

Surge protection

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Surge protection overview

PU 1 TSG+



Class I lightning arresters up to 50 kA (10/350 μ s) per unit with triggered sparkover gap for industrial main distribution boards, 330 V und 440 V

PU 1 TSG



Encapsulated Class I lightning arresters up to 35/50/100 kA (10/350 μ s). Width 17.5 mm for use in main distribution boards 230 V

PU BC/PU BCR



Pluggable Class I+II arrester for lightning potential equalisation. Suitable for lightning protection classes III and II

Combination arrester



Combination arrester for 4-conductor systems and 5-conductor systems

PU II Series



Class II surge arrester with Varistors for main and sub-distribution boards (also with remote signalling contact)

PU III Series



Class III surge arrester single-phase with gas discharge tube and varistor for equipment protection, slimline design, with remote signalling contact

PU D/PU 3D



Class II surge arrester, single-phase with gas discharge tube and varistor for equipment protection, with remote signalling contact

PU D ZS



Socket outlet protection also with protection of ISDN or analogue lines

Wavefilter



Mains filter 3/6/10 A with screw connection for 230 V devices or power supplies

MCZ-Series

Instrumentation and control engineering surge protection for binary and analogue signals, slimline design (6 mm) with tension clamp connection and mounting rail contact

LPU

Instrumentation and control engineering surge protection for binary and analogue signals, pluggable with screw connection (connection variants and testing feature)

DKU-SERIES

Instrumentation and control engineering surge protection for binary and analogue signals, slimline design (6/8 mm) with screw connection

EGU series

Two-stage instrumentation and control engineering surge protection for binary signals with integrated fuse 5 x 20 mm and screw connection

RSU 6/10 A

Three-stage surge protection for analogue signals with high current consumption or for power supplies in instrumentation and control systems

RS485

Surge protection for the RS 485 data interface in protected housing with T-junction option and optional earthing via gas discharge tube

JACKPAC®

Single and three-stage surge protection in IP67: for protection of binary switching signals up to 24 V or for analogue measuring circuits with 0...20 mA or 0...10 V

Other

Data surge protection for RS232/ RS485 as well as for telecommunication applications

Product quick selection, power supplies

Class I

Combination arresters – class I

Product	Version	Rated Uc	Discharge capacity Iimp (10/350)	Protection level Up	Follow current suppression capability Ifi	Tele- communication contact	Max. backup fuse A gl/gG	Overall width	Order No.
PU Combi 4 wire	4-pole	260 V	100 kA	1.5 kV	3 kA		125	6 module	8729960000
PU R Combi 4 wire	4-pole	260 V	100 kA	1.5 kV	3 kA	1 W	125	7 module	8729970000
PU Combi 5 wire	5-pole	260 V	100 kA	1.5 kV	3 kA		125	8 module	8729950000
PU R Combi 5 wire	5-pole	260 V	100 kA	1.5 kV	3 kA	1 W	125	9 module	8729930000
PU BC 16 kA	single-pole	280 V	16 kA	< 1.3 kV	no system follow current		160	2 module	8805440000
PU BCR 16 kA	single-pole	280 V	16 kA	< 1.3 kV	no system follow current	1 W	160	3 module	8805450000

Lightning arresters – class I sparkover gaps (intermediate meter area)

Product	Version	Rated voltage Uc	Discharge capacity Iimp (10/350)	Protection level Up	Follow current suppression capability Ifi	blow-out/ encapsulated	Max. backup fuse A gl/gG	Overall width	Order No.
PU 1 TSG 35 kA/0.9 kV	single-pole	260 V	35 kA	900 V	3 kA	encapsulated	125	1 module	8561260000
PU 1 TSG+ 50 kA/0.9 kV	single-pole	330 V	50 kA	900 V	50 kA	blow-out	250	2 module	8561220000
PU 1 TSG+ 50 kA/1.5 kV	single-pole	440 V	50 kA	1.5 kV	50 kA	blow-out	250	2 module	8561250000

N-PE lightning arresters – class I sparkover gaps (intermediate meter area)

Product	Version	Rated voltage Uc	Discharge capacity Iimp (10/350)	Protection level Up	Follow current suppression capability Ifi	blow-out / encapsulated	Max. backup fuse A gl/gG	Overall width	Order No.
PU 1 TSG 50 kA/1.5 kV	single-pole	260 V	50 kA	1.5 kV	500 A	encapsulated	125	1 module	8561230000
PU 1 TSG 100 kA/1.5 kV	single-pole	260 V	100 kA	1.5 kV	100 A	encapsulated	125	2 module	8762020000

Lightning arresters – class I high-power varistors (after meter)

Product	Version	Rated voltage Uc	Discharge capacity Iimp (10/350)	Protection level Up	Follow current suppression capability Ifi	Protection level at Ip	Max. backup fuse A gl/gG	Overall width	Order No.
PU BC 16kA	single-pole	280 V	16 kA	2 kV	60 kA	< 1.3 kV	160	2 module	8805440000
PU BC R 16kA	single-pole	280 V	16 kA	2 kV	60 kA	< 1.3 kV	160	3 module	8805450000

Product quick selection, power supplies

Class II

Surge arrester - class II

Product	Version	Rated voltage	Rated discharge current In (8/20)	Protection level Up (typ.)	Max. discharge current I _{max} (8/20)	Max. backup fuse	Tele-communication contact	Overall width	Order No.
		U _c				A gl/gG			
PU II 1 280V/40kA	single-pole,separable	280 V	20 kA	1.4 kV	40 kA	125		1 module	8859690000
PU II 1 R 280V/40kA	single-pole,separable	280 V	20 kA	1.4 kV	40 kA	125	1 W	1 module	8859700000
PU II 1+1 280V/40kA	2-pole,separable	280 V	20 kA	1.4 kV	40 kA	125		2 module	8859730000
PU II 1+1R 280V/40kA	2-pole,separable	280 V	20 kA	1.4 kV	40 kA	125	1 W	2 module	8859740000
PU II 2 280V/40kA	2-pole,separable	280 V	20 kA	1.4 kV	40 kA	125		2 module	8859680000
PU II 2 R 280V/40kA	2-pole,separable	280 V	20 kA	1.4 kV	40 kA	125	1 W	2 module	8859670000
PU II 3 280V/40kA	3-pole,separable	280 V	20 kA	1.4 kV	40 kA	125		3 module	8859630000
PU II 3 R 280V/40kA	3-pole,separable	280 V	20 kA	1.4 kV	40 kA	125	1 W	3 module	8859650000
PU II 4 280V/40kA	4-pole,separable	280 V	20 kA	1.4 kV	40 kA	125		4 module	8859640000
PU II 4 R 280V/40kA	4-pole,separable	280 V	20 kA	1.4 kV	40 kA	125	1 W	4 module	8859660000
PU II 3+1 280V/40kA	4-pole,separable	280 V	20 kA	1.4 kV	40 kA	125		4 module	8859710000
PU II 3+1R 280V/40kA	4-pole,separable	280 V	20 kA	1.4 kV	40 kA	125	1 W	4 module	8859720000
PU II 3 LCF 280V/40kA	3-pole,separable	280 V	20 kA	1.4 kV	40 kA	125		3 module	8859760000
PU II 3 R LCF 280V/40kA	3-pole,separable	280 V	20 kA	1.4 kV	40 kA	125	1 W	3 module	8859780000
PU II 4 LCF 280V/40kA	4-pole,separable	280 V	20 kA	1.4 kV	40 kA	125		3 module	8859770000
PU II 4 R LCF 280V/40kA	4-pole,separable	280 V	20 kA	1.4 kV	40 kA	125	1 W	4 module	8859790000
PU II 3 EWS 280V/40kA	3-pole,separable	280 V	20 kA	1.4 kV	40 kA	125		3 module	8859800000
PU II 3 R EWS 280V/40kA	3-pole,separable	280 V	20 kA	1.4 kV	40 kA	125	1 W	3 module	8859820000
PU II 4 EWS 280V/40kA	4-pole,separable	280 V	20 kA	1.4 kV	40 kA	125		4 module	8859810000
PU II 4 R EWS 280V/40kA	4-pole,separable	280 V	20 kA	1.4 kV	40 kA	125	1 W	4 module	8859830000
PU II 0 280V/40kA	spare plug	280 V	20 kA	1.4 kV	40 kA	125			8859750000
PU II 0 N-PE 280V/40kA	spare plug	280 V							8871940000
PU II 1 75V/40kA	single-pole,separable	75 V	20 kA	0.7 kV	40 kA	125		1 module	8860150000
PU II 1 R 75V/40kA	single-pole,separable	75 V	20 kA	0.7 kV	40 kA	125	1 W	1 module	8860160000
PU II 2 75V/40kA	2-pole,separable	75 V	20 kA	0.7 kV	40 kA	125		2 module	8860130000
PU II 2 R 75V/40kA	2-pole,separable	75 V	20 kA	0.7 kV	40 kA	125	1 W	2 module	8860140000
PU II 0 75V/40kA	spare plug	75 V	20 kA	0.7 kV	40 kA	125			8871950000
PU II 1 130V/40kA	single-pole,separable	130 V	20 kA	0.8 kV	40 kA	125		1 module	8859950000
PU II 1 R 130V/40kA	single-pole,separable	130 V	20 kA	0.8 kV	40 kA	125	1 W	1 module	8859960000
PU II 2 130V/40kA	2-pole,separable	130 V	20 kA	0.8 kV	40 kA	125		2 module	8859970000
PU II 2 R 130V/40kA	2-pole,separable	130 V	20 kA	0.8 kV	40 kA	125	1 W	2 module	8859980000
PU II 3 130V/40kA	3-pole,separable	130 V	20 kA	0.8 kV	40 kA	125		3 module	8859990000
PU II 3 R 130V/40kA	3-pole,separable	130 V	20 kA	0.8 kV	40 kA	125	1 W	3 module	8860000000
PU II 4 130V/40kA	4-pole,separable	130 V	20 kA	0.8 kV	40 kA	125		4 module	8860010000
PU II 4 R 130V/40kA	4-pole,separable	130 V	20 kA	0.8 kV	40 kA	125	1 W	4 module	8860020000
PU II 0 130V/40kA	spare plug	130 V	20 kA	0.8 kV	40 kA	125			8860030000
PU II 3 385V/40kA	3-pole,separable	385 V	20 kA	1.8 kV	40 kA	125		3 module	8859840000
PU II 3 R 385V/40kA	3-pole,separable	385 V	20 kA	1.8 kV	40 kA	125	1 W	3 module	8859850000
PU II 4 385V/40kA	4-pole,separable	385 V	20 kA	1.8 kV	40 kA	125		4 module	8859860000
PU II 4 R 385V/40kA	4-pole,separable	385 V	20 kA	1.8 kV	40 kA	125	1 W	4 module	8859870000
PU II 3+1 385V/40kA	4-pole,separable	385 V	20 kA	1.8 kV	40 kA	125		4 module	8859880000
PU II 3+1R 385V/40kA	4-pole,separable	385 V	20 kA	1.8 kV	40 kA	125	1 W	4 module	8859890000
PU II 0 385V/40kA	spare plug	385 V	20 kA	1.8 kV	40 kA	125			

Surge arrester - class II

Product	Version	Rated voltage	Rated discharge current In (8/20)	Protection level Up (typ.)	Max. discharge current I _{max} (8/20)	Max. backup fuse	Tele-communication contact	Overall width	Order No.
		U _c				A gl/gG			
PU II 1 550V/40kA	single-pole,separable	550 V	20 kA	2.6 kV	40 kA	125		1 module	8860040000
PU II 1 R 550V/40kA	single-pole,separable	550 V	20 kA	2.6 kV	40 kA	125	1 W	1 module	8860050000
PU II 2 550V/40kA	2-pole,separable	550 V	20 kA	2.6 kV	40 kA	125		2 module	8860100000
PU II 2 R 550V/40kA	2-pole,separable	550 V	20 kA	2.6 kV	40 kA	125	1 W	2 module	8860110000
PU II 3 550V/40kA	3-pole,separable	550 V	20 kA	2.6 kV	40 kA	125		3 module	8860080000
PU II 3 R 550V/40kA	3-pole,separable	550 V	20 kA	2.6 kV	40 kA	125	1 W	3 module	8860090000
PU II 4 550V/40kA	4-pole,separable	550 V	20 kA	2.6 kV	40 kA	125		4 module	8860060000
PU II 4 R 550V/40kA	4-pole,separable	550 V	20 kA	2.6 kV	40 kA	125	1 W	4 module	8860070000
PU II 2+1 550V/40kA	3-pole,separable	550 V	20 kA	2.6 kV	40 kA	125		3 module	8882340000
PU II 2+1R 550V/40kA	3-pole,separable	550 V	20 kA	2.6 kV	40 kA	125	1 W	3 module	8882350000
PU II 0 550V/40kA	spare plug	550 V	20 kA	2.6 kV	40 kA	125			8860120000

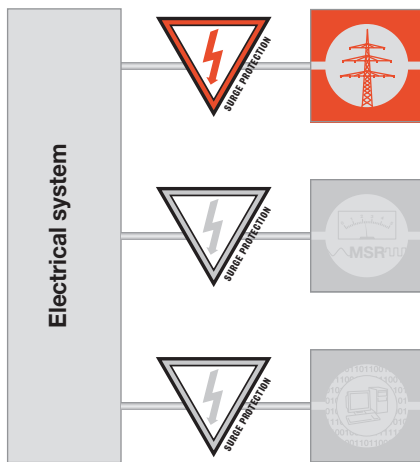
Product quick selection, power supplies

Class III

Surge arrester - class III

Product	Version	Rated voltage Uc	Rated discharge current In (8/20)	Protection level Up (typ.)	Max. discharge current I _{max} (8/20)	Max. backup fuse A gl/gG	Tele-communication contact	Overall width	Order No.
PU III R 12V/4kV	single-pole, DIN rail	15 V	2 kA	0.2 kV	7 kA	16	1 W	1 module	8883740000
PU III R 24V/4kV	single-pole, DIN rail	30 V	2 kA	0.3 kV	7 kA	16	1 W	1 module	8860360000
PU III R 48V/4kV	single-pole, DIN rail	60 V	2 kA	0.3 kV	6.5 kA	16	1 W	1 module	8860350000
PU III R 120V/6kV	single-pole, DIN rail	130 V	3 kA	0.7 kV	5 kA	16	1 W	1 module	8860340000
PU III R 230V/6kV	single-pole, DIN rail	280 V	3 kA	1.3 kV	5 kA	16	1 W	1 module	8860330000
PU D 115 V	2-pole, DIN rail	130 V	2.5 kA	0.48 kV	7 kA	16	1 W	3 module	8472100000
PU D 230 V	2-pole, DIN rail	275 V	2.5 kA	0.85 kV	7 kA	16	1 W	3 module	8411930000
PU D 230/400V	4-pole, DIN rail	275 V	6.5 Ka	0.85 kV	18 kA	16	1 W	3 module	8509130000
PO DS 230 V	2-pole, for device mounting	275 V	2.5 kA	1.5 kV	5 kA	16			8581830000
PO DAS 230 V	2-pole, for device mounting with audible signal	275 V	2.5 kA	1.5 kV	5 kA	16	audible signal		8581840000
PU D ZS 230V/16A	power socket adapter	275 V		1.5 kV	5 kA	16			8697580000
PU D ZS analogue	power socket adapter	275 V		1.5 kV	5 kA	16			8697600000
PU D ZS S0	power socket adapter	275 V		1.5 kV	5 kA	16			8697560000
PU D ZS UK0	power socket adapter	275 V		1.5 kV	5 kA	16			8697570000
PU D ZS TV/R	power socket adapter	275 V		1.5 kV	5 kA	16			8779230000

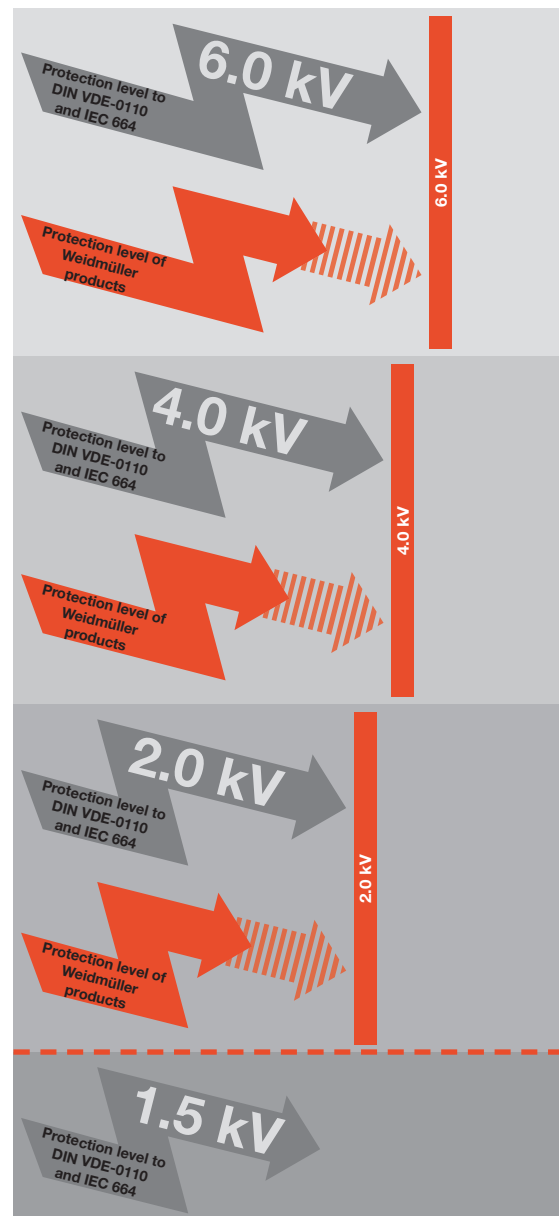
Surge protection class I with spark gap



Weidmüller series PU 1 TSG and PU B (class I), PU II (class II) plus PU III and PO D (class III) surge protection devices lower the surge protection level to below the limits prescribed by the insulation coordination to DIN VDE 0110. This means that the entire system is subjected to less interference.

The coordination of the arresters is achieved by technical means. This means that decoupling between classes I, II and III is not necessary.

Design surge voltage



Class I, sparkover gap



Class II, varistor

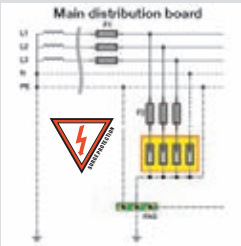


Class III, varistor



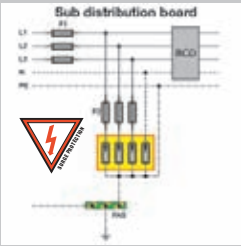
for insulation coordination to IEC 664 and DIN VDE 0110

Surge arresters Class I



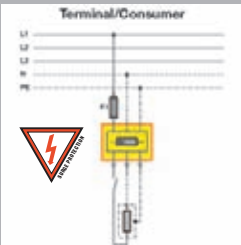
Sparkover gaps, triggered and enclosed, 35/50 kA	PU 1 TSG	Page F.13
Sparkover gaps, triggered 50 kA	PU 1 TSG+	Page F.12
Triggered sparkover gaps, 100 kA	PU 1 TSG 100 kA	Page F.14
Combined surge protection	PU COMBI I + II	Page F.18+19

Surge arresters Class II



Varistor arresters up to 100 kA for diverse voltages	PU II series	Page F.22-38
Varistor arresters up to 100 kA for diverse voltages, with signalling contact	PU II R series	Page F.22-38
Replacement varistor to suit rated voltage	PU 0 II series	Page F.22-38

Surge arresters Class III



Single-phase arresters for diverse voltages, with signalling contact	PU III series	Page F.41-44
Three-phase arresters with signalling contact	PU 3 D	Page F.45
Schuko plug-in surge protector	PU D ZS	Page F.47-50

Class I surge protection with sparkover gaps

Lightning conductors with sparkover gap for lightning protection or equipotential bonding providing Surge protection class I

According to the requirements of class B (DIN VDE 0675 part 6, draft: Nov. 1989/A1: Mar 1996) and class I to IEC 61643-1 (Jan 2002), the lightning conductor at the transfer from interface 0 to 1 (to IEC 1312-1) is used as the lightning protection providing equipotential bonding. In combination with several lightning protectors, the surge protection is used in the mains forms TN, TT and IT. When lightning strikes, the triggered air gap protector provides the necessary equipotential bonding between the building lightning protection and the earthing system of the power supply. The use of a sparkover gap satisfies the inspection requirements for class B surge protection systems according to the VDEW (Association of German Power Stations) directive (1st ed., 1998).



Electrical connection for building installation

The PU 1 TSG 35 kA class I lightning arrester is connected between the phase conductors (L1, L2, L3) and N/PE. A Weidmüller PU 1 TSG 50 kA is used to provide the N-PE sparkover gap. The lines for this should be kept as short as possible. The triggered and non-blowout PU 1 TSG devices can be clipped to TS 35 rails in electrical cabinets or distribution boards. The maximum permissible operating voltage U_c is 260 V AC. Decoupling from downstream class II (C) arresters is unnecessary because triggered sparkover gaps with a low sparkover voltage are used. Please follow the installation instructions.

Electrical connection for industrial installations

The PU 1 TSG+ 50 kA/330 V or 440 V class I lightning arrester is connected between the phase conductors (L1, L2, L3) and N/PE. A Weidmüller PU 1 TSG 50 kA is used to provide the

N-PE sparkover gap. The lines for this should be kept as short as possible.

The triggered and blowout PU 1 TSG+ 50 kA devices can be clipped to TS 35 rails in electrical cabinets or distribution boards. Owing to the emissions given off when the sparkover gap is tripped, a safety clearance of min. 100 mm must be maintained between this and any current-conducting components.

Coordination

The maximum permissible operating voltage U_c is 330 or 440 V AC. Decoupling from downstream class II (C) arresters is unnecessary because triggered sparkover gaps with a low sparkover voltage are used.

Important: for U_c 330 V, PU II is used with 280 V and for U_c 440 V, the PU II with 470 V.

Please follow the installation instructions.

Checking operation, maintenance and approvals

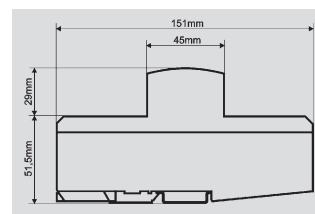
A visual check is necessary to ensure that PU 1 TSG and PU 1 TSG+ surge protection components are operating correctly. Besides signalling a mains power failure, the LED illuminates above 120 V AC to indicate the failure of the firing electronics. It is advisable to check frequently during stormy weather. The use of triggered sparkover gaps achieves a very low protection level of < 1.5 kV with high discharge currents. Depending on the cross-section of the line, the PU 1 TSG must be protected with a fuse of max. 125 A gL, the PU 1 TSG+ max. 250 A gL.

The connection is designed for the following cross-sections:

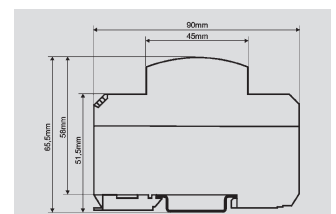
- solid wire: 10 ... 35 mm²
- stranded wire: 10 ... 25 mm²

The operating temperature range is -40 °C ... +85 °C.

The PU 1 TSG lightning arresters have UL and KEMA approval and are hence suitable for use worldwide.

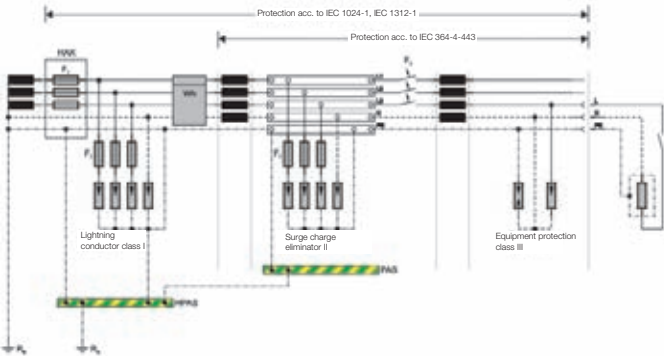


Dimensions PU 1 TSG+
Overall width 36 mm

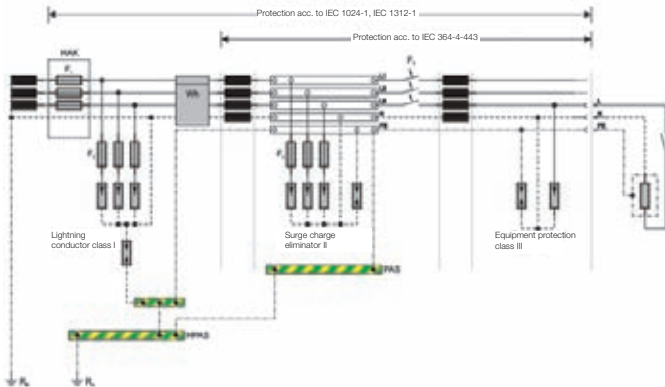


Dimensions PU 1 TSG+
Overall width 18 mm

Protection in the TN-S-system

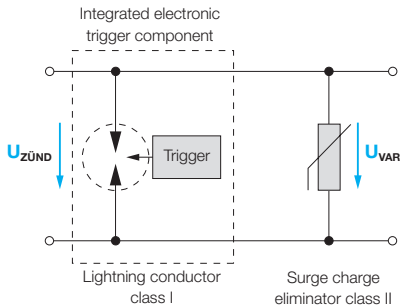
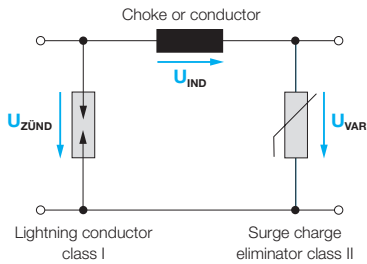


Protection in the TT-system



In contrast to conventional sparkover gaps, the Weidmüller PU 1 TSG+ and PU 1 TSG sparkover gaps operate with electronic triggering. This fires the sparkover gap at such an early point that the downstream class II (PU II series) arresters are relieved. Decoupling from downstream class II (C) arresters is unnecessary because triggered sparkover gaps with a low sparkover voltage are used.

The PU 1 TSG+ and PU 1 TSG differ in terms of the follow current extinction. The PU 1 TSG+ distributes the arc drop voltage over several chambers. As soon as the total arc drop voltage exceeds the mains voltage flowing, the follow current is extinguished. In the PU 1 TSG the follow current extinction takes place at the next current zero of the mains voltage.



Accessories for PU BC / BCR

- N-PE Arrestor
- Cross-connection for 3 units PU BC
- Cross-connection for 4 units PU BC
- Cross-connection for 3 units PU BCR
- Cross-connection for 4 units PU BCR
- Cross-connection for 3 units PU BC+PU1TSG
- Cross-connection for 3 units PU BCR+PU1TSG
- Cross-connection for 1 unit PU BC/R+PU1TSG

Type	Qty.	Order No.
PU1TSG	1	8561230000
QB 36-3	1	8816090000
QB 36-4	1	8816100000
QB 54-3	1	8821720000
QB 54-4	1	8821710000
QB 36-3+1	1	8858360000
QB 54-3+1	1	8858340000
QB 36-1+1	1	8858350000

Surge protection for low-voltage supplies

Class I with triggered sparkover gap

Class I lightning arrester

- encapsulated version
- no decoupling necessary thanks to trigger electronics
- suitable for networks with high short-circuit currents
- suitable for lightning protection classes I, II, III, IV

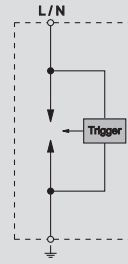
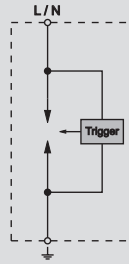
PU 1 TSG+ 50 kA / 0.9 kV-330 V

for use in industrial systems



PU 1 TSG+ 50 kA / 1.5 kV-440 V

for use in industrial systems



Technical data

Technical data

Rated voltage (AC)
 max. continuous current, I_c (AC)
 Requirements class to IEC 61643-1
 Lightning test voltage I_{imp} (10/350 μ s)
 Specific energy, per path
 Short-circuit current extinction without back-up fuse
 Short-circuit strength with max. back-up fuse
 Response time
 Fuse, max.
 Protection level Up (typical)
 Optical function indicator
 Colour
 Operating temperature, min./max.
 Storage temperature, min./max.
 Approvals

330 V
 330 V
 Class I
 50 kA with 25 As charge
 625 kJ/ Ω
 50 kA / 50 Hz
 25 kA_{eff}
 ≤ 150 ns
 250 A gL
 900 V
 green LED
 black
 -40 °C/85 °C
 -40 °C/85 °C
 cURus;File E198315;KEMA

440 V
 440 V
 Class I
 50 kA with 25 As charge
 625 kJ/ Ω
 50 kA / 50 Hz
 25 kA_{eff}
 ≤ 150 ns
 250 A gL
 1500 V
 green LED
 black
 -40 °C/85 °C
 -40 °C/85 °C
 cURus;File E198315;KEMA

Dimensions

Clamping range (rating- / min. / max.) mm²
 Length x width x height mm

35 / 10 / 35
 150 x 35 x 80

35 / 10 / 35
 150 x 35 x 80

Note

Ordering data

Version

without telecomm. contact

Type	Qty.	Order No.
PU1 TSG Plus 330 VAC 0,9kV	1	8561220000

Type	Qty.	Order No.
PU1 TSG Plus 440 VAC 1,5kV	1	8561250000

Note

Cross-connection QB 18-4 order No. 8619440000
 Cross-connection QB 18-6 order No. 8619450000

Cross-connection QB 18-4 order No. 8619440000
 Cross-connection QB 18-6 order No. 8619450000

Accessories

Note

Designation BZ18, PE PE PE PE PE, Order No. 8619470000
 Designation BZ18, L1 L2 L3 N PE, order No. 8619460000

Designation BZ18, PE PE PE PE PE, Order No. 8619470000
 Designation BZ18, L1 L2 L3 N PE, order No. 8619460000

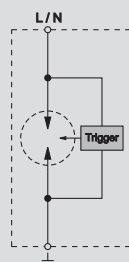
Class I with triggered sparkover gap

Class I lightning arrester

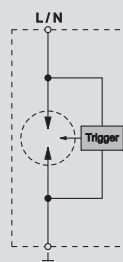
- encapsulated version
- no decoupling necessary thanks to trigger electronics
- suitable for lightning protection classes I, II, III, IV

PU 1 TSG 35 kA / 0.9 kV-260 V

for use in building systems (L-N/PE)

**PU 1 TSG 50 kA / 1.5 kV-260 V**

for use in building systems (N-PE)

**Technical data****Technical data**

Rated voltage (AC)
 max. continuous current, I_c (AC)
 Requirements class to IEC 61643-1
 Lightning test voltage I_{imp} (10/350 μ s)
 Specific energy, per path
 Short-circuit current extinction without back-up fuse
 Short-circuit strength with max. back-up fuse
 Response time
 Fuse, max.
 Protection level Up (typical)
 Optical function indicator
 Colour
 Operating temperature, min./max.
 Storage temperature, min./max.
 Approvals

230 V
 260 V
 Class I
 35 kA with 17.5As charge
 305 kJ/ Ω
 3 kA / 50 Hz
 25 kA_{eff}
 $\leq 1 \mu$ s
 125 A gL
 900 V
 green LED
 grey
 -40 °C/85 °C
 -40 °C/85 °C
 cURus;File E198315;KEMA

230 V
 260 V
 Class I
 50 kA with 25 As charge
 625 kJ/ Ω
 500 A / 50 Hz
 25 kA_{eff}
 $\leq 1 \mu$ s
 125 A gL
 1500 V
 no
 grey
 -40 °C/85 °C
 -40 °C/85 °C
 cURus;File E198315;KEMA

Dimensions

Clamping range (rating- / min. / max.) mm²
 Length x width x height mm

35 / 10 / 35
 91 x 18 x 63

35 / 10 / 35
 91 x 18 x 63

Note**Ordering data****Version**

without telecomm. contact

Type	Qty.	Order No.
PU 1 TSG 35kA / 0,9kV	1	8561260000

Type	Qty.	Order No.
PU 1 TSG 50kA / 1,5kV	1	8561230000

Note

Cross-connection QB 18-4 order No. 8619440000
 Cross-connection QB 18-6 order No. 8619450000

