



**LIGHTNING AND SURGE PROTECTION  
YELLOW PROTECTS**

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## SURGE PROTECTION FOR MEASURING SYSTEMS AND AUTOMATIC CONTROL DEVICES

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	Network type	Description	
<b>THREE-PHASE POWER SUPPLY</b>	TN-S	Three-phase power supply Separate N and PE	
	TT	Three-phase power supply Separate N and PE	
	TN-C	Three-phase power supply Common PEN	
<b>SINGLE-PHASE POWER SUPPLY</b>	TN-S	Single-phase power supply Separate N and PE	
	TT	Single-phase power supply Separate N and PE	
	TN-C	Single-phase power supply Common PEN	

\* according to the lightning protection zones concept



Adequate SPD circuit type	Product example lightning current arrester type 1, applicable at the LPZ transition point $0_A - 1^*$	Product example surge protector type 2, applicable at the LPZ transition point $0_B - 1^*$	Product example terminal device protection type 3 arrester, applicable at the LPZ transition point 1 – 2 or higher*
4 + 0 / 3 + 1	CT-T1+2/3+1-350-FM (Item no. 96 00 01)	CT-T2/4+0-275-FM (Item no. 96 00 55)	CT-T3/Y3-230-FM (Item no. 96 02 05)
3 + 1	CT-T1+2/3+1-350-FM (Item no. 96 00 01)	CT-T2/3+1-275-FM (Item no. 96 00 43)	CT-T3/Y3-230-FM (Item no. 96 02 05)
3 + 0	CT-T1+2/3+0-350-FM (Item no. 96 00 03)	CT-T2/3+0-275-FM (Item no. 96 00 45)	
2 + 0 / 1 + 1	CT-T1+2/2+0-350-FM (Item no. 96 00 07)	CT-T2/2+0-275-FM (Item no. 96 00 49)	CT-T3/Y1-230-FM (Item no. 96 02 03)
1 + 1	CT-T1+2/1+1-350-FM (Item no. 96 00 09)	CT-T2/1+1-275-FM (Item no. 96 00 51)	CT-T3/Y1-230-FM (Item no. 96 02 03)
1 + 0	CT-T1+2/1+0-350-FM (Item no. 96 00 11)	CT-T2/1+0-275-FM (Item no. 96 00 53)	

## TWO-PIECE PLUGGABLE SURGE PROTECTIVE DEVICES FOR AC POWER SUPPLY SYSTEMS

New product line »Leutron Power«: Powerful and standardized pluggable modules for almost every power supply system available.

- Optimized follow-on current extinguishing capability

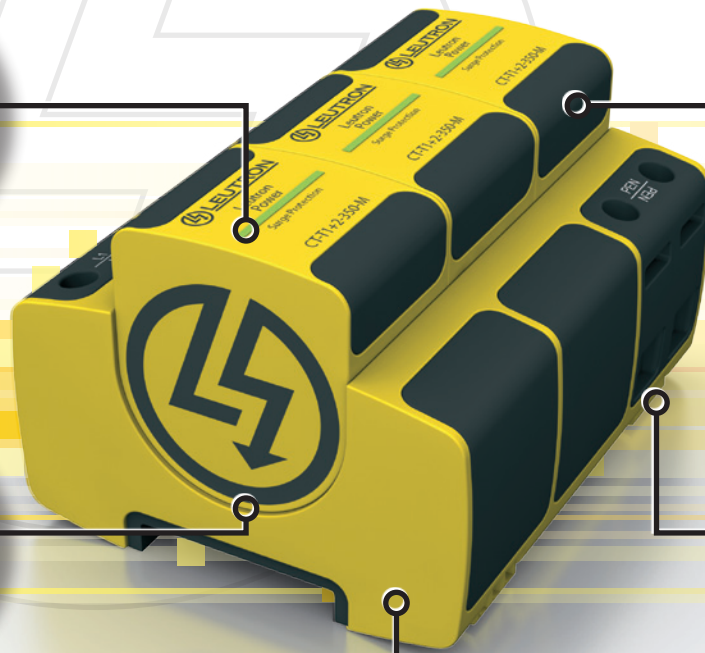
Mechanical status indicator: State of the surge protective device is optically indicated

Locking function: Release of the latches by ergonomically shaped grip lugs

Protection against mismatching: Optimized installation due to arresters with coding

Remote signalling: Combined remote contact (changeover contact) optionally available

Turnable plug-in modules: The plug-in modules can be twisted on the basic module, thus, guaranteeing always good readability even with variable wiring





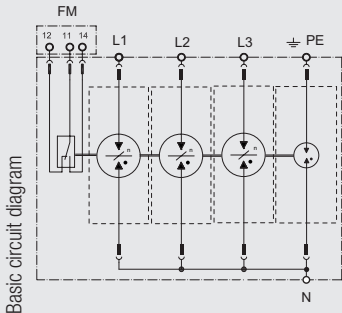
### Lightning current arrester type 1 for AC power supplies

#### CT-T1/3+1

Lightning current discharge arrester with rare-gas-filled spark gap for the use in three-phase TT and TN-S systems. They provide extremely high discharge capabilities with at the same time very low protection levels and they also do not need any damageable internal or external electronic trigger.



Example photo



- Applicable at the boundaries LPZ 0<sub>A</sub> - 1
- Test standard: IEC 61643-1 / EN 61643-11
- Mounting on 35 mm DIN rail
- Enclosure material: thermoplastic with the colors yellow and black
- Degree of protection according to IEC EN 60529: IP 20
- Inflammability class according to UL 94 V0
- Space required for installation: 144 mm
- Remote changeover contact

Technical Data	CT-T1/3+1-350-FM	CT-T1/1+1-350-FM	CT-T1/2+0-350-FM	CT-T1/3+0-350-FM
Article-No.	96 02 07	96 02 15	96 02 13	96 02 09
IEC category/EN type	Type 1 / class I	Type 1 / class I	Type 1 / class I	Type 1 / class I
Nominal voltage	UN 230/400 V	230/400 V	230/400 V	230/400 V
Max. continuous operating voltage AC	Uc 350 V~	350 V~	350 V~	350 V~
Lightning impulse current (10/350) total	I <sub>total</sub> 100 kA	50 kA	50 kA	75 kA
Lightning impulse current (10/350) L-N/N-PE/L-PEN	I <sub>imp</sub> 25 / 100 / - kA	25 / 50 / - kA	25 / - / - kA	- / - / 75 (3L-PEN) kA
Nominal discharge current (8/20) L-N/N-PE/L-PEN	I <sub>n</sub> 25 / 100 / - kA	25 / 50 / - kA	25 / - / - kA	- / - / 75 (3L-PEN) kA
Voltage protection level at I <sub>imp</sub>	U <sub>p</sub> ≤ 2,5 kV	≤ 2,5 kV	≤ 2,5 kV	≤ 2,5 kV
Follow current quenching capacity AC L-N (260V AC)	I <sub>fi</sub> 10 kA <sub>eff</sub>	10 kA <sub>eff</sub>	10 kA <sub>eff</sub>	10 kA <sub>eff</sub>
Follow current quenching capacity AC N-PE	I <sub>fi</sub> 100 A <sub>eff</sub>	100 A <sub>eff</sub>	50 kA <sub>eff</sub>	50 kA <sub>eff</sub>
Short-circuit withstand capability at max. back-up fuse	I <sub>k</sub> 50 kA <sub>eff</sub>	50 kA <sub>eff</sub>	-	-
Max. acceptable backup fuse (branch wiring)	250 A gL/gG	250 A gL/gG	250 A gL/gG	250 A gL/gG
Max. acceptable backup fuse (V-type through wiring)	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Min. conductor cross section at terminals	10mm <sup>2</sup> solid/flexible	10mm <sup>2</sup> solid/flexible	10mm <sup>2</sup> solid/flexible	10mm <sup>2</sup> solid/flexible
Max. conductor cross section	50mm <sup>2</sup> stranded/35mm <sup>2</sup> flexible	50mm <sup>2</sup> stranded/35mm <sup>2</sup> flexible	50mm <sup>2</sup> stranded/35mm <sup>2</sup> flexible	50mm <sup>2</sup> stranded/35mm <sup>2</sup> flexible
Dimension (DIN 43880)	8 TE	4 TE	4 TE	6 TE
Max. operating voltage remote contact	250 V AC/125 V DC	250 V AC/125 V DC	250 V AC/125 V DC	250 V AC/125 V DC
Max. operating current remote contact	1 A AC/200 mA DC	1 A AC/200 mA DC	1 A AC/200 mA DC	1 A AC/200 mA DC

Accessories						
Product	CT-T1-350-M	CT-T1-NPE-M		CT-T1/1+1-350-FM	CT-T1/2+0-350-FM	CT-T1/3+0-350-FM
Article-No.	96 02 37	96 02 38		96 02 15	96 02 13	96 02 09

Replacement protective plug for lightning current discharge arresters.



Lightning current discharge arrester with rare-gas-filled spark gap for the use in single-phase TT and TN systems.



Lightning current discharge arrester with rare-gas-filled spark gap for the use in single-phase TN systems.



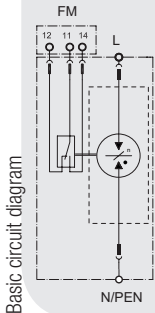
Lightning current discharge arrester with rare-gas-filled spark gap for the use in three-phase TNC systems.



### Lightning current arrester type 1 for AC power supplies

#### CT-T1/1+0

Lightning current discharge arrester with rare-gas-filled spark gap for the use between L - N wire. They provide extremely high discharge capabilities with at the same time very low protection levels and they also do not need any damageable internal or external electronic trigger.



- Applicable at the boundaries LPZ 0<sub>A</sub> - 1
- Test standard: IEC 61643-1 / EN 61643-11
- Mounting on 35 mm DIN rail
- Enclosure material: thermoplastic with the colors yellow and black

- Degree of protection according to IEC EN 60529: IP 20
- Inflammability class according to UL 94 V0
- Space required for installation: 36 mm
- Remote changeover contact



Example photo

Technical Data	CT-T1/1+0-350-FM
Article-No.	96 02 17
IEC category/EN type	Type 1 / class I
Nominal voltage	UN 230/400 V
Max. continuous operating voltage AC	Uc 350 V~
Lightning impulse current (10/350) total	I <sub>total</sub> 25 kA
Lightning impulse current (10/350) L-N/N-PE/L-PEN	I <sub>imp</sub> 25 / - / - kA
Nominal discharge current (8/20) L-N/N-PE/L-PEN	I <sub>n</sub> 25 / - / 25 kA
Voltage protection level at I <sub>imp</sub>	U <sub>p</sub> ≤ 2,5 kV
Follow current quenching capacity AC L-N (260V AC)	I <sub>fi</sub> 10 kA <sub>eff</sub>
Short-circuit withstand capability at max. back-up fuse	I <sub>sk</sub> 50 kA <sub>eff</sub>
Max. acceptable backup fuse (branch wiring)	250 A gL/gG
Max. acceptable backup fuse (V-type through wiring)	125 A gL/gG
Operating temperature range	TU -40 - +80 °C
Min. conductor cross section at terminals	10mm <sup>2</sup> solid/flexible
Max. conductor cross section	50mm <sup>2</sup> stranded/35mm <sup>2</sup> flexible
Dimension (DIN 43880)	2 TE
Max. operating voltage remote contact	250 V AC/125 V DC
Max. operating current remote contact	1 A AC/200 mA DC

#### Accessories

Product	CT-T1-350-M
Article-No.	96 02 37

Replacement protective plug for lightning current discharge arresters.



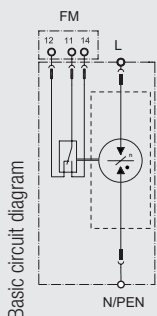




### Lightning current arrester type 1 for AC power supplies

#### CT-T1-FS

Lightning current capable and rare-gas-filled summation current spark gap for the use between N - PE wire. They provide extremely high discharge capabilities with at the same time very low protection levels and they also do not need any damageable internal or external electronic trigger.



Example photo

- Applicable at the LPZ transition point  $O_A-1$  respectively  $O_A-2$
- Test standard: IEC 61643-1 / EN 61643-11
- Enclosure material: thermoplastic with the colors yellow and black
- Mounting on 35 mm DIN rail
- Degree of protection according to IEC EN 60529: IP 20
- Inflammability class according to UL 94 V0
- Space required for installation: 36 mm

Technical Data	CT-T1/0+1-FS-FM
Article-No.	96 02 33
IEC category/EN type	Type 1 / class I
Nominal voltage UN	230 V
Max. continuous operating voltage AC Uc	260 V~
Lightning impulse current (10/350) Iimp	100 kA
Lightning impulse current (10/350) L-N/N-PE/L-PEN Iimp	- / 100 / - kA
Nominal discharge current (8/20) L-N/N-PE/L-PEN In	- / 100 / - kA
Voltage protection level at Iimp Up	≤ 2,5 kV
Follow current quenching capacity AC N-PE Iqi	100 Aeff
Short-circuit withstand capability at max. back-up fuse Ik	50 kAeff
Max. acceptable backup fuse (branch wiring)	250 A gL/gG
Max. acceptable backup fuse (V-type through wiring)	125 A gL/gG
Operating temperature range TU	-40 - +80 °C
Min. conductor cross section at terminals	10mm <sup>2</sup> solid/flexible
Max. conductor cross section	50mm <sup>2</sup> stranded/35mm <sup>2</sup> flexible
Dimension (DIN 43880)	2 TE
Max. operating voltage remote contact	250 V AC/125 V DC
Max. operating current remote contact	1 A AC/200 mA DC

Accessories	
Product	CT-T1-NPE-M
Article-No.	96 02 38

Replacement protective plug for lightning current capable summation spark gaps.





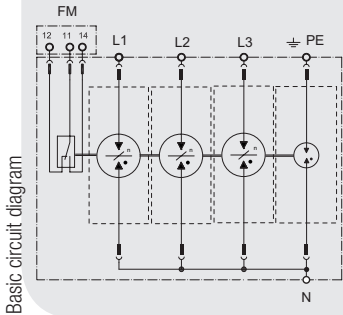
### Combined arrester type 1 + 2 for AC power supplies

#### CT-T1+2/3+1

Lightning current discharge arrester with rare-gas-filled spark gap and very low protection level  $\leq 1.5$  kV for the use in three-phase TT and TN-S systems. They provide extremely high discharge capabilities with at the same time very low protection levels and they also do not need any damageable internal or external electronic trigger.



Example photo



Basic circuit diagram

- Applicable at the boundaries LPZ  $0_A - 2$
- Test standard: IEC 61643-1 / EN 61643-11
- Mounting on 35 mm DIN rail
- Enclosure material: thermoplastic with the colors yellow and black
- Degree of protection according to IEC EN 60529: IP 20
- Inflammability class according to UL 94 V0
- Space required for installation: 144 mm
- Remote changeover contact

Technical Data	CT-T1+2/3+1-350-FM	CT-T1+2/1+1-350-FM	CT-T1+2/2+0-350-FM	CT-T1+2/3+0-350-FM
Article-No.	96 00 01	96 00 09	96 00 07	96 00 03
IEC category/EN type	Type 1 + 2 / class I + II	Type 1 + 2 / class I + II	Type 1 + 2 / class I + II	Type 1 + 2 / class I + II
Nominal voltage UN	230/400 V	230/400 V	230/400 V	230/400 V
Max. continuous operating voltage AC U <sub>c</sub>	350 V~	350 V~	350 V~	350 V~
Lightning impulse current (10/350) total I <sub>total</sub>	100 kA	50 kA	50 kA	75 kA
Lightning impulse current (10/350) L-N/N-PE/L-PEN I <sub>imp</sub>	25 / 100 / - kA	25 / 50 / - kA	25 / - / - kA	- / - / 75 (3L-PEN) kA
Nominal discharge current (8/20) L-N/N-PE/L-PEN I <sub>n</sub>	25 / 100 / - kA	25 / 50 / - kA	25 / - / - kA	- / - / 75 (3L-PEN) kA
Voltage protection level at I <sub>imp</sub> U <sub>p</sub>	$\leq 1,5$ kV	$\leq 1,5$ kV	$\leq 1,5$ kV	$\leq 1,5$ kV
Follow current quenching capacity AC L-N (260V AC) I <sub>fi</sub>	4 kA <sub>eff</sub>	4 kA <sub>eff</sub>	4 kA <sub>eff</sub>	4 kA <sub>eff</sub>
Follow current quenching capacity AC N-PE I <sub>fi</sub>	100 A <sub>eff</sub>	100 A <sub>eff</sub>	-	-
Short-circuit withstand capability at max. back-up fuse I <sub>k</sub>	50 kA <sub>eff</sub>	50 kA <sub>eff</sub>	50 kA <sub>eff</sub>	50 kA <sub>eff</sub>
Max. acceptable backup fuse (branch wiring)	250 A gL/gG	250 A gL/gG	250 A gL/gG	250 A gL/gG
Max. acceptable backup fuse (V-type through wiring)	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
Operating temperature range TU	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Min. conductor cross section at terminals	10mm <sup>2</sup> solid/flexible	10mm <sup>2</sup> solid/flexible	10mm <sup>2</sup> solid/flexible	10mm <sup>2</sup> solid/flexible
Max. conductor cross section	50mm <sup>2</sup> stranded/35mm <sup>2</sup> flexible	50mm <sup>2</sup> stranded/35mm <sup>2</sup> flexible	50mm <sup>2</sup> stranded/35mm <sup>2</sup> flexible	50mm <sup>2</sup> stranded/35mm <sup>2</sup> flexible
Dimension (DIN 43880)	8 TE	4 TE	4 TE	6 TE
Max. operating voltage remote contact	250 V AC/125 V DC	250 V AC/125 V DC	250 V AC/125 V DC	250 V AC/125 V DC
Max. operating current remote contact	1 A AC/200 mA DC	1 A AC/200 mA DC	1 A AC/200 mA DC	1 A AC/200 mA DC

Accessories						
Product	CT-T1+2-350-M	CT-T1-NPE-M		CT-T1+2/1+1-350-FM	CT-T1+2/2+0-350-FM	CT-T1+2/3+0-350-FM
Article-No.	96 02 36	96 02 38		96 00 09	96 00 07	96 00 03

Replacement protective plug for combined lightning current discharge and surge arresters.



