Power & Signal Quality TRABTECH

Surge Protection

Arresters for every application
Interference-free mains supply and signal transmission

A constant power supply and secure data links are especially important for the operational reliability of electrical systems, installations, and devices.

Phoenix Contact meets these requirements with the comprehensive TRABTECH product range. Tailored solutions consisting of surge protection, monitoring, device circuit breakers, and EMC products ensure a consistently high power and signal quality for maximum availability.
Surge voltages – the underestimated danger

Every day there are more than four million lightning discharges worldwide.*

Of these, ten percent are considered as ground lightning strikes with surge currents of up to 200,000 A. In addition to these daily 400,000 discharges caused by storms, surge voltages also occur within local power grids. Here, it is switching operations, faults or switched-mode power supply units, for example, that are responsible.

Regardless of the cause, surge voltages repeatedly lead to unexpected faults in devices or system failures. TRABTECH surge protection prevents such effects comprehensively and effectively.

* Source: en.Wikipedia.org > Lightning

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Residential buildings, fire

- 120,000
- 20,000
- 60,000

Household contents, fire

- 330,000
- 30,000
- 60,000

Device failure or defects caused by surge voltages are more frequent than expected. According to the statistics of German insurers - GDV, this is the most frequent cause of damage. These figures only apply to damage that resulted in fire.

Source: GDV Die Deutschen Versicherer 2009 (GDV, the German Insurers 2009)
The protective circuit for safety all round

The principle of the protective circuit defines a comprehensive safety measure against surge voltages. An imaginary circle encloses devices, plants or systems to be protected. Surge protection devices that correspond to the nominal data of the respective power supply unit or signal type are to be installed at all points where lines cut this circle. In order to protect objects consistently from conductor-specific surge voltage couplings, the following areas must be considered:

- **Power supply**
  Perfectly coordinated arresters for feeders, distributors and termination devices guarantee the power supply.

- **MCR technology**
  Optimized arresters are available for different types of signals and measuring principles.

- **Information technology**
  High-speed protection (CAT.6+) for data and communication technology.

- **Transceiver technology**
  This keeps local communication, mobile phones and satellite or wireless systems on the air whatever the weather.
Surge protection for the power supply unit

Efficient protection against surge voltage always starts in the power supply unit. A multi-stage protection concept made up of performance-related lightning current and surge arresters is considered to be the most reliable basis.

**Protection level, type 1:**
High-capacity lightning arresters

**Protection level, type 2:**
Surge protection, which should not be missing in any power supply

**Protection level, type 3:**
Surge protection for sensitive devices

Further arrester combinations are a sensible addition to the product range.

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**Plugging instead of screwing**
Universal pluggability ensures a high degree of comfort during insulation measurements in the system, for example. Instead of tampering with the installation, just pull out the plug.

**Which ever way you turn it**
The protective devices of the compact series can be installed flexibly. This avoids unnecessary cable lengths and offers optimum protection for any installation environment.

**Status at a glance**
Each arrester plug has its own mechanical display to display its functional status.

**Remote signaling**
A common floating PDT contact makes remote signaling possible without taking up extra space. Regardless of the type of signal (current, voltage), the interface can be used as N/C or N/O contact.
Lightning arrester, type 1

FLASHTRAB compact PLUS:
Powerful spark gap technology for power supply systems up to 240/415 V AC.

- Type 1 lightning arrester with low protection level
- For low-voltage high-current systems with high short-circuiting power
- For the main power distribution/industrial distribution
- In pre-meter or post-meter area
- At the transition of lightning protection zones LPZ* 0a → LPZ 1
- For buildings with external lightning protection
- For buildings with overhead line supply

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<td>N</td>
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<td>PE</td>
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</table>

5-conductor system

<table>
<thead>
<tr>
<th>FLT-CP-PLUS-2S-350</th>
<th>FLT-CP-PLUS-2C-350</th>
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<tr>
<td>Order No. 2882666</td>
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<tr>
<td>L2</td>
<td>L2</td>
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<tr>
<td>N</td>
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</tr>
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4-conductor system

<table>
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<th>FLT-CP-PLUS-1S-350</th>
<th>FLT-CP-PLUS-1C-350</th>
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</thead>
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<td>Order No. 2882682</td>
<td>Order No. 2882695</td>
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<td>L1</td>
<td>L1</td>
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<tr>
<td>N</td>
<td>PEN</td>
</tr>
<tr>
<td>PE</td>
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</tr>
</tbody>
</table>