Cross-connection QB 18-4 order No. 8619440000
 Cross-connection QB 18-6 order No. 8619450000

Accessories**Note**

Designation BZ18, PE PE PE PE PE, Order No. 8619470000
 Designation BZ18, L1 L2 L3 N PE, order No. 8619460000

Designation BZ18, PE PE PE PE PE, Order No. 8619470000
 Designation BZ18, L1 L2 L3 N PE, order No. 8619460000

Surge protection for low-voltage supplies

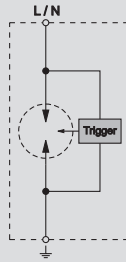
Class I with triggered sparkover gap

Class I lightning arrester

- encapsulated version
- no decoupling necessary thanks to trigger electronics
- suitable as N-PE arrester
- suitable for lightning protection classes I, II, III, IV

PU 1 TSG+ 100 kA / 1.5 kV-260 V

for use as N-PE arrester



Technical data

Technical data

Rated voltage (AC)
 max. continuous current, I_c (AC)
 Requirements class to IEC 61643-1
 Lightning test voltage I_{imp} (10/350 μ s)
 Specific energy, per path
 Short-circuit current extinction without back-up fuse
 Short-circuit strength with max. back-up fuse
 Response time
 Fuse, max.
 Protection level Up (typical)
 Optical function indicator
 Colour
 Operating temperature, min./max.
 Storage temperature, min./max.
 Approvals

230 V
 260 V
 Class I
 100 kA with 50 As charge
 2500 kJ/ Ω
 100 A 260 V/50 Hz

$\leq 1 \mu$ s
 100 A gL
 1500 V
 no
 grey
 -40 °C/85 °C
 -40 °C/85 °C
 cURus:File E198315;KEMA

Dimensions

Clamping range (rating- / min. / max.) mm²
 Length x width x height mm

50 / 6 / 50
 90 x 36 x 63

Note

Ordering data

Version

without telecomm. contact

Type	Qty.	Order No.
PU 1 TSG 100kA/1,5 kV	1	8762020000

Note

Cross-connection QB 18-4 order No. 8619440000
 Cross-connection QB 18-6 order No. 8619450000

Accessories

Note

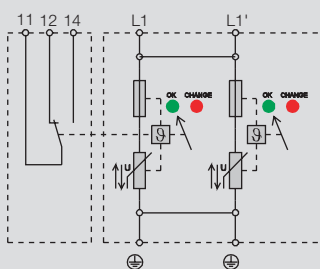
Designation BZ18, PE PE PE PE PE, Order No. 8619470000
 Designation BZ18, L1 L2 L3 N PE, order No. 8619460000

Class I + II with lightning arrester

- Plug-in class I + II arrester for lightning protection equipotential bonding
- suitable for lightning protection classes II, III and IV
- High 16 kA (10/350 µs) discharge current complying with VDE 0100-534
- Low residual voltage of < 1.3 kV, so can also be used as class II surge protection
- 2 plug-in high-power varistors with redundancy function
- Non-blowout arrester
- Uncoupling from downstream class II and III arresters unnecessary

PU BC/BCR 16 kA / 280 V

Can be used in all systems



Technical data

Technical data

Rated voltage (AC)
 max. continuous current, I_c (AC)
 Requirements class to IEC 61643-1
 Lightning test voltage I_{imp} (10/350 µs)
 Specific energy, per path
 Short-circuit current extinction without back-up fuse
 Short-circuit strength with max. back-up fuse
 Response time
 Fuse, max.
 Protection level Up (typical)
 Optical function indicator
 Signalling contact
 Colour
 Tightening torque range
 Discharge current, max. (8/20 µs)
 Temporary surge - U_{TOV}
 Operating temperature, min./max.
 Storage temperature, min./max.
 Approvals

230 V
 280 V
 I+II (combination arrester)
 16 kA
 64 kJ/Ω
 25 kA_{eff}
 ≤ 25 ns
 160 A gL
 1300 V
 green = OK; red = arrester faulty, replace
 250 V 1A 1CO at PU BCR
 orange
 4,5 Nm
 60 kA
 335 V
 -40 °C/60 °C
 -40 °C/80 °C
 CE; ÖVE

Dimensions

Clamping range (rating- / min. / max.) mm²
 Length x width x height mm

Note

without telecomm. contact with telecomm. contact

10 / 6 / 50 10 / 6 / 50
 90 x 36 x 61 90 x 54 x 61

Ordering data

Version

without telecomm. contact
 with telecomm. contact

Type	Qty.	Order No.
PU BC 16kA/280V	1	8805440000
PU BCR 16kA/280V	1	8805450000

Note

Accessories

Note

Plug-in spare arrester PU 0 BC 280 V: 8805470000
 Cross-connector, see F.11

Combination arrester

Combination arrester

Combined lightning and surge protection for low-voltage consumer installations and electronics

The PU I+II COMBI combined surge protection incorporates triggered PU 1 TSG class I sparkover gaps, class II varistor arresters PU x C and cross-connections. This setup protects low-voltage consumer installations and electronic devices against surge protection, both those caused by atmospheric discharges (lightning) and those caused by switching operations (transients). The PU COMBI complies with the requirements of IEC 61643-1 (Feb 1998). The PU R COMBI also has a remote signalling function achieved via a floating contact.

Electrical connection

The PU COMBI surge protection device is connected with lines as short as possible between the phase conductors (L1, L2, L3), or the neutral conductor (N), and the earth of the consumer installation. Unprotected lines (e.g. to meters) and protected lines must not be routed together.

The PU COMBI can be supplied for a 4-conductor system with three phases plus PEN conductor, and also for a 5-conductor system with three phases plus N-PE arrester.

Checking operation, maintenance and approvals

A visual check is necessary to ensure that the PU COMBI surge protection components are operating correctly. This visual check is easy because the arrester is fitted with a thermal disconnect. If this has been tripped and protection is no longer provided, the flag in the status window changes from green to red. A tripped arrester is easily replaced by a qualified technician without having to disconnect any wiring. The top section of the varistor is coded according to voltage. Therefore, it is not possible to plug in a different, i.e. wrong, replacement varistor.

The cross-section of the earth line must be at least 10 mm² or half the cross-sectional area of the phase conductor. The fuse protection (max. 125 A gL) for the PU modules is chosen depending on the line cross-section and the type of wiring.

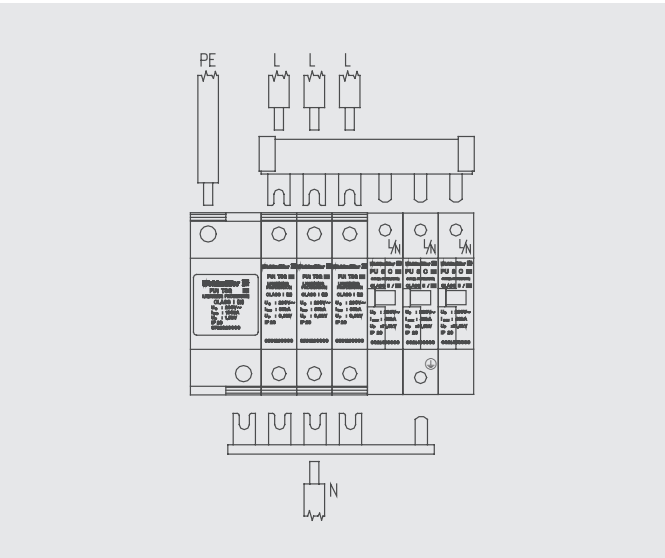
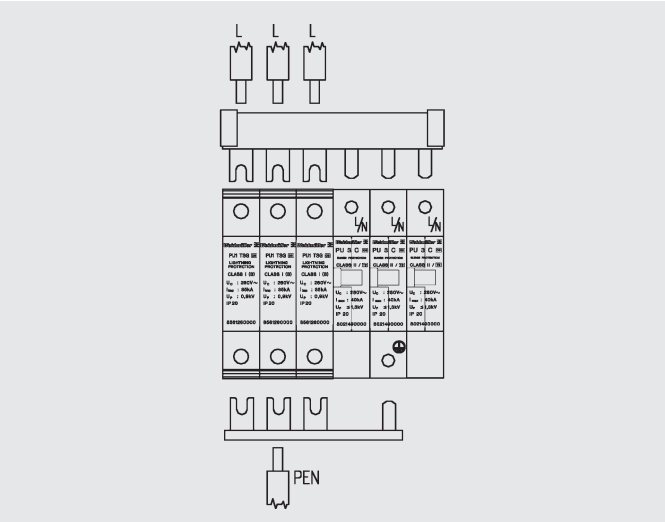
The connection is designed to IEC 947-7-1 for the following cross-sections:

solid wire:	10 ... 35 mm ²
stranded wire:	10 ... 25 mm ²
flexible:	10 ... 25 mm ²

The operating temperature range is
–40 °C ... +60 °C



Connection scheme for combination arrester



Dimensions

Type	length x width x height
PU Combi I+II 4-conductor system	90 x 65 x 110 mm
PU R Combi I+II 4-conductor system	90 x 65 x 126 mm
PU Combi I+II 5-conductor system	90 x 65 x 148 mm
PU R Combi I+II 5-conductor system	90 x 65 x 162 mm

Surge protection for low-voltage supplies

Suitable for 4-wire systems

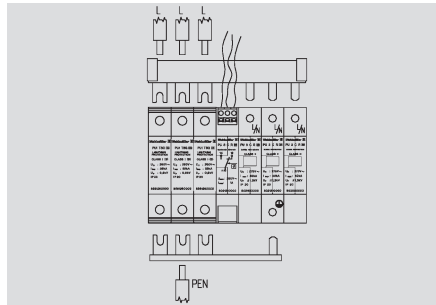
The surge protection combination consists of the class I triggered sparkover gap PU 1 TSG for protecting the phase to N of an N-PE sparkover gap and the class II PU 3 C. The arresters are interconnected via 16 mm² cross connection system.

The connection to the power line is made at the PU 1 TSG.

- Suitable for lightning protection classes I, II, III, IV.

PU/R COMBI I+II 4 Wire

Use in building systems



Technical data

Technical data

Rated voltage (AC)
max. continuous current, I_c (AC)
Requirements class to IEC 61643-1
Lightning test voltage I_{imp} (10/350 μ s)
Specific energy, per path
Short-circuit current extinction without back-up fuse
Short-circuit strength with max. back-up fuse
Response time
Fuse, max.
Protection level Up (typical)
Optical function indicator
Signalling contact
Colour
Operating temperature, min./max.
Storage temperature, min./max.
Approvals

230 V
280 V
I+II (combination arrester)
35 kA with 17.5 As charge
64 kJ/ Ω
3 kA / 50 Hz
25 kA_{eff}
sym/ asym: ≤ 100 ns
125 A gL
900 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU R COMBI
grey
-40 °C/60 °C
-40 °C/80 °C
n.a.

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

without telecomm. contact with telecomm. contact

35 / 6 / 10 35 / 6 / 10
91 x 110 x 65 90 x 126 x 65

Ordering data

Version

without telecomm. contact
with telecomm. contact

Type	Qty.	Order No.
PU COMBI I+II 4 Wire	1	8729960000
PU R COMBI I+II 4 Wire	1	8729970000

Note

Accessories

Note

Set: PU3C(R), PU1TSG, jumpers

Suitable for 5-wire systems

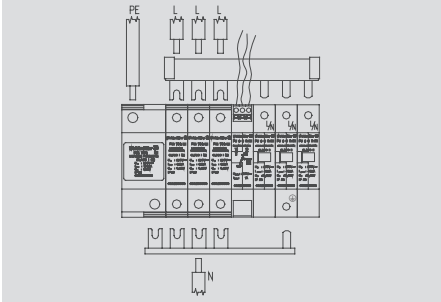
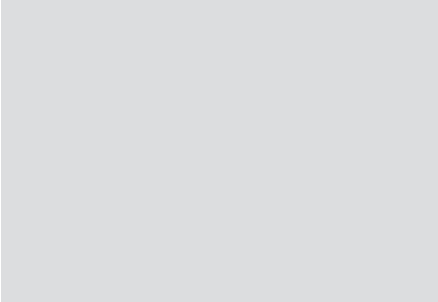
The surge protection combination consists of the class I triggered sparkover gap PU 1 TSG for protecting the phase to N of an N-PE sparkover gap and the class II PU 3 C. The arresters are interconnected via 16 mm² cross connection system.

The connection to the power line is made at the PU 1 TSG.

- Suitable for lightning protection classes I, II, III, IV.

PU/R COMBI I+II 5 Wire

Use in building systems



Technical data

Technical data	
Rated voltage (AC)	230 V
max. continuous current, Uc (AC)	280 V
Requirements class to IEC 61643-1	I+II (combination arrester)
Lightning test voltage I imp (10/350 µs)	35 kA with 17.5 As charge
	50 kA with 25 As charge
	64 kJ/Ω
Specific energy, per path	3 kA
Short-circuit current extinction without back-up fuse	25 kA _{eff}
Short-circuit strength with max. back-up fuse	sym/ asym: ≤ 100 ns
Response time	125 A gL
Fuse, max.	1500 V
Protection level Up (typical)	green = OK; red = arrester faulty, replace
Optical function indicator	250 V 1A 1CO at PU R COMBI
Signalling contact	grey
Colour	-40 °C/60 °C
Operating temperature, min./max.	-40 °C/80 °C
Storage temperature, min./max.	n.a.
Approvals	

230 V
280 V
I+II (combination arrester)
35 kA with 17.5 As charge
50 kA with 25 As charge
64 kJ/Ω
3 kA
25 kA _{eff}
sym/ asym: ≤ 100 ns
125 A gL
1500 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU R COMBI
grey
-40 °C/60 °C
-40 °C/80 °C
n.a.

Dimensions	
Clamping range (rating- / min. / max.)	mm²
Length x width x height	mm
Note	

without telecomm. contact with telecomm. contact		
35 / 6 / 10	35 / 6 / 10	
90 x 148 x 65	91 x 165 x 65	

Ordering data

Version	
	without telecomm. contact
	with telecomm. contact
Note	

Type	Qty.	Order No.
PU COMBI I+II 5 Wire	1	8729950000
PU R COMBI I+II 5 Wire	1	8729930000

Accessories

Note

Set: PU3C(R), PU1TSG, jumpers

Surge protection for low-voltage consumer installations and electronics

Surge protection of class II

The Weidmüller PU II series surge protection protects low-voltage consumer installations and electronic devices against voltage surges that arise through, for example, atmospheric discharge (lightning) or switching activities (transients).

The PU II series satisfies the requirements of class II to IEC 61643-1 (March 2005); type 2 to EN 61643-11 and class C to DIN VDE0675 pt 6 (Nov 1989) A1 (Feb 1996)/A2 (Oct 1996)

Electrical connection

F

Connect the PU II surge protection between the phase conductors (L1, L2, L3) or, as the case may be, the neutral conductor (N) and earth of the consumer installation. The connecting conductors should be kept as short as possible. Ensure that unprotected conductors (e.g. wires to the meter) are not run parallel to protected wires.

The universal “3+1” circuit for TN or TT systems is available from the Weidmüller product range.

The PU II surge protection device is available as a 2, 3 or 4-pole compact module, the PE connections of the discs being already internally connected to each other.

We can supply the following voltage rating versions:

U_n : 60 V AC = U_C : 75 V

U_n : 115/230 V AC = U_C : 130 V

U_n : 230/400 V AC = U_C : 280 V

U_n : 400/690 V AC = U_C : 385 V

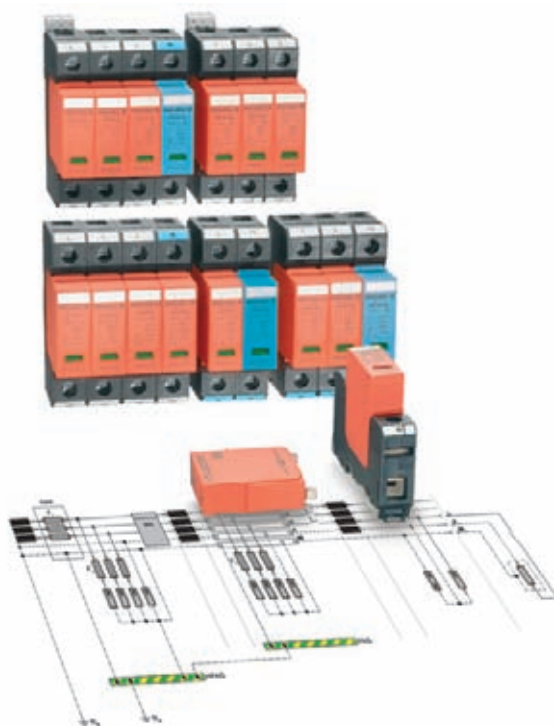
U_n : 470/600 V AC = U_C : 550 V

as well as for the 3+1 circuit and special types for IT networks.

The PU II series offers a choice of voltage ($U_n < U_C$) and number of arresters to satisfy the various power systems. The national regulations and safety information must be observed, see IEC60364-5-53 or DIN VDE 0100 pt 534.

Functional checks, maintenance and approvals

PU II surge modules can be checked visually by the user. The visual check is simple to perform because the arrester is provided with a thermal disconnect. If this has responded, i.e. is no longer providing protection, the flag in the status window changes from green to red.



A non-functioning arrester can be replaced by a qualified technician without having to disconnect any wiring. The plug-in top sections of varistors are coded according to voltage. This means it is not possible to plug in the wrong replacement varistor.

EWS system

The EWS system has a yellow indicator in the sight window in addition to the green and red indicators. This is a wear indicator that shows if the varistor has aged as a result of energy loads. This is also indicated via the optional telecommunication contact. Replacement of the plug-in arrester is recommended.

LCF function

The leakage current free protection circuit (LCF function) is achieved by connecting the varistor and sparkover gap in series. This protection circuit is needed in the case of an insulation monitoring device, for example.

Connection

The cross-section of the earthing conductor must be at least 10 mm² or half the cross-section of the phase conductors. The fuse for PU II modules is selected on the basis of conductor cross-section and type of routing. A maximum of 125 A gG/gL is permitted.

PU II series arresters from Weidmüller are suitable for the following cross-sections:
solid conductor: 4 ... 35 mm²
stranded conductor: 4... 25 mm²
flexible conductor: 4 ... 25 mm²
The operating temperature range is -40 °C ... +80 °C.

RCD

When installing the PU II series in the direction of power flow after a residual-current circuit-breaker (RCD), the surge current withstand strength must be taken into account. For measuring insulation in the installation, the plug-in insert must be removed and re-inserted after measurement is completed.

V-form connection

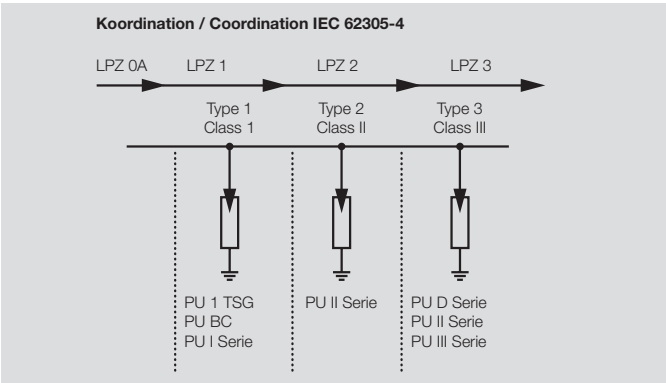
When using cross-connections from the RCD or fuses to the PU II, a V-form wiring arrangement can be used.

Telecommunication contact

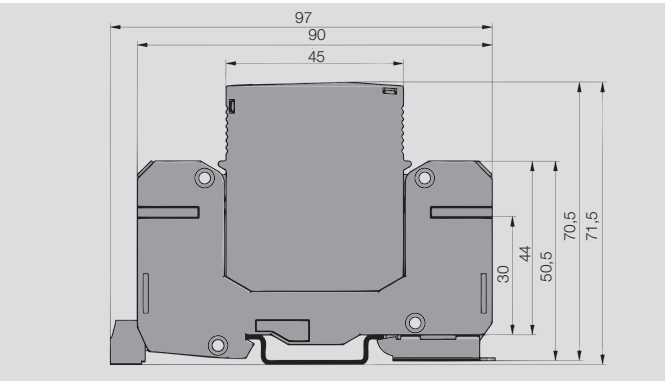
All modules of the PU II series are optionally available with telecommunication contact. This potential-free contact should be connected as a change-over contact via a screw / plug-in connection. The electrical data of the contact are: 250 V AC/1 A or 24 V DC/0.1 A.

Coordination with other arresters

The PU II series can be installed with the following Weidmüller surge protection devices without decoupling.



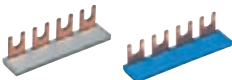
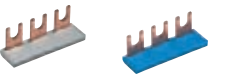
Dimensional drawing PU-II series



Overall width

- PU II, single-pole 18 mm
- PU II, two-pole 36 mm
- PU II, three-pole 54 mm
- PU II, four-pole 72 mm

Accessories

Type		grey	blue
	QB 18-4 insulated	8877520000	8877510000
	QB 18-3 insulated	8877500000	8877530000
	QB 18-2 insulated	8877540000	8877550000

Surge protection for low-voltage supplies

Class II with varistors

Surge protection of class II
with U_c : 280 V

- plug-in varistor top section
- coded voltage level, var. volts.
- high energy absorption with short response time
- 180° rotatable insert
- no follow current
- installation in Insta distributor
- thermal safety function
- coordination between class I with U_p : < 900 V

PU II 4/R 280 V / 40 kA

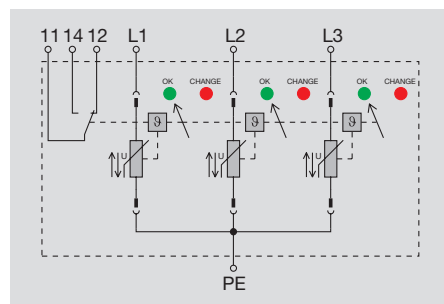
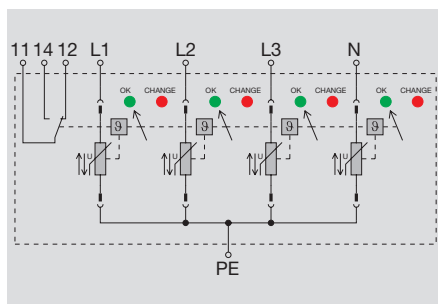


n

PU II 3/R 280 V / 40 kA



n



Technical data

Technical data

Rated voltage
max. continuous current, U_c (AC)
max. continuous current, U_c (DC)
Requirements class to IEC 61643-1
Rated discharge current (8/20 μ s)
Limiting discharge current (8/20 μ s)
Discharge current, max. (8/20 μ s)
Response time
Fuse, max.
Protection level at I_n (U_p)
Protection level at 5 kA (U_p)
Temporary surge - U_{TOV}
Optical function indicator
Signalling contact
Design
Colour
Operating temperature
Storage temperature
Approvals

230 V / 400 V
280 V
350 V
Class II *
20 kA
40 kA
150 kA
 ≤ 25 ns
125 A gL
< 1450 V
< 850 V
335 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 4 R
4 E ;Installation housing
Base black, arrester red
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

230 V / 400 V
280 V
350 V
Class II *
20 kA
40 kA
110 kA
 ≤ 25 ns
125 A gL
< 1450 V
< 850 V
335 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 3 R
3 E ;Installation housing
Base black, arrester red
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 72 x 64 97 x 72 x 64

* additionally tested to class III

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 54 x 64 97 x 54 x 64

* additionally tested to class III

Ordering data

Version

without telecomm. contact
with telecomm. contact

Note

Type	Qty.	Order No.
PU II 4 280V/40kA	1	8859640000
PU II 4 R 280V/40kA	1	8859660000

Type	Qty.	Order No.
PU II 3 280V/40kA	1	8859630000
PU II 3 R 280V/40kA	1	8859650000

Accessories

Note

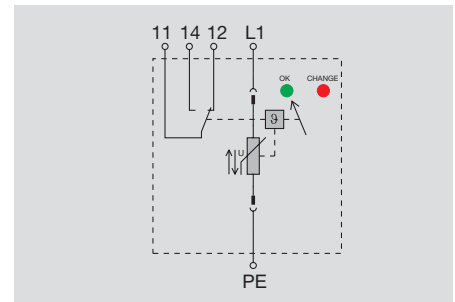
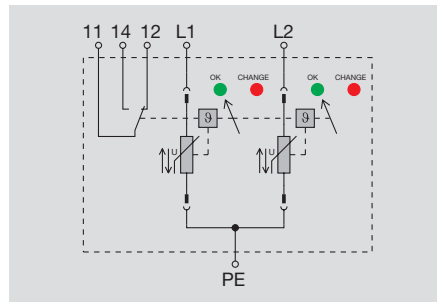
Plug-in spare arrester PU II 0 280V / 40kA - 8859750000

Plug-in spare arrester PU II 0 280V / 40kA - 8859750000

Class II with varistors

Surge protection of class II
with U_c : 280 V

- plug-in varistor top section
- coded voltage level, var. volts.
- high energy absorption with short response time
- 180° rotatable insert
- no follow current
- installation in Insta distributor
- thermal safety function
- coordination between class I with U_p : < 900 V

PU II 2/R 280 V / 40 kA**n****PU II 1/R 280 V / 40 kA****n****Technical data****Technical data**

Rated voltage
max. continuous current, U_c (AC)
max. continuous current, U_c (DC)
Requirements class to IEC 61643-1
Rated discharge current (8/20 μ s)
Limiting discharge current (8/20 μ s)
Discharge current, max. (8/20 μ s)
Response time
Fuse, max.
Protection level at I_n (U_p)
Protection level at 5 kA (U_p)
Temporary surge - U_{TOV}
Optical function indicator
Signalling contact
Design
Colour
Operating temperature
Storage temperature
Approvals

230 V
280 V
350 V
Class II *
20 kA
40 kA
75 kA
 ≤ 25 ns
125 A gL
< 1450 V
< 850 V
335 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 2 R
2 E ;Installation housing
Base black, arrester red
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

230 V
280 V
350 V
Class II *
20 kA
40 kA
40 kA
 ≤ 25 ns
125 A gL
< 1450 V
< 850 V
335 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 1 R
1 E ;Installation housing
Base black, arrester red
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note**without telecomm. contact with telecomm. contact**

25 / 4 / 25 25 / 4 / 25
90 x 36 x 64 97 x 36 x 64

* additionally tested to class III

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 18 x 64 97 x 18 x 64

* additionally tested to class III

Ordering data**Version**

without telecomm. contact
with telecomm. contact

Note

Type	Qty.	Order No.
PU II 2 280V/40kA	1	8859680000
PU II 2 R 280V/40kA	1	8859670000

Type	Qty.	Order No.
PU II 1 280V/40kA	1	8859690000
PU II 1 R 280V/40kA	1	8859700000

Accessories**Note**

Plug-in spare arrester PU II 0 280V / 40kA - 8859750000

Plug-in spare arrester PU II 0 280V / 40kA - 8859750000

Surge protection for low-voltage supplies

Class II with varistors

Surge protection of class II
with U_c : 280 V

- 3+1 surge protection, suitable for TN and TT systems
- plug-in varistor top part
- coded voltage level
- high energy absorption with short response time
- 180° rotatable insert
- no follow current
- installation in Insta distributor
- thermal safety function
- coordination between class I with U_p : < 900 V

PU II 3+1/R 280 V / 40 kA

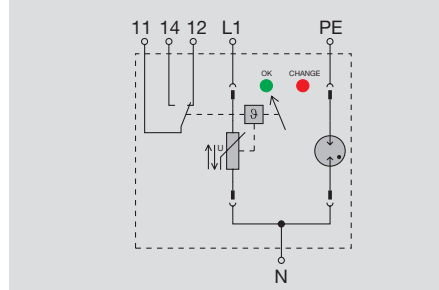
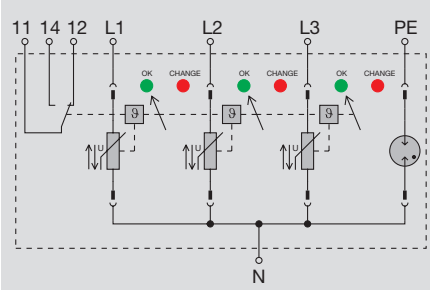


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PU II 1+1/R 280 V / 40 kA



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Technical data

Technical data

Rated voltage
max. continuous current, U_c (AC)
max. continuous current, U_c (DC)
Requirements class to IEC 61643-1
Rated discharge current (8/20 μ s)
Limiting discharge current (8/20 μ s)
Discharge current, max. (8/20 μ s)
Response time
Fuse, max.
Maximum continuous voltage, U_c (N-PE)
Limiting leakage current per path 8/20 μ s (N-PE)
Protection level for I_n (N-PE)
Protection level at I_n (Up)
Protection level at 5 kA (Up)
Temporary surge - U_{TOV}
Optical function indicator
Signalling contact
Design
Colour
Operating temperature
Storage temperature
Approvals

230 V / 400 V
280 V
350 V
Class II *
20 kA
40 kA
150 kA
 ≤ 25 ns
125 A gL
260 V
40 kA
< 1350 V
< 1450 V
< 850 V
335 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 3+1 R
4 E ; installation housing
Base black, arrester red / blue
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

230 V
280 V
350 V
Class II *
20 kA
40 kA
75 kA
 ≤ 25 ns
125 A gL
260 V
40 kA
< 1350 V
< 1450 V
< 850 V
335 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 1+1 R
2 E ; installation housing
Base black, arrester red / blue
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 72 x 64 97 x 72 x 64

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 36 x 64 97 x 36 x 64

Note

* additionally tested to class III

* additionally tested to class III

Ordering data

Version

without telecomm. contact
with telecomm. contact

Type	Qty.	Order No.
PU II 3+1 280V/40kA	1	8859710000
PU II 3+1R 280V/40kA	1	8859720000

Type	Qty.	Order No.
PU II 1+1 280V/40kA	1	8859730000
PU II 1+1R 280V/40kA	1	8859740000

Note

Accessories

Note

Plug-in spare arrester PU II 0 280V / 40kA - 8859750000
Plug-in spare arrester PU II 0 N-PE 280V / 40kA - 8871940000

Plug-in spare arrester PU II 0 280V / 40kA - 8859750000
Plug-in spare arrester PU II 0 N-PE 280V / 40kA - 8871940000

Class II with varistors

Surge protection of class II
with U_c : 280 V

- plug-in varistor top section
- coded voltage level, var. volts.
- high energy absorption with short response time
- 180° rotatable insert
- no follow current
- installation in Insta distributor
- thermal safety function
- coordination between class I with U_p : < 900 V
- leakage current free design for installation before meter

PU II 4 LCF/R LCF 280 V / 40 kA

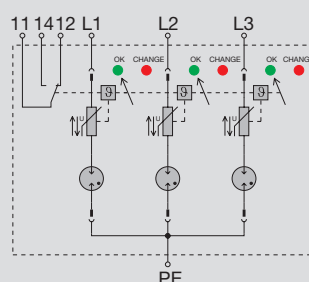
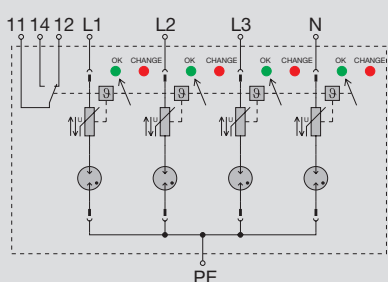


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PU II 3 LCF/R LCF 280 V / 40 kA



n



Technical data

Technical data

Rated voltage
max. continuous current, U_c (AC)
max. continuous current, U_c (DC)
Requirements class to IEC 61643-1
Rated discharge current (8/20 μ s)
Limiting discharge current (8/20 μ s)
Discharge current, max. (8/20 μ s)
Response time
Fuse, max.
Protection level at I_n (U_p)
Protection level at 5 kA (U_p)
Temporary surge - U_{TOV}
Optical function indicator
Signalling contact
Design
Colour
Operating temperature
Storage temperature
Approvals