For the use in single-phase TT and TN systems.



For the use in single-phase TN systems



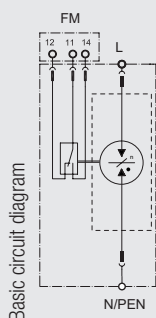
For the use in three-phase TNC systems.



### Combined arrester type 1 + 2 for AC power supplies

#### CT-T1+2/1+0

Lightning current discharge arrester with rare-gas-filled spark gap and very low protection level < 1 kV for the use between L - N wire. They provide extremely high discharge capabilities with at the same time very low protection levels and they also do not need any damageable internal or external electronic trigger.



Example photo

- Applicable at the boundaries LPZ 0<sub>A</sub> - 2
- Test standard: IEC 61643-1 / EN 61643-11
- Mounting on 35 mm DIN rail
- Enclosure material: thermoplastic with the colors yellow and black
- Degree of protection according to IEC EN 60529: IP 20
- Inflammability class according to UL 94 V0
- Space required for installation: 36 mm
- Remote changeover contact

Technical Data	CT-T1+2/1+0-350-FM
Article-No.	96 00 11
IEC category/EN type	Type 1 + 2 / class I + II
Nominal voltage UN	230/400 V
Max. continuous operating voltage AC Uc	350 V~
Lightning impulse current (10/350) total Itotal	25 kA
Lightning impulse current (10/350) L-N/N-PE/L-PEN Iimp	25 / - / - kA
Nominal discharge current (8/20) L-N/N-PE/L-PEN In	25 / - / 25 kA
Voltage protection level at Iimp Up	≤ 1,5 kV
Follow current quenching capacity AC L-N (260V AC) Ifi	4 kAeff
Short-circuit withstand capability at max. back-up fuse Ik	50 kAeff
Max. acceptable backup fuse (branch wiring)	250 A gL/gG
Max. acceptable backup fuse (V-type through wiring)	125 A gL/gG
Operating temperature range TU	-40 - +80 °C
Min. conductor cross section at terminals	10mm <sup>2</sup> solid/flexible
Max. conductor cross section	50mm <sup>2</sup> stranded/35mm <sup>2</sup> flexible
Dimension (DIN 43880)	2 TE
Max. operating voltage remote contact	250 V AC/125 V DC
Max. operating current remote contact	1 A AC/200 mA DC

Accessories	
Product	CT-T1+2-350-M
Article-No.	96 02 36



Replacement protective plug for combined lightning current discharge and surge arresters.



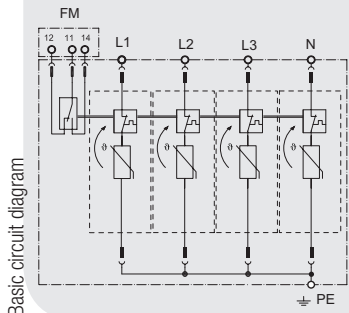
### SPD type 2 for AC power supplies

#### CT-T2/4+0

Fully pluggable surge protective arrester for the use in three-phase TNS systems.



Example photo



Basic circuit diagram

- Test standard: IEC 61643-1 / EN 61643-11
- Applicable at the boundaries LPZ 0<sub>B</sub> - 1 and higher
- Degree of protection according to IEC EN 60529: IP 20
- Mounting on 35 mm DIN rail
- Enclosure material: thermoplastic with the colors yellow and black
- Inflammability class according to UL 94 V0
- Optional remote changeover contact

Technical Data	CT-T2/4+0-150	CT-T2/4+0-275	CT-T2/4+0-350	CT-T2/4+0-440
Article-No.	96 00 40	96 00 54	96 00 68	96 00 82
IEC category/EN type	Type 2 / class II	Type 2 / class II	Type 2 / class II	Type 2 / class II
Nominal voltage	UN 120 V	230 V	230 V	230 V
Max. continuous operating voltage AC	Uc 150 V~	275 V~	350 V~	440 V~
Nominal discharge current (8/20)	In 15 kA	20 kA	20 kA	20 kA
Max. impulse discharge current (8/20)	I <sub>max</sub> 40 kA	40 kA	40 kA	40 kA
Protection level at I <sub>n</sub>	Up ≤ 0,7 kV	≤ 1,2 kV	≤ 1,5 kV	≤ 2,0 kV
Protection level at 5 kA	Up ≤ 0,5 kV	≤ 0,9 kV	≤ 1,0 kV	≤ 1,5 kV
Short-circuit withstand capability at max. back-up fuse	I <sub>k</sub> 25 kA <sub>eff</sub>	25 kA <sub>eff</sub>	25 kA <sub>eff</sub>	25 kA <sub>eff</sub>
Max. allowed prefuse	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Min. conductor cross section at terminals	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible
Max. conductor cross section	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible
Dimension (DIN 43880)	4 TE (72 mm)	4 TE (72 mm)	4 TE (72 mm)	4 TE (72 mm)

With Remote Signal Contact (FM)	CT-T2/4+0-150-FM	CT-T2/4+0-275-FM	CT-T2/4+0-350-FM	CT-T2/4+0-440-FM
Article-No.	96 00 41	96 00 55	96 00 69	96 00 83
Max. operating voltage remote contact	250 V AC/125 V DC	250 V AC/125 V DC	250 V AC/125 V DC	250 V AC/125 V DC
Max. operating current remote contact	1 A AC/200 mA DC	1 A AC/200 mA DC	1 A AC/200 mA DC	1 A AC/200 mA DC

Accessories		
Product	CT-T2-350-M	CT-T2-275-M
Article-No.	96 01 85	96 01 84



Replacement protective plug for surge protection devices type 2.



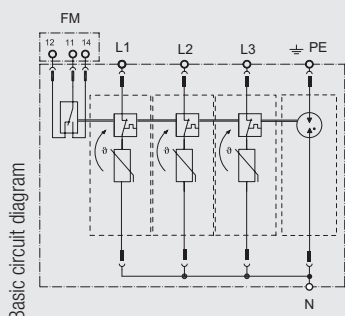
### SPD type 2 for AC power supplies

#### CT-T2/3+1

Fully pluggable surge protective arrester for the use in three-phase TT and TNS systems.



Example photo



- Applicable at the boundaries LPZ 0<sub>B</sub> - 1 and higher
- Test standard: IEC 61643-1 / EN 61643-11
- Degree of protection according to IEC EN 60529: IP 20

- Mounting on 35 mm DIN rail
- Enclosure material: thermoplastic with the colors yellow and black
- Inflammability class according to UL 94 V0
- Optional remote changeover contact

Technical Data	CT-T2/3+1-150	CT-T2/3+1-275	CT-T2/3+1-350	CT-T2/3+1-440
Article-No.	96 00 28	96 00 29	96 00 42	96 00 43
IEC category/EN type	Type 2 / class II	Type 2 / class II	Type 2 / class II	Type 2 / class II
Nominal voltage	UN 120 V	230 V	230 V	230 V
Max. continuous operating voltage AC	Uc 150 V~	275 V~	350 V~	440 V~
Nominal discharge current (8/20)	In 15 kA	20 kA	20 kA	20 kA
Max. impulse discharge current (8/20)	I <sub>max</sub> 40 kA	40 kA	40 kA	40 kA
Protection level at I <sub>n</sub>	Up ≤ 0,7 kV	≤ 1,2 kV	≤ 1,5 kV	≤ 2,0 kV
Protection level at 5 kA	Up ≤ 0,5 kV	≤ 0,9 kV	≤ 1,0 kV	≤ 1,5 kV
Protection level N-PE	Up ≤ 1,5 kV	≤ 1,5 kV	≤ 1,5 kV	≤ 1,5 kV
Follow current quenching capacity AC N-PE	I <sub>fi</sub> 100 Aeff	100 Aeff	100 Aeff	100 Aeff
Short-circuit withstand capability at max. back-up fuse	I <sub>lk</sub> 25 kAeff	25 kAeff	25 kAeff	25 kAeff
Max. allowed prefuse	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Min. conductor cross section at terminals	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible
Max. conductor cross section	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible
Dimension (DIN 43880)	4 TE (72 mm)	4 TE (72 mm)	4 TE (72 mm)	4 TE (72 mm)

With Remote Signal Contact (FM)	CT-T2/3+1-150-FM	CT-T2/3+1-275-FM	CT-T2/3+1-350-FM	CT-T2/3+1-440-FM
Article-No.	96 00 56	96 00 57	96 00 70	96 00 71
Max. operating voltage remote contact	250 V AC/125 V DC	250 V AC/125 V DC	250 V AC/125 V DC	250 V AC/125 V DC
Max. operating current remote contact	1 A AC/200 mA DC	1 A AC/200 mA DC	1 A AC/200 mA DC	1 A AC/200 mA DC

Accessories		
Product	CT-T2-350-M	CT-T2-NPE-M
Article-No.	96 01 85	96 02 39



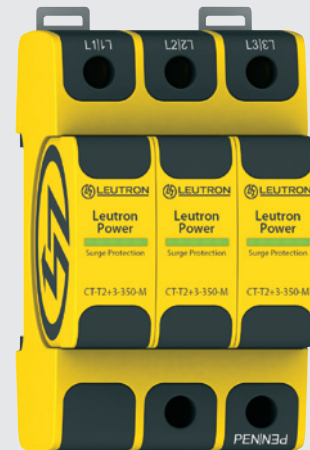
Replacement protective plug for surge protection devices type 2.



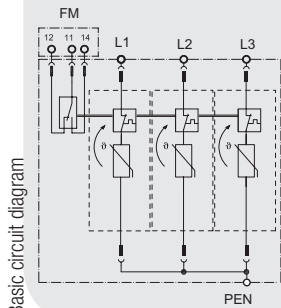
### SPD type 2 for AC power supplies

#### CT-T2/3+0

Fully pluggable surge protective arrester for the use in three-phase TNC systems.



Example photo



Basic circuit diagram

- Applicable at the boundaries LPZ 0<sub>B</sub> - 1 and higher
- Test standard: IEC 61643-1 / EN 61643-11
- Degree of protection according to IEC EN 60529: IP 20
- Mounting on 35 mm DIN rail
- Enclosure material: thermoplastic with the colors yellow and black
- Inflammability class according to UL 94 V0
- Optional remote changeover contact

Technical Data	CT-T2/3+0-150	CT-T2/3+0-275	CT-T2/3+0-350	CT-T2/3+0-440
Article-No.	96 00 30	96 00 44	96 00 58	96 00 72
IEC category/EN type	Type 2 / class II	Type 2 / class II	Type 2 / class II	Type 2 / class II
Nominal voltage	UN 120 V	230 V	230 V	230 V
Max. continuous operating voltage AC	Uc 150 V~	275 V~	350 V~	440 V~
Nominal discharge current (8/20)	In 15 kA	20 kA	20 kA	20 kA
Max. impulse discharge current (8/20)	I <sub>max</sub> 40 kA	40 kA	40 kA	40 kA
Protection level at In	Up ≤ 0,7 kV	≤ 1,2 kV	≤ 1,5 kV	≤ 2,0 kV
Protection level at 5 kA	Up ≤ 0,5 kV	≤ 0,9 kV	≤ 1,0 kV	≤ 1,5 kV
Short-circuit withstand capability at max. back-up fuse	I <sub>k</sub> 25 kA <sub>eff</sub>	25 kA <sub>eff</sub>	25 kA <sub>eff</sub>	25 kA <sub>eff</sub>
Max. allowed prefuse	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Min. conductor cross section at terminals	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible
Max. conductor cross section	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible
Dimension (DIN 43880)	3 TE (54 mm)	3 TE (54 mm)	3 TE (54 mm)	3 TE (54 mm)

With Remote Signal Contact (FM)	CT-T2/3+0-150-FM	CT-T2/3+0-275-FM	CT-T2/3+0-350-FM	CT-T2/3+0-440-FM
Article-No.	96 00 31	96 00 45	96 00 59	96 00 73
Max. operating voltage remote contact	250 V AC/125 V DC	250 V AC/125 V DC	250 V AC/125 V DC	250 V AC/125 V DC
Max. operating current remote contact	1 A AC/200 mA DC	1 A AC/200 mA DC	1 A AC/200 mA DC	1 A AC/200 mA DC

Accessories		
Product	CT-T2-350-M	CT-T2-275-M
Article-No.	96 01 85	96 01 84



Replacement protective plug for surge protection devices type 2.



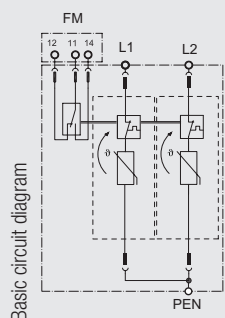
### SPD type 2 for AC power supplies

#### CT-T2/2+0

Fully pluggable surge protective arrester for the use in single-phase TN systems.



Example photo



- Test standard: IEC 61643-1 / EN 61643-11
- Applicable at the boundaries LPZ 0<sub>B</sub> - 1 and higher
- Degree of protection according to IEC EN 60529: IP 20
- Mounting on 35 mm DIN rail
- Enclosure material: thermoplastic with the colors yellow and black
- Inflammability class according to UL 94 V0
- Optional remote changeover contact

Technical Data	CT-T2/2+0-150	CT-T2/2+0-275	CT-T2/2+0-350	CT-T2/2+0-440
Article-No.	96 00 34	96 00 48	96 00 62	96 00 76
IEC category/EN type	Type 2 / class II	Type 2 / class II	Type 2 / class II	Type 2 / class II
Nominal voltage	UN 120 V	230 V	230 V	230 V
Max. continuous operating voltage AC	Uc 150 V~	275 V~	350 V~	440 V~
Nominal discharge current (8/20)	In 15 kA	20 kA	20 kA	20 kA
Max. impulse discharge current (8/20)	I <sub>max</sub> 40 kA	40 kA	40 kA	40 kA
Protection level at In	Up ≤ 0,7 kV	≤ 1,2 kV	≤ 1,5 kV	≤ 2,0 kV
Protection level at 5 kA	Up ≤ 0,5 kV	≤ 0,9 kV	≤ 1,0 kV	≤ 1,5 kV
Short-circuit withstand capability at max. back-up fuse	I <sub>k</sub> 25 kA <sub>eff</sub>	25 kA <sub>eff</sub>	25 kA <sub>eff</sub>	25 kA <sub>eff</sub>
Max. allowed prefuse	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Min. conductor cross section at terminals	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible
Max. conductor cross section	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible
Dimension (DIN 43880)	2 TE (36 mm)	2 TE (36 mm)	2 TE (36 mm)	2 TE (36 mm)

With Remote Signal Contact (FM)	CT-T2/2+0-150-FM	CT-T2/2+0-275-FM	CT-T2/2+0-350-FM	CT-T2/2+0-440-FM
Article-No.	96 00 35	96 00 49	96 00 63	96 00 77
Max. operating voltage remote contact	250 V AC/125 V DC	250 V AC/125 V DC	250 V AC/125 V DC	250 V AC/125 V DC
Max. operating current remote contact	1 A AC/200 mA DC	1 A AC/200 mA DC	1 A AC/200 mA DC	1 A AC/200 mA DC

Accessories		
Product	CT-T2-350-M	CT-T2-275-M
Article-No.	96 01 85	96 01 84



Replacement protective plug for surge protection devices type 2.