3-conductor system

<table>
<thead>
<tr>
<th>FLT-CP-PLUS-3S-350</th>
<th>FLT-CP-PLUS-3C-350</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order No. 2882640</td>
<td>Order No. 2882653</td>
</tr>
<tr>
<td>L1</td>
<td>L1</td>
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<tr>
<td>L2</td>
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<tr>
<td>N</td>
<td>PEN</td>
</tr>
<tr>
<td>PE</td>
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</tbody>
</table>

2-conductor system

<table>
<thead>
<tr>
<th>FLT-CP-PLUS-2S-350</th>
<th>FLT-CP-PLUS-2C-350</th>
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<tbody>
<tr>
<td>Order No. 2882666</td>
<td>Order No. 2882679</td>
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<tr>
<td>L1</td>
<td>L1</td>
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<tr>
<td>N</td>
<td>PEN</td>
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<tr>
<td>PE</td>
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IEC category/EN type

<table>
<thead>
<tr>
<th>IEC category/EN type</th>
<th>...3S-350</th>
<th>...3C-350</th>
<th>...2S-350</th>
<th>...2C-350</th>
<th>...1S-350</th>
<th>...1C-350</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lightning protection level</td>
<td>I</td>
<td>I</td>
<td>II</td>
<td>II</td>
<td>III – IV</td>
<td>III – IV</td>
</tr>
<tr>
<td>Nominal voltage $U_N$</td>
<td>230/400 V AC</td>
<td>230 V AC</td>
<td>240/415 V AC</td>
<td>240 V AC</td>
<td>50/60 Hz</td>
<td>50/60 Hz</td>
</tr>
<tr>
<td>Maximum continuous voltage $U_C$</td>
<td>350 V AC</td>
<td>350 V AC</td>
<td>50/60 Hz L-N (L-PEN)</td>
<td>50/60 Hz L-N (L-PEN)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Follow current quenching capacity $I_{q}$</td>
<td>50 kA (264 V AC)</td>
<td>50 kA (264 V AC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lightning test current $I_{imp}$ (10/350)μs</td>
<td>100 kA</td>
<td>75 kA</td>
<td>75 kA</td>
<td>50 kA</td>
<td>50 kA</td>
<td>25 kA</td>
</tr>
<tr>
<td>Nominal discharge surge current $I_{n}$ (8/20)μs</td>
<td>25 kA (per channel)</td>
<td>25 kA (per channel)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection level $U_p$</td>
<td>≤ 1.5 kV</td>
<td>≤ 1.5 kV</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Backup fuse max. acc. to IEC 61643-1</td>
<td>315 A gL/gG</td>
<td>315 A gL/gG</td>
<td></td>
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</tr>
</tbody>
</table>

* LPZ: Lightning Protection Zone
**Lightning current and surge arresters, type 1 + type 2**

**FLASHTRAB compact:**
Combination of lightning current and surge arresters for power supply systems up to 240 / 415 V.
- Combined arresters, type 1 and type 2
- For the main power distribution/industrial distribution
- In the post-meter area
- At the transition of lightning protection zones LPZ* 0 → LPZ 2
- For buildings with external lightning protection
- For buildings with overhead line supply

### TN-S / TT systems

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<th>4-conductor system</th>
<th>5-conductor system</th>
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<td>L1</td>
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<td>L2</td>
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<tr>
<td>L3</td>
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<td>N</td>
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<tr>
<td>N</td>
<td>N</td>
<td>PE</td>
</tr>
<tr>
<td>PEN</td>
<td>PEN</td>
<td>PEN</td>
</tr>
</tbody>
</table>

- **FLT-CP-1S-350**
  - Order No. 2859738
- **FLT-CP-2S-350**
  - Order No. 2859767
- **FLT-CP-3S-350**
  - Order No. 2859712

### TN-C systems

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<th>3-conductor system</th>
<th>4-conductor system</th>
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<tbody>
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<td>L1</td>
<td>L1</td>
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<tr>
<td>L2</td>
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<td>L2</td>
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<td>N</td>
<td>N</td>
</tr>
<tr>
<td>PEN</td>
<td>PEN</td>
<td>PEN</td>
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</tbody>
</table>

- **FLT-CP-1C-350**
  - Order No. 2859741
- **FLT-CP-2C-350**
  - Order No. 2859770
- **FLT-CP-3C-350**
  - Order No. 2859725