230 V / 400 V
280 V
350 V
Class II *
20 kA
20 kA
80 kA
 ≤ 25 ns
125 A gL
< 2500 V
< 850 V
335 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 4 R
4 E ;Installation housing
Base black, arrester red
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

230 V / 400 V
280 V
350 V
Class II *
20 kA
20 kA
60 kA
 ≤ 25 ns
125 A gL
< 2500 V
< 850 V
335 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 3 R
3 E ;Installation housing
Base black, arrester red
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 72 x 64 97 x 72 x 64

* additionally tested to class III

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 54 x 64 97 x 54 x 64

* additionally tested to class III

Ordering data

Version

without telecomm. contact
with telecomm. contact

Note

Type	Qty.	Order No.
PU II 4 LCF 280V/20kA	1	8859770000
PU II 4 R LCF 280V/20kA	1	8859790000

Type	Qty.	Order No.
PU II 3 LCF 280V/20kA	1	8859760000
PU II 3 R LCF 280V/20kA	1	8859780000

Accessories

Note

Plug-in spare arrester PU II 0 LCF 280V/40kA - 888934000

Plug-in spare arrester PU II 0 LCF 280V/40kA - 888934000

Surge protection for low-voltage supplies

Class II with varistors

Surge protection of class II
with U_c : 280 V

- failure warning through yellow LED
- plug-in varistor top section
- coded voltage level
- high energy absorption with short response time
- 180° rotatable insert
- no follow current
- installation in Insta distributor
- thermal safety function
- coordination between class I with U_p : < 900 V

PU II 4 EWS/R EWS 280 V / 40 kA

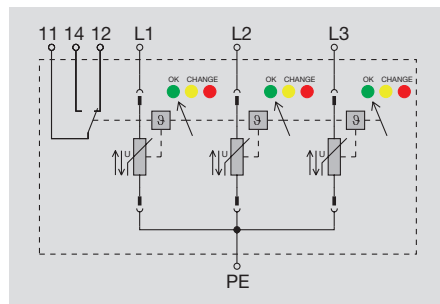
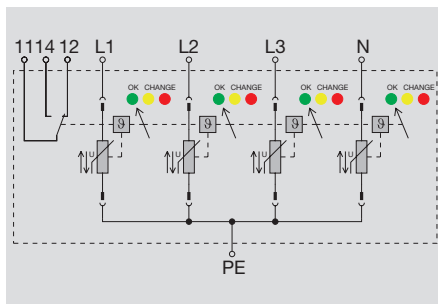


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PU II 3 EWS/R EWS 280 V / 40 kA



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Technical data

Technical data

Rated voltage
max. continuous current, U_c (AC)
max. continuous current, U_c (DC)
Requirements class to IEC 61643-1
Rated discharge current (8/20 μ s)
Limiting discharge current (8/20 μ s)
Discharge current, max. (8/20 μ s)
Response time
Fuse, max.
Protection level at I_n (U_p)
Protection level at 5 kA (U_p)
Temporary surge - U_{TOV}
Optical function indicator
Signalling contact
Design
Colour
Operating temperature
Storage temperature
Approvals

230 V / 400 V
280 V
350 V
Class II *
20 kA
40 kA
150 kA
 ≤ 25 ns
125 A gL
< 1450 V
< 850 V
335 V
green = ok, yellow = warning, red = arrester faulty, replace
250 V 1A 1CO at PU II 4 R
4 E ;Installation housing
Base black, arrester red
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

230 V / 400 V
280 V
350 V
Class II *
20 kA
40 kA
110 kA
 ≤ 25 ns
125 A gL
< 1450 V
< 850 V
335 V
green = ok, yellow = warning, red = arrester faulty, replace
250 V 1A 1CO at PU II 3 R
3 E ;Installation housing
Base black, arrester red
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 72 x 64 97 x 72 x 64

* additionally tested to class III

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 54 x 64 97 x 54 x 64

* additionally tested to class III

Ordering data

Version

without telecomm. contact
with telecomm. contact

Note

Type	Qty.	Order No.
PU II 4 EWS 280V/40kA	1	8859810000
PU II 4 R EWS 280V/40kA	1	8859830000

Type	Qty.	Order No.
PU II 3 EWS 280V/40kA	1	8859800000
PU II 3 R EWS 280V/40kA	1	8859820000

Accessories

Note

Plug-in spare arrester PU II 0 EWS 280V/40kA - 8889350000

Plug-in spare arrester PU II 0 EWS 280V/40kA - 8889350000

Surge protection for low-voltage supplies

Class II with varistors

Surge protection of class II
with U_c : 385 V

- plug-in varistor top section
- coded voltage level, var. volts.
- high energy absorption with short response time
- 180° rotatable insert
- no follow current
- installation in Insta distributor
- thermal safety function

PU II 4/R 385 V / 40 kA

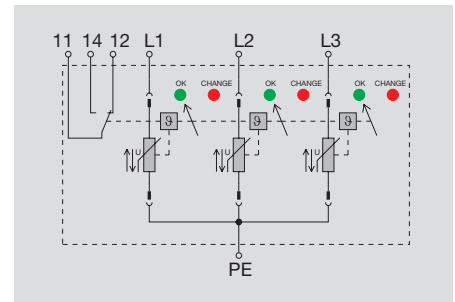
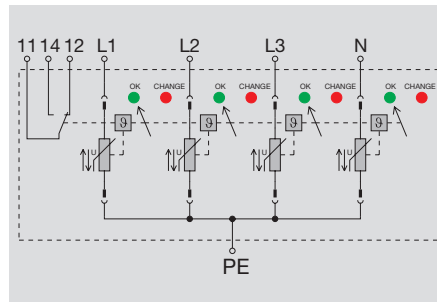


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PU II 3/R 385 V / 40 kA



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Technical data

Technical data

Rated voltage
max. continuous current, U_c (AC)
max. continuous current, U_c (DC)
Requirements class to IEC 61643-1
Rated discharge current (8/20 μ s)
Limiting discharge current (8/20 μ s)
Discharge current, max. (8/20 μ s)
Response time
Fuse, max.
Protection level at I_n (U_p)
Protection level at 5 kA (U_p)
Temporary surge - U_{TOV}
Optical function indicator
Signalling contact
Design
Colour
Operating temperature
Storage temperature
Approvals

385 V / 660 V
385 V
500 V
Class II *
20 kA
40 kA
150 kA
 ≤ 25 ns
125 A gL
 < 1800 V
 < 1300 V
400 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 4 R
4 E ;Installation housing
Base black, arrester red
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

385 V / 660 V
385 V
500 V
Class II *
20 kA
40 kA
110 kA
 ≤ 25 ns
125 A gL
 < 1800 V
 < 1300 V
400 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 3 R
3 E ;Installation housing
Base black, arrester red
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 72 x 64 97 x 72 x 64

* this product also satisfies the requirements of Class III with U_{oc} : 6kV

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 54 x 64 97 x 54 x 64

* this product also satisfies the requirements of Class III with U_{oc} : 6kV

Ordering data

Version

without telecomm. contact
with telecomm. contact

Note

Type	Qty.	Order No.
PU II 4 385V/40kA	1	8859860000
PU II 4 R 385V/40kA	1	8859870000

Type	Qty.	Order No.
PU II 3 385V/40kA	1	8859840000
PU II 3 R 385V/40kA	1	8859850000

Accessories

Note

Plug-in spare arrester PU II 0 385V / 40kA - 8859940000

Plug-in spare arrester PU II 0 385V / 40kA - 8859940000

Class II with varistors

Surge protection of class II
with U_c : 385 V

- plug-in varistor top section
- coded voltage level, var. volts.
- high energy absorption with short response time
- 180° rotatable insert
- no follow current
- installation in Insta distributor
- thermal safety function

PU II 2/R 385 V / 40 kA

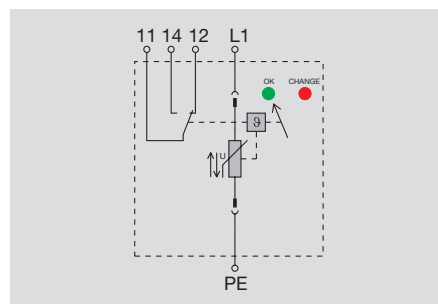
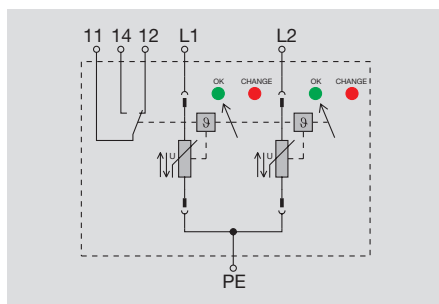


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PU II 1/R 385 V / 40 kA



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Technical data

Technical data

Rated voltage
max. continuous current, U_c (AC)
max. continuous current, U_c (DC)
Requirements class to IEC 61643-1
Rated discharge current (8/20 μ s)
Limiting discharge current (8/20 μ s)
Discharge current, max. (8/20 μ s)
Response time
Fuse, max.
Protection level at I_n (U_p)
Protection level at 5 kA (U_p)
Temporary surge - U_{TOV}
Optical function indicator
Signalling contact
Design
Colour
Operating temperature
Storage temperature
Approvals

385 V
385 V
500 V
Class II *
20 kA
40 kA
75 kA
 ≤ 25 ns
125 A gL
 < 1800 V
 < 1300 V
400 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 2 R
2 E ;Installation housing
Base black, arrester red
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

385 V
385 V
500 V
Class II *
20 kA
40 kA
40 kA
 ≤ 25 ns
125 A gL
 < 1800 V
 < 1300 V
400 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 1 R
1 E ;Installation housing
Base black, arrester red
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 36 x 64 97 x 36 x 64

* this product also satisfies the requirements of Class III with U_{oc} : 6kV

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 18 x 64 97 x 18 x 64

* this product also satisfies the requirements of Class III with U_{oc} : 6kV

Ordering data

Version

without telecomm. contact
with telecomm. contact

Note

Type	Qty.	Order No.
PU II 2 385V/40kA	1	8859900000
PU II 2R 385V/40kA	1	8859910000

Type	Qty.	Order No.
PU II 1 385V/40kA	1	8859920000
PU II 1 R 385V/40kA	1	8859930000

Accessories

Note

Plug-in spare arrester PU II 0 385V / 40kA - 8859940000

Plug-in spare arrester PU II 0 385V / 40kA - 8859940000

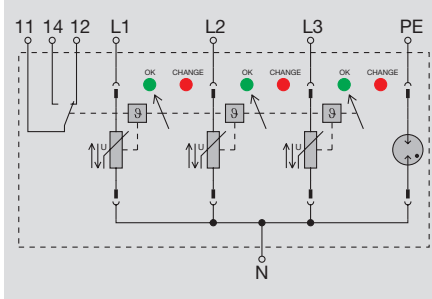
Surge protection for low-voltage supplies

Class II with varistors

Surge protection of class II
with U_c : 385 V

- plug-in varistor top section
- coded voltage level, var. volts.
- high energy absorption with short response time
- 180° rotatable insert
- no follow current
- installation in Insta distributor
- thermal safety function

PU II 3+1/R 385 V / 40 kA



Technical data

Technical data

Rated voltage
max. continuous current, U_c (AC)
max. continuous current, U_c (DC)
Requirements class to IEC 61643-1
Rated discharge current (8/20 μ s)
Limiting discharge current (8/20 μ s)
Discharge current, max. (8/20 μ s)
Response time
Fuse, max.
Protection level for I_n (N-PE)
Protection level at I_n (U_p)
Protection level at 5 kA (U_p)
Temporary surge - U_{TOV}
Optical function indicator
Signalling contact
Design
Colour
Operating temperature
Storage temperature
Approvals

385 V / 660 V
385 V
500 V
Class II *
20 kA
40 kA
110 kA
 ≤ 25 ns
125 A gL
< 1350 V
< 1800 V
< 1300 V
400 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 3+1 R
4 E ; installation housing
Base black, arrester red / blue
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 72 x 64 97 x 72 x 64

Note

* this product also satisfies the requirements of Class III with U_{oc} : 6kV

Ordering data

Version

without telecomm. contact
with telecomm. contact

Type	Qty.	Order No.
PU II 3+1 385V/40kA	1	8859880000
PU II 3+1R 385V/40kA	1	8859890000

Note

Accessories

Note

Plug-in spare arrester PU II 0 385V / 40kA - 8859940000
Plug-in spare arrester PU II 0 N-PE 280V / 40kA - 8871940000

Surge protection for low-voltage supplies

Class II with varistors

Surge protection of class II
with U_c : 130 V

- plug-in varistor top section
- coded voltage level, var. volts.
- high energy absorption with short response time
- 180° rotatable insert
- no follow current
- installation in Insta distributor
- thermal safety function

PU II 4/R 130 V / 40 kA

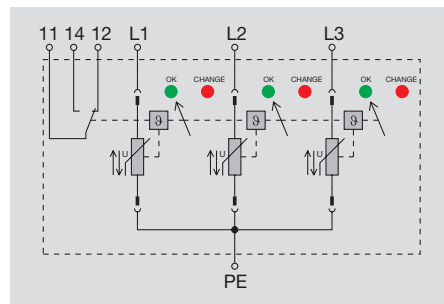
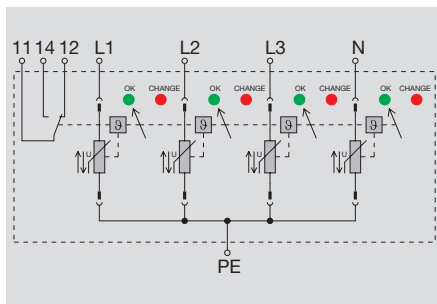


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PU II 3/R 130 V / 40 kA



n



Technical data

Technical data

Rated voltage
max. continuous current, U_c (AC)
max. continuous current, U_c (DC)
Requirements class to IEC 61643-1
Rated discharge current (8/20 μ s)
Limiting discharge current (8/20 μ s)
Discharge current, max. (8/20 μ s)
Response time
Fuse, max.
Protection level at I_n (U_p)
Protection level at 5 kA (U_p)
Temporary surge - U_{TOV}
Optical function indicator
Signalling contact
Design
Colour
Operating temperature
Storage temperature
Approvals

120 V / 230 V
130 V
170 V
Class II *
20 kA
40 kA
150 kA
 ≤ 25 ns
125 A gL
< 850 V
< 500 V
150 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 4 R
4 E ;Installation housing
Base black, arrester red
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

120 V / 230 V
130 V
170 V
Class II *
20 kA
40 kA
110 kA
 ≤ 25 ns
125 A gL
< 850 V
< 500 V
150 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 3 R
3 E ;Installation housing
Base black, arrester red
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 72 x 64 97 x 72 x 64

* this product also satisfies the requirements of Class III with U_{oc} : 6kV

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 54 x 64 97 x 54 x 64

* this product also satisfies the requirements of Class III with U_{oc} : 6kV

Ordering data

Version

without telecomm. contact
with telecomm. contact

Note

Type	Qty.	Order No.
PU II 4 130V/40kA	1	8860010000
PU II 4 R 130V/40kA	1	8860020000

Type	Qty.	Order No.
PU II 3 130V/40kA	1	8859990000
PU II 3 R 130V/40kA	1	8860000000

Accessories

Note

Plug-in spare arrester PU II 0 130V / 40kA - 8860030000

Plug-in spare arrester PU II 0 130V / 40kA - 8860030000

Class II with varistors

Surge protection of class II
with U_c : 130 V

- plug-in varistor top section
- coded voltage level, var. volts.
- high energy absorption with short response time
- 180° rotatable insert
- no follow current
- installation in Insta distributor
- thermal safety function

PU II 2/R 130 V / 40 kA

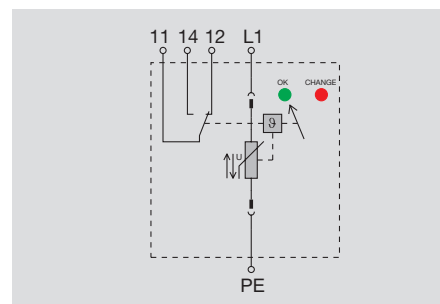
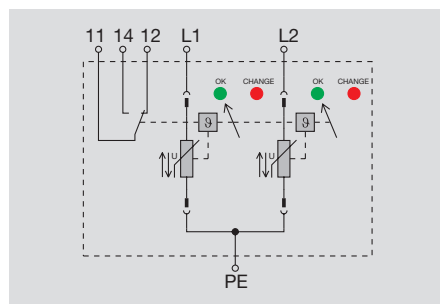


n

PU II 1/R 130 V / 40 kA



n



Technical data

Technical data

Rated voltage
max. continuous current, U_c (AC)
max. continuous current, U_c (DC)
Requirements class to IEC 61643-1
Rated discharge current (8/20 μ s)
Limiting discharge current (8/20 μ s)
Discharge current, max. (8/20 μ s)
Response time
Fuse, max.
Protection level at I_n (U_p)
Protection level at 5 kA (U_p)
Temporary surge - U_{TOV}
Optical function indicator
Signalling contact
Design
Colour
Operating temperature
Storage temperature
Approvals

120 V
130 V
170 V
Class II *
20 kA
40 kA
75 kA
 ≤ 25 ns
125 A gL
< 850 V
< 500 V
150 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 2 R
2 E ;Installation housing
Base black, arrester red
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

120 V
130 V
170 V
Class II *
20 kA
40 kA
40 kA
 ≤ 25 ns
125 A gL
< 850 V
< 500 V
150 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 1 R
1 E ;Installation housing
Base black, arrester red
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 36 x 64 97 x 36 x 64

* this product also satisfies the requirements of Class III with U_{oc} : 6kV

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 18 x 64 97 x 18 x 64

* this product also satisfies the requirements of Class III with U_{oc} : 6kV

Ordering data

Version

without telecomm. contact
with telecomm. contact

Note

Type	Qty.	Order No.
PU II 2 130V/40kA	1	8859970000
PU II 2 R 130V/40kA	1	8859980000

Type	Qty.	Order No.
PU II 1 130V/40kA	1	8859950000
PU II 1 R 130V/40kA	1	8859960000

Accessories

Note

Plug-in spare arrester PU II 0 130V / 40kA - 8860030000

Plug-in spare arrester PU II 0 130V / 40kA - 8860030000

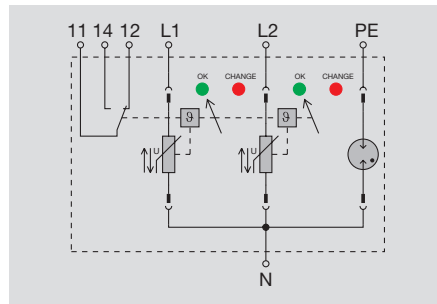
Surge protection for low-voltage supplies

Class II with varistors

Surge protection of class II
with U_c : 550 V

- plug-in varistor top section
- coded voltage level, var. voltgts.
- high energy absorption with short response time
- 180° rotatable insert
- no follow current
- installation in Insta distributor
- thermal safety function
- coordination between class I with U_p : <1.5 kV
- application photovoltaic

PU II 2+1/R 550 V / 40 kA



Technical data

Technical data

PV voltage to IEC 60364-7-712
max. continuous current, DC [(L+/L-) → PE]
Rated voltage
max. continuous current, U_c (AC)
max. continuous current, U_c (DC)
Requirements class to IEC 61643-1
Rated discharge current (8/20 μ s)
Limiting discharge current (8/20 μ s)
Discharge current, max. (8/20 μ s)
Response time
Fuse, max.
Protection level at I_n (U_p)
Protection level at 5 kA (U_p)
Temporary surge - U_{TOV}
Optical function indicator
Signalling contact
Design
Colour
Operating temperature
Storage temperature
Approvals

≤ 1000 V
400 V
550 V
550 V
745 V
Class II *
20 kA
40 kA
40 kA
≤ 25 ns
125 A gL
< 2650 V
< 1700 V
550 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 2+1 R
3 E ;Installation housing
Base black, arrester red / blue
-40 ... 80°C
-40 ... 80°C
CE, ÖVE, cURus in preparation

Dimensions

Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm

Note

without telecomm. contact with telecomm. contact

25 / 4 / 25	25 / 4 / 25
90 x 54 x 58	99 x 54 x 58

* this product also satisfies the requirements of Class III with U_{oc} : 6kV

Ordering data

Version

without telecomm. contact
with telecomm. contact

Type	Qty.	Order No.
PU II 2+1 550V/40kA	1	8882340000
PU II 2+1R 550V/40kA	1	8882350000

Note

Accessories

Note

Plug-in spare arrester PU II 0 550V / 40kA - 8860120000
Plug-in spare arrester PU II 0 N-PE 280V / 40kA - 8871940000

Surge protection for low-voltage supplies

Class II with varistors

Surge protection of class II
with U_c : 550 V

- plug-in varistor top section
- coded voltage level, var. volts.
- high energy absorption with short response time
- 180° rotatable insert
- no follow current
- installation in Insta distributor
- thermal safety function
- coordination between class I with U_p : <1.5 kV

PU II 4/R 550 V / 40 kA

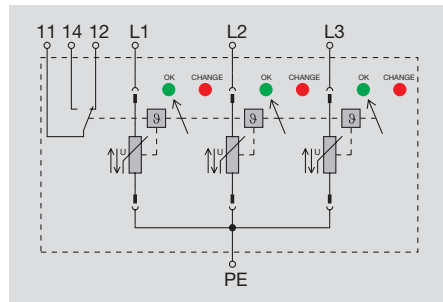
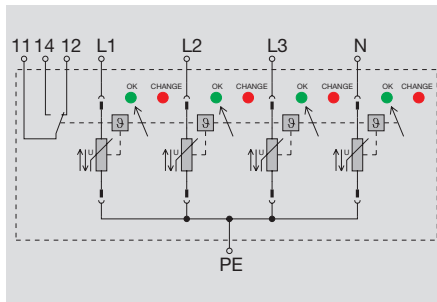


n

PU II 3/R 550 V / 40 kA



n



Technical data

Technical data

Rated voltage
max. continuous current, U_c (AC)
max. continuous current, U_c (DC)
Requirements class to IEC 61643-1
Rated discharge current (8/20 μ s)
Limiting discharge current (8/20 μ s)
Discharge current, max. (8/20 μ s)
Response time
Fuse, max.
Protection level at I_n (U_p)
Protection level at 5 kA (U_p)
Temporary surge - U_{TOV}
Optical function indicator
Signalling contact
Design
Colour
Operating temperature
Storage temperature
Approvals

470 V / 690 V
550 V
745 V
Class II *
20 kA
40 kA
150 kA
 ≤ 25 ns
125 A gL
< 2650 V
< 1700 V
550 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 4 R
4 E ;Installation housing
Base black, arrester red
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

470 V / 690 V
550 V
745 V
Class II *
20 kA
40 kA
110 kA
 ≤ 25 ns
125 A gL
< 2650 V
< 1700 V
550 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 3 R
3 E ;Installation housing
Base black, arrester red
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 72 x 64 97 x 72 x 64

* this product also satisfies the requirements of Class III with U_{oc} : 6kV

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 54 x 64 97 x 54 x 64

* this product also satisfies the requirements of Class III with U_{oc} : 6kV

Ordering data

Version

without telecomm. contact
with telecomm. contact

Note

Type	Qty.	Order No.
PU II 4 550V/40kA	1	8860060000
PU II 4 R 550V/40kA	1	8860070000

Type	Qty.	Order No.
PU II 3 550V/40kA	1	8860080000
PU II 3 R 550V/40kA	1	8860090000

Accessories

Note

Plug-in spare arrester PU II 0 550V / 40kA - 8860120000

Plug-in spare arrester PU II 0 550V / 40kA - 8860120000

Class II with varistors

Surge protection of class II
with U_c : 550 V

- plug-in varistor top section
- coded voltage level, var. volts.
- high energy absorption with short response time
- 180° rotatable insert
- no follow current
- installation in Insta distributor
- thermal safety function
- coordination between class I with U_p : <1.5 kV

PU II 2/R 550 V / 40 kA

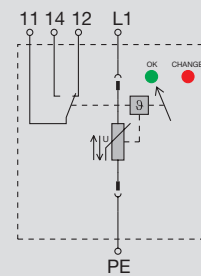
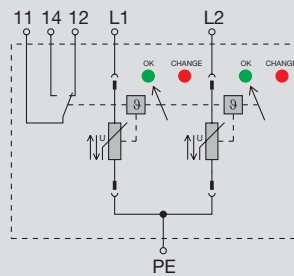


n

PU II 1/R 550 V / 40 kA



n



Technical data

Technical data

Rated voltage
max. continuous current, U_c (AC)
max. continuous current, U_c (DC)
Requirements class to IEC 61643-1
Rated discharge current (8/20 μ s)
Limiting discharge current (8/20 μ s)
Discharge current, max. (8/20 μ s)
Response time
Fuse, max.
Protection level at I_n (U_p)
Protection level at 5 kA (U_p)
Temporary surge - U_{TOV}
Optical function indicator
Signalling contact
Design
Colour
Operating temperature
Storage temperature
Approvals

470 V
550 V
745 V
Class II *
20 kA
40 kA
75 kA
 ≤ 25 ns
125 A gL
< 2650 V
< 1700 V
550 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 2 R
2 E ;Installation housing
Base black, arrester red
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

470 V
550 V
745 V
Class II *
20 kA
40 kA
40 kA
 ≤ 25 ns
125 A gL
< 2650 V
< 1700 V
550 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 1 R
1 E ;Installation housing
Base black, arrester red
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 36 x 64 97 x 36 x 64

* this product also satisfies the requirements of Class III with U_{oc} : 6kV

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 18 x 64 97 x 18 x 64

* this product also satisfies the requirements of Class III with U_{oc} : 6kV

Ordering data

Version

without telecomm. contact
with telecomm. contact

Note

Type	Qty.	Order No.
PU II 2 550V/40kA	1	8860100000
PU II 2 R 550V/40kA	1	8860110000

Type	Qty.	Order No.
PU II 1 550V/40kA	1	8860040000
PU II 1 R 550V/40kA	1	8860050000

Accessories

Note

Plug-in spare arrester PU II 0 550V / 40kA - 8860120000

Plug-in spare arrester PU II 0 550V / 40kA - 8860120000

Surge protection for low-voltage supplies

Class II with varistors

Surge protection of class II
with U_c : 75 V

- plug-in varistor top section
- coded voltage level, var. volts.
- high energy absorption with short response time
- 180° rotatable insert
- no follow current
- installation in Insta distributor
- thermal safety function

PU II 2/R 75 V / 40 kA

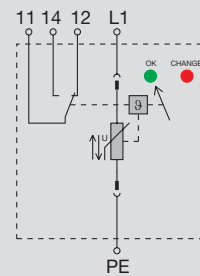
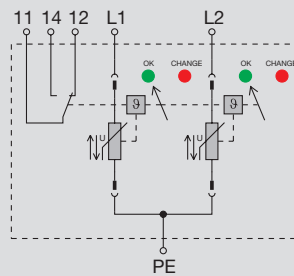


n

PU II 1/R 75 V / 40 kA



n



Technical data

Technical data

Rated voltage
max. continuous current, U_c (AC)
max. continuous current, U_c (DC)
Requirements class to IEC 61643-1
Rated discharge current (8/20 μ s)
Limiting discharge current (8/20 μ s)
Discharge current, max. (8/20 μ s)
Response time
Fuse, max.
Protection level at I_n (U_p)
Protection level at 5 kA (U_p)
Temporary surge - U_{TOV}
Optical function indicator
Signalling contact
Design
Colour
Operating temperature
Storage temperature
Approvals

60 V
75 V
100 V
Class II *
20 kA
40 kA
75 kA
 ≤ 25 ns
125 A gL
 < 700 V
 < 300 V
75 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 2 R
2 E ;Installation housing
Base black, arrester red
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

60 V
75 V
100 V
Class II *
20 kA
40 kA
40 kA
 ≤ 25 ns
125 A gL
 < 700 V
 < 300 V
75 V
green = OK; red = arrester faulty, replace
250 V 1A 1CO at PU II 1 R
1 E ;Installation housing
Base black, arrester red
-40 ... 70°C
-40 ... 70°C
CE, ÖVE, cURus in preparation

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 36 x 64 97 x 36 x 64

* this product also satisfies the requirements of Class III with U_{oc} : 6kV

without telecomm. contact with telecomm. contact

25 / 4 / 25 25 / 4 / 25
90 x 18 x 64 97 x 18 x 64

* this product also satisfies the requirements of Class III with U_{oc} : 6kV

Ordering data

Version

without telecomm. contact
with telecomm. contact

Type	Qty.	Order No.
PU II 2 75V/40kA	1	8860130000
PU II 2 R 75V/40kA	1	8860140000

Type	Qty.	Order No.
PU II 1 75V/40kA	1	8860150000
PU II 1 R 75V/40kA	1	8860160000

Note

Accessories

Note

Plug-in spare arrester PU II 0 75V / 40kA - 8879950000

Plug-in spare arrester PU II 0 75V / 40kA - 8879950000

Class III with varistors

Low-voltage consumer installations, small distribution units and electronics

Surge protection module of class III (D-arresters)

Our surge protection modules PU III and PU D protect low-voltage consumer installations and electronic devices from voltage surges that occur through atmospheric discharge (lightning) or switching activities (transients).

Both PU III and PU D can be installed in small or storey distribution boards.

The PU III satisfies the requirements of IEC 61643-1.

The PU D satisfies the requirements of DIN VDE 0675, part 6, class C, Nov 1989, part 6, A2 (Oct 1996) and IEC 61643-1 (Feb 1998).



Electrical connection

The PU III or PU D surge protection device is installed after the PU II arrester and before the device / consumer to be protected. It can protect electrical circuits of up to 16 A.

An installation can be done in a consumer unit for an electrical circuit that protects monitors, for example.

Functional check and maintenance

Varistors can exhibit high temperatures as a result of ageing. In low-voltage systems, this can result in fire.

The integrated temperature monitoring device automatically disconnects the varistor from the power supply. This disconnection is indicated by the warning lamp being extinguished. Types PU III and PU DS also have a built-in switching contact for signalling.

The back-up fuse you install depends on the conductor cross-section and type of routing. For PU III or PU D arresters, the maximum power rating is 16 A.

The connection is rated to IEC 947-7-1 for the following cross-sections:

solid conductor: 0.5...2.5 mm²

flexible conductor: 0.5...2.5 mm²

The operating temperature range for the PU D is

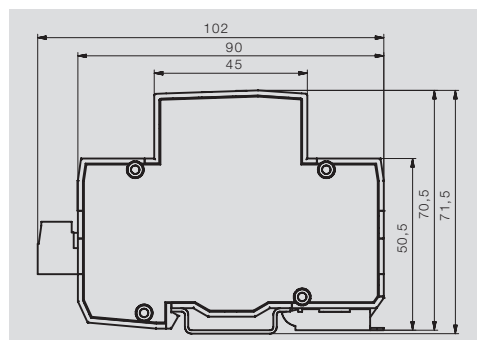
–25 °C ... +55 °C, the storage temperature can be

–40 °C ... +60 °C. The operating and storage temperature range of the PU III series is –5 °C ... +40 °C.