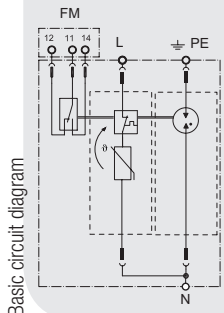
### SPD type 2 for AC power supplies

#### CT-T2/1+1

Fully pluggable surge protective arrester for the use in single-phase TT and TN systems.



Example photo



Basic circuit diagram

- Applicable at the boundaries LPZ 0<sub>B</sub> - 1 and higher
- Test standard: IEC 61643-1 / EN 61643-11
- Degree of protection according to IEC EN 60529: IP 20
- Mounting on 35 mm DIN rail
- Enclosure material: thermoplastic with the colors yellow and black
- Inflammability class according to UL 94 V0
- Optional remote changeover contact

Technical Data	CT-T2/1+1-150	CT-T2/1+1-275	CT-T2/1+1-350	CT-T2/1+1-440
Article-No.	96 00 36	96 00 50	96 00 64	96 00 78
IEC category/EN type	Type 2 / class II	Type 2 / class II	Type 2 / class II	Type 2 / class II
Nominal voltage	UN 120 V	230 V	230 V	230 V
Max. continuous operating voltage AC	Uc 150 V~	275 V~	350 V~	440 V~
Nominal discharge current (8/20)	In 15 kA	20 kA	20 kA	20 kA
Max. impulse discharge current (8/20)	I <sub>max</sub> 40 kA	40 kA	40 kA	40 kA
Protection level at In	Up ≤ 0,7 kV	≤ 1,2 kV	≤ 1,5 kV	≤ 2,0 kV
Protection level at 5 kA	Up ≤ 0,5 kV	≤ 0,9 kV	≤ 1,0 kV	≤ 1,5 kV
Protection level N-PE	Up ≤ 1,5 kV	≤ 1,5 kV	≤ 1,5 kV	≤ 1,5 kV
Follow current quenching capacity AC N-PE	I <sub>fi</sub> 100 Aeff	100 Aeff	100 Aeff	100 Aeff
Short-circuit withstand capability at max. back-up fuse	I <sub>k</sub> 25 kAeff	25 kAeff	25 kAeff	25 kAeff
Max. allowed prefuse	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Min. conductor cross section at terminals	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible
Max. conductor cross section	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible
Dimension (DIN 43880)	2 TE (36 mm)	2 TE (36 mm)	2 TE (36 mm)	2 TE (36 mm)

With Remote Signal Contact (FM)	CT-T2/1+1-150-FM	CT-T2/1+1-275-FM	CT-T2/1+1-350-FM	CT-T2/1+1-440-FM
Article-No.	96 00 37	96 00 51	96 00 65	96 00 79
Max. operating voltage remote contact	250 V AC/125 V DC	250 V AC/125 V DC	250 V AC/125 V DC	250 V AC/125 V DC
Max. operating current remote contact	1 A AC/200 mA DC	1 A AC/200 mA DC	1 A AC/200 mA DC	1 A AC/200 mA DC

Accessories		
Product	CT-T2-350-M	CT-T2-NPE-M
Article-No.	96 01 85	96 02 39



Replacement protective plug for surge protection devices type 2.





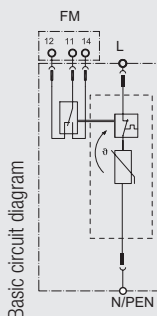
### SPD type 2 for AC power supplies

#### CT-T2/1+0

Fully pluggable surge protective arrester for the use between L - N wires.



Example photo



- Applicable at the boundaries LPZ 0<sub>B</sub> - 1 and higher
- Test standard: IEC 61643-1 / EN 61643-11
- Degree of protection according to IEC EN 60529: IP 20
- Mounting on 35 mm DIN rail
- Enclosure material: thermoplastic with the colors yellow and black
- Inflammability class according to UL 94 V0
- Optional remote changeover contact

Technical Data	CT-T2/1+0-275	CT-T2/1+0-350	CT-T2/1+0-440	CT-T2/1+0-600
Article-No.	96 00 52	96 00 66	96 00 80	96 00 94
IEC category/EN type	Type 2 / class II	Type 2 / class II	Type 2 / class II	Type 2 / class II
Nominal voltage UN	230 V	230 V	230 V	400 V
Max. continuous operating voltage AC Uc	275 V~	350 V~	440 V~	600 V~
Nominal discharge current (8/20) In	20 kA	20 kA	20 kA	20 kA
Max. impulse discharge current (8/20) I <sub>max</sub>	40 kA	40 kA	40 kA	40 kA
Protection level at I <sub>n</sub> U <sub>p</sub>	≤ 1,2 kV	≤ 1,5 kV	≤ 2,0 kV	≤ 2,5 kV
Protection level at 5 kA U <sub>p</sub>	≤ 0,9 kV	≤ 1,0 kV	≤ 1,5 kV	≤ 1,8 kV
Short-circuit withstand capability at max. back-up fuse I <sub>k</sub>	25 kA <sub>eff</sub>	25 kA <sub>eff</sub>	25 kA <sub>eff</sub>	25 kA <sub>eff</sub>
Max. allowed prefuse	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
Operating temperature range TU	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Min. conductor cross section at terminals	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible
Max. conductor cross section	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible
Dimension (DIN 43880)	1 TE (18 mm)	1 TE (18 mm)	1 TE (18 mm)	1 TE (18 mm)

With Remote Signal Contact (FM)	CT-T2/1+0-275-FM	CT-T2/1+0-350-FM	CT-T2/1+0-440-FM	CT-T2/1+0-600-FM
Article-No.	96 00 53	96 00 67	96 00 81	96 00 95
Max. operating voltage remote contact	250 V AC/125 V DC	250 V AC/125 V DC	250 V AC/125 V DC	250 V AC/125 V DC
Max. operating current remote contact	1 A AC/200 mA DC	1 A AC/200 mA DC	1 A AC/200 mA DC	1 A AC/200 mA DC

Further types	CT-T2/1+0-75	CT-T2/1+0-75-FM	CT-T2/1+0-150	CT-T2/1+0-150-FM
Article-No.	96 00 24	96 00 25	96 00 38	96 00 39

Accessories		
Product	CT-T2-350-M	CT-T2-150-M
Article-No.	96 01 85	96 01 83



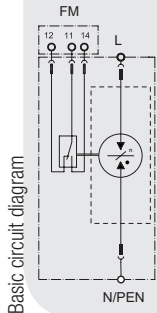
Replacement protective plug for surge protection devices type 2.



### SPD type 2 for AC power supplies

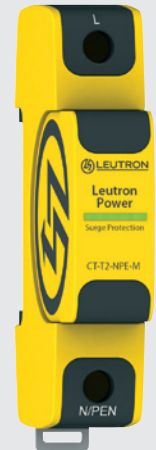
#### CT-T2/0+1-FS

Type 2 surge cappable and rare-gas-filled summation current spark gap for the use between N - PE wire. They provide extremely high discharge capabilities with at the same time very low protection levels and they also do not need any damageable internal or external electronic trigger.



- Applicable at the boundaries LPZ 0<sub>B</sub> - 1 and higher
- Test standard: IEC 61643-1 / EN 61643-11
- Degree of protection according to IEC EN 60529: IP 20

- Mounting on 35 mm DIN rail
- Enclosure material: thermoplastic with the colors yellow and black
- Inflammability class according to UL 94 V0
- Optional remote changeover contact



Example photo

Technical Data	CT-T2/0+1-FS	CT-T2/0+1-FS-FM
Article-No.	96 02 34	96 02 35
IEC category/EN type	Type 2 / class II	Type 2 / class II
Nominal voltage	UN 230 V	230 V
Max. continuous operating voltage AC	Uc 260 V~	260 V~
Nominal discharge current (8/20)	In 20 kA	20 kA
Max. impulse discharge current (8/20)	I <sub>max</sub> 40 kA	40 kA
Protection level N-PE	Up ≤ 1,5 kV	≤ 1,5 kV
Follow current quenching capacity AC N-PE	I <sub>fi</sub> 100 Aeff	100 Aeff
Short-circuit withstand capability at max. back-up fuse	I <sub>k</sub> 25 kAeff	25 kAeff
Max. allowed prefuse	125 A gL/gG	125 A gL/gG
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C
Min. conductor cross section at terminals	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible
Max. conductor cross section	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible
Dimension (DIN 43880)	1 TE (18 mm)	1 TE (18 mm)

Accessories	
Product	CT-T2-NPE-M
Article-No.	96 02 39

Replacement protective plug for lightning current capable summation spark gaps.





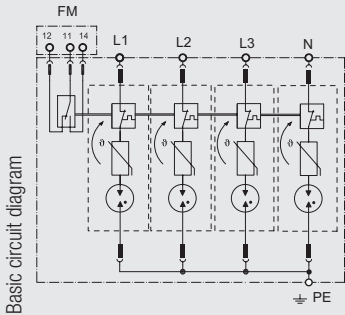
### SPD type 2 for AC power supplies (leakage-current free)

#### CT-T2/4+0-VA

Fully pluggable and leakage-free surge protective arrester for the use in three-phase TNS systems.



Example photo



- Applicable at the boundaries LPZ 0<sub>B</sub> - 1 and higher
- Enhanced arrester lifetime due to absence of leakage current
- Test standard: IEC 61643-1 / EN 61643-11

- Mounting on 35 mm DIN rail
- Degree of protection according to IEC EN 60529: IP 20
- Inflammability class according to UL 94 V0
- Optional remote changeover contact

Technical Data	CT-T2/4+0-275-VA	CT-T2/4+0-275-VA-FM	CT-T2/4+0-350-VA	CT-T2/4+0-350-VA-FM
Article-No.	96 01 38	96 01 389	96 01 52	96 01 523
IEC category/EN type	Type 2 / class II	Type 2 / class II	Type 2 / class II	Type 2 / class II
Nominal voltage	UN 230 V	230 V	230 V	230 V
Max. continuous operating voltage AC	Uc 275 V~	275 V~	350 V~	350 V~
Nominal discharge current (8/20)	In 15 kA	15 kA	15 kA	15 kA
Max. impulse discharge current (8/20)	I <sub>max</sub> 25 kA	25 kA	25 kA	25 kA
Protection level at I <sub>n</sub>	Up ≤ 1,2 kV	≤ 1,2 kV	≤ 1,7 kV	≤ 1,7 kV
Protection level at 5 kA	Up ≤ 0,9 kV	≤ 0,9 kV	≤ 1,3 kV	≤ 1,3 kV
Short-circuit withstand capability at max. back-up fuse	I <sub>k</sub> 25 kA <sub>eff</sub>	25 kA <sub>eff</sub>	25 kA <sub>eff</sub>	25 kA <sub>eff</sub>
Max. allowed prefuse	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Min. conductor cross section at terminals	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible
Max. conductor cross section	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible
Dimension (DIN 43880)	4 TE (72 mm)	4 TE (72 mm)	4 TE (72 mm)	4 TE (72 mm)
Max. operating voltage remote contact		250 V AC/125 V DC		250 V AC/125 V DC
Max. operating current remote contact		1 A AC/200 mA DC		1 A AC/200 mA DC

Accessories		
Product	CT-T2-350-VA-M	CT-T2-275-VA-M
Article-No.	96 01 97	96 01 96



Replacement protective plug for leakage-free surge protection devices type 2.



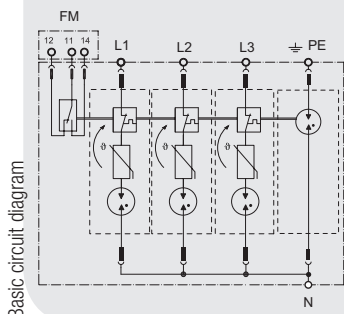
### SPD type 2 for AC power supplies (leakage-current free)

#### CT-T2/3+1-VA

Fully pluggable and leakage-free surge protective arrester for the use in three-phase TT and TNS systems. Enhanced arrester lifetime due to absence of leakage current.



Example photo



Basic circuit diagram

- Applicable at the boundaries LPZ 0<sub>B</sub> - 1 and higher
- Test standard: IEC 61643-1 / EN 61643-11
- Degree of protection according to IEC EN 60529: IP 20

- Mounting on 35 mm DIN rail
- Inflammability class according to UL 94 V0
- Optional remote changeover contact
- Prüfnormen: IEC 61643-1 / EN 61643-11

Technical Data	CT-T2/3+1-275-VA	CT-T2/3+1-275-VA-FM	CT-T2/3+1-350-VA	CT-T2/3+1-350-VA-FM
Article-No.	96 01 26	96 01 27	96 01 40	96 01 41
IEC category/EN type	Type 2 / class II	Type 2 / class II	Type 2 / class II	Type 2 / class II
Nominal voltage	UN 230 V	230 V	230 V	230 V
Max. continuous operating voltage AC	Uc 275 V~	275 V~	350 V~	350 V~
Nominal discharge current (8/20)	In 15 kA	15 kA	15 kA	15 kA
Max. impulse discharge current (8/20)	Imax 25 kA	25 kA	25 kA	25 kA
Protection level at In	Up ≤ 1,2 kV	≤ 1,2 kV	≤ 1,7 kV	≤ 1,7 kV
Protection level at 5 kA	Up ≤ 0,9 kV	≤ 0,9 kV	≤ 1,3 kV	≤ 1,3 kV
Protection level N-PE	Up ≤ 1,5 kV	≤ 1,5 kV	≤ 1,5 kV	≤ 1,5 kV
Follow current quenching capacity AC N-PE	Ifi 100 Aeff	100 Aeff	100 Aeff	100 Aeff
Short-circuit withstand capability at max. back-up fuse	Ik 25 kAeff	25 kAeff	25 kAeff	25 kAeff
Max. allowed prefuse	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Min. conductor cross section at terminals	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible
Max. conductor cross section	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible
Dimension (DIN 43880)	4 TE (72 mm)	4 TE (72 mm)	4 TE (72 mm)	4 TE (72 mm)
Max. operating voltage remote contact		250 V AC/125 V DC		250 V AC/125 V DC
Max. operating current remote contact		1 A AC/200 mA DC		1 A AC/200 mA DC

Accessories		
Product	CT-T2-275-VA-M	CT-T2-NPE-M
Article-No.	96 01 96	96 02 39



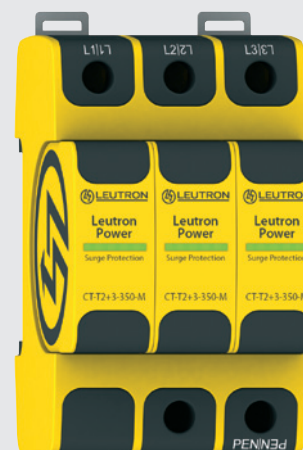
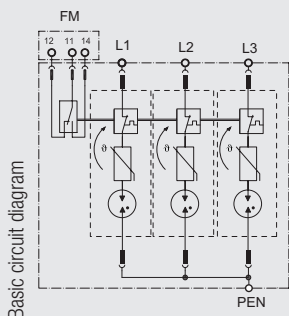
Replacement protective plug for leakage-free surge protection devices type 2.



### SPD type 2 for AC power supplies (leakage-current free)

#### CT-T2/3+0-VA

Fully pluggable and leakage-free surge protective arrester for the use in three-phase TNC systems.



