol Field Protector is your partner for safety-relevant applications in which effective surge protection must be guaranteed.

Surge protection with NPT or metric thread

Always indicate the item number when ordering.
MCR protection for explosive areas, 2-pole, 24 V

<table>
<thead>
<tr>
<th>Type</th>
<th>V</th>
<th>V</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDB-24-M</td>
<td>22</td>
<td>32</td>
<td>2-pole; metric</td>
<td>1</td>
<td>18.500</td>
<td>5098380</td>
</tr>
</tbody>
</table>

Petrol Field Protector FDB for intrinsically safe measuring circuits and bus systems

- Different connection technologies available (metric/NPT)
- Low protection level at high current load
- Easy mounting on field devices
- Negligible internal capacitance and inductance
- Stainless steel housing with pressure-resistant encapsulation
- ATEX approval: II 2(1) G Ex ia [ia Ga] IIC T4..T6 Gb (BVS 10 ATEX E 48)

Application: Flow sensors, temperature sensors

FDB-24-M

<table>
<thead>
<tr>
<th>Maximum continuous voltage AC</th>
<th>$U_{AC}$</th>
<th>22 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum continuous voltage DC</td>
<td>$U_{DC}$</td>
<td>32 V</td>
</tr>
<tr>
<td>Category</td>
<td></td>
<td>Type 2+3 / C2+C1</td>
</tr>
<tr>
<td>Lightning protection zone LPZ</td>
<td></td>
<td>1-3</td>
</tr>
<tr>
<td>Number of poles</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Impulse durability wire-wire</td>
<td>C1:</td>
<td>0.5 kV / 0.25 kA (8/20µs)</td>
</tr>
<tr>
<td>Impulse durability wire-earth</td>
<td>C2:</td>
<td>5 kV / 2.5 kA (8/20µs)</td>
</tr>
<tr>
<td>Total discharge current (8/20)</td>
<td></td>
<td>10 kA</td>
</tr>
<tr>
<td>Protection level wire-wire</td>
<td>&lt;80 V</td>
<td></td>
</tr>
<tr>
<td>Protection level wire-earth</td>
<td>&lt;800 V</td>
<td></td>
</tr>
<tr>
<td>Temperature range</td>
<td></td>
<td>-20...+70 °C</td>
</tr>
<tr>
<td>Installation type</td>
<td></td>
<td>Screw-on</td>
</tr>
<tr>
<td>Protection rating</td>
<td></td>
<td>IP65/67</td>
</tr>
<tr>
<td>Mounting of input / output</td>
<td></td>
<td>M20 x 1.5 external thread</td>
</tr>
<tr>
<td>Mounting of field / device side:</td>
<td>Connection cable 1.5 mm²</td>
<td></td>
</tr>
<tr>
<td>Earthing via</td>
<td></td>
<td>Connection cable</td>
</tr>
<tr>
<td>Housing material</td>
<td></td>
<td>V2A</td>
</tr>
<tr>
<td>EX approval</td>
<td></td>
<td>II 2(1) G Ex ia [ia Ga] IIC T4..T6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gb (BVS 10 ATEX E 048)</td>
</tr>
<tr>
<td>Testing standard</td>
<td></td>
<td>IEC 61643-21</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
MCR protection for explosive areas, 3-pole, 24 V

**Petrol Field Protector FDB for intrinsically safe measuring circuits and bus systems**

- Different connection technologies available (metric/NPT)
- Low protection level at high current load
- Easy mounting on field devices
- Negligible internal capacitance and inductance
- Stainless steel housing with pressure-resistant encapsulation
- ATEX approval: II 2(1) G Ex ia [ia Ga] IIC T4..T6 Gb (BVS 10 ATEX E 48)

**Application:** Flow sensors, temperature sensors

<table>
<thead>
<tr>
<th>Type</th>
<th>22 V</th>
<th>32 V</th>
<th>Version</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDB-3 24-M</td>
<td></td>
<td></td>
<td>3-pole; metric</td>
<td>1</td>
<td>5098382</td>
</tr>
</tbody>
</table>

**Dimensions**

- ~250 x 75 x 55
- M20 x 1.5 external thread
- Connection cable 1.5 mm²
- Length ~ 250 mm

**Connection options**

- PE
- 1
- 2
- 3

**FDB-3 24-M**

- Maximum continuous voltage AC $U_{\text{AC}}$: 22 V
- Maximum continuous voltage DC $U_{\text{DC}}$: 32 V
- Category: Type 2+3 / C2+C1
- Lightning protection zone LPZ: I–III
- Number of poles: 3
- Impulse durability wire-wire: C1: 0,5 kV / 0,25 kA (8/20µs)
- Impulse durability wire-earth: C2: 5 kV / 2,5 kA (8/20µs)
- Total discharge current (8/20): 10 kA
- Protection level wire-wire: ≤80 V
- Protection level wire-earth: ≤800 V
- Temperature range: -20 - +70 °C
- Installation type: Screw-on
- Protection rating: IP65/67
- Mounting of input / output: M20 x 1.5 external thread
- Mounting of field / device side: Connection cable 1.5 mm²
- Length: ~ 250 mm
- Earthing via: Connection cable
- Housing material: V2A
- EX approval: II 2(1) G Ex ia [ia Ga] IIC T4..T6 Gb (BVS 10 ATEX E 048)
- Testing standard: IEC 61643-21

Always indicate the item number when ordering.
MCR protection for explosive areas, 2-pole, 24 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage AC V</th>
<th>Voltage DC V</th>
<th>Version</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDB-2 24-N</td>
<td>22</td>
<td>32</td>
<td>2-pole; NPT</td>
<td>1</td>
<td>19.000</td>
<td>5098390</td>
</tr>
</tbody>
</table>

Petrol Field Protector FDB for intrinsically safe measuring circuits and bus systems

- Different connection technologies available (metric/NPT)
- Low protection level at high current load
- Easy mounting on field devices
- Negligible internal capacitance and inductance
- Stainless steel housing with pressure-resistant encapsulation
- ATEX approval: II 2(1) G Ex ia [ia Ga] IIC T4..T6 Gb (BVS 10 ATEX E 48)

Application: Flow sensors, temperature sensors

**FDB-2 24-N**
- Maximum continuous voltage AC: 22 V
- Maximum continuous voltage DC: 32 V
- Category: Type 2+3 / C2+C1
- Number of poles: 2
- Impulse durability wire-wire: C1: 0,5 kV / 0,25 kA (8/20µs)
- Impulse durability wire-earth: C2: 5 kV / 2,5 kA (8/20µs)
- Total discharge current (8/20): 10 kA
- Protection level wire-wire: <30 V
- Protection level wire-earth: <800 V
- Temperature range: -20° to +70°C
- Installation type: Screw-on
- Protection rating: IP65/67
- Mounting of input/output: 1/2" NPT
- Mounting of field/device side: Connection cable 1.5 mm², Length ~ 250 mm
- Earthing via: Connection cable
- Housing material: V2A
- EX approval: II 2(1) G Ex ia [ia Ga] IIC T4..T6 Gb (BVS 10 ATEX E 48)
- Testing standard: IEC 61643-21

Always indicate the item number when ordering.
MCR protection for explosive areas, 3-pole, 24 V

Petrol Field Protector FDB for intrinsically safe measuring circuits and bus systems

- Different connection technologies available (metric/NPT)
- Low protection level at high current load
- Easy mounting on field devices
- Negligible internal capacitance and inductance
- Stainless steel housing with pressure-resistant encapsulation
- ATEX approval: II 2(1) G Ex ia [ia Ga] IIC T4..T6 Gb (BVS 10 ATEX E 48)

Application: Flow sensors, temperature sensors

Dimensions

Connection options

<table>
<thead>
<tr>
<th>Type</th>
<th>Internal capacitance and inductance</th>
<th>3-pole, NPT</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDB-3 24-N</td>
<td>-</td>
<td>1</td>
<td>19.500</td>
<td>5098392</td>
</tr>
</tbody>
</table>

Maximum continuous voltage AC, U_{AC} 22 V

Maximum continuous voltage DC, U_{DC} 32 V

Category | Type 2+3 / C2+C1

Lightning protection zone LPZ | 1-3

Number of poles | 3

Impulse durability wire-wire | C1: 0,5 kV / 0,25 kA (8/20µs)

Impulse durability wire-earth | C2: 5 kV / 2,5 kA (8/20µs)

Total discharge current (I_{8/20}) | 10 kA

Protection level wire-wire | <=50 V

Protection level wire-earth | <=800 V

Temperature range | 0°C to +70 °C

Installation type | Screw-on

Protection rating | IP65/67

Mounting of input / output | 1/2“ NPT

Mounting of field / device side: | Connection cable 1.5 mm²

Length ~ 250 mm

Earthing via: | Connection cable

Housing material | V2A

EX approval: | II 2(1) G Ex ia [ia Ga] IIC T4..T6 Gb (BVS 10 ATEX E 48)

Testing standard | IEC 61643-21

Always indicate the item number when ordering.
Surge protection, protection and spark gaps

- Isolating spark gap 424
- Connection straps 426
- Closed spark gap with lightning current carrying capability 427
- Protective spark gap 427
- Spark gap/ surge voltage protection 427

Always indicate the item number when ordering.
Protection and spark gaps

Spark gap EX ISG

- Spark gap to VDE 0185-561-3 (IEC 62561-3)
- Ex certificate to ATEX
- Labelling to EN 60079-0/-1: II 2G Ex db IIC T6 Gb
- Labelling to EN 60079-0/-31: II 2 D Ex td IIIC T80 °C Db IP67
- Ex certificate to IECEx
- Labelling to EN 60079-0/-1: Ex db IIC T6 Gb
- Labelling to EN 60079-0/-31: Ex td IIIC T80 °C Db IP67

Application: In potentially explosive areas, indirect bridging of insulating flanges and insulating glands, e.g. in cathodic, corrosion-protected (KKS) systems

Dimensions

Connection clamp AB EX ISG straight

- Connection straps for mounting the OBO Ex spark gap, type EX ISG, on insulating flanges and insulating pieces.

Dimensions

Connection clamp AB EX ISG straight

- Connection straps for mounting the OBO Ex spark gap, type EX ISG, on insulating flanges and insulating pieces.

Dimensions

Connection clamp AB EX ISG straight

- Connection straps for mounting the OBO Ex spark gap, type EX ISG, on insulating flanges and insulating pieces.

Dimensions

Connection clamp AB EX ISG straight

- Connection straps for mounting the OBO Ex spark gap, type EX ISG, on insulating flanges and insulating pieces.

Dimensions

Connection clamp AB EX ISG straight

- Connection straps for mounting the OBO Ex spark gap, type EX ISG, on insulating flanges and insulating pieces.

Dimensions

Connection clamp AB EX ISG straight

- Connection straps for mounting the OBO Ex spark gap, type EX ISG, on insulating flanges and insulating pieces.

Dimensions

Connection clamp AB EX ISG straight

- Connection straps for mounting the OBO Ex spark gap, type EX ISG, on insulating flanges and insulating pieces.

Dimensions

Connection clamp AB EX ISG straight

- Connection straps for mounting the OBO Ex spark gap, type EX ISG, on insulating flanges and insulating pieces.

Dimensions

Connection clamp AB EX ISG straight

- Connection straps for mounting the OBO Ex spark gap, type EX ISG, on insulating flanges and insulating pieces.

Dimensions
Connection clamp AB EX ISG, angled

<table>
<thead>
<tr>
<th>Type</th>
<th>Bore hole Ø mm</th>
<th>Version</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB EX ISG SW M10</td>
<td>11</td>
<td>For M10 bolt</td>
<td>10.900</td>
<td>2</td>
<td>5240380</td>
</tr>
<tr>
<td>AB EX ISG SW M12</td>
<td>13</td>
<td>For M12 bolt</td>
<td>10.800</td>
<td>2</td>
<td>5240382</td>
</tr>
<tr>
<td>AB EX ISG SW M16</td>
<td>17</td>
<td>For M16 bolt</td>
<td>10.500</td>
<td>2</td>
<td>5240386</td>
</tr>
<tr>
<td>AB EX ISG SW M20</td>
<td>21</td>
<td>For M20 bolt</td>
<td>10.100</td>
<td>2</td>
<td>5240390</td>
</tr>
<tr>
<td>AB EX ISG SW M24</td>
<td>25</td>
<td>For M24 bolt</td>
<td>9.700</td>
<td>2</td>
<td>5240394</td>
</tr>
</tbody>
</table>

Steel
Hot-dip galvanised

Connection straps for mounting the OBO Ex spark gap, type EX ISG, on insulating flanges and insulating pieces.

Connection cable - AL EX ISG

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension mm</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL EX ISG 100</td>
<td>100</td>
<td>9.600</td>
<td>1</td>
<td>5240102</td>
</tr>
<tr>
<td>AL EX ISG 200</td>
<td>200</td>
<td>12.300</td>
<td>1</td>
<td>5240104</td>
</tr>
<tr>
<td>AL EX ISG 300</td>
<td>300</td>
<td>15.200</td>
<td>1</td>
<td>5240106</td>
</tr>
</tbody>
</table>

Copper

UV-resistant connection cable for mounting the OBO Ex spark gap, type EX ISG, on insulating flanges and insulating pieces.

Always indicate the item number when ordering.
**Explosion-proof, Parex closed spark gap**

- Ex certificate to ATEX
- Labelling to EN 60079-0/-1: II 2G Ex d IIC T6 Gb
- Ex certificate to IECEx and DNV
- Labelling to EN 60079-0/-1: Ex d IIC T6 Gb
- Lightning current carrying capacity class H (100 kA) to VDE 0185-561-3 (IEC 62561-3)
- Incl. connector cable 25 mm² Cu, highly flexible, with cable shoe, screw (M 10), nut and lock washer

Application: In potentially explosive areas, indirect bridging of insulating flanges and insulating glands e.g. in cathodic, corrosion-protected (KKS) systems

---

**Connection bracket for Parex spark gap**

<table>
<thead>
<tr>
<th>Type</th>
<th>Bore hole Ø</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>884 M12</td>
<td>13</td>
<td>For M12 bolt</td>
<td>2</td>
<td>8.100</td>
<td>5240220</td>
</tr>
<tr>
<td>884 M16</td>
<td>17</td>
<td>For M16 bolt</td>
<td>2</td>
<td>7.700</td>
<td>5240239</td>
</tr>
<tr>
<td>884 M20</td>
<td>21</td>
<td>For M20 bolt</td>
<td>2</td>
<td>7.300</td>
<td>5240247</td>
</tr>
<tr>
<td>884 M24</td>
<td>25</td>
<td>For M24 bolt</td>
<td>2</td>
<td>6.800</td>
<td>5240255</td>
</tr>
</tbody>
</table>

Attaching flange for installing OBO Parex spark gap 480 on insulating flanges.

---

**Connection bracket for Parex spark gap**

<table>
<thead>
<tr>
<th>Type</th>
<th>Bore hole Ø</th>
<th>Version</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>885 M12</td>
<td>13</td>
<td>For M12 bolt</td>
<td>2</td>
<td>8.100</td>
<td>5240328</td>
</tr>
<tr>
<td>885 M16</td>
<td>17</td>
<td>For M16 bolt</td>
<td>2</td>
<td>7.700</td>
<td>5240336</td>
</tr>
</tbody>
</table>

Attaching flange for installing OBO Parex spark gap 480 on insulating flanges.
Closed spark gap with lightning current carrying capability

<table>
<thead>
<tr>
<th>Type</th>
<th>Impulse current (10/350) kA</th>
<th>Nominal discharge current (8/20) kA</th>
<th>Protection level (kV)</th>
<th>Contact voltage kV</th>
<th>Temperature range °C</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>481</td>
<td>50</td>
<td>100</td>
<td>&lt;5.0</td>
<td>2.5</td>
<td>-20 - +50</td>
<td>1</td>
<td>26.500</td>
<td>5240085</td>
</tr>
</tbody>
</table>

Closed, lightning current carrying spark gap for separation of electrically conductive plant components.

- Connection bolts; Ø 10 mm; stainless steel.
- Pulsed current 50 kA (10/350)
- BET

Tested application: Installation of electrical isolations for external lightning protection and earthing systems, e.g. two earthing systems on account of mutual influence or corrosion (corrosion current prevention).

Protective spark gap

<table>
<thead>
<tr>
<th>Type</th>
<th>Protection level (kV)</th>
<th>Nominal discharge current (8/20) kA</th>
<th>Contact voltage kV</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>482</td>
<td>&lt;10 kV</td>
<td>25 kA</td>
<td>10</td>
<td>1</td>
<td>56.000</td>
<td>5240050</td>
</tr>
</tbody>
</table>

Closed spark gap for bridging a proximity point between roof standard of low-voltage system and components of outer lightning protection system

- Protection rating IP 54
- With pre-mounted type 5001 connector for attaching round conductors Rd 8 - 10

Spark gap / surge voltage protection for coupling earthing systems

<table>
<thead>
<tr>
<th>Type</th>
<th>Rated power frequency withstand voltage V</th>
<th>Rated DC withstand voltage V</th>
<th>Impulse current (10/350) kA</th>
<th>Nominal discharge current (8/20) kA</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FS-V20</td>
<td>280</td>
<td>280</td>
<td>100</td>
<td>100</td>
<td>1</td>
<td>170.000</td>
<td>5099803</td>
</tr>
</tbody>
</table>

The FS-V20 device is a spark gap with parallel-connected surge arrester (protection level <1.5 kV). It is used to couple different earthing systems. It is connected directly to the appropriate equipotential busbar.

Cable mounted with M10 cable shoe and bolt M10x25 (DIN 933) and nut M10 (DIN 934).

Application: Coupling earthing systems in data technology sector (functional and operational earthing)

Always indicate the item number when ordering.
HINWEIS!
Isolierter Blitzschutz mit dem OBO IsCon®-System.
Änderungen sind nur von einer Blitzschutzfachkraft durchzuführen!
# Measuring and testing systems

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISOLAB measuring system arrestor tester</td>
<td>430</td>
</tr>
<tr>
<td>Testing unit for lightning barriers</td>
<td>430</td>
</tr>
<tr>
<td>Magnetic card PCS</td>
<td>430</td>
</tr>
<tr>
<td>Magnetic card holder PCS-H</td>
<td>431</td>
</tr>
<tr>
<td>Card reader PCS-CS..</td>
<td>431</td>
</tr>
<tr>
<td>Lightning current meter LSC</td>
<td>431</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
ISOLAB measuring system arrestor tester

To test the insulation resistance to DIN VDE 0100 Part 610 and the characteristic curve behaviour of the following surge voltage and lightning current arrestors:

- **V10-C and V20-C**:
  - Uc: 75 V - 110 V - 130 V
  - Uc: 150 V - 215 V - 265 V
  - Uc: 280 V - 385 V - 475 V
  - Uc: 320 V - 460 V - 560 V
  - Uc: 335 V - 460 V - 560 V
  - Uc: 385 V - 560 V - 680 V
  - Uc: 440 V - 645 V - 785 V
  - Uc: 550 V - 820 V - 1,000 V

- **V25-B+C and V50-B+C**:
  - Uc: 150 V - 215 V - 265 V
  - Uc: 280 V - 385 V - 475 V
  - Uc: 320 V - 460 V - 560 V
  - Uc: 385 V - 560 V - 680 V

- Varistor arrestors of other manufacturers can be tested for 1 or 3 mA characteristic curve behaviour.
- Battery operation.
- Measuring cables contained in the scope of delivery.

Testing unit for lightning barriers

OBO Life Control allows function control of the MDP lightning barriers. The lightning barriers can be checked while installed. Life Control will not have any influences on the measuring signal. Life Control possesses an integrated OLED with visual and acoustic defect signalling. A separate LED inside the testing pin is also integrated.

Life Control is delivered in a case, complete with a CD and instructions.

Magnetic card PCS

Peak Current Sensor (PCS) card for recording pulsed/lightning currents. A continuous check of whether lightning has struck the lightning protection system and how high the most recent lightning current was in kA can thus be carried out in the simplest manner by the system operator, specialist lightning protection company or by a surveyor. Here, the printed maintenance circuit and the labelling panels support the maintenance work of the entire lightning protection system which must be performed at defined intervals according to VDE 0185-305-3 (IEC/EN 62305-3).

- Contents = 10 units
- Digital evaluation via the PCS card reading device
- Can be used in addition to the OBO lightning current meter LSC I+II
- With separate labelling panels: "Erected by", "Tested by", "Card code"
- Integrated maintenance circuit (year/month)

Always indicate the item number when ordering.
Magnetic card holder PCS-H

- Magnetic card holder for mounting PCS cards.
- Sealable holder
- For installing on round conductor Rd 8-10
- Simple holder installation by means of clamp
- 1 PU = 10 pieces

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack.</th>
<th>Weight kg/100 PUs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCS-H</td>
<td>1</td>
<td>31.000</td>
<td>5091527</td>
</tr>
</tbody>
</table>

Magnetic card and holder MK-B

- PCS magnetic card to record pulse/lightning currents including holder
- Holder can be leaded
- For mounting on round conductor Rd 8-10
- Simple holder mounting through clamping
- 1 PU = 10 units

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack.</th>
<th>Weight kg/100 PUs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MK-B</td>
<td>1</td>
<td>31.000</td>
<td>5091322</td>
</tr>
</tbody>
</table>

Card reader PCS-CS..

- Magnetic card reader for reading and analysing PCS cards.
- Inc. rechargeable battery for 4 h continuous, no-mains operation
- Large, clear display

<table>
<thead>
<tr>
<th>Type</th>
<th>Nom. voltage V</th>
<th>Measuring range</th>
<th>Measuring tolerances</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCS-CS-D</td>
<td>EN 230</td>
<td>3 – 120 kA</td>
<td>&lt; 2 kA (&lt; 2%)</td>
<td>1</td>
<td>750.000</td>
<td>5091683</td>
</tr>
<tr>
<td>PCS-CS-GB</td>
<td>GB 230</td>
<td>3 – 120 kA</td>
<td>&lt; 2 kA (&lt; 2%)</td>
<td>1</td>
<td>750.000</td>
<td>5091691</td>
</tr>
</tbody>
</table>

Lightning strike counter

- The LSC I+II lightning current meter measures and permanently saves pulse currents, together with the date and time. This ensures constant monitoring in order to notice if any lightning has struck the lightning protection system. Should this be the case, then the lightning protection system must be maintained according to VDE 0185-305 (IEC 62305).
- Saving and display of time and date
- Usable both inside and outside due to its protection class of IP65
- Cable clip for round conductor or flat conductor
- Direct mounting on the conductor or the PE conductor of the surge protection device
- Long lifespan of the internal lithium batteries
- LCD display
- Internal battery
- Tested according to VDE 0185-561-6 (IEC 62561-6)

<table>
<thead>
<tr>
<th>Type</th>
<th>Measuring range</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSC I+II</td>
<td>1 kA – 100 kA</td>
<td>1</td>
<td>32.500</td>
<td>5091722</td>
</tr>
</tbody>
</table>
## Equipotential bonding systems

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipotential busbars for indoor use</td>
<td>437</td>
</tr>
<tr>
<td>Equipotential busbars for outdoor areas</td>
<td>443</td>
</tr>
<tr>
<td>Equipotential busbars for industrial areas</td>
<td>445</td>
</tr>
<tr>
<td>Equipotential busbars for Ex area</td>
<td>449</td>
</tr>
<tr>
<td>Earthing clamps</td>
<td>453</td>
</tr>
<tr>
<td>Earthing clamps</td>
<td>454</td>
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</tbody>
</table>

Always indicate the item number when ordering.
Equipotential busbars for industry

<table>
<thead>
<tr>
<th>Type</th>
<th>Pole</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel</td>
<td>5</td>
<td>5015854</td>
<td>445</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>5015866</td>
<td>445</td>
</tr>
<tr>
<td>Copper</td>
<td>5</td>
<td>5015830</td>
<td>445</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>5015832</td>
<td>445</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>5015836</td>
<td>445</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>5015842</td>
<td>445</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>5015844</td>
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<tr>
<td></td>
<td>14</td>
<td>5015847</td>
<td>445</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>5015849</td>
<td>445</td>
</tr>
<tr>
<td>Galvanised steel</td>
<td>2</td>
<td>5016029</td>
<td>446</td>
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<td></td>
<td>4</td>
<td>5016037</td>
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<tr>
<td></td>
<td>6</td>
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<td>5016118</td>
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<tr>
<td></td>
<td>14</td>
<td>5016126</td>
<td>447</td>
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Equipotential busbars for potentially explosive areas

<table>
<thead>
<tr>
<th>Zone</th>
<th>Pole</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/21 + 2/22</td>
<td>5</td>
<td>5015265</td>
<td>449</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>5015270</td>
<td>449</td>
</tr>
<tr>
<td>2/22 (stainless steel)</td>
<td>5</td>
<td>5015854</td>
<td>375</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>5015866</td>
<td>375</td>
</tr>
<tr>
<td>2/22 (copper)</td>
<td>5</td>
<td>5015830</td>
<td>375</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>5015832</td>
<td>375</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>5015836</td>
<td>375</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>5015842</td>
<td>375</td>
</tr>
<tr>
<td></td>
<td>12</td>
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<td>20</td>
<td>5015849</td>
<td>375</td>
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<tr>
<td>Connector</td>
<td>Type</td>
<td>Item no.</td>
<td>Page</td>
</tr>
<tr>
<td>----------------</td>
<td>------</td>
<td>----------</td>
<td>------</td>
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<tr>
<td>249 8-10 VA</td>
<td>5311551</td>
<td>451</td>
<td></td>
</tr>
<tr>
<td>5001 N-VA</td>
<td>5304176</td>
<td>447</td>
<td></td>
</tr>
<tr>
<td>5002 N-VA</td>
<td>5304270</td>
<td>451</td>
<td></td>
</tr>
<tr>
<td>249 8-10X16 VA</td>
<td>5311590</td>
<td>451</td>
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</table>

Always indicate the item number when ordering.
Equipotential busbars for indoor use

<table>
<thead>
<tr>
<th>VDE-tested</th>
<th>Standard</th>
<th>With metal base plate</th>
<th>Bioplastic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Item no.</td>
<td>Page</td>
<td>Type</td>
</tr>
<tr>
<td>1801 VDE</td>
<td>5015650</td>
<td>437</td>
<td>1809</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1809 NR</td>
</tr>
</tbody>
</table>

Equipotential busbars for outdoor areas

<table>
<thead>
<tr>
<th>UV-resistant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
</tr>
<tr>
<td>1809 A</td>
</tr>
<tr>
<td>1809 AM</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Equipotential busbars for indoor use

- Simple installation
- Modular series terminal system
- Wide range of uses

The equipotential busbars for interior areas are available as a modular, VDE-tested series terminal system 1801 or as a ready-for-installation equipotential busbar 1809 with plastic or metal footplate. The OBO Green 1809 is a solution made from renewable resources. The simple versions of the 1809 and 1804 are available as both surface-mounted and concealed versions. The equipotential busbars are used for installation the protection and functional equipotential bonding according to DIN VDE 0100-410/540 and the lightning equipotential bonding according to VDE 0185-305 (IEC 62305).

Always indicate the item number when ordering.
Equipotential bonding rail for indoors, VDE-tested

<table>
<thead>
<tr>
<th>Colour</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grey</td>
<td>55.000</td>
<td>5015650</td>
</tr>
</tbody>
</table>

**Equipotential busbar for equipotential bonding to DIN VDE 0100-410/-540 as well as lightning protection equipotential bonding to DIN VDE 0185-305**

- According to VDE 0618, Part 1
- With 10 x 10 mm clamping rail made of nickel-plated brass
- With contact-secure series terminals made of electrogalvanised steel
- Cover and rail stands made of grey polystyrene
- Sealable / labellable cover
- Lightning current carrying capacity 100 kA (10/350)
- Tension clamp with screw lock against self-loosening (e.g. required in industrial and Ex areas)

**Connection options:**
- 7 single or multi-wire cables 2.5–25 mm² or fine-wire cables to 16 mm² (max. Ø 7 mm)
- 2 single or multi-wire cable 25–95 mm² or fine-wire cable to 70 mm² (max. Ø 13.5 mm)
- 1 flat conductor 30 x 3.5 mm

**Round conductor terminal to 25 mm² for 1801 VDE**

<table>
<thead>
<tr>
<th>Connection option</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1801 RK25</td>
<td>2.5–25 mm²</td>
<td>5015758</td>
</tr>
</tbody>
</table>

- Steel
- Electrogalvanised
- For single or multi-wire cables 2.5–25 mm²
- For fine-wire cables to 16 mm² (max. Ø 7 mm)
- 1 division unit
- Lightning current carrying capacity 100 kA (10/350)
- Electrogalvanised steel
- Tension clamp with screw lock against self-loosening (e.g. required in industry and in explosion-protected areas)

**Round conductor terminal from 25 mm² for 1801 VDE**

<table>
<thead>
<tr>
<th>Connection option</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1801 RK95</td>
<td>25–95 mm²</td>
<td>5015766</td>
</tr>
</tbody>
</table>

- Steel
- Electrogalvanised
- For single or multi-wire cables 25–95 mm²
- For fine-wire cables to 70 mm² (max. Ø 13.5 mm)
- 2 division units
- Lightning current carrying capacity 100 kA (10/350)
- Electrogalvanised steel
- Tension clamp with screw lock against self-loosening (e.g. required in industry and in explosion-protected areas)

Always indicate the item number when ordering.
Flat conductor terminal to FL 30 for 1801 VDE

- For flat conductors to FL 30 and thickness to 5 mm
- Captive design with plastic safety strap
- 3 division units
- Lightning current carrying capacity 100 kA (10/350)
- Electrogalvanised steel

<table>
<thead>
<tr>
<th>Type</th>
<th>Connection option</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1801 RK30</td>
<td>FL 30 x 5</td>
<td>10</td>
<td>10.643</td>
<td>5015731</td>
</tr>
</tbody>
</table>

Flat conductor terminal from FL 30 for 1801 VDE

- For flat conductors from FL 30
- 2 terminals always required for each flat conductor connection
- Lightning current carrying capacity 100 kA (10/350)
- Electrogalvanised steel

<table>
<thead>
<tr>
<th>Type</th>
<th>Connection option</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1801 RK40</td>
<td>FL 40 x 5</td>
<td>10</td>
<td>7.900</td>
<td>5015774</td>
</tr>
</tbody>
</table>

Contact strip for 1801 VDE

- 10 x 10 mm made of nickel-plated brass
- 1801 KL1: 14 subunits
- 1801 KL2: 28 subunits
- 1801 KL3: 42 subunits

<table>
<thead>
<tr>
<th>Type</th>
<th>Length mm</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1801 KL1</td>
<td>212</td>
<td>1</td>
<td>18.000</td>
<td>5015723</td>
</tr>
<tr>
<td>1801 KL2</td>
<td>430</td>
<td>1</td>
<td>36.000</td>
<td>5015804</td>
</tr>
<tr>
<td>1801 KL3</td>
<td>645</td>
<td>1</td>
<td>54.000</td>
<td>5015812</td>
</tr>
</tbody>
</table>

Busbar stands for 1801 VDE

- 2 rail stands required per 14 units
- With 6 x 13 mm slot

<table>
<thead>
<tr>
<th>Type</th>
<th>Colour</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1801 SCH</td>
<td>Grey</td>
<td>10</td>
<td>1.490</td>
<td>5015715</td>
</tr>
</tbody>
</table>

Cover hood for 1801 VDE

- 1 covering hood required per 14 division units
- Fastening to rail stands 1801/Sch
- Sealable

<table>
<thead>
<tr>
<th>Type</th>
<th>Colour</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1801 AH</td>
<td>Grey</td>
<td>1</td>
<td>6.450</td>
<td>5015707</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Equipotential bonding rail with plastic base plate

- **Type**: 1809 [Grey]
- **Pack. pcs.**: 1
- **Weight kg/100 pcs.**: 23.000
- **Item No.**: 5015073

Equipotential busbar for equipotential bonding according to DIN VDE 0100-410/-540 and lightning protection equipotential bonding according to DIN VDE 0185-305

- Base plate and covering made of polystyrene, grey
- Sealable / labellable cover
- Contact strip made of nickel-plated brass
- Screws and crossbar made of electrogalvanised steel
- Capable of carrying lightning current 50 kA (10/350)

Connection options:
- 7 x single or multi-core cables to 25 mm² or fine-core cables to 16 mm²
- 1 x round conductor Rd 8-10
- 1 x flat strip to FL30 or round conductor Rd 8-10

Equipotential bonding rail with metal base plate

- **Type**: 1809 M [Grey]
- **Pack. pcs.**: 1
- **Weight kg/100 pcs.**: 28.100
- **Item No.**: 5015081

Equipotential busbar with metal foot for equipotential bonding according to DIN VDE 0100-410/-540 and lightning protection equipotential bonding according to DIN VDE 0185-305

- Cover hood from polystyrene, grey
- Sealable / labellable cover
- Base plate made of strip-galvanised steel
- Contact strip made of nickel-plated brass
- Screws and crossbar made of electrogalvanised steel
- Capable of carrying lightning current 50 kA (10/350)

Connection options:
- 7 x single or multi-core cables to 25 mm² or fine-core cables to 16 mm²
- 1 x round conductor Rd 8-10
- 1 x flat strip to FL30 or round conductor Rd 8-10

Cover hood for 1809

- **Type**: 1809 30 AH [Grey]
- **Pack. pcs.**: 50
- **Weight kg/100 pcs.**: 3.700
- **Item No.**: 5015200

Replacement cover hood for equipotential busbar, type 1809
Equipotential busbars for indoor use

Equipotential busbar OBO Green

- **Type**: 1809 NR
- **Material**: Brass, white
- **Sealable and labellable cover**
- **Contact strip**: Nickel-plated brass
- **Bolts and crossbar**: Electrogalvanised steel
- **Capable of carrying lightning current 50 kA (10/350)**

Connection options:
- 7x single or multi-wire cables to 25 mm² or fine-wire cables to 16 mm²
- 1x round conductor Rd 8–10
- 1x flat strip to FL 30 or round cable Rd 8–10

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1809 NR</td>
<td>1</td>
<td>22.300</td>
<td>5015075</td>
</tr>
</tbody>
</table>

Equipotential bonding rail for small systems

- **Type**: 1809 BG
- **Colour**: Grey
- **Material**: Brass
- **Cover**: Made of polystyrene, grey
- **Sealable / labellable cover**
- **Base plate**: Made of strip galvanised steel
- **Contact strip and screws**: Made of nickel-plated brass

Connection options:
- 3 x multi-core cables to 6 mm²
- 2 x multi-core cables to 16 mm²

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1809 BG</td>
<td>1</td>
<td>9.000</td>
<td>5015502</td>
</tr>
</tbody>
</table>

Equipotential bonding rail, simple version

- **Type**: 1808
- **Material**: Brass
- **Clamp and crossbar**: Electrogalvanised steel
- **Clamping element and contact strip**, brass, screws, hot dipped galvanised steel

Connection options:
- 8 x cables to 25 mm²
- 1 x round conductor Rd 8-10
- 1 x flat conductor to FL 40

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1808</td>
<td>1</td>
<td>67.000</td>
<td>5015014</td>
</tr>
</tbody>
</table>

Natural product protects against natural influences.

The OBO Green equipotential busbar is a solution manufactured from cellulose acetate CA for the installation of the equipotential bonding according to DIN VDE 0100-410/-540 and lightning protection equipotential bonding according to DIN VDE 0185-305. The basic material is widely used in the paper industry.

- Base plate and cover hood made of CA, white
- Sealable and labellable cover
- Contact strip made of nickel-plated brass
- Bolts and crossbar made of electrogalvanised steel
- Capable of carrying lightning current 50 kA (10/350)
Equipotential bonding bar for bathrooms

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1804</td>
<td></td>
<td>3.000</td>
<td>5015553</td>
</tr>
</tbody>
</table>

CuZn Brass

- Nickel-plated brass contact strip
- Screws and clamp made of electrogalvanised steel

Connection options:
- 6 cables 1.5-10 mm²
- 1 cable 6-16 mm²

Equipotential bonding rail for surface mounting with 1804

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1804 AP</td>
<td></td>
<td>8.077</td>
<td>5015557</td>
</tr>
</tbody>
</table>

PE Polyethylene

A 10/BP: Equipotential busbar for bathroom in housing

Connection options:
- 6x conductors 1.5-10 mm²
- 1x conductor 6-16 mm²
- Uncut
- With mounted potential equalisation rail 1804 in wet-room branch box A10

Equipotential bonding rail for flush-mounting with 1809

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1809 UP</td>
<td></td>
<td>74.500</td>
<td>5015565</td>
</tr>
</tbody>
</table>

CuZn Brass

Connection options:
- 7 conductors to 25 mm²
- 1 round conductor Rd 8-10
- 1 flat conductor to FL30 or round conductor Rd 8-10
- With mounted potential equalisation rail 1809 (without covering hood)
- Pre-marked boxes for inserting required conductors and cover

Equipotential bonding rail for flush-mounting with 1804 A 10/BP: Equipotential busbars for bathroom in housing

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1804 UP</td>
<td></td>
<td>20.700</td>
<td>5015545</td>
</tr>
</tbody>
</table>

CuZn Brass

Connection options:
- 6x conductors 1.5-10 mm²
- 1x conductor 6-16 mm²
- Uncut
- With mounted potential equalisation rail 1804 in wet-room branch box A10

Always indicate the item number when ordering.
Equipotential busbars for outdoor areas

- UV-stabilised
- Corrosion-resistant
- Simple installation
- Sealable
- Labelling in the lid

The equipotential busbar for outdoor areas, 1809 A, is used for installation the protection and functional equipotential bonding according to DIN VDE 0100-410/540 and the lightning protection equipotential bonding according to VDE 0185-305 (IEC 62305). Thanks to corrosion-resistant and UV-stabilised materials, the equipotential busbar is suitable for both outdoor areas and systems in aggressive environments.
Equipotential bonding rail for outside installation

**Colour**

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1809 A</td>
<td>1</td>
<td>23.000</td>
<td>5015111</td>
</tr>
<tr>
<td>1809 AM</td>
<td>1</td>
<td>23.000</td>
<td>5015105</td>
</tr>
</tbody>
</table>

**Equipment details:**
- **Type:** 1809 A
- **Colour:** Black
- **Pack. pcs:** 1
- **Weight kg/100 pcs.:** 23.000
- **Item No.:** 5015111

**Equipment details:**
- **Type:** 1809 AM
- **Colour:** Black
- **Pack. pcs:** 1
- **Weight kg/100 pcs.:** 23.000
- **Item No.:** 5015105

**Specifications:**
- Stainless steel, grade 304
- Equipotential busbar for equipotential bonding according to DIN VDE 0100-410/-540 and lightning protection equipotential bonding according to DIN VDE 0185-305
- Cover hood and base plate made of polystyrene
- Colour: Black, UV-resistant
- Screws and crossbar made of VA
- Capable of carrying lightning current 50 kA (10/350)

**Connection options:**
- 7 x single or multi-core cables to 25 mm² or fine-core cables to 16 mm²
- 1 x round conductor Rd 8-10
- 1 x flat strip to FL30 or round conductor Rd 8-10

**Equipotential bonding rail, solid version**

**Specifications:**
- Type: 1810
- Steel
- Hot-dip galvanised
- Base plate and screw-on cover made of strip-galvanised steel
- Sealable / labellable cover
- Contact strip made of strip-galvanised steel
- Screws and crossbar made of steel, hot-dip galvanised or electrogalvanised

**Connection options:**
- 6 cables 6-16 mm²
- 1 round conductor Rd 8-10
- 1 flat conductor to FL 40
- 2 cable shoe M8

Always indicate the item number when ordering.
The equipotential busbars for industry, BigBar (1802) and 1805, are used for the installation of protection and functional equipotential bonding according to DIN VDE 0100-410/540 and the lightning protection equipotential bonding according to VDE 0185-305 (IEC 62305). Due to the combination of corrosion resistance materials and their simple installation, the equipotential busbars are especially suitable for use in the industrial sector. The stainless steel (V4A, 1.4571, 316 Ti) variants of the 1805 can be used in a wide range of applications thanks to the fastening holes with their 11 mm diameter.
Equipotential bonding rail BigBar for industrial application

<table>
<thead>
<tr>
<th>Type</th>
<th>Number of connections</th>
<th>Width</th>
<th>Length</th>
<th>Height</th>
<th>Weight Pack. kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1802 5 VA</td>
<td>5</td>
<td>40</td>
<td>246</td>
<td>5</td>
<td>80.000 1</td>
<td>5015830</td>
</tr>
<tr>
<td>1802 10 VA</td>
<td>10</td>
<td>40</td>
<td>408.5</td>
<td>5</td>
<td>116.550 1</td>
<td>5015836</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304

- Main potential equalisation to VDE 0100 Part 410 and Part 540, and also lightning protection potential equalisation to VDE 0185-305 (IEC 62305)
- Insulation feet
- Quick, simple assembly of connection conductors to the contact rail using lock bolts M10
- The high-grade stainless steel versions (V2A) are suitable for outdoor use
- Complete with anchors and bolts for wall mounting
- With lock washer (DIN 137) for bolt locking against loosening (e.g. required in industry and explosion-protected areas)

Cu Copper

- Main potential equalisation to VDE 0100 Part 410 and Part 540, and also lightning protection potential equalisation to VDE 0185-305 (IEC 62305)
- Insulation feet
- Quick, simple assembly of connection conductors to the contact rail using lock bolts M10
- The high-grade stainless steel versions (V2A) are suitable for outdoor use
- Complete with anchors and bolts for wall mounting
- With lock washer (DIN 137) for bolt locking against loosening (e.g. required in industry and explosion-protected areas)

Cover for BigBar equipotential bonding rail

<table>
<thead>
<tr>
<th>Type</th>
<th>Number of connections</th>
<th>Weight Pack. kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1802 AH 5</td>
<td>5</td>
<td>25.800 1</td>
<td>5015880</td>
</tr>
<tr>
<td>1802 AH 10</td>
<td>10</td>
<td>36.300 1</td>
<td>5015884</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304

- Complete with all mounting components
- Labellable
Crossbar for equipotential bonding rail

- To clamp the flat conductors 30 x 3.5 and 40 x 5
- Suitable for equipotential busbar BigBar, type 1802

Connection terminal, equipotential bonding, Rd 8–10 mm

- For round conductor Rd 8-10
- Suitable for M10 bolts

Connection terminal, equipotential bonding, Rd 8–10 mm

- For round conductor fastening RD 8-10
- Suitable for M10 bolts

Earthing connection bar

- With 2 mounting holes Ø 11 mm
- 1805/2: With 4 attaching holes
- 1805/4: With 8 attaching holes
- 1805/6: With 12 attaching holes

Always indicate the item number when ordering.
Earthing connection bar

1805/...: For connecting different earthing systems
- With 2 mounting holes Ø 11 mm
- 1805/2: With 4 attaching holes
- 1805/4: With 8 attaching holes
- 1805/6: With 12 attaching holes

**Type** | **Dimension L** | **Dimension A** | **Dimension B** | **Dimension G** | **Pack.** | **Weight kg/100 pcs.** | **Item No.**
---|---|---|---|---|---|---|---
1805 2 VA | 200 | 110 | 51 | 155 | 1 | 54.800 | 5016096
1805 4 VA | 302 | 212 | 153 | 257 | 1 | 77.000 | 5016118
1805 6 VA | 404 | 314 | 255 | 359 | 1 | 97.100 | 5016126

**Note:** Stainless steel, grade 316 Ti

---

Connector, Rd 8–10 mm with pressure trough

**Type** | **Fit** | **Lightning current carrying capacity** | **Pack.** | **Weight kg/100 pcs.** | **Item No.**
---|---|---|---|---|---
5001 N-VA | Rd 8-10 | N/50 | 10 | 6.800 | 5304176

**Note:** Stainless steel, grade 304

- With 1 fix contact clamping screw, nut and serrated washer
- Including pre-mounted pressure sump, steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Always indicate the item number when ordering.
Equipotential bonding for Ex areas

- Manufacturer declaration for use in potentially explosive areas
- Protected against self-loosening
- UV-stabilised and halogen-free insulation feet
- For single, multi and fine-wire connection cables and flat conductors
- Suitable for FT, VA, CU and AL material
- Corrosion-resistant

 Equipotential bonding for Ex zone 1/21, 2/22

The lightning protection components for equipotential bonding in Ex areas can be used as part of the erection according to VDE 0165 Part 1 (IEC 60079-14) and VDE 0185-305-3 (IEC 62305-3). They are secured against self-loosening in accordance with VDE 0185-305-3 Supplementary Sheet 2 (DIN EN 62305-3 Supplementary Sheet 2). The equipotential busbars are used for lightning protection equipotential bonding according to VDE 0185-305-3 (IEC 62305-3) and protective/function equipotential bonding according to DIN VDE 0100 Part 410/540. The Vario quick connectors and the connectors with pressure trough are connected with lightning current carrying capacity according to VDE 0185-305-3 (IEC 62305-3) and VDE 0185-561-1 (IEC 62561-1). The components are suitable for use in potentially explosive areas of Zone 2 (gases, vapours, mist) as well as Zone 22 (dusts). They do not possess their own potential source of ignition and thus cannot be evaluated according to the European Directive 94/9/EC. This means that an approval according to the European Directive 94/9/EC is not legally possible and also not required in the context of explosion protection.