Dimensioned drawing PU III

Overall width

18 mm



Class III with varistors

Surge protection of class III

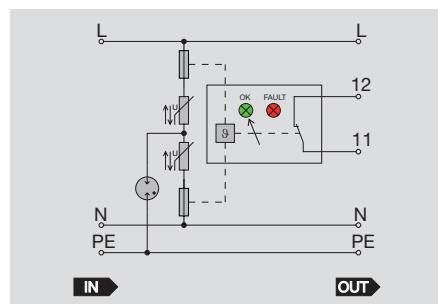
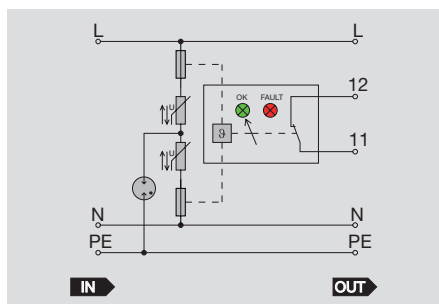
- Suitable for protection of terminal equipment
- Installation location in vicinity of device to be protected
- With telecommunication contact

PU III R 230 V/6 kV

Use as device protection

**n****PU III R 120 V/6 kV**

Use as device protection

**n****F****Technical data****Technical data**

Rated voltage (AC)
 Rated voltage (DC)
 max. continuous current, I_c (AC)
 max. continuous current, I_c (DC)
 Requirements class to IEC 61643-1
 Combined pulse U_{oc}
 Rated discharge current per path (8/20 μ s)
 Response time
 Fuse, max.
 Protection level Up L - N
 Protection level Up L (PE) - N
 Protection level Up at nominal discharge current (8/20 μ s) per path
 Optical function indicator
 Signalling contact
 Design
 Colour
 Operating temperature, min./max.
 Storage temperature, min./max.
 Approvals

230 V
 260 V
 Class III
 6 kV
 3 kA
 ≤ 150 ns
 16 A
 ≤ 1200 V
 ≤ 1800 V
 < 1300 V
 green LED = OK
 250 V 1A 1CO
 1 E ; Installation housing
 bright orange
 -5 °C/40 °C
 -5 °C/40 °C
 CE; cULus in preparation

120 V
 180 V
 150 V
 200 V
 Class III
 6 kV
 3 kA
 ≤ 150 ns
 16 A
 ≤ 650 V
 ≤ 1500 V
 < 700 V
 green LED = OK
 250 V 1A 1CO
 1 E ; Installation housing
 bright orange
 -5 °C/40 °C
 -5 °C/40 °C
 CE; cULus in preparation

Dimensions

Clamping range (rating- / min. / max.) mm²
 Length x width x height mm

Note**Screw connection**

2.5 / 0.5 / 2.5
 102 x 18 x 71.5

Screw connection

2.5 / 0.5 / 2.5
 102 x 18 x 71.5

Ordering data

Type	Qty.	Order No.
PU III R 230V/6kV	1	8860330000

Type	Qty.	Order No.
PU III R 120V/6kV	1	8860340000

Note**Accessories****Note**

Surge protection for low-voltage supplies

Class III with varistors

Surge protection of class III

- Suitable for protection of terminal equipment
- Installation location in vicinity of device to be protected
- With telecommunication contact

PU III R 48 V/4 kV

Use as device protection



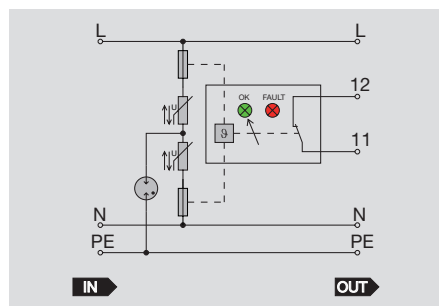
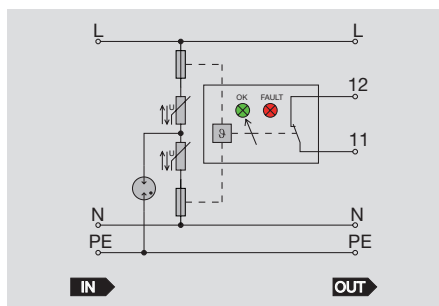
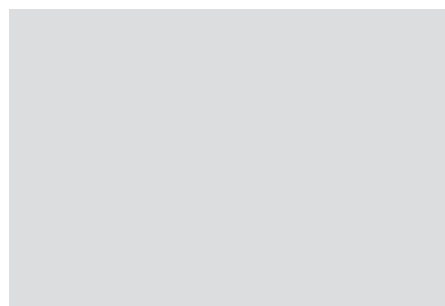
n

PU III R 24 V/4 kV

Use as device protection



n



Technical data

Technical data

Rated voltage (AC)	48 V
Rated voltage (DC)	80 V
max. continuous current, I_c (AC)	60 V
max. continuous current, I_c (DC)	85 V
Requirements class to IEC 61643-1	Class III
Combined pulse U_{oc}	4 kV
Rated discharge current per path (8/20 μ s)	2 kA
Response time	≤ 150 ns
Fuse, max.	16 A
Protection level Up L - N	≤ 550 V
Protection level Up L (PE) - N	≤ 850 V
Protection level Up at nominal discharge current (8/20 μ s) per path	< 300 V
Optical function indicator	green LED = OK
Signalling contact	250 V 1A 1CO
Design	1 E ; Installation housing
Colour	bright orange
Operating temperature, min./max.	-5 °C/40 °C
Storage temperature, min./max.	-5 °C/40 °C
Approvals	CE;cULus in preparation

Rated voltage (AC)	24 V
Rated voltage (DC)	38 V
max. continuous current, I_c (AC)	32 V
max. continuous current, I_c (DC)	38 V
Requirements class to IEC 61643-1	Class III
Combined pulse U_{oc}	4 kV
Rated discharge current per path (8/20 μ s)	2 kA
Response time	≤ 150 ns
Fuse, max.	16 A
Protection level Up L - N	≤ 550 V
Protection level Up L (PE) - N	≤ 850 V
Protection level Up at nominal discharge current (8/20 μ s) per path	< 300 V
Optical function indicator	green LED = OK
Signalling contact	250 V 1A 1CO
Design	1 E ; Installation housing
Colour	bright orange
Operating temperature, min./max.	-5 °C/40 °C
Storage temperature, min./max.	-5 °C/40 °C
Approvals	CE;cULus in preparation

Rated voltage (AC)	24 V
Rated voltage (DC)	38 V
max. continuous current, I_c (AC)	32 V
max. continuous current, I_c (DC)	38 V
Requirements class to IEC 61643-1	Class III
Combined pulse U_{oc}	4 kV
Rated discharge current per path (8/20 μ s)	2 kA
Response time	≤ 150 ns
Fuse, max.	16 A
Protection level Up L - N	≤ 550 V
Protection level Up L (PE) - N	≤ 850 V
Protection level Up at nominal discharge current (8/20 μ s) per path	< 300 V
Optical function indicator	green LED = OK
Signalling contact	250 V 1A 1CO
Design	1 E ; Installation housing
Colour	bright orange
Operating temperature, min./max.	-5 °C/40 °C
Storage temperature, min./max.	-5 °C/40 °C
Approvals	CE;cULus in preparation

Dimensions

Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm

Note

Screw connection

2.5 / 0.5 / 2.5
102 x 18 x 71.5

Screw connection

2.5 / 0.5 / 2.5
102 x 18 x 71.5

Ordering data

Type	Qty.	Order No.
PU III R 48V/4kV	1	8860350000

Type	Qty.	Order No.
PU III R 24V/4kV	1	8860360000

Note

Accessories

Note

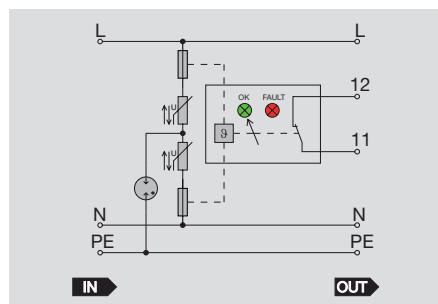
Class III with varistors

Surge protection of class III

- Suitable for protection of terminal equipment
- Installation location in vicinity of device to be protected
- With telecommunication contact

PU III R 12 V/4 kV

Use as device protection



Technical data

Technical data

Rated voltage (AC)	12 V
Rated voltage (DC)	14 V
max. continuous current, I_c (AC)	20 V
max. continuous current, I_c (DC)	18 V
Requirements class to IEC 61643-1	Class III
Combined pulse U_{oc}	3 kV
Rated discharge current per path (8/20 μ s)	2 kA
Response time	≤ 150 ns
Fuse, max.	16 A
Protection level Up L - N	≤ 550 V
Protection level Up L (PE) - N	≤ 850 V
Protection level Up at nominal discharge current (8/20 μ s) per path	< 200 V
Optical function indicator	green LED = OK
Signalling contact	250 V 1A 1CO
Design	1 E ; Installation housing
Colour	bright orange
Operating temperature, min./max.	-5 °C/40 °C
Storage temperature, min./max.	-5 °C/40 °C
Approvals	CE; cULus in preparation

12 V
14 V
20 V
18 V
Class III
3 kV
2 kA
≤ 150 ns
16 A
≤ 550 V
≤ 850 V
< 200 V
green LED = OK
250 V 1A 1CO
1 E ; Installation housing
bright orange
-5 °C/40 °C
-5 °C/40 °C
CE; cULus in preparation

Dimensions

Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm

Note

Screw connection

2.5 / 0.5 / 2.5
102 x 18 x 71.5

Ordering data

Type	Qty.	Order No.
PU III R 12V/4kV	1	8883740000

Note

Accessories

Note

Surge protection for low-voltage supplies

Class III with varistors

Class III surge protection

- suitable for protecting terminals
- installed in the vicinity of the equipment to be protected
- with remote signalling contact

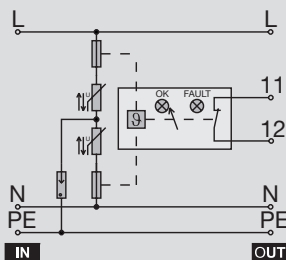
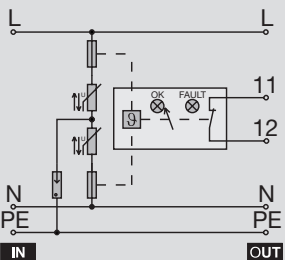
PU D 230 V AC 16 A

Use as device protector



PU D 115 V AC 16 A

Use as device protector



Technical data

Technical data

Rated voltage (AC)
 Rated voltage (DC)
 max. continuous current, I_c (AC)
 max. continuous current, I_c (DC)
 Requirements class to IEC 61643-1
 Combined pulse U_{oc}
 Rated discharge current per path (8/20 μ s)
 Discharge current, max. (8/20 μ s)
 Response time
 Fuse, max.
 Protection level U_p (typical)
 Optical function indicator
 Signalling contact
 Design
 Colour
 Operating temperature, min./max.
 Storage temperature, min./max.
 Approvals

230 V
 275 V
 Class III
 4 kV
 2.5 kA
 7 kA
 ≤ 150 ns
 16 A
 850 V
 green LED = OK; red LED = fault
 250 V 1 A 1 NC
 Installation housing
 grey
 -25 °C/55 °C
 -40 °C/55 °C
 CE

115 V
 130 V
 Class III
 4 kV
 2.5 kA
 7 kA
 ≤ 150 ns
 16 A
 480 V
 green LED = OK; red LED = fault
 250 V 1 A 1 NC
 Installation housing
 grey
 -25 °C/55 °C
 -40 °C/55 °C
 CE

Dimensions

Clamping range (rating- / min. / max.) mm²
 Length x width x height mm

Note

Screw connection

2.5 / 0.5 / 2.5
 91 x 54 x 61

Screw connection

2.5 / 0.5 / 2.5
 91 x 54 x 61

Ordering data

Type	Qty.	Order No.
PU D 230V 16A	1	8411930000

Type	Qty.	Order No.
PU D 115Vac 16A	1	8472100000

Note

Accessories

Note

Class III with varistors

Class III surge protection

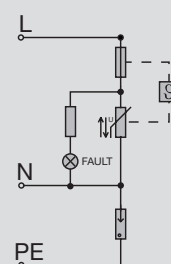
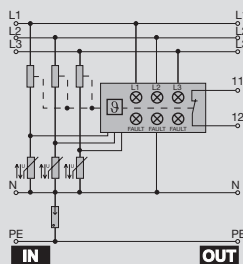
- suitable for protecting terminals
- installed in the vicinity of the equipment to be protected
- with remote signalling contact

PU 3 D 230 V / 400 V AC 16 A

Use as device protector

**PO D S / AS 230 V 16 A**

Use as device protector

**Technical data****Technical data**

Rated voltage (AC)
 Rated voltage (DC)
 max. continuous current, I_c (AC)
 max. continuous current, I_c (DC)
 Requirements class to IEC 61643-1
 Combined pulse U_{oc}
 Rated discharge current per path (8/20 μ s)
 Discharge current, max. (8/20 μ s)
 Response time
 Fuse, max.
 Protection level U_p (typical)
 Optical function indicator
 Signalling contact
 Design
 Colour
 Operating temperature, min./max.
 Storage temperature, min./max.
 Approvals

230 V
 275 V
 Class III
 4 kV
 6.5 kA
 18 kA
 ≤ 150 ns
 16 A
 850 V
 green LED = OK; red LED = fault
 250 V 1 A 1 NC
 Installation housing
 grey
 -25 °C/55 °C
 -40 °C/55 °C
 CE

230 V
 275 V
 Class III
 4 kV
 2.5 kA
 5 kA
 sym/ asym: ≤ 100 ns
 16 A
 1500 V
 green LED
 Miscellaneous
 black
 -25 °C/55 °C
 -40 °C/60 °C
 CE

Dimensions

Clamping range (rating- / min. / max.) mm²
 Length x width x height mm

Note**Screw connection**

2.5 / 0.5 / 2.5
 91 x 54 x 61

with audible signal**without audible signal**

20 x 34 x 41

12 x 34 x 41

with audible signal

Ordering data

Type	Qty.	Order No.
PU 3D 230V/400Vac 16A	1	8509130000

Type	Qty.	Order No.
PO D AS	1	8581830000
PO D S	1	8581840000

Note

PO D AS with audible signal

Accessories**Note**

Class III adapter plug

PU D ZS pluggable surge protection

Class III surge protection

The PU D ZS pluggable surge protection device provides protection against transient overvoltages for equipment plugged into earthed power sockets. The pluggable surge protection with its earthed power socket is designed for 230 V/16 A, fulfils the requirements of class III to IEC 61643-1 and is used in conjunction with class II, the PU C protection.

The PU D ZS is fitted with components to monitor varistor temperature. In the event of an excessive temperature rise due to pulses from the mains supply, these disconnect the unit. The integral red warning lamp indicates that protection is no longer provided. The PU D ZS must then be replaced.

PU D ZS analogue surge protection device

Besides standard telephones, an analogue installation can also be used to transmit data services such as fault signalling systems and Internet. Because, in addition to telephones, other devices such as fax machines and modems are connected to the analogue line, the risk of damage due to transient interference phenomena such as voltage surges is greater. To provide protection against these overvoltages, a combined

surge protection device for analogue lines and mains voltages is incorporated. The basic version of this power socket adapter is protected by a two-stage surge protection device using a gas discharge tube and fast-acting suppression diodes.

The gas discharge tube diverts a large amount of electrical energy; the suppression diodes ensure a low residual voltage.

PU D ZS digital surge protection device

This power socket adapter is available for Uko and So interfaces.

To provide protection against these voltage surges, a combined surge protection device for digital lines and mains voltage is incorporated. The basic version of this power socket adapter is protected by a two-stage surge protection device using a gas discharge tube and fast-acting suppression diodes.

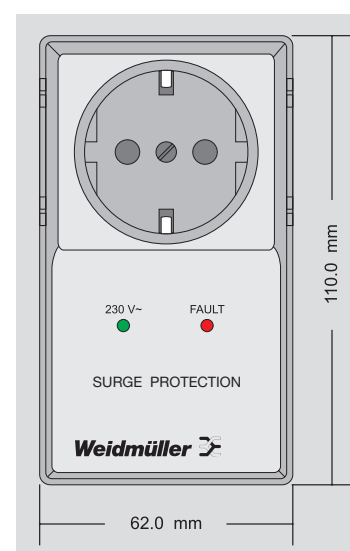
The gas discharge tube diverts a large amount of electrical energy; the suppression diodes ensure a low residual voltage. In the case of the PU D ZS with RJ45 sockets, a connecting cable with RJ45 plugs at both ends is included with the product.

The PU D ZS TV is for protection of radios or TVs, for example. The device protects both the power supplies and the antenna connection.

The PU D ZS Cat.6 can protect Ethernet connections of both category 5 and category 6.



Dimensions PU D ZS



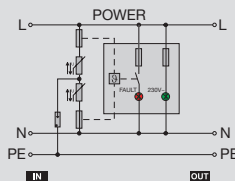
Class III adapter plug

Class III surge protection

- with visual function indicator
- suitable for earthed power sockets
- PU D ZS AS with additional audible alarm

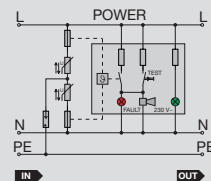
PU D ZS

PU D ZS 230 V 16 A



PU D ZS AS

PU D ZS AS 230 V 16 A



Technical data

Rated voltage (AC)
max. continuous current, I_c (AC)
Operating current, I_{max}
to DIN VDE 0675-6
Requirements class to IEC 61643-1
Combined pulse U_{oc}

Discharge current, max. (8/20 μ s)
Fuse, max.
Response time
Protection level on output side sym., input 8/20 μ s, typ.
Protection level on output side unsym., input 8/20 μ s, typ.
Leakage current at Un
Optical function indicator
Pollution severity

Surge category
Operating temperature, min./max.
Storage temperature, min./max.

General data

Input voltage, max.
Rated current I_n , max.
Standard signal
Rated discharge current (8/20 μ s)
Total current
Response time, typical
Resistance per path
Cut-off frequency f_g , 600 Ω system
Transistor output, positive-switching
Residual voltage at output for input pulse of 1 kV/ μ s
Residual voltage at output for 8/20 μ s and input pulse of 5 kA

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

230 V
275 V
16 A
Requirements class D
Class III
4 kV

5 kA
16 A
 ≤ 150 ns
600 V
1500 V
1 μ A
green LED = OK; red LED = fault
2

III
0 °C/60 °C
-25 °C/85 °C

Earthed contact

110 x 62 x 48

230 V
275 V
16 A
Requirements class D
Class III
4 kV

5 kA
16 A
 ≤ 150 ns
600 V
1500 V
1 μ A
green LED = OK; red LED = fault
2

III
0 °C/60 °C
-25 °C/85 °C

Earthed contact

110 x 62 x 48

with audible signal

Ordering data

Version
without telecomm. contact

Note

Type	Qty.	Order No.
PU D ZS 230V~ 16A	1	8697580000

Type	Qty.	Order No.
PU D ZS AS	1	8750640000

Accessories

Note

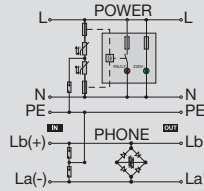
Surge protection for low-voltage supplies

Class III adapter plug

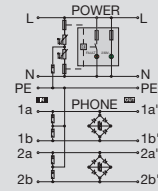
Class III surge protection

- with visual function indicator
- suitable for earthed power sockets
- PU D ZS AS with additional audible alarm

PU D ZS

PU D ZS Uk₀ 230 V 16 A

PU D ZS

PU D ZS S₀ 230 V 16 A

Technical data

Rated voltage (AC)
max. continuous current, I_c (AC)
Operating current, I_{max}
to DIN VDE 0675-6
Requirements class to IEC 61643-1
Combined pulse U_{oc}

Discharge current, max. (8/20 μ s)
Fuse, max.
Response time
Protection level on output side sym., input 8/20 μ s, typ.
Protection level on output side unsym., input 8/20 μ s, typ.
Leakage current at Un
Optical function indicator
Pollution severity

Surge category
Operating temperature, min./max.
Storage temperature, min./max.

General data

Input voltage, max.
Rated current I_n , max.
Standard signal
Rated discharge current (8/20 μ s)
Total current
Response time, typical
Resistance per path
Cut-off frequency f_g , 600 Ω system
Transistor output, positive-switching
Residual voltage at output for input pulse of 1 kV/ μ s
Residual voltage at output for 8/20 μ s and input pulse of 5kA

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

230 V
275 V
16 A
Requirements class D
Class III
4 kV

5 kA
16 A
 ≤ 150 ns
600 V
1500 V
1 μ A
green LED = OK; red LED = fault
2

III
0 °C/60 °C
-25 °C/85 °C

190 V DC
0.45 A
ISDN telephone signal RJ45/RJ11/12
4 kA
10 A
< 5 ns
1.1 Ω
80 MHz

a/b $\leq$ 270V a-b/PE $\leq$ 270V
a/b $\leq$ 100V a-b/PE $\leq$ 100V

Earthed contact

110 x 62 x 48
incl. conductor, RJ 11/12 both ends

230 V
275 V
16 A
Requirements class D
Class III
4 kV

5 kA
16 A
 ≤ 150 ns
600 V
1500 V
1 μ A
green LED = OK; red LED = fault
2

III
0 °C/60 °C
-25 °C/85 °C

190 V
0.45 A
ISDN telephone signal RJ45/RJ11/12
4 kA
10 A
< 5 ns
1.1 Ω
80 MHz

a/b $\leq$ 270V a-b/PE $\leq$ 270V
a/b $\leq$ 100V a-b/PE $\leq$ 100V

Earthed contact

110 x 62 x 48
incl. conductor, RJ 11/12 both ends

Ordering data

Version
without telecomm. contact

Note

Type	Qty.	Order No.
PU D ZS Uko 230V 16A	1	8697570000

Type	Qty.	Order No.
PU D ZS 230V~ 16A / ISDN So	1	8697560000

Accessories

Note
Conductor, RJ 45 at both ends, order No. 8697590000

Conductor, RJ 45 at both ends, order No. 8697590000

Class III adapter plug

Class III surge protection

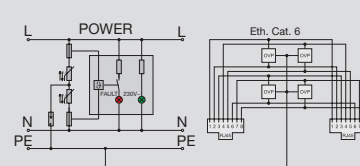
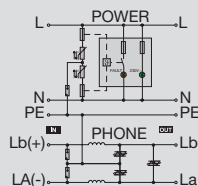
- with visual function indicator
- suitable for earthed power sockets

PU D ZS

PU D ZS analog 230 V 16 A

**PU D ZS**

PU D ZS Cat.6

**Technical data**

Rated voltage (AC)
max. continuous current, I_c (AC)
Operating current, I_{max}
to DIN VDE 0675-6
Requirements class to IEC 61643-1
Combined pulse U_{oc}

Discharge current, max. (8/20 μ s)
Fuse, max.
Response time
Protection level on output side sym., input 8/20 μ s, typ.
Protection level on output side unsym., input 8/20 μ s, typ.
Leakage current at U_n
Optical function indicator
Pollution severity

Surge category
Operating temperature, min./max.
Storage temperature, min./max.

General data

Input voltage, max.
Rated current I_n , max.
Standard signal
Rated discharge current (8/20 μ s)
Total current
Response time, typical
Resistance per path
Cut-off frequency f_g , 600 Ω system
Transistor output, positive-switching
Residual voltage at output for input pulse of 1 kV/ μ s
Residual voltage at output for 8/20 μ s and input pulse of 5 kA

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note**Ordering data**

Version without telecomm. contact

Note**Accessories****Note**

230 V
275 V
16 A
Requirements class D
Class III
4 kV

5 kA
16 A
 ≤ 150 ns
600 V
1500 V
1 μ A
green LED = OK; red LED = fault
2

III
0 °C/60 °C
-25 °C/85 °C

190 V DC
0.45 A
Analogue telephone signal RJ45/RJ11/12
4 kA
10 A
 < 5 ns
1.1 Ω
2 MHz

a/b ≤ 270 V a-b/PE ≤ 270 V
a/b ≤ 100 V a-b/PE ≤ 100 V

Earthed contact

110 x 62 x 48
incl. conductor, RJ 11/12 both ends

Type	Qty.	Order No.
PU D ZS 230V~ 16A / analog a/b	1	8697600000

Conductor, RJ45 on both sides, order No. 8697590000

230 V
275 V
16 A
Requirements class D
Class III
4 kV

5 kA
16 A
 ≤ 150 ns
600 V
1500 V
1 μ A
green LED = OK; red LED = fault
2

III
0 °C/60 °C
-25 °C/85 °C

30 V
0.2 A
Ethernet Cat.5 + Cat.6
2500 A
10 kA (8/20 μ s)
 < 5 ns

Cable / Cable ≤ 80 V; Cable / PE ≤ 300 V
Cable / Cable ≤ 130 V; Cable / PE ≤ 600 V

Earthed contact

110 x 63 x 48
Length of Cat.6 cable 0.75 m + 2.20 m

Type	Qty.	Order No.
PU D ZS CAT.6	1	8805530000

Surge protection for low-voltage supplies

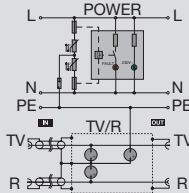
Class III adapter plug

Class III surge protection
for signals up to 1 GHz (radio/TV)

- with visual function indicator
- protection for Ethernet Cat.6
- suitable for earthed power sockets

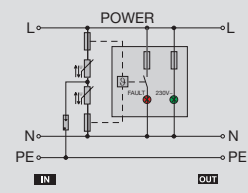
PU D ZS

PU D ZS TV / R 230 V 16 A



PU D ZS

PU D ZS F



Technical data

Rated voltage (AC)
max. continuous current, I_c (AC)
Operating current, I_{max}
to DIN VDE 0675-6
Requirements class to IEC 61643-1
Combined pulse U_{oc}

Discharge current, max. (8/20 μ s)
Fuse, max.
Response time
Protection level on output side sym., input 8/20 μ s, typ.
Protection level on output side unsym., input 8/20 μ s, typ.
Leakage current at U_n
Optical function indicator
Pollution severity

Surge category
Operating temperature, min./max.
Storage temperature, min./max.

General data

Input voltage, max.
Rated current I_n , max.
Standard signal
Rated discharge current (8/20 μ s)
Total current
Response time, typical
Resistance per path
Cut-off frequency f_g , 600 Ω system
Transistor output, positive-switching
Residual voltage at output for input pulse of 1 kV/ μ s
Residual voltage at output for 8/20 μ s and input pulse of 5 kA

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

230 V
275 V
16 A
Requirements class D
Class III
4 kV

5 kA
16 A
 ≤ 150 ns
600 V
1500 V
1 μ A
green LED = OK; red LED = fault
2

III
0 °C/60 °C
-25 °C/85 °C

70 V
1.5 A
TV/R terrestrial and cable
5 kA

< 100 ns
1.1 Ω
1 GHz / 75 Ω

600 V
800 V

Earthed contact

110 x 62 x 48
Each coaxial cable approx. 35 cm long

230 V
275 V
16 A

Class III
4 kV

5 kA
16 A
 ≤ 150 ns
600 V
1500 V
1 μ A
green LED = OK; red LED = fault
2

III
0 °C/60 °C
-25 °C/85 °C

110 x 63 x 48

Ordering data

Version
without telecomm. contact

Note

Type	Qty.	Order No.
PU D ZS TV/R	1	8779230000

Type	Qty.	Order No.
PU D ZS F	1	8750650000

Accessories

Note

Surge protection mains filter

WAVEFILTERS for simple radio interference suppression in the control cabinet

The WAVEFILTER series eliminates the time-consuming work of screwing in mains filters. These filters are simply clipped on to the TS35 rail and connected to the device requiring suppression. The two-stage WAVEFILTER with overall width 22.5 mm in 1 A, 3 A, 6 A and 10 A versions offers high attenuation.

The WAVEFILTER with current-compensating choke is ideal for applications in drive technology and control/automation systems, e.g. for suppressing continuous interference types such as “noise” or “ripple” caused by interfering radiation from other systems, or interference from frequency converters and switch-mode power supplies. A short, low-ohm mass connection is required for the WAVEFILTER to function perfectly. We recommend earthing all devices directly with the largest possible cross-section to a central earthing point in the control cabinet.

Interference signals

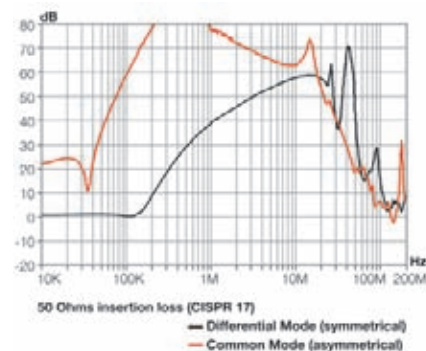
We distinguish between two types of induced transient and continuous interference signals: symmetrical (differential mode) and asymmetrical (common mode). The symmetrical interference signals generate a voltage between the signal leads of the system. The asymmetrical interference voltages occur between the signal leads and earth.

The WAVEFILTER is suitable for attenuating both kinds of interference signal. In addition, WAVEFILTER 10 A also has an earthing conductor choke. This earthing conductor choke supports both attenuation on the earthing conductor for the filter and additional attenuation of asymmetrical interference voltages.

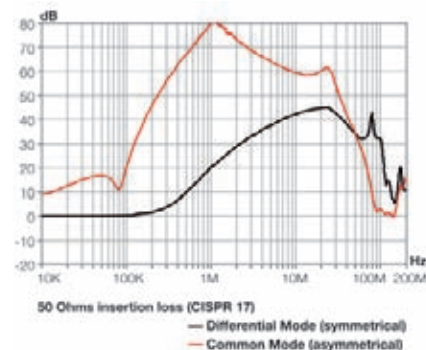
The WAVEFILTER have cULus approval.