Example photo

- Enhanced arrester lifetime due to absence of leakage current
- Applicable at the boundaries LPZ 0<sub>B</sub> - 1 and higher
- Test standard: IEC 61643-1 / EN 61643-11
- Mounting on 35 mm DIN rail
- Degree of protection according to IEC EN 60529: IP 20
- Inflammability class according to UL 94 V0
- Optional remote changeover contact

Technical Data	CT-T2/3+0-275-VA	CT-T2/3+0-275-VA-FM	CT-T2/3+0-350-VA	CT-T2/3+0-350-VA-FM
Article-No.	96 01 28	96 01 29	96 01 42	96 01 43
IEC category/EN type	Type 2 / class II	Type 2 / class II	Type 2 / class II	Type 2 / class II
Nominal voltage	UN 230 V	230 V	230 V	230 V
Max. continuous operating voltage AC	Uc 275 V~	275 V~	350 V~	350 V~
Nominal discharge current (8/20)	In 15 kA	15 kA	15 kA	15 kA
Max. impulse discharge current (8/20)	Imax 25 kA	25 kA	25 kA	25 kA
Protection level at In	Up ≤ 1,2 kV	≤ 1,2 kV	≤ 1,7 kV	≤ 1,7 kV
Protection level at 5 kA	Up ≤ 0,9 kV	≤ 0,9 kV	≤ 1,3 kV	≤ 1,3 kV
Short-circuit withstand capability at max. back-up fuse	Ik 25 kAeff	25 kAeff	25 kAeff	25 kAeff
Max. allowed prefuse	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Min. conductor cross section at terminals	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible
Max. conductor cross section	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible
Dimension (DIN 43880)	3 TE (54 mm)	3 TE (54 mm)	3 TE (54 mm)	3 TE (54 mm)
Max. operating voltage remote contact		250 V AC/125 V DC		250 V AC/125 V DC
Max. operating current remote contact		1 A AC/200 mA DC		1 A AC/200 mA DC

Accessories		
Product	CT-T2-350-VA-M	CT-T2-275-VA-M
Article-No.	96 01 97	96 01 96

Replacement protective plug for leakage-free surge protection devices type 2.





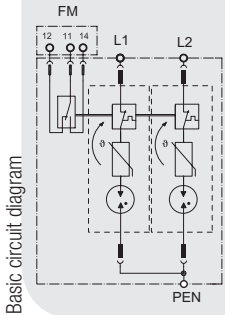
### SPD type 2 for AC power supplies (leakage-current free)

#### CT-T2/2+0-VA

Fully pluggable and leakage-free surge protective arrester for the use in single-phase TN systems.



Example photo



Basic circuit diagram

- Applicable at the boundaries LPZ 0<sub>B</sub> - 1 and higher
- Enhanced arrester lifetime due to absence of leakage current
- Test standard: IEC 61643-1 / EN 61643-11
- Mounting on 35 mm DIN rail
- Degree of protection according to IEC EN 60529: IP 20
- Inflammability class according to UL 94 V0
- Optional remote changeover contact

Technical Data	CT-T2/2+0-275-VA	CT-T2/2+0-275-VA-FM	CT-T2/2+0-350-VA	CT-T2/2+0-350-VA-FM
Article-No.	96 01 32	96 01 33	96 01 46	96 01 47
IEC category/EN type	Type 2 / class II	Type 2 / class II	Type 2 / class II	Type 2 / class II
Nominal voltage	UN 230 V	230 V	230 V	230 V
Max. continuous operating voltage AC	Uc 275 V~	275 V~	350 V~	350 V~
Nominal discharge current (8/20)	In 15 kA	15 kA	15 kA	15 kA
Max. impulse discharge current (8/20)	I <sub>max</sub> 25 kA	25 kA	25 kA	25 kA
Protection level at In	Up ≤ 1,2 kV	≤ 1,2 kV	≤ 1,7 kV	≤ 1,7 kV
Protection level at 5 kA	Up ≤ 0,9 kV	≤ 0,9 kV	≤ 1,3 kV	≤ 1,3 kV
Short-circuit withstand capability at max. back-up fuse	I <sub>k</sub> 25 kA <sub>eff</sub>	25 kA <sub>eff</sub>	25 kA <sub>eff</sub>	25 kA <sub>eff</sub>
Max. allowed prefuse	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Min. conductor cross section at terminals	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible
Max. conductor cross section	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible
Dimension (DIN 43880)	2 TE (36 mm)	2 TE (36 mm)	2 TE (36 mm)	2 TE (36 mm)
Max. operating voltage remote contact		250 V AC/125 V DC		250 V AC/125 V DC
Max. operating current remote contact		1 A AC/200 mA DC		1 A AC/200 mA DC

Accessories		
Product	CT-T2-350-VA-M	CT-T2-275-VA-M
Article-No.	96 01 97	96 01 96

Replacement protective plug for leakage-free surge protection devices type 2.





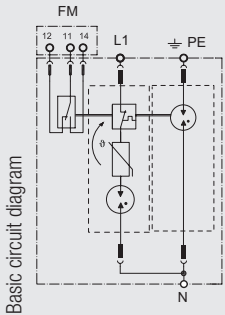
### SPD type 2 for AC power supplies (leakage-current free)

#### CT-T2/1+1-VA

Fully pluggable and leakage-free surge protective arrester for the use in single-phase TT and TN systems.



Example photo



Basic circuit diagram

- Enhanced arrester lifetime due to absence of leakage current
- Applicable at the boundaries LPZ 0<sub>B</sub> - 1 and higher
- Test standard: IEC 61643-1 / EN 61643-11
- Mounting on 35 mm DIN rail
- Degree of protection according to IEC EN 60529: IP 20
- Inflammability class according to UL 94 V0
- Optional remote changeover contact

Technical Data	CT-T2/1+1-275-VA	CT-T2/1+1-275-VA-FM	CT-T2/1+1-350-VA	CT-T2/1+1-350-VA-FM
Article-No.	96 01 34	96 01 35	96 01 48	96 01 49
IEC category/EN type	Type 2 / class II	Type 2 / class II	Type 2 / class II	Type 2 / class II
Nominal voltage	UN 230 V	230 V	230 V	230 V
Max. continuous operating voltage AC	Uc 275 V~	275 V~	350 V~	350 V~
Nominal discharge current (8/20)	In 15 kA	15 kA	15 kA	15 kA
Max. impulse discharge current (8/20)	Imax 25 kA	25 kA	25 kA	25 kA
Protection level at In	Up ≤ 1,2 kV	≤ 1,2 kV	≤ 1,7 kV	≤ 1,7 kV
Protection level at 5 kA	Up ≤ 0,9 kV	≤ 0,9 kV	≤ 1,3 kV	≤ 1,3 kV
Protection level N-PE	Up ≤ 1,5 kV	≤ 1,5 kV	≤ 1,5 kV	≤ 1,5 kV
Follow current quenching capacity AC N-PE	Ifi 100 Aeff	100 Aeff	100 Aeff	100 Aeff
Short-circuit withstand capability at max. back-up fuse	Ik 25 kAeff	25 kAeff	25 kAeff	25 kAeff
Max. allowed prefuse	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Min. conductor cross section at terminals	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible
Max. conductor cross section	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible
Dimension (DIN 43880)	2 TE (36 mm)	2 TE (36 mm)	2 TE (36 mm)	2 TE (36 mm)
Max. operating voltage remote contact		250 V AC/125 V DC		1 A AC/200 mA DC
Max. operating current remote contact		1 A AC/200 mA DC		250 V AC/125 V DC

Accessories		
Product	CT-T2-275-VA-M	CT-T2-NPE-M
Article-No.	96 01 96	96 02 39



Replacement protective plug for leakage-free surge protection devices type 2.





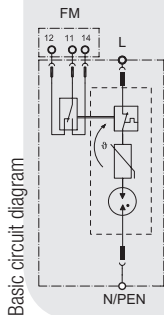
### SPD type 2 for AC power supplies (leakage-current free)

#### CT-T2/1+0-VA

Fully pluggable and leakage-free surge protective arrester for the use between L - N wires.



Example photo



- Applicable at the boundaries LPZ 0<sub>B</sub> - 1 and higher
- Enhanced arrester lifetime due to absence of leakage current
- Test standard: IEC 61643-1 / EN 61643-11
- Mounting on 35 mm DIN rail
- Degree of protection according to IEC EN 60529: IP 20
- Inflammability class according to UL 94 V0
- Optional remote changeover contact

Technical Data	CT-T2/1+0-275-VA	CT-T2/1+0-275-VA-FM	CT-T2/1+0-350-VA	CT-T2/1+0-350-VA-FM
Article-No.	96 01 36	96 01 37	96 01 50	96 01 51
IEC category/EN type	Type 2 / class II	Type 2 / class II	Type 2 / class II	Type 2 / class II
Nominal voltage	UN 230 V	230 V	230 V	230 V
Max. continuous operating voltage AC	Uc 275 V~	275 V~	350 V~	350 V~
Nominal discharge current (8/20)	In 15 kA	15 kA	15 kA	15 kA
Max. impulse discharge current (8/20)	I <sub>max</sub> 25 kA	25 kA	25 kA	25 kA
Protection level at In	Up ≤ 1,2 kV	≤ 1,2 kV	≤ 1,7 kV	≤ 1,7 kV
Protection level at 5 kA	Up ≤ 0,9 kV	≤ 0,9 kV	≤ 1,3 kV	≤ 1,3 kV
Short-circuit withstand capability at max. back-up fuse	I <sub>k</sub> 25 kA <sub>eff</sub>	25 kA <sub>eff</sub>	25 kA <sub>eff</sub>	25 kA <sub>eff</sub>
Max. allowed prefuse	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Min. conductor cross section at terminals	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible
Max. conductor cross section	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible
Dimension (DIN 43880)	1 TE (18 mm)	1 TE (18 mm)	1 TE (18 mm)	1 TE (18 mm)
Max. operating voltage remote contact		250 V AC/125 V DC		250 V AC/125 V DC
Max. operating current remote contact		1 A AC/200 mA DC		1 A AC/200 mA DC

Accessories		
Product	CT-T2-350-VA-M	CT-T2-275-VA-M
Article-No.	96 01 97	96 01 96



Replacement protective plug for leakage-free surge protection devices type 2.

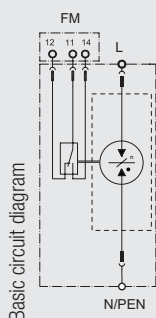




## SPD type 2 for AC power supplies

### CT-T2/0+1-FS

Type 2 surge cappable and rare-gas-filled summation current spark gap for the use between N - PE wire. They provide extremely high discharge capabilities with at the same time very low protection levels and they also do not need any damageable internal or external electronic trigger.



- Applicable at the boundaries LPZ 0<sub>B</sub> - 1 and higher
- Test standard: IEC 61643-1 / EN 61643-11
- Degree of protection according to IEC EN 60529: IP 20
- Mounting on 35 mm DIN rail
- Enclosure material: thermoplastic with the colors yellow and black
- Inflammability class according to UL 94 V0
- Optional remote changeover contact



Example photo

Technical Data	CT-T2/0+1-FS	CT-T2/0+1-FS-FM
Article-No.	96 02 34	96 02 35
IEC category/EN type	Type 2 / class II	Type 2 / class II
Nominal voltage	UN 230 V	230 V
Max. continuous operating voltage AC	Uc 260 V~	260 V~
Nominal discharge current (8/20)	In 20 kA	20 kA
Max. impulse discharge current (8/20)	I <sub>max</sub> 40 kA	40 kA
Protection level N-PE	Up ≤ 1,5 kV	≤ 1,5 kV
Follow current quenching capacity AC N-PE	I <sub>fi</sub> 100 Aeff	100 Aeff
Short-circuit withstand capability at max. back-up fuse	I <sub>k</sub> 25 kAeff	25 kAeff
Max. allowed prefuse	125 A gL/gG	125 A gL/gG
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C
Min. conductor cross section at terminals	1.5mm <sup>2</sup> solid/flexible	1.5mm <sup>2</sup> solid/flexible
Max. conductor cross section	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible	35mm <sup>2</sup> stranded/25mm <sup>2</sup> flexible
Dimension (DIN 43880)	1 TE (18 mm)	1 TE (18 mm)

Accessories	
Product	CT-T2-NPE-M
Article-No.	96 02 39



Replacement protective plug for leakage-free surge protection devices type 2.



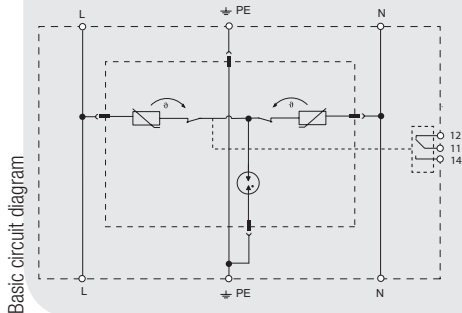
### SPD type 3 for AC power supplies

#### CT-T3/Y1

Two-piece pluggable surge protection for single-phase terminal equipment and devices.



Example photo



- Applicable at the boundaries LPZ 1 - 2 and higher
- Test standard: IEC 61643-1 / EN 61643-11
- Degree of protection according to IEC EN 60529: IP 20
- Mounting on 35 mm DIN rail
- Enclosure material: thermoplastic with the colors yellow and black
- Inflammability class according to UL 94 V0
- Optional remote changeover contact

Technical Data	CT-T3/Y1-24	CT-T3/Y1-48	CT-T3/Y1-60	CT-T3/Y1-120
Article-No.	96 01 86	96 01 90	96 01 94	96 01 98
IEC category/EN type	Type 3 / class III	Type 3 / class III	Type 3 / class III	Type 3 / class III
Nominal voltage UN	24 V	48 V	60 V	120 V
Max. continuous operating voltage (DC/AC) Uc	30 V	60 V	75 V	150 V
Nominal discharge current (8/20) In	1 kA	1 kA	2 kA	2 kA
Total discharge current (8/20) I <sub>total</sub>	2 kA	2 kA	4 kA	4 kA
Combined surge generator impulse Uoc	2 kV	2 kV	4 kV	4 kV
Combined surge generator impulse L+N-PE	4 kV	4 kV	8 kV	8 kV
Protection level L-N Up	≤ 0,18 kV	≤ 0,35 kV	≤ 0,40 kV	≤ 0,64 kV
Protection level L/N-PE Up	≤ 0,63 kV	≤ 0,73 kV	≤ 0,73 kV	≤ 0,80 kV
Short-circuit withstand capability at max. back-up fuse Ik	6 kA <sub>eff</sub>	6 kA <sub>eff</sub>	6 kA <sub>eff</sub>	6 kA <sub>eff</sub>
Max. allowed prefuse	25 A gL/gG	25 A gL/gG	25 A gL/gG	25 A gL/gG
Operating temperature range TU	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Min. conductor cross section at terminals	0,5mm <sup>2</sup> solid/flexible	0,5mm <sup>2</sup> solid/flexible	0,5mm <sup>2</sup> solid/flexible	0,5mm <sup>2</sup> solid/flexible
Max. conductor cross section	4mm <sup>2</sup> solid/ 2,5mm <sup>2</sup> flexible	4mm <sup>2</sup> solid/ 2,5mm <sup>2</sup> flexible	4mm <sup>2</sup> solid/ 2,5mm <sup>2</sup> flexible	4mm <sup>2</sup> solid/ 2,5mm <sup>2</sup> flexible
Dimension (DIN 43880)	1 TE (18 mm)	1 TE (18 mm)	1 TE (18 mm)	1 TE (18 mm)

With Remote Signal Contact (FM)	CT-T3/Y1-24-FM	CT-T3/Y1-48-FM	CT-T3/Y1-60-FM	CT-T3/Y1-120-FM
Article-No.	96 01 87	96 01 91	96 01 95	96 01 99
Max. operating voltage remote contact	250 V AC/125 V DC	250 V AC/125 V DC	250 V AC/125 V DC	250 V AC/125 V DC
Max. operating current remote contact	1 A AC/200 mA DC	1 A AC/200 mA DC	1 A AC/200 mA DC	1 A AC/200 mA DC

Further types	CT-T3/Y1-230	CT-T3/Y1-230-FM	
Article-No.	96 02 02	96 02 03	

Accessories		
Product	CT-T3/Y1-230-M	CT-T3/Y1-24-M
Article-No.	96 02 44	96 02 40



Replacement protective plug for single-phase surge protection devices type 3.



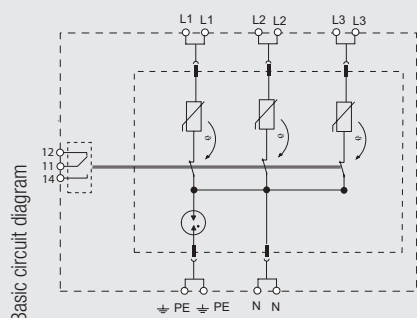
### SPD type 3 for AC power supplies

#### CT-T3/Y3

Two-piece pluggable surge protection for three-phase terminal equipment and devices.