### FLASHTRAB compact specifications:

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<td>I + II / T1 + T2</td>
<td>I + II / T1 + T2</td>
</tr>
<tr>
<td>Lightning protection level</td>
<td>I</td>
<td>I</td>
</tr>
<tr>
<td>Nominal voltage $U_n$</td>
<td>230/400 V AC</td>
<td>240/415 V AC 50/60 Hz</td>
</tr>
<tr>
<td>Maximum continuous voltage $U_C$</td>
<td>350 V AC 50/60 Hz L-N (L-PEN)</td>
<td>230 V AC 240 V AC 50/60 Hz</td>
</tr>
<tr>
<td>Follow current quenching capacity $I_q$</td>
<td>25 kA (264 V AC)</td>
<td>25 kA (264 V AC)</td>
</tr>
<tr>
<td>Lightning test current $I_{10/350}$ (μs)</td>
<td>100 kA</td>
<td>75 kA</td>
</tr>
<tr>
<td>Nominal discharge surge current $I_d$ (8/20) (μs)</td>
<td>75 kA</td>
<td>50 kA</td>
</tr>
<tr>
<td>Protection level $U_p$</td>
<td>≤ 1.5 kV</td>
<td>≤ 1.5 kV</td>
</tr>
<tr>
<td>Backup fuse max. acc. to IEC 61643-1</td>
<td>25 kA (per channel)</td>
<td>25 kA (per channel)</td>
</tr>
</tbody>
</table>

*LPZ: Lightning Protection Zone*
Surge arrester, type 2

VALVETRAB compact:
Space-saving surge arresters for all standard power supply systems up to 240 / 415 V.

- Surge arrester, type 2
- In sub-distribution boards and distribution boxes on the various floors
- Upstream of the residual current circuit breaker
- At the transition of lightning protection zones
  LPZ* 0B → LPZ 1 / LPZ 1 → LPZ 2
- For buildings without external lightning protection

### TN-S / TT systems

<table>
<thead>
<tr>
<th>L1</th>
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<th>L3</th>
<th>N</th>
<th>PE</th>
<th>5-conductor system</th>
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<td>VAL-CP-3S-350 Order No. 2859521</td>
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<table>
<thead>
<tr>
<th>L1</th>
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<th>4-conductor system</th>
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<tbody>
<tr>
<td></td>
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<td></td>
<td>VAL-CP-2S-350 Order No. 2859505</td>
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<table>
<thead>
<tr>
<th>L1</th>
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<th>PE</th>
<th>3-conductor system</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>VAL-CP-1S-350 Order No. 2859563</td>
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</tbody>
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### TN-C systems

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<th>L2</th>
<th>L3</th>
<th>PEN</th>
<th>4-conductor system</th>
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<tbody>
<tr>
<td></td>
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<td></td>
<td>VAL-CP-3C-350 Order No. 2859547</td>
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</table>

<table>
<thead>
<tr>
<th>L1</th>
<th>L2</th>
<th>PEN</th>
<th>3-conductor system</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td>VAL-CP-2C-350 Order No. 2859589</td>
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### Technical Data

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<th>VAL-CP-...</th>
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<th>...3C-350</th>
<th>...2S-350</th>
<th>...2C-350</th>
<th>...1S-350</th>
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<tr>
<td>IEC category/EN type</td>
<td>II / T2</td>
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<tr>
<td>Nominal voltage $U_n$</td>
<td>230/400 V AC ... 240/415 V AC 50/60 Hz</td>
<td></td>
<td></td>
<td></td>
<td>230 V AC ... 240 V AC 50/60 Hz</td>
</tr>
<tr>
<td>Maximum continuous voltage $U_C$</td>
<td>350 V AC 50/60 Hz L-N (L-PEN)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal discharge surge current $I_n$ (8/20)$\mu$s</td>
<td>20 kA (per channel)</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Max. discharge surge current $I_{\text{max}}$ (8/20)$\mu$s</td>
<td>40 kA (per channel)</td>
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<td></td>
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<tr>
<td>Protection level $U_p$</td>
<td>$\leq 1.4$ kV</td>
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</tr>
<tr>
<td>Backup fuse max. acc. to IEC 61643-1</td>
<td>125 A gL/gG</td>
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</tbody>
</table>

**Note:** VALVETRAB compact is also available for 120 V power supply systems or as a residual current free variant (VF-type).

* LPZ: Lightning Protection Zone
Surge arrester, type 2 – combined solutions

**Combi-RCD**: Surge protection with residual current circuit breaker

<table>
<thead>
<tr>
<th>FL circuit breaker (RCD)</th>
<th>Surge arrester (VAL-CP)</th>
</tr>
</thead>
</table>
| Sensitive for residual currents:  
Type A | IEC category/EN type:  
II / T2 |
|Rated residual current $I_{\text{m}}$:  
30 mA/300 mA | Discharge surge current $I_{\text{max}}$ (8/20) μs:  
30 kA/path |
|Release time at $I_{\text{m}}$:  
≤ 300 ms | Maximum continuous voltage $U_{\text{C}}$:  
350 V AC |

**VAL-CP-RCD-3S/40/0.03**  
Order No. 2882802

**VAL-CP-RCD-3S/40/0.3/SEL**  
Order No. 2808001

- Nominal voltage $U_{\text{C}}$: 230/400 … 240/415 V AC
- Nominal load current $I_{\text{L}}$: 40 A
- Dimensions (W x H x D): 120 mm x 90 mm x 75 mm

The Combi-RCD combines the properties of a residual current circuit breaker* and a type 2 surge arrester in a single housing. This innovative “2 in 1” concept defines an entirely new device type for the simultaneous protection of persons and devices.