Insertion loss

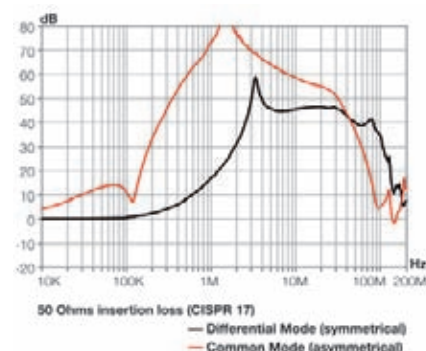
1 A WAVEFILTER



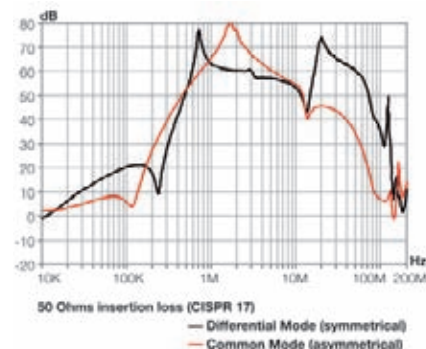
3 A WAVEFILTER



6 A WAVEFILTER



10 A WAVEFILTER



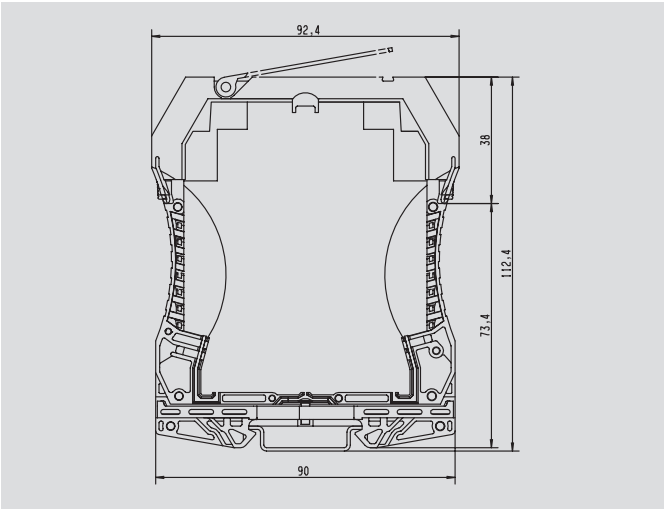
Installation height 112.4 mm



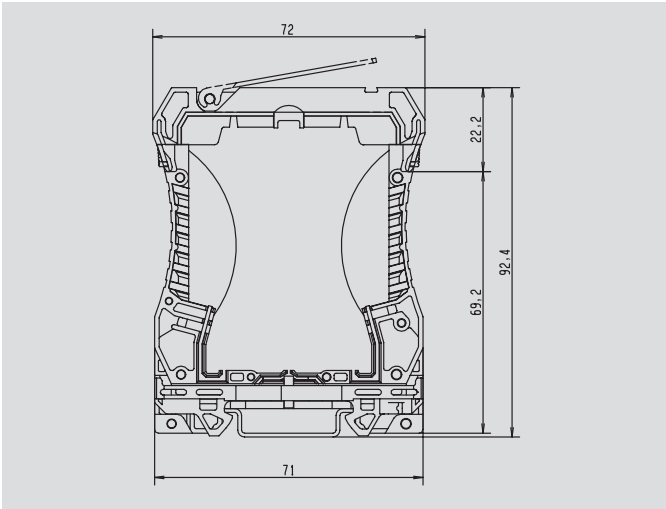
Installation height 92.4 mm



Dimensions



Dimensions

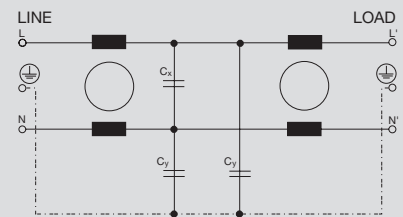
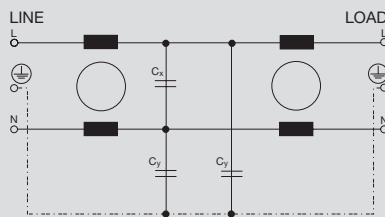


Surge protection for low-voltage supplies

mains filter

WAVEFILTER 1 A 250 V

WAVEFILTER 3 A 250 V



Technical data

Technical data

Rated voltage (AC/DC)
Rated current
Capacitance
Inductance L and L1
Leakage current at Un
Test voltage P/N-PE
Test voltage P-N
Operating temperature, min./max.
Approvals

250 V
1 A
 C_x / C_y : 33nF
10.00 mH
190 μ A
2000.00 V AC
1700.00 V DC
-20 °C/40 °C
cURus

250 V
3 A
 C_x / C_y : 33nF
2.00 mH
190 μ A
2000.00 V AC
1700.00 V DC
-20 °C/40 °C
cURus

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

2.5 / 0.5 / 2.5
90 x 22.5 x 73.4

2.5 / 0.5 / 2.5
90 x 22.5 x 73.4

Note

see attenuation curve

see attenuation curve

Ordering data

Version

Type	Qty.	Order No.
WAVEFILTER 1A	1	8614790000

Type	Qty.	Order No.
WAVEFILTER 3A	1	8614780000

Note

Accessories

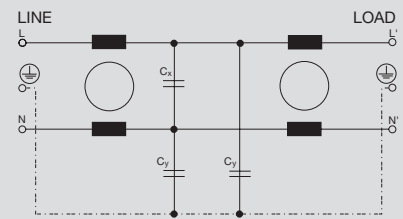
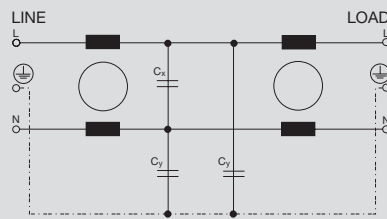
Note

mains filter

WAVEFILTER 6 A 250 V



WAVEFILTER 10 A 250 V



Technical data

Technical data

Rated voltage (AC/DC)
Rated current
Capacitance
Inductance L and L1
Leakage current at U_n
Test voltage P/N-PE
Test voltage P-N
Operating temperature, min./max.
Approvals

[illegible][illegible]

Dimensions

Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm

Note

see attenuation curve

Ordering data

Version	
---------	--

Type	Qty.	Order No.
WAVEFILTER 6A	1	8614800000

Type	Qty.	Order No.
WAVEFILTER 10A	1	8614770000

Note

Accessories

Note

Product quick selection, information technology

Instrumentation and control equipment

Interface/ signal	Mounting	Connection system	Protected wires	Discharge capacity	Operating current	Max. voltage	Protection device	Order No.
				8/20 µs	I _{max}	DC		
0-20 mA, 4-20mA	on DIN rail,separable	screw terminals	2	6 kA	100 mA	24V-230V	LPU 24V-230V 100mA	8008300000-8008380000 + 8007871001
0-20 mA, 4-20mA	on DIN rail,separable	screw terminals	2	6 kA	1.5 A	24V-230V	LPU 24V-230V 1.5A	8008430000-8008460000 + 8007871001
0-20 mA, 4-20mA	on DIN rail,compact	screw terminals	1	5 kA	300 mA	24V-230V	DKU 24-230V 0.3A	8015800000-8019330000
0-20 mA, 4-20mA	on DIN rail,compact	screw terminals	2	5-7 kA	0.3-1 A	24V-230V	DKU DK5/DK6 24V-230V	8238340000-8263760000
0-20 mA, 4-20mA	on DIN rail,compact	tension clamp terminals	2	5 kA	500 mA - 1.25 A	24V-230V	MCZ sp 24V-230V	8448920000-8449080000
Binary signals	on DIN rail,separable	screw terminals	2	6 kA	100 mA	24V-230V	LPU 24V - 230V SL	8008230000-8008280000 + 8007871001
Binary signals	on DIN rail,compact	screw terminals	1	5 kA	300 mA	24V-230V	DKU 24-230V 0.3 A	8015800000-8019330000
Binary signals	on DIN rail,compact	tension clamp terminals	2	5 kA	500 mA - 1.25 A	24V-230V	MCZ sp SL 24V-230V	8448940000-8449090000
PT 100, PT 1000	on DIN rail,separable	screw terminals	2	6 kA	100 mA	24V	LPU 24V 100 mA SL	8008230000+8007871001
PT 100, PT 1000	on DIN rail,compact	tension clamp terminals	2	5 kA	1.25 A	24V	MCZ sp SL 24V1.25A	8448970000
TTL	on DIN rail,separable	screw terminals	2	6 kA	100 mA	24V	LPU 24V 100 mA SL	8008230000+8007871001
TTL	on DIN rail,compact	tension clamp terminals	2	5 kA	0.5 A	24V	MCZ sp SL 24V 0.5A	8448940000
TTY	on DIN rail,separable	screw terminals	2	6 kA	100 mA	24V	LPU 24V 100 mA SL	8008230000+8007871001
TTY	on DIN rail,compact	tension clamp terminals	2	5 kA	0.5 A	24V	MCZ sp SL 24V 0.5A	8448940000
RS 232	on DIN rail,separable	screw terminals	2	6 kA	100 mA	24V	LPU 24V 100 mA SL	8008230000+8007871001
RS 232	on DIN rail,compact	tension clamp terminals	2	5 kA	0.5 A	24V	MCZ sp SL 24V 0.5A	8448940000
RS 232	adapter plug	D-Sub	8	0.5 kA		15V	RS232 adapter plug	8570500000 or 8570510000
RS 232	built-in housing	screw terminals	2	5 kA		15V	EGU4 RS232	1170460000
RS 485	on DIN rail,separable	screw terminals	2	6 kA	100 mA	24V	LPU 24V 100 mA SL	8008230000+8007871001
RS 485	on DIN rail,compact	tension clamp terminals	2	5 kA	0.5 A	24V	MCZ sp SL 24V 0.5A	8448940000
RS 485	built-in housing	screw terminals	4	0.5 kA		12V	RS485/RS422 K21	8008501001
RS 422,V11	on DIN rail,separable	screw terminals	2	6 kA	100 mA	24V	LPU 24V 100 mA SL	8008230000+8007871001
RS 422,V11	on DIN rail,compact	tension clamp terminals	2	5 kA	0.5 A	24V	MCZ sp SL 24V 0.5A	8448940000

Bus systems

Interface/ signal	Mounting	Connection system	Protected wires	Discharge capacity	Operating current	Max. voltage	Protection device	Order No.
				8/20 µs	I _{max}	DC		
ASI	on DIN rail,separable	screw terminals	2	6 kA			PU DS 48V (yellow cable)	8670740000
ASI	on DIN rail,separable	screw terminals	2	6 kA			PU DS 24V8V (black cable)	8682100000
Bitbus	on DIN rail,separable	screw terminals	2	6 kA			RS 485	9454930000+8007871001
CAN Bus	on DIN rail,separable	screw terminals	2	6 kA			RS 485	9454930000+8007871001
Device Net	on DIN rail,separable	screw terminals	2	6 kA	1.5A	12V	RS 485	9454930000+8007871001
Ethernet Cat 5	plug-in adapter	RJ 45 connection	4	2 kA		7V	DME 100Tx-4RJ	8738780000
Ethernet Cat 5	plug-in adapter on DIN rail	RJ 45 connection	4	2 kA		7V	DME 100Tx-4RJ TS 35	8830230000
Ethernet Cat 5	adapter plug	M12	4	10 kA		30V	JACKPAC® Ethernet Cat.5 M12	8805570000
Ethernet Cat 6	combination adapter	RJ 45 connection	4	5 kA		30V	PU D ZS 230V16A Cat.6	8805530000
Ethernet Cat 6	adapter plug	RJ 45 connection	4	10 kA		48V	JACKPAC® Ethernet Cat.6 IP20	8805550000
Ethernet Cat 6	adapter plug	RJ 45 connection	4	10 kA		48V	JACKPAC® Ethernet Cat.6 IP67	8805560000
Interbus-Inline I/O	on DIN rail,separable	screw terminals	2	6 kA		53V	LPU 48V 1.5A	8008440000+8007871001
Interbus-Inline I/O	on DIN rail,compact	tension clamp terminals	2	10 kA	1.25A	53V	MCZ sp CL 48V 1.25A	8449040000
LON TP/XF 78	on DIN rail,separable	screw terminals	2	6 kA	1.5A	27V	LPU 24V 1.5 A	8008430000+8007871001
LON TP/XF 78	on DIN rail,compact	tension clamp terminals	2	10 kA	0.5A	28V	MCZ sp CL 24V 0.5A	8448920000
LON TP/XF 78	on DIN rail,compact	tension clamp terminals	2	0.1kA	16A	14V	MCZ sp LON bus	8473470000
TP/FTT 10+TP/LPT10	on DIN rail,separable	screw terminals	2	6 kA		53V	LPU 48V 1.5A	8008440000+8007871001
TP/FTT 10+TP/LPT10	on DIN rail,compact	tension clamp terminals	2	10 kA	1.25A	53V	MCZ sp CL 48V 1.25A	8449040000
Termination	on DIN rail,compact	screw terminals	2			60V	Dialoc bus terminator	8496110000
Profibus DP/FMS	on DIN rail,separable	screw terminals	2	6 kA	1.5A	12V	RS 485	9454930000+8007871001
Profibus PA	on DIN rail,separable	screw terminals	2	6 kA		53V	LPU 48V 1.5A	8008440000+8007871001
Profibus PA	on DIN rail,compact	tension clamp terminals	2	10 kA	1.25A	53V	MCZ sp CL 48V 1.25A	8449040000
Sinec L2 DP/ ~Profibus DP	on DIN rail,separable	screw terminals	2	6 kA	1.5A	12V	RS 485	9454930000+8007871001
Token Ring	on DIN rail,compact	tension clamp terminals	2	0.5kA	16A	27V	MCZ sp TAZ 24V	8449160000

Telecommunication

Interface/ signal	Mounting	Connection system	Protected wires	Discharge capacity	Operating current	Max. voltage	Protection device	Order No.
				8/20 μ s	I _{max.}	DC		
ADSL, T-DSL	on DIN rail, compact	screw terminals	2	20 kA		135V	Dk4/35 U gas discharge tube 230V	9400120000
ADSL, T-DSL	adapter plug	RJ 45	2	5 kA		190V	PU D ZS Uk0	8697570000
ISDN (S0)	in installation boxes	TAE	2	4 kA		190V	TAE sp ISDN	8674000000
ISDN (S0)	in installation boxes	TAE	2	4 kA		190V	TAE sp ISDN LED	8674010000
ISDN (S0)	in installation boxes	TAE	2	4 kA		190V	TAE sp ISDN FM	8673970000
ISDN (S0)	adapter plug	RJ 45	4	4 kA		190V	PU D ZS S0	8697560000
ISDN (Uk0)	on DIN rail, compact	screw terminals	2	20 kA		135V	Dk4/35 U gas discharge tube 230V	9400120000
ISDN (Uk0)	adapter plug	RJ 45	2	4 kA		190V	PU D ZS UK0	8697570000
ISDN (Uk0)	in installation boxes	TAE	2	4 kA		190V	TAE sp ISDN	8674000000
ISDN (Uk0)	in installation boxes	TAE	2	4 kA		190V	TAE sp ISDN LED	8674010000
ISDN (Uk0)	in installation boxes	TAE	2	4 kA		190V	TAE sp ISDN FM	8673970000
Telephone analogue	in installation boxes	TAE	2	4 kA		190V	TAE sp analogue	8673980000
Telephone analogue	in installation boxes	TAE	2	4 kA		190V	TAE sp analogue LED	8674020000
Telephone analogue	in installation boxes	TAE	2	4 kA		190V	TAE sp analogue FM	8649910000

Power supplies

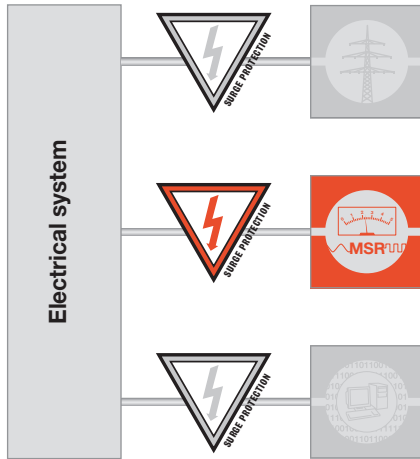
Interface/ signal	Mounting	Connection system	Protected wires	Discharge capacity	Operating current	Max. voltage	Protection device	Order No.
				8/20 μ s	I _{max.}	DC		
24V 6A	clip-on base profiles	screw terminals	2	24 kA	6A	27V	RSU 24V 6A	1171361001
115V 6A	clip-on base profiles	screw terminals	2	24 kA	6A	130V	RSU 115V 6A	1171561001
230V 6A	clip-on base profiles	screw terminals	2	24 kA	6A	250V	RSU 230V 6A	1171661001
24V 10A	clip-on base profiles	screw terminals	2	24 kA	10A	27V	RSU 24V 10A	8104201001
115V 10A	clip-on base profiles	screw terminals	2	24 kA	10A	130V	RSU 115V 10A	8104221001
230V 10A	clip-on base profiles	screw terminals	2	24 kA	10A	250V	RSU 230V 10A	8093281001

TV/radio

Interface/ signal	Mounting	Connection system	Protected wires	Discharge capacity	Operating current	Max. voltage	Protection device	Order No.
				8/20 μ s	I _{max.}	DC		
TV/radio	adapter plug	BNC	2	5 kA	16A	70V	PU D ZS TV/R	8779230000

F

Surge protection for instrumentation and control equipment



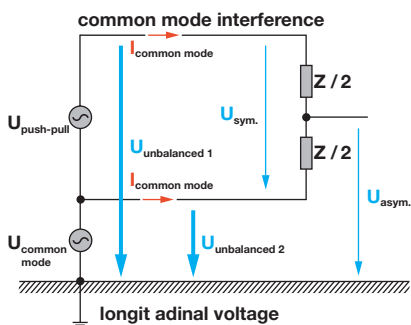
important areas in which breakdowns or malfunctions can lead to high costs. As the standards covering the low control voltages do not specify many parameters, the use of surge protection, apart from lightning protection zoning concepts, has to be classified according to type of signal, application circuit and the anticipated interference voltage phenomena.

Types of interference voltage

The transient surges coupled into a system via one or more coupling mechanisms occur as normal- or common-mode interference. These are measured as longitudinal or transverse voltages and, depending on the circuit, designated as symmetrical or asymmetrical voltages. (For further information see the “Principles” chapter.)

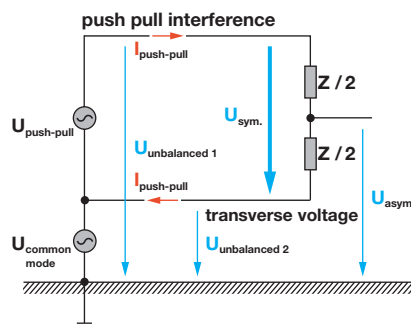
Basic classification

The current scope of automation technology results in a wide range of applications for surge protection in the field of instrumentation and control engineering. Of course, one important prerequisite is the consistent use of coordinated surge protection in all sections of the plant or building. In industry, instrumentation and control systems are



Common-mode interference (asymmetrical interference):

Common-mode voltage between conductor and reference potential. (earth) / Mainly caused by capacitive coupling (electrical field)



Normal-mode interference (symmetrical interference):

Normal-mode voltage between supply and return conductor Load and interference source connected in series, e.g. inductive (magnetic field) or conductive coupling (common impedance)

Types of signal

Binary signals

These are two-wire signals with a common reference potential which are required by, for example, switches, PLC switch outputs, photoelectric barriers, position sensors, solenoid valves, warning lamps, PLC inputs, etc. Normally, these signals have a common reference potential that can be either connected or not connected to earth potential depending on the type of protection. The coupled transient interference is primarily common-mode interference.

Analogue signals

Measuring circuits are normally designed as two-wire current loops or voltage signals without a common reference potential, like the 0(4)...20 mA current loop.

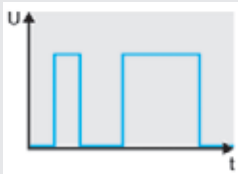
The coupled transient interference is primarily normal-mode interference. For temperature measurements with the PT100 measuring shunt in the three-wire version, the voltage drop at the shunt is measured via the third wire. This must be included in the system of protection.

The PT100 measuring shunt is also available in a four-wire version in which the voltage drop at the shunt is measured via the two additional lines without additional line losses in the PT100 measuring circuit. The coupled transient normal-mode interference occurs between the various wires.

Class III, varistor

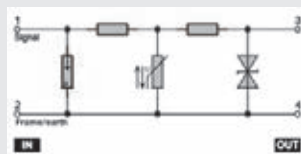


Binary signals

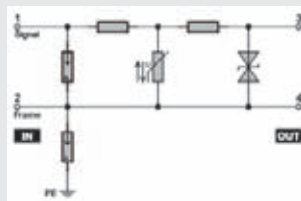


Two-wire, usually with common reference potential, e.g. signals from binary sensors, actuators and indicators such as limit switches, probes, position sensors, photoelectric barriers, contactors, solenoid valves, warning lamps.

Protection for binary signals connected to earth potential



Protection for binary signals not connected to earth potential



Type

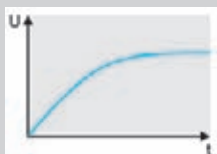
MCZ ovp symm., 2 signal paths
MCZ ovp GDT, MOV, TAZ, 1 signal path
DKU, 1 signal path
DK4U
EGU 1, 1 signal path
EGU 2, 1 signal path
EGU 3
EGU 4 symm., 2 signal paths
LPU symm., 2 signal paths
JACKPAC®, IP67
RSU

LPU, non-earthed
Surge protection with
ATEX approval

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Analogue signals



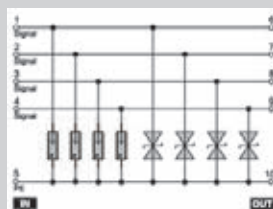
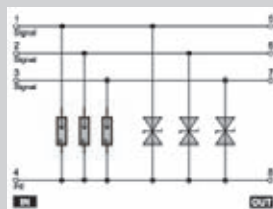
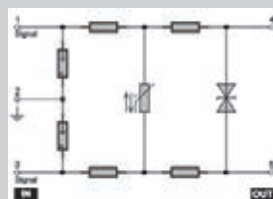
Two-, three- and four-wire versions without common reference potential



Signals from current loops (analogue measurements from sensors over long distances), 4...20 mA, 0...20 mA, etc., e.g. level measurements

Signals from voltage sensors (analogue measurements from sensors over short distances), 0...10 V, PT100, etc., e.g. temperature measurements

Protection for two-, three- and four-wire versions



MCZ SP CL
DK5U
DK6U
EGU 3 for current loops
EGU 4 for current loops
JACKPAC®, IP67
RSU 6 A / RSU 10 A
LPU for current loops

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Slim Surge protection terminals for instrumentation and control engineering

Weidmüller MCZ sp surge protection terminals are characterised by their high level of protection concentrated in a compact space of 6 mm. The tension spring connection and direct earthing via the terminal rail contact results in time-savings during installation. The MCZ sp terminals are suitable for installing in the narrowest of places in automated process, industrial and building services systems.

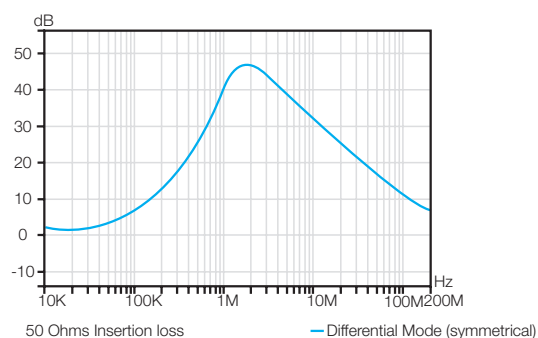


The three-stage surge protection terminals are fitted with gas discharge tubes, varistors, suppression diodes (TAZ) and decoupling inductors. Individual protective components such as varistors and suppression diodes complement the range.

The MCZ sp surge protection terminals are available with rated voltages of 24, 48, 115 and 230 V. The response time for the 3-stage MCZsp is typically 100 ps. The earth contact is produced by clipping the terminal to an earthed terminal rail. To guarantee a safe energy discharge of up to

10 kA (8/20 μ s) via these terminals, the TS 35 rail must therefore be earthed. EMC regulations require the terminal rail to be securely screwed to an earthed mounting plate. Optimum protection is achieved when the PE contact is made via a tension spring terminal every 600 mm.

Attenuation chart MCZ sp Filter



The different models

MCZ sp CL is a three-stage protective combination with a suppression diode between the current paths. It limits the surge in analogue signal circuits, e.g. current loops.

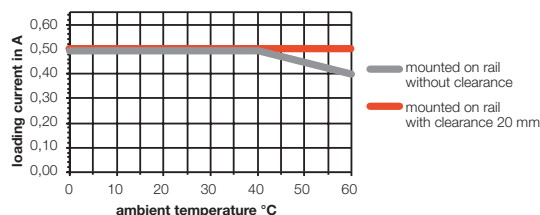
MCZ sp SL is a three-stage protective combination with two suppression diodes, each from the signal line to earth. It limits the surge in binary circuits, e.g. for actuators.

MCZ sp CL FG is a three-stage protective combination with a suppression diode between the current paths. It limits the surge in analogue signal circuits. A high-resistance earth connection is achieved with a gas discharge tube.

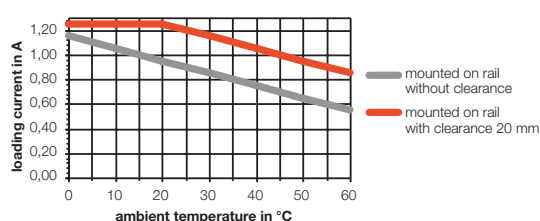
MCZ sp SL FG is a three-stage protective combination with two suppression diodes, each from the signal line to earth. It limits the surge in binary circuits, e.g. for actuators. A high-resistance earth connection is achieved with three gas discharge tubes.

MCZ sp filter terminals contain selected varistors, capacitors and series inductances. They form reliable noise filters. Coupled interference in the kHz range is safely discharged to earth. For example, the signal inputs of a PLC, which can be protected against interference voltages and RF interference.

Derating curve MCZ sp Filter



Derating curve MCZ sp Filter

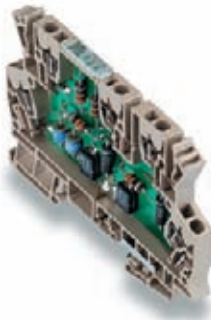


3- or 1-stage protection with tension clamp connection

- Slimline surge protection terminal with tension clamp connection
- 6 mm Slimline fine surge protection
- fast wiring thanks to TS contact and tension clamp connections
- can be cross-connected using ZQV

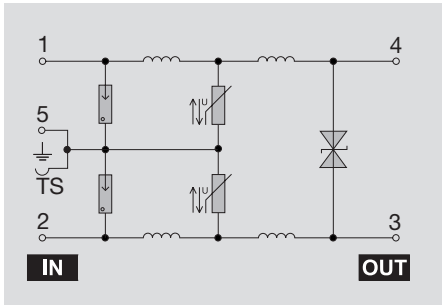
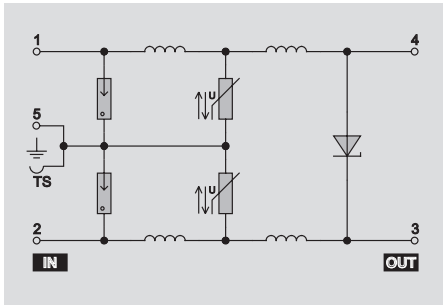
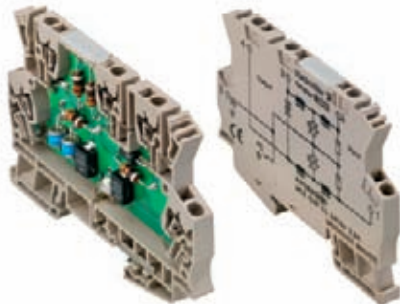
MCZ SP CL 24 V DC 0.5 A

Protection for current loops



MCZ SP CL 24 V AC 0.5 A

Protection for current loops



Technical data

Technical data

Rated voltage (AC)
Rated voltage (DC)
max. continuous current, I_c (AC)
Operating current, I_{max}
Volume resistivity
Gas discharge tube
Varistor
Suppression diodes
Cut-off frequency (-3 dB) at load impedance
Discharge current, max. (8/20 μ s)
Protection level on output side sym., input 1 kV/ μ s, typ.
Protection level on output side sym., input 8/20 μ s, typ.
Protection level on output side unsym., input 1kV/ μ s, typ.
Protection level on output side unsym., input 8/20 μ s, typ.
Protection level on output side sym., input 10/350 μ s, typ.
Protection level on output side unsym., input 10/350 μ s, typ.
Lightning test voltage I_{imp} (10/350 μ s)
Specification class to IEC 61643-21
Design
Storage temperature, min./max.
Operating temperature, min./max.
Approvals

24 V
28 V
0.5 A
2.50 Ω
yes
yes
yes
500.0 kHz 240 Ω
5 kA
40 V
65 V
40 V
45 V
65 V
1 kA
D1
terminal
-25 °C/85 °C
-25 °C/60 °C
CE;UL listed

24 V
28 V
38 V
0.5 A
1.00 Ω
yes
yes
yes
500.0 kHz 240 Ω
5 kA
45 V
70 V
45 V
70 V
48 V
88 V
1 kA
D1
terminal
-25 °C/85 °C
-25 °C/60 °C
CE;UL listed

Dimensions

Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm

Note

tension clamp connection

1.5 / 0.5 / 1.5
91 x 6 x 63.5

see derating curve

tension clamp connection

1.5 / 0.5 / 1.5
91 x 6 x 63.5

see derating curve

Ordering data

Version

Type	Qty.	Order No.
MCZ OVP CL 24VDC 0,5A	10	8448920000

Note

Type	Qty.	Order No.
MCZ OVP CL 24VAC 0,5A	10	8472880000

Accessories

Note

End plate
AP MCZ 1.5: 8389030000

End plate
AP MCZ 1.5: 8389030000

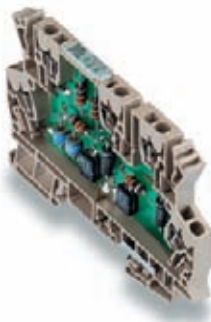
Surge protection for instrumentation and control systems

3- or 1-stage protection with tension clamp connection

- Slimline surge protection terminal with tension clamp connection
- 6 mm Slimline fine surge protection
- fast wiring thanks to TS contact and tension clamp connections
- can be cross-connected using ZQV

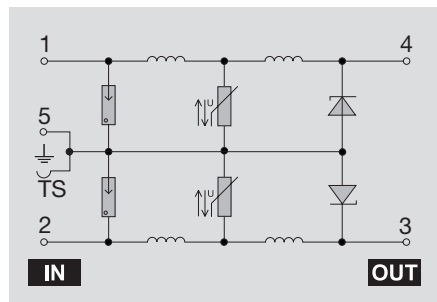
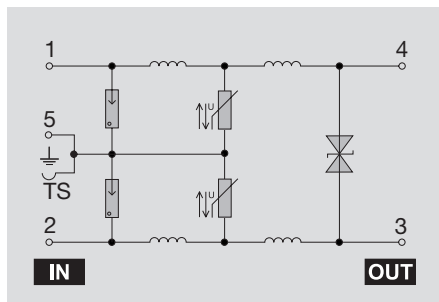
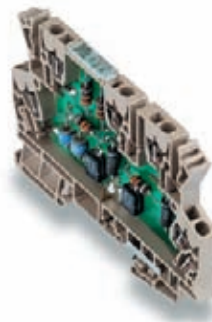
MCZ SP CL 24 V UC 1.25 A

Protection for current loops



MCZ SP SL 24 V DC 0.5 A

Protection for binary signals



Technical data

Technical data

Rated voltage (AC)	24 V
Rated voltage (DC)	24 V
max. continuous current, I_c (AC)	27 V
Operating current, I_{max}	1.3 A
Volume resistivity	1.00 Ω
Gas discharge tube	yes
Varistor	yes
Suppression diodes	yes
Cut-off frequency (-3 dB) at load impedance	500.0 kHz 240 Ω
Discharge current, max. (8/20 μ s)	5 kA
Protection level on output side sym., input 1 kV/ μ s, typ.	80 V
Protection level on output side sym., input 8/20 μ s, typ.	130 V
Protection level on output side unsym., input 1 kV/ μ s, typ.	40 V
Protection level on output side unsym., input 8/20 μ s, typ.	65 V
Protection level on output side sym., input 10/350 μ s, typ.	58 V
Protection level on output side unsym., input 10/350 μ s, typ.	76 V
Lightning test voltage I_{imp} (10/350 μ s)	1 kA
Specification class to IEC 61643-21	D1
Design	terminal
Storage temperature, min./max.	-25 °C/85 °C
Operating temperature, min./max.	-25 °C/60 °C
Approvals	CE;UL listed

Dimensions

Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm

Note

tension clamp connection

1.5 / 0.5 / 1.5
91 x 6 x 63.5

see derating curve

Ordering data

Version

Type	Qty.	Order No.
MCZ OVP CL 24VUC 1,25A	10	8448960000

Note

tension clamp connection

1.5 / 0.5 / 1.5
91 x 6 x 63.5

see derating curve

Type	Qty.	Order No.
MCZ OVP SL 24VDC 0,5A	10	8448940000

Accessories

Note

End plate
AP MCZ 1.5: 8389030000

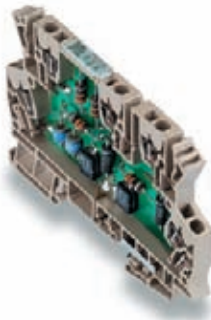
End plate
AP MCZ 1.5: 8389030000

3- or 1-stage protection with tension clamp connection

- Slimline surge protection terminal with tension clamp connection
- 6 mm Slimline fine surge protection
- fast wiring thanks to TS contact and tension clamp connections
- can be cross-connected using ZQV

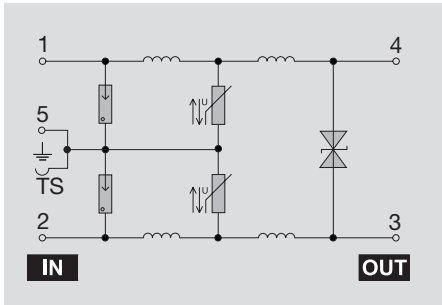
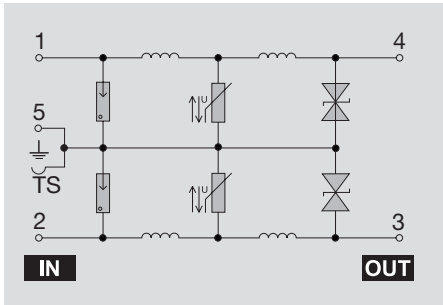
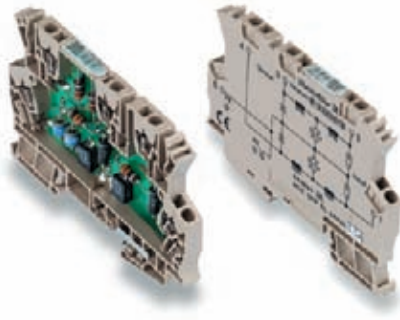
MCZ SP SL 24 V UC 1.25 A