Example photo



- Applicable at the boundaries LPZ 1 - 2 and higher
- Test standard: IEC 61643-1 / EN 61643-11
- Degree of protection according to IEC EN 60529: IP 20
- Mounting on 35 mm DIN rail
- Enclosure material: thermoplastic with the colors yellow and black
- Inflammability class according to UL 94 V0
- Optional remote changeover contact

Technical Data	CT-T3/Y3-230	CT-T3/Y3-230-FM
Article-No.	96 02 04	96 02 05
IEC category/EN type	Type 3 / class III	Type 3 / class III
Nominal voltage	UN 230 V	230 V
Max. continuous operating voltage (DC/AC)	Uc 255 V	255 V
Rated load current	IL 25 A	25 A
Nominal discharge current (8/20)	In 3 kA	3 kA
Total discharge current (8/20) L1+L2+L3+N-PE	Itotal 8 kA	8 kA
Combined surge generator impulse	Uoc 6 kV	6 kV
Combined surge generator impulse L1+L2+L3+N-PE	16 kV	16 kV
Protection level L-N	Up ≤ 1 kV	≤ 1 kV
Protection level L/N-PE	Up ≤ 1,5 kV	≤ 1,5 kV
Short-circuit withstand capability at max. back-up fuse	Ik 6 kAeff	6 kAeff
Max. allowed prefuse	25 A gL/gG	25 A gL/gG
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C
Min. conductor cross section at terminals	0,5mm <sup>2</sup> solid/flexible	0,5mm <sup>2</sup> solid/flexible
Max. conductor cross section	4mm <sup>2</sup> solid/ 2,5mm <sup>2</sup> flexible	4mm <sup>2</sup> solid/ 2,5mm <sup>2</sup> flexible
Dimension (DIN 43880)	2 TE (36 mm)	2 TE (36 mm)
Max. operating voltage remote contact		250 V AC/125 V DC

Accessories	
Product	CT-T3/Y3-230-M
Article-No.	96 02 45



Replacement protective plug for three-phase surge protection devices type 3.



# CROSS REFERENCE LIST TO SELECT THE SUBSTITUTED PRODUCTS

The cross reference list supports the selection of the new MCR product line modules based on the previous well-known products.

The new MCR product line, consist of a base part and a pluggable module.

Substituted product name	Substituted item number
DataPro2x1-SDSL-Tr	24 00 18
DP4x1-SDSL-Tr	24 00 20
DataPro2x1-24V-SDSL-Tr	24 00 24
DP2x1-12V/12V-0,30hm-Tr	26 12 12
DP2x1-24V/24V-0,30hm-Tr	26 24 24
DP2x1-36V/36V-0,30hm-Tr	26 36 36
DP2x1-RLC-Tr	27 00 00
IsoProData150V/150V-Tr	27 03 03
DP2x1-150V/150V-Tr	27 04 04
DP2x1-6V/6V-Tr	27 06 06
DP2x1-12V/12V-Tr	27 12 12
DP2x1-15V/15V-Tr	27 15 15
DP2x1-24V/24V-Tr	27 24 24
DP2x1-30V/30V-Tr	27 30 30
DP2x1-36V/36V-Tr	27 36 36
DP2x1-48V/48V-Tr	27 48 48
DP2x1-60V/60V-Tr	27 60 60
DP2x1-80V/80V-Tr	27 80 80
DP3x1-150V/150V-Tr	28 04 04
DP3x1-12V/12V-Tr	28 12 12
DP3x1-15V/15V-Tr	28 15 15
DP3x1-24V/24V-Tr	28 24 24
DP3x1-30V/30V-Tr	28 30 30
DP3x1-36V/36V-Tr	28 36 36
DP3x1-48V/48V-Tr	28 48 48
DP3x1-60V/60V-Tr	28 60 60
DP2x1-RLC/50V-Tr	28 70 50
IsoProData-Tr	27 30 02



Modul	Base	Item number modul	Item number basic	Page
New MCR products, consisting of modul and base				
MP 1x2 5V-HF ST	MP Base 1x2-R	97 10 52	97 00 95	34
MP 2x2 5V-HF ST	MP Base 2x2-R	97 10 50	97 00 00	34
MP 1x2 24V-HF ST	MP Base 1x2-R	97 10 53	97 00 95	34
MP 1x2 GDT+12V-Ad-Ad-Pg ST	MP Base 1x2-R	97 00 47	97 00 95	33
MP 1x2 GDT+24V-Ad-Ad-Pg ST	MP Base 1x2-R	97 00 48	97 00 95	33
MP 1x2 GDT+36V Ad-Ad-Pg ST	MP Base 1x2-R	97 00 49	97 00 95	33
MP 1x2 GDT+170V-Ad-Pg ST	MP Base 1x2-R	97 00 38	97 00 95	31
MP 1x2 GDT+170V-Ad-Ad-Pg ST	MP Base 1x2-R	97 00 52	97 00 95	33
MP 1x2 GDT+170V-Ad-Ad-Pg ST	MP Base 1x2-R	97 00 52	97 00 95	33
MP 1x2 GDT+5V-Ad-Ad-Pg ST	MP Base 1x2-R	97 00 46	97 00 95	33
MP 1x2 GDT+12V-Ad-Ad-Pg ST	MP Base 1x2-R	97 00 47	97 00 95	33
MP 1x2 GDT+24V-Ad-Ad-Pg ST	MP Base 1x2-R	97 00 48	97 00 95	33
MP 1x2 GDT+24V-Ad-Ad-Pg ST	MP Base 1x2-R	97 00 48	97 00 95	33
MP 1x2 GDT+36V-Ad-Ad-Pg ST	MP Base 1x2-R	97 00 49	97 00 95	33
MP 1x2 GDT+36V-Ad-Ad-Pg ST	MP Base 1x2-R	97 00 49	97 00 95	33
MP 1x2 GDT+48V-Ad-Ad-Pg ST	MP Base 1x2-R	97 00 50	97 00 95	33
MP 1x2 GDT+60V-Ad-Ad-Pg ST	MP Base 1x2-R	97 00 51	97 00 95	33
MP 1x2 GDT+170V-Ad-Ad-Pg ST	MP Base 1x2-R	97 00 52	97 00 95	33
MP 2x2 GDT+170V-Ad-Ad-Pg ST	MP Base 2x2-R	97 00 45	97 00 00	32
MP 2x2 GDT+12V-Ad-Ad-Pg ST	MP Base 2x2-R	97 00 40	97 00 00	32
MP 2x2 GDT+24V-Ad-Ad-Pg ST	MP Base 2x2-R	97 00 41	97 00 00	32
MP 2x2 GDT+24V-Ad-Ad-Pg ST	MP Base 2x2-R	97 00 41	97 00 00	32
MP 2x2 GDT+36V-Ad-Ad-Pg ST	MP Base 2x2-R	97 00 42	97 00 00	32
MP 2x2 GDT+36V-Ad-Ad-Pg ST	MP Base 2x2-R	97 00 42	97 00 00	32
MP 2x2 GDT+48V-Ad-Ad-Pg ST	MP Base 2x2-R	97 00 43	97 00 00	32
MP 2x2 GDT+60V-Ad-Ad-Pg ST	MP Base 2x2-R	97 00 44	97 00 00	32
MP 2x2 GDT+48V-Ad-Ad-Pg ST	MP Base 2x2-R	97 00 36	97 00 00	31
MP 1x2 GDT ST	MP Base 1x2	97 00 10	97 00 97	27



### TWO-PIECE, PLUGGABLE SURGE ARRESTERS

New product line »Leutron Data«:

- Voltage levels from 50 V to 170 V DC available
- Frequency range: Dependent on the voltage level up to 25 MHz

Space-saving installation width of only 18 mm required for up to four single wires

Impedance-neutral replacing of protection modules

Contacting to mounting rail with lightning current carrying capability

Wiring connection up to 4 mm<sup>2</sup> solid and 2,5 mm<sup>2</sup> flexible

Variable shield grounding: Basic modules for direct or indirect shield grounding via gas discharge tube available





### Pluggable SPD with high discharge capability for MCR applications

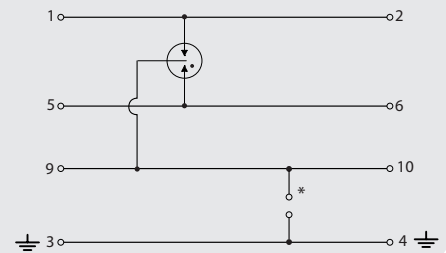
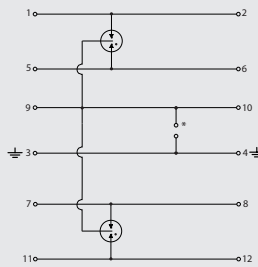
#### MP 2x2 GDT ST and MP 1x2 GDT ST

Fully pluggable two-parts lightning current discharge arrester for signal lines. The protective module can be removed for test or maintenance purposes without changing the line impedance and therefore influencing the signal level. The base part can remain in the installation without manipulating or removing any wire.

- Protective circuit for 4 signal lines without reference to ground potential
- Protective plug can be removed without changing the line impedance or influencing the useful signal
- Test standard: IEC 61643-21 / EN 61643-21
- Applicable at the boundaries LPZ 0<sub>B</sub> - 1 and higher
- Mounting on 35 mm DIN rail
- Enclosure material: thermoplastic
- Space required for installation: 17.5 mm



Example photo



Technical Data	MP 2x2 GDT ST	MP 1x2 GDT ST
Article-No.	97 00 07	97 00 10
IEC category/EN type	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3
Nominal voltage	UN 170 V	170 V
Max. continuous operating voltage (DC/AC)	Uc 170/120 V	170/120 V
Nominal current	IN 2 A	2 A
D1 lightning impulse current (10/350 μs) per wire	Iimp 2,5 kA	2,5 kA
C2 nominal discharge current (8/20 μs) total (In)	In 20 kA	20 kA
C2 nominal discharge current (8/20 μs) per line	In 10 kA	10 kA
Protection level line-line at Iimp D1	Up ≤ 550 V	≤ 550 V
Protection level line-earth at Iimp D1	Up ≤ 550 V	≤ 550 V
Protection level line-line at 1 kV/μs C3	Up ≤ 500 V	≤ 500 V
Protection level line-Pg at 1 kV/μs C3	Up ≤ 500 V	≤ 500 V
Series resistance per line	0 Ω	0 Ω
Max. operating frequency (3 dB)	fG typ. 100 MHz	typ. 100 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C
Inflammability class according to UL 94	V0	V0
Degree of protection (IEC EN 60529)	IP 20	IP 20

Accessories				
Product	MP Base 2x2	MP Base 2x2 GDT	MP Base 1x2	MP Base 1x2 GDT
Article-No.	97 00 03	97 00 04	97 00 97	97 00 98

Different base parts provide either direct or indirect earthing of the signal shielding: The MP Base 2x2 has the shield connectors 9/10 (GND) linked directly to the DIN rail and to the earth connector. The MP Base 2x2 GDT has a gas discharge tube linked between the shield connectors 9/10 (GND) and the DIN rail and earth connector. Therefore a galvanic insulation between the signal shield and the earth connection (PE) can be reached.





### Pluggable SPD with high discharge capability and low protection level for MCR applications

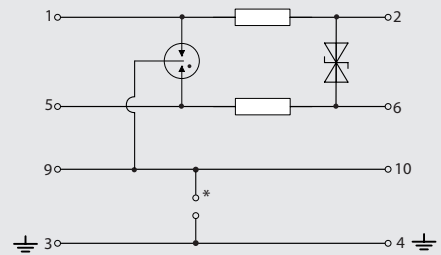
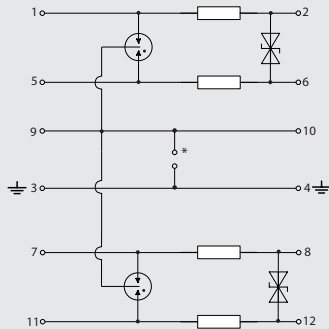
#### MP 2x2 GDT/Ad-Ad ST

Fully pluggable two-parts combined surge arrester for signal lines. The protective module can be removed for test or maintenance purposes without changing the line impedance and therefore influencing the signal level. The base part can remain in the installation without manipulating or removing any wire.

- Protective circuit for 4 signal lines without reference to ground potential
- Protective plug can be removed without changing the line impedance or influencing the useful signal
- Test standard: IEC 61643-21 / EN 61643-21
- Applicable at the boundaries LPZ 0<sub>B</sub> - 2 and higher
- Mounting on 35 mm DIN rail
- Enclosure material: thermoplastic
- Space required for installation: 17.5 mm
- Degree of protection (IEC EN 60529): IP 20



Example photo



Technical Data	MP 2x2 GDT+5V-Ad-Ad ST	MP 2x2 GDT+12V-Ad-Ad ST	MP 2x2 GDT+24V-Ad-Ad ST	MP 2x2 GDT+36V-Ad-Ad ST
Article-No.	97 00 11	97 00 12	97 00 13	97 00 14
IEC category/EN type	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3
Nominal voltage UN	5 V	12 V	24 V	36 V
Max. continuous operating voltage (DC/AC) Uc	6/4 V	15/11 V	33/23 V	45/32 V
Nominal current IN	0,5 A	0,5 A	0,5 A	0,5 A
D1 lightning impulse current (10/350 μs) per wire Iimp	2,5 kA	2,5 kA	2,5 kA	2,5 kA
C2 nominal discharge current (8/20 μs) total (In)	20 kA	20 kA	20 kA	20 kA
C2 nominal discharge current (8/20 μs) per line	10 kA	10 kA	10 kA	10 kA
Protection level line-line at Iimp D1 Up	≤ 25 V	≤ 26 V	≤ 52 V	≤ 68 V
Protection level line-earth at Iimp D1 Up	≤ 550 V	≤ 550 V	≤ 550 V	≤ 550 V
Protection level line-line at 1 kV/μs C3 Up	≤ 10 V	≤ 19 V	≤ 45 V	≤ 58 V
Protection level line-Pg at 1 kV/μs C3 Up	≤ 500 V	≤ 500 V	≤ 500 V	≤ 500 V
Series resistance per line	2,2 Ω	2,2 Ω	2,2 Ω	2,2 Ω
Max. operating frequency (3 dB) fG	typ. 1,0 MHz	typ. 3,0 MHz	typ. 6,0 MHz	typ. 8,0 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range TU	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C

Technical Data	MP 2x2 GDT+48V-Ad-Ad ST	MP 2x2 GDT+60V-Ad-Ad ST	MP 2x2 GDT+170V-Ad-Ad ST
Article-No.	97 00 15	97 00 16	97 00 17
IEC category/EN type	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3
Nominal voltage UN	48 V	60 V	170 V
Max. continuous operating voltage (DC/AC) Uc	54/38 V	70/49 V	170/120 V
Nominal current IN	0,5 A	0,5 A	0,5 A
D1 lightning impulse current (10/350 μs) per wire Iimp	2,5 kA	2,5 kA	2,5 kA
C2 nominal discharge current (8/20 μs) total (In)	20 kA	20 kA	20 kA
C2 nominal discharge current (8/20 μs) per line	10 kA	10 kA	10 kA
Protection level line-line at Iimp D1 Up	≤ 80 V	≤ 110 V	≤ 270 V
Protection level line-earth at Iimp D1 Up	≤ 550 V	≤ 550 V	≤ 550 V
Protection level line-line at 1 kV/μs C3 Up	≤ 70 V	≤ 90 V	≤ 250 V
Protection level line-Pg at 1 kV/μs C3 Up	≤ 500 V	≤ 500 V	≤ 500 V
Series resistance per line	2,2 Ω	2,2 Ω	2,2 Ω
Max. operating frequency (3 dB) fG	typ. 10 MHz	typ. 12 MHz	typ. 25 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range TU	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C





### MP 1x2 GDT/Ad-Ad ST

Technical Data	MP 1x2 GDT+5V-Ad-Ad ST	MP 1x2 GDT+12V-Ad-Ad ST	MP 1x2 GDT+24V-Ad-Ad ST	MP 1x2 GDT+36V-Ad-Ad ST
Article-No.	97 00 18	97 00 19	97 00 20	97 00 21
IEC category/EN type	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3
Nominal voltage	UN 5 V	12 V	24 V	36 V
Max. continuous operating voltage (DC/AC)	Uc 6/4 V	15/11 V	33/23 V	45/32 V
Nominal current	IN 0,5 A	0,5 A	0,5 A	0,5 A
D1 lightning impulse current (10/350 µs) per wire	Iimp 2,5 kA	2,5 kA	2,5 kA	2,5 kA
C2 nominal discharge current (8/20 µs) total (In)	In 20 kA	20 kA	20 kA	20 kA
C2 nominal discharge current (8/20 µs) per line	In 10 kA	10 kA	10 kA	10 kA
Protection level line-line at limp D1	Up ≤ 25 V	≤ 26 V	≤ 52 V	≤ 68 V
Protection level line-earth at limp D1	Up ≤ 550 V	≤ 550 V	≤ 550 V	≤ 550 V
Protection level line-line at 1 kV/µs C3	Up ≤ 10 V	≤ 19 V	≤ 45 V	≤ 58 V
Protection level line-Pg at 1 kV/µs C3	Up ≤ 500 V	≤ 500 V	≤ 500 V	≤ 500 V
Series resistance per line	2,2 Ω	2,2 Ω	2,2 Ω	2,2 Ω
Max. operating frequency (3 dB)	fG typ. 1,0 MHz	typ. 3,0 MHz	typ. 6,0 MHz	typ. 8,0 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C