* Residual current device = RCD

**Combi-MCB**: Surge protection with a coordinated backup fuse

<table>
<thead>
<tr>
<th>VAL-CP-MCB-3S-350/40/FM</th>
<th>VAL-CP-MCB-3C-350/40/FM</th>
<th>VAL-CP-MCB-1S-350/40/FM</th>
</tr>
</thead>
</table>
| IEC category/EN type:  
II / T2 | IEC category/EN type:  
II / T2 | IEC category/EN type:  
II / T2 |
| Nominal voltage $U_{\text{N}}$: 230/400 V AC ... 240/415 V AC | Nominal discharge surge current $I_{\text{n}}$ (8/20) μs: 20 kA/path | Protection level $U_{\text{p}}$: ≤ 2.5 kV |
| Maximum continuous voltage $U_{\text{C}}$: 350 V AC | | |

The integrated arrester backup fuses of the VAL-CP-MCB ensure maximum utilization of the performance capability of the surge protection. Their application is independent of the operating current fuses of the system – Faults in connection with fuses for surge protection are thus ruled out.

** Mains Circuit Breaker = MCB
### Device protection, type 3

#### PLUGTRAB
- **L1**
- **L2**
- **L3**
- **N**
- **PE**

#### TN-S / TT systems

- **230 V / 400 V**
  - PT 4-PE/S-230AC/FM
  - Order No. 2882459

#### PLUGTRAB
- **L1**
- **N**
- **PE**

#### TN-S / TT / IT systems

- **230 V**
  - PT 2-PE/S-230AC/FM
  - Order No. 2858357
- **230 V IT**
  - PT 2-IT-230AC/FM
  - Order No. 2805130
- **120 V**
  - PT 2-PE/S-120AC/FM
  - Order No. 2856812
- **24 V**
  - PT 2-PE/S-24AC/FM
  - Order No. 2800457
- **60 V**
  - PT 2-PE/S-60AC/FM
  - Order No. 2800961

#### BLOCKTRAB
- **L1**
- **N**
- **PE**

#### TN-S / TT / IT systems

- **230 V**
  - BT-1S 230AC/A
  - Order No. 2803409
  - BT-1S-230AC/O
  - Order No. 2800625

#### SOCKETTRAB
- **L1**
- **N**
- **PE**

#### TN-S / TT / IT systems

- **230 V**
  - BT-SKT 230/A
  - Order No. 2859343

#### MAINTRAB
- **L1**
- **N**
- **PE**

#### TN-S / TT systems

- **230 V**
  - MNT-1 D
  - Order No. 2882200
  - MNT-TV-SAT D
  - Order No. 2882284
  - MNT-ISDN D
  - Order No. 2882336
  - MNT-TAE D
  - Order No. 2882381
  - MNT-1 E
  - Order No. 288239
  - MNT-1 S/WH
  - Order No. 2880862
  - MNT-1 CH II
  - Order No. 2882355
  - MNT-POWERLINE
  - Order No. 2858001
  - MNT-NET B/F
  - Order No. 2882226

#### COMBITRAB
- **L1**
- **N**
- **PE**

#### TN-S / TT systems

- **230 V**
  - CBT-SCHUKO
  - Order No. 2857280
  - CBT-TV-SAT
  - Order No. 2857303
  - CBT-ISDN
  - Order No. 2857316

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**PHOENIX CONTACT**
Signal interfaces are particularly sensitive to surge voltages. Combined protective circuits with components which are powerful and respond quickly are used in this case.

In addition, the arresters of the PLUGTRAB family are impressive thanks to their practical functions. The plug-in capability of the arresters allows a function check, even during system operation.

This selection guide helps you find the right protection quickly and easily in line with the application – giving you greater availability.

---

**Forward-looking monitoring**
PLUGTRAB PT-IQ performs multi-stage monitoring of all protective devices. A controller supplies up to 28 devices with voltage and implements remote signaling.

**Permanent installation**
Individual DIN rail connectors can be converted into a bus using PT-IQ. This transmits voltage and status information. Conventional wiring is not used.

**Error-free installation**
Voltage keying and protection against polarity reversal. Incorrect connection is not possible.