Always indicate the item number when ordering.
### Equipotential busbar for EX zone 1/21, 2/22

<table>
<thead>
<tr>
<th>Type</th>
<th>Number of connections</th>
<th>Width</th>
<th>Length</th>
<th>Height</th>
<th>Weight Pack. kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EX PAS 5</td>
<td>15</td>
<td>54</td>
<td>279</td>
<td>4</td>
<td>152.000</td>
<td>5015265</td>
</tr>
<tr>
<td>EX PAS 10</td>
<td>10</td>
<td>54</td>
<td>441</td>
<td>4</td>
<td>214.000</td>
<td>5015270</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304

For ignition spark-free protection/functional equipotential bonding to DIN VDE 0100-410/-540 as well as ignition spark-free lightning protection equipotential bonding to DIN VDE 0185-305 (IEC 62305) in systems to VDE 0165-1 (IEC/EN 60079-14)

- Use in potentially explosive areas, Ex zone 1 and 2/21 and 22
- Tested according to explosion group IIIC
- Lightning current carrying capacity class H (100 kA) to VDE 0185-561-1 (IEC/EN 62561-1)
- UV-stabilised and halogen-free insulation feet
- With spring washer for locking screws against self-loosening to VDE 0185-305-3
- Supplementary sheet 2
- Suitable for indoor and outdoor applications

### Equipotential bonding rail BigBar for industrial application

<table>
<thead>
<tr>
<th>Type</th>
<th>Number of connections</th>
<th>Width</th>
<th>Length</th>
<th>Height</th>
<th>Weight Pack. kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1802 5 VA</td>
<td>5</td>
<td>40</td>
<td>246</td>
<td>5</td>
<td>90.000</td>
<td>5015854</td>
</tr>
<tr>
<td>1802 10 VA</td>
<td>10</td>
<td>40</td>
<td>408.5</td>
<td>5</td>
<td>190.000</td>
<td>5015866</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304

- Main potential equalisation to VDE 0100 Part 410 and Part 540, and also lightning protection potential equalisation to VDE 0185-305 (IEC 62305)
- Insulation feet
- Quick, simple assembly of connection conductors to the contact rail using lock bolts M10
- The high-grade stainless steel versions (V2A) are suitable for outdoor use
- Complete with anchors and bolts for wall mounting
- With lock washer (DIN 137) for bolt locking against loosening (e.g. required in industry and explosion-protected areas)

Always indicate the item number when ordering.
Equipotential bonding rail BigBar for industrial application

- Main potential equalisation to VDE 0100 Part 410 and Part 540, and also lightning protection potential equalisation to VDE 0185-305 (IEC 62305)
- Insulation feet
- Quick, simple assembly of connection conductors to the contact rail using lock bolts M10
- The high-grade stainless steel versions (V2A) are suitable for outdoor use
- With lock washer (DIN 137) for bolt locking against loosening (e.g. required in industry and explosion-protected areas)

### Dimensions

<table>
<thead>
<tr>
<th>Type</th>
<th>Number of connections</th>
<th>Width mm</th>
<th>Length mm</th>
<th>Height mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1802 5 CU</td>
<td>5</td>
<td>40</td>
<td>246</td>
<td>5</td>
<td>1</td>
<td>180.000</td>
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<tr>
<td>1802 6 CU</td>
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<td>40</td>
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<td>5</td>
<td>1</td>
<td>188.400</td>
</tr>
<tr>
<td>1802 8 CU</td>
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<td>40</td>
<td>343.5</td>
<td>5</td>
<td>1</td>
<td>116.650</td>
</tr>
<tr>
<td>1802 10 CU</td>
<td>10</td>
<td>40</td>
<td>408.5</td>
<td>5</td>
<td>1</td>
<td>180.000</td>
</tr>
<tr>
<td>1802 12 CU</td>
<td>12</td>
<td>40</td>
<td>473.5</td>
<td>5</td>
<td>1</td>
<td>152.850</td>
</tr>
<tr>
<td>1802 14 CU</td>
<td>14</td>
<td>40</td>
<td>538.5</td>
<td>5</td>
<td>1</td>
<td>177.000</td>
</tr>
<tr>
<td>1802 20 CU</td>
<td>20</td>
<td>40</td>
<td>733.5</td>
<td>5</td>
<td>1</td>
<td>225.450</td>
</tr>
</tbody>
</table>

**Material**: Cu Copper

**Cover for BigBar equipotential bonding rail**

<table>
<thead>
<tr>
<th>Type</th>
<th>Number of connections</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1802 AH 5</td>
<td>5</td>
<td>1</td>
<td>25.800</td>
</tr>
<tr>
<td>1802 AH 10</td>
<td>10</td>
<td>1</td>
<td>36.300</td>
</tr>
</tbody>
</table>

**Material**: V2A Stainless steel, grade 304

- Complete with all mounting components
- Labellable

**Crossbar for equipotential bonding rail**

<table>
<thead>
<tr>
<th>Type</th>
<th>Connection option</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1802 KL</td>
<td>FL20-FL40</td>
<td>1</td>
<td>7.000</td>
</tr>
</tbody>
</table>

**Material**: V2A Stainless steel, grade 304

- To clamp the flat conductors 30 x 3.5 and 40 x 5
- Suitable for equipotential busbar BigBar, type 1802

**Connection terminal, equipotential bonding, Rd 8–10 mm**

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Dimension mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>249 B-10 VA-OT</td>
<td>Rd 8-10</td>
<td>40</td>
<td>100</td>
<td>3.130</td>
</tr>
</tbody>
</table>

**Material**: V2A Stainless steel, grade 304

- For round conductor Rd 8-10
- Suitable for M10 bolts

---

Always indicate the item number when ordering.
Connection terminal, equipotential bonding, Rd 8–10 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Diameter A</th>
<th>Weight</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>249 8-10 CU-OT</td>
<td>Rd 8-10</td>
<td>40</td>
<td>100</td>
<td>3.580</td>
<td>5311530</td>
</tr>
<tr>
<td>Copper</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- For round conductor fastening RD 8-10
- Suitable for M10 bolts

Vario quick connector

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Lightning current carrying capacity</th>
<th>Weight</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>249 8-10 VA</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>10</td>
<td>10.700</td>
<td>5311551</td>
</tr>
<tr>
<td>V2A Stainless steel, grade 304</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- For T, cross and parallel connectors
- Quick installation using hexagonal bolt M10 x 30, high-grade stainless steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Connector, Rd 8–10 mm with pressure trough

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Lightning current carrying capacity</th>
<th>Weight</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5001 N-VA</td>
<td>Rd 8-10</td>
<td>N/50</td>
<td>10</td>
<td>6.800</td>
<td>5304176</td>
</tr>
<tr>
<td>V2A Stainless steel, grade 304</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- With 1 fix contact clamping screw, nut and serrated washer
- Including pre-mounted pressure sump, steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Connector, Rd 8–10 mm, double, with pressure trough

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Lightning current carrying capacity</th>
<th>Weight</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5002 N-VA</td>
<td>Rd 8-10</td>
<td>N/50</td>
<td>10</td>
<td>16.200</td>
<td>5304270</td>
</tr>
<tr>
<td>V2A Stainless steel, grade 304</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- With 2 Fix-Kontakt clamping bolts, nuts and serrated washers
- With pre-mounted pressure trough made of VA
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

Vario quick connector Rd 8-10x16

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Lightning current carrying capacity</th>
<th>Weight</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>249 8-10X16 VA</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>10</td>
<td>16.300</td>
<td>5311590</td>
</tr>
<tr>
<td>V2A Stainless steel, grade 304</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- For T, intersection and parallel connections with adapter plates
- Quick mounting using an M10 x 30 bolt, made from rustproof stainless steel
- With sprung washer to DIN 137
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)
The plus of earthing pipe clamps

- Varied connection options
- Adjustable mounting strip
- Suitable for many pipe diameters

Each system has different environmental and normative requirements relating to equipotential bonding. To implement equipotential bonding correctly, it is therefore necessary to select the right components to use. Equipotential busbars and earthing pipe clamps are key components of this kind of installation. In the context of lightning protection equipotential bonding, these must fulfil the requirements and undergo tests as defined in VDE 0185-561-1 (IEC 62561-1). When connecting metallic pipes to the equipotential bonding, strip earthing pipe clamps such as OBO type 927 are generally used. These offer a wide range of advantages over pipe clamps during assembly. With their rust-proof stainless steel tightening strap, they are suitable for a wide range of pipe diameters and materials.
Earthing pipe clamp VA

<table>
<thead>
<tr>
<th>Type</th>
<th>for pipe Ø inch</th>
<th>Dimension L mm</th>
<th>for pipe Ø mm</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>927 1</td>
<td>3/8 - 11/2</td>
<td>200</td>
<td>17.2 - 48</td>
<td>5057515</td>
</tr>
<tr>
<td>927 2</td>
<td>3/8 - 4</td>
<td>395</td>
<td>17.2 - 114</td>
<td>5057523</td>
</tr>
<tr>
<td>927 4</td>
<td>3/8 - 6</td>
<td>555</td>
<td>17.2 - 185</td>
<td>5057558</td>
</tr>
</tbody>
</table>

VA Stainless steel, grade 304

• For pipes of Ø 3/8 - 6”
• Connection options: Max. 2 cables 2.5-25 mm²
• Round conductor Rd 8
• Clip element, bolts and tightening strap made of rustproof stainless steel (VA)

Earthing pipe clamp, nickel-plated

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension L Ø mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>927 0</td>
<td>109.5</td>
<td>10</td>
<td>5.000</td>
<td>5057507</td>
</tr>
</tbody>
</table>

CuZn Brass

• For pipe Ø 8-22 mm
• Connection options: max. 2 conductors 2.5-10 mm²
• Clip elements and screws from nickel-plated brass
• Tightening strip from high-grade stainless steel (V2A)

Clamp lock for earthing pipe clamp

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>927 SCH-K-VA</td>
<td>20</td>
<td>4.700</td>
<td>5057930</td>
</tr>
</tbody>
</table>

VA Stainless steel, grade 304

• Connection option: max. 2 conductors 2.5-25 mm²
• Possible to connect round conductor Rd 8

Installation strip for earthing pipe clamp

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension B mm</th>
<th>Dimension H mm</th>
<th>Pack. m</th>
<th>Weight kg/100 m</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>927 BAND-VA</td>
<td>23</td>
<td>0.3</td>
<td>40</td>
<td>6.000</td>
<td>5057922</td>
</tr>
</tbody>
</table>

VA Stainless steel, grade 304

• 40 m roll
• Ready for transport and installation in unroll pack

Always indicate the item number when ordering.
Earthing clamp, type 925

- For pipes 1/4"-1 1/2" or Ø 11.5-48.3 mm
- Connection options: conductors to 16 mm² with connecting terminal, riveted with brass and 1 cylinder screw M5 x 12
- To 1 1/2" with 2 cylinder screws M6 x 16 (G)

<table>
<thead>
<tr>
<th>Type</th>
<th>Dim. A (mm)</th>
<th>Clamping range D (mm)</th>
<th>Dim. X (mm)</th>
<th>Shipping box pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>925 1/4</td>
<td>48</td>
<td>11.5 - 13.5</td>
<td>1/4</td>
<td>2</td>
<td>300</td>
<td>25</td>
</tr>
<tr>
<td>925 3/8</td>
<td>52</td>
<td>15.2 - 17.2</td>
<td>3/8</td>
<td>2</td>
<td>300</td>
<td>25</td>
</tr>
<tr>
<td>925 1/2</td>
<td>56</td>
<td>19.3 - 21.3</td>
<td>1 1/2</td>
<td>2</td>
<td>300</td>
<td>25</td>
</tr>
<tr>
<td>925 3/4</td>
<td>62</td>
<td>24.9 - 26.9</td>
<td>2</td>
<td>3/4</td>
<td>250</td>
<td>25</td>
</tr>
<tr>
<td>925 1</td>
<td>70</td>
<td>31.7 - 33.7</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>925 1 1/4</td>
<td>81</td>
<td>40.4 - 42.4</td>
<td>1 1/4</td>
<td>2</td>
<td>300</td>
<td>25</td>
</tr>
<tr>
<td>925 1 1/2</td>
<td>88</td>
<td>46.3 - 48.3</td>
<td>1 1/2</td>
<td>2</td>
<td>240</td>
<td>20</td>
</tr>
</tbody>
</table>

Steel
Electrogalvanised

**Earthing terminal for fastening on earthing strap**

- For use in bathtubs or shower tubs etc.
- Connection option: conductors to 16 mm²
- Clamping element with threaded connection M6, 1 hexagonal nut M6, 1 serrated dimension washer and 1 cylinder screw M5 x 8
- Clamping element, nut and screws from copper-plated brass
- Serrated washer from stainless steel; 2 washers from galvanised steel

<table>
<thead>
<tr>
<th>Type</th>
<th>Dim. A (mm)</th>
<th>Clamping range D (mm)</th>
<th>Dim. X (mm)</th>
<th>Shipping box pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>928</td>
<td>11</td>
<td>8 - 11</td>
<td>3.5</td>
<td>1/8</td>
<td>420</td>
<td>10</td>
</tr>
</tbody>
</table>

CuZn Brass
Nickel-plated

**Earthing clamp, type 942**

- For pipes 1/8"-1 1/2" or Ø 8-49 mm
- Connection options: conductors to 16 mm²
- With attaching clamp and cylinder screw M6 x 16 from nickel-plated brass
- Top and bottom clip sections from nickel-plated copper

<table>
<thead>
<tr>
<th>Type</th>
<th>Dim. A (mm)</th>
<th>Clamping range D (mm)</th>
<th>Dim. X (mm)</th>
<th>Shipping box pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>942 11</td>
<td>44</td>
<td>6 - 11</td>
<td>3.5</td>
<td>1/8</td>
<td>420</td>
<td>10</td>
</tr>
<tr>
<td>942 15</td>
<td>50</td>
<td>13 - 15</td>
<td>3</td>
<td>1/4</td>
<td>320</td>
<td>10</td>
</tr>
<tr>
<td>942 18</td>
<td>52</td>
<td>16 - 18</td>
<td>3/8</td>
<td>2</td>
<td>200</td>
<td>10</td>
</tr>
<tr>
<td>942 22</td>
<td>55</td>
<td>19 - 22</td>
<td>3</td>
<td>1/2</td>
<td>180</td>
<td>10</td>
</tr>
<tr>
<td>942 28</td>
<td>63</td>
<td>24 - 28</td>
<td>3</td>
<td>3/4</td>
<td>180</td>
<td>10</td>
</tr>
<tr>
<td>942 35</td>
<td>71</td>
<td>30 - 35</td>
<td>5</td>
<td>1</td>
<td>120</td>
<td>10</td>
</tr>
<tr>
<td>942 43</td>
<td>81</td>
<td>39 - 43</td>
<td>5</td>
<td>1 1/4</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>942 49</td>
<td>86</td>
<td>44 - 49</td>
<td>5</td>
<td>1 1/2</td>
<td>100</td>
<td>10</td>
</tr>
</tbody>
</table>

Copper
Nickel-plated
## Earthing clamp, type 950

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension</th>
<th>Clamping range D</th>
<th>Dim. for pipe Ø</th>
<th>Shipping box</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>950 Z 1/4</td>
<td>45</td>
<td>12 - 14</td>
<td>2</td>
<td>1/4</td>
<td>300</td>
<td>10</td>
<td>5.830</td>
</tr>
<tr>
<td>950 Z 3/8</td>
<td>50</td>
<td>15.5 - 17.5</td>
<td>2</td>
<td>3/5</td>
<td>180</td>
<td>10</td>
<td>6.020</td>
</tr>
<tr>
<td>950 Z 1/2</td>
<td>54</td>
<td>20 - 22.5</td>
<td>2.5</td>
<td>1/2</td>
<td>120</td>
<td>10</td>
<td>7.000</td>
</tr>
<tr>
<td>950 Z 3/4</td>
<td>61</td>
<td>25 - 28</td>
<td>3</td>
<td>3/4</td>
<td>120</td>
<td>10</td>
<td>7.620</td>
</tr>
<tr>
<td>950 Z 1</td>
<td>66</td>
<td>31.5 - 34.5</td>
<td>3</td>
<td>1</td>
<td>150</td>
<td>10</td>
<td>8.410</td>
</tr>
<tr>
<td>950 Z 1/4</td>
<td>78</td>
<td>40.5 - 43.5</td>
<td>3</td>
<td>1 1/4</td>
<td>160</td>
<td>10</td>
<td>10.030</td>
</tr>
<tr>
<td>950 Z 1/2</td>
<td>84</td>
<td>46.5 - 49.5</td>
<td>3</td>
<td>1 1/2</td>
<td>150</td>
<td>10</td>
<td>10.410</td>
</tr>
<tr>
<td>950 Z 3/4</td>
<td>88</td>
<td>51 - 54</td>
<td>3</td>
<td>1 3/4</td>
<td>100</td>
<td>10</td>
<td>10.251</td>
</tr>
<tr>
<td>950 Z 2</td>
<td>96</td>
<td>58.5 - 61.5</td>
<td>3</td>
<td>2</td>
<td>80</td>
<td>10</td>
<td>12.150</td>
</tr>
</tbody>
</table>

- **Material:** Die-cast zinc, galvanised, electrogalvanised
- For pipes Ø 1/4“-2“
- Connection options: conductors to 35 mm² or round conductors to Ø 6 mm
- With captive pressure strip, 2 cylinder screws M6 x 16 and 1 hex-head screw M6 x 16 from galvanised steel, top and bottom part of clip from die-cast zinc.

## Earthing clamp, type 952

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension</th>
<th>Clamping range D</th>
<th>Dim. for pipe Ø</th>
<th>Shipping box</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>952 Z 1/2</td>
<td>65</td>
<td>18.5 - 21.5</td>
<td>3</td>
<td>1/2</td>
<td>50</td>
<td>5</td>
<td>24.880</td>
</tr>
<tr>
<td>952 Z 3/4</td>
<td>71</td>
<td>24 - 27</td>
<td>3</td>
<td>3/4</td>
<td>50</td>
<td>5</td>
<td>26.780</td>
</tr>
<tr>
<td>952 Z 1</td>
<td>77</td>
<td>30.5 - 33.5</td>
<td>3</td>
<td>1</td>
<td>50</td>
<td>5</td>
<td>29.500</td>
</tr>
<tr>
<td>952 Z 1/4</td>
<td>87</td>
<td>39.5 - 42.5</td>
<td>3</td>
<td>1 1/4</td>
<td>50</td>
<td>5</td>
<td>32.200</td>
</tr>
<tr>
<td>952 Z 1/2</td>
<td>94</td>
<td>45.5 - 48.5</td>
<td>3</td>
<td>1 1/2</td>
<td>20</td>
<td>5</td>
<td>34.720</td>
</tr>
<tr>
<td>952 Z 2</td>
<td>105</td>
<td>57 - 60</td>
<td>3</td>
<td>2</td>
<td>30</td>
<td>5</td>
<td>38.520</td>
</tr>
</tbody>
</table>

- **Material:** Steel, stainless steel, hot-dip galvanised
- For pipes 1/2“-2“ or Ø 11.5-60 mm
- Connection options: conductors 16-70 mm² and/or round conductors to Rd 10
- With 2 hexagonal bolts M6 x 16 and 2 hexagonal bolts M6 x 20 from hot-dip galvanised steel
- Top section of clip with cast contact point from die-cast zinc, bottom section of clip from hot-dip galvanised steel

## Earthing terminal type 951

<table>
<thead>
<tr>
<th>Type</th>
<th>Shipping box</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>951</td>
<td>10</td>
<td>5.400</td>
<td>5051509</td>
</tr>
</tbody>
</table>

- **Material:** Stainless steel, grade 304
- Longitudinal and transverse conductor routing
- With 1 attaching hole Ø 9 mm
- With 2 cylinder bolts M6 x 16

## Connection terminal, equipotential bonding, Rd 8–10 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Dimension</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>249</td>
<td>8-10</td>
<td>40</td>
<td>3.240</td>
<td>5311503</td>
</tr>
</tbody>
</table>

- **Material:** Steel, hot-dip galvanised
- For round conductor fastening RD 8-10
- Suitable for M10 bolts

Always indicate the item number when ordering.
Connection terminal, equipotential bonding, Rd 8–10 mm

- For round conductor fastening RD 8-10
- Suitable for M10 bolts

Connection terminal, equipotential bonding, Rd 8–10 mm

- For round conductor Rd 8-10
- Suitable for M10 bolts

Connection terminal, equipotential bonding, Rd 8–10 mm

- For round conductor fastening RD 8-10
- Suitable for M10 bolts

Connection terminal, equipotential bonding, Rd 16 mm

- For round conductor fastening RD 16
- Suitable for M10 bolts

Earth connection terminal for round conductor and flat conductor

- For round and flat conductors
- Fit: cable 50 mm² x max. FL 40
- Rd 8 x max. FL 40
- With 2 hexagonal bolts M6 x 20 (F)
Earthing terminal for cables and flat conductors

- For cables to 16 mm² and flat conductors
- Fits: cable to 16 mm² x max. FL 30
- With riveted brass connection terminal and one cylinder bolt, M5 x 12, with two cylinder bolts, M6 x 16

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>939</td>
<td>25</td>
<td>5.930</td>
<td>5043107</td>
</tr>
</tbody>
</table>

St Steel
G Electrogalvanised

Clip branch terminal

- Seat: 4-8 mm x 4-8 mm
- With 4 cylinder bolts M4 x 16

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>470 4-16</td>
<td>50</td>
<td>2.850</td>
<td>5064015</td>
</tr>
</tbody>
</table>

CuZn Brass
N Nickel-plated

Clip branch terminal, parallel

<table>
<thead>
<tr>
<th>Colour</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>471 4-16 P</td>
<td>50</td>
<td>2.900</td>
<td>5064017</td>
</tr>
</tbody>
</table>

CuZn Brass
N Nickel-plated

Earthing terminal with fastening thread

- Earthing terminal for fastening the equipotential bonding conductor to the cable support system.

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension L mm</th>
<th>Dimension I mm</th>
<th>Cross-section mm²</th>
<th>Thread</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EKL 25 M6</td>
<td>22</td>
<td>8</td>
<td>25</td>
<td>M6</td>
<td>50</td>
<td>3.100</td>
<td>6404006</td>
</tr>
<tr>
<td>EKL 35 M6</td>
<td>26</td>
<td>10</td>
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<tr>
<td>EKL 25 M8</td>
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<td>10</td>
<td>25</td>
<td>M8</td>
<td>50</td>
<td>3.970</td>
<td>6404001</td>
</tr>
</tbody>
</table>

CuZn Brass

Clamp clips for screen connection

- For electrical connection of the braided shield of stripped cables.
- A cable screen for protection against electromagnetic influences, can also contribute towards equipotential bonding as both ends are connected to the reference potential.

<table>
<thead>
<tr>
<th>Type</th>
<th>Clamping range D mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2056N SAS 8 A2</td>
<td>4 - 8</td>
<td>50</td>
<td>2.900</td>
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<tr>
<td>2056N SAS 12 A2</td>
<td>8 - 12</td>
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<td>3.700</td>
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<tr>
<td>2056N SAS 16 A2</td>
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<td>50</td>
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<tr>
<td>2056N SAS 22 A2</td>
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<td>50</td>
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</tr>
<tr>
<td>2056N SAS 28 A2</td>
<td>22 - 28</td>
<td>50</td>
<td>6.600</td>
<td>1167049</td>
</tr>
</tbody>
</table>

V2A Stainless steel, A2

Always indicate the item number when ordering.
Profile rail CL2512, slot 11 mm, unperforated

Light-duty C profile rail for cable routing, in conjunction with series clips or clamp clips with N foot. Can also be used in building of control cabinets.

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>Dimension W x H</th>
<th>Material thickness</th>
<th>Dimension L</th>
<th>Pack.</th>
<th>Weight kg/100 m</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CL2512UP2000FT</td>
<td>2000</td>
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<td>1.5</td>
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<td>20</td>
<td>65.000</td>
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<tr>
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- Steel
- Strip-galvanised
- Hot-dip galvanised

Always indicate the item number when ordering.
# Earthing systems

<table>
<thead>
<tr>
<th>Category</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conductor material</td>
<td>464</td>
</tr>
<tr>
<td>Earth rods and plates</td>
<td>469</td>
</tr>
<tr>
<td>Connection material</td>
<td>478</td>
</tr>
<tr>
<td>Holders and accessories</td>
<td>494</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Diagonal and parallel clamps

<table>
<thead>
<tr>
<th>RD 8-10/FL 30</th>
<th>Surface</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>FT</td>
<td>5312906</td>
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<td>484</td>
</tr>
<tr>
<td>V4A</td>
<td>5312925</td>
<td></td>
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<tr>
<td>V2A</td>
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<table>
<thead>
<tr>
<th>RD 6-22/max. FL 50</th>
<th>Surface</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>FT</td>
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<tr>
<td>FT</td>
<td>5313031</td>
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<tr>
<td>V2A</td>
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<tr>
<td>V2A</td>
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<tr>
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<tbody>
<tr>
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<tr>
<td>V2A</td>
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<table>
<thead>
<tr>
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<th>Item no.</th>
<th>Page</th>
</tr>
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<tbody>
<tr>
<td>V2A</td>
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<td>486</td>
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<td>5315514</td>
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</tr>
<tr>
<td>ST</td>
<td>5315552</td>
<td></td>
<td>486</td>
</tr>
</tbody>
</table>

Connection terminals, sealing sleeves and fixed earthing terminals

<table>
<thead>
<tr>
<th>Ø 8–14 mm</th>
<th>Surface</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST</td>
<td>5014476</td>
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<td>487</td>
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<tr>
<td>FT</td>
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<table>
<thead>
<tr>
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<th>Item no.</th>
<th>Page</th>
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<tbody>
<tr>
<td>ST</td>
<td>5014477</td>
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<td>487</td>
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<tr>
<td>FT</td>
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<table>
<thead>
<tr>
<th>RD 10/FL 30x3.5</th>
<th>Surface</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST</td>
<td>2360041</td>
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<td>487</td>
</tr>
<tr>
<td>FT</td>
<td>2360043</td>
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<td>487</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
### Earth rods

<table>
<thead>
<tr>
<th>Type</th>
<th>Surface</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>219 Standard</td>
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<td>5000742</td>
<td>469</td>
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<td>FT</td>
<td>5000750</td>
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<td>FT</td>
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<td></td>
<td>FT</td>
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<tr>
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<td>Stainless steel</td>
<td>5000885</td>
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<td>Stainless steel</td>
<td>5000886</td>
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<tr>
<td></td>
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<td>OMEX</td>
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<td>5000017</td>
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<td>FT</td>
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<td>FT</td>
<td>5000025</td>
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<td>5000030</td>
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<td>Stainless steel</td>
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</table>

### Connection clips for earth rods

<table>
<thead>
<tr>
<th>Type</th>
<th>Surface</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>RD 8-10/FL 30-40</td>
<td>FT</td>
<td>5001441</td>
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<tr>
<td></td>
<td>FT</td>
<td>5001479</td>
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<tr>
<td></td>
<td>FT</td>
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<tr>
<td></td>
<td>Stainless steel</td>
<td>5001633</td>
<td>478</td>
</tr>
<tr>
<td></td>
<td>Stainless steel</td>
<td>5001672</td>
<td>478</td>
</tr>
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<td></td>
<td>Stainless steel</td>
<td>5001671</td>
<td>478</td>
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<td>Stainless steel</td>
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<td>RD 8-10</td>
<td>FT</td>
<td>5001218</td>
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<td></td>
<td>FT</td>
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<tr>
<td>RD 7-12.5</td>
<td>Copper-plated</td>
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### Cross-connectors

<table>
<thead>
<tr>
<th>Type</th>
<th>Surface</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>FL/FL</td>
<td>FT</td>
<td>5314634</td>
<td>480</td>
</tr>
<tr>
<td></td>
<td>FT</td>
<td>5314618</td>
<td>480</td>
</tr>
<tr>
<td></td>
<td>FT</td>
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<tr>
<td></td>
<td>FT</td>
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<td>FT</td>
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<tr>
<td></td>
<td>FT</td>
<td>5314623</td>
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<td></td>
<td>Stainless steel</td>
<td>5314659</td>
<td>480</td>
</tr>
<tr>
<td></td>
<td>Stainless steel</td>
<td>5314720</td>
<td>480</td>
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<tr>
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<td>Stainless steel</td>
<td>5314616</td>
<td>481</td>
</tr>
</tbody>
</table>

| RD 8-10/RD 8-10 | Surface | Item no. | Page |
|                 | FT      | 5312804  | 481  |
|                 | FT      | 5312810  | 482  |
|                 | Stainless steel | 5312319 | 482 |
|                 | Copper-plated | 5312416 | 482 |

| RD 8-10/RD 16  | Surface | Item no. | Page |
|                | FT      | 5312809  | 482  |
|                | FT      | 5312245  | 483  |
|                | Stainless steel | 5312346 | 483 |
|                | Copper-plated | 5312442 | 483 |

| RD 8-10/FL 30  | Surface | Item no. | Page |
|                | FT      | 5312655  | 483  |
|                | FT      | 5312656  | 484  |

Always indicate the item number when ordering.
**Galvanised steel flat conductor for earth**

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Meets the requirements of VDE 0185-305 (IEC 62305)
- Zinc coating: 500 g/m² (approx. 70 µm)
- For lightning protection, earthing systems and ring equipotential bonding

<table>
<thead>
<tr>
<th>Type</th>
<th>W x H</th>
<th>Cross-section</th>
<th>Normal ring</th>
<th>Normal ring</th>
<th>Pack.</th>
<th>Weight kg/100 m</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5052 DIN 20X2.5</td>
<td>20 x 2.5</td>
<td>50</td>
<td>122</td>
<td>50</td>
<td>122</td>
<td>41.000</td>
<td>5019340</td>
</tr>
<tr>
<td>5052 DIN 25X3</td>
<td>25 x 3</td>
<td>75</td>
<td>84</td>
<td>50</td>
<td>84</td>
<td>59.700</td>
<td>5019342</td>
</tr>
<tr>
<td>5052 DIN 30X3</td>
<td>30 x 3</td>
<td>90</td>
<td>71</td>
<td>50</td>
<td>71</td>
<td>70.650</td>
<td>5019344</td>
</tr>
<tr>
<td>5052 DIN 30X3.5</td>
<td>30 x 3.5</td>
<td>105</td>
<td>30</td>
<td>25</td>
<td>30</td>
<td>84.000</td>
<td>5019345</td>
</tr>
<tr>
<td>5052 DIN 30X3.5</td>
<td>30 x 3.5</td>
<td>105</td>
<td>60</td>
<td>50</td>
<td>60</td>
<td>84.000</td>
<td>5019347</td>
</tr>
<tr>
<td>5052 DIN 30X4</td>
<td>30 x 4</td>
<td>120</td>
<td>52</td>
<td>50</td>
<td>52</td>
<td>87.000</td>
<td>5019350</td>
</tr>
<tr>
<td>5052 DIN 40X4</td>
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<td>40</td>
<td>51</td>
<td>40</td>
<td>128.000</td>
<td>5019355</td>
</tr>
<tr>
<td>5052 DIN 40X5</td>
<td>40 x 5</td>
<td>200</td>
<td>30</td>
<td>50</td>
<td>30</td>
<td>162.000</td>
<td>5019360</td>
</tr>
</tbody>
</table>

**Stainless steel flat conductor**

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)
- According to the foundation earther standard DIN 18014, V4A is required in the earth
- For use in areas at risk of corrosion
- For lightning protection, earthing systems and ring equipotential bonding

<table>
<thead>
<tr>
<th>Type</th>
<th>W x H</th>
<th>Cross-section</th>
<th>Normal ring</th>
<th>Normal ring</th>
<th>Pack.</th>
<th>Weight kg/100 m</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5052 V2A 30X3.5</td>
<td>30 x 3.5</td>
<td>105</td>
<td>50</td>
<td>42</td>
<td>50</td>
<td>82.500</td>
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<tr>
<td>5052 V4A 30X3.5</td>
<td>30 x 3.5</td>
<td>105</td>
<td>50</td>
<td>42</td>
<td>50</td>
<td>82.425</td>
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<td>25</td>
<td>21</td>
<td>25</td>
<td>82.425</td>
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</tbody>
</table>

**Flat conductor, copper**

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Meets the requirements of VDE 0185-305 (IEC 62305)
- For lightning protection, earthing systems and ring equipotential bonding

<table>
<thead>
<tr>
<th>Type</th>
<th>W x H</th>
<th>Cross-section</th>
<th>Normal ring</th>
<th>Normal ring</th>
<th>Pack.</th>
<th>Weight kg/100 m</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FL 20-CU</td>
<td>20 x 2.5</td>
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<td>45</td>
<td>20</td>
<td>45</td>
<td>44.500</td>
<td>5021804</td>
</tr>
</tbody>
</table>

**Protective cap for connection lugs, reflective**

- For snapping onto round conductors or flat conductors
- Noticeable, reflective label
- For accident protection during the construction phase

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ProtectionBall</td>
<td>RD 8-10/ FL 25/ 30/ 40</td>
<td>25</td>
<td>2.050</td>
<td>5018014</td>
</tr>
</tbody>
</table>
Round conductor, galvanised steel

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)
- RD 10 can also be used in the earth
- Zinc coating: 350 g/m² (approx. 50 µm)

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø</th>
<th>Cross-section</th>
<th>Normal ring</th>
<th>Normal ring</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RD 8-FT</td>
<td>8</td>
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<td>50</td>
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<td>125</td>
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<td>50</td>
<td>20</td>
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<td>40.000</td>
<td>5021050</td>
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<td>RD 10</td>
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<td>80</td>
<td>50</td>
<td>80</td>
<td>52.500</td>
<td>5021103</td>
</tr>
</tbody>
</table>

Round conductor, galvanised steel with PVC jacketing

- Conforms to the requirements according to VDE V 0185-305, (IEC 62305)
- Zinc coating: 350 g/m² (approx. 50 µm)
- With PVC sheathing

<table>
<thead>
<tr>
<th>Type</th>
<th>Colour</th>
<th>Dimen-</th>
<th>Dimen-</th>
<th>Cross-</th>
<th>Normal</th>
<th>Normal</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
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</thead>
<tbody>
<tr>
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<td>Black</td>
<td>10</td>
<td>13</td>
<td>78</td>
<td>75</td>
<td>50</td>
<td>75</td>
<td>67.000</td>
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</tr>
</tbody>
</table>

Round conductor, aluminium

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)
- RD 8 ALU: Semi-hard (E-AlMgSi0.5 corresponds to DIN 48801)
- RD 8 ALU-T: Can be subjected to torsion (E-AlMgSi0.5 corresponds to DIN 48801)
- RD 10 ALU: Pure aluminium (E-Al corresponds to DIN 48801)
- AL and ALMgSi may not be routed directly on, in or under plaster, mortar or concrete, nor routed in the earth

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø</th>
<th>Cross-section</th>
<th>Normal ring</th>
<th>Normal ring</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
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<td>50</td>
<td>150</td>
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<td>75</td>
<td>13.500</td>
<td>5021296</td>
</tr>
<tr>
<td>RD 10-ALU</td>
<td>10</td>
<td>78</td>
<td>95</td>
<td>20</td>
<td>95</td>
<td>21.000</td>
<td>5021308</td>
</tr>
</tbody>
</table>

Round conductor, aluminium, with PVC sheathing

- Meets the requirements of VDE 0185-305 (IEC 62305)
- With PVC jacketing (halogen-free)
- Suitable for routing on, in or under plasterwork, mortar or concrete

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø</th>
<th>Cross-section</th>
<th>Normal ring</th>
<th>Normal ring</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RD 8-PVC</td>
<td>8/11</td>
<td>50</td>
<td>100</td>
<td>20</td>
<td>100</td>
<td>20.000</td>
<td>5021332</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
## Conductor material

### Round conductor, stainless steel A2

![Round conductor, stainless steel A2](image)

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø mm</th>
<th>Cross-section mm²</th>
<th>Normal ring ca. m</th>
<th>Normal ring ca. kg</th>
<th>Pack. m</th>
<th>Weight kg/100 m</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RD 8-V2A</td>
<td>8</td>
<td>50</td>
<td>125</td>
<td>50</td>
<td>50</td>
<td>40.000</td>
<td>5021235</td>
</tr>
<tr>
<td>RD 10-V2A</td>
<td>10</td>
<td>78</td>
<td>80</td>
<td>50</td>
<td>50</td>
<td>63.000</td>
<td>5021237</td>
</tr>
<tr>
<td>RD 8-V4A</td>
<td>8</td>
<td>50</td>
<td>125</td>
<td>50</td>
<td>125</td>
<td>40.000</td>
<td>5021644</td>
</tr>
<tr>
<td>RD 10-V4A</td>
<td>10</td>
<td>78</td>
<td>80</td>
<td>50</td>
<td>80</td>
<td>63.000</td>
<td>5021640</td>
</tr>
</tbody>
</table>

°V2A Stainless steel, grade 304  
°V4A Stainless steel, 316Ti / 316L

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)
- RD 10-V4A for applications in the earth
- According to the foundation earther standard DIN 18014, V4A is required in the earth

### Round conductor, copper

![Round conductor, copper](image)

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø mm</th>
<th>Cross-section mm²</th>
<th>Normal ring ca. m</th>
<th>Normal ring ca. kg</th>
<th>Pack. m</th>
<th>Weight kg/100 m</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RD 8-CU</td>
<td>8</td>
<td>50</td>
<td>100</td>
<td>45</td>
<td>100</td>
<td>45.000</td>
<td>5021480</td>
</tr>
<tr>
<td>RD 10-CU</td>
<td>10</td>
<td>78</td>
<td>50</td>
<td>35</td>
<td>50</td>
<td>70.000</td>
<td>5021502</td>
</tr>
</tbody>
</table>

°Cu Copper

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

### Copper cable

![Copper cable](image)

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D mm</th>
<th>Individual wires 19x Ø</th>
<th>Cross-section mm²</th>
<th>Normal ring ca. m</th>
<th>Normal ring ca. kg</th>
<th>Pack. m</th>
<th>Weight kg/100 m</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>S 11-CU</td>
<td>10.5</td>
<td>Ø 2.1</td>
<td>70</td>
<td>50</td>
<td>30</td>
<td>50</td>
<td>58.600</td>
<td>5021654</td>
</tr>
<tr>
<td>S 9-CU</td>
<td>9</td>
<td>Ø 1.8</td>
<td>50</td>
<td>100</td>
<td>45</td>
<td>100</td>
<td>45.000</td>
<td>5021652</td>
</tr>
<tr>
<td>S-11-CU SN</td>
<td>10.5</td>
<td>Ø 2.1</td>
<td>70</td>
<td>50</td>
<td>30</td>
<td>50</td>
<td>58.600</td>
<td>5021656</td>
</tr>
</tbody>
</table>

°Cu Copper  
°Sn Tin-plated

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

Always indicate the item number when ordering.
The earthing system is the basis for the entire electrical system. Together with the equipotential bonding system, a conductive and low-resistance connection to the local earth is created. Voltage differences between the connected parts are shorted and a reference potential is generated. The safety conditions and switch-off systems can only reach their protection aims when the system is implemented correctly.