Technical Data	MP 1x2 GDT+48V-Ad-Ad ST	MP 1x2 GDT+60V-Ad-Ad ST	MP 1x2 GDT+170V-Ad-Ad ST
Article-No.	97 00 22	97 00 23	97 00 24
IEC category/EN type	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3
Nominal voltage	UN 48 V	60 V	170 V
Max. continuous operating voltage (DC/AC)	Uc 54/38 V	70/49 V	170/120 V
Nominal current	IN 0,5 A	0,5 A	0,5 A
D1 lightning impulse current (10/350 µs) per wire	Iimp 2,5 kA	2,5 kA	2,5 kA
C2 nominal discharge current (8/20 µs) total (In)	In 20 kA	20 kA	20 kA
C2 nominal discharge current (8/20 µs) per line	In 10 kA	10 kA	10 kA
Protection level line-line at limp D1	Up ≤ 80 V	≤ 110 V	≤ 270 V
Protection level line-earth at limp D1	Up ≤ 550 V	≤ 550 V	≤ 550 V
Protection level line-line at 1 kV/µs C3	Up ≤ 70 V	≤ 90 V	≤ 250 V
Protection level line-Pg at 1 kV/µs C3	Up ≤ 500 V	≤ 500 V	≤ 500 V
Series resistance per line	2,2 Ω	2,2 Ω	2,2 Ω
Max. operating frequency (3 dB)	fG typ. 10 MHz	typ. 12 MHz	typ. 25 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C

Accessories				
Product	MP Base 2x2-R	MP Base 2x2-R GDT	MP Base 1x2-R	MP Base 1x2-R GDT
Article-No.	97 00 00	97 00 01	97 00 95	97 00 96

Different base parts provide either direct or indirect earthing of the signal shielding: The MP Base 2x2-R has the shield connectors 9/10 (GND) linked directly to the DIN rail and to the earth connector. The MP Base 2x2-R GDT has a gas discharge tube linked between the shield connectors 9/10 (GND) and the DIN rail and earth connector. Therefore a galvanic insulation between the signal shield and the earth connection (PE) can be reached.





### Pluggable SPD with high discharge capability and low protection level for MCR applications

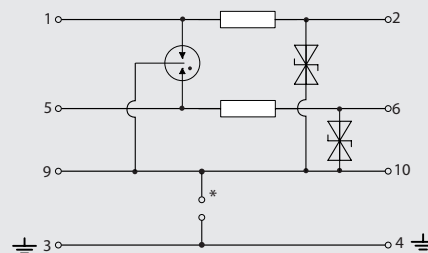
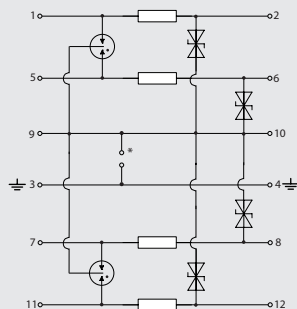
#### MP 2x2 GDT/Ad-Pg ST

Fully pluggable two-parts combined surge arrester for signal lines. The protective module can be removed for test or maintenance purposes without changing the line impedance and therefore influencing the signal level. The base part can remain in the installation without manipulating or removing any wire.

- Protective circuit for 4 signal lines with common ground
- Protective plug can be removed without changing the line impedance or influencing the useful signal
- Test standard: IEC 61643-21 / EN 61643-21
- Applicable at the boundaries LPZ 0<sub>B</sub> - 2 and higher
- Mounting on 35 mm DIN rail
- Enclosure material: thermoplastic
- Space required for installation: 17.5 mm
- Degree of protection (IEC EN 60529): IP 20



Example photo



Technical Data	MP 2x2 GDT+5V-Ad-Pg ST	MP 2x2 GDT+12V-Ad-Pg ST	MP 2x2 GDT+24V-Ad-Pg ST	MP 2x2 GDT+36V-Ad-Pg ST
Article-No.	97 00 25	97 00 26	97 00 27	97 00 28
IEC category/EN type	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3
Nominal voltage	UN 5 V	12 V	24 V	36 V
Max. continuous operating voltage (DC/AC)	Uc 6/4 V	15/11 V	33/23 V	45/32 V
Nominal current	IN 0,5 A	0,5 A	0,5 A	0,5 A
D1 lightning impulse current (10/350 μs) per wire	Iimp 2,5 kA	2,5 kA	2,5 kA	2,5 kA
C2 nominal discharge current (8/20 μs) total (In)	In 20 kA	20 kA	20 kA	20 kA
C2 nominal discharge current (8/20 μs) per line	In 10 kA	10 kA	10 kA	10 kA
Protection level line-line at Iimp D1	Up ≤ 29 V	≤ 50 V	≤ 102 V	≤ 135 V
Protection level line-earth at Iimp D1	Up ≤ 27 V	≤ 37 V	≤ 66 V	≤ 85 V
Protection level line-line at 1 kV/μs C3	Up ≤ 20 V	≤ 38 V	≤ 90 V	≤ 116 V
Protection level line-Pg at 1 kV/μs C3	Up ≤ 10 V	≤ 19 V	≤ 45 V	≤ 58 V
Series resistance per line	2,2 Ω	2,2 Ω	2,2 Ω	2,2 Ω
Max. operating frequency (3 dB)	fG typ. 1,0 MHz	typ. 3,0 MHz	typ. 6,0 MHz	typ. 8,0 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C

Technical Data	MP 2x2 GDT+48V-Ad-Pg ST	MP 2x2 GDT+60V-Ad-Pg ST	MP 2x2 GDT+170V-Ad-Pg ST
Article-No.	97 00 29	97 00 30	97 00 31
IEC category/EN type	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3
Nominal voltage	UN 48 V	60 V	170 V
Max. continuous operating voltage (DC/AC)	Uc 54/38 V	70/49 V	170/120 V
Nominal current	IN 0,5 A	0,5 A	0,5 A
D1 lightning impulse current (10/350 μs) per wire	Iimp 2,5 kA	2,5 kA	2,5 kA
C2 nominal discharge current (8/20 μs) total (In)	In 20 kA	20 kA	20 kA
C2 nominal discharge current (8/20 μs) per line	In 10 kA	10 kA	10 kA
Protection level line-line at Iimp D1	Up ≤ 160 V	≤ 220 V	≤ 520 V
Protection level line-earth at Iimp D1	Up ≤ 95 V	≤ 125 V	≤ 300 V
Protection level line-line at 1 kV/μs C3	Up ≤ 140 V	≤ 180 V	≤ 500 V
Protection level line-Pg at 1 kV/μs C3	Up ≤ 70 V	≤ 90 V	≤ 250 V
Series resistance per line	2,2 Ω	2,2 Ω	2,2 Ω
Max. operating frequency (3 dB)	fG typ. 10 MHz	typ. 12 MHz	typ. 25 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C

### MP 1x2 GDT/Ad-Pg ST

Technical Data	MP 1x2 GDT+5V-Ad-Pg ST	MP 1x2 GDT+12V-Ad-Pg ST	MP 1x2 GDT+24V-Ad-Pg ST	MP 1x2 GDT+36V-Ad-Pg ST
Article-No.	97 00 32	97 00 33	97 00 34	97 00 35
IEC category/EN type	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3
Nominal voltage	UN 5 V	12 V	24 V	36 V
Max. continuous operating voltage (DC/AC)	Uc 6/4 V	15/11 V	33/23 V	45/32 V
Nominal current	IN 0,5 A	0,5 A	0,5 A	0,5 A
D1 lightning impulse current (10/350 µs) per wire	Iimp 2,5 kA	2,5 kA	2,5 kA	2,5 kA
C2 nominal discharge current (8/20 µs) total (In)	In 20 kA	20 kA	20 kA	20 kA
C2 nominal discharge current (8/20 µs) per line	In 10 kA	10 kA	10 kA	10 kA
Protection level line-line at Iimp D1	Up ≤ 29 V	≤ 50 V	≤ 102 V	≤ 135 V
Protection level line-earth at Iimp D1	Up ≤ 27 V	≤ 37 V	≤ 66 V	≤ 85 V
Protection level line-line at 1 kV/µs C3	Up ≤ 20 V	≤ 38 V	≤ 90 V	≤ 116 V
Protection level line-Pg at 1 kV/µs C3	Up ≤ 10 V	≤ 19 V	≤ 45 V	≤ 58 V
Series resistance per line	2,2 Ω	2,2 Ω	2,2 Ω	2,2 Ω
Max. operating frequency (3 dB)	fG typ. 1,0 MHz	typ. 3,0 MHz	typ. 6,0 MHz	typ. 8,0 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C

Technical Data	MP 1x2 GDT+48V-Ad-Pg ST	MP 1x2 GDT+60V-Ad-Pg ST	MP 1x2 GDT+170V-Ad-Pg ST
Article-No.	97 00 36	97 00 37	97 00 38
IEC category/EN type	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3
Nominal voltage	UN 48 V	60 V	170 V
Max. continuous operating voltage (DC/AC)	Uc 54/38 V	70/49 V	170/120 V
Nominal current	IN 0,5 A	0,5 A	0,5 A
D1 lightning impulse current (10/350 µs) per wire	Iimp 2,5 kA	2,5 kA	2,5 kA
C2 nominal discharge current (8/20 µs) total (In)	In 20 kA	20 kA	20 kA
C2 nominal discharge current (8/20 µs) per line	In 10 kA	10 kA	10 kA
Protection level line-line at Iimp D1	Up ≤ 160 V	≤ 220 V	≤ 520 V
Protection level line-earth at Iimp D1	Up ≤ 95 V	≤ 125 V	≤ 300 V
Protection level line-line at 1 kV/µs C3	Up ≤ 140 V	≤ 180 V	≤ 500 V
Protection level line-Pg at 1 kV/µs C3	Up ≤ 70 V	≤ 90 V	≤ 250 V
Series resistance per line	2,2 Ω	2,2 Ω	2,2 Ω
Max. operating frequency (3 dB)	fG typ. 10 MHz	typ. 12 MHz	typ. 25 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C

Accessories				
Product	MP Base 2x2-R	MP Base 2x2-R GDT	MP Base 1x2-R	MP Base 1x2-R GDT
Article-No.	97 00 00	97 00 01	97 00 95	97 00 96

Different base parts provide either direct or indirect earthing of the signal shielding: The MP Base 2x2-R has the shield connectors 9/10 (GND) linked directly to the DIN rail and to the earth connector. The MP Base 2x2-R GDT has a gas discharge tube linked between the shield connectors 9/10 (GND) and the DIN rail and earth connector. Therefore a galvanic insulation between the signal shield and the earth connection (PE) can be reached.





### Pluggable SPD with high discharge capability and low protection level for MCR applications

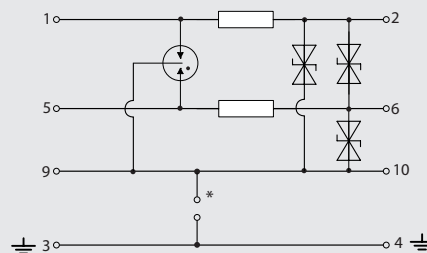
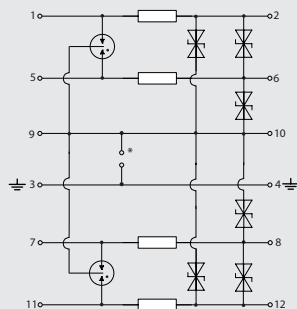
#### MP 2x2 GDT/Ad-Ad-Pg ST

Fully pluggable two-parts combined surge arrester for signal lines. The protective module can be removed for test or maintenance purposes without changing the line impedance and therefore influencing the signal level. The base part can remain in the installation without manipulating or removing any wire.

- Protective circuit for 4 signal lines with common ground
- Protective plug can be removed without changing the line impedance or influencing the useful signal
- Test standard: IEC 61643-21 / EN 61643-21
- Applicable at the boundaries LPZ 0<sub>B</sub> - 2 and higher
- Mounting on 35 mm DIN rail
- Enclosure material: thermoplastic
- Space required for installation: 17.5 mm
- Degree of protection (IEC EN 60529): IP 20



Example photo



Technical Data	MP 2x2 GDT+5V-Ad-Ad-Pg ST	MP 2x2 GDT+12V-Ad-Ad-Pg ST	MP 2x2 GDT+24V-Ad-Ad-Pg ST	MP 2x2 GDT+36V-Ad-Ad-Pg ST
Article-No.	97 00 39	97 00 40	97 00 41	97 00 42
IEC category/EN type	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3
Nominal voltage	UN 5 V	12 V	24 V	36 V
Max. continuous operating voltage (DC/AC)	Uc 6/4 V	15/11 V	33/23 V	45/32 V
Nominal current	IN 0,5 A	0,5 A	0,5 A	0,5 A
D1 lightning impulse current (10/350 μs) per wire	Iimp 2,5 kA	2,5 kA	2,5 kA	2,5 kA
C2 nominal discharge current (8/20 μs) total (In)	In 20 kA	20 kA	20 kA	20 kA
C2 nominal discharge current (8/20 μs) per line	In 10 kA	10 kA	10 kA	10 kA
Protection level line-line at Iimp D1	Up ≤ 25 V	≤ 26 V	≤ 52 V	≤ 68 V
Protection level line-earth at Iimp D1	Up ≤ 27 V	≤ 37 V	≤ 66 V	≤ 85 V
Protection level line-line at 1 kV/μs C3	Up ≤ 10 V	≤ 19 V	≤ 45 V	≤ 58 V
Protection level line-Pg at 1 kV/μs C3	Up ≤ 10 V	≤ 19 V	≤ 45 V	≤ 58 V
Series resistance per line	2,2 Ω	2,2 Ω	2,2 Ω	2,2 Ω
Max. operating frequency (3 dB)	fG typ. 1,0 MHz	typ. 3,0 MHz	typ. 6,0 MHz	typ. 8,0 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C

55,857 mm	MP 2x2 GDT+48V-Ad-Ad-Pg ST	MP 2x2 GDT+60V-Ad-Ad-Pg ST	MP 2x2 GDT+170V-Ad-Ad-Pg ST
Article-No.	97 00 43	97 00 44	97 00 45
IEC category/EN type	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3
Nominal voltage	UN 48 V	60 V	170 V
Max. continuous operating voltage (DC/AC)	Uc 54/38 V	70/49 V	170/120 V
Nominal current	IN 0,5 A	0,5 A	0,5 A
D1 lightning impulse current (10/350 μs) per wire	Iimp 2,5 kA	2,5 kA	2,5 kA
C2 nominal discharge current (8/20 μs) total (In)	In 20 kA	20 kA	20 kA
C2 nominal discharge current (8/20 μs) per line	In 10 kA	10 kA	10 kA
Protection level line-line at Iimp D1	Up ≤ 80 V	≤ 110 V	≤ 270 V
Protection level line-earth at Iimp D1	Up ≤ 95 V	≤ 125 V	≤ 300 V
Protection level line-line at 1 kV/μs C3	Up ≤ 70 V	≤ 90 V	≤ 250 V
Protection level line-Pg at 1 kV/μs C3	Up ≤ 70 V	≤ 90 V	≤ 250 V
Series resistance per line	2,2 Ω	2,2 Ω	2,2 Ω
Max. operating frequency (3 dB)	fG typ. 10 MHz	typ. 12 MHz	typ. 25 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C