**Space-saving installation**
Up to five signal lines can be protected with one device. This requires a design width of just 17.5 mm on the DIN rail.
Intelligent and systematic surge protection

PLUGTRAB PT-IQ is a range of self-monitoring surge protective devices with multi-stage status indicator. A controller supplies up to 28 protection modules with voltage, collects the status of all connected protection devices and implements remote signaling via a DIN rail bus (T-BUS). A surge protective device consists of the plug, base element and T-BUS adapter.

Floating signal circuits

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<tr>
<th>Controller for voltage supply</th>
<th>Protection device</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection for two double conductors* e.g., standard signals 0/4 ... 20 mA</td>
<td>PT-IQ-PTB-UT Order No. 2800768</td>
</tr>
<tr>
<td>PT-IQ-PTB-UT Order No. 2800768</td>
<td>PT-IQ-1x2+F-24DC-UT Order No. 2800977</td>
</tr>
<tr>
<td>Protection for two double conductors e.g., standard signals 0/4 ... 20 mA</td>
<td>PT-IQ-PTB-UT Order No. 2800768</td>
</tr>
<tr>
<td>PT-IQ-2x2+F-24DC-UT Order No. 2800981</td>
<td>PT-IQ-1x2-24DC-UT Order No. 2800976</td>
</tr>
</tbody>
</table>

Signal circuits with common reference potential

| Protection for two conductors* e.g., binary switching signals | PT-IQ-PTB-UT Order No. 2800768 |
| + | PT-IQ-2x1+F-24DC-UT Order No. 2800788 |
| Protection for four conductors e.g., binary switching signals | PT-IQ-PTB-UT Order No. 2800768 |
| + | PT-IQ-4x1+F-24DC-UT Order No. 2800983 |

* other voltage levels are available > www.phoenixcontact.com

Grounding

Indirect grounding
In the PT...+F... or -BE modules, the connections for the shield or the reference potential are connected to the metal mounting foot and therefore the DIN rail via a gas-filled surge arrester.

Direct grounding
In the PT...-UT or -BE modules, the connections for the shield or the reference potential are connected to the DIN rail via the metal mounting foot.

Intelligent and systematic surge protection

PLUGTRAB PT-IQ is a range of self-monitoring surge protective devices with multi-stage status indicator. A controller supplies up to 28 protection modules with voltage, collects the status of all connected protection devices and implements remote signaling via a DIN rail bus (T-BUS). A surge protective device consists of the plug, base element and T-BUS adapter.

Floating signal circuits

<table>
<thead>
<tr>
<th>Controller for voltage supply</th>
<th>Protection device</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection for two double conductors* e.g., standard signals 0/4 ... 20 mA</td>
<td>PT-IQ-PTB-UT Order No. 2800768</td>
</tr>
<tr>
<td>PT-IQ-PTB-UT Order No. 2800768</td>
<td>PT-IQ-1x2+F-24DC-UT Order No. 2800977</td>
</tr>
<tr>
<td>Protection for two double conductors e.g., standard signals 0/4 ... 20 mA</td>
<td>PT-IQ-PTB-UT Order No. 2800768</td>
</tr>
<tr>
<td>PT-IQ-2x2+F-24DC-UT Order No. 2800981</td>
<td>PT-IQ-1x2-24DC-UT Order No. 2800976</td>
</tr>
</tbody>
</table>

Signal circuits with common reference potential

| Protection for two conductors* e.g., binary switching signals | PT-IQ-PTB-UT Order No. 2800768 |
| + | PT-IQ-2x1+F-24DC-UT Order No. 2800788 |
| Protection for four conductors e.g., binary switching signals | PT-IQ-PTB-UT Order No. 2800768 |
| + | PT-IQ-4x1+F-24DC-UT Order No. 2800983 |

* other voltage levels are available > www.phoenixcontact.com

Grounding

Indirect grounding
In the PT...+F... or -BE modules, the connections for the shield or the reference potential are connected to the metal mounting foot and therefore the DIN rail via a gas-filled surge arrester.

Direct grounding
In the PT...-UT or -BE modules, the connections for the shield or the reference potential are connected to the DIN rail via the metal mounting foot.
**PLUGTRAB PT – plug-in surge protection**

PLUGTRAB PT consists of base element and protective plug. Various different grounding options were implemented via the corresponding base element. Each protective plug can be tested using the Checkmaster arrester test device.