Besides correct planning, the installation must be checked and documented. The continued protective action of the earthing system must be ensured through regular maintenance and testing. Besides the state of the art and the named standards, the directives of the local power generating company must be complied with. A correctly installed earthing system, together with lightning and surge protection devices, can minimise damage and failures.

The earthing system creates the electrical connection to the surrounding earth. The earthing resistance of the system should be as small as possible (less than 10 Ω) and must be coordinated with further protective measures and switch-off conditions.

The plus of earth rods and plates

+ Corrosion-resistant – zinc coating double the amount required
+ Constant resistance values
+ No cross-section increase at the coupling point
+ Optimised for vibration hammers
+ Tested to VDE-0185-561-2 (IEC/EN 62561-2)
+ Can carry short-circuit current

Always indicate the item number when ordering.
### Earthing Rod for Standard Applications

**Type:** 219 20 ST FT

- **Material:** Steel, Hot-dip galvanised
- **Corrosion Resistance:** High
- **Zinc Support:** 70 µm
- **Linking:** Round pegs with two knurls
- **Conforms to:** VDE 0185-305 (IEC 62305)
- **Short-circuit Current:** Ik (50 Hz), time 1 s, max. temp. 300 °C: 7.9 kA

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>Outer-Ø</th>
<th>Weight (kg/100 pcs)</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>219 20 ST FT</td>
<td>1000</td>
<td>20</td>
<td>5</td>
<td>250.000</td>
<td>5000742</td>
</tr>
<tr>
<td>219 20 ST FT</td>
<td>1500</td>
<td>20</td>
<td>5</td>
<td>360.000</td>
<td>5000750</td>
</tr>
</tbody>
</table>

### LightEarth Earthing Rod

**Type:** LE ERDER FT

- **Material:** Steel, Hot-dip galvanised
- **Expandable System:** Yes
- **Soil Conditions:** Suitable for difficult
- **Connection:** Pre-mounted sleeve
- **Conforms to:** DIN VDE 0185-305 (IEC 62305)
- **Use:** Antenna earthing systems, lightning earthing systems, etc.

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>Outer-Ø</th>
<th>Weight (kg/100 pcs)</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LE ERDER FT</td>
<td>1500</td>
<td>25</td>
<td>5</td>
<td>235.000</td>
<td>5000300</td>
</tr>
</tbody>
</table>

### LightEarth Earthing Rod

**Type:** LE ERDER V4A

- **Material:** Stainless steel, grade 316 L
- **Expandable System:** Yes
- **Soil Conditions:** Suitable for difficult
- **Connection:** Pre-mounted sleeve
- **Conforms to:** DIN VDE 0185-305 (IEC 62305)
- **Use:** Antenna earthing systems, lightning earthing systems, etc.

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>Outer-Ø</th>
<th>Weight (kg/100 pcs)</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LE ERDER V4A</td>
<td>1500</td>
<td>25</td>
<td>5</td>
<td>235.000</td>
<td>5000335</td>
</tr>
</tbody>
</table>
BP earthing rod

- "BP" system (Bundespost)
- Very good contacting properties with soft metal inlay in the bore hole
- With peg and bore for linking together
- FT version with zinc coating approx. 130 µm
- Conforms to the requirements according to VDE 0185-305 (IEC 62305)

<table>
<thead>
<tr>
<th>Type</th>
<th>Length (mm)</th>
<th>Outer-Ø (mm)</th>
<th>Short-circuit current (50 Hz) (1 s; ≤ 300°C) (kA)</th>
<th>Lightning current carrying capacity (kA)</th>
<th>Pack. pcs</th>
<th>Weight (kg/100 pcs.)</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>219 20 BP FT</td>
<td>1500</td>
<td>20</td>
<td>7.9</td>
<td>H/100</td>
<td>5</td>
<td>380.000</td>
<td>5000947</td>
</tr>
<tr>
<td>219 25 BP FT</td>
<td>1500</td>
<td>25</td>
<td>12.3</td>
<td>H/100</td>
<td>5</td>
<td>573.000</td>
<td>5000955</td>
</tr>
</tbody>
</table>

BP earthing rod

- "BP" system (Bundespost)
- Very good contacting properties with soft metal inlay in the bore hole
- With peg and bore for linking together
- FT version with zinc coating approx. 130 µm
- Conforms to the requirements according to VDE 0185-305 (IEC 62305)

<table>
<thead>
<tr>
<th>Type</th>
<th>Length (mm)</th>
<th>Outer-Ø (mm)</th>
<th>Short-circuit current (50 Hz) (1 s; ≤ 300°C) (kA)</th>
<th>Lightning current carrying capacity (kA)</th>
<th>Pack. pcs</th>
<th>Weight (kg/100 pcs.)</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>219 20 BP V4A</td>
<td>1000</td>
<td>20</td>
<td>4.5</td>
<td>H/100</td>
<td>5</td>
<td>250.000</td>
<td>5000858</td>
</tr>
<tr>
<td>219 20 BP V4A</td>
<td>1500</td>
<td>20</td>
<td>12.3</td>
<td>H/100</td>
<td>5</td>
<td>365.000</td>
<td>5000866</td>
</tr>
</tbody>
</table>

BP earthing rod with copper sheath

- Made of steel with a copper jacket of min. 0.25 mm
- Very good contacting properties with soft metal inlay in the bore hole
- With peg and bore for linking together
- Conforms to the requirements according to VDE 0185-305 (IEC 62305)

<table>
<thead>
<tr>
<th>Type</th>
<th>Length (mm)</th>
<th>Outer-Ø (mm)</th>
<th>Short-circuit current (50 Hz) (1 s; ≤ 300°C) (kA)</th>
<th>Lightning current carrying capacity (kA)</th>
<th>Pack. pcs</th>
<th>Weight (kg/100 pcs.)</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>219 20 BP CU</td>
<td>1500</td>
<td>20</td>
<td>7.9</td>
<td>H/100</td>
<td>5</td>
<td>385.400</td>
<td>5000500</td>
</tr>
</tbody>
</table>

BP earth rod with copper sheath

- Made of steel with a copper jacket of min. 0.25 mm
- With thread for linking together
- Tensile strength min. 600 N/mm²
- Meets the requirements of VDE 0185-305 (IEC 62305)

<table>
<thead>
<tr>
<th>Type</th>
<th>Length (mm)</th>
<th>Outer-Ø (mm)</th>
<th>Weight (kg/100 pcs.)</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>219 16 CU</td>
<td>1200</td>
<td>14.2</td>
<td>192.000</td>
<td>5000481</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
OMEX earthing rod

- OMEX system
- With peg and bore for linking together
- With hardened hexagonal pins
- Min. zinc coating 60 µm
- Very good contacting properties with soft metal inlay in the bore hole
- Conforms to the requirements according to VDE 0185-305 (IEC 62305) and DIN EN 62561-2

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>Outer-Ø</th>
<th>Short-circuit current (50 HZ) (1 s;≤300°C)</th>
<th>Lightning current carrying capacity</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>219 20 OMEX FT</td>
<td>1500</td>
<td>20</td>
<td>7.9</td>
<td>H/100</td>
<td>365.400</td>
<td>5000017</td>
</tr>
<tr>
<td>219 20 OMEX FT</td>
<td>2000</td>
<td>20</td>
<td>7.9</td>
<td>H/100</td>
<td>491.400</td>
<td>5000203</td>
</tr>
</tbody>
</table>

Driving spike for LightEarth earth rod

- Suitable for LightEarth system

<table>
<thead>
<tr>
<th>Type</th>
<th>Ø mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LE SPITZE</td>
<td>25</td>
<td>10.000</td>
<td>3041409</td>
</tr>
</tbody>
</table>

Driving spike for ST and BP earth rod

- Suitable for ST and BP system

<table>
<thead>
<tr>
<th>Type</th>
<th>Ø mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1819 20BP</td>
<td>20</td>
<td>3.800</td>
<td>3041212</td>
</tr>
<tr>
<td>1819 25BP</td>
<td>25</td>
<td>6.700</td>
<td>3041956</td>
</tr>
</tbody>
</table>
### Driving spike for OMEX earth rod

- **Suitable for OMEX system**
- **DIN 48852, Form SP**

<table>
<thead>
<tr>
<th>Type</th>
<th>Ø mm</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1819 20</td>
<td>20</td>
<td>5</td>
<td>3.300</td>
<td>3041204</td>
</tr>
<tr>
<td>1819 25</td>
<td>25</td>
<td>5</td>
<td>4.900</td>
<td>3041255</td>
</tr>
</tbody>
</table>

- Cast iron
- Hot-dip galvanised

### Impact head for LightEarth earthing rod

- **Suitable for LightEarth system**
- **For driving earth rods using hand-held hammer**
- **Hardened**

<table>
<thead>
<tr>
<th>Type</th>
<th>Material symbol</th>
<th>Ø mm</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LE KOPF</td>
<td>St</td>
<td>25</td>
<td>1</td>
<td>0.550</td>
<td>3042308</td>
</tr>
</tbody>
</table>

- Steel
- Hot-dip galvanised

### Impact head for earthing rods ST, BP and OMEX

- **Suitable for ST, BP and OMEX systems**
- **Hardened**
- **DIN 48852, Form SP**

<table>
<thead>
<tr>
<th>Type</th>
<th>Material symbol</th>
<th>Ø mm</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1820 20</td>
<td>St</td>
<td>20</td>
<td>1</td>
<td>62.600</td>
<td>3042200</td>
</tr>
<tr>
<td>1820 25</td>
<td>St</td>
<td>25</td>
<td>1</td>
<td>70.000</td>
<td>3042251</td>
</tr>
</tbody>
</table>

- Steel

### Impact head for earthing rod with thread

- **Suitable for earth rods, type 2019 16 CU**

<table>
<thead>
<tr>
<th>Type</th>
<th>Material symbol</th>
<th>Ø mm</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1820 16</td>
<td>V2A</td>
<td>14.2</td>
<td>5</td>
<td>5.800</td>
<td>3042270</td>
</tr>
</tbody>
</table>

- V2A Stainless steel, grade 304

### Coupling for earth rod with thread

- **Suitable for earth rods, type 2019 16 CU**

<table>
<thead>
<tr>
<th>Type</th>
<th>Ø mm</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019 16</td>
<td>14.2</td>
<td>10</td>
<td>8.000</td>
<td>5001190</td>
</tr>
</tbody>
</table>

- CuSn Red bronze

Always indicate the item number when ordering.
<table>
<thead>
<tr>
<th>Hammer insert, type 2500, for earthing rods ST, BP and OMEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>For earth rods</td>
</tr>
<tr>
<td>Ø mm</td>
</tr>
<tr>
<td>2500 20 20</td>
</tr>
<tr>
<td>2500 25 25</td>
</tr>
</tbody>
</table>

- Manufactured by Cobra BBM 47 SPA-Super, Tex 11 and COBRA 248
- Fits earth rod system ST, BP and OMEX
- Hardened

<table>
<thead>
<tr>
<th>Hammer insert, type 2510, for earthing rods ST, BP and OMEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>For earth rods</td>
</tr>
<tr>
<td>Ø mm</td>
</tr>
<tr>
<td>2510 20 20</td>
</tr>
</tbody>
</table>

- Manufactured by Atlas Copco, type FB 60 S-Super
- Fits earth rod system ST, BP and OMEX
- Hardened

<table>
<thead>
<tr>
<th>Hammer insert, type 2520, for earthing rods ST, BP and OMEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>For earth rods</td>
</tr>
<tr>
<td>Ø mm</td>
</tr>
<tr>
<td>2520 20 20</td>
</tr>
<tr>
<td>2520 25 25</td>
</tr>
</tbody>
</table>

- Manufactured by Wacker BHF 25, BHF 30S, EHU 25/220
- Fits earth rod system ST, BP and OMEX
- Hardened

<table>
<thead>
<tr>
<th>Hammer insert, type 2530, for earthing rods ST, BP and OMEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>For earth rods</td>
</tr>
<tr>
<td>Ø mm</td>
</tr>
<tr>
<td>2530 20 20</td>
</tr>
<tr>
<td>2530 25 25</td>
</tr>
</tbody>
</table>

- Manufactured by Bosch USH 10, HSH 10
- Fits earth rod system ST, BP and OMEX
- Hardened

<table>
<thead>
<tr>
<th>Hammer insert, type 2531, for earthing rods ST, BP and OMEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>For earth rods</td>
</tr>
<tr>
<td>Ø mm</td>
</tr>
<tr>
<td>2531 20 20</td>
</tr>
</tbody>
</table>

- Make: Bosch GSH 27, USH 27 (WAF 28 mm)
- Suitable for ST, BP and OMEX earth rod systems
- Hardened

Always indicate the item number when ordering.
Hammer insert, type 2535, for earthing rods ST, BP and OMEX

<table>
<thead>
<tr>
<th>Type</th>
<th>Ø mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2535 20</td>
<td>20</td>
<td>1</td>
<td>100.000</td>
<td>3043916</td>
</tr>
<tr>
<td>2535 25</td>
<td>25</td>
<td>1</td>
<td>100.000</td>
<td>3044912</td>
</tr>
</tbody>
</table>

Steel
- Manufactured by Hilti TE 52/42, TE 72/60, TE 92
- Fits earth rod system ST, BP and OMEX
- Hardened

Hammer insert, type 2536, for earthing rods ST, BP and OMEX

<table>
<thead>
<tr>
<th>Type</th>
<th>Ø mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2536 20</td>
<td>20</td>
<td>1</td>
<td>63.000</td>
<td>3044904</td>
</tr>
<tr>
<td>2536 25</td>
<td>25</td>
<td>1</td>
<td>61.000</td>
<td>3044831</td>
</tr>
</tbody>
</table>

Steel
- Fits earth rod system ST, BP and OMEX
- For vibration hammers with SDS-Max/TEY-mounting
- Hardened

Hammer insert for LightEarth earthing rod

<table>
<thead>
<tr>
<th>Seat systems</th>
<th>Type</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wacker</td>
<td>LE HAMMER-W</td>
<td>1</td>
<td>132.000</td>
<td>3043606</td>
</tr>
<tr>
<td>Hilti</td>
<td>LE HAMMER-H</td>
<td>1</td>
<td>76.000</td>
<td>3043610</td>
</tr>
<tr>
<td>Bosch</td>
<td>LE HAMMER-B</td>
<td>1</td>
<td>87.000</td>
<td>3043614</td>
</tr>
<tr>
<td>SDS-max</td>
<td>LE HAMMER-SDS-M</td>
<td>1</td>
<td>76.000</td>
<td>3043602</td>
</tr>
<tr>
<td>Atlas Copco</td>
<td>LE HAMMER-AC</td>
<td>1</td>
<td>76.000</td>
<td>3043618</td>
</tr>
<tr>
<td>Other</td>
<td>LE HAMMER-B-II</td>
<td>1</td>
<td>200.000</td>
<td>3043628</td>
</tr>
</tbody>
</table>

Steel
- Suitable for LightEarth system
- 3043606 for Wacker (BHF 25, BHF 30S)
- 3043610 for Hilti (TE 52/42, TE72/60, TE92)
- 3043614 for Bosch (USH 10, HSH 10)
- 3043602 for SDS-Max
- 3043618 for Atlas Copco (Hexagon seat)
- 3043628 for Bosch GSH27/USH27 (11304) / HS28 (12314)
- Hitachi H65SD
- Makita HM1500B / HM1800
- Hardened

Always indicate the item number when ordering.
Air-termination/earth entry rod, rounded-off on both ends

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>Nominal size Ø</th>
<th>Weight kg/100</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 A-1500</td>
<td>1500</td>
<td>16</td>
<td>10</td>
<td>240.000</td>
</tr>
</tbody>
</table>

- Steel
- Hot-dip galvanised
- Full material Ø 16 mm
- Rounded on both ends
- Suitable for FangFix stand system

Air-termination/earth entry rod, rounded-off on both ends

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>Nominal size Ø</th>
<th>Weight kg/100</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 V4A-1500</td>
<td>1500</td>
<td>16</td>
<td>10</td>
<td>242.000</td>
</tr>
<tr>
<td>200 V4A-2000</td>
<td>2000</td>
<td>16</td>
<td>10</td>
<td>320.000</td>
</tr>
</tbody>
</table>

- Stainless steel, grade 316 Ti
- Full material Ø 16 mm
- Rounded on both ends
- Suitable for FangFix stand system

Air-termination/earth entry rod, rounded-off on both ends

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>Nominal size Ø</th>
<th>Weight kg/100</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 A-CU</td>
<td>1500</td>
<td>16</td>
<td>10</td>
<td>272.100</td>
</tr>
</tbody>
</table>

- Copper
- Full material Ø 16 mm
- Rounded on both ends
- Suitable for FangFix stand system

Air-termination/earth entry rod with connection tabs

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>Nominal size Ø</th>
<th>Weight kg/100</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 F1500</td>
<td>1500</td>
<td>16</td>
<td>10</td>
<td>240.000</td>
</tr>
<tr>
<td>101 F2000</td>
<td>2000</td>
<td>16</td>
<td>10</td>
<td>320.000</td>
</tr>
</tbody>
</table>

- Steel
- Hot-dip galvanised
- With 2 attaching holes Ø 12 mm
- One end rounded

Connection lug/earth entry rod made of stainless steel

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø</th>
<th>Cross-section mm²</th>
<th>Weight kg/100</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AF RD 10 V4A</td>
<td>10</td>
<td>75</td>
<td>5</td>
<td>123.600</td>
</tr>
</tbody>
</table>

- Stainless steel, 316Ti / 316L
- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)
- RD 10-V4A for applications in the earth
- According to the foundation earther standard DIN 18014, V4A is required in the earth

Always indicate the item number when ordering.
Earth rods and plates

Earth entry rod, tapered and partially insulated

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>Nominal size Ø</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>204 KS-2000</td>
<td>2000</td>
<td>16/10</td>
<td>230.000</td>
<td>5430011</td>
</tr>
<tr>
<td>204 KS-2500</td>
<td>2500</td>
<td>16/10</td>
<td>310.000</td>
<td>5430062</td>
</tr>
</tbody>
</table>

- Steel
- Hot-dip galvanised
- 16 mm earth entry with 10 mm connection
- With mounted heat-shrinkable sleeve (corrosion protection)

Earth entry rod with separating piece and connector

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>204 KL-1500</td>
<td>Rd 8-10</td>
<td>280.700</td>
<td>5430151</td>
</tr>
</tbody>
</table>

- Steel
- With separating piece type 223 DIN and connector type 5002 DIN

Profile earthing rod with connecting lug

<table>
<thead>
<tr>
<th>Type</th>
<th>Length mm</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>213 1000 DIN</td>
<td>1000</td>
<td>240.500</td>
<td>5003008</td>
</tr>
<tr>
<td>213 1500 DIN</td>
<td>1500</td>
<td>364.500</td>
<td>5003016</td>
</tr>
<tr>
<td>213 2000 DIN</td>
<td>2000</td>
<td>488.400</td>
<td>5003024</td>
</tr>
<tr>
<td>213 2500 DIN</td>
<td>2500</td>
<td>612.400</td>
<td>5003032</td>
</tr>
<tr>
<td>213 3000 DIN</td>
<td>3000</td>
<td>736.400</td>
<td>5003040</td>
</tr>
</tbody>
</table>

- Steel
- Hot-dip galvanised
- Cross-profile 50 x 50 x 3 mm
- With connecting strap
- 1 through hole Ø 13 mm
- 2 through holes Ø 11 mm
- Round conductor fastening e.g. with type 5001 DIN-FT possible
- For the construction of earthing systems e.g. antenna or earthing of building site distribution boards

Profile earthing rod with connection strap/hand protection

<table>
<thead>
<tr>
<th>Type</th>
<th>Length mm</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>213 1000 DIN HS</td>
<td>1000</td>
<td>300.000</td>
<td>5003081</td>
</tr>
</tbody>
</table>

- Steel
- Hot-dip galvanised
- Cross-profile 50 x 50 x 3 mm
- Hand protection Ø 100 mm
- With connecting strap
- 1 gland hole Ø 13 mm
- 2 gland holes Ø 11 mm
- Round cable fastening e.g. with type 5001 DIN-FT possible
- For the construction of earthing systems e.g. antennas or earthing of building site distribution boards

Always indicate the item number when ordering.
### Profile earth rod connection with strip steel lug

<table>
<thead>
<tr>
<th>Type</th>
<th>Length mm</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>213 1500 M</td>
<td>1500</td>
<td>527.600</td>
<td>3</td>
<td>5003261</td>
</tr>
<tr>
<td>213 2000 M</td>
<td>2000</td>
<td>651.600</td>
<td>3</td>
<td>5003288</td>
</tr>
<tr>
<td>213 2500 M</td>
<td>2500</td>
<td>783.800</td>
<td>3</td>
<td>5003296</td>
</tr>
<tr>
<td>213 3000 M</td>
<td>3000</td>
<td>899.500</td>
<td>3</td>
<td>5003318</td>
</tr>
</tbody>
</table>

- Steel
- Hot-dip galvanised
- With 2 m strip steel section FL 30 x 3.5
- With 2 through holes Ø 11 mm
- For the construction of earthing systems e.g. antenna or earthing of building site distribution boards

### Profile earth rod connection with round conductor lug

<table>
<thead>
<tr>
<th>Type</th>
<th>Length mm</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>213 1500 F</td>
<td>1500</td>
<td>486.900</td>
<td>3</td>
<td>5003776</td>
</tr>
<tr>
<td>213 2000 F</td>
<td>2000</td>
<td>610.900</td>
<td>3</td>
<td>5003784</td>
</tr>
</tbody>
</table>

- Steel
- Hot-dip galvanised
- With 2 m round conductor lugs Rd 10
- For the construction of earthing systems e.g. antenna or earthing of building site distribution boards

### Earthing plate

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension B x L x S mm</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1816 F-500X1000</td>
<td>500 x 1000 x 3</td>
<td>1.329.300</td>
<td>1</td>
<td>5009227</td>
</tr>
<tr>
<td>1816 F-1000X1000</td>
<td>1000 x 1000 x 3</td>
<td>2.700.000</td>
<td>1</td>
<td>5009235</td>
</tr>
</tbody>
</table>

- Steel
- Hot-dip galvanised
- With 3 m strip steel section FL 30 x 3.5
- With 2 attaching holes Ø 11 mm

Always indicate the item number when ordering.
Connection clamp for earth rod to round conductors Rd 8–10

<table>
<thead>
<tr>
<th>Type</th>
<th>Ø mm</th>
<th>Dimension A</th>
<th>Dimension B</th>
<th>Pack</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2710 20</td>
<td>20</td>
<td>84</td>
<td>114</td>
<td>5</td>
<td>39.900</td>
<td>5001218</td>
</tr>
<tr>
<td>2710 25</td>
<td>25</td>
<td>89</td>
<td>119</td>
<td>5</td>
<td>42.300</td>
<td>5001226</td>
</tr>
</tbody>
</table>

- Steel
- Hot-dip galvanised
- ST, BP, OMEX and LightEarth systems
- On round conductor Rd 8-10
- Incl. connector, type 5001 DIN

Connection clamp for earth rod on flat conductor

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension A</th>
<th>Dimension B</th>
<th>Pack</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2730 20 FT</td>
<td>84</td>
<td>114</td>
<td>5</td>
<td>35.900</td>
<td>5001404</td>
</tr>
<tr>
<td>2730 25 FT</td>
<td>84</td>
<td>114</td>
<td>5</td>
<td>38.800</td>
<td>5001412</td>
</tr>
</tbody>
</table>

- Steel
- Hot-dip galvanised
- ST, BP, OMEX and LightEarth systems
- On flat conductors
- Including hex-head screw for attaching flat conductors

Connection clamp for earth rod on flat conductor

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension A</th>
<th>Dimension B</th>
<th>Pack</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2730 20 VA</td>
<td>84</td>
<td>114</td>
<td>5</td>
<td>35.900</td>
<td>5001366</td>
</tr>
</tbody>
</table>

- Stainless steel, grade 304
- ST, BP, OMEX and LightEarth systems
- On flat conductors
- Including hex-head screw for attaching flat conductors

Connection clamp for earth rod, universal

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension A</th>
<th>For earth rods Ø mm</th>
<th>Dimension B</th>
<th>Short-circuit current (50 HZ) (1 s;≤300°C)</th>
<th>Pack</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2760 20 FT</td>
<td>101</td>
<td>20</td>
<td>84</td>
<td>Rd 8-10 or FL 40</td>
<td>5</td>
<td>32.400</td>
<td>5001641</td>
</tr>
<tr>
<td>2760 B-20 FT</td>
<td>101</td>
<td>20</td>
<td>84</td>
<td>Rd 8-10 or FL 40</td>
<td>20</td>
<td>32.400</td>
<td>5001749</td>
</tr>
<tr>
<td>2760 25 FT</td>
<td>110</td>
<td>25</td>
<td>84</td>
<td>Rd 8-10 or FL 40</td>
<td>5</td>
<td>38.400</td>
<td>5001668</td>
</tr>
</tbody>
</table>

- Steel
- Hot-dip galvanised
- Suitable for attaching round conductors Rd 8-10 or flat conductors to FL 40
- With separator plate
- Installed with 2 hexagonal bolts M10 x 30 and 2 hexagonal nuts M10

Always indicate the item number when ordering.
Connection clamp for earth rod, universal

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Suitable for connecting round conductors Rd 8-10 or flat conductors to FL 40
- With adapter plate
- Mounted with 2 hexagonal bolts M10 x 30 and 2 hexagonal bolts M10

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension A mm</th>
<th>For earth rods Ø mm</th>
<th>Fit mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2760 20 VA</td>
<td>101</td>
<td>20</td>
<td>Rd 8-10/FL 40</td>
<td>5</td>
<td>32.400</td>
<td>5001617</td>
</tr>
<tr>
<td>2760 B-20 VA</td>
<td>101</td>
<td>20</td>
<td>Rd 8-10/FL 40</td>
<td>20</td>
<td>32.400</td>
<td>5001625</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304
V4A Stainless steel, grade 316 L

Connection clamp for earth rod or cables

- For earth rod connectors Ø 20 or conductors 95 mm²
- For round conductor attachments Rd 7-12.5 with hexagonal bolts M10 x 25, copper (Cu)

<table>
<thead>
<tr>
<th>Type</th>
<th>For earth rods Ø mm</th>
<th>Fit mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2745 20 MS</td>
<td>20</td>
<td>7-12.5</td>
<td>S95 mm²</td>
<td>5</td>
<td>16.000</td>
</tr>
</tbody>
</table>

CuZn Brass
Copper-plated

Connection clamp for RD16 / FL25

- Suitable for connecting round conductors Rd 8-10 or flat conductors with earth rod 219 16 CU

<table>
<thead>
<tr>
<th>Type</th>
<th>For earth rods Ø mm</th>
<th>Fit mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2740 16</td>
<td>14.2</td>
<td>FL/Rd</td>
<td>10</td>
<td>12.900</td>
<td>5001511</td>
</tr>
<tr>
<td>2740 16 KL</td>
<td>14.2</td>
<td>Rd 8-10/FL max. 26</td>
<td>10</td>
<td>17.500</td>
<td>5001513</td>
</tr>
</tbody>
</table>

CuSn Red bronze
CuAI Aluminium bronze
CuAI Red bronze

Always indicate the item number when ordering.
Cross-connector for flat conductor

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Max FL 30 x FL 30
- Without adapter plate
- Mounted with 4 hexagonal bolts M6 x 20 (F)

Cross-connector for flat conductor, with intermediate plate

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Max FL 30 x FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M6 x 20 (F)

DIN cross-connector for flat conductor

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Max FL 30 x FL 30 or max. FL 40 x FL 40
- Without adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

DIN cross-connector for flat conductor

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Max FL 30 x FL 30
- Without adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Always indicate the item number when ordering.
**DIN cross-connector for flat conductor, with intermediate plate**

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Max. FL 30 x FL 30 or max. FL 40 x FL 40
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Dimension A</th>
<th>Dimension B</th>
<th>Lightning current carrying capacity</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>256 DIN 30 FT</td>
<td>max. FL 30</td>
<td>60</td>
<td>60</td>
<td>H/100</td>
<td>10</td>
<td>35.860</td>
<td>5314615</td>
</tr>
<tr>
<td>256 DIN 40 FT</td>
<td>max. FL 40</td>
<td>80</td>
<td>80</td>
<td>H/100</td>
<td>10</td>
<td>54.650</td>
<td>5314623</td>
</tr>
</tbody>
</table>

**St Steel**
- Hot-dip galvanised

**DIN cross-connector for flat conductor, with intermediate plate**

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Max. FL 30 x FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Dimension A</th>
<th>Dimension B</th>
<th>Lightning current carrying capacity</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>256 DIN 30 V4A</td>
<td>max. FL 30</td>
<td>60</td>
<td>60</td>
<td>H/100</td>
<td>10</td>
<td>23.100</td>
<td>5314616</td>
</tr>
</tbody>
</table>

**V4A Stainless steel, grade 316 Ti**

**Cross-connector Rd 8–10 mm, wide version**

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8 (F)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Lightning current carrying capacity</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>253 B 8X8</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>25</td>
<td>99.700</td>
<td>5312604</td>
</tr>
</tbody>
</table>

**St Steel**
- Hot-dip galvanised

**Cross-connector round/round without intermediate plate**

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8 (F)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Lightning current carrying capacity</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>253 B-10 V4A</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>25</td>
<td>23.650</td>
<td>5312582</td>
</tr>
</tbody>
</table>

**V4A Stainless steel, 316Ti / 316L**

Always indicate the item number when ordering.
Cross-connector with intermediate plate for Rd 8–10 mm, wide version

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity kA</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs. Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>252 8-10 FT</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>25</td>
<td>39.530 5312310</td>
</tr>
</tbody>
</table>

Steel Hot-dip galvanised

Cross-connector with intermediate plate for Rd 8–10 mm, wide version

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity kA</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs. Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>252 8-10 V4A</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>10</td>
<td>33.530 5312318</td>
</tr>
</tbody>
</table>

Stainless steel, grade 316 Ti

Cross-connector with intermediate plate for Rd 8–10 mm, wide version

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity kA</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs. Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>252 8-10 CU</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>10</td>
<td>38.940 5312418</td>
</tr>
</tbody>
</table>

Copper

Cross-connector for Rd 8–10 x Rd 16 mm

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x Rd 16 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity kA</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs. Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>253 10X16</td>
<td>Rd 8-10 x 16</td>
<td>H/100</td>
<td>25</td>
<td>29.800 5312809</td>
</tr>
</tbody>
</table>

Steel Hot-dip galvanised

Always indicate the item number when ordering.
Cross-connector with intermediate plate for Rd 8–10 x Rd 16 mm

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x Rd 16 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

**Type**  
252 B-10X16 FT  | Rd 8-10 x 16 | H/100

<table>
<thead>
<tr>
<th>Lightning current carrying capacity</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>kA</td>
<td>pcs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H/100</td>
<td>25</td>
<td>38.800</td>
<td>5312545</td>
</tr>
</tbody>
</table>

Connection material

Cross-connector with intermediate plate for Rd 8–10 x Rd 16 mm

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x Rd 16 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

**Type**  
252 B-10X16 V4A  | Rd 8-10 x 16 | H/100

<table>
<thead>
<tr>
<th>Lightning current carrying capacity</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>kA</td>
<td>pcs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H/100</td>
<td>10</td>
<td>39.000</td>
<td>5312346</td>
</tr>
</tbody>
</table>

Cross-connector with intermediate plate for Rd 8–10 x Rd 16 mm

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x Rd 16 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

**Type**  
252 B-10X16 CU  | Rd 8-10 x 16 | H/100

<table>
<thead>
<tr>
<th>Lightning current carrying capacity</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>kA</td>
<td>pcs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H/100</td>
<td>10</td>
<td>43.985</td>
<td>5312442</td>
</tr>
</tbody>
</table>

Cross-connector for round cables and flat conductors DIN

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

**Type**  
252 8-10XFL30 FT  | Rd 8-10 x FL 30 | H/100

<table>
<thead>
<tr>
<th>Lightning current carrying capacity</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>kA</td>
<td>pcs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H/100</td>
<td>25</td>
<td>28.500</td>
<td>5312655</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
### Cross-connector for round cables and flat conductors

- **Type:** 252 8-10xFL30V4A
- **Fit:** 8-10 x FL30
- **Lightning current carrying capacity:** H/100
- **Pack.:** 10
- **Weight kg/100 pcs.:** 29.500
- **Item No.:** 5312656

**Material:**
- Stainless steel, grade 316 Ti

**Requirements:**
- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

### Cross-connector for flat conductors and round conductors

- **Type:** 250 Rd 8-10 x FL30
- **Fit:** Rd 8-10 x FL 30
- **Lightning current carrying capacity:** N/50
- **Pack.:** 25
- **Weight kg/100 pcs.:** 10.260
- **Item No.:** 5312906

**Material:**
- Steel
- Hot-dip galvanised

**Requirements:**
- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10
- Fit: Fl 30 x Fl 30
- Mounted with 2 hexagonal bolts M8 x 20 (F)

### Cross-connector for flat conductors and round conductors

- **Type:** 250 VA Rd 8-10 x FL30
- **Fit:** Rd 8-10 x FL 30
- **Lightning current carrying capacity:** N/50
- **Pack.:** 25
- **Weight kg/100 pcs.:** 10.260
- **Item No.:** 5312925

**Material:**
- Stainless steel, grade 304
- Hot-dip galvanised/stainless steel, grade 304

**Requirements:**
- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10
- Fit: Fl 30 x Fl 30
- Mounted with 2 hexagonal bolts M8 x 20

### Cross-connector for flat conductors and round conductors with threaded bolt M10x45

- **Type:** 252 GB 10x45
- **Fit:** 8-10 x FL30
- **Lightning current carrying capacity:** H/100
- **Pack.:** 10
- **Weight kg/100 pcs.:** 34.800
- **Item No.:** 5312657

**Material:**
- Stainless steel, grade 304
- Hot-dip galvanised/stainless steel, grade 304

**Requirements:**
- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8
## Diagonal clamp for flat conductors and round conductors

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Short-circuit current (50 HZ) (1 s;≤300°C)</th>
<th>Lightning current carrying capacity</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 A-FT</td>
<td>Rd 6-22/max. FL50</td>
<td>7.3</td>
<td>H/100</td>
<td>28.800</td>
<td>25</td>
<td>5313015</td>
</tr>
<tr>
<td>250 AS-FT</td>
<td>Rd 6-22/max. FL50</td>
<td>7.3</td>
<td>H/100</td>
<td>26.000</td>
<td>25</td>
<td>5313031</td>
</tr>
<tr>
<td>250 A</td>
<td>Rd 6-22/max. FL50</td>
<td>7.3</td>
<td>H/100</td>
<td>28.800</td>
<td>25</td>
<td>5313058</td>
</tr>
</tbody>
</table>

- For reinforced steels Ø 6-22 mm and flat conductor 50 x 4
- Installed with screws M10 x 40
- AS version with screws M10 x 20
- Simple installation with open slot

## Diagonal clamp for flat conductors and round conductors

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension L</th>
<th>Fit</th>
<th>Lightning current carrying capacity</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 A-VA</td>
<td>40</td>
<td>Rd 6-22/max. FL50</td>
<td>H/100</td>
<td>28.800</td>
<td>10</td>
<td>5313023</td>
</tr>
</tbody>
</table>

- For reinforced steels Ø 6-22 mm and flat conductor 50 x 4
- Installed with screws M10 x 40
- AS version with screws M10 x 20
- Simple installation with open slot

## Diagonal clamp with bolt

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension L</th>
<th>Fit</th>
<th>Lightning current carrying capacity</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 A-BO</td>
<td>25</td>
<td>Rd 6-22/max. FL50</td>
<td>H/100</td>
<td>33.000</td>
<td>25</td>
<td>5313066</td>
</tr>
</tbody>
</table>

- For reinforced steels Ø 6-22 mm and flat conductor 50 x 4
- Installed with screws M10 x 25
- Simple installation with open slot
- With flange-welded bolts M10 x 40, inc. 2 washers and 2 nuts

## Cross-connector for flat conductors and round conductors with threaded bolt M10x45

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Short-circuit current (50 HZ) (1 s;≤300°C)</th>
<th>Lightning current carrying capacity</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>252 GB 10x45</td>
<td>8-10 x FL30</td>
<td>4.2</td>
<td>H/100</td>
<td>34.800</td>
<td>10</td>
<td>5312657</td>
</tr>
</tbody>
</table>

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62205-3)
- Fit: Rd 8-10 x FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Always indicate the item number when ordering.
Diagonal clamp for flat conductors and round conductors

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- To connect round conductors 8–10 mm
- Mounted with 2 truss-head bolts M10 x 30 and 2 hexagonal bolts M10
- Type 2760 8 with adapter plate

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2760 8-10 V4A</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>25</td>
<td>20.600</td>
<td>5313013</td>
</tr>
<tr>
<td>2760 8</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>5</td>
<td>27.120</td>
<td>5001612</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304
V4A Stainless steel, 316Ti / 316L

Parallel clamp for the connecting of reinforcing steels

- For connecting reinforced steels Ø 10–20 mm
- Mounted with M10 x 40 bolts

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>259 A ST</td>
<td>Ø 10-20</td>
<td>H/100</td>
<td>25</td>
<td>18.800</td>
<td>5315557</td>
</tr>
<tr>
<td>259 A FT</td>
<td>Ø 10-20</td>
<td>H/100</td>
<td>25</td>
<td>18.800</td>
<td>5315514</td>
</tr>
<tr>
<td>259 A VA</td>
<td>Ø 10-20</td>
<td>H/100</td>
<td>10</td>
<td>18.800</td>
<td>5315522</td>
</tr>
</tbody>
</table>

St Steel
V2A Stainless steel, grade 304
FT Hot-dip galvanised

Variable earthing terminal

- Suitable for connection for Rd 10 x FL 30, FL 30 x FL 30
- Quick mounting using a hexagonal bolt M10 x 20 (F)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1813 KL</td>
<td>FL 30 x Rd 8-10</td>
<td>H/100</td>
<td>50</td>
<td>18.000</td>
<td>5014425</td>
</tr>
</tbody>
</table>

Steel
FT Hot-dip galvanised

Connection terminal for round cable

- For connecting round conductor Rd 8-10
- With 1 hexagonal bolt M12 x 40, 1 hexagonal nut M12 and 1 lock washer, stainless steel

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1818</td>
<td>Rd 8:10</td>
<td>N/50</td>
<td>10</td>
<td>17.600</td>
<td>5012015</td>
</tr>
</tbody>
</table>

Steel
FT Hot-dip galvanised

Always indicate the item number when ordering.
Connection terminal for reinforced steels

- For reinforced steels with diameters 8-14 mm and FL 30 x 5
- Simple mounting through open slot
- Side suspension possible

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Short-circuit current (50 Hz)</th>
<th>Lightning current carrying capacity kA</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST</td>
<td>FL30x5 x Rd8-14</td>
<td>7.3</td>
<td>N/50</td>
<td>25</td>
<td>20.000</td>
</tr>
<tr>
<td>FT</td>
<td>FL30x5 x Rd8-14</td>
<td>7.3</td>
<td>N/50</td>
<td>25</td>
<td>20.000</td>
</tr>
</tbody>
</table>

Connection terminal for large reinforced steels

- For armoured steel with 16-37 mm diameter and round conductors and flat conductors
- Rapid installation using open slot and only one M10 screw
- Rotatable metal pressure trough for simple, safe mounting

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity kA</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST D37</td>
<td>FL30x3-4mm /Rd 10 x Rd 16-37</td>
<td>H/100</td>
<td>25</td>
<td>30.000</td>
</tr>
<tr>
<td>FT D37</td>
<td>FL30x3-4mm /Rd 10 x Rd 16-37</td>
<td>H/100</td>
<td>25</td>
<td>30.000</td>
</tr>
</tbody>
</table>

Sealing sleeve for round conductors

- Sealing sleeve for penetrations with waterproof foundation plates/walls (e.g. white trough)
- For mounting on connection lugs with stainless steel tightening straps
- With pressurised water testing to 5 bar

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DW RD10</td>
<td>RD 10</td>
<td>1</td>
<td>13.000</td>
<td>2360041</td>
</tr>
</tbody>
</table>

Sealing sleeve for flat conductors

- Sealing sleeve for penetrations with waterproof foundation plates/walls (e.g. white trough)
- For mounting on connection lugs with stainless steel tightening straps
- With pressurised water testing to 5 bar

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DW FL30x3.5</td>
<td>FL 30x3.5</td>
<td>1</td>
<td>18.000</td>
<td>2360043</td>
</tr>
</tbody>
</table>

Fixed earthing point

- Connection to earthing systems, conductors and reinforcement
- Contact plate: Ø 79 mm, made of rustproof stainless steel (V4A)
- Clamping bolt Ø 10 mm, rustproof (V2A)
- Incl. plastic cover for simple installation

<table>
<thead>
<tr>
<th>Type</th>
<th>Thread</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>205 B-M10 VA</td>
<td>M10</td>
<td>10</td>
<td>25.500</td>
<td>5420008</td>
</tr>
<tr>
<td>205 B-M12 VA</td>
<td>M12</td>
<td>10</td>
<td>25.500</td>
<td>5420016</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
**Earthing fixed point with double thread**

- Type: 205 DG V4A
- Thread: M10/M12
- Short-circuit current (50 Hz) (1 s, > 300°C) kA: 6.2
- Lightning current carrying capacity kA: H/100
- Weight kg/100 pcs.: 14.800
- Item No.: 5420020

- Type: 205 DG L180 V4A
- Thread: M10/M12
- Short-circuit current (50 Hz) (1 s, > 300°C) kA: —
- Lightning current carrying capacity kA: H/100
- Weight kg/100 pcs.: 23.900
- Item No.: 5420022

- Type: 205 DG L180 FT
- Thread: M10/M12
- Short-circuit current (50 Hz) (1 s, > 300°C) kA: —
- Lightning current carrying capacity kA: —
- Weight kg/100 pcs.: 23.900
- Item No.: 5420024