Protection for binary signals



MCZ SP CL 48 V UC 0.5 A

Protection for current loops



Technical data

Technical data	
Rated voltage (AC)	24 V
Rated voltage (DC)	24 V
max. continuous current, I_c (AC)	28 V
Operating current, I_{max}	1.3 A
Volume resistivity	1.00 Ω
Gas discharge tube	yes
Varistor	yes
Suppression diodes	yes
Cut-off frequency (-3 dB) at load impedance	500.0 kHz 240 Ω
Discharge current, max. (8/20 μ s)	5 kA
Protection level on output side sym., input 1 kV/ μ s, typ.	80 V
Protection level on output side sym., input 8/20 μ s, typ.	130 V
Protection level on output side unsym., input 1kV/ μ s, typ.	40 V
Protection level on output side unsym., input 8/20 μ s, typ.	65 V
Protection level on output side sym., input 10/350 μ s, typ.	108 V
Protection level on output side unsym., input 10/350 μ s, typ.	56 V
Lightning test voltage I_{imp} (10/350 μ s)	1 kA
Specification class to IEC 61643-21	D1
Design	terminal
Storage temperature, min./max.	-25 °C/85 °C
Operating temperature, min./max.	-25 °C/60 °C
Approvals	CE;UL listed

Dimensions	
Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm
Note	

Ordering data

Version

Accessories

Note

24 V
24 V
28 V
1.3 A
1.00 Ω
yes
yes
yes
500.0 kHz 240 Ω
5 kA
80 V
130 V
40 V
65 V
108 V
56 V
1 kA
D1
terminal
-25 °C/85 °C
-25 °C/60 °C
CE;UL listed

tension clamp connection	
1.5 / 0.5 / 1.5	
91 x 6 x 63.5	
see derating curve	

Type	Qty.	Order No.
MCZ OVP SL 24VUC 1,25A	10	8448970000

End plate
AP MCZ 1.5: 8389030000

48 V
48 V
53 V
0.5 A
2.50 Ω
yes
yes
yes
500.0 kHz 240 Ω
5 kA
82 V
150 V
80 V
150 V
149 V
223 V
2.5 kA
D1
terminal
-25 °C/85 °C
-25 °C/60 °C
CE;UL listed

tension clamp connection	
1.5 / 0.5 / 1.5	
91 x 6 x 63.5	
see derating curve	

Type	Qty.	Order No.
MCZ OVP CL 48VUC 0,5A	10	8449000000

End plate
AP MCZ 1.5: 8389030000

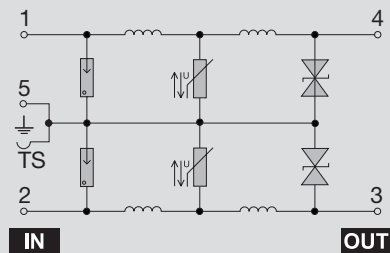
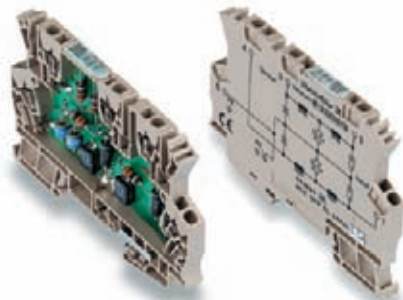
Surge protection for instrumentation and control systems

3- or 1-stage protection with tension clamp connection

- Slimline surge protection terminal with tension clamp connection
- 6 mm Slimline fine surge protection
- fast wiring thanks to TS contact and tension clamp connections
- can be cross-connected using ZQV

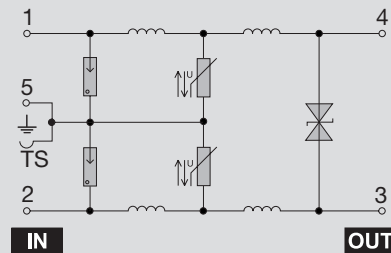
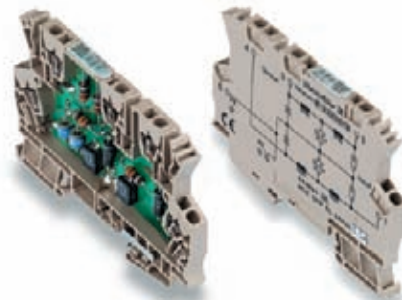
MCZ SP SL 48 V UC 0.5 A

Protection for binary signals



MCZ SP CL 48 V UC 1.25 A

Protection for current loops



Technical data

Technical data

Rated voltage (AC)	48 V
Rated voltage (DC)	48 V
max. continuous current, I_{UC} (AC)	53 V
Operating current, I_{max}	0.5 A
Volume resistivity	2.50 Ω
Gas discharge tube	yes
Varistor	yes
Suppression diodes	yes
Cut-off frequency (-3 dB) at load impedance	500.0 kHz 240 Ω
Discharge current, max. (8/20 μ s)	5 kA
Protection level on output side sym., input 1 kV/ μ s, typ.	160 V
Protection level on output side sym., input 8/20 μ s, typ.	300 V
Protection level on output side unsym., input 1 kV/ μ s, typ.	82 V
Protection level on output side unsym., input 8/20 μ s, typ.	150 V
Protection level on output side sym., input 10/350 μ s, typ.	145 V
Protection level on output side unsym., input 10/350 μ s, typ.	81 V
Lightning test voltage I_{imp} (10/350 μ s)	1 kA
Specification class to IEC 61643-21	D1
Design	terminal
Storage temperature, min./max.	-25 °C/85 °C
Operating temperature, min./max.	-25 °C/60 °C
Approvals	CE;UL listed

Dimensions

Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm

Note

tension clamp connection

1.5 / 0.5 / 1.5
91 x 6 x 63.5

see derating curve

tension clamp connection

1.5 / 0.5 / 1.5
91 x 6 x 63.5

see derating curve

Ordering data

Version

Type	Qty.	Order No.
MCZ OVP SL 48VUC 0,5A	10	8449030000

Note

Type	Qty.	Order No.
MCZ OVP CL 48VUC 1,25A	10	8449040000

Accessories

Note

End plate
AP MCZ 1.5: 8389030000

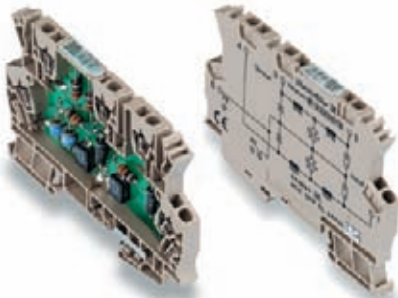
End plate
AP MCZ 1.5: 8389030000

3- or 1-stage protection with tension clamp connection

- Slimline surge protection terminal with tension clamp connection
- 6 mm Slimline fine surge protection
- fast wiring thanks to TS contact and tension clamp connections
- can be cross-connected using ZQV

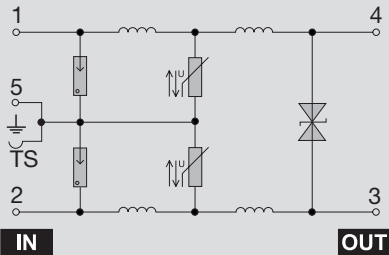
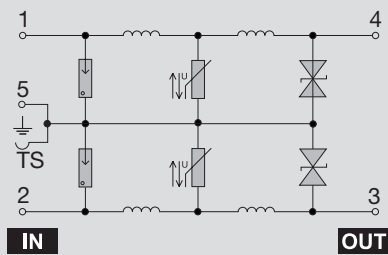
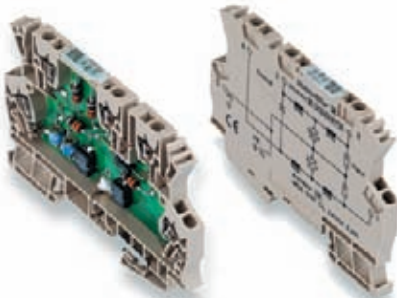
MCZ SP SL 48 V UC 1.25 A

Protection for binary signals



MCZ SP CL 115 V UC 1.25 A

Protection for current loops



Technical data

Technical data

Rated voltage (AC)
Rated voltage (DC)
max. continuous current, I_{uc} (AC)
Operating current, I_{max}
Volume resistivity
Gas discharge tube
Varistor
Suppression diodes
Cut-off frequency (-3 dB) at load impedance
Discharge current, max. (8/20 μ s)
Protection level on output side sym., input 1 kV/ μ s, typ.
Protection level on output side sym., input 8/20 μ s, typ.
Protection level on output side unsym., input 1 kV/ μ s, typ.
Protection level on output side unsym., input 8/20 μ s, typ.
Protection level on output side sym., input 10/350 μ s, typ.
Protection level on output side unsym., input 10/350 μ s, typ.
Lightning test voltage I_{imp} (10/350 μ s)
Specification class to IEC 61643-21
Design
Storage temperature, min./max.
Operating temperature, min./max.
Approvals

48 V
48 V
53 V
1.3 A
1.00 Ω
yes
yes
yes
500.0 kHz 240 Ω
5 kA
160 V
300 V
80 V
150 V
197 V
119 V
2.5 kA
D1
terminal
-25 °C/85 °C
-25 °C/60 °C
CE;UL listed

115 V
115 V
127 V
1.3 A
1.00 Ω
yes
yes
yes
500.0 kHz 240 Ω
5 kA
220 V
360 V
220 V
360 V
228 V
234 V
1 kA
D1
terminal
-25 °C/85 °C
-25 °C/60 °C
CE;

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

tension clamp connection

1.5 / 0.5 / 1.5
91 x 6 x 63.5
see derating curve

tension clamp connection

1.5 / 0.5 / 1.5
91 x 6 x 63.5
see derating curve

Ordering data

Version

Type	Qty.	Order No.
MCZ OVP SL 48VUC 1,25A	10	8449050000

Type	Qty.	Order No.
MCZ OVP CL 115VUC 1,25A	10	8449060000

Note

Accessories

Note

End plate
AP MCZ 1.5: 8389030000

End plate
AP MCZ 1.5: 8389030000

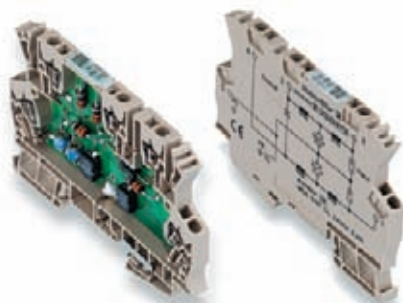
Surge protection for instrumentation and control systems

3- or 1-stage protection with tension clamp connection

- Slimline surge protection terminal with tension clamp connection
- 6 mm Slimline fine surge protection
- fast wiring thanks to TS contact and tension clamp connections
- can be cross-connected using ZQV

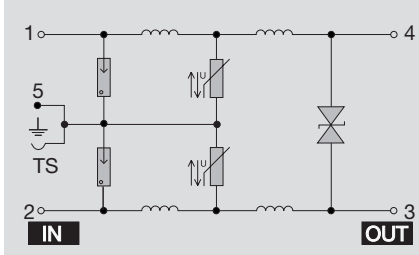
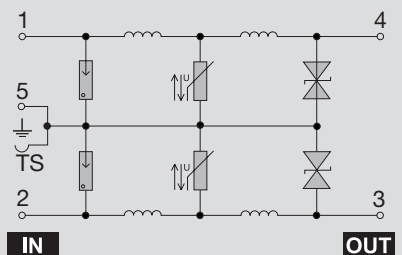
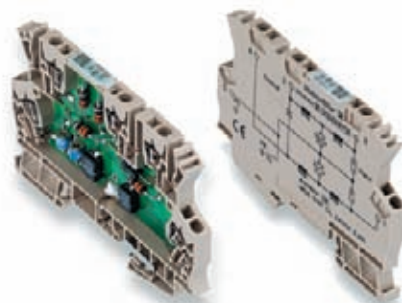
MCZ SP SL 115 V UC 1.25 A

Protection for binary signals



MCZ SP CL 230 V UC 1.25 A

Protection for current loops



Technical data

Technical data

Rated voltage (AC)	115 V
Rated voltage (DC)	115 V
max. continuous current, I_{UC} (AC)	127 V
Operating current, I_{max}	1.3 A
Volume resistivity	1.00 Ω
Gas discharge tube	yes
Varistor	yes
Suppression diodes	yes
Cut-off frequency (-3 dB) at load impedance	500.0 kHz 240 Ω
Discharge current, max. (8/20 μ s)	5 kA
Protection level on output side sym., input 1 kV/ μ s, typ.	440 V
Protection level on output side sym., input 8/20 μ s, typ.	720 V
Protection level on output side unsym., input 1 kV/ μ s, typ.	220 V
Protection level on output side unsym., input 8/20 μ s, typ.	360 V
Protection level on output side sym., input 10/350 μ s, typ.	249 V
Protection level on output side unsym., input 10/350 μ s, typ.	322 V
Lightning test voltage I_{imp} (10/350 μ s)	2.5 kA
Specification class to IEC 61643-21	D1
Design	terminal
Storage temperature, min./max.	-25 °C/85 °C
Operating temperature, min./max.	-25 °C/60 °C
Approvals	CE;

Dimensions

Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm

Note

tension clamp connection

1.5 / 0.5 / 1.5
91 x 6 x 63.5

see derating curve

tension clamp connection

1.5 / 0.5 / 1.5
91 x 6 x 63.5

see derating curve

Ordering data

Version

Type	Qty.	Order No.
MCZ OVP SL 115VUC 1,25A	10	8449070000

Type	Qty.	Order No.
MCZ OVP CL 230VUC 1,25A	10	8449080000

Note

Accessories

Note

End plate
AP MCZ 1.5: 8389030000

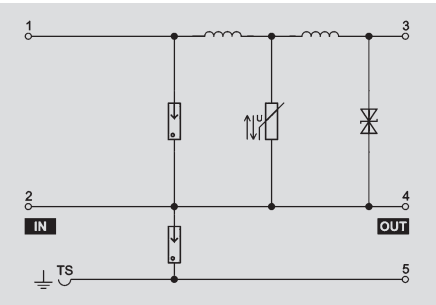
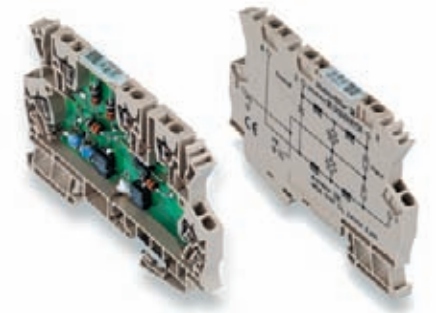
End plate
AP MCZ 1.5: 8389030000

3- or 1-stage protection with tension clamp connection

- Slimline surge protection terminal with tension clamp connection
- 6 mm Slimline fine surge protection
- fast wiring thanks to TS contact and tension clamp connections
- can be cross-connected using ZQV

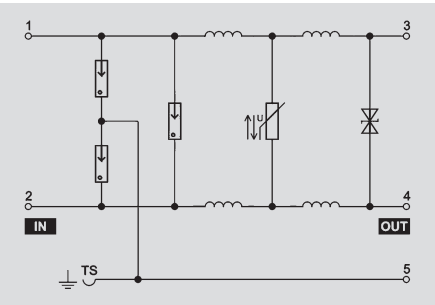
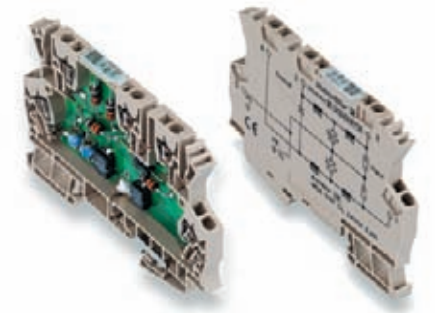
MCZ SL FG 24 V AC 0.5 A

not earthed



MCZ CL FG 24 V AC 0.5 A

not earthed



Technical data

Technical data

Rated voltage (AC)
24 V
Rated voltage (DC)
28 V
max. continuous current, I_{uc} (AC)
0.5 A
Operating current, I_{max}
1.00 Ω
Volume resistivity
Gas discharge tube
90 V / 10 kA
Varistor
30 V
Suppression diodes
Cut-off frequency (-3 dB) at load impedance
500.0 kHz / 240 Ω
Discharge current, max. (8/20 μ s)
5 kA
Protection level on output side sym., input 1 kV/ μ s, typ.
40 V
Protection level on output side sym., input 8/20 μ s, typ.
65 V
Protection level on output side unsym., input 1kV/ μ s, typ.
40 V
Protection level on output side unsym., input 8/20 μ s, typ.
65 V
Protection level on output side sym., input 10/350 μ s, typ.
56 V
Protection level on output side unsym., input 10/350 μ s, typ.
812 V
Lightning test voltage I_{imp} (10/350 μ s)
1 kA
Specification class to IEC 61643-21
D1
Design
terminal
Storage temperature, min./max.
-25 °C/85 °C
Operating temperature, min./max.
-25 °C/60 °C
Approvals
CE;UL listed

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

Ordering data

Version

Note

Accessories

Note

tension clamp connection

1.5 / 0.5 / 1.5
91 x 6 x 63.5

see derating curve

Type	Qty.	Order No.
MCZ OVP SL FG 24VUC 0,5A	10	8823280000

Note

End plate
AP MCZ 1.5: 8389030000

tension clamp connection

1.5 / 0.5 / 1.5
91 x 6 x 63.5

see derating curve

Type	Qty.	Order No.
MCZ OVP CL FG 24VUC 0,5A	10	8704240000

Note

End plate
AP MCZ 1.5: 8389030000

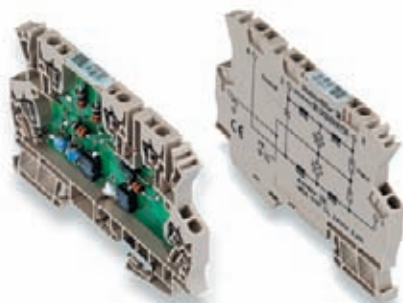
Surge protection for instrumentation and control systems

3- or 1-stage protection with tension clamp connection

- Slimline surge protection terminal with tension clamp connection
- 6 mm Slimline fine surge protection
- fast wiring thanks to TS contact and tension clamp connections
- can be cross-connected using ZQV

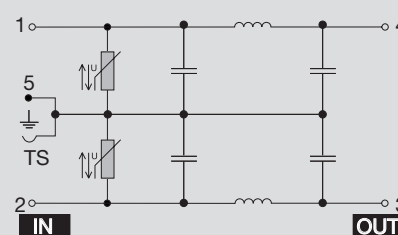
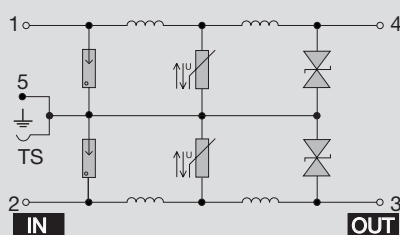
MCZ SP SL 230 V UC 1.25 A

Protection for binary signals



MCZ SP 24 V 0.5 A

Filter



Technical data

Technical data

Rated voltage (AC)	230 V
Rated voltage (DC)	230 V
max. continuous current, I _c (AC)	250 V
Operating current, I _{max}	1.3 A
Volume resistivity	1.00 Ω
Gas discharge tube	yes
Varistor	yes
Suppression diodes	yes
Cut-off frequency (-3 dB) at load impedance	500.0 kHz 240 Ω
Discharge current, max. (8/20 μs)	5 kA
Protection level on output side sym., input 1 kV/μs, typ.	840 V
Protection level on output side sym., input 8/20 μs, typ.	1420 V
Protection level on output side unsym., input 1 kV/μs, typ.	420 V
Protection level on output side unsym., input 8/20 μs, typ.	710 V
Protection level on output side sym., input 10/350 μs, typ.	
Protection level on output side unsym., input 10/350 μs, typ.	
Lightning test voltage I _{imp} (10/350 μs)	< 0.5 kA>
Specification class to IEC 61643-21	D1
Design	terminal
Storage temperature, min./max.	-25 °C/85 °C
Operating temperature, min./max.	-25 °C/60 °C
Approvals	CE;

Dimensions

Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm

Note

tension clamp connection

1.5 / 0.5 / 1.5
91 x 6 x 63.5

see derating curve

24 V
24 V
26.4 V
0.5 A
1.50 Ω
no
yes
no
50.0 kHz 50 Ω
0.5 kA
140 V
190 V
70 V
100 V

terminal
-25 °C/85 °C
-25 °C/60 °C
CE;

tension clamp connection

1.5 / 0.5 / 1.5
91 x 6 x 63.5

see derating curve

Ordering data

Version

Type	Qty.	Order No.
MCZ OVP SL 230VUC 1,25A	10	8449090000

Type	Qty.	Order No.
MCZ OVP FILTER 24V 0,5A	10	8449100000

Note

Accessories

Note

End plate AP MCZ 1.5: 8389030000

End plate AP MCZ 1.5: 8389030000

3- or 1-stage protection with tension clamp connection

- Slimline surge protection terminal with tension clamp connection
- 6 mm Slimline fine surge protection
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- can be cross-connected using ZQV

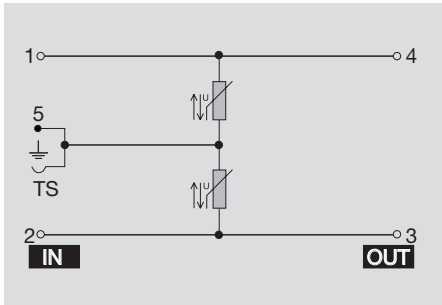
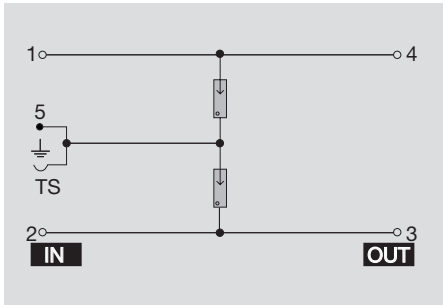
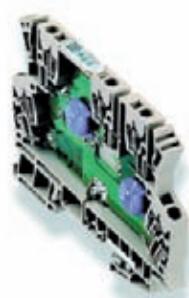
MCZ SP 90 V

Gas discharge tube



MCZ SP S10K30

Varistor S10K30



Technical data

Technical data	
Rated voltage (AC)	50 V
Rated voltage (DC)	70 V
max. continuous current, I _{uc} (AC)	72 V
Operating current, I _{max}	16 A
Volume resistivity	0.20 Ω
Gas discharge tube	90 V / 10 kA
Varistor	no
Suppression diodes	no
Cut-off frequency (-3 dB) at load impedance	
Discharge current, max. (8/20 μs)	5 kA
Protection level on output side sym., input 1 kV/μs, typ.	700 V
Protection level on output side sym., input 8/20 μs, typ.	800 V
Protection level on output side unsym., input 1kV/μs, typ.	700 V
Protection level on output side unsym., input 8/20 μs, typ.	800 V
Protection level on output side sym., input 10/350 μs, typ.	763 V
Protection level on output side unsym., input 10/350 μs, typ.	782 V
Lightning test voltage I _{imp} (10/350 μs)	1 kA
Specification class to IEC 61643-21	D1
Design	terminal
Storage temperature, min./max.	-25 °C/85 °C
Operating temperature, min./max.	-25 °C/60 °C
Approvals	CE;UL listed

Dimensions	
Clamping range (rating- / min. / max.)	mm²
Length x width x height	mm

Note

tension clamp connection	
1.5 / 0.5 / 1.5	
91 x 6 x 63.5	

see derating curve

tension clamp connection	
1.5 / 0.5 / 1.5	
91 x 6 x 63.5	

see derating curve

Ordering data

Version

Type	Qty.	Order No.
MCZ OVP Gas charge eliminator 90V	10	8449130000

Type	Qty.	Order No.
MCZ OVP VARISTOR S10K30	10	8449140000

Note

Accessories

Note

End plate AP MCZ 1.5: 8389030000

End plate AP MCZ 1.5: 8389030000

Surge protection for instrumentation and control systems

3- or 1-stage protection with tension clamp connection

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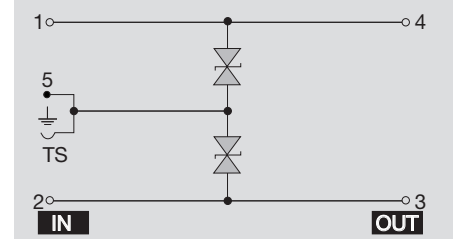
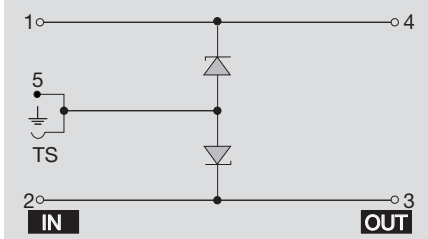
MCZ SP TAZ 24 V DC

Diode unipolar



MCZ SP TAZ 24 V UC

Diode bipolar



Technical data

Technical data

Rated voltage (AC)
 Rated voltage (DC)
 max. continuous current, I_c (AC)
 Operating current, I_{max}
 Volume resistivity
 Gas discharge tube
 Varistor
 Suppression diodes
 Cut-off frequency (-3 dB) at load impedance
 Discharge current, max. (8/20 μ s)
 Protection level on output side sym., input 1 kV/ μ s, typ.
 Protection level on output side sym., input 8/20 μ s, typ.
 Protection level on output side unsym., input 1 kV/ μ s, typ.
 Protection level on output side unsym., input 8/20 μ s, typ.
 Protection level on output side sym., input 10/350 μ s, typ.
 Protection level on output side unsym., input 10/350 μ s, typ.
 Lightning test voltage I_{imp} (10/350 μ s)
 Specification class to IEC 61643-21
 Design
 Storage temperature, min./max.
 Operating temperature, min./max.
 Approvals

24 V
 30 V
 16 A
 0.20 Ω
 no
 no
 yes
 112 A
 55 V
 65 V
 55 V
 65 V
 terminal
 -25 °C/85 °C
 -25 °C/60 °C
 CE;UL listed

24 V
 27 V
 27 V
 16 A
 0.20 Ω
 no
 no
 yes
 0.5 kA
 55 V
 65 V
 110 V
 130 V
 terminal
 -25 °C/85 °C
 -25 °C/60 °C
 CE;UL listed

Dimensions

Clamping range (rating- / min. / max.) mm²
 Length x width x height mm

Note

tension clamp connection

1.5 / 0.5 / 1.5
 91 x 6 x 63.5

see derating curve

tension clamp connection

1.5 / 0.5 / 1.5
 91 x 6 x 63.5

see derating curve

Ordering data

Version

Type	Qty.	Order No.
MCZ OVP TAZ DIODE 24VDC	10	8449150000

Type	Qty.	Order No.
MCZ OVP TAZ DIODE 24VUC	10	8449160000

Note

Accessories

Note

End plate
 AP MCZ 1.5: 8389030000

End plate
 AP MCZ 1.5: 8389030000

3-stage protection with screw connection

Surge protection terminals with the tried-and-tested screw connection in the DKU series are characterised by their high level of protection concentrated in a compact design.

They are suitable for installing in the narrowest of places in automated process, industrial and building services systems. The three-stage surge protection terminals operate with gas discharge tubes, varistors, suppression diodes (TAZ) or decoupling inductances. The gas discharge tubes discharge high currents reliably; the varistors and suppression diodes absorb the residual voltages. The rated current for the DK4U and DK5U is max. 300 mA and for the DK6U max. 1 A. The DKU series comprises the DKU, DK4U, DK5U and DK6U, which are 6, 8 or 12 mm wide.

Type **DK4U** contains individual components such as varistors, gas discharge tubes or suppression diodes. Two types of varistor (MOV) are used: Type S14 is intended for lower levels of interference. It is suitable for interference protection circuits in solenoid valves or switching contacts. Type S20 is reserved for more demanding situations.

The fine gradation of the voltage varistors permits the use of all conventional rated voltages. This results in a wide range of variations. The preferred types are varistors that are used for rated voltages of 24, 48, 115 and 230 V.

Two types of gas discharge tube are used: **Gas discharge tubes** (GDT) up to 10 kA are suitable for integrating into instrumentation and control circuits, those up to 20 kA for higher signal and mains voltages.

The **suppression diodes** (Tranzorb diodes) differ in terms of voltage and are suitable for discharging small and fast transients. The tightening torque for all DKU according to IEC 947 is 0.5 Nm.

RC combinations

RC combinations can be used as suppression circuits for contactors and solenoid valves, or for increasing the interference immunity of long AC lines. They exhibit very good properties with regard to limiting the opening surges, reducing the rate of voltage variation and shortening break times. Weidmüller RC combinations may be used in both AC and DC circuits.

RD combinations

RD combinations are used with DC-operated equipment. Compared to a diode circuit, the resistance of the resistor / diode combination results in a shorter recovery time. RD combinations exhibit excellent suppression effects because the resistance limits the flow of current and, as a result, the

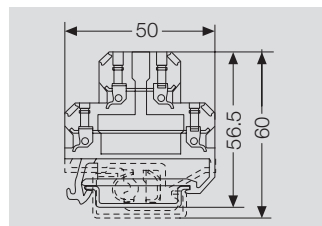
switching times are shorter. RD combinations are also less expensive than RC combinations.

If the length of the recovery time of the connected device is irrelevant, a diode circuit is preferable. If the effect on the response times of the device to be connected are to be minimised, suppression combinations with varistors or RC combination are advantageous.

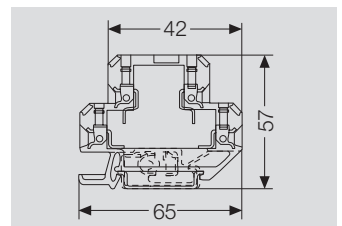
WPO 4

The Weidmüller WPO 4 terminal enables the retrofitting of electronic components like diodes, RC combinations, varistors or gas discharge tubes. As the protective elements are simply plugged in, specific protective circuits can be set up inexpensively in situ. All components are likewise easy to replace.

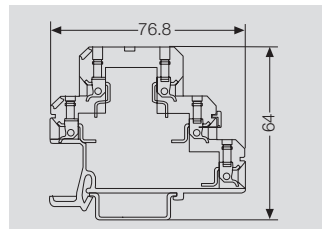
DK 4 U Varistor gas discharge tube



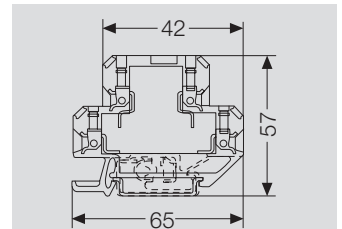
DK 4 U with suppression diode



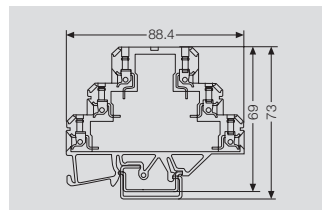
DK 5 U



DKU with combination circuit



DK 6 U



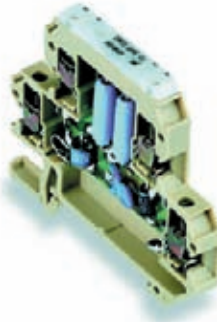
Surge protection for instrumentation and control systems

3-stage protection with screw connection

Slimline surge protection terminal with screw connection

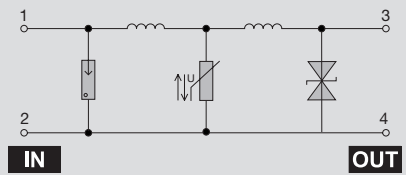
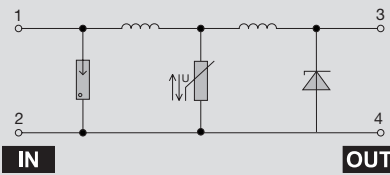
DKU 24 V DC 0.3 A

Protection for binary signals



DKU 48 V UC 0.3 A

Protection for binary signals



Technical data

Technical data

Rated voltage (AC)
 Rated voltage (DC)
 max. continuous current, I_c (AC)
 Operating current, I_{max}
 Volume resistivity
 Gas discharge tube
 Varistor
 Suppression diodes
 Cut-off frequency (-3 dB) at load impedance
 Discharge current, max. (8/20 μ s)
 Protection level on output side sym., input 1 kV/ μ s, typ.
 Protection level on output side sym., input 8/20 μ s, typ.
 Protection level on output side unsym., input 1kV/ μ s, typ.
 Protection level on output side unsym., input 8/20 μ s, typ.
 Design
 Type of connection
 Storage temperature, min./max.
 Operating temperature, min./max.