### Floating signal circuits

<table>
<thead>
<tr>
<th>The products on this page support the HART protocol**&lt;sup&gt;**&lt;/sup&gt;</th>
<th>Plug</th>
<th>Base element</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Protection for a double conductor*&lt;sup&gt;1&lt;/sup&gt;</td>
<td>PT 1x2-12DC-ST</td>
</tr>
<tr>
<td></td>
<td>e.g., standard signals 0/4 ... 20 mA</td>
<td>Order No. 2856029</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PT 1x2-24DC-ST</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Order No. 2856032</td>
</tr>
<tr>
<td></td>
<td>Protection for two double conductors*&lt;sup&gt;2&lt;/sup&gt;</td>
<td>PT 2x2-12DC-ST</td>
</tr>
<tr>
<td></td>
<td>e.g., standard signals 0/4 ... 20 mA</td>
<td>Order No. 2838254</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PT 2x2-24DC-ST</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Order No. 2838228</td>
</tr>
<tr>
<td></td>
<td>Protection for intrinsically safe circuits one or two double conductors</td>
<td>PT 2EX(I)-12DC-STD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Order No. 2838225</td>
</tr>
<tr>
<td></td>
<td>Protection for temperature, 2, 3 or 4-wire measurement</td>
<td>PT 4-24DC-ST</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Order No. 2839240</td>
</tr>
<tr>
<td></td>
<td>Protection for intrinsically safe circuits 2, 3 or 4-wire measurement</td>
<td>PT 4-EX(I)-24DC-ST</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Order No. 2839253</td>
</tr>
</tbody>
</table>

* Other voltage levels are available > www.phoenixcontact.com

**<sup>**<sup>**</sup> HART = Highway Addressable Remote Transducer Protocol (Phoenix Contact is a registered member of the HART Communication Foundation)
### Signal circuits with common reference potential

<table>
<thead>
<tr>
<th><strong>Plug</strong></th>
<th><strong>Base element</strong></th>
</tr>
</thead>
</table>
| Protection for two conductors*  
  e.g., binary switching signals  
  PT 2x1-24DC-ST  
  Order No. 2856074  
  +  
  PT 2x1-24AC-ST  
  Order No. 2856100  
  +  
  PT 2x1-F-BE  
  Order No. 2856142 | Indirect grounding  
  Direct grounding  
  +  
  PT 2x1-F-BE  
  Order No. 2856139  
  +  
  PT 4x1-F-BE  
  Order No. 2839376  
  +  
  PT 4x1-BE  
  Order No. 2839363 |
| Protection for four conductors*  
  e.g., binary switching signals  
  PT 4x1-24DC-ST  
  Order No. 2838319  
  +  
  PT 4x1-24AC-ST  
  Order No. 2838351  
  +  
  PT 4x1-F-BE  
  Order No. 2839376 | PT 4x1-BE  
  Order No. 2839363 |
| Protection for high signal voltages*  
  PT 2x1VA-120AC-ST  
  Order No. 2839185  
  +  
  PT 2x1VA-230AC-ST  
  Order No. 2839198 | PT-BE/FM  
  Order No. 2839282 |

### Single-stage protection with gas-filled arrester as coarse protection

<table>
<thead>
<tr>
<th><strong>Plug</strong></th>
<th><strong>Base element</strong></th>
</tr>
</thead>
</table>
| Protection for two conductors  
  PT 2-F-ST  
  Order No. 2859000  
  +  
  PT-BE/FM  
  Order No. 2839282 |  
  Direct grounding  
  +  
  PT 4-F-ST  
  Order No. 2858441  
  +  
  PT 4-BE  
  Order No. 2839402 |

### Further surge protection devices for measurement and control technology

- LINETRAB – the standard in the 6.2 mm class
- SURGETRAB – Protection directly at the measuring head
- TERMITRAB – Protection in the modular terminal block
Surge protection for information technology

Reliable data exchange and telecommunication is indispensable nowadays. Sensitive systems operate at high frequencies with low signal levels and expansive networking. Surge voltages would here result in widespread failures and, in the worst case, data loss.

This selection guide helps you find the right protection quickly and easily in line with the application – giving you greater availability.

The perfect fit
The DATATRAB series can be used as adapter or DIN rail module.

Small and modular
Two-channel protective plug for CT-TERMIBLOCK and LSA-Plus strips.