- Material: Stainless steel, grade 316 L
- Standard: FT Hot-dip galvanised
- Contact plate: Ø 79 mm made of stainless steel, rustproof (V4A)
- With double thread M10/M12
- Incl. plastic cover for simple installation

**Connection and end piece**

- Type: 5011
- Dimension D Ø mm: 11
- Steel
- Hot-dip galvanised
- For attaching to steel structures or bolting to fixed earthing terminals
- For attachments: Round conductor Rd 8-10 and flat conductor FL 30 x 3.5
- 2 attaching holes Ø 11 mm
- 1 attaching holes Ø D mm

- Type: 5011 VA M10
- Dimension D Ø mm: 11
- Stainless steel, grade 316 Ti
- For attaching to steel structures or bolting to fixed earthing terminals
- For attachments: Round conductor Rd 8-10 and flat conductor FL 30 x 3.5
- 2 attaching holes Ø 11 mm
- 1 attaching holes Ø D mm

**Wedge connector**

- Type: 1813 DIN
- Fit mm: 10/FL 30 x FL 30
- Lightning current carrying capacity kA: H/100
- Weight kg/100 pcs.: 21.400
- Item No.: 5014212

- Material: Steel
- Standard: FT Hot-dip galvanised
- DIN 48834, Form A
- Suitable for connecting Rd 10 x FL 30, FL 30 x FL 30
- Quick installation with high contact force

**Always indicate the item number when ordering.**
### Spacer

- For professional laying of round conductors and flat conductors according to DIN VDE 0185-305 (IEC 62305)
- DIN 48833
- Suitable for mounting round conductors Rd 10 or flat conductors FL 30 x 3.5

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Length</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1811</td>
<td>10/FL30 x 3.5</td>
<td>250</td>
<td>19.000</td>
<td>5014018</td>
</tr>
<tr>
<td>1811 L</td>
<td>10/FL30 x 3.5</td>
<td>400</td>
<td>31.500</td>
<td>5014026</td>
</tr>
</tbody>
</table>

**Steel**

**FT** Hot-dip galvanised

### Expansion piece

- For expansion joints, for a connection of the foundation earther outside the concrete
- To VDE 0185-561-2 (IEC 62561-2)
- 2 hexagonal nuts M10 x 30, 2 steel washers, hot galvanised and 2 serrated washers made of rustproof steel

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1807</td>
<td>27.000</td>
<td>5016142</td>
</tr>
</tbody>
</table>

**Aluminium**

**Fit** Hot-dip galvanised

### Earthing connection bar

- For connecting different earthing systems

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension L</th>
<th>Dimension A</th>
<th>Dimension B</th>
<th>Dimension G</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1805 2 FT</td>
<td>200</td>
<td>110</td>
<td>51</td>
<td>155</td>
<td>54.800</td>
<td>5016029</td>
</tr>
<tr>
<td>1805 4 FT</td>
<td>302</td>
<td>212</td>
<td>153</td>
<td>257</td>
<td>77.000</td>
<td>5016037</td>
</tr>
<tr>
<td>1805 6 FT</td>
<td>404</td>
<td>314</td>
<td>255</td>
<td>359</td>
<td>97.100</td>
<td>5016045</td>
</tr>
</tbody>
</table>

**Steel**

**FT** Hot-dip galvanised

1805/...: For connecting different earthing systems

- With 2 mounting holes Ø 11 mm
- 1805/2: With 4 attaching holes
- 1805/4: With 8 attaching holes
- 1805/6: With 12 attaching holes

### Earthing connection bar

- For connecting different earthing systems

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension L</th>
<th>Dimension A</th>
<th>Dimension B</th>
<th>Dimension G</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
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</thead>
<tbody>
<tr>
<td>1805 2 VA</td>
<td>200</td>
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<td>155</td>
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</table>

**V4A** Stainless steel, grade 316 Ti

1805/...: For connecting different earthing systems

- With 2 mounting holes Ø 11 mm
- 1805/2: With 4 attaching holes
- 1805/4: With 8 attaching holes
- 1805/6: With 12 attaching holes

Always indicate the item number when ordering.
**Connection material**

### Cable bracket for flat conductor

- **Type**
  - 113 BZ-FL
  - 113 B-Z-HD-FL
- **With female thread M8 or through hole for wood screws**
- **For flat conductor FL 30**
- **Sliding over-piece for quick installation**
- **Die-cast zinc**
- **Electrogalvanised**

**Item No.**
- 5230446
- 5230462

**Pack. pcs.**
- 100
- 100

**Weight kg/100 pcs.**
- 6.280
- 7.000

### Cable bracket for Rd 8–10 and FL 30

- **Fit**
  - Rd 8/10/ FL 30x3,5
- **Type**
  - 835
- **Steel**
- **Hot-dip galvanised**
- **For round conductor Rd 8-10 and flat conductor FL 30 x 3.5**
- **Supplied with hexagonal wood bolt 6 x 70 and straddling dowel 910/N**

**Item No.**
- 5033209

**Pack. pcs.**
- 1

**Weight kg/100 pcs.**
- 12.100

### Spacer clip for flat conductor with fastening hole Ø 6.5

- **Fit**
  - FL 30 and FL 40
- **Type**
  - 831 30
  - 831 40
- **Steel**
- **Hot-dip galvanised**
- **With mounting hole Ø 6.5 and 2 hexagonal bolts M6 x 16 (F)**

**Item No.**
- 5032032
- 5032040

**Pack. pcs.**
- 25
- 25

**Weight kg/100 pcs.**
- 3.580
- 3.894

### Spacer clip for flat conductor, with fastening hole Ø 7

- **Fit**
  - FL 30 and FL 40
- **Type**
  - 832 30
  - 832 40
- **Steel**
- **Hot-dip galvanised**
- **With mounting hole Ø 7 mm and 2 hexagonal bolts M6 x 16**

**Item No.**
- 5032539
- 5032547

**Pack. pcs.**
- 25
- 25

**Weight kg/100 pcs.**
- 7.416
- 7.612

### Spacer clip for flat conductor, with threaded connection M6

- **Fit**
  - FL 30 and FL 40
- **Type**
  - 831 30 M6
  - 831 40 M6
- **Steel**
- **Hot-dip galvanised**
- **With attaching thread M6 and 2 hexagonal bolts M6 x 16 (F)**

**Item No.**
- 5032237
- 5032245

**Pack. pcs.**
- 25
- 25

**Weight kg/100 pcs.**
- 3.712
- 3.880

Always indicate the item number when ordering.
Spacer clip for flat conductor, with polyamide base

- **Type**: 833 35
- **Fit**: FL 30
- **Dimension B**: 60 mm
- **Pack. pcs**: 25
- **Weight kg/100 pcs.**: 4.228
- **Item No.**: 5033039

- With mounting hole 6.2 x 22 mm
- With 2 cylinder bolts M6 x 16 and over-piece from hot-dip galvanised steel
- Bottom section from polyamide, black

Spacer clip for flat conductor, with wood screw and spacer

- **Type**: 370 H
- **Fit**: FL 30
- **Dimension B**: 55 mm
- **Pack. pcs**: 100
- **Weight kg/100 pcs.**: 10.200
- **Item No.**: 5025206

- With spacer and cylinder bolts M6 x 16 (G)
- With wood bolts

Spacer clip for flat conductor, with steel spreading anchor Ø 10

- **Type**: 710 30, 710 40
- **Fit**: FL 30 and FL 40
- **Dimension B**: 52, 62 mm
- **Pack. pcs**: 25
- **Weight kg/100 pcs.**: 5.044, 5.360
- **Item No.**: 5028035, 5028043

- With steel straddling dowel Ø 10 mm, spacer and 2 cylinder bolts M5 x 14 (G)

Spacer clip for flat conductor, with square pin

- **Type**: 708 30 SP
- **Fit**: FL 30
- **Dimension B**: 52 mm
- **Pack. pcs**: 50
- **Weight kg/100 pcs.**: 3.148
- **Item No.**: 5030021

- With 2 cylinder bolts M5 x 12 (G) and over-piece
- With square pin

Spacer clip for flat conductor, with wood screw

- **Type**: 708 30 HG, 708 40 HG
- **Fit**: FL 30 and FL 40
- **Dimension B**: 52 mm
- **Pack. pcs**: 50
- **Weight kg/100 pcs.**: 3.148, 3.474
- **Item No.**: 5030234, 5030242

- With 2 cylinder bolts M5 x 12 (G) and over-piece
- With wood screw

Always indicate the item number when ordering.
### Connection clamp for round conductors RD 16

- **For the connection of conductor materials with conductor shoes to earth rod 219 16 CU**

<table>
<thead>
<tr>
<th>Type</th>
<th>Ø mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No</th>
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</thead>
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<td>2760 16</td>
<td>14.2</td>
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</tbody>
</table>

*CuSn* Red bronze

### Diagonal clamp for flat conductors and round conductors

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- To connect round conductors 8–10 mm
- Mounted with 2 truss-head bolts M10 x 30 and 2 hexagonal bolts M10
- Type 2760 8 with adapter plate

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity kA</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No</th>
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<tr>
<td>2760 S8 V4A</td>
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*V4A* Stainless steel, grade 316

### Expansion strip for foundation earther systems

- Expansion strip according to VDE 0185-561-2 (IEC 62561-2)
- To pass the foundation earther through movement joints

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension W x H mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No</th>
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<td>40.000</td>
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</tbody>
</table>

*V4A* Stainless steel, grade 304

Always indicate the item number when ordering.
Connection clamp for earth rod on flat conductor

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
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</thead>
<tbody>
<tr>
<td>2730 25 M12 FT</td>
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<td>46.280</td>
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</table>

- Steel
- Hot-dip galvanised
- ST, BP, OMEX and LightEarth systems
- On flat conductors
- Including hex-head screw for attaching flat conductors

Always indicate the item number when ordering.
Earthing enhancing compound

- To improve and maintain a constant earth electrode resistance
- Highly swellable and powdery special clay
- Tested according to IEC 62561-7 (VDE 0185-561-7)

**Type**

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Weight kg/100 pcs.</th>
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<tbody>
<tr>
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**Dimensions**

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</thead>
<tbody>
<tr>
<td>5009200</td>
<td>1</td>
</tr>
</tbody>
</table>

Plastic corrosion protection strip

- Approx. 1.1 mm thick
- Width: 50 mm or 100 mm, made of petrolatum-coated chemical fibre fabric
- Can be processed cold

**Type**

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Weight kg/100 pcs.</th>
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<tbody>
<tr>
<td>2360055</td>
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<tr>
<td>2360101</td>
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**Width**

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<th>Length m</th>
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<tr>
<td>2360101</td>
<td>100</td>
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<td>1</td>
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</tbody>
</table>

Strip steel crimp

- Fit: FL 30
- Hot-dip galvanised

**Type**

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<tbody>
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Number plates

- To identify the point of separation to DIN 48821
- Suitable for universal labelling (e.g. stamped numbers)

**Type**

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<tr>
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Number plates

- To identify the point of separation to DIN 48821
- Suitable for universal labelling (e.g. stamped numbers)

**Type**

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Number plates

- To identify the point of separation to DIN 48821
- Suitable for universal labelling (e.g. stamped numbers)

**Type**

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# Air-termination and down conductor systems

<table>
<thead>
<tr>
<th>Component</th>
<th>Item Number</th>
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<tbody>
<tr>
<td>Conductor material</td>
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<tr>
<td>Air-termination systems</td>
<td>503</td>
</tr>
<tr>
<td>Air-termination rods</td>
<td>510</td>
</tr>
<tr>
<td>Roof conductor holder</td>
<td>519</td>
</tr>
<tr>
<td>Cable bracket</td>
<td>528</td>
</tr>
<tr>
<td>Connectors and connection terminals</td>
<td>537</td>
</tr>
<tr>
<td>Connection and separating terminals</td>
<td>564</td>
</tr>
<tr>
<td>Earth entries</td>
<td>568</td>
</tr>
<tr>
<td>Accessories</td>
<td>570</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
## Air-termination rods

**Type**  
**FangFix-Junior**  
Length | Item no. | Page  
--- | --- | ---  
1 m | 5403308 | 503  

**Type 101 VL**  
Tapered tubular air-termination rod  
Length | Item no. | Page  
--- | --- | ---  
1.5 m | 5401980 | 503  
2.0 m | 5401983 | 503  
2.5 m | 5401986 | 503  
3.0 m | 5401989 | 503  
3.5 m | 5401993 | 503  
4.0 m | 5401995 | 503  

**Type 101 ALU**  
Threaded air-termination rod  
Length | Item no. | Page  
--- | --- | ---  
1.0 m | 5401771 | 507  
1.5 m | 5401801 | 507  
2.0 m | 5401836 | 507  
2.5 m | 5401879 | 507  
3.0 m | 5401924 | 507  
3.5 m | 5401969 | 507  
4.0 m | 5401995 | 507  

**Concrete blocks**  
**FangFix** | 5403200 | 504  
**FangFix** | 5403205 | 504  
**FangFix** | 5403103 | 505  
** Loose** | 5403227 | 504  
**FangFix** | 5403110 | 505  
**Loose** | 5403117 | 505  
**Thread** | 5402891 | 507  

## Air-termination rod systems up to 8 m

**Type 101 3B**  
isFang air-termination rod, AL  
Length | Item no. | Page  
--- | --- | ---  
4.0 m | 5402864 | 510  
4.5 m | 5402866 | 510  
5.0 m | 5402868 | 510  
5.5 m | 5402870 | 510  
6.0 m | 5402872 | 510  
6.5 m | 5402874 | 510  
7.0 m | 5402876 | 510  
7.5 m | 5402878 | 510  
8.0 m | 5402880 | 510  

**isFang air-termination rod, insulated**  
Length | Item no. | Page  
--- | --- | ---  
4.0 m | 5408943 | 511  
4.5 m | 5408944 | 511  
5.0 m | 5408945 | 511  
5.5 m | 5408946 | 511  

**isFang stand**  
Spr. | Item no. | Page  
--- | --- | ---  
1.0 m | 5408966 | 511  
1.5 m | 5408967 | 511  
2.0 m | 5408968 | 511  

## Air-termination rod systems 10 m, 12 m, 14 m, 19 m

**irod**  
Length | Item no. | Page  
--- | --- | ---  
10 m | 5400810 | 517  
12 m | 5400812 | 517  
14 m | 5400814 | 517  
19 m | 5400817 | 517  

## Accessories, air-termination rod systems

**Accessories**  
**Type** | Item no. | Page  
--- | --- | ---  
**isFang 3B-100 AL** | 5408966 | 511  
**isFang 3B-150 AL** | 5408967 | 511  
**isFang 3B-100** | 5408968 | 511  
**isFang 3B-150** | 5408969 | 511  
**F-FIX-S16** | 5403227 | 504  
**F-FIX-B16 3B** | 5403228 | 513  

Always indicate the item number when ordering.
Roof conductor holder

<table>
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<tr>
<th>Ridge</th>
<th>Surface</th>
<th>Item no.</th>
<th>Page</th>
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<tr>
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Connector

<table>
<thead>
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Terminals and clips

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</tr>
<tr>
<td>ALU</td>
<td>5351399</td>
<td>559</td>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Galvanised steel flat conductor for earth

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Meets the requirements of VDE 0185-305 (IEC 62305)
- Zinc coating: 500 g/m² (approx. 70 µm)
- For lightning protection, earthing systems and ring equipotential bonding

**Stainless steel flat conductor**

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)
- According to the foundation earther standard DIN 18014, V4A is required in the earth
- For use in areas at risk of corrosion
- For lightning protection, earthing systems and ring equipotential bonding

**Flat conductor, copper**

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Meets the requirements of VDE 0185-305 (IEC 62305)
- For lightning protection, earthing systems and ring equipotential bonding

**Round conductor, galvanised steel**

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)
- RD 10 can also be used in the earth
- Zinc coating: 350 g/m² (approx. 50 µm)

Always indicate the item number when ordering.
**Round conductor, galvanised steel with PVC jacketing**

- Conforms to the requirements according to VDE V 0185-305, (IEC 62305)
- Zinc coating: 350 g/m² (approx. 50 µm)
- With PVC sheathing

<table>
<thead>
<tr>
<th>Type</th>
<th>Colour</th>
<th>Dimen-</th>
<th>Dimen-</th>
<th>Cross-</th>
<th>Normal</th>
<th>Normal</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
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<tr>
<td>RD 10-PVC</td>
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<td>D = 13</td>
<td>78</td>
<td>75</td>
<td>50</td>
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</tr>
</tbody>
</table>

**Round conductor, aluminium**

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)
- RD 8 ALU: Semi-hard (E-AlMgSi0.5 corresponds to DIN 48801)
- RD 8 ALU-T: Can be subjected to torsion (E-AlMgSi0.5 corresponds to DIN 48801)
- RD 10 ALU: Pure aluminium (E-Al corresponds to DIN 48801)
- AL and AlMgSi may not be routed directly on, in or under plaster, mortar or concrete, nor routed in the earth

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø</th>
<th>Cross-section</th>
<th>Normal ring ca. m</th>
<th>Normal ring ca. kg</th>
<th>Pack. m</th>
<th>Weight kg/100 m</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RD 8-ALU</td>
<td>8</td>
<td>50</td>
<td>150</td>
<td>20</td>
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<td>150</td>
<td>13.500</td>
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<tr>
<td>RD 8-ALU-T</td>
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<td>50</td>
<td>150</td>
<td>20</td>
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<td>13.500</td>
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<tr>
<td>RD 8-ALU-T</td>
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<td>RD 8-ALU-T</td>
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<td>95</td>
<td>20</td>
<td></td>
<td>95</td>
<td>21.000</td>
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</tbody>
</table>

**Round conductor, aluminium, with PVC sheathing**

- Meets the requirements of VDE 0185-305 (IEC 62305)
- With PVC jacketing (halogen-free)
- Suitable for routing on, in or under plasterwork, mortar or concrete

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø</th>
<th>Cross-section</th>
<th>Normal ring ca. m</th>
<th>Normal ring ca. kg</th>
<th>Pack. m</th>
<th>Weight kg/100 m</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RD 8-PVC</td>
<td>8/11</td>
<td>50</td>
<td>100</td>
<td>20</td>
<td></td>
<td>100</td>
<td>20.000</td>
</tr>
</tbody>
</table>

**Round conductor, stainless steel A2**

- According to DIN EN 62561-2 (VDE 0185-561-2)
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)
- RD 10-V4A for applications in the earth
- According to the foundation earther standard DIN 18014, V4A is required in the earth

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø</th>
<th>Cross-section</th>
<th>Normal ring ca. m</th>
<th>Normal ring ca. kg</th>
<th>Pack. m</th>
<th>Weight kg/100 m</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RD 8-V2A</td>
<td>8</td>
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<td>125</td>
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<tr>
<td>RD 8-V2A</td>
<td>10</td>
<td>78</td>
<td>50</td>
<td>32</td>
<td></td>
<td>125</td>
<td>63.000</td>
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<tr>
<td>RD 8-V2A</td>
<td>10</td>
<td>78</td>
<td>80</td>
<td>32</td>
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<td>125</td>
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<tr>
<td>RD 8-V4A</td>
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<td>80</td>
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<td>50</td>
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<td>125</td>
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<tr>
<td>RD 10-V4A</td>
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<td>125</td>
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<tr>
<td>RD 10-V4A</td>
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<td>78</td>
<td>80</td>
<td>50</td>
<td></td>
<td>125</td>
<td>63.000</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Round conductor, copper

According to DIN EN 62561-2 (VDE 0185-561-2)
• Corresponds to the requirements of VDE 0185-305 (IEC 62305)

Copper cable

According to DIN EN 62561-2 (VDE 0185-561-2)
• Corresponds to the requirements of VDE 0185-305 (IEC 62305)
Stand for FangFix Junior system

- Incl. aluminium air-termination rod 1,000 mm long (Ø 10 mm)
- Quick mounting of the air-termination rod in the base using plug technology
- With Vario quick connector 249

Air-termination rod for FangFix-Junior

- Suitable for wind loads according to Eurocode 1: DIN EN 1991-1-4
- Ø 10 mm, aluminium
- Without thread
- Suitable for use in FangFix-Junior

Base for FangFix Junior

- For mounting Ø 10 mm air-termination rods up to an overall length of 1,000 mm
- Quick installation of air-termination rod in base using plug-in system
- Quick and easy installation

Air-termination tip

- To be used for Rd 8–10 (corrosion protection)
- With cylinder bolt M6 x 10
- Made of die-cast zinc, bolts made of hot-galvanised steel

Tapered pipe air-termination rod

- Suitable for wind loads according to Eurocode 1: DIN EN 1991-1-4
- From a free length of > 2.5 m, an additional fastening, e.g. insulated spacer is recommended
- Last metre is tapered from Ø 16 mm to Ø 10 mm, material: AlMgSi
- Matches stand system FangFix

Always indicate the item number when ordering.
### Air-termination systems

#### Air-termination/earth entry rod, rounded-off on both ends

<table>
<thead>
<tr>
<th>Type</th>
<th>Length (mm)</th>
<th>Nominal size Ø (mm)</th>
<th>Weight (kg/100 pcs)</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 A-1500</td>
<td>1500</td>
<td>16</td>
<td>240.000</td>
<td>5400155</td>
</tr>
</tbody>
</table>

- **Material**: Steel
- **Hot-dip galvanised**
- **Features**:
  - Full material Ø 16 mm
  - Rounded on both ends
  - Suitable for FangFix stand system

#### Air-termination/earth entry rod, rounded-off on both ends

<table>
<thead>
<tr>
<th>Type</th>
<th>Length (mm)</th>
<th>Nominal size Ø (mm)</th>
<th>Weight (kg/100 pcs)</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 V4A-1500</td>
<td>1500</td>
<td>16</td>
<td>242.000</td>
<td>5420504</td>
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<td>200 V4A-2000</td>
<td>2000</td>
<td>16</td>
<td>320.000</td>
<td>5420539</td>
</tr>
</tbody>
</table>

- **Material**: Stainless steel, grade 316 Ti
- **Features**:
  - Full material Ø 16 mm
  - Rounded on both ends
  - Suitable for FangFix stand system

#### Stand for FangFix system 16 kg

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit (mm)</th>
<th>Nominal size Ø (mm)</th>
<th>Weight (kg/100 pcs)</th>
<th>Item No.</th>
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<tr>
<td>F-FIX-16</td>
<td>Rd 8</td>
<td>373</td>
<td>1,732.500</td>
<td>5403200</td>
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<tr>
<td>F-FIX-16B</td>
<td>Rd 8</td>
<td>373</td>
<td>1,732.500</td>
<td>5403205</td>
</tr>
</tbody>
</table>

- **Material**: Concrete
- **Features**:
  - System consists of FangFix stone with base and clamp
  - FangFix clamp made of VA; lightning current tested with 100 kA (10/350)
  - 16 kg stone of Ø 365 mm, high level of stability
  - Quick and easy mounting of air-termination rod using anchors
  - Concrete, frost-resistant
  - The FangFix stone can be stacked

#### Concrete block for FangFix-System 16 kg

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø (mm)</th>
<th>Weight (kg/100 pcs)</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-FIX-S16</td>
<td>365</td>
<td>1,700.000</td>
<td>5403227</td>
</tr>
</tbody>
</table>

- **Material**: Concrete
- **Features**:
  - 16 kg stone of Ø 365 mm, high level of stability
  - Frost-resistant concrete
  - Stackable

Always indicate the item number when ordering.
Base for FangFix system 16 kg

- Type: F-FIX-B16
- Nominal size: 373 mm
- Weight: 16.400 kg/100 pcs.

Edge protection with integrated dowel (basic) suitable for FangFix system.

Stand for FangFix system 10 kg

- System consists of FangFix stone with base and clamp
- FangFix clamp made of VA; lightning current tested with 100 kA (10/350)
- 10 kg stone of Ø 289 mm, high level of stability
- Quick and easy mounting of air-termination rod using anchors
- Concrete, frost-resistant
- The FangFix stone can be stacked

Concrete block for FangFix system 10 kg

- Type: F-FIX-S10
- Nominal size: 289 mm
- Weight: 1,000.000 kg/100 pcs.

Base for FangFix system 10 kg

- Type: F-FIX-B10
- Nominal size: 295 mm
- Weight: 7.600 kg/100 pcs.

Edge protection with integrated dowel (basic) suitable for FangFix 10 system.

Terminal for FangFix system

- Type: F-FIX-KL
- Fit: Rd 8
- Weight: 9.700 kg/100 pcs.

Stainless steel, grade 304
- FangFix terminal, VA for RD 8 mm
- Tested with H (100 kA) to DIN EN 50164-1
- Round conductor installed on the air-termination rod with only one screw

Always indicate the item number when ordering.
Stand - TrayFix set 16 L

- Mounting system for the fastening of mesh cable trays with the FangFix stone, e.g. cable routing on a flat roof.
- Matched to OBO cable tray systems MKSM and SKSM.
- Matched to OBO mesh cable systems with a minimum width of 100 mm.
- Set consisting of TrayFix mounting adapter and concrete block including base for FangFix system 16 kg

<table>
<thead>
<tr>
<th>Type</th>
<th>From tray width mm</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TrayFix-16-L</td>
<td>100</td>
<td>1</td>
<td>1,700.000</td>
<td>5403096</td>
</tr>
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</table>

Stand - TrayFix set 16 S

- Mounting system for the fastening of mesh cable trays with the FangFix stone, e.g. cable routing on a flat roof.
- Matches OBO mesh cable tray systems with a minimum width of 100 mm.
- Set consisting of TrayFix mounting adapter and concrete block including base for FangFix system 16 kg

<table>
<thead>
<tr>
<th>Type</th>
<th>From tray width mm</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
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<td>100</td>
<td>1</td>
<td>1,700.000</td>
<td>5403099</td>
</tr>
</tbody>
</table>

Stand - TrayFix set 10 L

- Mounting system for the fastening of mesh cable trays with the FangFix stone, e.g. cable routing on a flat roof.
- Matched to OBO cable tray systems MKSM and SKSM.
- Matched to OBO mesh cable systems with a minimum width of 100 mm.
- Set consisting of TrayFix mounting adapter and concrete block including base for FangFix system 16 kg

<table>
<thead>
<tr>
<th>Type</th>
<th>From tray width mm</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TrayFix-10-L</td>
<td>100</td>
<td>1</td>
<td>1,100.000</td>
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</table>

Stand - TrayFix set 10 S

- Mounting system for the fastening of mesh cable trays with the FangFix stone, e.g. cable routing on a flat roof.
- Matches OBO mesh cable tray systems with a minimum width of 100 mm.
- Set consisting of TrayFix mounting adapter and concrete block including base for FangFix system 10 kg

<table>
<thead>
<tr>
<th>Type</th>
<th>From tray width mm</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TrayFix-10-S</td>
<td>100</td>
<td>1</td>
<td>1,000.000</td>
<td>5403102</td>
</tr>
</tbody>
</table>

TrayFix mounting adapter for mesh cable trays on FangFix system

- Mounting system for the fastening of mesh cable trays and cable trays on FangFix stone e.g. cable routing on a flat roof.
- Adapted to OBO cable tray systems MKSM, SKSM and iKSM.
- Adapted to OBO mesh cable tray systems with a minimum width of 100 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TrayFix</td>
<td>ø20 mm</td>
<td>25</td>
<td>9,850</td>
<td>5403100</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Air-termination rod, one end rounded Aluminium

- Suitable for wind loads according to Eurocode 1: DIN EN 1991-1-4
- From a free length of > 2.5 m, an additional fastening, e.g. insulated spacer is recommended
- Ø 16 mm, aluminium
- For stand system with M16 internal thread

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>Nominal size Ø</th>
<th>Weight Pack.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 ALU-1000</td>
<td>1000</td>
<td>16</td>
<td>10 pcs</td>
<td>55.000</td>
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<tr>
<td>101 ALU-1500</td>
<td>1500</td>
<td>16</td>
<td>10 pcs</td>
<td>81.000</td>
</tr>
<tr>
<td>101 ALU-2000</td>
<td>2000</td>
<td>16</td>
<td>10 pcs</td>
<td>109.000</td>
</tr>
<tr>
<td>101 ALU-2500</td>
<td>2500</td>
<td>16</td>
<td>10 pcs</td>
<td>136.000</td>
</tr>
<tr>
<td>101 ALU-3000</td>
<td>3000</td>
<td>16</td>
<td>15 pcs</td>
<td>162.000</td>
</tr>
</tbody>
</table>

Aluminium

Air-termination rod, one end rounded with connection strap

- With thread M16 x 20
- With connecting strap
- Including pre-mounted connector type 5001 DIN for round conductor Rd 8-10
- For stands with female thread M16

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>Nominal size Ø</th>
<th>Weight Pack.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 A-L100</td>
<td>1000</td>
<td>16</td>
<td>10 pcs</td>
<td>160.000</td>
</tr>
<tr>
<td>101 A-L150</td>
<td>1500</td>
<td>16</td>
<td>10 pcs</td>
<td>240.000</td>
</tr>
</tbody>
</table>

Steel Hot-dip galvanised

Stand 16 kg with female thread

- Weight 16 kg
- Frost-resistant concrete
- Female thread M16
- Recommended air-termination rod length max. 3.0 m, depending on wind load zone

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø</th>
<th>Thread</th>
<th>Weight Pack.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 B2-16 M16</td>
<td>364</td>
<td>M16</td>
<td>1 pcs</td>
<td>160.000</td>
</tr>
</tbody>
</table>

Concrete

Stand 6.9 kg with female thread

- Weight 6.9 kg
- Frost-resistant concrete
- Female thread M16
- Recommended air-termination rod length max. 1.0 m

<table>
<thead>
<tr>
<th>Type</th>
<th>Thread</th>
<th>Weight Pack.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 ST</td>
<td>M16</td>
<td>4 pcs</td>
<td>690.000</td>
</tr>
</tbody>
</table>

Concrete

Air-termination/earth entry rod with connection tabs

- With 2 attaching holes Ø 12 mm
- One end rounded

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>Nominal size Ø</th>
<th>Weight Pack.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 F1000</td>
<td>1000</td>
<td>16</td>
<td>10 pcs</td>
<td>160.000</td>
</tr>
<tr>
<td>101 F1500</td>
<td>1500</td>
<td>16</td>
<td>10 pcs</td>
<td>240.000</td>
</tr>
<tr>
<td>101 F2000</td>
<td>2000</td>
<td>16</td>
<td>10 pcs</td>
<td>320.000</td>
</tr>
</tbody>
</table>

Steel Hot-dip galvanised

Always indicate the item number when ordering.
Air-termination systems

Air-termination/earth entry rod with connection tabs and connector

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>Nominal size Ø</th>
<th>Weight</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 G1000</td>
<td>1000</td>
<td>16</td>
<td>164.300</td>
<td>10</td>
<td>5402107</td>
</tr>
<tr>
<td>101 G1500</td>
<td>1500</td>
<td>16</td>
<td>240.000</td>
<td>10</td>
<td>5402198</td>
</tr>
</tbody>
</table>

- Steel
- Hot-dip galvanised
- 1 attaching hole Ø 12 mm
- With pre-mounted conductor for Rd 8-10
- One end rounded

Air-termination rod holder for sloping roof

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD-Fix</td>
<td>1</td>
<td>61.000</td>
<td>5403335</td>
</tr>
</tbody>
</table>

Stainless steel, grade 304

- System consists of a bracket made of V2A stainless steel
- Quick and easy mounting
- Adjustable angle
- In the case of high air-termination rods (> 1 m), additional fastening with insulated spaces is necessary

Air-termination rod holder for ridge tiles

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension L</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-FIX-132</td>
<td>110</td>
<td>1</td>
<td>62.000</td>
<td>5403330</td>
</tr>
<tr>
<td>F-Fix-132-300</td>
<td>300</td>
<td>1</td>
<td>78.000</td>
<td>5403333</td>
</tr>
</tbody>
</table>

Stainless steel, grade 304

- System consisting of holder made of V2A stainless steel and aluminium air-termination rods
- Quick and easy mounting thanks to pre-mounted air-termination rod
- Air-termination rod length:
- Air-termination rod length: 1,000 mm
- Width adjustable between 180–260 mm
- Spacing of the ridge holders: 110 mm (5403330)
- Spacing of the ridge holders: 300 mm (5403333)

Application: To protect roof structures such as photovoltaic and TV/SAT systems.

Mushroom-shaped air-termination with connectors

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit Rd Ø 10/ FL 30</th>
<th>Dimension D</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>128 F</td>
<td>Rd 8-10/ FL30</td>
<td>5</td>
<td>40.000</td>
<td>5405769</td>
<td></td>
</tr>
</tbody>
</table>

- Steel
- Hot-dip galvanised
- Mushroom-shaped interceptor from aluminium
- With pre-mounted cross-piece and hexagonal bolt M8 x 25, hot-dip galvanised steel
- For round conductor Rd 8-10 and flat conductor FL 30

Always indicate the item number when ordering.
Roof penetration

- For round conductors 8-10, air-termination rods 16 mm
- Flat conductors 20 mm/30 mm
- Colour: Black, UV-resistant
- For penetration and sealing of roofs

<table>
<thead>
<tr>
<th>Fit mm</th>
<th>Type</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>330 K Rd 8-16/ FL20 u. FL30</td>
<td>PA Polyamide</td>
<td>5</td>
<td>14.400</td>
<td>5201101</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
**Alu Aluminium**

- Suitable for wind loads according to Eurocode 1: DIN EN 1991-1-4
- Tapered air-termination rod
- Suitable for 40 mm isFang tripod stand and isFang support systems

### Dimensions

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension B mm</th>
<th>Dimension D mm</th>
<th>Length mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 3B-4000</td>
<td>2000</td>
<td>1000</td>
<td>4000</td>
<td>1</td>
<td>400.000</td>
</tr>
<tr>
<td>101 3B-4500</td>
<td>2500</td>
<td>1000</td>
<td>4500</td>
<td>1</td>
<td>480.000</td>
</tr>
<tr>
<td>101 3B-5000</td>
<td>3000</td>
<td>1000</td>
<td>5000</td>
<td>1</td>
<td>550.000</td>
</tr>
<tr>
<td>101 3B-5500</td>
<td>3500</td>
<td>1500</td>
<td>5500</td>
<td>1</td>
<td>630.000</td>
</tr>
<tr>
<td>101 3B-6000</td>
<td>4000</td>
<td>1000</td>
<td>6000</td>
<td>1</td>
<td>700.000</td>
</tr>
<tr>
<td>101 3B-6500</td>
<td>4500</td>
<td>1000</td>
<td>6500</td>
<td>1</td>
<td>780.000</td>
</tr>
<tr>
<td>101 3B-7000</td>
<td>5000</td>
<td>1000</td>
<td>7000</td>
<td>1</td>
<td>850.000</td>
</tr>
<tr>
<td>101 3B-7500</td>
<td>5500</td>
<td>1000</td>
<td>7500</td>
<td>1</td>
<td>930.000</td>
</tr>
<tr>
<td>101 3B-8000</td>
<td>5500</td>
<td>1000</td>
<td>8000</td>
<td>1</td>
<td>1,000.000</td>
</tr>
</tbody>
</table>

**Always indicate the item number when ordering.**
Insulated air-termination rod

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension A mm</th>
<th>Dimension H mm</th>
<th>Length mm</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang 4000</td>
<td>1240</td>
<td>1500</td>
<td>1000</td>
<td>4000</td>
<td>5408943</td>
</tr>
<tr>
<td>isFang 6000 AL</td>
<td>3340</td>
<td>1500</td>
<td>1000</td>
<td>6000</td>
<td>5408947</td>
</tr>
<tr>
<td>isFang 4000</td>
<td>1240</td>
<td>1500</td>
<td>1000</td>
<td>4000</td>
<td>5408942</td>
</tr>
<tr>
<td>isFang 6000</td>
<td>3340</td>
<td>1500</td>
<td>1000</td>
<td>6000</td>
<td>5408946</td>
</tr>
</tbody>
</table>

GFK Fibre-glass-reinforced plastic

- For isolated creation of air-termination systems
- Suitable for isFang air-termination rod stands, type isFang 3B-100/150
- Suitable for wind loads according to Eurocode 1: DIN EN 1991-1-4
- For mounting on the building structure with isFang support
- Fastening of the OBO isCon® conductor possible using accessories
- Suitable for internally and externally-routed isCon® conductor

isFang air-termination rod stand

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension B mm</th>
<th>Dimension D Ø mm</th>
<th>Dimension L mm</th>
<th>Dimension H mm</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang 3B-100 AL</td>
<td>1000</td>
<td>40</td>
<td>600</td>
<td>885</td>
<td>1</td>
<td>5408966</td>
</tr>
<tr>
<td>isFang 3B-150 AL</td>
<td>1500</td>
<td>40</td>
<td>900</td>
<td>1275</td>
<td>1</td>
<td>5408967</td>
</tr>
<tr>
<td>isFang 3B-100</td>
<td>1000</td>
<td>40</td>
<td>600</td>
<td>885</td>
<td>1</td>
<td>5408968</td>
</tr>
<tr>
<td>isFang 3B-150</td>
<td>1500</td>
<td>40</td>
<td>900</td>
<td>1275</td>
<td>1</td>
<td>5408969</td>
</tr>
</tbody>
</table>

Steel, grade 304

- Stainless steel, grade 304
- Aluminium

Folding tripod stand for screwless installation of free-standing air-termination rods with a diameter of 40 mm, e.g. for OBO isCon® conductors. Roof slope to max. 5 degrees. Incl. Rd 8–10 crossbar for rapid round conductor fastening. The concrete plinth and threaded rods are to be ordered separately.

Always indicate the item number when ordering.
**isFang, insulated air-termination rod for inner-routed isCon conductor with side exit**

- For installation of the OBO isCon® Pro+ conductor in the pipe
- With side conductor outlet matching isFang air-termination rod stand with side outlet, type isFang 3B-A
- Suitable for wind loads according to Eurocode 1: DIN EN 1991-1-4
- Inclusive connection element (type isCon IN connect)
- Inclusive potential connection (type IsCon In PAE)

### Dimensions

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Dimension H mm</th>
<th>Dimension B mm</th>
<th>Length mm</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang IN-A 4000</td>
<td>50</td>
<td>3125</td>
<td>1500</td>
<td>1000</td>
<td>1</td>
<td>535.000</td>
<td>5408938</td>
</tr>
<tr>
<td>isFang IN-A 6000</td>
<td>50</td>
<td>3325</td>
<td>1500</td>
<td>1000</td>
<td>1</td>
<td>835.000</td>
<td>5408940</td>
</tr>
<tr>
<td>isFang IN-A 8000</td>
<td>50</td>
<td>3335</td>
<td>1500</td>
<td>1000</td>
<td>1</td>
<td>1,385.000</td>
<td>5408888</td>
</tr>
<tr>
<td>isFang IN-A10000</td>
<td>50</td>
<td>5335</td>
<td>1733</td>
<td>2000</td>
<td>1</td>
<td>1,540.000</td>
<td>5408890</td>
</tr>
</tbody>
</table>

**VG** Fibre-glass-reinforced plastic

- Suitable for wind loads according to EN 1991-1-4
- Inclusive connection element (type isCon IN connect)
- Inclusive potential connection (type IsCon In PAE)

### Dimensions

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Dimension H mm</th>
<th>Dimension B mm</th>
<th>Length mm</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang 3B-100-A</td>
<td>1026</td>
<td>50</td>
<td>600</td>
<td>885</td>
<td>1</td>
<td>610.000</td>
<td>5408930</td>
</tr>
<tr>
<td>isFang 3B-150-A</td>
<td>1500</td>
<td>50</td>
<td>900</td>
<td>1275</td>
<td>1</td>
<td>950.000</td>
<td>5408932</td>
</tr>
<tr>
<td>isFang 3B-250-A</td>
<td>2900</td>
<td>50</td>
<td>1450</td>
<td>2055</td>
<td>1</td>
<td>2,500.000</td>
<td>5408902</td>
</tr>
</tbody>
</table>

**V2A** Stainless steel, grade 304

- Screwless installation of freestanding air-termination rods as well as insulated air-termination rods with 50 mm diameter
- E.g. for internal OBO isCon® conductor
- Roof slope to max. 5 degrees
- Incl. Rd 8–10 crossbar for quick round conductor fastening
- Concrete plinths as well as threaded rods should be ordered separately

---

Always indicate the item number when ordering.
isFang-3B threaded rod

- For fastening on one, two, three or four FangFix concrete bases with tripod stand

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension L mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang 3B-G1</td>
<td>270</td>
<td>3</td>
<td>48.000</td>
<td>5408971</td>
</tr>
<tr>
<td>isFang 3B-G2</td>
<td>340</td>
<td>3</td>
<td>60.400</td>
<td>5408972</td>
</tr>
<tr>
<td>isFang 3B-G3</td>
<td>430</td>
<td>3</td>
<td>69.500</td>
<td>5408973</td>
</tr>
<tr>
<td>isFang 3B-G4</td>
<td>500</td>
<td>3</td>
<td>75.000</td>
<td>5408905</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304

Concrete block for FangFix-System 16 kg

- 16 kg stone of Ø 365 mm, high level of stability
- Frost-resistant concrete
- Stackable

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-FIX-S16</td>
<td>365</td>
<td>1</td>
<td>1,700.000</td>
<td>5403227</td>
</tr>
</tbody>
</table>

Base for FangFix system 16 kg for mounting the isFang tripod

- Edge protection with through hole
- For mounting isFang-3B threaded rod and FangFix concrete block F-FIX-S16

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø mm, Dimension D Ø mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-FIX-B16</td>
<td>373</td>
<td>10</td>
<td>15.800</td>
<td>5403238</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Insulated air-termination rod for inner-routed isCon conductor

- For installation of the OBO isCon® Pro+ conductor in the pipe
- For mounting on the building structure with isFang support
- Suitable for wind loads according to Eurocode 1: DIN EN 1991-1-4
- Inclusive connection element (type isCon IN connect)
- Inclusive potential connection (type IsCon In PAE)

<table>
<thead>
<tr>
<th>Type</th>
<th>Ø mm</th>
<th>Dimension A mm</th>
<th>Dimension H mm</th>
<th>Length mm</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang IN 4000</td>
<td>50</td>
<td>1325</td>
<td>1500</td>
<td>4000</td>
<td>1</td>
<td>535.000</td>
<td>5408934</td>
</tr>
<tr>
<td>isFang IN 6000</td>
<td>50</td>
<td>1525</td>
<td>1500</td>
<td>6000</td>
<td>1</td>
<td>635.000</td>
<td>5408936</td>
</tr>
<tr>
<td>isFang IN 8000</td>
<td>50</td>
<td>1733</td>
<td>1500</td>
<td>8000</td>
<td>1</td>
<td>1,150.000</td>
<td>5408868</td>
</tr>
<tr>
<td>isFang IN 10000</td>
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<td>1933</td>
<td>1733</td>
<td>10000</td>
<td>1</td>
<td>1,540.000</td>
<td>5408870</td>
</tr>
</tbody>
</table>

GFK Fibre-glass-reinforced plastic

- isFang support for wall mounting, 30 mm spacing
  - Fastening clip to fasten the insulated support pipes on the structure to be protected or on the wall.
  - V2A Stainless steel, grade 304

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension L mm</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang TW30</td>
<td>30</td>
<td>2</td>
<td>62.000</td>
<td>5408952</td>
</tr>
</tbody>
</table>

- isFang support for wall mounting, 80 mm spacing
  - Fastening clip to fasten the insulated support pipes on the structure to be protected or on the wall.
  - V2A Stainless steel, grade 304

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension L mm</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang TW80</td>
<td>80</td>
<td>2</td>
<td>63.000</td>
<td>5408950</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
isFang support for wall mounting, 200–300 mm spacing

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension L mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang TW200</td>
<td>300</td>
<td>330.000</td>
<td>5408954</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304

Fastening clip to fasten the insulated support pipes on the structure to be protected or on the wall.