24 V
 28 V
 0.3 A
 3.00 Ω
 yes
 yes
 yes
 500.0 kHz 240 Ω
 5 kA
 35 V
 45 V
 35 V
 45 V
 terminal
 Screw connection
 -25 °C/85 °C
 -25 °C/60 °C

48 V
 48 V
 54 V
 0.3 A
 3.00 Ω
 yes
 yes
 yes
 1000.0 kHz 480 Ω
 7 kA
 82 V
 110 V
 82 V
 180 V
 terminal
 Screw connection
 -25 °C/85 °C
 -25 °C/60 °C

Type of connection

Clamping range (rating- / min. / max.) mm²
 Length x width x height mm

2.5 / 0.5 / 4
 65 x 6 x 60

2.5 / 0.5 / 4
 65 x 6 x 60

Note

Ordering data

Type	Qty.	Order No.
DKU 35 24VDC In:0,22A	10	8015810000

Type	Qty.	Order No.
DKU 35 48VUC In:0,22A	10	8019290000

Note

DKU 35 height 57mm

DKU 35 height 57mm

Accessories

Note

End plate
 AP DKT4 PA: 0687560000

End plate
 AP DKT4 PA: 0687560000

3-stage protection with screw connection

Slimline surge protection terminal with screw connection

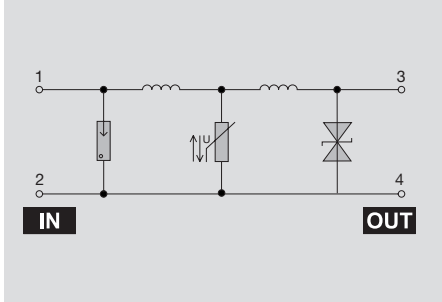
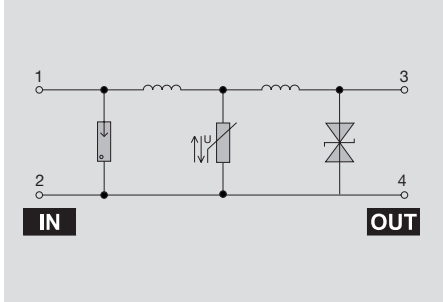
DKU 115 V UC 0.3 A

Protection for binary signals



DKU 230 V UC 0.3 A

Protection for binary signals



Technical data

Technical data	
Rated voltage (AC)	115 V
Rated voltage (DC)	115 V
max. continuous current, I_c (AC)	122 V
Operating current, I_{max}	0.3 A
Volume resistivity	3.00 Ω
Gas discharge tube	yes
Varistor	yes
Suppression diodes	yes
Cut-off frequency (-3 dB) at load impedance	1.0 MHz 50 Ω
Discharge current, max. (8/20 μ s)	7 kA
Protection level on output side sym., input 1 kV/ μ s, typ.	180 V
Protection level on output side sym., input 8/20 μ s, typ.	220 V
Protection level on output side unsym., input 1kV/ μ s, typ.	180 V
Protection level on output side unsym., input 8/20 μ s, typ.	220 V
Design	terminal
Type of connection	Screw connection
Storage temperature, min./max.	-25 °C/85 °C
Operating temperature, min./max.	-25 °C/60 °C

115 V
115 V
122 V
0.3 A
3.00 Ω
yes
yes
yes
1.0 MHz 50 Ω
7 kA
180 V
220 V
180 V
220 V
terminal
Screw connection
-25 °C/85 °C
-25 °C/60 °C

230 V
230 V
240 V
0.3 A
3.00 Ω
yes
yes
yes
1.0 MHz 2200 Ω
7 kA
400 V
520 V
400 V
520 V
terminal
Screw connection
-25 °C/85 °C
-25 °C/60 °C

Type of connection

Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm

2.5 / 0.5 / 4
65 x 6 x 60

2.5 / 0.5 / 4
65 x 12 x 60

Note

Ordering data

Type	Qty.	Order No.
DKU 35 115VUC 0,3A	10	8019310000

Type	Qty.	Order No.
DKU 35 115VUC 0,3A	10	8019310000

Note

DKU 35 height 57mm

Type	Qty.	Order No.
DKU 35 230VUC 0,3A	10	8019330000

DKU 35 height 57mm

Accessories

Note

End plate
AP DKT4 PA: 0687560000

End plate
AP DKT4 PA: 0687560000

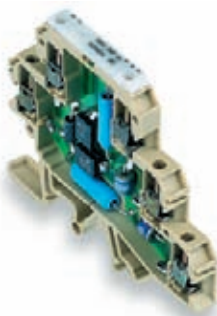
Surge protection for instrumentation and control systems

3-stage protection with screw connection

Slimline surge protection terminal with screw connection

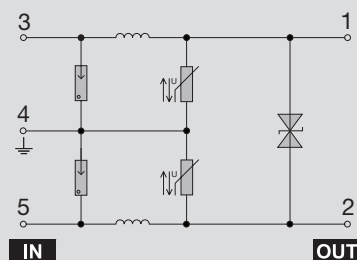
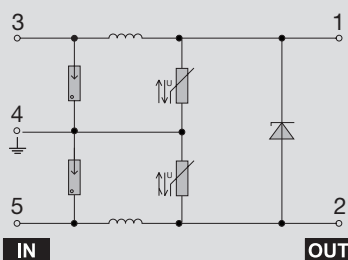
DKU DK5 24 V DC 0.3 A

Protection for analogue signals



DKU DK5 48 V UC 0.3 A

Protection for analogue signals



Technical data

Technical data

Rated voltage (AC)
Rated voltage (DC)
max. continuous current, I_{UC} (AC)
Operating current, I_{max}
Volume resistivity
Gas discharge tube
Varistor
Suppression diodes
Cut-off frequency (-3 dB) at load impedance
Discharge current, max. (8/20 μ s)
Protection level on output side sym., input 1 kV/ μ s, typ.
Protection level on output side sym., input 8/20 μ s, typ.
Protection level on output side unsym., input 1kV/ μ s, typ.
Protection level on output side unsym., input 8/20 μ s, typ.
Design
Type of connection
Storage temperature, min./max.
Operating temperature, min./max.

24 V
28 V
0.3 A
3.00 Ω
yes
yes
yes
400.0 kHz 240 Ω
5 kA
30 V
45 V
35 V
45 V
terminal
Screw connection
-25 °C/85 °C
-25 °C/60 °C

48 V
48 V
54 V
0.3 A
3.00 Ω
yes
yes
yes
400.0 kHz 240 Ω
7 kA
82 V
110 V
110 V
180 V
terminal
Screw connection
-25 °C/85 °C
-25 °C/60 °C

Type of connection

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

2.5 / 0.5 / 4
76.8 x 6 x 72

2.5 / 0.5 / 4
76.8 x 6 x 72

Note

Ordering data

Type	Qty.	Order No.
DKU DK5 24VDC 0,3A	10	8238340000

Type	Qty.	Order No.
DKU DK5 48VUC 0,3A	10	8262470000

Note

DKU DK5 TS35, 68 mm high

DKU DK5 TS35, 68 mm high

Accessories

Note

End plate
AP DK5 PA BE: 4036780000

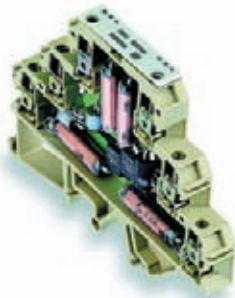
End plate
AP DK5 PA BE: 4036780000

3-stage protection with screw connection

Slimline surge protection terminal with screw connection

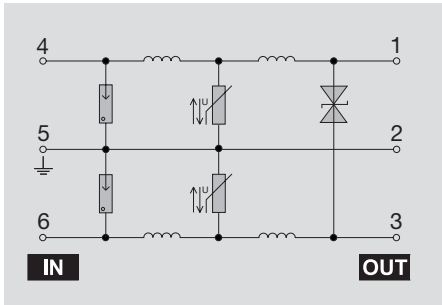
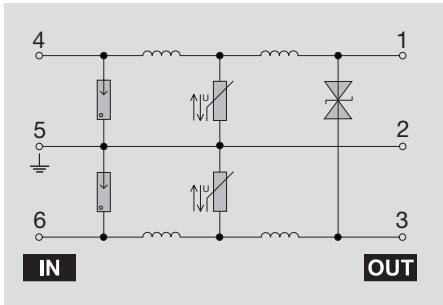
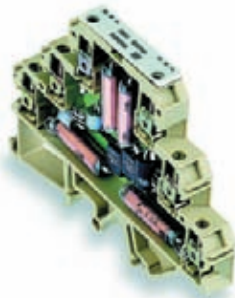
DKU DK6 120 V UC 1 A

Protection for analogue signals



DKU DK6 230 V UC 1 A

Protection for analogue signals



Technical data

Technical data	
Rated voltage (AC)	120 V
Rated voltage (DC)	120 V
max. continuous current, I _c (AC)	130 V
Operating current, I _{max}	1 A
Volume resistivity	0.30 Ω
Gas discharge tube	yes
Varistor	yes
Suppression diodes	yes
Cut-off frequency (-3 dB) at load impedance	22.0 kHz 120 Ω
Discharge current, max. (8/20 μs)	7 kA
Protection level on output side sym., input 1 kV/μs, typ.	220 V
Protection level on output side sym., input 8/20 μs, typ.	290 V
Protection level on output side unsym., input 1kV/μs, typ.	290 V
Protection level on output side unsym., input 8/20 μs, typ.	350 V
Design	terminal
Type of connection	Screw connection
Storage temperature, min./max.	-25 °C/85 °C
Operating temperature, min./max.	-25 °C/60 °C

Type of connection	
Clamping range (rating- / min. / max.)	mm ² 2.5 / 0.5 / 4
Length x width x height	mm 88.4 x 8 x 73

Note	
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Ordering data

Type	Qty.	Order No.
DKU DK6 120VAC 1,0A	10	8262480000

Note	DK6U TS35, 69 mm high
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Accessories

Note	End plate AP DK6 PA BE: 8324560000
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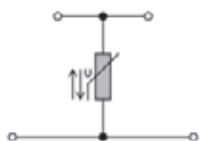
Type	Qty.	Order No.
DKU DK6 230VAC 1,0A	10	8263760000

Note	DK6U TS35, 69 mm high
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Note	End plate AP DK6 PA BE: 8324560000
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Surge protection for instrumentation and control systems

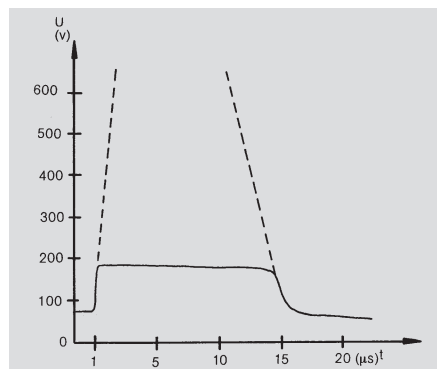
DK-SERIES with varistor in terminal design



Varistors

Metal-oxide varistors are used as varistors. These are approved for the maximum sinusoidal operating AC voltage indicated on the component. Any voltage exceeding the indicated voltage is safely discharged. Varistors can be used for medium to large ratings.

DK 4 U S 20 K 130



F

Rated data
DK 4 U

Rated data DK 4 U	Max. operating voltage at varistor		Max. energy and surge current for 8/20 μs impulse		Max. energy and surge current for 10 000 8/20 μs impulses		Max. varistor voltage at 10 A	Max. varistor voltage at 1 mA			
	U _{eff}	U–	Energy	Surge cur.	Energy	Surge cur.	Disch. cur.		Capacity	Order No.	Order No.
Type	V	V	J	A	J	A	V	V	pF	TS 32	TS 35
S 14	11	14	1,6	1000	0,07	75	36	18	18000	on request	9401400000
	14	18	2,0	1000	0,08	75	42	22	15000	on request	on request
	17	22	2,7	1000	0,11	75	52	27	10000	on request	on request
	20	26	3,3	1000	0,13	75	65	33	7500	on request	on request
	25	31	3,7	1000	0,15	75	75	39	6500	on request	9401440000
Preferred types 24 V	30	38	4,4	1000	0,17	75	90	47	5500	9401050000	9401450000
	35	45	5,2	1000	0,23	75	110	56	4500	on request	on request
	40	56	6,8	1000	0,27	75	125	68	3300	on request	on request
Preferred types 48 V	50	65	27,0	4500	0,6	150	135	82	2900	on request	on request
	60	85	30,0	4500	0,7	150	155	100	2400	on request	9401490000
	75	100	38,0	4500	0,8	150	185	120	1900	on request	on request
Preferred types 115 V	95	125	45,0	4500	1,0	150	230	150	1500	on request	on request
	130	170	55,0	4500	1,3	150	315	205	1000	9401120000	9401520000
	140	180	60,0	4500	1,5	150	330	220	1000	on request	on request
Preferred types 230 V	150	200	65,0	4500	1,5	150	350	240	900	on request	on request
	175	225	68,0	4500	1,6	150	420	270	750	on request	on request
	230	300	85,0	4500	2,1	150	560	360	550	on request	on request
	250	320	92,0	4500	2,4	150	610	390	500	on request	on request
	275	350	100,0	6500	2,5	190	660	430	450	9401180000	on request
	300	385	110,0	6500	2,6	190	740	470	400	on request	9401590000
S 20	11	14	3,0	2000	0,12	125	32	18	37000	on request	on request
	14	18	4,0	2000	0,15	125	38	22	30000	on request	on request
	17	22	5,6	2000	0,19	125	48	27	22000	on request	on request
	20	26	6,6	2000	0,24	125	60	33	17000	on request	on request
	25	31	7,8	2000	0,28	125	70	39	15000	on request	9401640000
Preferred types 24 V	30	38	9,0	2000	0,35	125	85	47	13000	9401250000	9401650000
	35	45	10,8	2000	0,40	125	100	56	11000	on request	on request
	40	56	14,0	2000	0,48	125	120	68	7000	on request	on request
Preferred types 48 V	50	65	36,0	6500	0,5	190	120	82	5500	on request	on request
	60	85	45,0	6500	0,7	190	150	100	4800	on request	on request
	75	100	55,0	6500	0,8	190	180	120	3800	on request	on request
Preferred types 115 V	95	125	65,0	6500	1,0	190	220	150	3000	on request	on request
	130	170	80,0	6500	1,4	190	300	205	2000	on request	on request
	140	180	90,0	6500	1,5	190	320	220	2000	on request	on request
Preferred types 230 V	150	200	95,0	6500	1,6	190	340	240	1800	on request	on request
	175	225	110,0	6500	1,8	190	390	270	1600	on request	on request
	230	300	130,0	6500	2,4	190	550	360	1200	on request	on request
	250	320	140,0	6500	2,7	190	600	390	1000	on request	on request
	275	350	150,0	8000	2,9	300	640	430	900	9401380000	9401780000
	300	385	160,0	8000	3,0	300	700	470	900	on request	on request

Overall width 12 mm

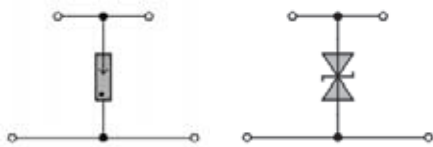
DK 4 U with gas discharge tube or suppression diode



The process depends on the temporal slew rate of the surge and the rated DC response voltage. The rated DC response voltage printed on the side of the gas discharge tube. Once the gas is ignited a typical arcing voltage of 10 to 30 V is produced across the component. The ionisation of the gas causes the gas discharge tube to become low resistive, allowing a high follow current to flow. Suitable measures must be taken to limit the follow current, for example, by fusing.

Suppression diodes

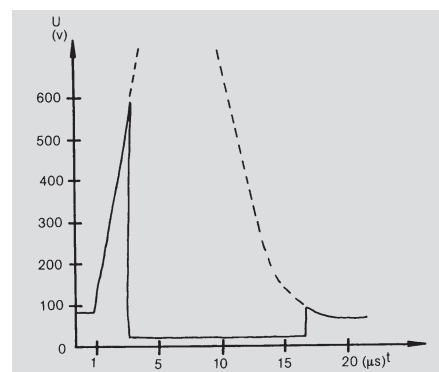
Suppression diodes work on a similar principle to conventional Zener diodes. If the indicated breakdown voltage is exceeded, the diode conducts. Compared to Zener diodes, suppression diodes have a higher current carrying capacity and faster response times in the ps range.



Gas discharge tube

The so-called gas discharge tube consists of two electrodes spaced a defined distance apart, enclosed in a small glass or ceramic tube. Between the electrodes is an inert gas at a defined pressure. A voltage surge, which has a rise time of 1 kV/μs and reaches a peak of 10 kV, can be limited to approx. 600 ... 700 V. The gas-filled space changes from high resistance to low resistance.

DK 4 U gas discharge tube 5 kA, 90 V

Rated data
DK 4 U

		Rated DC sparkover voltage		Impulse sparkover voltage at 1 kV/μs	Maximum rated voltage		Capacity	Order No.	Order No.
Type		V	Tolerance %	V	U _{eff} V	U ₋ V	pF	TS 32	TS 35
10 kA (8/20 μs)	Preferred types 24 V	90 –	±25	< 600	35	50	≈2	on request	9400300000
	Preferred types 48 V	150 –	±15	< 600	60	90	≈2	on request	on request
		230 –	±20	< 600	95	135	≈2	on request	on request
20 kA (8/20 μs)									
	Preferred types 24 V	90 –	±25	< 600	35	50	≈2	9400400000	9400500000
		150 –	±15	< 600	60	90	≈2	on request	on request
	Preferred types 48 V	230 –	±15	< 650	95	135	≈2	on request	on request
	Preferred types 115 V	470 –	±15	<1000	200	280	≈2	on request	9400540000
	Preferred types 230 V	600 –	±15	<1000	255	360	≈2	on request	9400550000
DK 4 U with suppression diode		20 –	±10	< 60	–	28	≈3000	on request	8016960000
		48 AC	±10	< 146	53	74	≈1400	on request	on request
		115 AC	±10	< 300	135	178	≈700	on request	on request
		230 AC	±10	< 700	320	240	≈400	on request	8017020000
WDK 2,5 V with suppression diode		24 AC	±10	< 60	33 V	28 V	≈3000		8132760000

Surge protection for instrumentation and control systems

DK-SERIES with electronic components (other versions on request)



Technical data

Dimensions DK 4/WDK 2.5

Terminal width (+ fitting tolerance 0.2)

Insulation stripping length

Connection data

Screw connection, flexible	DK 4
Screw connection, flexible	WDK 2.5
Wire cross-section	DK 4
Wire cross-section	WDK 2.5

VDE rated data

Voltage	250 V~/300 V-
Diode current	–
Diode reverse voltage	–
Current of continuous current bar	10 A
Diode	–
Resistance	220 Ω
Capacitor	0,22 µF
Varistor (max. operating voltage)	–
Gas discharge tube (rated DC sparkover voltage)	–
max. discharge current (standard wave 8/20 µs)	–

Note

Ordering data

Version	
	for TS 32
	for TS 35
	for TS 35
Note	

Accessories

Mounting rail (2 m lengths)	
End bracket (thickness mm)	
End plate (thickness mm)	
Insulation plate	
Socket for test plug	
Test plug (pin diameter)	
Cross-connection (pre-assembled)	3-pole
	4-pole
	10-pole
Cover plate	
Fixing screw (plastic)	
Cross-connection bridge	2-pole
	3-pole
	4-pole
	75-pole
Insulation profile	
Note	

DK 4 RC

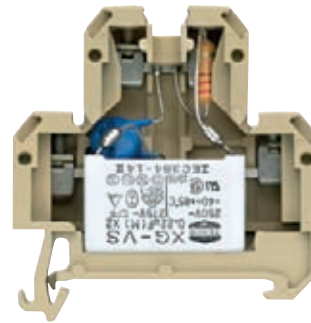
Arc suppression circuit for contactors and solenoid valves (AC)
Suppressor module for optos inputs

18 mm
9 mm
0,5 ... 4 mm ²
–
AWG 22 ... 12
–
250 V~/300 V-
–
–
10 A
–
220 Ω
0,22 µF
–
–
–

Type	Order No.
DK 4 RC	0692160000
DK 4 RC/35	0053160000
WDK 2.5 RC	8065910000
Note	

Type	Qty.	Order No.
TS 32	–	0122800000
TS 35	–	0383400000
EWK 1 (8.5)	50	0206160000
EW 35 (8.5)	50	0383560000
AP PA (1.5)	20	0359260000
TSch 4	100	0363360000
StB 8.5	50	0215700000
PS (ø 2.3)	20	0180400000
Q 4	50	0336600000
Q 10	20	0368600000
BSK M 2.5 x 18	100	0303300000
QB 2 ¹⁾	100	0482700000
QB 3 ¹⁾	50	0482800000
QB 4 ¹⁾	50	0482900000
QB 75 blank	10	0526400000
IP	–	0526700000
StB 8.5	50	0215700000
1) When using QB: wire connection max. 2.5 mm ²		

DK 4 RC-VDR

Arc suppression circuit
for contactors and solenoid valves (AC)

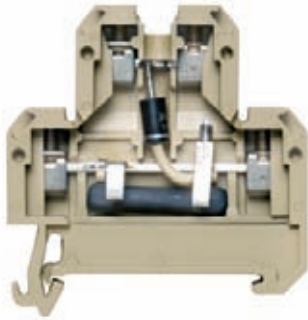
18 mm
9 mm
0,5 ... 4 mm ²
–
AWG 22 ... 12
–
24 V~/250 V
–
–
10 A
–
–
47 Ω
0,22 µF
S 14
50 V
–
–
10 A
47 Ω
0,22 µF
S 14
250 V
–

Type	Varistor	Order No.
DK 4 RC-VRS	50 V	on request
DK 4 RC-VRS	50 V	on request
DK 4 RC-VRS/35	250 V	on request
DK 4 RC-VRS/35	250 V	on request
Note		

Type	Qty.	Order No.
TS 32	–	0122800000
TS 35	–	0383400000
EWK 1 (8.5)	50	0206160000
EW 35 (8.5)	50	0383560000
AP PA (1.5)	20	0359260000
TSch 4	100	0363360000
StB 8.5	50	0215700000
PS (ø 2.3)	20	0180400000
Q 4	50	0336600000
Q 10	20	0368600000
BSK M 2.5 x 18	100	0303300000
QB 2 ¹⁾	100	0482700000
QB 3 ¹⁾	50	0482800000
QB 4 ¹⁾	50	0482900000
QB 75 blank	10	0526400000
IP	–	0526700000
Note		

DK 4 RD

Arc suppression circuit
for contactor and solenoid valves (AC)



12 mm
9 mm
0,5 ... 4 mm ²
–
AWG 22 ... 12
–
3 A
1300 V
10 A
BY 255
22 Ω (4 W)
–
–
–

Type	Order No.
DK 4 RD	on request
DK 4 RD/35	0059160000

Type	Qty.	Order No.
TS 32	–	0122800000
TS 35	–	0383400000
EWK 1 (8.5)	50	0206160000
EW 35 (8.5)	50	0383560000
AP PA (1.5)	20	0359260000
TSch 4	100	0363360000
StB 8.5	50	0215700000
PS (ø 2.3)	20	0180400000
Q 3	50	0336500000
Q 4	50	0336600000
Q 10	20	0368600000
AD 4 (4 terminals)	50	0303400000
BSK M 2.5 x 18	100	0303300000
QB 2 ⁿ	100	0482700000
QB 3 ⁿ	50	0482800000
QB 4 ⁿ	50	0482900000
QB 75 blank	10	0526400000
IP	–	0526700000

for retrofitting electronic components

WOP 4 with a pluggable varistor
Weidmüller varistor terminals have been designed to allow the retrofitting of electronics components, e.g. varistors, diodes, gas discharge tubes, etc. These electronic terminals no longer have to be configured prior to installation and thus be delivered with soldered components which can no longer be distinguished.

The significant advantages of this new design are:

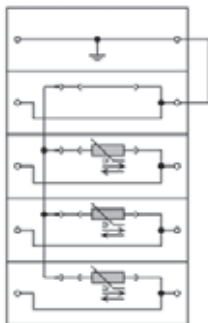
- Cost-savings
- Components can be changed quickly on site
- Service is limited to visual inspection
- Components are easy to distinguish
- Flexibility
- Components can immediately be adapted to changed conditions

Technical data

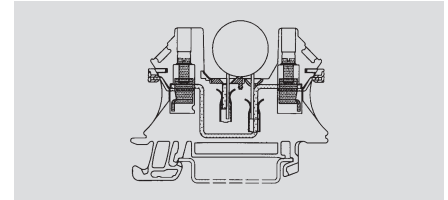
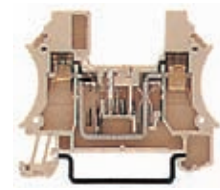
Dimensions	
Width x length x height (mm) with TS 35x7.5 V	
Insulation stripping length/clamping screw	
Rated data	
Rated voltage/current/cross-section	
Rated impulse voltage VDE 0110/1.89/pollution severity	
Further technical data	
Tightening torque range	Nm
Torque setting with DMS2 electric screwdriver	
clamping range	
"e" solid HO7V-U	mm ²
"m" stranded HO7V-R	mm ²
"f" flexible HO7V-K	mm ²
"f" flexible HO7V-K and AEH DIN 46228/1	mm ²
"f" flexible HO7V-K and AEH with plastic collar	mm ²
Plug gauge to 947-1	Size
Continuous current rating of terminal for wire size	
Wire diameter of electrical components	mm
Note	

Ordering data

Version	
	Wemid
Intermediate frame	Thickness 1.5 mm
	
Busbar	
Varistors	
for 24 V	
for 230 V	
Gas discharge tube	
for 90 V	
for 600 V	
Note	



Surges in a three-phase supplies discharged to earth via WPE with the aid of varistors and a gas discharge tube.

WPO 4

6/60/47
9 mm/M 3
250 V/32 A/4 mm ²
4 kV/3
0.5...1.0
2
0,5...4
1,5...4
0,5...4
0,5...4
0,5...4
A 3
32 A/4 mm ²
0,8...1,0 mm

Type	Qty	Order No.
	50	1036000000
ZR	20	1071100000
SSch 7.3x1.2	1 m	1071200000
S14k30		on request
S14k275		on request
90 V 20 kA		on request
600 V 20 kA		on request

Accessories

Marking tags	Type	Order No.
Print		
Consecutive horizontal	DEK6 FW	on request
Consecutive vertical	DEK6 FS	on request
Note		

3-stage protection with screw connection

EGU – surge protection offering excellent protection from 0.05 to 10 A

These tried-and-tested protection modules with screw connections are ideal for process, industrial and building services automation. The series comprises the **EGU1**, **EGU2**, **EGU3**, **EGU4** and **RSU** versions, all of which can be clipped onto the **TS35** and **TS32** rails. The build-in housings can be mounted in either direction by turning the base through 180°. The two- or three-stage protection offered by the EGU series operates with gas discharge tubes, varistors, suppression diodes (TAZ) and uncoupling inductances. Gas discharge tubes discharge high currents reliably. Varistors and suppression diodes absorb the residual voltages. The rated current is up to 1.5 A for the EGU types, up to 10 A for the RSU types. The products can be supplied for rated voltages of 24, 48, 115 or 230 V.

RSU



Three-stage surge protection with GDT, MOV and suppression diode for analogue signals with high current requirement, or for power supplies in instrumentation and control installations. Available in versions for 24, 48, 115 or 230 V.

General technical data for RSU:

storage temperature: –25 °C ... +85 °C
 operating temperature: –25 °C ... +40 °C
 packed singly

EGU1



Two-stage surge protection with GDT and MOV for binary signals, with 24, 48, 115 or 230 V, and additional fuse plus LED signal indicator.

EGU2



Three-stage surge protection with GDT, MOV and suppression diode for binary signals, with 24, 48, 115 or 230 V, and additional fuse plus LED signal indicator.

EGU3



Two-stage surge protection with GDT and MOV for analogue signals, with 24, 48, 115 or 230 V. Two signal lines are protected from each other and against earth with varistors.

EGU4



Three-stage surge protection with GDT, MOV and suppression diode for analogue signals, with 24, 48, 115 or 230 V. Two signal lines are protected from each other and against earth with varistors and suppression diodes. Special versions are available, upon request, for protecting data lines.