Many applications and just one solution
Solutions on the basis of PLUGTRAB series are especially suitable for installation in the control cabinet.
# Information and data technology (BUS systems)

<table>
<thead>
<tr>
<th>Plug</th>
<th>Base element*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Indirect grounding</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Profibus DP</td>
<td>PT 3-PB-ST</td>
</tr>
<tr>
<td></td>
<td>+</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>INTERBUS-INLINE remote bus</td>
<td>PT 5-HF-5DC-ST</td>
</tr>
<tr>
<td></td>
<td>PT 2X2+F-BE</td>
</tr>
<tr>
<td></td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Order No. 2839208</td>
</tr>
<tr>
<td>INTERBUS-INLINE (I/O) Analog</td>
<td>PT 2X2-24AC-ST</td>
</tr>
<tr>
<td></td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Order No. 2839363</td>
</tr>
<tr>
<td>INTERBUS-INLINE (I/O) Digital</td>
<td>PT 4X1-24AC-ST</td>
</tr>
<tr>
<td></td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Order No. 2839279</td>
</tr>
</tbody>
</table>

<figure>

* For an explanation, see page 13 "Grounding"

## Accessories

<table>
<thead>
<tr>
<th>RJ45 patch cable, length: <strong>0.5 m</strong></th>
<th>FL CAT6 PATCH 0.5</th>
<th>Order No. 2891288</th>
</tr>
</thead>
<tbody>
<tr>
<td>RJ45 patch cable, length: <strong>3 m</strong></td>
<td>FL CAT6 PATCH 3.0</td>
<td>Order No. 2891686</td>
</tr>
</tbody>
</table>

---

**High-speed data protection**

The DATATRAB family is synonymous with effective surge protection for high-speed data transfers.

As a result, the DT-LAN-CAT.6+ provides universal protection for network speeds up to 10 Gbps without influencing the signals.
# Data technology (serial interfaces)

<table>
<thead>
<tr>
<th>Plug</th>
<th>Base element</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Data systems RS 485 RS 422A" /></td>
<td><strong>Indirect grounding</strong></td>
</tr>
<tr>
<td><img src="image2" alt="Data systems RS 232 C" /></td>
<td><strong>Direct grounding</strong></td>
</tr>
</tbody>
</table>

### ADSL, HDSL, T-DSL, V-DSL
- **Analog telephony**
- **ISDN U_{ko}**

- **Order No. 2882828**
  - **PT 5-HF-12DC-ST**
  - **Order No. 2838775**

- **Order No. 2882925**
  - **PT 2-TELE-RJ45**
  - **Order No. 2839224**

- **Order No. 2838636**
  - **CTM 2X1-180DC-GS**
  - **Order No. 2838623**

- **Order No. 2838539**
  - **CTM 1X2-110AC**

### Telecommunications

**DSL**
- **ADSL, HDSL, T-DSL, V-DSL**
- **Analog telephony**
- **ISDN U_{ko}**

- **Order No. 2882828**
  - **PT 2-TELE**

- **Order No. 2882925**
  - **DT-TELE-RJ45**

- **Order No. 2838775**
  - **PT 5-HF-12DC-ST**

- **Order No. 28381007**
  - **DT-LAN-CAT.6+**

**ATM**
- **ISDN S_{1}**
- **ISDN S_{2M}**

- **Order No. 2858043**
  - **PT 3-HF-12DC-ST**

- **Order No. 2856126**
  - **PT 1X2+F-BE**

**Analog telephony**
- **Coarse protection with fail-safe contact**

- **Analog telephony**
  - **Coarse protection with fail-safe contact and power cross protection**

- **Analog telephony**
  - **Coarse and fine protection**
Magazine with grounding rail
- To accommodate up to 10 CTM connectors

Disconnect strip screw terminal block
- For standard rails of type NS-32 and NS-35/7.5
- compatible with the CTM 10-MAG with connections for 20 conductors up to 4 mm² and with disconnect contacts for CTM protective connectors
Surge protection for transceiver systems

The high frequencies of wireless transmission require the use of protective devices with reduced insertion attenuation. COAXTRAB fulfills this requirement.

The coaxial arresters are suitable for all common transmission systems in mobile and public safety wireless networks in the field of video or television transmission.

Customized products
Thanks to their very low attenuation values, surge protection devices ensure interference-free signal transmission in all standard applications.

Shielding
Good shielding properties are indispensable for a “clean” transmission. Robust metal housings ensure a perfect shielding and are suitable for use in harsh environments.

Connection technology
A connection system suitable for the relevant application: F and N connector, TV connector and 7/16, UHF, BNC connections.