Support for wall mounting, 200 mm spacing

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Dimension L mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang TW200</td>
<td>50</td>
<td>200</td>
<td>240.000</td>
<td>5408910</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304

Fastening clip to fasten the insulated support pipes on the structure to be protected or on the wall.

isFang support for pipe mounting, ø 50–300 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Dimension L mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang TR100</td>
<td>50</td>
<td>100</td>
<td>77.000</td>
<td>5408956</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304

Tightening strap clip to fasten the insulated support pipes on the structure to be protected or for construction-side pipes of ø 50–300 mm.

isFang support for spaced pipe mounting, ø 50–300 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Dimension L mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang TR100</td>
<td>300</td>
<td>100</td>
<td>95.500</td>
<td>5408955</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Dimension L mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang TR100</td>
<td>300</td>
<td>200</td>
<td>121.000</td>
<td>5408957</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Dimension L mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang TR100</td>
<td>300</td>
<td>300</td>
<td>146.000</td>
<td>5408959</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304

Tightening strap clip to fasten the insulated support pipes on the structure to be protected or for construction-side pipes of ø 50–300 mm.

isFang support for pipe mounting, ø 40–50 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Dimension L mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang TS40-50</td>
<td>50</td>
<td>40</td>
<td>90.000</td>
<td>5408958</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304

Tightening strap clip to fasten the insulated support pipes on the structure to be protected or for construction-side pipes of ø 40–50 mm.

isFang support for pipe mounting, ø 50–60 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Dimension L mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang TS50-60</td>
<td>60</td>
<td>30</td>
<td>76.000</td>
<td>5408960</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304

Tightening strap clip to fasten the insulated support pipes on the structure to be protected or for construction-side pipes of ø 50–60 mm.

Always indicate the item number when ordering.
isFang support for corner pipe mounting, 50 x 50 mm

Fastening clip to fasten the insulated support pipes on the structure to be protected or for construction-side corner pipes of 50x50 mm.

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimen-</th>
<th>Pack.</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang TS50x50</td>
<td>30</td>
<td>2</td>
<td>82.000</td>
</tr>
</tbody>
</table>

Stainless steel, grade 304

Always indicate the item number when ordering.
10 m air-termination rod with 6-legged air-termination rod stand

- Tele lightning protection system against direct lightning strikes into plants, such as biogas plants
- Consisting of air-termination rod and air-termination rod stand
- Please order concrete foot, edge protection and threaded rods separately

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Dimension B mm</th>
<th>Length mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>irod 10</td>
<td>48.3</td>
<td>1800</td>
<td>10000</td>
<td>1</td>
<td>6,500.000</td>
<td>5408810</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304

12 m air-termination rod with 6-legged air-termination rod stand

- Tele lightning protection system against direct lightning strikes into plants, such as biogas plants
- Consisting of air-termination rod and air-termination rod stand
- Please order concrete foot, edge protection and threaded rods separately

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Dimension B mm</th>
<th>Length mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>irod 12</td>
<td>85</td>
<td>3000</td>
<td>12000</td>
<td>1</td>
<td>10,900.000</td>
<td>5408812</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304

14 m air-termination rod with 8-legged air-termination rod stand

- Tele lightning protection system against direct lightning strikes into plants, such as biogas plants, gas-pressure regulation plants, control and greenfield photovoltaic systems
- Consisting of air-termination rod and air-termination rod stand
- Please order concrete foot, edge protection and threaded rods separately

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Dimension B mm</th>
<th>Length mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>irod 14</td>
<td>85</td>
<td>3200</td>
<td>14000</td>
<td>1</td>
<td>15,400.000</td>
<td>5408814</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304

19 m air-termination rod with 12-legged air-termination rod stand

- Tele lightning protection system against direct lightning strikes into plants, such as biogas plants, gas-pressure regulation plants, control and greenfield photovoltaic systems
- Consisting of air-termination rod and air-termination rod stand
- Please order concrete foot and edge protection separately
- Including 800-mm threaded rods

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Dimension B mm</th>
<th>Length mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>irod 19</td>
<td>198</td>
<td>3400</td>
<td>19500</td>
<td>1</td>
<td>41,500.000</td>
<td>5408817</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304

isFang-3B threaded rod

- For fastening on one, two, three or four FangFix concrete bases with tripod stand

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension L mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang 3B-G1</td>
<td>270</td>
<td>3</td>
<td>48.000</td>
<td>5408971</td>
</tr>
<tr>
<td>isFang 3B-G2</td>
<td>340</td>
<td>3</td>
<td>60.400</td>
<td>5408972</td>
</tr>
<tr>
<td>isFang 3B-G3</td>
<td>430</td>
<td>3</td>
<td>89.500</td>
<td>5408973</td>
</tr>
<tr>
<td>isFang 3B-G4</td>
<td>500</td>
<td>3</td>
<td>75.000</td>
<td>5408905</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304

Always indicate the item number when ordering.
Concrete block for FangFix-System 16 kg

- 16 kg stone of Ø 365 mm, high level of stability
- Frost-resistant concrete
- Stackable

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-FIX-S16 365</td>
<td>1</td>
<td>1,700.000</td>
<td>5403227</td>
</tr>
</tbody>
</table>

Base for FangFix system 16 kg for mounting the isFang tripod

- Edge protection with through hole
- For mounting isFang-3B threaded rod and FangFix concrete block F-FIX-S16

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø mm</th>
<th>Dimension D Ø mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-FIX-B16 3B 373</td>
<td>10</td>
<td>15.800</td>
<td>5403238</td>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Ridge conductor holder with tensioning spring 35 mm

- Type: 132 U 35
- Fit: RD 8
- Clamping range: 280-380 mm
- Material: Stainless steel, grade 304
- Item No.: 5203018
- Pack.: 20 pcs.
- Weight: 6.800 kg/100 pcs.

Ridge conductor holder with tensioning spring 8 mm

- Type: 132 U
- Fit: RD 8
- Clamping range: 280-380 mm
- Material: Stainless steel, grade 304
- Copper-plated
- Item No.: 5203015
- Pack.: 20 pcs.
- Weight: 6.000 kg/100 pcs.

Ridge conductor holder with tensioning spring 8 mm copper-plated

- Type: 132 U-CU
- Fit: RD 8
- Clamping range: 280-380 mm
- Material: Stainless steel, grade 304
- Copper-plated
- Item No.: 5203023
- Pack.: 10 pcs.
- Weight: 0.600 kg/100 pcs.

Roof conductor holder for ridge tiles, 185–260 mm, Rd 8, A2 35 mm

- Type: 132 VA 35
- Fit: RD 8
- Clamping range: 185-260 mm
- Fast installation using wing screw
- Material: Stainless steel, grade 304
- Item No.: 5202836
- Pack.: 20 pcs.
- Weight: 13.700 kg/100 pcs.

Roof conductor holder for ridge tiles, 185–260 mm, Rd 8, A2 8mm

- Type: 132 VA
- Fit: RD 8
- Clamping range: 185-260 mm
- Fast installation using wing screw
- Material: Stainless steel, grade 304
- Item No.: 5202833
- Pack.: 20 pcs.
- Weight: 12.900 kg/100 pcs.

Roof conductor holder for ridge tiles, 185–260 mm, Rd 8, CU 8 mm

- Type: 132 CU
- Fit: RD 8
- Clamping range: 185-260 mm
- Fast installation using wing screw
- Material: Copper
- Item No.: 5202868
- Pack.: 10 pcs.
- Weight: 13.400 kg/100 pcs.

Always indicate the item number when ordering.
## Roof conductor holder for ridge tiles, 185–260 mm, Rd 8–10, A2 8mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Installation height mm</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>132 K-VA</td>
<td>Rd 8-10</td>
<td>20</td>
<td>20</td>
<td>19.900</td>
<td>5202515</td>
</tr>
</tbody>
</table>

- Stainless steel, grade 304
- Adjustable width from 185-260 mm
- Bottom part made of non-rusting stainless steel (V2A)
- Infinitely adjustable conductor holder
- Conductor holder of polyamide
- Fast installation using wing screw

## Roof conductor holder for ridge tiles, 185–260 mm, Rd 8–10, CU 8 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Installation height mm</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>132 K-CU</td>
<td>Rd 8-10</td>
<td>20</td>
<td>10</td>
<td>11.600</td>
<td>5202590</td>
</tr>
</tbody>
</table>

- Copper
- Adjustable width from 185-260 mm
- Bottom part made of copper
- Infinitely adjustable conductor holder
- Conductor holder of polyamide
- Fast installation using wing screw

## Roof conductor holder for ridge tiles, 180–240 mm, Rd 8–10, FT 8 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Installation height mm</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>132 N-DK</td>
<td>Rd 8-10</td>
<td>20</td>
<td>20</td>
<td>19.700</td>
<td>5202566</td>
</tr>
</tbody>
</table>

- Steel
- Hot-dip galvanised
- Adjustable from 180–240 mm
- With conductor 177/20, polyamide, grey
- With 3 M8 threaded nipples for positioning the holder

## Roof conductor holder for ridge tiles with M8 threaded bolts

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Installation height mm</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>132 GB-M8</td>
<td></td>
<td>20</td>
<td>20</td>
<td>18.700</td>
<td>5202568</td>
</tr>
</tbody>
</table>

- Steel
- Hot-dip galvanised
- Adjustable from 180–240 mm
- With conductor 177/20, polyamide, grey
- With 3 M8 threaded nipples for positioning the holder

## Roof conductor holder for ridge tiles, metal roofs, Rd 8

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Installation height mm</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>132 P VA</td>
<td>Rd 8</td>
<td>20</td>
<td>20</td>
<td>8.420</td>
<td>5202510</td>
</tr>
</tbody>
</table>

- Stainless steel, grade 304
- For round conductors Rd 8
- Suitable for metal roofs

Always indicate the item number when ordering.
### Roof conductor holder for tiled roofs, Rd 8, A2 35 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit cm</th>
<th>Installation height cm</th>
<th>Length cm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>157 F-VA 230 A2</td>
<td>Rd 8</td>
<td>35</td>
<td>230</td>
<td>20</td>
<td>8.300</td>
<td>5215555</td>
</tr>
<tr>
<td>157 F-VA 280 A2</td>
<td>Rd 8</td>
<td>35</td>
<td>280</td>
<td>20</td>
<td>9.700</td>
<td>5215582</td>
</tr>
</tbody>
</table>

- Conductor holder from stainless steel (V2A)
- Including drill hole in bottom section for quick installation

### Roof conductor holder for tiled roofs, Rd 8, A2 8 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit cm</th>
<th>Installation height cm</th>
<th>Length cm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>157 F-VA 230 A2</td>
<td>Rd 8</td>
<td>35</td>
<td>230</td>
<td>20</td>
<td>8.350</td>
<td>5215552</td>
</tr>
<tr>
<td>157 F-VA 280 A2</td>
<td>Rd 8</td>
<td>35</td>
<td>280</td>
<td>20</td>
<td>10.170</td>
<td>5215579</td>
</tr>
<tr>
<td>157 F-VA 410 A2</td>
<td>Rd 8</td>
<td>35</td>
<td>410</td>
<td>10</td>
<td>14.500</td>
<td>5215595</td>
</tr>
</tbody>
</table>

- Conductor holder from stainless steel (V2A)
- Including drill hole in bottom section for quick installation

### Roof conductor holder for tiled roofs, Rd 8, CU 8mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit cm</th>
<th>Installation height cm</th>
<th>Length cm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>157 F-CU 230</td>
<td>Rd 8</td>
<td>35</td>
<td>230</td>
<td>10</td>
<td>10.300</td>
<td>5216192</td>
</tr>
<tr>
<td>157 F-CU 280</td>
<td>Rd 8</td>
<td>35</td>
<td>280</td>
<td>10</td>
<td>11.100</td>
<td>5216206</td>
</tr>
<tr>
<td>157 F-CU 410</td>
<td>Rd 8</td>
<td>35</td>
<td>410</td>
<td>10</td>
<td>14.500</td>
<td>5216257</td>
</tr>
</tbody>
</table>

- Conductor holder from copper plated stainless steel (V2A)
- Including drill hole in bottom section for quick installation

### Roof conductor holder for tiled roofs, Rd 8–10, A2 8 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit cm</th>
<th>Installation height cm</th>
<th>Length cm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>157 FK-VA 230</td>
<td>Rd 8–10</td>
<td>35</td>
<td>230</td>
<td>20</td>
<td>7.800</td>
<td>5215544</td>
</tr>
<tr>
<td>157 FK-VA 280</td>
<td>Rd 8–10</td>
<td>35</td>
<td>280</td>
<td>20</td>
<td>10.170</td>
<td>5215587</td>
</tr>
<tr>
<td>157 FK-VA 410</td>
<td>Rd 8–10</td>
<td>35</td>
<td>410</td>
<td>20</td>
<td>14.500</td>
<td>5215609</td>
</tr>
</tbody>
</table>

- Conductor holder of polyamide
- Including drill hole in bottom section for quick installation

### Roof conductor holder for tiled roofs, Rd 8–10, CU 8 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit cm</th>
<th>Installation height cm</th>
<th>Length cm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>157 FK-CU 230</td>
<td>Rd 8–10</td>
<td>35</td>
<td>230</td>
<td>10</td>
<td>8.800</td>
<td>5216184</td>
</tr>
<tr>
<td>157 FK-CU 280</td>
<td>Rd 8–10</td>
<td>35</td>
<td>280</td>
<td>10</td>
<td>9.600</td>
<td>5216214</td>
</tr>
</tbody>
</table>

- Conductor holder of polyamide
- Including drill hole in bottom section for quick installation

### Roof conductor holder for tiled roofs, angled, Rd 8, A2 8 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Installation height mm</th>
<th>Length mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>157 F-VA</td>
<td>Rd 8</td>
<td>26.5</td>
<td>140</td>
<td>20</td>
<td>7.150</td>
<td>5215625</td>
</tr>
</tbody>
</table>

- Conductor holder high-grade stainless steel (V2A)
- Curved bottom strip for quick installation

Always indicate the item number when ordering.
Roof conductor holder for tiled roofs, angled, Rd 8, CU 8mm

- Conductor holder copper plated high-grade stainless steel (V2A)
- Curved bottom strip for quick installation

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Installation height</th>
<th>Length</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>157 I-CU</td>
<td>Rd 8</td>
<td>26.5</td>
<td>140</td>
<td>10</td>
<td>7.800</td>
<td>5215749</td>
</tr>
</tbody>
</table>

Roof conductor holder for tiled roofs, angled, flexible, Rd 8, Aluminium

- With flexible bottom section from aluminium for matching to roof tiles (easy to flex)
- Holder from stainless steel (V2A)
- Curved bottom section for quick installation

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Installation height</th>
<th>Length</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>157 FX-AL</td>
<td>Rd 8</td>
<td>26.5</td>
<td>140</td>
<td>20</td>
<td>3.900</td>
<td>5215875</td>
</tr>
</tbody>
</table>

Roof conductor holder for tiled roofs, angled, flexible, Rd 8, CU

- With flexible bottom section from copper for matching to roof tiles (easy to flex)
- Holder from copper plated stainless steel (V2A)
- Curved bottom section for quick installation

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Installation height</th>
<th>Length</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>157 FX-CU</td>
<td>Rd 8</td>
<td>26.5</td>
<td>140</td>
<td>10</td>
<td>7.500</td>
<td>5215879</td>
</tr>
</tbody>
</table>

Roof conductor holder for tiled roofs, angled, Rd 8–10, A2

- Conductor holder of polyamide
- Curved bottom strip for quick installation

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Installation height</th>
<th>Length</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>157 IK-VA</td>
<td>Rd 8-10</td>
<td>40</td>
<td>140</td>
<td>20</td>
<td>7.150</td>
<td>5215668</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
### Roof conductor holder for slated roofs, crimped, Rd 8–10, A2

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Length mm</th>
<th>Installation height mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>157 EK-VA</td>
<td>Rd 8-10</td>
<td>265</td>
<td>42</td>
<td>20</td>
<td>7.800</td>
<td>5215838</td>
</tr>
</tbody>
</table>

- Conductor holder of polyamide
- With Ø 5.5 mm drill hole

### Roof conductor holder for slated roofs, crimped, Rd 8–10, CU

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Length mm</th>
<th>Installation height mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>157 EK-CU</td>
<td>Rd 8-10</td>
<td>265</td>
<td>42</td>
<td>10</td>
<td>8.800</td>
<td>5215854</td>
</tr>
</tbody>
</table>

- Conductor holder of polyamide
- With Ø 5.5 mm drill hole

### Roof conductor holder for slated roofs, Rd 8, A2

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Length mm</th>
<th>Installation height mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>157 L-VA</td>
<td>Rd 8</td>
<td>212</td>
<td>32</td>
<td>20</td>
<td>8.000</td>
<td>5215439</td>
</tr>
</tbody>
</table>

- With Ø 5.5 mm drill hole and beading

### Roof conductor holder for slated roofs, Rd 8, CU

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Length mm</th>
<th>Installation height mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>157 L-CU</td>
<td>Rd 8</td>
<td>212</td>
<td>32</td>
<td>10</td>
<td>9.900</td>
<td>5215471</td>
</tr>
</tbody>
</table>

- With Ø 5.5 mm drill hole and beading

### Roof conductor holder for slated roofs, Rd 8–10, A2

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Length mm</th>
<th>Installation height mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>157 LK-VA</td>
<td>Rd 8-10</td>
<td>212</td>
<td>38</td>
<td>20</td>
<td>8.000</td>
<td>5215374</td>
</tr>
</tbody>
</table>

- With Ø 5.5 mm drill hole and beading
- Conductor holder of polyamide

### Roof conductor holder for slated roofs, Rd 8–10, CU

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Length mm</th>
<th>Installation height mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>157 LK-CU</td>
<td>Rd 8-10</td>
<td>212</td>
<td>38</td>
<td>10</td>
<td>8.400</td>
<td>5215382</td>
</tr>
</tbody>
</table>

- With Ø 5.5 mm drill hole and beading
- Conductor holder of polyamide

Always indicate the item number when ordering.
Roof conductor holder for slated roofs with M8 threaded bolts

- With Ø 5.5 mm drill hole
- With 3 M8 threaded nipples for positioning the holder

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Length</th>
<th>Installation height</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>157 GB-M8</td>
<td>Rd8</td>
<td>260</td>
<td>27</td>
<td>5.000</td>
<td>20</td>
<td>5202569</td>
</tr>
</tbody>
</table>

Stainless steel, grade 304

Always indicate the item number when ordering.
Roof cable holder for flat roofs, with raised cable bracket

- **Closed form with base**
- **With double conductor holder**
- **Filling weight 1 kg (frost-resistant concrete)**
- **Sleeve made of polyethylene, black, bottom polypropylene, black**
- **Base made of polyamide PA 6, black, UV-stabilised and weather-resistant**
- **Base can be used on almost roofing felt systems (bitumen, PVC)**
- **Types 165 MBG...FO: Packed in foil bag**

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Weight kg/100 pcs</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>165 KRB</td>
<td>FL 30</td>
<td>144.000</td>
<td>9</td>
<td>5218888</td>
</tr>
</tbody>
</table>

Roof conductor holder for flat roofs, without base

- **Without bottom**
- **With double conductor holder**
- **Filling weight 1 kg (frost-resistant concrete)**
- **Sleeve from polyethylene, black**

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Weight kg/100 pcs</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>165 OBG</td>
<td>Rd 8</td>
<td>100.000</td>
<td>12</td>
<td>5218683</td>
</tr>
</tbody>
</table>

Flat conductor adapter for roof conductor holder, type 165/MBG

- **Flat conductor holder FL 30 x 3.5 mm**
- **For fastening to 165/MBG in fit Rd 8**

<table>
<thead>
<tr>
<th>Type</th>
<th>Colour</th>
<th>Fit</th>
<th>Weight kg/100 pcs</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>165 MBG HFL</td>
<td>Black</td>
<td>Rd 8</td>
<td>0.670</td>
<td>12</td>
<td>5218855</td>
</tr>
</tbody>
</table>

Universal flat conductor adapter for roof conductor holder, type 165/MBG

- **Universal adapter with drill hole Ø 2.5 mm**
- **E.g. for OBO Golden Sprint screw, type 4758 4 x L (L = depending on application)**
- **For fastening to 165/MBG**

<table>
<thead>
<tr>
<th>Type</th>
<th>Colour</th>
<th>Fit</th>
<th>Weight kg/100 pcs</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>165 MBG UH</td>
<td>Black</td>
<td>Rd 8</td>
<td>0.254</td>
<td>25</td>
<td>5218882</td>
</tr>
</tbody>
</table>

Roof conductor holder for flat roofs, plastic sleeve

- **For self-filling with concrete**
- **Potential filling weight: approx. 1.3 kg**
- **Sleeve from polyethylene, black**

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Weight kg/100 pcs</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>165 KR</td>
<td>Rd 8</td>
<td>5.449</td>
<td>50</td>
<td>5218861</td>
</tr>
</tbody>
</table>

Roof conductor holder for flat roofs, with raised cable bracket

- **Filling weight 1.3 kg (frost-resistant concrete)**
- **With conductor holder, type 168 DIN-K**
- **Die-cast zinc conductor holder, electrogalvanised**
- **Polyethylene sleeve, black**

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Weight kg/100 pcs</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>165 KRB SO</td>
<td>Rd 8-10</td>
<td>144.000</td>
<td>9</td>
<td>5218977</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
### Roof conductor holder for flat roofs, recyclable

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Weight</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>165 R-8-10</td>
<td>Rd 8-10</td>
<td>1 kg</td>
<td>10</td>
<td>5218997</td>
</tr>
</tbody>
</table>

- For round conductors Rd 8 to 10
- With polyethylene plastic holder, black
- Block made of frost-resistant concrete
- Weight 1 kg
- Block can be split into plastic and concrete (recyclable)

### Roof conductor holder, for plastic film roofs

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Weight</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>165 R-8-10 OBG</td>
<td>Rd 8-10</td>
<td>6.760 kg</td>
<td>100</td>
<td>5218999</td>
</tr>
</tbody>
</table>

- For flat roofs
- For round conductors Rd 8 to 10
- Polyethylene plastic holder, light grey
- For clamping in roof strips

### Roof conductor holder, suitable for bonding straight to flat roofs

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Installation height</th>
<th>Weight</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>165 B 60</td>
<td>Rd 8-10</td>
<td>60 mm</td>
<td>26.100 kg</td>
<td>50</td>
<td>5218810</td>
</tr>
<tr>
<td>165 B 100</td>
<td>Rd 8-10</td>
<td>100 mm</td>
<td>27.700 kg</td>
<td>50</td>
<td>5218829</td>
</tr>
</tbody>
</table>

- Steel
- Hot-dip galvanised
- With conductor holder and bottom section, hot-dip galvanised steel
- Bottom section Ø 100 mm

### Roof conductor holder, 55 mm, suitable for bonding straight to flat roofs

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Length</th>
<th>Weight</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>165 NBK 55</td>
<td>Rd 8-10</td>
<td>100 mm</td>
<td>17.060 kg</td>
<td>75</td>
<td>5218314</td>
</tr>
</tbody>
</table>

- Polyamide
- Suitable for bonding straight to flat roofs
- Conductor holder of polyamide
- Bottom section, hot-dip galvanised steel
- Bottom section Ø 100 mm

Always indicate the item number when ordering.
Roof conductor holder for tiled and slatted roofs, Rd 8–10

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Length mm</th>
<th>Installation height mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>157 NB-VA</td>
<td>Rd 8-10</td>
<td>260</td>
<td>27</td>
<td>20</td>
<td>6.000</td>
<td>5215277</td>
</tr>
<tr>
<td>V2A Stainless steel, grade 304</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• With Ø 5.5 mm drill hole</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Conductor holder of polyamide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Roof conductor holder for tiled and slatted roofs, 74 mm height

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Length mm</th>
<th>Installation height mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>157 ND-VA</td>
<td>Rd 8-10</td>
<td>260</td>
<td>74</td>
<td>20</td>
<td>6.000</td>
<td>5215307</td>
</tr>
<tr>
<td>V2A Stainless steel, grade 304</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• High roof conductor holder: 74 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• With perforation Ø 5.5 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Polyamide cable bracket</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Roof conductor holder for tiled, slatted and corrugated roofs, with crossbar

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Installation height mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>133 A</td>
<td>Rd 8-10</td>
<td>50</td>
<td>20</td>
<td>8.217</td>
<td>5202248</td>
</tr>
<tr>
<td>PA Polyamide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• With weather-proof clamping collar from soft PVC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Required drill hole Ø = 16 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Spacer from polyamide, grey</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Roof conductor holder for tiled, slatted and corrugated roofs, with cable bracket

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Installation height mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>133 NB</td>
<td>Rd 8-10</td>
<td>67</td>
<td>20</td>
<td>4.338</td>
<td>5202213</td>
</tr>
<tr>
<td>PA Polyamide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• With weather-proof clamping collar from soft PVC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Required drill hole Ø = 16 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Spacer and conductor holder from polyamide, grey</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Roof conductor holder for tiled, slatted and corrugated roofs, Rd 8

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Installation height mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>159 VA-V</td>
<td>Rd 8</td>
<td>21</td>
<td>20</td>
<td>3.900</td>
<td>5217075</td>
</tr>
<tr>
<td>V2A Stainless steel, grade 304</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Bottom section and conductor holder stainless steel (V2A)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Bottom section with Ø 8.5 mm slot</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Roof conductor holder for tiled, slatted and corrugated roofs, Rd 8–10

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Installation height mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>159 K-VA</td>
<td>Rd 8-10</td>
<td>21</td>
<td>20</td>
<td>2.540</td>
<td>5216818</td>
</tr>
<tr>
<td>V2A Stainless steel, grade 304</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Bottom section stainless steel (V2A)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Bottom section with Ø 8.5 mm slot</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Conductor holder of polyamide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Screwless cable bracket, raised construction type, for Rd 8 mm, through-way Ø 5 mm

- With female thread M6 or through hole Ø 5 mm
- From stainless steel (V2A)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Installation height mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>177 35 VA M6</td>
<td>Rd 8</td>
<td>35</td>
<td>20</td>
<td>2.680</td>
<td>5207342</td>
</tr>
<tr>
<td>V2A Stainless steel, grade 304</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Screwless cable bracket for Rd 8 mm, through-way Ø 5 mm

- With female thread M6 or through hole Ø 5 mm
- From stainless steel (V2A)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Installation height mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>177 20 VA M6</td>
<td>Rd 8</td>
<td>20</td>
<td>20</td>
<td>2.500</td>
<td>5207339</td>
</tr>
<tr>
<td>V2A Stainless steel, grade 304</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Screwless cable bracket for Rd 8 mm, through-way Ø 5 mm copper-plated

- With female thread M6 or through hole Ø 5 mm
- From stainless steel (V2A)
- VA-VK: copper-plated

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Installation height mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>177 20 VA-VK M6</td>
<td>Rd 8</td>
<td>20</td>
<td>20</td>
<td>2.500</td>
<td>5207800</td>
</tr>
<tr>
<td>V2A Stainless steel, grade 304</td>
<td>Copper-plated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Screwless cable bracket for Rd 8 mm, through-way Ø 7 mm

- With female thread M8 or through hole Ø 5 mm
- From stainless steel (V2A)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Installation height mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>177 20 VA M8</td>
<td>Rd 8</td>
<td>20</td>
<td>20</td>
<td>1.900</td>
<td>5207347</td>
</tr>
<tr>
<td>V2A Stainless steel, grade 304</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Screwless cable bracket for Rd 8 mm, through-way Ø 7 mm copper-plated

- With female thread M8 or through hole Ø 5 mm
- From stainless steel (V2A)
- VA-VK: copper-plated

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Installation height mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>177 20 VA-VK M8</td>
<td>Rd 8</td>
<td>20</td>
<td>20</td>
<td>1.900</td>
<td>5207819</td>
</tr>
<tr>
<td>V2A Stainless steel, grade 304</td>
<td>Copper-plated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Washer for cable bracket, type 177

- For simple wall installation
- UV-resistant

<table>
<thead>
<tr>
<th>Type</th>
<th>Colour</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>177 U</td>
<td>Light grey</td>
<td>20</td>
<td>0.286</td>
<td>5207371</td>
</tr>
<tr>
<td>PP Polypropylene</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Screwless cable bracket for Rd 8 mm, fastening with screw and anchor

- With female thread M8 or through hole Ø 5 mm
- From stainless steel (V2A)
- With pre-mounted wood screws (5 x 60) and plastic dowels (8 x 40).

Universal cable bracket Rd 8–10 mm

- With female thread M8 or through hole Ø 7 mm
- Weather and temperature-resistant from -35 °C to +90 °C

Universal cable bracket Rd 8–10 mm, copper-plated

- With female thread M8 for screwing and through hole for wood screws
- Colour: copper
- Weather and temperature-resistant from -35 °C to +90 °C

Universal cable bracket Rd 8–10 mm with pre-mounted wood screw

- With female thread M8 for screwing and through hole for wood screws
- For round conductor Rd 8-10
- Weather and temperature-resistant from -35 °C to +90 °C
- With pre-mounted wood screws (5 x 60) and plastic dowels (8 x 40).

Bonding base

- With threaded stem M8
- For mounting conductor supports with M8 female thread
- For bonding to concrete, steel or brickwork

Always indicate the item number when ordering.
Bonding base including industrial bonding pad

- With threaded pin M8
- To accept conductor supports with M8 internal thread
- For bonding to concrete, steel or smooth substrates
- Not suitable for rough surfaces such as plaster, wood, bitumen strips
- Processing at > +15 °C and on cleaned substrate
- To route the conductor, cannot be used on the roof
- Use on sheet roofs after agreement with the responsible roofing contractors

Cable bracket, Rd 8–10 mm with bonding base

- For bonding to concrete, steel or smooth substrates
- Not suitable for rough surfaces such as plaster, wood, bitumen strips
- Processing at > +15 °C and on cleaned substrate
- To route the conductor, cannot be used on the roof
- Use on sheet roofs after agreement with the responsible roofing contractors

Cable bracket with crossbar Rd 8–10 mm

- With female thread M8 or through hole Ø 7 mm
- Over-piece installed with 2 hexagonal bolts
- Version HD with wood screws (5 x 60) and plastic dowels (8 x 40)

Cable bracket with crossbar Rd 8–10 mm copper-plated

- With female thread M8 or through hole Ø 7 mm
- Over-piece installed with 2 hexagonal bolts

Cable bracket with crossbar, wood screw, plastic anchor Rd 8-10 mm galvanised

- With female thread M8 or through hole Ø 7 mm
- Over-piece installed with 2 hexagonal bolts
- Version HD with wood screws (5 x 60) and plastic dowels (8 x 40)
### Cable bracket with crossbar, wood screw, plastic anchor Rd 8–10 mm copper-plated

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>113 B-MS-HD 8-10</td>
<td>Rd 8-10</td>
<td>100</td>
<td>7.280</td>
<td>5230365</td>
</tr>
<tr>
<td><strong>Z</strong> Die-cast zinc</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>G</strong> Copper-plated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- With female thread M8 or through hole Ø 7 mm
- Over-piece installed with 2 hexagonal bolts
- Version HD with wood screws (5 x 60) and plastic dowels (8 x 40)

### Cable bracket with hinged crossbar Rd 8–10 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Pack.</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>113 Z-K 8-10</td>
<td>Rd 8-10</td>
<td>20</td>
<td>6.202</td>
</tr>
<tr>
<td><strong>Z</strong> Die-cast zinc</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>G</strong> Electrogalvanised</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- With female thread M8 or through hole Ø 7 mm
- Hinge crossbar for quick swivel mounting
- Crossbar mounted with 2 hexagonal bolts

### Cable bracket with hinged crossbar Rd 8–10, 30 mm mounting height, galvanised

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Pack.</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>168 8-10 M6</td>
<td>Rd 8-10</td>
<td>20</td>
<td>7.800</td>
</tr>
<tr>
<td>168 DIN-K-M8</td>
<td>Rd 8-10</td>
<td>20</td>
<td>7.780</td>
</tr>
<tr>
<td><strong>Z</strong> Die-cast zinc</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>G</strong> Electrogalvanised</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- With female thread (G)
- With over-piece and 2 hexagonal bolts
- Installed height 30 mm

### Cable bracket with hinged crossbar Rd 8–10, 30 mm mounting height, copper-plated

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Pack.</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>166 ZN-M6</td>
<td>Rd 8-10</td>
<td>20</td>
<td>8.660</td>
</tr>
<tr>
<td>166 DIN-K-M8</td>
<td>Rd 8-10</td>
<td>20</td>
<td>8.440</td>
</tr>
<tr>
<td><strong>Z</strong> Die-cast zinc</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>G</strong> Copper-plated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- With female thread (G)
- With over-piece and 2 hexagonal bolts
- Installed height 30 mm

### Cable bracket with crossbar FL, 30 mm mounting height FT

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension B</th>
<th>Pack.</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>166 FL40-M8</td>
<td>FL 40</td>
<td>20</td>
<td>8.200</td>
</tr>
<tr>
<td><strong>Z</strong> Cast iron</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>G</strong> Hot-dip galvanised</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- For flat strip
- With female thread (G)
- Installed height 30 mm

Always indicate the item number when ordering.
Cable bracket

Cable bracket with crossbar FL, 30 mm mounting height galvanised

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Dimension B mm</th>
<th>Thread</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>168 FL30-M6</td>
<td>FL30</td>
<td>56</td>
<td>M6</td>
<td>7.640</td>
<td>20</td>
<td>5229464</td>
</tr>
<tr>
<td>168 DIN 30</td>
<td>FL30</td>
<td>56</td>
<td>M8</td>
<td>7.320</td>
<td>20</td>
<td>5229480</td>
</tr>
</tbody>
</table>

- Die-cast zinc
- Electroplated zinc
- Galvanised
- For flat strip
- With female thread (G)
- Installed height 30 mm

Cable bracket with crossbar Rd 8–10 mm, with square pin

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Length mm</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>163 70 FT</td>
<td>Rd 8-10</td>
<td>70</td>
<td>8.476</td>
<td>50</td>
<td>5223075</td>
</tr>
<tr>
<td>163 100 FT</td>
<td>Rd 8-10</td>
<td>100</td>
<td>10.056</td>
<td>50</td>
<td>5223105</td>
</tr>
<tr>
<td>163 150 FT</td>
<td>Rd 8-10</td>
<td>150</td>
<td>14.400</td>
<td>50</td>
<td>5223156</td>
</tr>
<tr>
<td>163 200 FT</td>
<td>Rd 8-10</td>
<td>200</td>
<td>18.880</td>
<td>20</td>
<td>5223202</td>
</tr>
</tbody>
</table>

- Complete with crossbar and hexagonal bolts
- With square pin for rapid mounting
- With hexagonal bolts made of VA

Cable bracket with crossbar Rd 8–10 mm, with square pin, copper-plated

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Length mm</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>163 100 CU</td>
<td>Rd 8-10</td>
<td>100</td>
<td>10.840</td>
<td>10</td>
<td>5223601</td>
</tr>
</tbody>
</table>

- Complete with crossbar and hexagonal bolts
- With square pin for rapid mounting
- With hexagonal bolts made of VA

Cable bracket with crossbar FL 30 mm, with round pin

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Dimension H mm</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>166 LS 70</td>
<td>FL30</td>
<td>70</td>
<td>9.140</td>
<td>50</td>
<td>5228670</td>
</tr>
</tbody>
</table>

- With crossbar and 2 hexagonal bolts (VA)
- With loose round pin Ø 9 mm

Cable bracket with crossbar Rd 8–10 mm, with wood screw thread

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Dimension H mm</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>176 A 65</td>
<td>Rd 8-10</td>
<td>65</td>
<td>9.536</td>
<td>50</td>
<td>5227070</td>
</tr>
<tr>
<td>176 A 80</td>
<td>Rd 8-10</td>
<td>80</td>
<td>10.025</td>
<td>50</td>
<td>5227089</td>
</tr>
<tr>
<td>176 A 100</td>
<td>Rd 8-10</td>
<td>100</td>
<td>11.500</td>
<td>50</td>
<td>5227100</td>
</tr>
<tr>
<td>176 A 150</td>
<td>Rd 8-10</td>
<td>150</td>
<td>13.100</td>
<td>20</td>
<td>5227151</td>
</tr>
</tbody>
</table>

- Cast iron
- Hot-dipped galvanised
- Also for flat conductor to FL 30
- With wood screw thread
- Bottom section, hot-dipped galvanised cast iron
- Over-piece and screws, hot dipped galvanised steel

Always indicate the item number when ordering.
Base plate

- With threaded pin M8
- Suitable for direct bonding
- Threaded pin brass and base plate hot-dip galvanised steel

Hinge crossbar for FL 30 mm

- With slot for quick installation

Crossbar for Rd 8–10 mm, steel

Crossbar for Rd 8–10 mm, stainless steel

Crossbar for Rd 8–10 mm, copper

Hinge crossbar for Rd 8-10 mm

Always indicate the item number when ordering.
Connection terminal, equipotential bonding, Rd 8–10 mm

- **Type**: 249 8-10 ST-OT
- **Material**: Steel, Hot-dip galvanised
- **Dimension**: 40
- **Weight**: 3.240 kg/100 pcs.
- **Item No.**: 5311503
- **Notes**: For round conductor fastening RD 8-10, suitable for M10 bolts

Connection terminal, equipotential bonding, Rd 8–10 mm

- **Type**: 249 8-10 ALU-OT
- **Material**: Aluminium
- **Dimension**: 44
- **Weight**: 2.100 kg/100 pcs.
- **Item No.**: 5311585
- **Notes**: For round conductor fastening RD 8-10, suitable for M10 bolts

Connection terminal, equipotential bonding, Rd 8–10 mm

- **Type**: 249 8-10 VA-OT
- **Material**: Stainless steel, grade 304
- **Dimension**: 40
- **Weight**: 3.130 kg/100 pcs.
- **Item No.**: 5311554
- **Notes**: For round conductor fastening RD 8-10, suitable for M10 bolts

Connection terminal, equipotential bonding, Rd 8–10 mm

- **Type**: 249 8-10 CU-OT
- **Material**: Copper
- **Dimension**: 40
- **Weight**: 3.580 kg/100 pcs.
- **Item No.**: 5311530
- **Notes**: For round conductor fastening RD 8-10, suitable for M10 bolts

Rod holder for 16 mm air-termination and earth entry rods, galvanised

- **Type**: 113 Z-16
- **Material**: Die-cast zinc, Galvanised
- **Dimension**: 56
- **Weight**: 6.000 kg/100 pcs.
- **Item No.**: 5412609
- **Notes**: For lightning and ground insertion rods Rd 16, installed with over-piece and hex-head screws M6 x 16, with female thread M8 or through hole Ø 7 mm

Always indicate the item number when ordering.
Rod holder for 16 mm air-termination and earth entry rods, copper-plated

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit (mm)</th>
<th>Weight (kg/100 pcs.)</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>113 ZN-16 Rd 16</td>
<td></td>
<td>10.100</td>
<td>5412633</td>
</tr>
</tbody>
</table>

- For lightning and ground insertion rods Rd 16
- Installed with over-piece and hex-head screws M6 x 16
- With female thread M8 or through hole Ø 7 mm

Cable and pipe spacer clip 733 V2A

<table>
<thead>
<tr>
<th>Type</th>
<th>Clamping range D (mm)</th>
<th>Hole size (mm)</th>
<th>Bolt size (mm)</th>
<th>Shipping box (pcs)</th>
<th>Weight (kg/100 pcs.)</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>733 16 A2</td>
<td>14 - 16</td>
<td>6,5 x 10</td>
<td>M5 x 12</td>
<td>500</td>
<td>2.430</td>
<td>1362011</td>
</tr>
</tbody>
</table>

- Size M16 is not suitable for nail device
- Sizes M16 - PG16 are not suitable for bolt-firing tool

Rod holder for 16 mm air-termination and earth entry rods, with screw and anchor

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit (mm)</th>
<th>Weight (kg/100 pcs.)</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>113 B-Z-HD Rd 16</td>
<td></td>
<td>6.000</td>
<td>5412983</td>
</tr>
</tbody>
</table>

- For lightning and ground insertion rods Rd 16
- Installed with over-piece and hexagonal bolts M6 x 16 (VA)
- Female thread M8 for screwing and through hole for wood screws
- Pre-mounted with wood screw 5 x 60 and plastic dowels 8 x 40

Rod holder for 16 mm air-termination and earth entry rods, with screw and anchor, copper-plated