### MP 1x2 GDT/Ad-Ad-Pg ST

Technical Data	MP 1x2 GDT+5V-Ad-Ad-Pg ST	MP 1x2 GDT+12V-Ad-Ad-Pg ST	MP 1x2 GDT+24V-Ad-Ad-Pg ST	MP 1x2 GDT+36V-Ad-Ad-Pg ST
Article-No.	97 00 46	97 00 47	97 00 48	97 00 49
IEC category/EN type	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3
Nominal voltage	UN 5 V	12 V	24 V	36 V
Max. continuous operating voltage (DC/AC)	Uc 6/4 V	15/11 V	33/23 V	45/32 V
Nominal current	IN 0,5 A	0,5 A	0,5 A	0,5 A
D1 lightning impulse current (10/350 µs) per wire	Iimp 2,5 kA	2,5 kA	2,5 kA	2,5 kA
C2 nominal discharge current (8/20 µs) total (In)	In 20 kA	20 kA	20 kA	20 kA
C2 nominal discharge current (8/20 µs) per line	In 10 kA	10 kA	10 kA	10 kA
Protection level line-line at Iimp D1	Up ≤ 25 V	≤ 26 V	≤ 52 V	≤ 68 V
Protection level line-earth at Iimp D1	Up ≤ 27 V	≤ 37 V	≤ 66 V	≤ 85 V
Protection level line-line at 1 kV/µs C3	Up ≤ 10 V	≤ 19 V	≤ 45 V	≤ 58 V
Protection level line-Pg at 1 kV/µs C3	Up ≤ 10 V	≤ 19 V	≤ 45 V	≤ 58 V
Series resistance per line	2,2 Ω	2,2 Ω	2,2 Ω	2,2 Ω
Max. operating frequency (3 dB)	fG typ. 1,0 MHz	typ. 3,0 MHz	typ. 6,0 MHz	typ. 8,0 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C

Technical Data	MP 1x2 GDT+48V-Ad-Ad-Pg ST	MP 1x2 GDT+60V-Ad-Ad-Pg ST	MP 1x2 GDT+170V-Ad-Ad-Pg ST
Article-No.	97 00 50	97 00 51	97 00 52
IEC category/EN type	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3
Nominal voltage	UN 48 V	60 V	170 V
Max. continuous operating voltage (DC/AC)	Uc 54/38 V	70/49 V	170/120 V
Nominal current	IN 0,5 A	0,5 A	0,5 A
D1 lightning impulse current (10/350 µs) per wire	Iimp 2,5 kA	2,5 kA	2,5 kA
C2 nominal discharge current (8/20 µs) total (In)	In 20 kA	20 kA	20 kA
C2 nominal discharge current (8/20 µs) per line	In 10 kA	10 kA	10 kA
Protection level line-line at Iimp D1	Up ≤ 80 V	≤ 110 V	≤ 270 V
Protection level line-earth at Iimp D1	Up ≤ 95 V	≤ 125 V	≤ 300 V
Protection level line-line at 1 kV/µs C3	Up ≤ 70 V	≤ 90 V	≤ 250 V
Protection level line-Pg at 1 kV/µs C3	Up ≤ 70 V	≤ 90 V	≤ 250 V
Series resistance per line	2,2 Ω	2,2 Ω	2,2 Ω
Max. operating frequency (3 dB)	fG typ. 10 MHz	typ. 12 MHz	typ. 25 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C

Accessories				
Product	MP Base 2x2-R	MP Base 2x2-R GDT	MP Base 1x2-R	MP Base 1x2-R GDT
Article-No.	97 00 00	97 00 01	97 00 95	97 00 96

Different base parts provide either direct or indirect earthing of the signal shielding: The MP Base 2x2-R has the shield connectors 9/10 (GND) linked directly to the DIN rail and to the earth connector. The MP Base 2x2-R GDT has a gas discharge tube linked between the shield connectors 9/10 (GND) and the DIN rail and earth connector. Therefore a galvanic insulation between the signal shield and the earth connection (PE) can be reached.





## Pluggable SPD for high frequency MCR applications

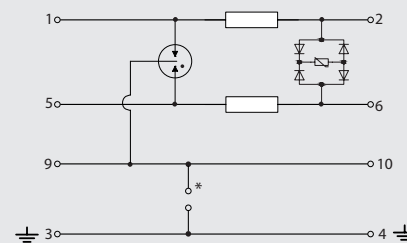
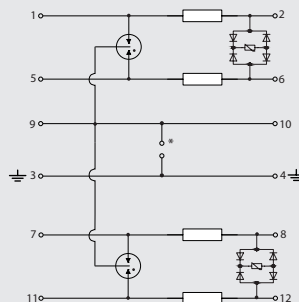
### MP 2x2 HF ST and MP 1x2 HF ST

Fully pluggable two-parts combined surge arrester for signal lines for high frequency applications such as bus systems or video transmission. The protective module can be removed for test or maintenance purposes without changing the line impedance and therefore influencing the signal level. The base part can remain in the installation without manipulating or removing any wire.

- Protective circuit for 4 signal lines without reference to ground potential
- Protective plug can be removed without changing the line impedance or influencing the useful signal
- Test standard: IEC 61643-21 / EN 61643-21
- Applicable at the boundaries LPZ 0<sub>B</sub> - 2 and higher
- Mounting on 35 mm DIN rail
- Enclosure material: thermoplastic
- Space required for installation: 17.5 mm
- Degree of protection (IEC EN 60529): IP 20



Example photo



Technical Data	MP 2x2 5V-HF ST	MP 2x2 24V-HF ST	MP 1x2 5V-HF ST	MP 1x2 24V-HF ST
Article-No.	97 10 50	97 10 51	97 10 52	97 10 53
IEC category/EN type	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3	D1 / C2 / C1 / C3
Nominal voltage	UN 5 V	24 V	5 V	24 V
Max. continuous operating voltage (DC/AC)	Uc 6/4 V	33/23 V	6/4 V	33/23 V
Nominal current	IN 0,5 A	0,5 A	0,5 A	0,5 A
D1 lightning impulse current (10/350 μs) per wire	Iimp 2,5 kA	2,5 kA	2,5 kA	2,5 kA
C2 nominal discharge current (8/20 μs) total (In)	In 20 kA	20 kA	20 kA	20 kA
C2 nominal discharge current (8/20 μs) per line	In 10 kA	10 kA	10 kA	10 kA
Protection level line-line at Iimp D1	Up ≤ 25 V	≤ 52 V	≤ 25 V	≤ 52 V
Protection level line-earth at Iimp D1	Up ≤ 27 V	≤ 66 V	≤ 27 V	≤ 66 V
Protection level line-line at 1 kV/μs C3	Up ≤ 10 V	≤ 45 V	≤ 10 V	≤ 45 V
Protection level line-Pg at 1 kV/μs C3	Up ≤ 10 V	≤ 45 V	≤ 10 V	≤ 45 V
Series resistance per line	2,2 Ω	2,2 Ω	2,2 Ω	2,2 Ω
Max. operating frequency (3 dB)	fG typ. 70 MHz	typ. 70 MHz	typ. 70 MHz	typ. 70 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Inflammability class according to UL 94	V0	V0	V0	V0

Accessories				
Product	MP Base 2x2-R	MP Base 2x2-R GDT	MP Base 1x2-R	MP Base 1x2-R GDT
Article-No.	97 00 00	97 00 01	97 00 95	97 00 96

Different base parts provide either direct or indirect earthing of the signal shielding: The MP Base 2x2-R has the shield connectors 9/10 (GND) linked directly to the DIN rail and to the earth connector. The MP Base 2x2-R GDT has a gas discharge tube linked between the shield connectors 9/10 (GND) and the DIN rail and earth connector. Therefore a galvanic insulation between the signal shield and the earth connection (PE) can be reached.



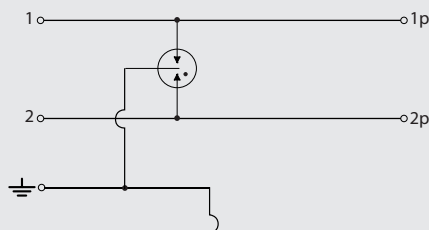


### One-piece SPD with high discharge capability for MCR applications

#### MP RK GDT

Terminal blocks with integrated surge protection can optimize the used space in a control cabinet and at the same time provide high level protection for terminal equipment and devices.

- Protective circuit for 2 signal lines without reference to ground potential
- Applicable at the boundaries LPZ 0<sub>B</sub> - 1 and higher
- Test standard: IEC 61643-21 / EN 61643-21
- Mounting on 35 mm DIN rail
- 6.2 mm DIN rail module
- Earthing via DIN rail or connector



Example photo

Technical Data	MP RK GDT
Article-No.	97 10 03
IEC category/EN type	C2 / C1 / C3
Nominal voltage	UN 170 V
Max. continuous operating voltage (DC/AC)	Uc 170/120 V
Nominal current	IN 2,0 A
C2 nominal discharge current (8/20 μs) total (In)	In 10 kA
C2 nominal discharge current (8/20 μs) per line	In 5 kA
Protection level line-line at In C2	Up ≤ 500 V
Protection level line-earth at In C2	Up ≤ 500 V
Protection level line-line at 1 kV/μs C3	Up ≤ 500 V
Protection level line-Pg at 1 kV/μs C3	Up ≤ 500 V
Series resistance per line	0 Ω
Max. operating frequency (3 dB)	fG typ. 100 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range	TU -40 - +80 °C
Inflammability class according to UL 94	V0
Degree of protection (IEC EN 60529)	IP 20
Enclosure material / colour	PA6 / yellow



### One-piece SPD with high discharge capability and low protection level for MCR applications

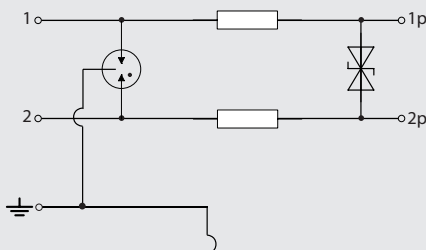
#### MP RK GDT/Ad-Ad

Terminal blocks with integrated surge protection can optimize the used space in a control cabinet and at the same time provide high level protection for terminal equipment and devices.



Example photo

- Protective circuit for 2 signal lines without reference to ground potential
- Applicable at the boundaries LPZ 0<sub>B</sub> - 2 and higher
- Test standard: IEC 61643-21 / EN 61643-21
- Mounting on 35 mm DIN rail
- 6.2 mm DIN rail module
- Earthing via DIN rail or connector
- Degree of protection (IEC EN 60529): IP 20



Technical Data	MP RK GDT+5V-Ad-Ad	MP RK GDT+12V-Ad-Ad	MP RK GDT+24V-Ad-Ad	MP RK GDT+36V-Ad-Ad
Article-No.	97 10 04	97 10 05	97 10 06	97 10 07
IEC category/EN type	C2 / C1 / C3	C2 / C1 / C3	C2 / C1 / C3	C2 / C1 / C3
Nominal voltage UN	5 V	12 V	24 V	36 V
Max. continuous operating voltage (DC/AC) Uc	6/4 V	15/11 V	33/23 V	45/32 V
Nominal current IN	0,5 A	0,5 A	0,5 A	0,5 A
C2 nominal discharge current (8/20 μs) total (In)	10 kA	10 kA	10 kA	10 kA
C2 nominal discharge current (8/20 μs) per line In	5 kA	5 kA	5 kA	5 kA
Protection level line-line at In C2 Up	≤ 13 V	≤ 25 V	≤ 59 V	≤ 75 V
Protection level line-earth at In C2 Up	≤ 500 V	≤ 500 V	≤ 500 V	≤ 500 V
Protection level line-line at 1 kV/μs C3 Up	≤ 10 V	≤ 19 V	≤ 45 V	≤ 58 V
Protection level line-Pg at 1 kV/μs C3 Up	≤ 500 V	≤ 500 V	≤ 500 V	≤ 500 V
Series resistance per line	2,2 Ω	2,2 Ω	2,2 Ω	2,2 Ω
Max. operating frequency (3 dB) fG	typ. 1 MHz	typ. 3,0 MHz	typ. 6,0 MHz	typ. 8,0 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range TU	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Enclosure material / colour	PA6 / yellow	PA6 / yellow	PA6 / yellow	PA6 / yellow

Technical Data	MP RK GDT+48V-Ad-Ad	MP RK GDT+60V-Ad-Ad	MP RK GDT+170V-Ad-Ad
Article-No.	97 10 08	97 10 09	97 10 10
IEC category/EN type	C2 / C1 / C3	C2 / C1 / C3	C2 / C1 / C3
Nominal voltage UN	48 V	60 V	170
Max. continuous operating voltage (DC/AC) Uc	54/38 V	70/49 V	170/120 V
Nominal current IN	0,5 A	0,5 A	0,5 A
C2 nominal discharge current (8/20 μs) total (In)	10 kA	10 kA	10 kA
C2 nominal discharge current (8/20 μs) per line In	5 kA	5 kA	5 kA
Protection level line-line at In C2 Up	≤ 90 V	≤ 120 V	≤ 320 V
Protection level line-earth at In C2 Up	≤ 500 V	≤ 500 V	≤ 500 V
Protection level line-line at 1 kV/μs C3 Up	≤ 70 V	≤ 90 V	≤ 250 V
Protection level line-Pg at 1 kV/μs C3 Up	≤ 500 V	≤ 500 V	≤ 500 V
Series resistance per line	2,2 Ω	2,2 Ω	2,2 Ω
Max. operating frequency (3 dB) fG	typ. 10 MHz	typ. 12 MHz	typ. 25 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range TU	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Enclosure material / colour	PA6 / yellow	PA6 / yellow	PA6 / yellow





### One-piece SPD with high discharge capability and low protection level for MCR applications

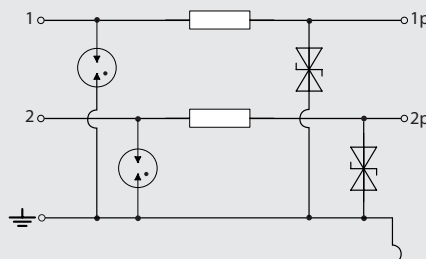
#### MP RK GDT/Ad-Pg

Terminal blocks with integrated surge protection can optimize the used space in a control cabinet and at the same time provide high level protection for terminal equipment and devices.



Example photo

- Protective circuit for two signal lines with common ground
- Applicable at the boundaries LPZ 0<sub>B</sub> - 2 and higher
- Test standard: IEC 61643-21 / EN 61643-21
- Mounting on 35 mm DIN rail
- 6.2 mm DIN rail module
- Earthing via DIN rail or connector
- Degree of protection (IEC EN 60529): IP 20



Technical Data	MP RK GDT+5V-Ad-Pg	MP RK GDT+12V-Ad-Pg	MP RK GDT+24V-Ad-Pg	MP RK GDT+36V-Ad-Pg
Article-No.	97 10 11	97 10 12	97 10 13	97 10 14
IEC category/EN type	C2 / C1 / C3	C2 / C1 / C3	C2 / C1 / C3	C2 / C1 / C3
Nominal voltage	UN 5 V	12 V	24 V	36 V
Max. continuous operating voltage (DC/AC)	Uc 6/4 V	15/11 V	33/23 V	45/32 V
Nominal current	IN 0,5 A	0,5 A	0,5 A	0,5 A
C2 nominal discharge current (8/20 μs) total (In)	In 10 kA	10 kA	10 kA	10 kA
C2 nominal discharge current (8/20 μs) per line	In 5 kA	5 kA	5 kA	5 kA
Protection level line-line at In C2	Up ≤ 26 V	≤ 50 V	≤ 118 V	≤ 150 V
Protection level line-earth at In C2	Up ≤ 13 V	≤ 25 V	≤ 59 V	≤ 75 V
Protection level line-line at 1 kV/μs C3	Up ≤ 20 V	≤ 38 V	≤ 90 V	≤ 116 V
Protection level line-Pg at 1 kV/μs C3	Up ≤ 10 V	≤ 19 V	≤ 45 V	≤ 58 V
Series resistance per line	2,2 Ω	2,2 Ω	2,2 Ω	2,2 Ω
Max. operating frequency (3 dB)	fG typ. 1 MHz	typ. 3,0 MHz	typ. 6,0 MHz	typ. 8,0 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Enclosure material / colour	PA6 / yellow	PA6 / yellow	PA6 / yellow	PA6 / yellow

Technical Data	MP RK GDT+48V-Ad-Pg	MP RK GDT+60V-Ad-Pg	MP RK GDT+170V-Ad-Pg
Article-No.	97 10 15	97 10 16	97 10 17
IEC category/EN type	C2 / C1 / C3	C2 / C1 / C3	C2 / C1 / C3
Nominal voltage	UN 48 V	60 V	170 V
Max. continuous operating voltage (DC/AC)	Uc 54/38 V	70/49 V	170/120 V
Nominal current	IN 0,5 A	0,5 A	0,5 A
C2 nominal discharge current (8/20 μs) total (In)	In 10 kA	10 kA	10 kA
C2 nominal discharge current (8/20 μs) per line	In 5 kA	5 kA	5 kA
Protection level line-line at In C2	Up ≤ 180 V	≤ 240 V	≤ 600 V
Protection level line-earth at In C2	Up ≤ 90 V	≤ 120 V	≤ 320 V
Protection level line-line at 1 kV/μs C3	Up ≤ 140 V	≤ 180 V	≤ 500 V
Protection level line-Pg at 1 kV/μs C3	Up ≤ 70 V	≤ 90 V	≤ 250 V
Series resistance per line	2,2 Ω	2,2 Ω	2,2 Ω
Max. operating frequency (3 dB)	fG typ. 10 MHz	typ. 12 MHz	typ. 25 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Enclosure material / colour	PA6 / yellow	PA6 / yellow	PA6 / yellow



### One-piece SPD with high discharge capability and low protection level for MCR applications

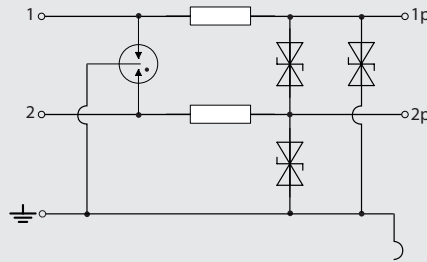
#### MP RK GDT/Ad-Ad-Pg

Terminal blocks with integrated surge protection can optimize the used space in a control cabinet and at the same time provide high level protection for terminal equipment and devices.