Many applications and just one solution
Solutions on the basis of PLUGTRAB series are especially suitable for installation in the control cabinet.
**Protection for transceiver systems**

**GPS or GSM (900, 1800 MHz)**
- With N connector

**UMTS**
- With 7/16 connector

**GSM (900, 1800, 1900 MHz)**
- Without supply voltage on the coaxial cable
- Very low protection level
- With N connector

**UMTS**
- With 7/16 connector

**WiMAX (2.4... 6 GHz)**
- Without supply voltage on the coaxial cable
- Very low protection level
- With N connector

---

**Protection for transceiver systems**

**GPS or GSM (900, 1800 MHz)**
- With N connector

**UMTS**
- With 7/16 connector

**GSM (900, 1800, 1900 MHz)**
- Without supply voltage on the coaxial cable
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**UMTS**
- With 7/16 connector

**WiMAX (2.4... 6 GHz)**
- Without supply voltage on the coaxial cable
- Very low protection level
- With N connector

---

**Accessories**

**Mounting plate**
- For individually securing the CN-UB-280DC

**CN-UB-280DC-SB**
Order No. 2818148

**CN-UB-280DC-BB**
Order No. 2818850

**C7/16-UB-280DC-SB-SET**
Order No. 2881544

**CN-LAMBDA/4-2.25-BB**
Order No. 2801057

**CN-LAMBDA/4-2.25-SB**
Order No. 2801056

**CN-LAMBDA/4-2.25-BB**
Order No. 2801060

**CN-LAMBDA/4-2.25-SB**
Order No. 2801059

**CN-LAMBDA/4-5.9-BB**
Order No. 2838490

**CN-LAMBDA/4-5.9-SB**
Order No. 2800023

---

**Mounting plate**
- For individually securing the CN-UB-280DC

**Mounting plate, 90° angled**
- For individually securing the CN-UB-280DC e.g. for wall mounting

**CN-UB/MP**
Order No. 2818135

**CN-UB/MP-90DEG-50**
Order No. 2803137
Protection for video monitoring systems

<table>
<thead>
<tr>
<th>Protection</th>
<th>Description</th>
<th>50 Ohm</th>
<th>75 Ohm</th>
</tr>
</thead>
<tbody>
<tr>
<td>with BNC connection</td>
<td></td>
<td>C-UFB-SDC/E</td>
<td>C-UFB-SDC/E 75</td>
</tr>
<tr>
<td>for one video signal</td>
<td></td>
<td>Order No. 2782300</td>
<td>Order No. 2763604</td>
</tr>
<tr>
<td>with screw connection</td>
<td></td>
<td>PT 3-PB-ST</td>
<td>PT 1X2+F-BE</td>
</tr>
<tr>
<td>for two video signals</td>
<td></td>
<td>Order No. 2858030</td>
<td>Order No. 2856126</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PT 2X2-HF-SDC-ST</td>
<td>PT 2X2-BE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Order No. 2839567</td>
<td>Order No. 2839208</td>
</tr>
</tbody>
</table>

Protection for television and radio systems

<table>
<thead>
<tr>
<th>Protection</th>
<th>Description</th>
<th>50 Ohm</th>
<th>75 Ohm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satellite television</td>
<td>Upstream of the distributor (multiswitch)</td>
<td>C-SAT-BOX</td>
<td>C-SAT-BOX</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Order No. 2880561</td>
<td>Order No. 2856993</td>
</tr>
<tr>
<td>Satellite television</td>
<td>Upstream of the SAT receiver or television</td>
<td>C-TV-SAT</td>
<td>C-TV/HIFI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Order No. 2856993</td>
<td>Order No. 2857002</td>
</tr>
<tr>
<td>Cable/terrestrial television</td>
<td>Upstream of the television, radio or tuner of the HiFi system</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Accessories

- **F connector adapter (plug-to-plug)**
  - Ideal for direct connection of the C-SAT-BOX to a multiswitch with the same pitch
  - No thread plug-in coupling allows a quick connection
  - Secure hold via clamping ring
  - ADAPTER KOAX TYP F
  - Order No. 2880972

- **F connector cable (connector to connector)**
  - For flexibly connecting the C-SAT-BOX to a multiswitch with a different pitch
  - KBL-SAT/20
  - Order No. 2880985
## Combined protection for television/radio connections and the power supply unit

### Satellite television

*Use with simultaneous protection of power supply upstream of the SAT receiver or television.*

### Cable/terrestrial television

*Use with simultaneous protection of power supply upstream of the television, radio or tuner of the HiFi system.*

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MNT-...</td>
<td>MNT-TV-SAT D</td>
<td>MNT-TV-SAT B/F</td>
<td>MNT-TV-SAT E</td>
<td>MNT-TV-SAT S/WH</td>
</tr>
<tr>
<td></td>
<td>Order No. 2882284</td>
<td>Order No. 2882307</td>
<td>Order No. 2882310</td>
<td>Order No. 2880888</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Combitrab</th>
<th>Country: D, I, NL, E, P</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBT-...</td>
<td>CBT-TV-SAT</td>
</tr>
<tr>
<td>Order No. 2857303</td>
<td></td>
</tr>
</tbody>
</table>
Further information on the products presented here and on the world of solutions from Phoenix Contact can be found at www.phoenixcontact.net/catalog

Or contact us directly.

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