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit (mm)</th>
<th>Weight (kg/100 pcs.)</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>113 B-HD-16</td>
<td></td>
<td>10.100</td>
<td>5412811</td>
</tr>
</tbody>
</table>

- For lightning and ground insertion rods Rd 16
- Installed with over-piece and hexagonal bolts M6 x 16 (VA)
- Female thread M8 for screwing and through hole for wood screws
- Pre-mounted with wood screw 5 x 60 and plastic dowels 8 x 40

Rod holder for 16 mm air-termination and earth entry rods, with square pin

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimen-</th>
<th>Weight (kg/100 pcs.)</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>112 DIN-100</td>
<td>100</td>
<td>12.412</td>
<td>5410096</td>
</tr>
</tbody>
</table>

- For lightning and ground insertion rods
- Over-piece with 2 hexagonal bolts M6 x 16 (VA)
- With square pin

Always indicate the item number when ordering.
Cable bracket

Crossbar, round conductors and interception rods 16 mm

- With open slot for quick installation
- Steel
- Hot-dip galvanised

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Weight kg/100 pcs</th>
<th>Pack pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>156 16 Rd 16</td>
<td>50</td>
<td>3.230</td>
<td>5228220</td>
<td></td>
</tr>
</tbody>
</table>

Connection terminal, equipotential bonding, Rd 16 mm

- For round conductor fastening RD 16
- Suitable for M10 bolts
- Stainless steel, grade 304

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Weight kg/100 pcs</th>
<th>Pack pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>249 VA-OT</td>
<td>16</td>
<td>5.700</td>
<td>5311573</td>
<td></td>
</tr>
</tbody>
</table>

Rod holder

- Installed with over-piece and hex-head screws M6 x 16
- With female thread M8 or through hole Ø 7 mm
- Die-cast zinc
- Galvanised

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Weight kg/100 pcs</th>
<th>Pack pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>113 Z-20 Rd 20</td>
<td>20</td>
<td>8.200</td>
<td>5230527</td>
<td></td>
</tr>
</tbody>
</table>

Conductor and pipe spacer clip 733 V2A

- Size M16 is not suitable for nail device
- Sizes M16 - PG16 are not suitable for bolt-firing tool
- Stainless steel, A2

<table>
<thead>
<tr>
<th>Type</th>
<th>Clamping range D mm</th>
<th>Hole size mm</th>
<th>Bolt size M5 x 16</th>
<th>Shipping box pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>733 21 A2</td>
<td>19 - 21</td>
<td>6,5 x 10</td>
<td>500</td>
<td>50</td>
<td>2.740</td>
<td>1362046</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Connection clamps and connection terminals

### Vario quick connector

**For T, cross and parallel connectors**
- Quick installation using hexagonal bolt M10 x 30, high-grade stainless steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

#### Steels

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Dimensions</th>
<th>Short-circuit current (50 Hz)</th>
<th>Lightning current carrying capacity</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>249 8-10 ST</td>
<td>Rd 8-10</td>
<td>40</td>
<td>5.6</td>
<td>H/100</td>
<td>20</td>
<td>10.800</td>
<td>5311500</td>
</tr>
<tr>
<td>249 B ST</td>
<td>Rd 8-10</td>
<td>40</td>
<td>5.6</td>
<td>H/100</td>
<td>100</td>
<td>10.800</td>
<td>5311705</td>
</tr>
</tbody>
</table>

- For T, cross and parallel connectors
- Quick installation using hexagonal bolt M10 x 30, high-grade stainless steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

#### Aluminums

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Dimensions</th>
<th>Lightning current carrying capacity</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>249 8-10 ALU</td>
<td>Rd 8-10</td>
<td>44</td>
<td>H/100</td>
<td>30</td>
<td>6.600</td>
<td>5311519</td>
</tr>
<tr>
<td>249 B ALU</td>
<td>Rd 8-10</td>
<td>44</td>
<td>H/100</td>
<td>100</td>
<td>7.250</td>
<td>5311713</td>
</tr>
</tbody>
</table>

#### Stainless steels

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Dimensions</th>
<th>Lightning current carrying capacity</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>249 8-10 V4A</td>
<td>Rd 8-10</td>
<td>40</td>
<td>H/100</td>
<td>10</td>
<td>9.500</td>
<td>5311404</td>
</tr>
<tr>
<td>249 8-10 V4A</td>
<td>Rd 8-10</td>
<td>40</td>
<td>H/100</td>
<td>10</td>
<td>9.500</td>
<td>5311404</td>
</tr>
</tbody>
</table>

- For T, cross and parallel connectors
- Quick installation using hexagonal bolt M10 x 30, high-grade stainless steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Always indicate the item number when ordering.
Connection clamps and connection terminals

**Vario quick connector**

- For T, cross and parallel connectors
- Quick installation using hexagonal bolt M10 x 30, high-grade stainless steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit A mm</th>
<th>Lightning current carrying capacity</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>249 8-10 CU</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>11.900</td>
<td>S311527</td>
</tr>
</tbody>
</table>

**Variable bi-metal quick connector**

- Intermediate plate, copper/aluminium, top section copper and aluminium
- For T, cross and parallel connectors
- Quick installation using hexagonal bolt M10 x 30, high-grade stainless steel
- With spring washer according to DIN 137
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit A mm</th>
<th>Lightning current carrying capacity</th>
<th>Material symbol</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>249 8-10 ZV</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>Cu</td>
<td>14.220</td>
<td>S311535</td>
</tr>
</tbody>
</table>

**Variable earthing connector Rd 6-8 / 8-10 mm**

- For T, intersection and parallel connections with adapter plates
- Quick mounting using an M10 x 30 bolt, made from rustproof stainless steel
- With sprung washer to DIN 137
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit A mm</th>
<th>Lightning current carrying capacity</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>249 6-10 ST</td>
<td>RD 6-8 / 8-10</td>
<td>H/100</td>
<td>13.100</td>
<td>S311410</td>
</tr>
</tbody>
</table>

**Variable earthing connector Rd 6-8 / 8-10 mm**

- For T, intersection and parallel connections with adapter plates
- Quick mounting using an M10 x 30 bolt, made from rustproof stainless steel
- With sprung washer to DIN 137
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit A mm</th>
<th>Lightning current carrying capacity</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>249 6-10 CU</td>
<td>RD 6-8 / 8-10</td>
<td>H/100</td>
<td>14.540</td>
<td>S311417</td>
</tr>
</tbody>
</table>
Vario quick connector Rd 6-8 / Rd 6-8 mm

- Quick mounting using an M10 x 30 bolt, made from rustproof stainless steel
- With sprung washer to DIN 137
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Dimension A</th>
<th>Lightning current carrying capacity</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>249 6-8 CU</td>
<td>Rd 6-8 / 6-8</td>
<td>40</td>
<td>H/100</td>
<td>10</td>
<td>12.710</td>
<td>5311407</td>
</tr>
</tbody>
</table>

Cu Copper

Vario quick connector Rd 8-10x16

- Quick mounting using an M10 x 30 bolt, made from rustproof stainless steel
- With sprung washer to DIN 137
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Dimension A</th>
<th>Lightning current carrying capacity</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>249 8-10X16 VA</td>
<td>Rd 8-10</td>
<td>40</td>
<td>H/100</td>
<td>10</td>
<td>16.300</td>
<td>5311590</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304

Connector, Rd 8–10 mm with M10 thread

- With bore hole 10.2 mm
- With thread M10
- Including pre-mounted nut M10 and serrated washer
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5000 Rd 8-10</td>
<td>20</td>
<td>4.630</td>
<td>5304008</td>
</tr>
</tbody>
</table>

St Steel Hot-dip galvanised

Connector Rd 8–10 mm, single

- With fix contact clamping screw, nut and serrated washer
- With bore hole 10.2 mm
- With pre-mounted pressure piece, die-cast zinc
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

<table>
<thead>
<tr>
<th>Type</th>
<th>Lightning current carrying capacity</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5001 DIN-FT</td>
<td>H/100</td>
<td>7.450</td>
<td>5304105</td>
</tr>
<tr>
<td>5001 DIN-FT+VA</td>
<td>H/100</td>
<td>7.450</td>
<td>5304107</td>
</tr>
</tbody>
</table>

Steel Hot-dip galvanised

Always indicate the item number when ordering.
**Connection clamps and connection terminals**

**Connector Rd 8–10 mm, single, copper**

- **Type**: 5001 ZN-CU
- **Material**: Die-cast zinc, Copper-plated
- **Features**:
  - With fix contact clamping screw, nut and serrated washer
  - With bore hole 10.2 mm
  - With pre-mounted pressure piece, die-cast zinc
  - Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Lightning current carrying capacity</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5001 ZN-CU</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>10</td>
<td>8.760</td>
<td>5304113</td>
</tr>
</tbody>
</table>

**Connector Rd 8–10 mm, double**

- **Type**: 5002 DIN-FT
- **Material**: Steel, Hot-dip galvanised
- **Features**:
  - With 2 fix contact clamping screws, nut and serrated washer
  - Including pre-mounted connecting pressure piece, die-cast zinc or copper-plated die-cast zinc
  - Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Lightning current carrying capacity</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5002 DIN-FT</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>20</td>
<td>14.240</td>
<td>5304202</td>
</tr>
</tbody>
</table>

**Connector Rd 8–10 mm, triple**

- **Type**: 5003
- **Material**: Cast iron, Hot-dip galvanised
- **Features**:
  - With 3 fix contact clamping screws, nut and serrated washer
  - With pre-mounted connecting pressure piece, die-cast zinc
  - Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Lightning current carrying capacity</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5003</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>10</td>
<td>22.420</td>
<td>5304318</td>
</tr>
</tbody>
</table>

**Connector, Rd 8–10 mm with pressure trough**

- **Type**: 5001 N-FT
- **Material**: Steel, Hot-dip galvanised
- **Features**:
  - With 1 fix contact clamping screw, nut and serrated washer
  - Including pre-mounted pressure sump, steel
  - Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Lightning current carrying capacity</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5001 N-FT</td>
<td>Rd 8-10</td>
<td>N/50</td>
<td>20</td>
<td>5.900</td>
<td>5304164</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
**Connector, Rd 8–10 mm with pressure trough**

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5001 N-VA</td>
<td>Rd 8-10</td>
<td>N/50</td>
<td>10</td>
<td>6.800</td>
<td>5304176</td>
</tr>
</tbody>
</table>

- Stainless steel, grade 304
- With 1 fix contact clamping screw, nut and serrated washer
- Including pre-mounted pressure sump, steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

**Connector, Rd 8–10 mm with pressure trough**

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5001 N-CU</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>10</td>
<td>6.750</td>
<td>5304172</td>
</tr>
</tbody>
</table>

- Copper
- With 1 fix contact clamping screw, nut and serrated washer
- Including pre-mounted pressure sump, steel
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

**Connector, Rd 8–10 mm, double, with pressure trough**

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5002 N-VA</td>
<td>Rd 8-10</td>
<td>N/50</td>
<td>10</td>
<td>16.200</td>
<td>5304270</td>
</tr>
</tbody>
</table>

- Stainless steel, grade 304
- With 2 Fix-Kontakt clamping bolts, nuts and serrated washers
- With pre-mounted pressure trough made of VA
- Corresponds to the requirements of VDE 0185-305 (IEC 62305)

**Connection and end piece with connector**

<table>
<thead>
<tr>
<th>Material symbol</th>
<th>Material</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5009</td>
<td>Steel</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>10</td>
<td>14.500</td>
<td>5304070</td>
</tr>
</tbody>
</table>

- Hot-dip galvanised
- With 2 attaching holes Ø 11 mm
- Installed with connector (single-piece) type 5001 DIN-FT
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

**Connection and end piece**

<table>
<thead>
<tr>
<th>Dimension D</th>
<th>Type</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø mm</td>
<td>5011</td>
<td>10</td>
<td>7.064</td>
<td>5304997</td>
</tr>
</tbody>
</table>

- Steel
- Hot-dip galvanised
- For attaching to steel structures or bolting to fixed earthing terminals
- For attachments: Round conductor Rd 8-10 and flat conductor FL 30 x 3.5
- 2 attaching holes Ø 11 mm
- 1 attaching holes Ø D mm

Always indicate the item number when ordering.
Connection and end piece

- For attaching to steel structures or bolting to fixed earthing terminals
- For attachments: Round conductor Rd 8-10 and flat conductor FL 30 x 3.5
- 2 attaching holes Ø 11 mm
- 1 attaching holes Ø D mm

V4A Stainless steel, grade 316 Ti

<table>
<thead>
<tr>
<th>Type</th>
<th>D (mm)</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5011 VA M10</td>
<td>11</td>
<td>7.064</td>
<td>5334934</td>
</tr>
<tr>
<td>5011 VA M12</td>
<td>13</td>
<td>7.048</td>
<td>5334942</td>
</tr>
</tbody>
</table>

Connection and end piece, DIN version

- With 2 attaching holes and 1 fix contact clamping screw 5000...
- With 2 attaching holes Ø 11 mm
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

St Steel
- Hot-dip galvanised

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Material</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5005 DIN-FT</td>
<td>Rd 8-10</td>
<td>St</td>
<td>15.518</td>
<td>5304601</td>
</tr>
</tbody>
</table>

Connection and end piece with connector and pressure trough

- With 2 attaching holes Ø 11 mm
- Including pre-mounted connector 5001 N
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

St Steel
- Hot-dip galvanised

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Material</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5005 N-FT</td>
<td>Rd 8-10</td>
<td>St</td>
<td>11.600</td>
<td>5304660</td>
</tr>
</tbody>
</table>

Parallel connector Rd 8–10 mm, M8 x 25

- With 2 hex-head screws M8 x 25, hot-dip galvanised steel

Cast iron
- Hot-dip galvanised

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Material</th>
<th>Lightning current carrying capacity</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>259 8-10</td>
<td>Rd 8-10</td>
<td>N/50</td>
<td>13.230</td>
<td>5315506</td>
<td></td>
</tr>
</tbody>
</table>

Parallel connector Rd 8 mm, M10 x 30

- With flat, round screw M10 x 30 and hexagonal nut, hot-dip galvanised steel

Die-cast zinc
- Electro-galvanised

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Material</th>
<th>Lightning current carrying capacity</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>260 8</td>
<td>Rd 8</td>
<td>H/100</td>
<td>13.930</td>
<td>5315700</td>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
**Parallel connector Rd 8–10 mm, M6 x 20**

- With 2 hexagonal bolts M6 x 20 from copper

**Straight connector Rd 8 mm**

- With truss-head bolt M10 x 30 and hexagonal nut M10
- Complies with the requirements of VDE 0185-305-3 (IEC/EN 62305-3)

**Straight connector Rd 8–10 mm**

- With 4 hexagonal bolts M6 x 10
- Complies with the requirements of VDE 0185-305-3 (IEC/EN 62305-3)

**T connector Rd 8 mm**

- With truss-head bolt M10 x 30 and hexagonal nut M10
- Complies with the requirements of VDE 0185-305-3 (IEC/EN 62305-3)

Always indicate the item number when ordering.
### T connector Rd 8–10 mm

- **Type**: 245 8-10 FT
- **Fit**: Rd 8-10
- **Lightning current carrying capacity**: N/50
- **Material**: Steel
- **Weight**: 9.401 kg/100 pcs.
- **Item No.**: 5311101

- **Description**: Hot-dip galvanised
- **With 2 hexagonal bolts M6 x 16 (VA)
- **Complies with the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)

### T connector Rd 8 10 mm

- **Type**: 245 8-10 CU
- **Fit**: Rd 8-10
- **Lightning current carrying capacity**: N/50
- **Material**: Copper
- **Weight**: 11.560 kg/100 pcs.
- **Item No.**: 5311152

- **Description**: Hot-dip galvanised
- **With 2 hexagonal bolts M6 x 16 (VA)
- **Complies with the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)

### T connector Rd 8–10 mm, triple-screwed

- **Type**: 247 8-10 FT
- **Fit**: Rd 8-10
- **Lightning current carrying capacity**: N/50
- **Material**: Steel
- **Weight**: 10.934 kg/100 pcs.
- **Item No.**: 5311209

- **Description**: Hot-dip galvanised
- **With 3 hexagonal bolts M6 x 16 (VA)

### T connector Rd 8–10 mm, triple-screwed

- **Type**: 247 8-10 CU
- **Fit**: Rd 8-10
- **Lightning current carrying capacity**: N/50
- **Material**: Copper
- **Weight**: 10.750 kg/100 pcs.
- **Item No.**: 5311268

- **Description**: Hot-dip galvanised
- **With 3 hexagonal bolts M6 x 16 (VA)
- **Complies with the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)

### Cross-connector for flat conductors and round conductors

- **Type**: 250
- **Fit**: Rd 8-10/FL30
- **Lightning current carrying capacity**: N/50
- **Material**: Steel
- **Weight**: 10.260 kg/100 pcs.
- **Item No.**: 5312906

- **Description**: Hot-dip galvanised
- **Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- **Fit**: Rd 8-10 x Rd 8-10
- **Fit**: Rd 8-10 x FL 30
- **Fit**: FL 30 x FL 30
- **Mounted with 2 hexagonal bolts M8 x 20 (F)
### Cross-connector for flat conductors and round conductors

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Lightning current carrying capacity</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 VA</td>
<td>Rd 8-10/FL30</td>
<td>H/100</td>
<td>25</td>
<td>10.260</td>
<td>5312922</td>
</tr>
<tr>
<td>250 V4A</td>
<td>Rd 8-10/FL30</td>
<td>H/100</td>
<td>10</td>
<td>10.260</td>
<td>5312925</td>
</tr>
</tbody>
</table>

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10
- For flat conductors, fit: Rd 8-10 x FL 30
- Mounted with 2 hexagonal bolts M8 x 20

### Cross-connector for round cables and flat conductors DIN

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Lightning current carrying capacity</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>252 8-10XFL30 FT</td>
<td>8-10 x FL30</td>
<td>H/100</td>
<td>25</td>
<td>28.500</td>
<td>5312655</td>
</tr>
</tbody>
</table>

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

### Cross-connector for round cables and flat conductors

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Lightning current carrying capacity</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>252 8-10xFL30V4A</td>
<td>8-10 x FL30</td>
<td>H/100</td>
<td>10</td>
<td>28.500</td>
<td>5312656</td>
</tr>
</tbody>
</table>

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

### Cross-connector Rd 8–10 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Lightning current carrying capacity</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>251 8-10</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>25</td>
<td>11.690</td>
<td>5312035</td>
</tr>
</tbody>
</table>

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- For round conductors, fit: Rd 8-10 x Rd 8-10
- With 4 hexagonal bolts M6 x 16 (VA)

Always indicate the item number when ordering.
## Cross-connector Rd 8–10 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>251 CU</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>10</td>
<td>12.400</td>
<td>5312132</td>
</tr>
</tbody>
</table>

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10
- With 4 hexagonal bolts M6 x 16, must of rust-proof steel (VA)

## Cross-connector Rd 8–10 mm, wide version

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>253 8X8</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>25</td>
<td>30.700</td>
<td>5312604</td>
</tr>
</tbody>
</table>

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8 (F)

## Cross-connector with intermediate plate for Rd 8–10 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>254 DIN 8-10 FT</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>25</td>
<td>16.660</td>
<td>5314038</td>
</tr>
</tbody>
</table>

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- For round conductors, fit: Rd 8-10 x Rd 8-10
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 20 and 4 hexagonal nuts M8

## Cross-connector with intermediate plate for Rd 8–10 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>254 DIN 8-10 CU</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>10</td>
<td>17.410</td>
<td>5314135</td>
</tr>
</tbody>
</table>

- Meets the requirements of VDE 0185-305-3 (IEC/ EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10
- With adapter plate
- Mounted with 4 hexagonal bolts M6 x 20 and 4 hexagonal nuts M6 (F) made of rustproof steel (VA)

Always indicate the item number when ordering.
Cross-connector with intermediate plate for Rd 8–10 mm, wide version

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity kA</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>252 8-10 FT</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>25</td>
<td>33.530</td>
<td>5312310</td>
</tr>
</tbody>
</table>

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Cross-connector with intermediate plate for Rd 8–10 mm, wide version

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity kA</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>252 8-10 V4A</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>10</td>
<td>33.530</td>
<td>5312318</td>
</tr>
</tbody>
</table>

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Cross-connector with intermediate plate for Rd 8–10 mm, wide version

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity kA</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>252 8-10 CU</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>10</td>
<td>38.940</td>
<td>5312418</td>
</tr>
</tbody>
</table>

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Cross-connector for Rd 8–10 x Rd 16 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity kA</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>253 10X16</td>
<td>Rd 8-10 x 16</td>
<td>H/100</td>
<td>25</td>
<td>29.800</td>
<td>5312809</td>
</tr>
</tbody>
</table>

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x Rd 16 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

Always indicate the item number when ordering.
**Cross-connector with intermediate plate for Rd 8–10 x Rd 16 mm**

- **Type:** 252 B-10X16 FT
- **Fit:** Rd 8-10 x 16
- **Lightning current carrying capacity:** H/100
- **Pack. pcs.:** 25
- **Weight kg/100 pcs.:** 98.800
- **Item No.:** 5312345

**Details:**
- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- **Fit:** Rd 8-10 x Rd 16 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

**Material:**
- Stainless steel, grade 316 Ti

**Technical Data:**
- **Type:** 252 B-10X16 V4A
- **Fit:** Rd 8-10 x 16
- **Lightning current carrying capacity:** H/100
- **Pack. pcs.:** 10
- **Weight kg/100 pcs.:** 39.000
- **Item No.:** 5312346

**Details:**
- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- **Fit:** Rd 8-10 x Rd 16 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

**Material:**
- Copper

**Technical Data:**
- **Type:** 252 B-10X16 CU
- **Fit:** Rd 8-10 x 16
- **Lightning current carrying capacity:** H/100
- **Pack. pcs.:** 10
- **Weight kg/100 pcs.:** 43.985
- **Item No.:** 5312442

**Details:**
- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- **Fit:** Rd 8-10 x Rd 16 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

**Folding and construction clamp, 10–20 mm**

- **Type:** 5004 DIN-FT 12
- **Fit:** Rd 8-10
- **Clamping range:** max. 12
- **Lightning current carrying capacity:** N/50
- **Pack. pcs.:** 10
- **Weight kg/100 pcs.:** 18.730
- **Item No.:** 5304407

**Material:**
- Cast iron
- Hot-dip galvanised

**Details:**
- Flange thickness to 12 or 10–20 mm
- With pre-mounted Fix-Kontakt clamping screw 5000
- 2 hexagonal bolts M8 x 20, screws made of hot galvanised steel,
- Terminal block made of malleable iron, hot galvanised
- Mounting of the round conductors either vertical or transverse to structure
- Corresponds to the requirements of DIN VDE 0185-305-3

**Always indicate the item number when ordering.**
Construction clamp to 20 mm

- Mounting of the round conductor possible vertically or transverse to construction
- For fastening to constructions up to a flange thickness of 20 mm
- Fastening to constructions using a hexagonal bolt M10
- Meets the requirements of VDE 0185-305 (IEC 62305)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Clamping range mm</th>
<th>Lightning current carrying capacity kA</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5010 20 FT</td>
<td>Rd 8-10</td>
<td>4 - 20</td>
<td>N/50</td>
<td>99.600</td>
<td>10</td>
<td>5304520</td>
</tr>
</tbody>
</table>

Connection terminal to 14 mm

- Flange thickness to 8 and/or 14 mm
- With 4 hexagonal bolts M8
- Conforms to the requirements according to DIN VDE V 0185-3, Section 4.5

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Clamping range mm</th>
<th>Lightning current carrying capacity kA</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>272 8</td>
<td>Rd 8-10</td>
<td>max. 8</td>
<td>N/50</td>
<td>22.800</td>
<td>20</td>
<td>5318084</td>
</tr>
<tr>
<td>272 14</td>
<td>Rd 8-10</td>
<td>max. 14</td>
<td>N/50</td>
<td>25.290</td>
<td>20</td>
<td>5318149</td>
</tr>
</tbody>
</table>

Folding clamp up to 7 mm plate thickness

- Plate thickness to 7 mm
- For conductor arrangement transverse and parallel to plate with 4 hexagonal bolts M6 x 16
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Clamping range mm</th>
<th>Lightning current carrying capacity kA</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>269 B-10</td>
<td>Rd 8-10</td>
<td>max. 7</td>
<td>N/50</td>
<td>14.460</td>
<td>20</td>
<td>5317010</td>
</tr>
<tr>
<td>269 MS</td>
<td>Rd 8-10</td>
<td>max. 7</td>
<td>H/100</td>
<td>14.480</td>
<td>10</td>
<td>5317053</td>
</tr>
</tbody>
</table>

Folding clamp up to 7 mm plate thickness

- Plate thickness to 7 mm
- For conductor arrangement transverse and parallel to plate with 4 hexagonal bolts M6 x 16
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Clamping range mm</th>
<th>Lightning current carrying capacity kA</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>269 MS</td>
<td>Rd 8-10</td>
<td>max. 7</td>
<td>H/100</td>
<td>14.480</td>
<td>10</td>
<td>5317053</td>
</tr>
</tbody>
</table>
Connection clamps and connection terminals

Folding clamp Rd 8-10 up to 10 mm plate thickness

- Metal thickness to 10 mm
- For conductor routing transverse and in parallel to the plate
- Corresponds to the requirements to DIN V VDE V 0185-3 section 4.5

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Clamping range</th>
<th>Lightning current carrying capacity</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>270 8-10 FT</td>
<td>Rd 8-10</td>
<td>max. 10</td>
<td>N/50</td>
<td>20</td>
<td>13.810</td>
</tr>
<tr>
<td>Steel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hot-dip galvanised</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Folding clamp Rd 8-10 up to 10 mm plate thickness

- Metal thickness to 10 mm
- For conductor routing transverse and in parallel to the plate
- Corresponds to the requirements to DIN V VDE V 0185-3 section 4.5

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Clamping range</th>
<th>Lightning current carrying capacity</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>270 8-10 VA</td>
<td>Rd 8-10</td>
<td>max. 10</td>
<td>N/50</td>
<td>10</td>
<td>13.800</td>
</tr>
<tr>
<td>V2A Stainless steel, grade 304</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Folding clamp Rd 8-10 up to 10 mm plate thickness

- Metal thickness to 10 mm
- For conductor routing transverse and in parallel to the plate
- Corresponds to the requirements to DIN V VDE V 0185-3 section 4.5

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Clamping range</th>
<th>Lightning current carrying capacity</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>270 8-10 CU</td>
<td>Rd 8-10</td>
<td>max. 10</td>
<td>H/100</td>
<td>10</td>
<td>14.740</td>
</tr>
<tr>
<td>Copper</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Folding clamp up to 5 mm plate thickness

- Metal thickness to 5 mm
- For conductor routing transverse and longitudinal to plate
- With 4 hexagonal bolts M6 x 12
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)
- 271 Cu: with hexagonal bolts stainless steel (VA)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Clamping range</th>
<th>Lightning current carrying capacity</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>271 8-10</td>
<td>Rd 8-10</td>
<td>max. 5</td>
<td>N/50</td>
<td>20</td>
<td>14.080</td>
</tr>
<tr>
<td>Steel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hot-dip galvanised</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Folding clamp up to 5 mm plate thickness**

- Plate thickness to 5 mm
- For conductor routing transverse and longitudinal to plate
- With 4 hexagonal bolts M6 x 12
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)
- 271 Cu: with hexagonal bolts stainless steel (VA)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Clamping range mm</th>
<th>Lightning current carrying capacity kA</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>271 8-10 VA</td>
<td>Rd 8-10</td>
<td>max. 5</td>
<td>N/50</td>
<td>10</td>
<td>15.000</td>
<td>5317481</td>
</tr>
</tbody>
</table>

**Folding clamp up to 5 mm plate thickness**

- Plate thickness to 5 mm
- For conductor routing transverse and longitudinal to plate
- With 4 hexagonal bolts M6 x 12
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)
- 271 Cu: with hexagonal bolts stainless steel (VA)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Clamping range mm</th>
<th>Lightning current carrying capacity kA</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>271 CU</td>
<td>Rd 8-10</td>
<td>max. 5</td>
<td>N/50</td>
<td>10</td>
<td>15.229</td>
<td>5317452</td>
</tr>
</tbody>
</table>

**Folding clamp up to 10 mm plate thickness**

- Plate thickness to 10 mm
- Conductor routing transverse and longitudinal to plate with 2 hexagonal bolts M8 x 10 and 2 hexagonal bolts M8 x 16 (F)
- 273 Cu: with hexagonal bolts, stainless steel (VA)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Clamping range mm</th>
<th>Lightning current carrying capacity kA</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>273 8-10</td>
<td>Rd 8-10</td>
<td>max. 10</td>
<td>N/50</td>
<td>50</td>
<td>17.000</td>
<td>5317223</td>
</tr>
</tbody>
</table>

**Folding clamp up to 10 mm plate thickness**

- Plate thickness to 10 mm
- Conductor routing transverse and longitudinal to plate with 2 hexagonal bolts M8 x 10 and 2 hexagonal bolts M8 x 16 (F)
- 273 Cu: with hexagonal bolts, stainless steel (VA)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Clamping range mm</th>
<th>Lightning current carrying capacity kA</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>273 CU</td>
<td>Rd 8-10</td>
<td>max.10</td>
<td>N/50</td>
<td>10</td>
<td>18.500</td>
<td>5317274</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Folding clamp and connection terminal up to 10 mm plate thickness

- **Type**: 274 B-10
- **Fit range**: Rd 8-10
- **Lightning current carrying capacity**: N/50
- **Max. current**: 3.5
- **Weight**: 10.400 kg/100 pcs.
- **Item No.**: 5317428

- **Plate thickness to 10 mm**
- **For conductor routing transverse and longitudinal to plate**
- **4 hexagonal bolts M6 x 16**
- **Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)**

Folding clamp and connection terminal up to 10 mm plate thickness

- **Type**: 274 CU
- **Fit range**: Rd 8-10
- **Lightning current carrying capacity**: N/50
- **Max. current**: 3.5
- **Weight**: 11.340 kg/100 pcs.
- **Item No.**: 5317479

- **Plate thickness to 10 mm**
- **For conductor routing transverse and longitudinal to plate**
- **4 hexagonal bolts M6 x 16**
- **Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)**

Gutter clamp RK-FIX

- **Type**: RK-FIX
- **Material symbol**: 2 x Rd 8
- **Interface**: St
- **Weight**: 19.100 kg/100 pcs.
- **Item No.**: 5316450

- **Steel**, Hot-dip galvanised
- **For up to 2 conductors Rd 8**
- **With double crossbar**
- **Suitable for all bead thicknesses (15–25 mm)**
- **With 1 truss-head bolt M10 x 45**
- **Nut and bolt made of VA stainless steel**
- **With spring for prefixing for rain gutter**

Gutter clamp RK-FIX

- **Type**: RK-FIX VA
- **Material symbol**: 2 x Rd 8
- **Weight**: 19.100 kg/100 pcs.
- **Item No.**: 5316459

- **Stainless steel, grade 304**
- **For up to 2 conductors Rd 8**
- **With double crossbar**
- **Suitable for all bead thicknesses (15–25 mm)**
- **With 1 truss-head bolt M10 x 45**
- **Nut and bolt made of VA stainless steel**
- **With spring for prefixing for rain gutter**
- **Tested to DIN EN 50164-1**

---

Always indicate the item number when ordering.
Connection clamps and connection terminals

Gutter clamp RK-FIX

- For up to 2 conductors Rd 8
- With double crossbar
- Suitable for all bead thicknesses (15–25 mm)
- With 1 truss-head bolt M10 x 45
- Nut and bolt made of VA stainless steel
- With spring for prefixing for rain gutter
- Tested to DIN EN 50164-1

Gutter clamp for all bead thicknesses

- Fits all bead thicknesses
- With 1 hexagonal bolt M8 x 30
- 2 hexagonal bolts M6 x 12

Gutter clamp for bead thickness 15–22 mm

- Suitable for bulge thickness 15–22 mm
- With 4 hexagonal bolts M6 x 16 (VA)

Always indicate the item number when ordering.
Roof gutter clamp for all bead thicknesses

- With 4 hexagonal bolts M6 x 16
- Fits all bead thicknesses

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>262</td>
<td>Rd 8-10</td>
<td></td>
<td>5316014</td>
</tr>
<tr>
<td>Steel</td>
<td></td>
<td>20.300</td>
<td></td>
</tr>
<tr>
<td>FT Hot-dip galvanised</td>
<td></td>
<td>25 pcs.</td>
<td></td>
</tr>
</tbody>
</table>

Cu Copper

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>262 CU</td>
<td>Rd 8-10</td>
<td></td>
<td>5316154</td>
</tr>
<tr>
<td>Copper</td>
<td></td>
<td>20.940</td>
<td></td>
</tr>
<tr>
<td>FT Hot-dip galvanised</td>
<td></td>
<td>10 pcs.</td>
<td></td>
</tr>
</tbody>
</table>

Bi-metal roof gutter clamp for all bead thicknesses

- Fits all bead thicknesses
- Bi-metal for attaching round conductors aluminium or steel to roof gutters without corrosion to different metals

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>262 ZM</td>
<td>Rd 8-10</td>
<td></td>
<td>5316170</td>
</tr>
<tr>
<td>Steel</td>
<td></td>
<td>23.100</td>
<td></td>
</tr>
<tr>
<td>FT Hot-dip galvanised</td>
<td></td>
<td>10 pcs.</td>
<td></td>
</tr>
</tbody>
</table>

Snow catching grate clamp

- Plate thickness to 8 mm
- With 4 hexagonal bolts M6 x 16

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>264</td>
<td>Rd 8-10</td>
<td></td>
<td>5316510</td>
</tr>
<tr>
<td>Steel</td>
<td></td>
<td>18.640</td>
<td></td>
</tr>
<tr>
<td>FT Hot-dip galvanised</td>
<td></td>
<td>25 pcs.</td>
<td></td>
</tr>
</tbody>
</table>

Cu Copper

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>264 CU</td>
<td>Rd 8-10</td>
<td></td>
<td>5316553</td>
</tr>
<tr>
<td>Copper</td>
<td></td>
<td>21.140</td>
<td></td>
</tr>
<tr>
<td>FT Hot-dip galvanised</td>
<td></td>
<td>10 pcs.</td>
<td></td>
</tr>
</tbody>
</table>

Clamping shoe

- With Ø 11 mm attaching hole
- 2 hexagonal bolts M8 x 16
- Bolts hot-dip galvanised steel and clamping element hot dipped galvanised cast steel

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>319 8</td>
<td>Rd 8</td>
<td></td>
<td>5325307</td>
</tr>
<tr>
<td>Cast iron</td>
<td></td>
<td>25 pcs.</td>
<td></td>
</tr>
<tr>
<td>319 10</td>
<td>Rd 10</td>
<td></td>
<td>5325315</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Connection terminal, equipotential bonding, Rd 8–10 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Dimension</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>249 8-10 ST-OT</td>
<td>Rd 8-10</td>
<td>40</td>
<td>3.240</td>
<td>100</td>
<td>5311503</td>
</tr>
</tbody>
</table>

- Steel
- Hot-dip galvanised
- For round conductor fastening RD 8-10
- Suitable for M10 bolts

Connection terminal, equipotential bonding, Rd 8–10 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Dimension</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>249 8-10 ALU-OT</td>
<td>Rd 8-10</td>
<td>44</td>
<td>2.100</td>
<td>100</td>
<td>5311585</td>
</tr>
</tbody>
</table>

- Aluminium
- For round conductor fastening RD 8-10
- Suitable for M10 bolts

Connection terminal, equipotential bonding, Rd 8–10 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Dimension</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>249 8-10 VA-OT</td>
<td>Rd 8-10</td>
<td>40</td>
<td>3.130</td>
<td>100</td>
<td>5311554</td>
</tr>
</tbody>
</table>

- Stainless steel, grade 304
- Suitable for 8-10 mm diameter
- Suitable for M10 bolts

Connection terminal, equipotential bonding, Rd 8–10 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Dimension</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>249 8-10 CU-OT</td>
<td>Rd 8-10</td>
<td>40</td>
<td>3.580</td>
<td>100</td>
<td>5311530</td>
</tr>
</tbody>
</table>

- Copper
- For round conductor fastening RD 8-10
- Suitable for M10 bolts

Connection terminal, equipotential bonding, Rd 16 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Dimension</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>249 VA-OT</td>
<td>16</td>
<td></td>
<td>5.700</td>
<td>100</td>
<td>5311573</td>
</tr>
</tbody>
</table>

- Stainless steel, grade 304
- For round conductor fastening RD 16
- Suitable for M10 bolts

Always indicate the item number when ordering.
End piece

- Type: 280 8-10 Rd 8-10
  - Material: Die-cast zinc
  - Electro-galvanised
  - With Ø 11 mm attaching hole
  - 2 hexagonal bolts M6 x 12, bolts hot-dip galvanised steel or VA
  - Clamping element from die-cast zinc or copper-plated die-cast zinc

Universal clamping block Rd 8–10 mm

- Type: 324 S-FT Rd 8-10
  - Material: Steel
  - Hot-dip galvanised
  - Including hexagonal bolt M8 x 25, washer and nuts

- Type: 324 S-VA Rd 8-10
  - Material: Stainless steel, grade 304
  - Including hexagonal bolt M8 x 25, washer and nuts

- Type: 324 S-CU Rd 8-10
  - Material: Copper
  - Including hexagonal bolt M8 x 25, washer and nuts

Expansion piece

- Type: 172 AR
  - Material: Aluminium
  - For equalising temperature-related length changes
  - Necessary on conductor lengths over 20 m
  - From round conductor Rd 8-Al
Connection component

- Type: 287
- Material: Aluminium
- With 1 attaching hole Ø 11 mm
- 4 mounting holes Ø 5.2 mm
- 2 mounting holes Ø 6.9 mm

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5320704</td>
<td>20</td>
<td>1.600</td>
</tr>
</tbody>
</table>

Connection component

- Type: 287 CU
- Material: Copper
- With 1 attaching hole Ø 11 mm
- 4 mounting holes Ø 5.2 mm
- 2 mounting holes Ø 6.9 mm

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5320690</td>
<td>10</td>
<td>5.600</td>
</tr>
</tbody>
</table>

Connection component with double crossbar

- Type: 287 DCT
- Material: Aluminium
- Conforming to VDE 0185-305 (IEC 62305) standards
- Quick mounting thanks to an M10x30 screw from rustproof stainless steel
- 4 mounting holes Ø 5.2 mm
- 2 mounting holes Ø 6.9 mm

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5320707</td>
<td>10</td>
<td>6.450</td>
</tr>
</tbody>
</table>

Connection and bridging component

- Type: 288 DIN
- Material: Aluminium
- With 1 attaching hole Ø 11 mm
- With 2 x 4 mounting hole Ø 5.2 mm
- With 2 x 2 mounting hole Ø 6.9 mm

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5320712</td>
<td>20</td>
<td>2.900</td>
</tr>
</tbody>
</table>

Bridging cable

- Type: 853 200, 853 300, 853 400
- Material: Copper
- From flexible copper cable 16 mm²
- Coating: black, chlorinated India rubber mixture
- With 1 mounting hole Ø 10.5 mm per attachment side
- With 2 mounting holes Ø 7.5 mm per attachment side
- For applications outside or inside suitable

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5331008</td>
<td>10</td>
<td>4.840</td>
</tr>
<tr>
<td>5331013</td>
<td>10</td>
<td>7.260</td>
</tr>
<tr>
<td>5331017</td>
<td>10</td>
<td>9.680</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Connection and expansion strip

- **Type**: 856
- **Material**: Copper
- **Dimensions**: Copper strip 35 mm², tin-plated
- **Flexibility**: Highly flexible with rigid ends
- **Fastening**: Each end with 1 fastening hole Ø 10 mm and 4 fastening holes Ø 4.3 mm

**Universal downspout clamp 60–130 mm**

- **Type**: 301 V
- **Material**: Steel
- **Dimensions**: Strip-galvanised

  - Adjustable for pipes from 60-130 mm
  - With 2x attaching holes Ø 7 mm
  - With 1x attaching hole Ø 9 mm
  - With 1x attaching hole Ø 11 mm
  - Including hexagonal bolt M6 x 20 and nuts M6

- **Type**: 301 V-VA
- **Material**: Stainless steel, grade 304

  - Adjustable for pipes from 60-130 mm
  - With 2x attaching holes Ø 7 mm
  - With 1x attaching hole Ø 9 mm
  - With 1x attaching hole Ø 11 mm
  - Including hexagonal bolt M6 x 20 and nuts M6

- **Type**: 301 V-CU
- **Material**: Copper

  - Adjustable for pipes from 60-130 mm
  - With 2x attaching holes Ø 7 mm
  - With 1x attaching hole Ø 9 mm
  - With 1x attaching hole Ø 11 mm
  - Including hexagonal bolt M6 x 20 and nuts M6

**Downspout clamp**

- **Type**: 301 DIN-80
- **Material**: Steel
- **Dimensions**: Strip-galvanised

  - To connect conductors and downspouts
  - Similar to DIN 48918 C
  - Strip galvanised (rd. 275 g/m² = 40 µm average value)
  - With 1x hexagonal bolt M8 x 20
  - With 1x hexagonal nut M8 and 1 stainless steel serrated washer
  - With connection hole Ø 11 mm

---

Always indicate the item number when ordering.
### Connection clamps and connection terminals

#### Downspout clamp

- With 1x hexagonal bolt M8 x 20
- With 1x hexagonal nut M8 and 1 serrated disc made of rustproof steel
- With connection hole Ø 11 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>For pipe mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>301 CU-80</td>
<td>80</td>
<td>10</td>
<td>22.500</td>
<td>5350689</td>
</tr>
<tr>
<td>301 CU-100</td>
<td>100</td>
<td>10</td>
<td>26.230</td>
<td>5350700</td>
</tr>
<tr>
<td>301 CU-110</td>
<td>110</td>
<td>10</td>
<td>30.400</td>
<td>5350719</td>
</tr>
<tr>
<td>301 CU-120</td>
<td>120</td>
<td>10</td>
<td>31.400</td>
<td>5350727</td>
</tr>
</tbody>
</table>