Example photo

- Protective circuit for 2 signal lines with common ground
- Applicable at the boundaries LPZ 0<sub>B</sub> - 2 and higher
- Test standard: IEC 61643-21 / EN 61643-21
- Mounting on 35 mm DIN rail
- 6.2 mm DIN rail module
- Earthing via DIN rail or connector
- Degree of protection (IEC EN 60529): IP 20



Technical Data	MP RK GDT+5V-Ad-Ad-Pg	MP RK GDT+12V-Ad-Ad-Pg	MP RK GDT+12V-Ad-Ad-Pg	MP RK GDT+36V-Ad-Ad-Pg
Article-No.	97 10 18	97 10 19	97 10 20	97 10 21
IEC category/EN type	C2 / C1 / C3	C2 / C1 / C3	C2 / C1 / C3	C2 / C1 / C3
Nominal voltage	UN 5 V	12 V	24 V	36 V
Max. continuous operating voltage (DC/AC)	Uc 6/4 V	15/11 V	33/23 V	45/32 V
Nominal current	IN 0,5 A	0,5 A	0,5 A	0,5 A
C2 nominal discharge current (8/20 μs) total (In)	In 10 kA	10 kA	10 kA	10 kA
C2 nominal discharge current (8/20 μs) per line	In 5 kA	5 kA	5 kA	5 kA
Protection level line-line at In C2	Up ≤ 13 V	≤ 25 V	≤ 59 V	≤ 75 V
Protection level line-earth at In C2	Up ≤ 13 V	≤ 25 V	≤ 59 V	≤ 75 V
Protection level line-line at 1 kV/μs C3	Up ≤ 10 V	≤ 19 V	≤ 45 V	≤ 58 V
Protection level line-Pg at 1 kV/μs C3	Up ≤ 10 V	≤ 19 V	≤ 45 V	≤ 58 V
Series resistance per line	2,2 Ω	2,2 Ω	2,2 Ω	2,2 Ω
Max. operating frequency (3 dB)	fG typ. 1 MHz	typ. 3,0 MHz	typ. 6,0 MHz	typ. 8,0 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Enclosure material / colour	PA6 / yellow	PA6 / yellow	PA6 / yellow	PA6 / yellow

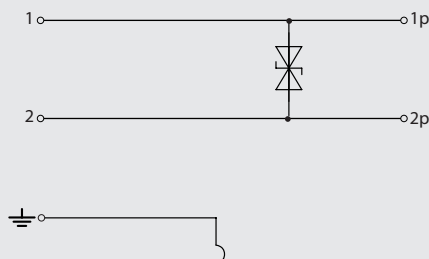
Technical Data	MP RK GDT+48V-Ad-Ad-Pg	MP RK GDT+60V-Ad-Ad-Pg	MP RK GDT+170V-Ad-Ad-Pg
Article-No.	97 10 22	97 10 23	97 10 24
IEC category/EN type	C2 / C1 / C3	C2 / C1 / C3	C2 / C1 / C3
Nominal voltage	UN 48 V	60 V	170 V
Max. continuous operating voltage (DC/AC)	Uc 54/38 V	70/49 V	170/120 V
Nominal current	IN 0,5 A	0,5 A	0,5 A
C2 nominal discharge current (8/20 μs) total (In)	In 10 kA	10 kA	10 kA
C2 nominal discharge current (8/20 μs) per line	In 5 kA	5 kA	5 kA
Protection level line-line at In C2	Up ≤ 90 V	≤ 120 V	≤ 320 V
Protection level line-earth at In C2	Up ≤ 90 V	≤ 120 V	≤ 320 V
Protection level line-line at 1 kV/μs C3	Up ≤ 70 V	≤ 90 V	≤ 250 V
Protection level line-Pg at 1 kV/μs C3	Up ≤ 70 V	≤ 90 V	≤ 250 V
Series resistance per line	2,2 Ω	2,2 Ω	2,2 Ω
Max. operating frequency (3 dB)	fG typ. 10 MHz	typ. 12 MHz	typ. 25 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Enclosure material / colour	PA6 / yellow	PA6 / yellow	PA6 / yellow

### One-piece SPD with low protection level for MCR applications

#### MP RK/Ad-Ad

Terminal blocks with integrated surge protection can optimize the used space in a control cabinet and at the same time provide high level protection for terminal equipment and devices.

- Protective circuit for 2 signal lines without reference to ground potential
- Applicable at the boundaries LPZ 1 - 2 and higher
- Test standard: IEC 61643-21 / EN 61643-21
- Mounting on 35 mm DIN rail
- 6.2 mm DIN rail module
- Earthing via DIN rail or connector
- Degree of protection (IEC EN 60529): IP 20



Example photo

Technical Data	MP RK 5V-Ad-Ad	MP RK 12V-Ad-Ad	MP RK 24V-Ad-Ad	MP RK 36V-Ad-Ad
Article-No.	97 10 25	97 10 26	97 10 27	97 10 28
IEC category/EN type	C1 / C3	C1 / C3	C1 / C3	C1 / C3
Nominal voltage	UN 5 V	12 V	24 V	36 V
Max. continuous operating voltage (DC/AC)	Uc 6/4 V	15/11 V	33/23 V	45/32 V
Nominal current	IN 2,0 A	2,0 A	2,0 A	2,0 A
C1 nominal discharge current (8/20µs) total	In 0,8 kA	0,8 kA	0,6 kA	0,4 kA
C1 nominal discharge current (8/20µs) per line	In 0,4 kA	0,4 kA	0,3 kA	0,2 kA
Protection level line-line at In C1	Up ≤ 13 V	≤ 25 V	≤ 48 V	≤ 70 V
Protection level line-line at 1 kV/µs C3	Up ≤ 10 V	≤ 19 V	≤ 45 V	≤ 58 V
Series resistance per line	0 Ω	0 Ω	0 Ω	0 Ω
Max. operating frequency (3 dB)	fG typ. 1,0 MHz	typ. 3,0 MHz	typ. 6,0 MHz	typ. 8,0 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Inflammability class according to UL 94	V0	V0	V0	V0
Installation width	6,2 mm	6,2 mm	6,2 mm	6,2 mm

Technical Data	MP RK 48V-Ad-Ad	MP RK 60V-Ad-Ad	MP RK 170V-Ad-Ad
Article-No.	97 10 29	97 10 30	97 10 31
IEC category/EN type	C1 / C3	C1 / C3	C1 / C3
Nominal voltage	UN 48 V	60 V	170 V
Max. continuous operating voltage (DC/AC)	Uc 54/38 V	70/48 V	170/120 V
Nominal current	IN 2,0 A	2,0 A	2,0 A
C1 nominal discharge current (8/20µs) total	In 0,3 kA	0,24 kA	0,2 kA
C1 nominal discharge current (8/20µs) per line	In 0,15 kA	0,12 kA	0,1 kA
Protection level line-line at In C1	Up ≤ 90 V	≤ 110 V	≤ 300 V
Protection level line-line at 1 kV/µs C3	Up ≤ 70 V	≤ 90 V	≤ 250 V
Series resistance per line	0 Ω	0 Ω	0 Ω
Max. operating frequency (3 dB)	fG typ. 10 MHz	typ. 12 MHz	typ. 25 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C
Inflammability class according to UL 94	V0	V0	V0
Installation width	6,2 mm	6,2 mm	6,2 mm

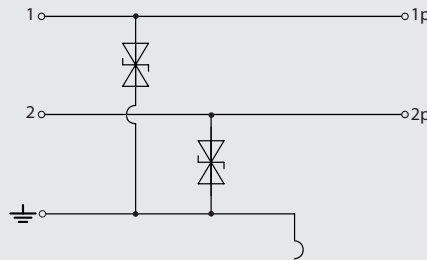


### One-piece SPD with low protection level for MCR applications

#### MP RK/Ad-Pg

Terminal blocks with integrated surge protection can optimize the used space in a control cabinet and at the same time provide high level protection for terminal equipment and devices.

- Protective circuit for two signal lines with common ground
- Applicable at the boundaries LPZ 1 - 2 and higher
- Test standard: IEC 61643-21 / EN 61643-21
- Mounting on 35 mm DIN rail
- 6.2 mm DIN rail module
- Earthing via DIN rail or connector
- Degree of protection (IEC EN 60529): IP 20



Example photo

Technical Data	MP RK 5V-Ad-Pg	MP RK 12V-Ad-Pg	MP RK 24V-Ad-Pg	MP RK 36V-Ad-Pg
Article-No.	97 10 32	97 10 33	97 10 34	97 10 35
IEC category/EN type	C1 / C3	C1 / C3	C1 / C3	C1 / C3
Nominal voltage	UN 5 V	12 V	24 V	36 V
Max. continuous operating voltage (DC/AC)	Uc 6/4 V	15/11 V	33/23 V	45/32 V
Nominal current	IN 2,0 A	2,0 A	2,0 A	2,0 A
C1 nominal discharge current (8/20µs) total	In 0,8 kA	0,8 kA	0,6 kA	0,4 kA
C1 nominal discharge current (8/20µs) per line	In 0,4 kA	0,4 kA	0,3 kA	0,2 kA
Protection level line-line at In C1	Up ≤ 26 V	≤ 50 V	≤ 96 V	≤ 140 V
Protection level line-earth at In C1	Up ≤ 13 V	≤ 25 V	≤ 48 V	≤ 70 V
Protection level line-line at 1 kV/µs C3	Up ≤ 20 V	≤ 38 V	≤ 90 V	≤ 116 V
Protection level line-Pg at 1 kV/µs C3	Up ≤ 10 V	≤ 19 V	≤ 45 V	≤ 58 V
Series resistance per line	0 Ω	0 Ω	0 Ω	0 Ω
Max. operating frequency (3 dB)	fG typ. 1,0 MHz	typ. 3,0 MHz	typ. 6,0 MHz	typ. 8,0 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C

Technical Data	MP RK 48V-Ad-Pg	MP RK 60V-Ad-Pg	MP RK 170V-Ad-Pg
Article-No.	97 10 36	97 10 37	97 10 38
IEC category/EN type	C1 / C3	C1 / C3	C1 / C3
Nominal voltage	UN 48 V	60 V	170 V
Max. continuous operating voltage (DC/AC)	Uc 54/38 V	70/49 V	170/120 V
Nominal current	IN 2,0 A	2,0 A	2,0 A
C1 nominal discharge current (8/20µs) total	In 0,3 kA	0,24 kA	0,2 kA
C1 nominal discharge current (8/20µs) per line	In 0,15 kA	0,12 kA	0,1 kA
Protection level line-line at In C1	Up ≤ 180 V	≤ 220 V	≤ 600 V
Protection level line-earth at In C1	Up ≤ 90 V	≤ 110 V	≤ 300 V
Protection level line-line at 1 kV/µs C3	Up ≤ 140 V	≤ 180 V	≤ 500 V
Protection level line-Pg at 1 kV/µs C3	Up ≤ 70 V	≤ 90 V	≤ 250 V
Series resistance per line	0 Ω	0 Ω	0 Ω
Max. operating frequency (3 dB)	fG typ. 10 MHz	typ. 12 MHz	typ. 25 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range	TU -40 - +80 °C	-40 - +80 °C	-40 - +80 °C



### One-piece SPD with low protection level for MCR applications

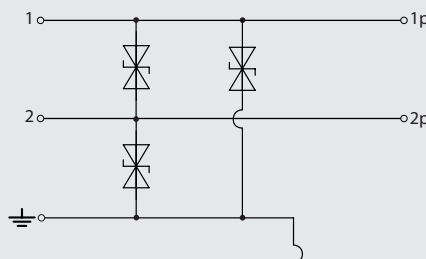
#### MP RK/Ad-Ad-Pg

Terminal blocks with integrated surge protection can optimize the used space in a control cabinet and at the same time provide high level protection for terminal equipment and devices.



Example photo

- Protective circuit for two signal lines with common ground
- Applicable at the boundaries LPZ 1 - 2 and higher
- Test standard: IEC 61643-21 / EN 61643-21
- Mounting on 35 mm DIN rail
- 6.2 mm DIN rail module
- Earthing via DIN rail or connector
- Degree of protection (IEC EN 60529): IP 20



Technical Data	MP RK 5V-Ad-Ad-Pg	MP RK 12V-Ad-Ad-Pg	MP RK 24V-Ad-Ad-Pg	MP RK 36V-Ad-Ad-Pg
Article-No.	97 10 39	97 10 40	97 10 41	97 10 42
IEC category/EN type	C1 / C3	C1 / C3	C1 / C3	C1 / C3
Nominal voltage UN	5 V	12 V	24 V	36 V
Max. continuous operating voltage (DC/AC) Uc	6/4 V	15/11 V	33/23 V	45/32 V
Nominal current IN	2,0 A	2,0 A	2,0 A	2,0 A
C1 nominal discharge current (8/20µs) total In	0,8 kA	0,8 kA	0,6 kA	0,4 kA
C1 nominal discharge current (8/20µs) per line In	0,4 kA	0,4 kA	0,3 kA	0,2 kA
Protection level line-line at In C1 Up	≤ 13 V	≤ 25 V	≤ 48 V	≤ 70 V
Protection level line-earth at In C1 Up	≤ 13 V	≤ 25 V	≤ 48 V	≤ 70 V
Protection level line-line at 1 kV/µs C3 Up	≤ 10 V	≤ 19 V	≤ 45 V	≤ 58 V
Protection level line-Pg at 1 kV/µs C3 Up	≤ 10 V	≤ 19 V	≤ 45 V	≤ 58 V
Series resistance per line	0 Ω	0 Ω	0 Ω	0 Ω
Max. operating frequency (3 dB) fG	typ. 1,0 MHz	typ. 3,0 MHz	typ. 6,0 MHz	typ. 8,0 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range TU	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C

Technical Data	MP RK 48V-Ad-Ad-Pg	MP RK 60V-Ad-Ad-Pg	MP RK 170V-Ad-Ad-Pg
Article-No.	97 10 43	97 10 44	97 10 45
IEC category/EN type	C1 / C3	C1 / C3	C1 / C3
Nominal voltage UN	48 V	60 V	170 V
Max. continuous operating voltage (DC/AC) Uc	54/38 V	70/49 V	170/120 V
Nominal current IN	2,0 A	2,0 A	2,0 A
C1 nominal discharge current (8/20µs) total In	0,3 kA	0,24 kA	0,2 kA
C1 nominal discharge current (8/20µs) per line In	0,15 kA	0,12 kA	0,1 kA
Protection level line-line at In C1 Up	≤ 90 V	≤ 110 V	≤ 300 V
Protection level line-earth at In C1 Up	≤ 90 V	≤ 110 V	≤ 300 V
Protection level line-line at 1 kV/µs C3 Up	≤ 70 V	≤ 90 V	≤ 250 V
Protection level line-Pg at 1 kV/µs C3 Up	≤ 70 V	≤ 90 V	≤ 250 V
Series resistance per line	0 Ω	0 Ω	0 Ω
Max. operating frequency (3 dB) fG	typ. 10 MHz	typ. 12 MHz	typ. 25 MHz
Conductor cross section (solid/stranded/AWG)	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12	0.2-4.0/0.2-2.5 mm <sup>2</sup> / 24-12
Operating temperature range TU	-40 - +80 °C	-40 - +80 °C	-40 - +80 °C



# REGISTER

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