#### Downspout clamp for routing Rd 8–10 mm behind pipe

- With beading
- For round conductor Rd 8-10
- Including hexagonal bolt M6 x 20 and nuts M6

<table>
<thead>
<tr>
<th>Type</th>
<th>For pipe mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>301 S-100</td>
<td>100</td>
<td>10</td>
<td>5.200</td>
<td>5351057</td>
</tr>
<tr>
<td>301 S-120</td>
<td>120</td>
<td>10</td>
<td>5.950</td>
<td>5351073</td>
</tr>
</tbody>
</table>

#### Downspout clamp for routing Rd 8–10 mm behind pipe

- With beading
- For round conductor Rd 8-10
- Including hexagonal bolt M6 x 20 and nuts M6

<table>
<thead>
<tr>
<th>Type</th>
<th>For pipe mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>301 S-AL-100</td>
<td>100</td>
<td>10</td>
<td>4.100</td>
<td>5351359</td>
</tr>
<tr>
<td>301 S-AL-120</td>
<td>120</td>
<td>10</td>
<td>4.600</td>
<td>5351375</td>
</tr>
</tbody>
</table>

#### Downspout clamp for routing Rd 8–10 mm behind pipe

- With beading
- For round conductor Rd 8-10
- Including hexagonal bolt M6 x 20 and nuts M6

<table>
<thead>
<tr>
<th>Type</th>
<th>For pipe mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>301 S-VA-100</td>
<td>100</td>
<td>10</td>
<td>5.200</td>
<td>5351251</td>
</tr>
<tr>
<td>301 S-VA-120</td>
<td>120</td>
<td>10</td>
<td>5.950</td>
<td>5351286</td>
</tr>
</tbody>
</table>

#### Downspout clamp for routing Rd 8–10 mm behind pipe

- With beading
- For round conductor Rd 8-10
- Including hexagonal bolt M6 x 20 and nuts M6

<table>
<thead>
<tr>
<th>Type</th>
<th>For pipe mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>301 S-CU-100</td>
<td>100</td>
<td>10</td>
<td>5.850</td>
<td>5351456</td>
</tr>
<tr>
<td>301 S-CU-120</td>
<td>120</td>
<td>10</td>
<td>6.700</td>
<td>5351472</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Pipe clamp

- DIN 48818, Form D
- With Ø 11 mm mounting hole
- 2 hexagonal bolts M8 x 20 (4 inch = M10)
- 2 hex-head nuts M8 (4 inch = M10)

<table>
<thead>
<tr>
<th>Type</th>
<th>For pipe mm</th>
<th>For pipe inch</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>303 DIN-3/8</td>
<td>17.2</td>
<td>3/8</td>
<td>5</td>
<td>22.600</td>
<td>5102057</td>
</tr>
<tr>
<td>303 DIN-1/2</td>
<td>21.3</td>
<td>1/2</td>
<td>5</td>
<td>23.280</td>
<td>5102073</td>
</tr>
<tr>
<td>303 DIN-3/4</td>
<td>26.9</td>
<td>3/4</td>
<td>5</td>
<td>25.640</td>
<td>5102081</td>
</tr>
<tr>
<td>303 DIN-1</td>
<td>33.7</td>
<td>1</td>
<td>5</td>
<td>28.300</td>
<td>5102111</td>
</tr>
<tr>
<td>303 DIN-1 1/4</td>
<td>42.4</td>
<td>1 1/4</td>
<td>5</td>
<td>31.300</td>
<td>5102138</td>
</tr>
<tr>
<td>303 DIN-1 1/2</td>
<td>48.3</td>
<td>1 1/2</td>
<td>5</td>
<td>33.220</td>
<td>5102154</td>
</tr>
<tr>
<td>303 DIN-2</td>
<td>60.3</td>
<td>2</td>
<td>5</td>
<td>36.840</td>
<td>5102197</td>
</tr>
<tr>
<td>303 DIN-2 1/2</td>
<td>76.1</td>
<td>2 1/2</td>
<td>10</td>
<td>39.400</td>
<td>5102219</td>
</tr>
<tr>
<td>303 DIN-3</td>
<td>88.9</td>
<td>3</td>
<td>10</td>
<td>43.300</td>
<td>5102235</td>
</tr>
<tr>
<td>303 DIN-3 1/2</td>
<td>100</td>
<td>3 1/2</td>
<td>10</td>
<td>64.900</td>
<td>5102251</td>
</tr>
<tr>
<td>303 DIN-4</td>
<td>114.3</td>
<td>4</td>
<td>10</td>
<td>66.800</td>
<td>5102278</td>
</tr>
</tbody>
</table>

- Steel
- Hot-dip galvanised

Always indicate the item number when ordering.
Cross-connector flat/flat without adapter plate A4

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Max. FL 30 x FL 30
- Without adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Dimension A</th>
<th>Dimension B</th>
<th>Lightning current carrying capacity</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>256 S6 V4A</td>
<td>max. FL30</td>
<td>60</td>
<td>60</td>
<td>H/100</td>
<td>3600</td>
<td>24.100</td>
<td>5314574</td>
</tr>
</tbody>
</table>

Stainless steel, grade 316

Cross-connector flat/flat without adapter plate FT

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Max. FL 30 x FL 30 or max. FL 40 x FL 40
- Without adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8 (F)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Dimension A</th>
<th>Dimension B</th>
<th>Lightning current carrying capacity</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>256 S6 FT</td>
<td>max. FL30</td>
<td>60</td>
<td>60</td>
<td>H/100</td>
<td>3600</td>
<td>24.100</td>
<td>5314572</td>
</tr>
</tbody>
</table>

St Stainless steel, grade 316

Hot-dip galvanised

Cross-connector round/round without intermediate plate

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8 (F)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Lightning current carrying capacity</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>253 S3 V4A</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>3400</td>
<td>25.900</td>
<td>5312594</td>
</tr>
</tbody>
</table>

Stainless steel, grade 316

Cross-connector Rd 8–10 mm, wide version

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8 (F)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Lightning current carrying capacity</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>253 S3 FT</td>
<td>Rd 8-10</td>
<td>H/100</td>
<td>3400</td>
<td>23.300</td>
<td>5312592</td>
</tr>
</tbody>
</table>

St Hot-dip galvanised

Always indicate the item number when ordering.
Cross-connector for round cables and flat conductors

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

**Type** | **Fit** | **Lightning current carrying capacity** | **Pack. pcs.** | **Weight kg/100 pcs.** | **Item No.**
--- | --- | --- | --- | --- | ---
252 S4 V4A | Rd 8-10 x FL 30 | H/100 | 3600 | 25.000 | 5312308

Cross-connector for round cables and flat conductors DIN

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x FL 30
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

**Type** | **Fit** | **Lightning current carrying capacity** | **Pack. pcs.** | **Weight kg/100 pcs.** | **Item No.**
--- | --- | --- | --- | --- | ---
252 S4 FT | Rd 8-10 x FL 30 | H/100 | 3600 | 25.000 | 5312302

Cross-connector with intermediate plate for Rd 8–10 mm, wide version

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8

**Type** | **Fit** | **Lightning current carrying capacity** | **Pack. pcs.** | **Weight kg/100 pcs.** | **Item No.**
--- | --- | --- | --- | --- | ---
252 S1 V4A | Rd 8-10 | H/100 | 2800 | 31.100 | 5312294

Cross-connector with intermediate plate for Rd 8–10 mm, wide version

- Meets the requirements of VDE 0185-305-3 (IEC/EN 62305-3)
- Fit: Rd 8-10 x Rd 8-10 / FL 30
- With adapter plate
- Mounted with 4 hexagonal bolts M8 x 25 and 4 hexagonal nuts M8 (F)

**Type** | **Fit** | **Lightning current carrying capacity** | **Pack. pcs.** | **Weight kg/100 pcs.** | **Item No.**
--- | --- | --- | --- | --- | ---
252 S1 FT | Rd 8-10 | H/100 | 2800 | 28.600 | 5312292
Roof conductor holder for flat roofs, black

- Polyethylene
- Closed form with base
- Double conductor holder
- Filling weight 1 kg (frost-resistant concrete)
- Sleeve made of polyethylene, black, bottom polypropylene, black
- Base made of polyamide PA 6, black, UV-stabilised and weather-resistant
- Base can be used on almost roofing felt systems (bitumen, PVC)
- Types 165 MBG...FO: Packed in foil bag

<table>
<thead>
<tr>
<th>Type</th>
<th>Diameter Rd (mm)</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>165 MBL</td>
<td>Rd 8</td>
<td>100</td>
<td>7.679</td>
<td>5218616</td>
</tr>
</tbody>
</table>

Earth mats

- Copper
- To reduce the step and contact voltage
- In accordance with IEC 62561-2 and IEC 62305-3

<table>
<thead>
<tr>
<th>Type</th>
<th>Length (mm)</th>
<th>Width (mm)</th>
<th>Height (mm)</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1816 CU 6</td>
<td>600</td>
<td>600</td>
<td>3</td>
<td>1</td>
<td>403.000</td>
<td>5009250</td>
</tr>
<tr>
<td>1816 CU 9</td>
<td>900</td>
<td>900</td>
<td>3</td>
<td>1</td>
<td>605.000</td>
<td>5009256</td>
</tr>
</tbody>
</table>

Connection terminal for round cable

- Copper
- For connecting round conductor Rd 8-10
- With 1 hexagonal bolt M12 x 40, 1 hexagonal nut M12 and 1 lock washer, stainless steel

<table>
<thead>
<tr>
<th>Type</th>
<th>Diameter (mm)</th>
<th>Lightning current carrying capacity kA</th>
<th>Pack. pcs.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1818 FL CU</td>
<td>FL 20 ÷ FL 26</td>
<td>—</td>
<td>10</td>
<td>10.000</td>
<td>5012270</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Separating piece, open

**Type**

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Pack</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>223 O DIN ZN</td>
<td>Rd 8-10/16</td>
<td>20</td>
<td>12.500</td>
<td>5335140</td>
</tr>
</tbody>
</table>

- Die-cast zinc
- Electrogalvanised
- With 2 hexagonal bolts, stainless steel (VA)
- Clamping element, die-cast zinc

Separating piece, closed

**Type**

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Pack</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>223 DIN ZN</td>
<td>Rd 8-10/16</td>
<td>20</td>
<td>10.500</td>
<td>5335205</td>
</tr>
</tbody>
</table>

- Die-cast zinc
- Electrogalvanised
- For fitting round conductors Rd 8-10 to ground insertion rods Rd 16
- Including 2 hexagonal bolts, high-grade stainless steel (V2A)
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Separating piece, closed

**Type**

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Pack</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>223 DIN MS</td>
<td>Rd 8-10/16</td>
<td>10</td>
<td>11.700</td>
<td>5335236</td>
</tr>
</tbody>
</table>

- Die-cast zinc
- Copper-plated
- For fitting round conductors Rd 8-10 to ground insertion rods Rd 16
- Including 2 hexagonal bolts, high-grade stainless steel (V2A)
- Conforms to the requirements according to DIN VDE 0185-305 (IEC 62305)

Universal separating piece

**Type**

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Pack</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>226 B-10</td>
<td>Rd 8-10/FL30 x 16</td>
<td>20</td>
<td>8.600</td>
<td>5336007</td>
</tr>
</tbody>
</table>

- Steel
- Hot-dip galvanised
- For fitting round conductors Rd 8–10 to Rd 16 or flat conductors FL30
- Including 2 hexagonal bolts M8 x 20 high-grade stainless steel (V2A)
- Conforms to the requirements according to VDE 0185-305 (IEC 62305)
Universal separating piece

- **Type**: 226 VA
- **Fit**: Rd 8-10/FL30 x 16
- **Material**: Stainless steel, grade 304
- **Weight**: 8.700 kg/100 pcs.
- **Item No.**: 5336058

- For fitting round conductors Rd 8–10 to Rd 16 or flat conductors FL30
- Including 2 hexagonal bolts M8 x 20 high-grade stainless steel (V2A)
- Conforms to the requirements according to VDE 0185-305 (IEC 62305)

Universal separating piece

- **Type**: 226 CU
- **Fit**: Rd 8-10/FL30 x 16
- **Material**: Copper
- **Weight**: 9.700 kg/100 pcs.
- **Item No.**: 5336023

- For fitting round conductors Rd 8–10 to Rd 16 or flat conductors FL30
- Including 2 hexagonal bolts M8 x 20 high-grade stainless steel (V2A)
- Conforms to the requirements according to VDE 0185-305 (IEC 62305)

Universal bi-metal separating piece

- **Type**: 226 ZV VA
- **Fit**: Rd 8-10/FL30 x 16
- **Material**: Copper
- **Weight**: 11.000 kg/100 pcs.
- **Item No.**: 5336074

- **Type**: 226 ZV CU
- **Fit**: Rd 8-10/FL30 x 16
- **Material**: Stainless steel, grade 304
- **Weight**: 11.900 kg/100 pcs.
- **Item No.**: 5336090

- For fitting round conductors Rd 8–10 to Rd 16 or flat conductors FL30
- With 2 hexagonal bolts M8 x 20, stainless steel (VA)
- Intermediate plate, aluminium/copper

Separating piece for Rd 8–10 and FL 30 mm

- **Type**: 233 B
- **Fit**: Rd 8-10/FL30 x Rd 8-10/FL30
- **Material**: Steel
- **Weight**: 8.200 kg/100 pcs.
- **Item No.**: 5336309

- For fitting round conductors Rd 8–10 or flat conductors FL 30
- With 2 hexagonal bolts M8 x 20 made of rustproof steel (VA)
- Short-circuit current Ik (50 Hz), time 0.8 s, temp. max. 300 °C: 8.5 kA

Always indicate the item number when ordering.
Connection and separating terminals

Separating piece for Rd 8–10 and FL 30 mm

- For fitting round conductors Rd 8-10 or flat conductors FL 30
- With 2 hexagonal bolts M8 x 20, stainless steel (VA)

Bi-metal separating piece for Rd 8–10 and FL 30 mm

- For fitting round conductors Rd 8-10 to flat conductors FL 30
- With 2 hexagonal bolts M8 x 20, stainless steel (VA)
- Intermediate plate aluminium/copper, top section copper, bottom section stainless steel

Separating piece for Rd 8–10 and FL 30–40 mm

- Fit: Rd 8-10 x FL 30
- With 2 hexagonal bolts M8 x 20 (VA)

Bi-metal separating piece for Rd 8–10 and FL 30–40 mm

- Fit: Rd 8-10 x FL 30-40
- With 2 hexagonal bolts M8 x 20, stainless steel (VA)
- Intermediate plate, aluminium/copper
- Top section copper, bottom section stainless steel

Malleable iron separating piece

- For round conductor/flat conductor
- Fit: Rd 8-10 x FL 30
- With 2 hexagonal bolts M8 x 25 and 2 hexagonal nuts M8, stainless steel (VA)
- Clamping parts, hot-dip galvanised cast iron

Rod clamp

- Rod clamp for connecting round conductors Rd 8–10 to connector rods Rd 16
- Mounted with 2 hexagonal bolts M8 x 16 and M6 x 12
- Adapter from malleable iron
- Crossbar and bolts from hot dip galvanized steel

Always indicate the item number when ordering.
Connection clamp for earth rod or cables

- For earth rod connectors Ø 20 or conductors 95 mm²
- For round conductor attachments Rd 7-12.5 with hexagonal bolts M10 x 25, copper (Cu)

**Number plates**
- To identify the point of separation to DIN 48821
- Suitable for universal labelling (e.g. stamped numbers)

Always indicate the item number when ordering.
Air-termination/earth entry rod, rounded-off on both ends

<table>
<thead>
<tr>
<th>Type</th>
<th>Length mm</th>
<th>Nominal size Ø mm</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 A-1500</td>
<td>1500</td>
<td>16</td>
<td>240.000</td>
<td>10</td>
<td>5400155</td>
</tr>
<tr>
<td>Steel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>200 V4A-1500</td>
<td>1500</td>
<td>16</td>
<td>242.000</td>
<td>10</td>
<td>5420504</td>
</tr>
<tr>
<td>V4A Stainless steel, grade 316 Ti</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101 F1500</td>
<td>1500</td>
<td>16</td>
<td>240.000</td>
<td>10</td>
<td>5424151</td>
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<tr>
<td>Steel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Air-termination/earth entry rod with connection tabs

<table>
<thead>
<tr>
<th>Type</th>
<th>Length mm</th>
<th>Nominal size Ø mm</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 F1500</td>
<td>1500</td>
<td>16</td>
<td>240.000</td>
<td>10</td>
<td>5424151</td>
</tr>
<tr>
<td>101 F2000</td>
<td>2000</td>
<td>16</td>
<td>320.000</td>
<td>10</td>
<td>5424208</td>
</tr>
<tr>
<td>Steel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Connection lug/earth entry rod made of stainless steel

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø mm</th>
<th>Cross-section mm²</th>
<th>Weight kg/100 pcs.</th>
<th>Pack. pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AF RD 10 V4A</td>
<td>10</td>
<td>75</td>
<td>123.600</td>
<td>5</td>
<td>5430720</td>
</tr>
<tr>
<td>V4A Stainless steel, 316TI / 316L</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
### Earth entry rod, tapered and partially insulated

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>Nominal size Ø</th>
<th>Weight Pack. kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>204 KS-2000</td>
<td>2000</td>
<td>16/10</td>
<td>1</td>
<td>230.000</td>
</tr>
<tr>
<td>204 KS-2500</td>
<td>2500</td>
<td>16/10</td>
<td>1</td>
<td>310.000</td>
</tr>
</tbody>
</table>

- Steel
- Hot-dip galvanised
- 16 mm earth entry with 10 mm connection
- With mounted heat-shrinkable sleeve (corrosion protection)

### Earth entry rod with separating piece and connector

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Weight Pack. kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>204 KL-1500</td>
<td>Rd 8-10</td>
<td>10</td>
<td>260.700</td>
</tr>
</tbody>
</table>

- Steel
- With separating piece type 223 DIN and connector type 502 DIN

Always indicate the item number when ordering.
Accessories

Underfloor test box

- Type: 5700
- Material: Cast iron
- Item No.: 5106002
- Pack.: 1 pcs.
- Weight: 720.000 kg/100 pcs.

Without base
- Cast iron, painted black
- Without cut-off unit
- To VDE 0185-561-5 (IEC 62561-5) suitable for heavy loads (up to 40 kN/ 4.0 t)

Underfloor test box

- Type: 5700 CIP
- Material: Concrete
- Item No.: 5106041
- Pack.: 1 pcs.
- Weight: 3,000.000 kg/100 pcs.

Made of concrete
- Without separating piece
- According to VDE 0185-561-5 (IEC 62561-5)

Inspection pit with integrated separation piece

- Type: 5700 SP
- Material: Cast iron
- Item No.: 5106003
- Pack.: 1 pcs.
- Weight: 770.000 kg/100 pcs.

Without base
- Cast iron, painted black
- With built-in cut-off unit for round conductors Rd 8-10 and flat conductors to FL 40
- To VDE 0185-561-5 (IEC 62561-5) suitable for heavy loads (up to 40 kN/ 4.0 t)

Inspection door

- Type: 5800 VZ
- Material: Steel
- Item No.: 5106133
- Pack.: 1 pcs.
- Weight: 46.000 kg/100 pcs.

Lightweight design for flush-mounted separation points
- Claw length approx. 80 mm

Inspection door

- Type: 5800 VA
- Material: V2A Stainless steel, grade 304
- Item No.: 5106141
- Pack.: 1 pcs.
- Weight: 46.000 kg/100 pcs.

Lightweight design for flush-mounted separation points
- Claw length approx. 80 mm

Always indicate the item number when ordering.
Magnetic card PCS

Peak Current Sensor (PCS) card for recording pulsed/lightning currents. A continuous check of whether lightning has struck the lightning protection system and how high the most recent lightning current was in kA can thus be carried out in the simplest manner by the system operator, specialist lightning protection company or by a surveyor. Here, the printed maintenance circuit and the labelling panels support the maintenance work of the entire lightning protection system which must be performed at defined intervals according to VDE 0185-305-3 (IEC/EN 62305-3).

· Contents = 10 units
· Digital evaluation via the PCS card reading device
· Can be used in addition to the OBO lightning current meter LSC I+II
· With separate labelling panels: “Erected by”, “Tested by”, “Card code”
· Integrated maintenance circuit (year/month)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack.</th>
<th>Weight kg/100 PUs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCS</td>
<td>1</td>
<td>5.000</td>
<td>5091438</td>
</tr>
</tbody>
</table>

Magnetic card and holder MK-B

PCS magnetic card to record pulse/lightning currents including holder

· Holder can be leaded
· For mounting on round conductor Rd 8-10
· Simple holder mounting through clamping
· 1 PU = 10 units

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack.</th>
<th>Weight kg/100 PUs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MK-B</td>
<td>1</td>
<td>31.000</td>
<td>5091322</td>
</tr>
</tbody>
</table>

Magnetic card holder PCS-H

Magnetic card holder for mounting PCS cards.

· Sealable holder
· For installing on round conductor Rd 8-10
· Simple holder installation by means of clamp
· 1 PU = 10 pieces

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack.</th>
<th>Weight kg/100 PUs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCS-H</td>
<td>1</td>
<td>31.000</td>
<td>5091527</td>
</tr>
</tbody>
</table>

Card reader PCS-CS..

Magnetic card reader for reading and analysing PCS cards.

· Inc. rechargeable battery for 4 h continuous, no-mains operation
· Large, clear display

<table>
<thead>
<tr>
<th>Type</th>
<th>Country version</th>
<th>Nom. voltage V</th>
<th>Measuring range</th>
<th>Measuring tolerances</th>
<th>Pack.</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCS-CS-D</td>
<td>EN</td>
<td>230</td>
<td>3 - 120 kA</td>
<td>&lt; 2 kA (&lt; 2%)</td>
<td>1</td>
<td>750.000</td>
<td>5091683</td>
</tr>
<tr>
<td>PCS-CS-GB</td>
<td>GB</td>
<td>230</td>
<td>3 - 120 kA</td>
<td>&lt; 2 kA (&lt; 2%)</td>
<td>1</td>
<td>750.000</td>
<td>5091691</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Accessories

Lightning strike counter

The LSC I+II lightning current meter measures and permanently saves pulse currents, together with the date and time. This ensures constant monitoring in order to notice if any lightning has struck the lightning protection system. Should this be the case, then the lightning protection system must be maintained according to VDE 0185-305 (IEC 62305).

- Saving and display of time and date
- Usable both inside and outside due to its protection class of IP65
- Cable clip for round conductor or flat conductor
- Direct mounting on the conductor or the PE conductor of the surge protection device
- Long lifespan of the internal lithium batteries
- LCD display
- Internal battery
- Tested according to VDE 0185-561-6 (IEC 62561-6)

<table>
<thead>
<tr>
<th>Type</th>
<th>Measuring range</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSC I+II</td>
<td>1 kA - 100 kA</td>
<td>1</td>
<td>32.500</td>
<td>5091722</td>
</tr>
</tbody>
</table>

Plastic

The LSC I+II lightning current meter measures and permanently saves pulse currents, together with the date and time. This ensures constant monitoring in order to notice if any lightning has struck the lightning protection system. Should this be the case, then the lightning protection system must be maintained according to VDE 0185-305 (IEC 62305).

- Saving and display of time and date
- Usable both inside and outside due to its protection class of IP65
- Cable clip for round conductor or flat conductor
- Direct mounting on the conductor or the PE conductor of the surge protection device
- Long lifespan of the internal lithium batteries
- LCD display
- Internal battery
- Tested according to VDE 0185-561-6 (IEC 62561-6)

<table>
<thead>
<tr>
<th>Plastic</th>
<th>Width</th>
<th>Length</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
</table>
| PETROLATUM

Plastic corrosion protection strip

- Approx. 1.1 mm thick
- Width: 50 mm or 100 mm, made of petrolatum-coated chemical fibre fabric
- Can be processed cold

<table>
<thead>
<tr>
<th>Type</th>
<th>Width</th>
<th>Length</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>356 50</td>
<td>50</td>
<td>10</td>
<td>1</td>
<td>71.500</td>
<td>2360055</td>
</tr>
<tr>
<td>356 100</td>
<td>100</td>
<td>10</td>
<td>1</td>
<td>122.200</td>
<td>2360101</td>
</tr>
</tbody>
</table>

Zinc repairs


<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZSF</td>
<td>400ml</td>
<td>1</td>
<td>45.000</td>
<td>2362970</td>
</tr>
</tbody>
</table>

TrayFix mounting adapter for mesh cable trays on FangFix system

- Mounting system for the fastening of mesh cable trays and cable trays on FangFix stone e.g. cable routing on a flat roof.
- Adapted to OBO cable tray systems MKSM, SKSM and IKSM
- Adapted to OBO mesh cable tray systems with a minimum width of 100 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TrayFix</td>
<td>ø20 mm</td>
<td>25</td>
<td>9.850</td>
<td>5403100</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Angler spreading anchor

Required minimum bolt length = anchor length + component thickness + 1 x bolt Ø.
Withdrawal force applies to wood screws of the largest bolt diameter in concrete of class B25.
Our safety value recommendation: 5x

Screw-in anchor with M6 thread

With wood screw shank and M6 thread.

Screw-in anchor with M8 thread

With wood screw shank and M8 thread.

Directional irons

• Directional iron for bending and aligning conductors

Wire straightening machine

• Factory-set for round conductor Rd 8
• Structure, steel, painted
• Straightening rolls, galvanised cast iron

Always indicate the item number when ordering.
<table>
<thead>
<tr>
<th>Insulated lightning protection</th>
<th>579</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBO isCon® system</td>
<td>587</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
## Insulated lightning protection

### Set

<table>
<thead>
<tr>
<th>Type</th>
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<th>Page</th>
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<tbody>
<tr>
<td>101 3-ES-16</td>
<td>5408976</td>
<td>579</td>
</tr>
<tr>
<td>101 VS-16</td>
<td>5408978</td>
<td>579</td>
</tr>
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<td>101 FS-16</td>
<td>5408980</td>
<td>579</td>
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<td>101 VRS-16</td>
<td>5408982</td>
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### Connector

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>101 Tl</td>
<td>5408156</td>
<td>580</td>
</tr>
<tr>
<td>101 Ik</td>
<td>5408298</td>
<td>580</td>
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<tr>
<td>101 Idk</td>
<td>5408245</td>
<td>580</td>
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<tr>
<td>101 Ilw-M10</td>
<td>5408687</td>
<td>580</td>
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<td>101 Ies</td>
<td>5408393</td>
<td>581</td>
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<tr>
<td>101 A-M16</td>
<td>5408250</td>
<td>581</td>
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<tr>
<td>101 IAg</td>
<td>5408504</td>
<td>581</td>
</tr>
<tr>
<td>101 IGL-16</td>
<td>5408630</td>
<td>581</td>
</tr>
<tr>
<td>101 IV-16</td>
<td>5408557</td>
<td>582</td>
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### Concrete blocks

<table>
<thead>
<tr>
<th>Type</th>
<th>Item no.</th>
<th>Page</th>
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<tbody>
<tr>
<td>101 B2-16</td>
<td>5402958</td>
<td>507</td>
</tr>
<tr>
<td>16 M16</td>
<td>5402958</td>
<td>507</td>
</tr>
<tr>
<td>101 Tl</td>
<td>5402911</td>
<td>507</td>
</tr>
<tr>
<td>F-FIX-S16</td>
<td>5403227</td>
<td>504</td>
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<td>F-FIX-B16</td>
<td>5403235</td>
<td>505</td>
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<td>F-FIX-T10</td>
<td>5403177</td>
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### Fastening

<table>
<thead>
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<tbody>
<tr>
<td>101 BP-16</td>
<td>5408984</td>
<td>583</td>
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<tr>
<td>101 WG-16</td>
<td>5408986</td>
<td>583</td>
</tr>
<tr>
<td>101 BB-16</td>
<td>5408988</td>
<td>583</td>
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<tr>
<td>101 HV-16</td>
<td>5408990</td>
<td>583</td>
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<tr>
<td>101 F-16</td>
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<tr>
<td>101 M-16</td>
<td>5408994</td>
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### isCon® air-termination rod systems

#### Mast, without outlet

<table>
<thead>
<tr>
<th>Length</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0 m</td>
<td>5408934</td>
<td>514</td>
</tr>
<tr>
<td>6.0 m</td>
<td>5408936</td>
<td>514</td>
</tr>
<tr>
<td>8.0</td>
<td>5408868</td>
<td>514</td>
</tr>
<tr>
<td>10.0 m</td>
<td>5408870</td>
<td>514</td>
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</tbody>
</table>

#### Support system for mast without outlet

<table>
<thead>
<tr>
<th>Mounting</th>
<th>Item no.</th>
<th>Page</th>
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<tbody>
<tr>
<td>Wall</td>
<td>5408952</td>
<td>514</td>
</tr>
<tr>
<td>Wall</td>
<td>5408954</td>
<td>514</td>
</tr>
<tr>
<td>Wall</td>
<td>5408910</td>
<td>515</td>
</tr>
<tr>
<td>Pipe</td>
<td>5408956</td>
<td>515</td>
</tr>
<tr>
<td>Pipe</td>
<td>5408955</td>
<td>515</td>
</tr>
<tr>
<td>Pipe</td>
<td>5408957</td>
<td>515</td>
</tr>
<tr>
<td>Pipe</td>
<td>5408958</td>
<td>515</td>
</tr>
<tr>
<td>Corner pipe</td>
<td>5408964</td>
<td>516</td>
</tr>
</tbody>
</table>

#### Stand, with outlet

<table>
<thead>
<tr>
<th>Spr.</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 m</td>
<td>5408930</td>
<td>512</td>
</tr>
<tr>
<td>1.5 m</td>
<td>5408932</td>
<td>512</td>
</tr>
<tr>
<td>2.5 m</td>
<td>5408902</td>
<td>512</td>
</tr>
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</table>

#### Mast

<table>
<thead>
<tr>
<th>Length</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0 m</td>
<td>5408943</td>
<td>511</td>
</tr>
<tr>
<td>6.0 m</td>
<td>5408947</td>
<td>511</td>
</tr>
<tr>
<td>4.0 m</td>
<td>5408942</td>
<td>511</td>
</tr>
<tr>
<td>6.0 m</td>
<td>5408946</td>
<td>511</td>
</tr>
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</table>

#### Stand

<table>
<thead>
<tr>
<th>Spr.</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 m</td>
<td>5408986</td>
<td>511</td>
</tr>
<tr>
<td>1.5 m</td>
<td>5408967</td>
<td>511</td>
</tr>
<tr>
<td>1.0 m</td>
<td>5408968</td>
<td>511</td>
</tr>
<tr>
<td>1.5 m</td>
<td>5408969</td>
<td>511</td>
</tr>
</tbody>
</table>

#### Connection plates

<table>
<thead>
<tr>
<th>Spr.</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>5408036</td>
<td>596</td>
</tr>
<tr>
<td>3</td>
<td>5408029</td>
<td>596</td>
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</table>

#### Accessories

<table>
<thead>
<tr>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tool</td>
<td>5408013 568</td>
</tr>
<tr>
<td>Cable tie</td>
<td>2381924</td>
</tr>
<tr>
<td>Spacer</td>
<td>5408043 592</td>
</tr>
<tr>
<td>Concrete block</td>
<td>5403227 504</td>
</tr>
<tr>
<td>Threaded rod</td>
<td>5408715 513</td>
</tr>
<tr>
<td>Threaded rod</td>
<td>5408725 513</td>
</tr>
<tr>
<td>Threaded rod</td>
<td>5408735 513</td>
</tr>
<tr>
<td>Threaded rod</td>
<td>5408905 513</td>
</tr>
<tr>
<td>Basic</td>
<td>5409238 513</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
isCon® lightning protection

### Professional Plus

<table>
<thead>
<tr>
<th>Ring size</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 m</td>
<td>5408002</td>
<td>587</td>
</tr>
<tr>
<td>100 m</td>
<td>5408004</td>
<td>587</td>
</tr>
<tr>
<td>250 m</td>
<td>5408006</td>
<td>587</td>
</tr>
</tbody>
</table>

### Professional Plus light grey

<table>
<thead>
<tr>
<th>Ring size</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 m</td>
<td>5407995</td>
<td>587</td>
</tr>
<tr>
<td>100 m</td>
<td>5407997</td>
<td>587</td>
</tr>
</tbody>
</table>

### Premium

<table>
<thead>
<tr>
<th>Ring size</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 m</td>
<td>5408018</td>
<td>587</td>
</tr>
</tbody>
</table>

### Professional

<table>
<thead>
<tr>
<th>Ring size</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 m</td>
<td>5408008</td>
<td>588</td>
</tr>
</tbody>
</table>

### Basic

<table>
<thead>
<tr>
<th>Ring size</th>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 m</td>
<td>5408014</td>
<td>588</td>
</tr>
</tbody>
</table>

### Connection elements

<table>
<thead>
<tr>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rd 10</td>
<td>5408022</td>
</tr>
<tr>
<td>M 1s</td>
<td>5408024</td>
</tr>
</tbody>
</table>

### Potential connection

<table>
<thead>
<tr>
<th>Item no.</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clip</td>
<td>5408036</td>
</tr>
<tr>
<td>Holder</td>
<td>5408056</td>
</tr>
<tr>
<td>Holder</td>
<td>5408064</td>
</tr>
<tr>
<td>Clip</td>
<td>5057599</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
The plus of insulated lightning protection

- Variable combination of components
- Multifunctional
- For conductors and insulation rods
- For maintenance of the separation distance to VDE 0185-305 (IEC 62305)

Isolated lightning protection systems allow standard-compliant lightning protection according to IEC 62305. The separation distance to electronic systems required by the standard can be maintained by the different versions of the insulated lightning protection. The individual components and systems allow the creation of different solutions, according to requirements.

The insulated lightning protection system consists of GFK rods with a diameter of 16 or 20 mm:

- There is a comprehensive range of system accessories available for both variants.
- Two material thicknesses
- Can be obtained as a set for different applications

Always indicate the item number when ordering.
Insulated lightning protection set, 3-corner fastening

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Dimension L mm</th>
<th>Dimension H mm</th>
<th>Weight Pack. kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 3-ES-16</td>
<td>16</td>
<td>750</td>
<td>1500</td>
<td>1</td>
<td>207.100</td>
</tr>
</tbody>
</table>

3-corner fastening for an insulated air-termination unit at the separating distance s.

- Mounting on walls and roof structures with two fastening plates
- For maintenance of the separation distance to electrically conductive parts according to VDE 0185-305-3 (IEC 62305-3)
- Acceptance of air-termination rods and round conductors with 8, 16 and 20 mm diameter
- UV-stabilised and weatherproof
- Continuous temperature range -50°C to +100°C
- Material factor km = 0.7

Insulated lightning protection set, V fastening

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Dimension L mm</th>
<th>Weight Pack. kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 VS-16</td>
<td>16</td>
<td>750</td>
<td>1</td>
<td>201.800</td>
</tr>
</tbody>
</table>

V fastening for an insulated air-termination unit at the separating distance s.

- Mounting on walls and roof structures with two wall connection brackets
- For maintenance of the separation distance to electrically conductive parts according to VDE 0185-305-3 (IEC 62305-3)
- Acceptance of air-termination rods and round conductors with 8, 16 and 20 mm diameter
- UV-stabilised and weatherproof
- Continuous temperature range -50°C to +100°C
- Material factor km = 0.7

Insulated lightning protection set, IR fastening

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Dimension L mm</th>
<th>Weight Pack. kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 FS-16</td>
<td>16</td>
<td>750</td>
<td>1</td>
<td>235.500</td>
</tr>
</tbody>
</table>

Fold fastening for an insulated air-termination unit at the separating distance s.

- Mounting on folds with a thickness of up to 20 mm
- For maintenance of the separation distance to electrically conductive parts according to VDE 0185-305-3 (IEC 62305-3)
- Acceptance of air-termination rods and round conductors with 8, 16 and 20 mm diameter
- UV-stabilised and weatherproof
- Continuous temperature range -50°C to +100°C
- Material factor km = 0.7

Insulated lightning protection set, VRS fastening

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Dimension L mm</th>
<th>Weight Pack. kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 VRS-16</td>
<td>16</td>
<td>750</td>
<td>1</td>
<td>209.400</td>
</tr>
</tbody>
</table>

Pipe V fastening for an insulated air-termination unit at the separating distance s.

- Mounting on pipes with two pipe clips
- Including 2 m tightening strip and tension jack
- For maintenance of the separation distance to electrically conductive parts according to VDE 0185-305-3 (IEC 62305-3)
- Acceptance of air-termination rods and round conductors with 8, 16 and 20 mm diameter
- UV-stabilised and weatherproof
- Continuous temperature range -50°C to +100°C
- Material factor km = 0.7

Always indicate the item number when ordering.
## Insulating rod

For the erection of insulated air-termination systems to VDE 0185-305 (IEC 62305)
- UV-stabilised and weatherproof
- Continuous temperature range -50°C to +100°C
- Material factor km = 0.7

### Insulating rod Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø</th>
<th>Length mm</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 20-3000</td>
<td>20</td>
<td>3000</td>
<td>190.000</td>
<td>5408105</td>
</tr>
<tr>
<td>101 20-6000</td>
<td>20</td>
<td>6000</td>
<td>380.000</td>
<td>5408148</td>
</tr>
<tr>
<td>101 16-750</td>
<td>16</td>
<td>750</td>
<td>30.000</td>
<td>5408107</td>
</tr>
<tr>
<td>101 16-1500</td>
<td>16</td>
<td>1500</td>
<td>60.000</td>
<td>5408108</td>
</tr>
<tr>
<td>101 16-3000</td>
<td>16</td>
<td>3000</td>
<td>120.000</td>
<td>5408109</td>
</tr>
</tbody>
</table>

### GFK Fibre-glass-reinforced plastic

- For the erection of insulated air-termination systems to VDE 0185-305 (IEC 62305)
- UV-stabilised and weatherproof
- Continuous temperature range -50°C to +100°C
- Material factor km = 0.7

## T connector

T connector for installation of insulating rods
- With M10 bolts

### T connector Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension d Ø mm</th>
<th>Length mm</th>
<th>Dimension D Ø mm</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 IT</td>
<td>20</td>
<td>65</td>
<td>40</td>
<td>20.000</td>
<td>5408196</td>
</tr>
<tr>
<td>101 IT-16</td>
<td>16</td>
<td>60</td>
<td>30</td>
<td>11.475</td>
<td>5408198</td>
</tr>
</tbody>
</table>

### T connector Material

- Aluminium

## K connector

K connector for installation of insulating rods
- With M10 bolts

### K connector Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension d Ø mm</th>
<th>Length mm</th>
<th>Dimension D Ø mm</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 IK</td>
<td>20</td>
<td>100</td>
<td>40</td>
<td>20.000</td>
<td>5408296</td>
</tr>
<tr>
<td>101 IK-16</td>
<td>16</td>
<td>100</td>
<td>30</td>
<td>17.500</td>
<td>5408298</td>
</tr>
</tbody>
</table>

### K connector Material

- Aluminium

## DK connector

DK connector link for installing insulating rods
- With M10 bolts

### DK connector Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension d Ø mm</th>
<th>Length mm</th>
<th>Dimension D Ø mm</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 IDK</td>
<td>20</td>
<td>125</td>
<td>40</td>
<td>40.000</td>
<td>5408245</td>
</tr>
</tbody>
</table>

### DK connector Material

- Aluminium

## Wall connection

For mounting insulating rods to structures or walls
- With M8 internal thread, e.g. for mounting the cable bracket type 177 (5207347) for loose conductor routing of round conductors
- With M10 bolts

### Wall connection Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension d Ø mm</th>
<th>Length mm</th>
<th>Dimension D Ø mm</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 IW-M10</td>
<td>20</td>
<td>60</td>
<td>40</td>
<td>20.000</td>
<td>5408687</td>
</tr>
<tr>
<td>101 W-M10</td>
<td>16</td>
<td>60</td>
<td>30</td>
<td>14.200</td>
<td>5408689</td>
</tr>
</tbody>
</table>

### Wall connection Material

- Aluminium

Always indicate the item number when ordering.
### End piece

- End piece for attaching round conductors Rd 8-10 and air-termination tips, type 101 ISP
- With M10 internal thread, e.g. for mounting a Vario quick connector for fixed conductor routing at intersections
- With M10 bolts

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension d Ø</th>
<th>Length</th>
<th>Dimension D</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 IES</td>
<td>20</td>
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<td>35</td>
<td>10</td>
<td>20.000</td>
<td>5408393</td>
</tr>
<tr>
<td>101 IES-16</td>
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<td>60</td>
<td>30</td>
<td>10</td>
<td>10.000</td>
<td>5408395</td>
</tr>
</tbody>
</table>

**Aluminium**

### Connection piece

- Fitting with M16 thread
- For mounting on stands with M16 female thread such as type 101 (5402891, 5402958)
- With M10 bolts

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension d Ø</th>
<th>Length</th>
<th>Dimension D</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 A-M16</td>
<td>20</td>
<td>60</td>
<td>40</td>
<td>10</td>
<td>20.000</td>
<td>5408350</td>
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<tr>
<td>101 A-16</td>
<td>16</td>
<td>60</td>
<td>30</td>
<td>10</td>
<td>13.000</td>
<td>5408352</td>
</tr>
</tbody>
</table>

**Aluminium**

### Stand 16 kg with female thread

- Weight 16 kg
- Frost-resistant concrete
- Female thread M16
- Recommended air-termination rod length max. 3.0 m, depending on wind load zone

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø</th>
<th>Thread</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 B2-16 M16</td>
<td>364</td>
<td>M16</td>
<td>1</td>
<td>1.600.000</td>
<td>5402958</td>
</tr>
</tbody>
</table>

**Concrete**

### Stand 6.9 kg with female thread

- Weight 6.9 kg
- Frost-resistant concrete
- Female thread M16
- Recommended air-termination rod length max. 1.0 m

<table>
<thead>
<tr>
<th>Type</th>
<th>Thread</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 ST</td>
<td>M16</td>
<td>4</td>
<td>690.000</td>
<td>5402991</td>
</tr>
</tbody>
</table>

**Concrete**

### Connection joint

- Attaching link for installation on concrete stones
- With thread M16 on slanting roof surfaces
- With M10 bolts

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension d Ø</th>
<th>Length</th>
<th>Dimension D</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 IAG</td>
<td>20</td>
<td>107</td>
<td>40</td>
<td>10</td>
<td>40.000</td>
<td>5408504</td>
</tr>
</tbody>
</table>

**Aluminium**

### Articulated connector

- Link for installation of insulation pipes, including M10 screws.

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension d Ø</th>
<th>Length</th>
<th>Dimension D</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 IGL-16</td>
<td>16</td>
<td>127</td>
<td>30</td>
<td>10</td>
<td>32.000</td>
<td>5408630</td>
</tr>
</tbody>
</table>

**Aluminium**

Always indicate the item number when ordering.
**Extension**

- Extension of insulating rods
- With M10 bolts

### Aluminum

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimen-</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 IV-16</td>
<td>Ø 16</td>
<td>0.000</td>
<td>5408557</td>
</tr>
</tbody>
</table>

**FangFix reducing sleeve**

- Polyamide

<table>
<thead>
<tr>
<th>Type</th>
<th>Colour</th>
<th>Fit</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 RH-16</td>
<td>Black</td>
<td>16</td>
<td>0.182</td>
<td>5408101</td>
</tr>
</tbody>
</table>

Reduces the drill hole of the FangFix block from Ø 20 mm to Ø 16 mm. Suitable for the installation of GFK insulating rods of Ø 16 mm.

**Concrete block for FangFix-System 16 kg**

- 16 kg stone of Ø 365 mm, high level of stability
- Frost-resistant concrete
- Stackable

### Concrete

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-FIX-S16</td>
<td>Ø 365</td>
<td>1.700.000</td>
<td>5403227</td>
</tr>
</tbody>
</table>

**Base for FangFix system 16 kg**

- Polypropylene

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-FIX-B16</td>
<td>Ø 373</td>
<td>16.400</td>
<td>5403235</td>
</tr>
</tbody>
</table>

Edge protection with integrated dowel (basic) suitable for FangFix system.

**Concrete block for FangFix system 10 kg**

- 10 kg stone of Ø 289 mm, high level of stability
- Frost-resistant concrete
- Stackable

### Concrete

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-FIX-S10</td>
<td>Ø 289</td>
<td>1.000.000</td>
<td>5403117</td>
</tr>
</tbody>
</table>

**Base for FangFix system 10 kg**

- Polypropylene

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-FIX-B10</td>
<td>Ø 295</td>
<td>7.600</td>
<td>5403124</td>
</tr>
</tbody>
</table>

Edge protection with integrated dowel (basic) suitable for FangFix 10 system.

Always indicate the item number when ordering.
Fastening plate

To mount insulating rods on constructions or walls

Plate made of VA stainless steel
Holder and crosspiece for 16 and 20 mm rods and Rd 8–10 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>Dimen-</th>
<th>Dimen-</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 BP-16</td>
<td>175</td>
<td>40</td>
<td>42</td>
<td>1</td>
<td>21.200</td>
<td>5408984</td>
</tr>
</tbody>
</table>

Wall connection, angled

• Wall connection for GFK rods
• Dimension D Ø: 16 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimen-</th>
<th>Dimen-</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 WG-16</td>
<td>16</td>
<td>110</td>
<td>30</td>
<td>1</td>
<td>27.960</td>
</tr>
</tbody>
</table>

Fastening bolts

For GFK rods, Dimension D Ø: 16 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimen-</th>
<th>Dimen-</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 BB-16</td>
<td>16</td>
<td>40</td>
<td>30</td>
<td>1</td>
<td>13.920</td>
</tr>
</tbody>
</table>

Holder, V support

• Rod holder to accept two GRP rods
• Bracket and crossbar for 16 and 20 mm rods and Rd 8-10 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimen-</th>
<th>Dimen-</th>
<th>Dimen-</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 HV-16</td>
<td>16</td>
<td>90</td>
<td>55</td>
<td>48</td>
<td>50.700</td>
<td>5408990</td>
</tr>
</tbody>
</table>

Fold fastening

To fasten a GFK rod on constructions of 4 to 20 mm, Dimension D Ø: 16 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimen-</th>
<th>Dimen-</th>
<th>Dimen-</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 F-16</td>
<td>16</td>
<td>121</td>
<td>30</td>
<td>1</td>
<td>45.120</td>
<td>5408992</td>
</tr>
</tbody>
</table>

Pipe fastening

• For pipe fastening of a GRP rod using a tightening strap
• Slot width (l x w) 17 x 6 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimen-</th>
<th>Dimen-</th>
<th>Dimen-</th>
<th>Pack.</th>
<th>Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 R-16</td>
<td>16</td>
<td>81</td>
<td>30</td>
<td>96</td>
<td>26.830</td>
<td>5408994</td>
</tr>
</tbody>
</table>
Multi adapter

- Connector for two GFK rods
- Dimension D Ø: 16 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 MA-16</td>
<td>1</td>
<td>36.280</td>
<td>5408996</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304

Rod holder

- Installed with over-piece and hex-head screws M6 x 16
- With female thread M8 or through hole Ø 7 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>113 Z-20</td>
<td>Rd 20</td>
<td>20</td>
<td>8.200</td>
<td>5230527</td>
</tr>
</tbody>
</table>

Zn Die-cast zinc
VZ Galvanised

Air-termination tip

Air-termination tip for attaching to end piece, type 101 IES, with M10 thread

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 ISP M10</td>
<td>110</td>
<td>10</td>
<td>10.000</td>
<td>5408458</td>
</tr>
</tbody>
</table>

Aluminium

Water repellent

Water repellent for mounting on insulation rods with d = 20 mm

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 IAB</td>
<td>18</td>
<td>10</td>
<td>2.000</td>
<td>5408733</td>
</tr>
</tbody>
</table>

Aluminium

Adjustable insulating beam – pipe

- Infinitely adjustable distance range (L = 550–1,000 mm)
- Made of fibre-glass-reinforced plastic (km = 0.7)
- For pipe mounting (including 2 m tightening strap and tension jack)

<table>
<thead>
<tr>
<th>Type</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISAV1000R</td>
<td>130.000</td>
<td>5408849</td>
</tr>
</tbody>
</table>

GFK Fibre-glass-reinforced plastic

Always indicate the item number when ordering.
Adjustable insulating beam – wall

Variable spacer for conductors and air-termination rods to maintain the separation distance.

- Infinitely adjustable distance range
  \(L = 550\text{--}1,000\ \text{mm}\)
- Made of fibre-glass-reinforced plastic \((\varepsilon_m = 0.7)\)
- For wall mounting with 10 fastening holes (4.2 mm) and 4 fastening holes (6.9 mm)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISAV1000W</td>
<td>1</td>
<td>130.000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Material</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GFK</td>
<td>5408852</td>
</tr>
</tbody>
</table>

Insulated spacer

- Mounting foot with 10 connection holes Ø 6.5 mm and 4 connection holes Ø 8.5 mm
- Type ISO-A-150 8 with holder suitable for round conductor RD 8
- Application for shelters e.g. golf, barbecue or mountain huts

<table>
<thead>
<tr>
<th>Type</th>
<th>Length (mm)</th>
<th>Fit (mm)</th>
<th>Pack.</th>
<th>Weight kg/100 pcs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO-A-500</td>
<td>500</td>
<td>Rd 16</td>
<td>15</td>
<td>36.000</td>
</tr>
<tr>
<td>ISO-A-800</td>
<td>800</td>
<td>Rd 16</td>
<td>15</td>
<td>55.000</td>
</tr>
<tr>
<td>ISO-A-1030</td>
<td>1030</td>
<td>Rd 16</td>
<td>15</td>
<td>68.000</td>
</tr>
<tr>
<td>ISO-A-150 8</td>
<td>150</td>
<td>Rd 8</td>
<td>15</td>
<td>13.800</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Material</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al</td>
<td>5408806</td>
</tr>
<tr>
<td>PA</td>
<td>5408814</td>
</tr>
<tr>
<td>PA</td>
<td>5408820</td>
</tr>
<tr>
<td>PA</td>
<td>5408800</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
The plus of the isCon® system

+ Unique structure
+ Equivalent separation distance ≤ 0.90 m (air)
  or ≤ 1.8 m (solid material)
+ isCon® air-termination rods fulfil the requirements
  to Eurocode 1 system test according to IEC TS 62564-8
+ Suitable for all lightning protection classes
+ Satisfies requirements according to VDE 0185-561-1/-2/-8
+ Satisfies requirements according to IEC 62561-1/-2/-8

Insulated conductors are used in the field of external lightning protection to reduce or avoid the separation distance according to VDE 0185-305 (IEC 62305). isCon® creates an equivalent separation distance of 0.90 m in air.

In contrast to standard shielded medium-voltage conductors with a metallic shield, insulated down conductors possess a weakly conductive jacket for field control, de-energising the high voltage in the area of the supply point. This thus prevents arcing via the conductor jacketing of the insulated conductor. After the first potential connection of the conductor jacket, the insulated conductor secures the specified equivalent separation distance.

The insulated air-termination rods protect electrical and metallic roof structures, taking the calculated separating distance (s) according to VDE 0185-305-3 (IEC 62305-3) into account. An insulated section of 1.5 metres made of fibre-glass reinforced plastic (GFK) ensures sufficient distance to all roof structures. Even complex building structures can be protected by the comprehensive system accessor- ies.

The three-part aluminium and GRP air-termination rod with its insulated structure allows the isCon® conductor (black and light grey) to be routed inside the air-termination rod. Combining a perfect appearance with perfect functionality, it offers the following advantages:

- Tidy appearance through internal isCon® conductor
- 4 variants: 4 m to 10 m height
- Including connection element and potential connection in the rod
- For freestanding installation, can be combined with isFang air-termination rod stand with side exit

Always indicate the item number when ordering.
isCon® arrester, professional plus black

Please refer to the mounting instructions for information on routing the OBO isCon® conductor.

- Highly voltage-resistant, insulated conductor
- Floating discharge-free
- Additional mechanical protection (black protective jacket)
- For maintenance of the separation distance according to IEC 62305 (VDE 0185-305-3)
- Tested according to IEC/EN 62561-1 (VDE 0185-561-1) with H1/150 kA
- Equivalent separation distance $se \leq 0.75$ m (air) and $se \leq 1.5$ (solid material)
- Tested according to IEC TS 62561-8
- Halogen-free
- Fire load 4.3 kWh/m
- Can be used in potentially explosive areas Ex zone 1/2 and 21/22 when taking the current mounting instructions into account

<table>
<thead>
<tr>
<th>Type</th>
<th>Cross-section mm²</th>
<th>Nominal size Ø mm</th>
<th>Equivalent separation distance m</th>
<th>Pack, m</th>
<th>Weight kg/100 m</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isCon Pro+ 75 SW</td>
<td>35</td>
<td>23</td>
<td>0.75</td>
<td>25</td>
<td>69.400</td>
<td>5408002</td>
</tr>
<tr>
<td>isCon Pro+ 75 SW</td>
<td>35</td>
<td>23</td>
<td>0.75</td>
<td>100</td>
<td>69.400</td>
<td>5408004</td>
</tr>
<tr>
<td>isCon Pro+ 75 SW</td>
<td>35</td>
<td>23</td>
<td>0.75</td>
<td>250</td>
<td>69.400</td>
<td>5408006</td>
</tr>
</tbody>
</table>

Please refer to the mounting instructions for information on routing the OBO isCon® conductor.

- Highly voltage-resistant, insulated conductor
- Floating discharge-free
- Additional mechanical protection (double protective jacket)
- For maintenance of the separation distance according to IEC 62305 (VDE 0185-305-3)
- Tested according to IEC/EN 62561-1 (VDE 0185-561-1) with H1/150 kA
- Equivalent separation distance $se \leq 0.75$ m (air) and $se \leq 1.5$ (solid material)
- Tested according to IEC TS 62561-8
- Halogen-free
- Fire load 5.1 kWh/m
- Protection against contact voltage under sprinkling (VDE 0432-1 (IEC/EN 60060-1)
- Can be used in potentially explosive areas Ex zone 1/2 and 21/22 when taking the current mounting instructions into account

<table>
<thead>
<tr>
<th>Type</th>
<th>Cross-section mm²</th>
<th>Nominal size Ø mm</th>
<th>Equivalent separation distance m</th>
<th>Pack, m</th>
<th>Weight kg/100 m</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isCon Pro+ 75 GR</td>
<td>35</td>
<td>26</td>
<td>0.75</td>
<td>25</td>
<td>86.800</td>
<td>5407995</td>
</tr>
<tr>
<td>isCon Pro+ 75 GR</td>
<td>35</td>
<td>26</td>
<td>0.75</td>
<td>100</td>
<td>86.800</td>
<td>5407997</td>
</tr>
</tbody>
</table>

Please refer to the mounting instructions for information on routing the OBO isCon® conductor.

- Highly voltage-resistant, insulated conductor
- Floating discharge-free
- Additional mechanical protection (double protective jacket)
- For maintenance of the separation distance according to IEC 62305 (VDE 0185-305-3)
- Tested according to IEC/EN 62561-1 (VDE 0185-561-1) with H2/200 kA
- Equivalent separation distance $se \leq 0.90$ m (air) and $se \leq 1.8$ m (solid material)
- Tested according to IEC TS 62561-8
- Halogen-free
- Fire load 4.2 kWh/m

<table>
<thead>
<tr>
<th>Type</th>
<th>Cross-section mm²</th>
<th>Nominal size Ø mm</th>
<th>Equivalent separation distance m</th>
<th>Pack, m</th>
<th>Weight kg/100 m</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isCon PR 90 SW</td>
<td>35</td>
<td>23</td>
<td>0.9</td>
<td>100</td>
<td>66.600</td>
<td>5408018</td>
</tr>
</tbody>
</table>

Please refer to the mounting instructions for information on routing the OBO isCon® Premium conductor.

- Highly voltage-resistant, insulated conductor
- Floating discharge-free
- Tested according to IEC/EN 62561-1 (VDE 0185-561-1) with H2/200 kA
- Equivalent separation distance $se \leq 0.90$ m (air) and $se \leq 1.8$ m (solid material)
- Tested according to IEC TS 62561-8
- Halogen-free
- Fire load 4.2 kWh/m

Always indicate the item number when ordering.
## isCon® conductor, professional black

*Highly voltage-resistant, insulated conductor*
*Floating discharge-free*
*For maintenance of the separation distance according to IEC 62305 (VDE 0185-305-3)*
*Tested according to IEC/EN 62561-1 (VDE 0185-561-1) with H1/150 kA*
*Equivalent separation distance $s_e \leq 0.75$ m (air) and $s_e \leq 1.5$ m (solid material)*
*Tested according to IEC TS 62561-8*
*Halogen-free*
*Fire load 3.3 kWh/m*  

<table>
<thead>
<tr>
<th>Type</th>
<th>Cross-section mm²</th>
<th>Nominal size Ø mm</th>
<th>Equivalent separation distance m</th>
<th>Pack. m</th>
<th>Weight kg/100 m</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isCon Pro 75 SW</td>
<td>35</td>
<td>20</td>
<td>0.75</td>
<td>100</td>
<td>57.000</td>
<td>5408008</td>
</tr>
</tbody>
</table>

Please refer to the mounting instructions for information on routing the OBO isCon® Pro conductor.

## isCon® conductor, basic black

*Highly voltage-resistant, insulated conductor*
*For maintenance of the separation distance according to IEC 62305 (VDE 0185-305-3)*
*Tested according to IEC/EN 62561-1 (VDE 0185-561-1) with H1/150 kA*
*Equivalent separation distance $s_e \leq 0.45$ m (air) and $s_e \leq 0.90$ m (solid material)*
*Tested according to IEC TS 62561-8*
*Halogen-free*
*Fire load 3.3 kWh/m*  

<table>
<thead>
<tr>
<th>Type</th>
<th>Cross-section mm²</th>
<th>Nominal size Ø mm</th>
<th>Equivalent separation distance m</th>
<th>Pack. m</th>
<th>Weight kg/100 m</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isCon BA 45 SW</td>
<td>35</td>
<td>20</td>
<td>0.45</td>
<td>100</td>
<td>57.000</td>
<td>5408014</td>
</tr>
</tbody>
</table>

Please refer to the mounting instructions for information on routing the OBO isCon® Basic conductor.

## IsCon®-Connection element

*Stainless steel, grade 304*
*Screw-on termination of the connection for the isCon® conductor*
*Ind. heat-shrinkable sleeve, hexagonal*
*Tested up to 200 kA (lightning protection class I)*

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimensions Ø mm</th>
<th>Fit mm</th>
<th>Lightning current carrying capacity kA</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isCon con 2</td>
<td>20</td>
<td>10</td>
<td>H1/150</td>
<td>2</td>
<td>21.500</td>
<td>5408021</td>
</tr>
<tr>
<td>isCon connect</td>
<td>23</td>
<td>10</td>
<td>H1/150</td>
<td>2</td>
<td>21.500</td>
<td>5408022</td>
</tr>
<tr>
<td>isCon con PRE</td>
<td>23</td>
<td>10</td>
<td>H2/200</td>
<td>2</td>
<td>21.500</td>
<td>5408023</td>
</tr>
</tbody>
</table>

## Stripping tool for isCon conductor

*Polyamide/Polyethylene*
*Stripping tool to remove the insulation of OBO isCon® conductor.*

<table>
<thead>
<tr>
<th>Type</th>
<th>Clamping range D mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isCon stripper 2</td>
<td>20 - 23</td>
<td>1</td>
<td>170.000</td>
<td>5408013</td>
</tr>
</tbody>
</table>
Connection element for installation in the insulated air-termination rod isFang IN

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D (mm)</th>
<th>Dimension L (mm)</th>
<th>Lightning current carrying capacity (kA)</th>
<th>Pack.</th>
<th>Weight (kg/100 pcs.)</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isCon IN 2</td>
<td>20</td>
<td>150</td>
<td>H1/150</td>
<td>1</td>
<td>27.800</td>
<td>5408019</td>
</tr>
<tr>
<td>isCon IN PRE</td>
<td>23</td>
<td>200</td>
<td>H2/200</td>
<td>1</td>
<td>27.800</td>
<td>5408020</td>
</tr>
</tbody>
</table>

*Stainless steel, grade 304

- Screw-on termination of the connection for the isCon® conductor
- Connection and installation of the conductor in the insulated air-termination rod
- Tested up to 200 kA (lightning protection Class II)

Potential connection for installation in the insulated air-termination rod isFang IN

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D (mm)</th>
<th>Dimension d (mm)</th>
<th>Dimension L (mm)</th>
<th>Pack.</th>
<th>Weight (kg/100 pcs.)</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isCon IN PAE</td>
<td>23</td>
<td>49.9</td>
<td>35</td>
<td>1</td>
<td>5.900</td>
<td>5408031</td>
</tr>
</tbody>
</table>

*Aluminium

- To avoid surface discharges on the isCon® conductor
- Installation takes place after the first 1.5 metres in the insulated air-termination rod type isFang IN

Potential connection

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit (mm)</th>
<th>Pack.</th>
<th>Weight (kg/100 pcs.)</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isCon PAE</td>
<td>ø 17.25</td>
<td>2</td>
<td>36.500</td>
<td>5408036</td>
</tr>
</tbody>
</table>

*Stainless steel, grade 304

- To avoid floating discharges on the isCon® conductor
- With sprung discs to protect screws against loosening

Potential connection for installation in the insulated air-termination rod isFang IN

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D (mm)</th>
<th>Dimension d (mm)</th>
<th>Dimension L (mm)</th>
<th>Pack.</th>
<th>Weight (kg/100 pcs.)</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isCon PAE 2</td>
<td>20</td>
<td>49.9</td>
<td>35</td>
<td>1</td>
<td>5.900</td>
<td>5408032</td>
</tr>
</tbody>
</table>

*Aluminium

- To avoid surface discharges on the isCon® conductor
- Installation takes place after the first 1.5 metres in the insulated air-termination rod type isFang IN

Always indicate the item number when ordering.
Connection element for installation in the insulated air-termination rod

**isFang IN**

- Screw-on termination of the connection for the isCon® conductor
- Connection and installation of the conductor in the insulated air-termination rod
- Tested up to 200 kA (lightning protection Class II)

<table>
<thead>
<tr>
<th>Type</th>
<th>Lightning current carrying capacity</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isCon IN connect</td>
<td>Ø mm H1/150</td>
<td>26.900</td>
<td>5408024</td>
</tr>
<tr>
<td>V2A Stainless steel, grade 304</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

VA cable bracket for isCon® conductor for mounting on roof/wall structures

- For isCon® conductor for mounting on roof/wall structures
- With sprung discs to protect the screws against loosening

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isCon H VA</td>
<td>Ø mm 21 - 23</td>
<td>2.850</td>
<td>5408056</td>
</tr>
<tr>
<td>isCon H 26 VA</td>
<td>Ø mm 26</td>
<td>3.400</td>
<td>5408064</td>
</tr>
<tr>
<td>V2A Stainless steel, grade 304</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conductor and pipe spacer clip 733 V2A

- Size M16 is not suitable for nail device
- Sizes M16 - PG16 are not suitable for bolt-firing tool

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size</th>
<th>Dimension D</th>
<th>Dimension A</th>
<th>Dimension B</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>733 21 A2</td>
<td>M6</td>
<td>19 - 21</td>
<td>6.5 x 10</td>
<td>M5 x 16</td>
<td>500</td>
<td>2.740</td>
</tr>
<tr>
<td>V2A Stainless steel, A2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Quick clip, black

Cable brackets for isCon® conductors for mounting on the building structure. Can also be used in the first 1.5 m. Can be arranged next to each other. Made from UV and weather-resistant polyamide.

<table>
<thead>
<tr>
<th>Type</th>
<th>Colour</th>
<th>Nominal size</th>
<th>Dimension D</th>
<th>Dimension A</th>
<th>Dimension B</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQ-20 SW</td>
<td>Jet black</td>
<td>M6</td>
<td>23</td>
<td>19</td>
<td>17</td>
<td>50</td>
<td>0.848</td>
</tr>
<tr>
<td>SQ-25 LGR</td>
<td>Light grey</td>
<td>M6</td>
<td>26</td>
<td>20</td>
<td>17</td>
<td>50</td>
<td>0.970</td>
</tr>
<tr>
<td>PP Polypropylene</td>
<td>Polyamide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

starQuick nut

The starQuick nut was developed especially for the starQuick clip. Simply push into the intended opening of the clip. The nut is captive in the clip. Suitable for M6 threads.

<table>
<thead>
<tr>
<th>Type</th>
<th>Colour</th>
<th>Nominal size</th>
<th>Dimension D</th>
<th>Dimension L</th>
<th>Dimension h</th>
<th>Dimension t</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQ M6</td>
<td>Light grey</td>
<td>M6</td>
<td>15</td>
<td>15</td>
<td>5</td>
<td>4</td>
<td>100</td>
<td>0.070</td>
</tr>
<tr>
<td>PP Polycarbonate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
VA cable bracket with tightening strap

- For isCon® conductor for pipe mounting
- Including 2 m tightening strap
- Cable bracket with sprung discs to protect the screws against loosening

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isCon HS VA</td>
<td>23</td>
<td>10</td>
<td>5408052</td>
</tr>
<tr>
<td>isCon HS 26 VA</td>
<td>26</td>
<td>10</td>
<td>5408068</td>
</tr>
</tbody>
</table>

PA cable bracket with tightening strap

- For isCon® conductor for pipe mounting including 2 m tightening strap.

<table>
<thead>
<tr>
<th>Type</th>
<th>Colour</th>
<th>Dimension D Ø mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isCon HS 26 PA</td>
<td>Light grey</td>
<td>26</td>
<td>10</td>
<td>5408066</td>
</tr>
</tbody>
</table>

Universal flat conductor adapter for roof conductor holder, type 165/MBG

- Universal adapter with drill hole Ø 2.5 mm
- E.g. for OBO Golden Sprint screw, type 4758 4 x L (L = depending on application)
- For fastening to 165/MBG

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit</th>
<th>Colour</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>165 MBG UH</td>
<td>Black Rd 8</td>
<td></td>
<td>25</td>
<td>5218882</td>
</tr>
</tbody>
</table>

Multi-Quick clip, metric

- Multi-quick metric
- Simple fastening
- Secure locking
- Radial arrangement
- Simplified storage
- Universally applicable

<table>
<thead>
<tr>
<th>Type</th>
<th>Clamping range D mm</th>
<th>Pull-out value N</th>
<th>Colour</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-Quick M32 LGR</td>
<td>25 - 32</td>
<td>60</td>
<td>Light grey</td>
<td>600</td>
<td>2153734</td>
</tr>
</tbody>
</table>

VA roof conductor holder, sloping roof

- For routing of the isCon® conductor on pitched roofs
- Cable bracket with sprung discs to protect the screws against loosening

<table>
<thead>
<tr>
<th>Type</th>
<th>Installation height mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isCon H280 VA</td>
<td>55</td>
<td>25</td>
<td>5408047</td>
</tr>
<tr>
<td>isCon H280 26 VA</td>
<td>55</td>
<td>25</td>
<td>5408074</td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
PA roof conductor holder, sloping roof

<table>
<thead>
<tr>
<th>Type</th>
<th>Colour</th>
<th>Dimension</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isCon H280 PA</td>
<td>Black</td>
<td>280mm</td>
<td>25</td>
<td>13.950</td>
<td>5408049</td>
</tr>
<tr>
<td>isCon H280 26 PA</td>
<td>Light grey</td>
<td>280mm</td>
<td>25</td>
<td>14.060</td>
<td>5408072</td>
</tr>
</tbody>
</table>

PA Polyamide
To route the isCon® conductor on pitched roofs.

Spacer

<table>
<thead>
<tr>
<th>Type</th>
<th>Clamping range D mm</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isCon DH</td>
<td>23 - 26</td>
<td>2</td>
<td>41.400</td>
<td>5408043</td>
</tr>
</tbody>
</table>

GFR Fibre-glass-reinforced plastic
For stand-off installation of the isCon® conductor in the area of the connection, incl. reducing sleeve for mounting on FangFix concrete block 10 Kg.

Always indicate the item number when ordering.
isFang, insulated air-termination rod for inner-routed isCon conductor with side exit

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Dimension A mm</th>
<th>Dimension H mm</th>
<th>Length mm</th>
<th>Pack pcs</th>
<th>Weight kg</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang IN-A 4000</td>
<td>50</td>
<td>1325</td>
<td>1500</td>
<td>4000</td>
<td>1</td>
<td>305.000</td>
<td>5408938</td>
</tr>
<tr>
<td>isFang IN-A 6000</td>
<td>50</td>
<td>3225</td>
<td>1500</td>
<td>6000</td>
<td>1</td>
<td>835.000</td>
<td>5408940</td>
</tr>
<tr>
<td>isFang IN-A 8000</td>
<td>50</td>
<td>5335</td>
<td>1500</td>
<td>8000</td>
<td>1</td>
<td>1,385.000</td>
<td>5408888</td>
</tr>
<tr>
<td>isFang IN-A10000</td>
<td>50</td>
<td>6000</td>
<td>1733</td>
<td>10000</td>
<td>1</td>
<td>1,540.000</td>
<td>5408890</td>
</tr>
</tbody>
</table>

**GFR** Fibre-glass-reinforced plastic

- For installation of the OBO isCon® Pro+ conductor in the pipe
- With side conductor outlet matching isFang air-termination rod stand with side outlet, type isFang 3B-A
- Suitable for wind loads according to Eurocode 1: DIN EN 1991-1-4
- Inclusive connection element (type isCon IN connect)
- Inclusive potential connection (type IsCon In PAE)

isFang air-termination rod stand with side exit

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension B mm</th>
<th>Dimension D Ø mm</th>
<th>Dimension L mm</th>
<th>Dimension H mm</th>
<th>Pack pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang 3B-100-A</td>
<td>1026</td>
<td>50</td>
<td>600</td>
<td>985</td>
<td>1</td>
<td>610.000</td>
<td>5408930</td>
</tr>
<tr>
<td>isFang 3B-150-A</td>
<td>1500</td>
<td>50</td>
<td>900</td>
<td>1275</td>
<td>1</td>
<td>950.000</td>
<td>5408932</td>
</tr>
<tr>
<td>isFang 3B-250-A</td>
<td>2900</td>
<td>50</td>
<td>1450</td>
<td>2055</td>
<td>1</td>
<td>2,500.000</td>
<td>5408902</td>
</tr>
</tbody>
</table>

**V2A** Stainless steel, grade 304

- Screwless installation of freestanding air-termination rods as well as insulated air-termination rods with 50 mm diameter
- E.g. for internal OBO isCon® conductor
- Roof slope to max. 5 degrees
- Incl. Rd 6–10 crossbar for quick round conductor fastening
- Concrete plinths as well as threaded rods should be ordered separately

Always indicate the item number when ordering.
Potential connection for installation in the insulated air-termination rod isFang IN

- To avoid surface discharges on the isCon® conductor
- Installation takes place after the first 1.5 metres in the insulated air-termination rod type isFang IN

Connection element for installation in the insulated air-termination rod isFang IN

- Screw-on termination of the connection for the isCon® conductor
- Connection and installation of the conductor in the insulated air-termination rod
- Tested up to 200 kA (lightning protection Class II)
**Insulated air-termination rod**

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension A (mm)</th>
<th>Dimension B (mm)</th>
<th>Length (mm)</th>
<th>Pack.</th>
<th>Weight/kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang 4000 AL</td>
<td>1240</td>
<td>1500</td>
<td>1000 4000</td>
<td>1</td>
<td>580.000</td>
<td>5408943</td>
</tr>
<tr>
<td>isFang 6000 AL</td>
<td>3340</td>
<td>1500</td>
<td>1000 6000</td>
<td>1</td>
<td>600.000</td>
<td>5408947</td>
</tr>
<tr>
<td>isFang 4000</td>
<td>1240</td>
<td>1500</td>
<td>1000 4000</td>
<td>1</td>
<td>680.000</td>
<td>5408942</td>
</tr>
<tr>
<td>isFang 6000</td>
<td>3340</td>
<td>1500</td>
<td>1000 6000</td>
<td>1</td>
<td>680.000</td>
<td>5408946</td>
</tr>
</tbody>
</table>

GFK Fibre-glass-reinforced plastic

- For isolated creation of air-termination systems
- Suitable for isFang air-termination rod stands, type isFang 3B-100/150
- Suitable for wind loads according to Eurocode 1: DIN EN 1991-1-4
- For mounting on the building structure with isFang support
- Fastening of the OBO isCon® conductor possible using accessories
- Suitable for internally and externally-routed isCon® conductor

**isFang air-termination rod stand**

Folding tripod stand for screwless installation of free-standing air-termination rods with a diameter of 40 mm, e.g. for OBO isCon® conductors. Roof slope to max. 5 degrees. Incl. Rd 8–10 crossbar for rapid round conductor fastening. The concrete plinth and threaded rods are to be ordered separately.

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension B (mm)</th>
<th>Dimension D (mm)</th>
<th>Dimension L (mm)</th>
<th>Dimension H (mm)</th>
<th>Pack.</th>
<th>Weight/kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang 3B-100 AL</td>
<td>1000</td>
<td>40</td>
<td>600</td>
<td>885</td>
<td>1</td>
<td>380.000</td>
<td>5408966</td>
</tr>
<tr>
<td>isFang 3B-150 AL</td>
<td>1500</td>
<td>40</td>
<td>900</td>
<td>1275</td>
<td>1</td>
<td>560.000</td>
<td>5408967</td>
</tr>
<tr>
<td>isFang 3B-100</td>
<td>1000</td>
<td>40</td>
<td>600</td>
<td>885</td>
<td>1</td>
<td>620.000</td>
<td>5408968</td>
</tr>
<tr>
<td>isFang 3B-150</td>
<td>1500</td>
<td>40</td>
<td>900</td>
<td>1275</td>
<td>1</td>
<td>950.000</td>
<td>5408969</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304

**isFang-3B threaded rod**

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension L (mm)</th>
<th>Pack.</th>
<th>Weight/kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang 3B-G1</td>
<td>270</td>
<td>3</td>
<td>48.000</td>
<td>5408971</td>
</tr>
<tr>
<td>isFang 3B-G2</td>
<td>340</td>
<td>3</td>
<td>60.400</td>
<td>5408972</td>
</tr>
<tr>
<td>isFang 3B-G3</td>
<td>430</td>
<td>3</td>
<td>69.500</td>
<td>5408973</td>
</tr>
<tr>
<td>isFang 3B-G4</td>
<td>500</td>
<td>3</td>
<td>75.000</td>
<td>5408905</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304

- For fastening on one, two, three or four FangFix concrete bases with tripod stand
Concrete block for FangFix-System 16 kg

- 16 kg stone of Ø 365 mm, high level of stability
- Frost-resistant concrete
- Stackable

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-FIX-S16</td>
<td>365</td>
<td>1,700.000</td>
<td>5403227</td>
</tr>
<tr>
<td>BET Concrete</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Base for FangFix system 16 kg for mounting the isFang tripod

- Edge protection with through hole
- For mounting isFang-3B threaded rod and FangFix concrete block F-FIX-S16

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal size Ø mm</th>
<th>Dimension D Ø mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-FIX-B16 3B</td>
<td>373</td>
<td>25</td>
<td>15.800</td>
<td>5403238</td>
</tr>
<tr>
<td>PP Polypropylene</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Potential connection clamp for mounting on isFang

- Potential connection for isCon® conductor for mounting on insulated air-termination rods of type isFang

<table>
<thead>
<tr>
<th>Type</th>
<th>Fit mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>927 2 6-K</td>
<td>3/8-4mm</td>
<td>5.500</td>
<td>5057599</td>
</tr>
<tr>
<td>V2A Stainless steel, grade 304</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Connection plate for one isCon® conductor

- Connection plate to connect an isCon® conductor with air-termination rod Ø 16 mm, tested up to 150 kA (lightning protection class II)

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isCon AP1-16 VA</td>
<td>16x8-10mm</td>
<td>27.400</td>
<td>5408026</td>
</tr>
<tr>
<td>V2A Stainless steel, grade 304</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Connection plate for two isCon® conductors

- Connection plate to connect two isCon® conductors with air-termination rod Ø 16 mm, tested up to 150 kA (lightning protection class II)

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isCon AP2-16 VA</td>
<td>16x8-10mm</td>
<td>39.500</td>
<td>5408028</td>
</tr>
<tr>
<td>V2A Stainless steel, grade 304</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cable tie, black, UV and weather-resistant

- Cable ties are used for quick, uncomplicated fixing or bundling of cables and pipes to cable support systems or other mounting structures

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension B mm x Dimension L mm x Dimension t mm</th>
<th>Max. bundle Ø mm</th>
<th>Colour</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>565 7.6x380 SWUV</td>
<td>7.6 x 380 x 1.8</td>
<td>105</td>
<td>Black</td>
<td>0.533</td>
<td>2331924</td>
</tr>
<tr>
<td>PA Polyamide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Always indicate the item number when ordering.
Cleaning cloth

- ZAPP Cellulose-polypropylene paper
  - Cellulose polypropylene paper with abrasive sections, folded multiple times
  - Doused with 2.8 ml impregnation solution
  - For cleaning the external jacket of the OBO isCon® conductor

Information panel

- Label: "NOTE! Insulated lightning protection with the OBO isCon® system. Only a lightning protection specialist may carry out changes"
  - To label the lightning protection system
  - Self-adhesive and with 4 fastening holes ø 6.5 mm

isFang support for corner pipe mounting, 50 x 50 mm

- Stainless steel, grade 304

isFang support for pipe mounting, ø 50–60 mm

- Stainless steel, grade 304

isFang support for pipe mounting, ø 40–50 mm

- Stainless steel, grade 304

isFang support for spaced pipe mounting, ø 50–300 mm

- Stainless steel, grade 304

Always indicate the item number when ordering.
**isFang support for pipe mounting, Ø 50–300 mm**

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Dimension L mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang TR100</td>
<td>300</td>
<td>40</td>
<td>2</td>
<td>77.000</td>
<td>5408956</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304

Tightening strap clip to fasten the insulated support pipes on the structure to be protected or for construction-side pipes of Ø 50–300mm.

**Support for wall mounting, 200 mm spacing**

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension D Ø mm</th>
<th>Dimension L mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>isFang TW200</td>
<td>50</td>
<td>200</td>
<td>2</td>
<td>240.000</td>
<td>5408910</td>
</tr>
</tbody>
</table>

V2A Stainless steel, grade 304

Fastening clip to fasten the insulated support pipes on the structure to be protected or on the wall.

**isFang support for wall mounting, 200–300 mm spacing**

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimension L mm</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
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V2A Stainless steel, grade 304

Fastening clip to fasten the insulated support pipes on the structure to be protected or on the wall.

**isFang support for wall mounting, 80 mm spacing**

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V2A Stainless steel, grade 304

Fastening clip to fasten the insulated support pipes on the structure to be protected or on the wall.

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V2A Stainless steel, grade 304

Fastening clip to fasten the insulated support pipes on the structure to be protected or on the wall.

Always indicate the item number when ordering.
Insulated air-termination rod for inner-routed isCon conductor

- For installation of the OBO isCon® Pro+ conductor in the pipe
- For mounting on the building structure with isFang support
- Suitable for wind loads according to Eurocode 1: DIN EN 1991-1-4
- Inclusive connection element (type isCon IN connect)
- Inclusive potential connection (type isCon In PAE)

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GFK: Fibre-glass-reinforced plastic

Always indicate the item number when ordering.
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Always indicate the item number when ordering.


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always indicate the item number when ordering.

always indicate the item number when ordering.

Effects without customer

and dates. If the delivery is delayed upon request or by fault of the customer, the goods are then stored at the cost and risk of the customer, un-

ery period gets extended accordingly.

able start-up time or alternatively to withdraw from the contract. In each case, the customer can demand a declaration from the seller, whether he

ective without customer

company. The customer guarantees vis-à-vis the seller that the manufacture and delivery of the goods made according to his instructions do not violate

§ 3 Offers

$1 General sales and delivery conditions of a business plan before itself referred to as “OBO” or “OBO” are applicable to the respective named in a contract, and both parties are bound by them. OBO holds all rights reserved to itself and the following applicable to the respective

§ 3 Offers

The conditions and conditions set out below shall be compliant with current §17 (1) and the same of §7.7 which are

%2.1 The seller’s responsibility for damages resulting from incorrect or incorrect handling and use of inappropriate operating materials; this also applies to defects caused by the material provided by the cus-

§ 2 Offers

§ 2 Offers

§3.2 The customer guarantees vis-à-vis the seller that the manufacture and delivery of the goods made according to his instructions do not violate

§ 13 Jurisdiction and place of fulfilment

(14.4) In the case of differences between the English and the German version, the German version of the AEB shall prevail.

The warranty does not include those defects that are caused by arrangement and mounting not done by the seller, improper installation, non-

(9.4) The warranty does not include those defects that are caused by arrangement and mounting not done by the seller, improper installation, non-

8.3 The customer is committed, as long as the ownership has not been transferred to him, to handle the purchased object properly and to identify-

8.5 If the delivered objects are processed with other objects not belonging to the seller, are connected or joined inseparably (in production or assembly), the customer is committed to the correct use and appropriate

8.8 As long as the customer goes according to the contract i.e. fulfils his contractual payment obligations, the customer has the right to sell further-

8.7 If the customer cancels the contract and has also imposed his share of the contractually agreed price on the transported goods within the time

if goods are processed with other objects not belonging to the seller and are connected or joined inseparably (in production or assembly) to the goods, the customer is committed to the correct use and appropriate

in § 27 (1) HGB remain unaffected.

377 HGB remain unaffected.

in § 27 (1) HGB remain unaffected.

in § 364 II BGB). Similarly, the seller is also not obliged to provide timely notification of changes and checks as well as to raise protests.

§ 30 Retention of title

(8.8) As long as the customer goes according to the contract i.e. fulfils his contractual payment obligations, the customer has the right to sell further-

If the delivery delays cause fatal but less than more serious health risks, both have the right to withdraw from the contract. However, the practice of the customer is conditional on a public warning in the OBO press.

(4.6) The warranty also applies to the goods in case the goods are re-sold or processed on the basis of a claim. In this case, the warranty claims are transmitted to the customer. If the customer does not use the warranty claims himself, the

in § 364 II BGB). Similarly, the seller is also not obliged to provide timely notification of changes and checks as well as to raise protests.

For payments of all kinds, fulfillment is said to occur on the day, on which the pay-

3.2 The customer guarantees vis-à-vis the seller that the manufacture and delivery of the goods made according to his instructions do not violate

(3.2) The customer guarantees vis-à-vis the seller that the manufacture and delivery of the goods made according to his instructions do not violate

§ 30 Retention of title

§ 2 Offers

§ 13 Jurisdiction and place of fulfilment

3.2 The customer guarantees vis-à-vis the seller that the manufacture and delivery of the goods made according to his instructions do not violate

§ 3 Offers

§ 3 Offers

if goods are processed with other objects not belonging to the seller and are connected or joined inseparably (in production or assembly) to the goods, the customer is committed to the correct use and appropriate

(8.5) If the delivered objects are processed with other objects not belonging to the seller, are connected or joined inseparably, the seller then ac-

(8.3) The customer is committed, as long as the ownership has not been transferred to him, to handle the purchased object properly and to identi-

8.4 As long as the ownership remains with the seller, and the customer has not yet paid all the necessary costs, the transportation, storage and保管 of the goods is at the customer’s expense. As long as the ownership remains with the

2.1 The seller’s responsibility for damages resulting from incorrect or incorrect handling and use of inappropriate operating materials; this also applies to defects caused by the material provided by the cus-

(10.2) OBO shall be released from the product liability if the material or production plant is used contrary to the instructions of the seller or if the goods are not used in accordance with the applicable technical regulations.

§ 7 Delivery

(4.3) Payments for invoices as well as credits, which are made within 10 (ten) days after receiving, with the exception of payments made by means

(8.4) As long as the ownership remains with the seller, and the customer has not yet paid all the necessary costs, the transportation, storage and

§ 2 Offers

§ 2 Offers

(10.1) The seller shall release from the product liability if the material or production plant is used contrary to the instructions of the seller or if the goods are not used in accordance with the applicable technical regula-

§ 2 Offers

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