General technical data for EGU:

storage temperature: –25 ... +85 °C
 operating temperature: –25 ... +60 °C
 packed singly

EGU 1 50 mA

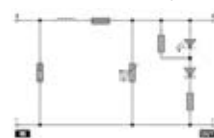
e.g. for binary signals

Dimensions:

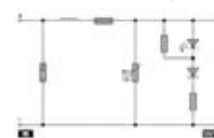
L x W x H = 58 x 63 x 20 mm



Schematic circuit diagram



Schematic circuit diagram

**Data**

Current per path, I _{max} :	50 mA
Resistance per path, max	28 Ω
Fuse 5x20	F 63 mA
Model, Ingress protection class	EG 2 IP20
Screw connection:	0.5 ... 6 mm ²

Ordering data	
Technical data	
Voltage, U _n 1.2:	24 V UC
Voltage, U _c 1.2:	30 V AC / 38 V DC
Rated data of components	Gas discharge tube: 90 V 5 kA
	Varistor: 30 V
Max. frequency (−3 db/load impedance):	20 kHz / 500 Ω
Discharge current, I _{max} (8/20 μs), typical:	6 kA
Protection level on output side, symmetric	
For 1 kV/μs pulse at input, typical:	55 V
For 8/20 μs (rated discharge current), typical:	75 V
Level of protection on output side, asymmetric:	
For 1 kV/μs pulse at input, typical:	55 V
For 8/20 μs (rated discharge current), typical:	75 V

Type	Order No.
EGU 1, 24 V UC	0243960000
24 V UC	
30 V AC / 38 V DC	
90 V 5 kA	
30 V	
20 kHz / 500 Ω	
6 kA	
55 V	
75 V	

Type	Order No.
EGU 1, 48 V UC	on request
48 V UC	
60 V AC / 85 V DC	
230 V 5 kA	
110 V	
40 kHz / 1000 Ω	
6 kA	
130 V	
190 V	

Type	Order No.
EGU 1, 115 V UC	on request
115 V UC	
130 V AC / 170 V DC	
230 V 5 kA	
130 V	
88 kHz / 2200 Ω	
6 kA	
180 V	
250 V	

Type	Order No.
EGU 1, 230 V UC	on request
230 V UC	
250 V AC / 320 V DC	
600 V 20 kA	
275 V	
150 kHz / 4500 Ω	
24 kA	
300 V	
350 V	

EGU 2 50 mA

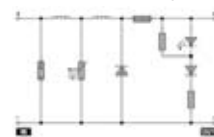
e.g. for binary signals

Dimensions:

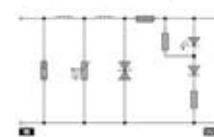
L x W x H = 58 x 63 x 20 mm



Schematic circuit diagram



Schematic circuit diagram

**Data**

Current per path, I _{max} :	50 mA
Resistance per path, max	28 Ω
Fuse 5x20	F 63 mA
Model, Ingress protection class	EG 2 IP20
Screw connection:	0.5 ... 6 mm ²

Ordering data	
Technical data	
Voltage, U _n 1.2:	24 V DC
Voltage, U _c 1.2:	28 V DC
Rated data of components	Gas discharge tube: 90 V 5 kA
	Varistor: 30 V
	Suppression diode: 33 V
Max. frequency (−3 db/load impedance):	10 kHz / 500 Ω
Discharge current, I _{max} (8/20 μs) typical:	6 kA
Protection level on output side, symmetric	
For 1 kV/μs pulse at input, typical:	35 V
For 8/20 μs (rated discharge current), typical:	75 V
Level of protection on output side, asymmetric:	
For 1 kV/μs pulse at input, typical:	55 V
For 8/20 μs (rated discharge current), typical:	75 V

Type	Order No.
EGU 2, 24 V DC	0223060000
24 V DC	
28 V DC	
90 V 5 kA	
30 V	
10 kHz / 500 Ω	
6 kA	
35 V	
75 V	

Type	Order No.
EGU 2, 48 V UC	on request
48 V UC	
55 V AC / 88 V DC	
230 V 5 kA	
150 V	
20 kHz / 500 Ω	
6 kA	
82 V	
120 V	

Type	Order No.
EGU 2, 115 V UC	on request
115 V UC	
130 V AC / 170 V DC	
230 V 5 kA	
150 V	
88 kHz / 2200 Ω	
6 kA	
230 V	
350 V	

Type	Order No.
EGU 2, 230 V UC	0223260000
230 V UC	
250 V AC / 320 V DC	
600 V 20 kA	
275 V	
150 kHz / 4500 Ω	
24 kA	
600 V	
820 V	

EGU 2 1.5 A

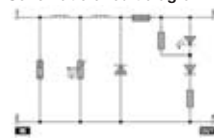
e.g. for power supplies

Dimensions:

L x W x H = 58 x 63 x 20 mm



Schematic circuit diagram



Schematic circuit diagram

**Data**

Current per path, I _{max} :	1.5 A
Resistance per path, max	0.2 Ω
Fuse 5x20	F 1.6 A
Model, Ingress protection class	EG 2 IP20
Screw connection:	0.5 ... 6 mm ²

Ordering data	
Technical data	
Voltage, U _n 1.2:	24 V DC
Voltage, U _c 1.2:	28 V DC
Rated data of components	Gas discharge tube: 90 V 5 kA
	Varistor: 30 V
	Suppression diode: 33 V
Max. frequency (−3 db/load impedance):	500 kHz / 16 Ω
Discharge current, I _{max} (8/20 μs) typical:	6 kA
Protection level on output side, symmetric	
For 1 kV/μs pulse at input, typical:	35 V
For 8/20 μs (rated discharge current), typical:	45 V
Level of protection on output side, asymmetric:	
For 1 kV/μs pulse at input, typical:	55 V
For 8/20 μs (rated discharge current), typical:	75 V

Type	Order No.
EGU 2, 24 V DC	9310830000
24 V DC	
28 V DC	
90 V 5 kA	
30 V	
500 kHz / 16 Ω	
6 kA	
35 V	
45 V	

Type	Order No.
EGU 2, 48 V UC	1170160000
48 V UC	
55 V AC / 88 V DC	
230 V 5 kA	
150 V	
1 MHz / 32 Ω	
6 kA	
82 V	
120 V	

Type	Order No.
EGU 2, 115 V UC	on request
115 V UC	
130 V AC / 170 V DC	
230 V 5 kA	
150 V	
1.5 MHz / 70 Ω	
6 kA	
230 V	
350 V	

Type	Order No.
EGU 2, 230 V UC	on request
230 V UC	
250 V AC / 320 V DC	
600 V 20 kA	
275 V	
2 MHz / 150 Ω	
24 kA	
600 V	
820 V	

Surge protection for instrumentation and control systems

EGU 3 50 mA

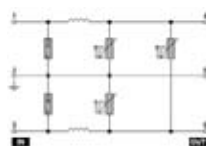
e.g. for current loops

Dimensions:

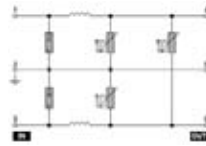
L x W x H = 58 x 95 x 22.5 mm



Schematic circuit diagram



Schematic circuit diagram



Data	
Current per path, I _{max} :	50 mA
Resistance per path, max:	18 Ω
Model, Ingress protection class	EG 3 IP20
Screw connection:	0,5 ... 4 mm ²

Ordering data		Type	Order No.	Type	Order No.	Type	Order No.	Type	Order No.
		EGU 3, 24 V UC	0250560000	EGU 3, 48 V UC	0250660000	EGU 3, 115 V UC	9311530000	EGU 3, 230 V UC	0250860000
Technical data									
Voltage, U _n 1.3:		24 V UC		48 V UC		115 V UC		230 V UC	
Voltage, U _c 1.3:		30 V AC / 38 V DC		60 V AC / 85 V DC		130 V AC / 170 V DC		250 V AC / 320 V DC	
Rated data of components		Gas discharge tube:	90 V 5 kA	230 V 5 kA		230 V 5 kA		600 V 20 kA	
		Varistor:	30 V	65 V		180 V		275 V	
Max. frequency (–3 db/load impedance):			10 kHz / 500 Ω	20 kHz / 1000 Ω		44 kHz / 2200 Ω		75 kHz / 4500 Ω	
Discharge current, I _{max} (8/20 μs), typical:			6 kA	6 kA		6 kA		24 kA	
Protection level on output side, symmetric:									
For 1 kV/μs pulse at input, typical:			55 V	130 V		180 V		300 V	
For 8/20 μs (rated discharge current), typical:			75 V	150 V		220 V		350 V	
Level of protection on output side, asymmetric:									
For 1 kV/μs pulse at input, typical:			85 V	150 V		230 V		400 V	
For 8/20 μs (rated discharge current), typical:			105 V	190 V		290 V		430 V	

EGU 3 1.5 A

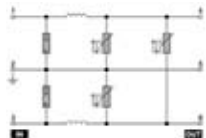
e.g. for power supplies

Dimensions:

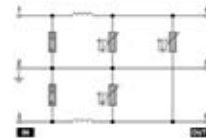
L x W x H = 58 x 95 x 22.5 mm



Schematic circuit diagram



Schematic circuit diagram



Data	
Current per path, I _{max} :	1,5 A
Resistance per path, max:	0,1 Ω
Model, Ingress protection class	EG 3 IP20
Screw connection:	0,5 ... 4 mm ²

Ordering data		Type	Order No.	Type	Order No.	Type	Order No.	Type	Order No.
		EGU 3, 24 V UC	1186760000	EGU 3, 48 V UC	1186960000	EGU 3, 115 V UC	on request	EGU 3, 230 V UC	1187060000
Technical data									
Voltage, U _n 1.3:		24 V UC		48 V UC		115 V UC		230 V UC	
Voltage, U _c 1.3:		30 V AC / 38 V DC		60 V AC / 85 V DC		130 V AC / 170 V DC		240 V AC / 315 V DC	
Rated data of components		Gas discharge tube:	90 V 5 kA	230 V 5 kA		230 V 5 kA		600 V 20 kA	
		Varistor:	30 V	65 V		180 V		275 V	
Max. frequency (–3 db/load impedance):			300 kHz / 16 Ω	400 kHz / 32 Ω		550 kHz / 70 Ω		800 kHz / 150 Ω	
Discharge current, I _{max} (8/20 μs), typical:			6 kA	6 kA		6 kA		24 kA	
Protection level on output side, symmetric:									
For 1 kV/μs pulse at input, typical:			55 V	130 V		180 V		300 V	
For 8/20 μs (rated discharge current), typical:			75 V	150 V		220 V		350 V	
Level of protection on output side, asymmetric:									
For 1 kV/μs pulse at input, typical:			85 V	150 V		230 V		400 V	
For 8/20 μs (rated discharge current), typical:			105 V	190 V		290 V		430 V	

EGU 4 0.1 A

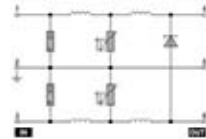
e.g. for current loops

Dimensions:

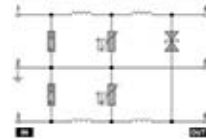
L x W x H = 58 x 95 x 22.5 mm



Schematic circuit diagram



Schematic circuit diagram



Data	
Current per path, I _{max} :	100 mA
Resistance per path, max:	22 Ω
Model, Ingress protection class	EG 3 IP20
Screw connection:	0,5 ... 4 mm ²

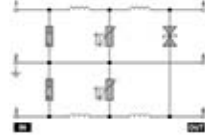
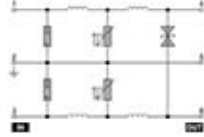
Ordering data		Type	Order No.	Type	Order No.	Type	Order No.	Type	Order No.
		EGU 4, 24 V DC	0459460000	EGU 4, 48 V UC	0461860000	EGU 4, 115 V UC	on request	EGU 4, 230 V UC	0462060000
Technical data									
Voltage, U _n 1.3:		24 V DC		48 V UC		115 V UC		230 V UC	
Voltage, U _c 1.3:		28 V DC		55 V AC / 34 V DC		130 V AC / 170 V DC		250 V AC / 320 V DC	
Rated data of components		Gas discharge tube:	90 V 5 kA	90 V 5 kA		150 V 5kA		600 V 20 kA	
		Varistor:	30 V	55 V		75 V		275 V	
		Suppression diode:	33 V	48 V		120 V		240 V	
Max. frequency (–3 db/load impedance):			5 kHz / 240 Ω	10 kHz / 240 Ω		20 kHz / 1200 Ω		1 MHz / 150 kΩ	
Discharge current, I _{max} (8/20 μs), typical:			6 kA	6 kA		6 kA		24 kA	
Protection level on output side, symmetric:									
For 1 kV/μs pulse at input, typical:			33 V	82 V		200 V		350 V	
For 8/20 μs (rated discharge current), typical:			45 V	130 V		250 V		420 V	
Protection level on output side, asymmetric:									
For 1 kV/μs pulse at input, typical:			48 V	110 V		310 V		390 V	
For 8/20 μs (rated discharge current), typical:			90 V	150 V		350 V		480 V	

EGU 4 1.5 A

e.g. for power supplies

Dimensions:

L x W x H = 58 x 95 x 22.5 mm

**Schematic circuit diagram****Schematic circuit diagram**

Data	
Current per path, I _{max} :	1,5 A
Resistance per path, max:	0,1 Ω
Model, Ingress protection class	EG 3 IP20
Screw connection:	0,5 ... 4 mm ²

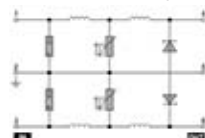
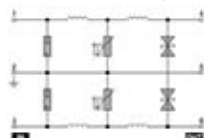
Ordering data		Type	Order No.	Type	Order No.	Type	Order No.	Type	Order No.
		EGU 4, 24 V UC	1170960000	EGU 4, 48 V UC	on request	EGU 4, 115 V UC	1171160000	EGU 4, 230 V UC	1171260000
Technical data									
Voltage, U _n 1.3:		24 V UC		48 V UC		115 V UC		230 V UC	
Voltage, U _c 1.3:		34 V AC / 26.5 V DC		53 V AC / 75 V DC		130 V AC / 170 V DC		250 V AC / 320 V DC	
Rated data of components	Gas discharge tube:	90 V 5 kA		230 V 5 kA		230 V 5 kA		600 V 20 kA	
	Varistor:	30 V		55 V		75 V		275 V	
	Suppression diode:	33 V		48 V		120 V		240 V	
Max. frequency (−3 db/load impedance):		250 kHz / 16 Ω		500 kHz / 32 Ω		800 kHz / 70 kΩ		1 Mhz / 150 kΩ	
Discharge current, I _{max} (8/20 μs), typical:		6 kA		6 kA		6 kA		24 kA	
Protection level on output side, symmetric:									
For 1 kV/μs pulse at input, typical:		33 V		82 V		200 V		400 V	
For 8/20 μs (rated discharge current), typical:		45 V		130 V		250 V		420 V	
Protection level on output side, asymmetric:									
For 1 kV/μs pulse at input, typical:		48 V		110 V		310 V		390 V	
For 8/20 μs (rated discharge current), typical:		90 V		150 V		350 V		480 V	

EGU 4 0.1 A

e.g. for symmetric loads

Dimensions:

L x W x H = 58 x 95 x 22.5 mm

**Schematic circuit diagram****Schematic circuit diagram**

Data	
Current per path, I _{max} :	100 mA
Resistance per path, max:	12 Ω
Model, Ingress protection class	EG 3 IP20
Screw connection:	0,5 ... 4 mm ²

Ordering data		Type	Order No.	Type	Order No.	Type	Order No.	Type	Order No.
		EGU 4, 24 V DC	1170560000	EGU 4, 48 V UC	on request	EGU 4, 115 V UC	on request	EGU 4, 230 V UC	on request
Technical data									
Voltage, U _n 1.3:		24 V DC		48 V UC		115 V UC		230 V UC	
Voltage, U _c 1.3:		31 V DC		55 V AC / 75 V DC		130 V AC / 170 V DC		250 V AC / 320 V DC	
Rated data of components	Gas discharge tube:	90 V 5 kA		230 V 5 kA		230 V 5 kA		600 V 20 kA	
	Varistor:	30 V		55 V		75 V		275 V	
	Suppression diode:	33 V		48 V		120 V		240 V	
Max. frequency (−3 db/load impedance):		5 kHz / 240 Ω		20 kHz / 480 Ω		40 kHz / 1200 Ω		80 kHz / 2,2 kΩ	
Discharge current, I _{max} (8/20 μs), typical:		6 kA		6 kA		6 kA		24 kA	
Protection level on output side, symmetric:									
For 1 kV/μs pulse at input, typical:		33 V		82 V		200 V		350 V	
For 8/20 μs (rated discharge current), typical:		45 V		130 V		250 V		420 V	
Protection level on output side, asymmetric:									
For 1 kV/μs pulse at input, typical:		66 V		170 V		400 V		700 V	
For 8/20 μs (rated discharge current), typical:		110 V		190 V		480 V		880 V	

Surge protection for instrumentation and control systems

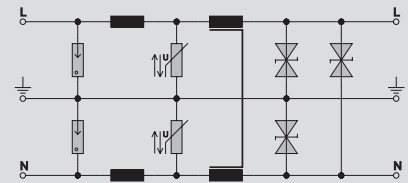
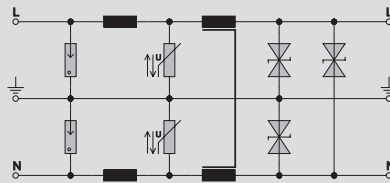
3-stage protection with screw connection

- Surge protection RSU for power supplies
- with current-compensated inductor
- low residual voltage thanks to suppression diodes

RSU 24 V UC 6 A



RSU 115 V UC 6 A



Technical data

Technical data

Rated voltage (AC)
 Rated voltage (DC)
 max. continuous current, I_{UC} (AC)
 Operating current, I_{max}
 Volume resistivity
 Gas discharge tube
 Varistor
 Suppression diodes
 Cut-off frequency (-3 dB) at load impedance
 Discharge current, max. (8/20 μ s)
 Protection level on output side sym., input 1 kV/ μ s, typ.
 Protection level on output side sym., input 8/20 μ s, typ.
 Protection level on output side unsym., input 1kV/ μ s, typ.
 Protection level on output side unsym., input 8/20 μ s, typ.
 Design
 Type of connection
 Storage temperature, min./max.
 Operating temperature, min./max.

24 V
 24 V
 27 V
 6 A
 0.08 Ω
 yes
 yes
 yes
 8.0 kHz 4 Ω
 24 kA
 40 V
 45 V
 40 V
 45 V
 RS section
 Screw connection
 -25 °C/85 °C
 -25 °C/40 °C

115 V
 115 V
 130 V
 6 A
 0.08 Ω
 yes
 yes
 yes
 30.0 kHz 20 Ω
 24 kA
 200 V
 250 V
 200 V
 250 V
 RS section
 Screw connection
 -25 °C/70 °C
 -25 °C/40 °C

Type of connection

Clamping range (rating- / min. / max.) mm²
 Length x width x height mm

2.5 / 0.5 / 4
 87 x 81 x 89

2.5 / 0.5 / 4
 87 x 81 x 89

Note

Ordering data

Type	Qty.	Order No.
RSU 24VUC 6A LP	1	1171361001

Type	Qty.	Order No.
RSU 115VUC 6A	1	1171561001

Note

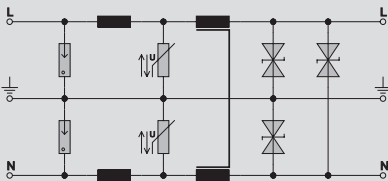
Accessories

Note

3-stage protection with screw connection

- Surge protection RSU for power supplies
- with current-compensated inductor
- low residual voltage thanks to suppression diodes

RSU 230 V UC 6 A



Technical data

Technical data	
Rated voltage (AC)	230 V
Rated voltage (DC)	230 V
max. continuous current, I_c (AC)	250 V
Operating current, I_{max}	6 A
Volume resistivity	0.08 Ω
Gas discharge tube	yes
Varistor	yes
Suppression diodes	yes
Cut-off frequency (-3 dB) at load impedance	90.0 kHz 40 k Ω
Discharge current, max. (8/20 μ s)	24 kA
Protection level on output side sym., input 1 kV/ μ s, typ.	400 V
Protection level on output side sym., input 8/20 μ s, typ.	420 V
Protection level on output side unsym., input 1kV/ μ s, typ.	400 V
Protection level on output side unsym., input 8/20 μ s, typ.	420 V
Design	RS section
Type of connection	Screw connection
Storage temperature, min./max.	-25 °C/70 °C
Operating temperature, min./max.	-25 °C/40 °C

Type of connection	
Clamping range (rating- / min. / max.)	mm ² 2.5 / 0.5 / 4
Length x width x height	mm 87 x 81 x 89
Note	

Ordering data

Type	Qty.	Order No.
RSU 230VUC 6A LP	1	1171661001
Note		

Accessories

Note

Surge protection for instrumentation and control systems

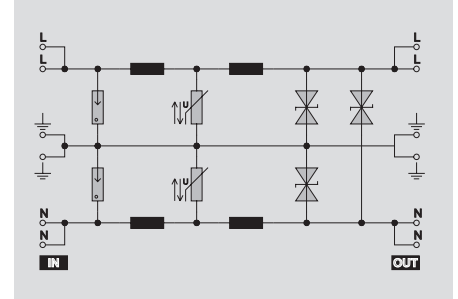
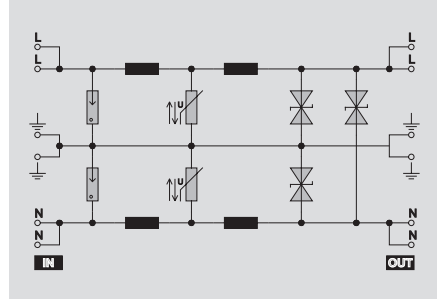
3-stage protection with screw connection

- Surge protection RSU for power supplies
- with current-compensated inductor
- low residual voltage thanks to suppression diodes

RSU 24 V UC 10 A



RSU 115 V UC 10 A



Technical data

Technical data

Rated voltage (AC)
 Rated voltage (DC)
 max. continuous current, I_{uc} (AC)
 Operating current, I_{max}
 Volume resistivity
 Gas discharge tube
 Varistor
 Suppression diodes
 Cut-off frequency (-3 dB) at load impedance
 Discharge current, max. (8/20 μ s)
 Protection level on output side sym., input 1 kV/ μ s, typ.
 Protection level on output side sym., input 8/20 μ s, typ.
 Protection level on output side unsym., input 1kV/ μ s, typ.
 Protection level on output side unsym., input 8/20 μ s, typ.
 Design
 Type of connection
 Storage temperature, min./max.
 Operating temperature, min./max.

24 V
 24 V
 27 V
 10 A
 0.04 Ω
 yes
 yes
 yes
 8.0 kHz 4 Ω
 24 kA
 40 V
 45 V
 40 V
 45 V
 RS section
 Screw connection
 -25 °C/85 °C
 -25 °C/40 °C

115 V
 115 V
 130 V
 10 A
 0.04 Ω
 yes
 yes
 yes
 30.0 kHz 20 Ω
 24 kA
 200 V
 250 V
 200 V
 250 V
 RS section
 Screw connection
 -25 °C/70 °C
 -25 °C/40 °C

Type of connection

Clamping range (rating- / min. / max.) mm²
 Length x width x height mm

2.5 / 0.5 / 4
 105 x 105 x 89

2.5 / 0.5 / 4
 105 x 105 x 89

Note

Ordering data

Type	Qty.	Order No.
RSU 24VUC 10A	1	8104201001

Type	Qty.	Order No.
RSU 115VUC 10A	1	8104221001

Note

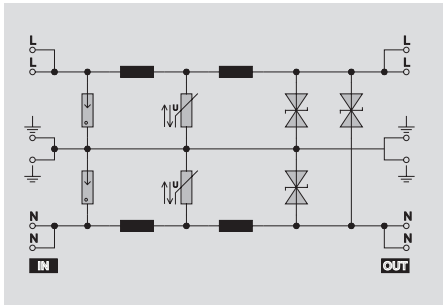
Accessories

Note

3-stage protection with screw connection

- Surge protection RSU for power supplies
- with current-compensated inductor
- low residual voltage thanks to suppression diodes

RSU 230 V UC 10 A



Technical data

Technical data	
Rated voltage (AC)	230 V
Rated voltage (DC)	230 V
max. continuous current, I_c (AC)	250 V
Operating current, I_{max}	10 A
Volume resistivity	0.04 Ω
Gas discharge tube	yes
Varistor	yes
Suppression diodes	yes
Cut-off frequency (-3 dB) at load impedance	90.0 kHz 40 k Ω
Discharge current, max. (8/20 μ s)	24 kA
Protection level on output side sym., input 1 kV/ μ s, typ.	400 V
Protection level on output side sym., input 8/20 μ s, typ.	420 V
Protection level on output side unsym., input 1kV/ μ s, typ.	400 V
Protection level on output side unsym., input 8/20 μ s, typ.	420 V
Design	RS section
Type of connection	Screw connection
Storage temperature, min./max.	-25 °C/70 °C
Operating temperature, min./max.	-25 °C/40 °C

Type of connection	
Clamping range (rating- / min. / max.)	mm ² 2.5 / 0.5 / 4
Length x width x height	mm 105 x 105 x 89
Note	

Ordering data

Type	Qty.	Order No.
RSU 230VUC 10A LP	1	8093281001
Note		

Accessories

Note

3-stage protection with screw connection

Plug-in surge protection

The Weidmüller LPU series consists of a PCB and the build-in SEG-U housing (to be ordered separately). These tried-and-tested protective components can be used in automated process, industrial and building services systems. Their great advantage is that the SEG-U housing can be connected in a number of different ways. The screw connection is standard, but screw/plug, Termipoint, wire-wrap and spade connections are also possible.

The plug-in PCB provides test options; a visual check as well as electrical tests on the individual components are possible. The three-stage LPU boards operate with gas discharge tubes, varistors, suppression diodes (TAZ) and decoupling inductances. The LPU boards are characterised by a high level of protection for currents up to 1.5 A. They are available in rated voltages of 24, 48, 115 and 230 V.

Note:

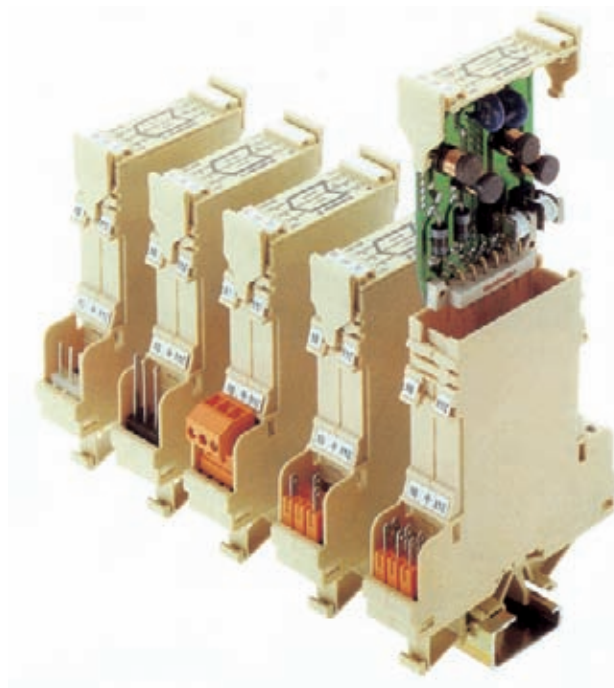
The SEG-U housing for the LPU plug-in protection board must be ordered separately.

Three different LPU boards are available:

- Two signal lines protected against earth (suitable for binary signals).
- Analogue signals are protected against each other and against earth (e.g. 0 ... 20 mA circuits).
- Isolated signals are given high-resistance protection against earth and against each other (suitable for thermal signals).

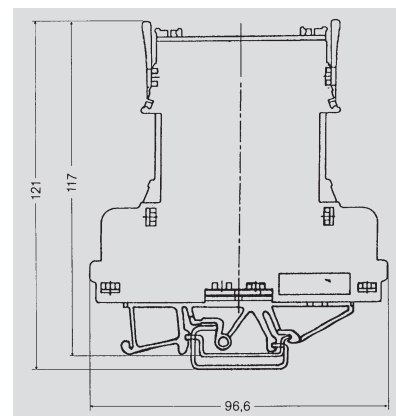
A testing unit fitted in a case is available for the electrical tests. The protective elements, e.g. gas discharge tubes, varistors, suppression diodes, integrated on the LPU board are tested to check their rated data and permissible tolerances. The integral inductances are also checked for continuity.

The results of the tests are recorded either by way of red/green LEDs or the integral printer. A self-test is performed after switching on the testing unit. The electrical tests on the LPU board are carried out automatically after plugging in the LPU surge protection.



Dimensions SEG-U

- Width 20 mm
- Screw connection
- flexible 0.5 ... 2.5 mm²
- stranded 0.5 ... 4 mm²



Testing unit



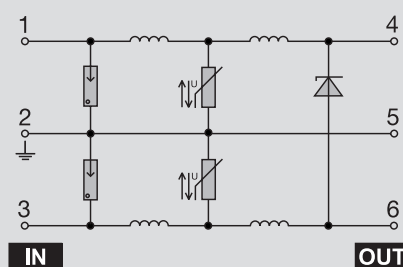
3-stage protection on circuit card

Plug-in surge protection LPU

- Please note: the housing for the LPU protection card must be ordered separately

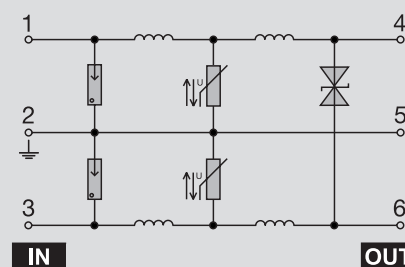
LPU 24 V DC 100 mA

Protection for current loops



LPU 48 V UC 100 mA

Protection for current loops



Technical data

Technical data

Rated voltage (AC)
Rated voltage (DC)
max. continuous current, I_c (AC)
Operating current, I_{max}
Volume resistivity
Gas discharge tube
Varistor
Suppression diodes
Cut-off frequency (-3 dB) at load impedance
Discharge current, max. (8/20 μ s)
Protection level on output side sym., input 1 kV/ μ s, typ.
Protection level on output side sym., input 8/20 μ s, typ.
Protection level on output side unsym., input 1 kV/ μ s, typ.
Protection level on output side unsym., input 8/20 μ s, typ.
Design
Type of connection
Storage temperature, min./max.
Operating temperature, min./max.

24 V
29 V
0.1 A
12.50 Ω
yes
yes
yes
7.5 kHz / 240 Ω
6 kA
34 V
45 V
34 V
45 V
Plug-in card
Plug-in connection
-25 °C/85 °C
-25 °C/50 °C

48 V
48 V
53 V
0.1 A
12.50 Ω
yes
yes
yes
9.0 kHz / 480 Ω
6 kA
82 V
130 V
82 V
130 V
Plug-in card
Plug-in connection
-25 °C/85 °C
-25 °C/50 °C

Type of connection

Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm

Note

Height incl. housing SEG-U

Ordering data

Type	Qty.	Order No.
LPU 24VDC 100MA	1	on request

Type	Qty.	Order No.
LPU 48VUC 100MA	1	8008330000

Note

Can be tested with test case

Can be tested with test case

Accessories

Note

Housing SEG-U 8007871001Housing SEG-U 8007871001

Surge protection for instrumentation and control systems

3-stage protection on circuit card

Plug-in surge protection LPU

- Please note: the housing for the LPU protection card must be ordered separately

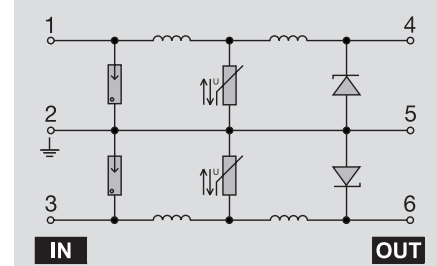
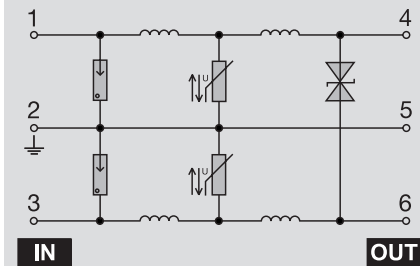
LPU 115 V UC 100 mA

Protection for current loops



LPU 24 V DC 100 mA SL

Protection for 2 binary signals



Technical data

Technical data

Rated voltage (AC)
Rated voltage (DC)
max. continuous current, I_{UC} (AC)
Operating current, I_{max}
Volume resistivity
Gas discharge tube
Varistor
Suppression diodes
Cut-off frequency (-3 dB) at load impedance
Discharge current, max. (8/20 μ s)
Protection level on output side sym., input 1 kV/ μ s, typ.
Protection level on output side sym., input 8/20 μ s, typ.
Protection level on output side unsym., input 1kV/ μ s, typ.
Protection level on output side unsym., input 8/20 μ s, typ.
Design
Type of connection
Storage temperature, min./max.
Operating temperature, min./max.

115 V
115 V
130 V
0.1 A
12.50 Ω
yes
yes
yes
9.0 kHz / 1100 Ω
6 kA
200 V
250 V
200 V
250 V
Plug-in card
Plug-in connection
-25 °C/85 °C
-25 °C/50 °C

24 V
29 V
0.1 A
12.50 Ω
yes
yes
yes
7.5 kHz 240 Ω
6 kA
34 V
45 V
60 V
90 V
Plug-in card
Plug-in connection
-25 °C/85 °C
-25 °C/60 °C

Type of connection

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

96.6 x 20 x 117

Height incl. housing SEG-U

96.6 x 20 x 117

Height incl. housing SEG-U

Ordering data

Type	Qty.	Order No.
LPU 115VUC 100MA	1	8008350000

Can be tested with test case

Type	Qty.	Order No.
LPU 24VDC 100MA	1	8008230000

Can be tested with test case

Accessories

Note

Housing SEG-U 8007871001

Housing SEG-U 8007871001

3-stage protection on circuit card

Plug-in surge protection LPU

- Please note: the housing for the LPU protection card must be ordered separately

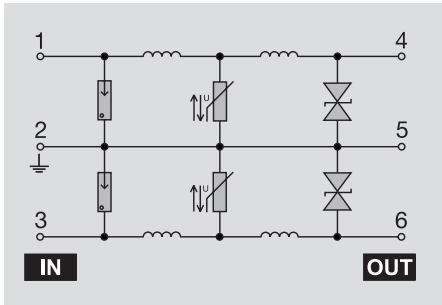
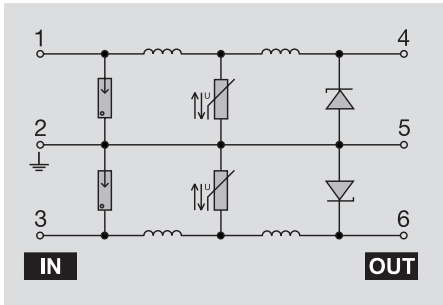
LPU 48 V UC 100 mA SL

Protection for 2 binary signals



LPU 115 V UC 100 mA SL

Protection for 2 binary signals



Technical data

Technical data	
Rated voltage (AC)	48 V
Rated voltage (DC)	48 V
max. continuous current, I_{uc} (AC)	53 V
Operating current, I_{max}	0.1 A
Volume resistivity	12.50 Ω
Gas discharge tube	yes
Varistor	yes
Suppression diodes	yes
Cut-off frequency (-3 dB) at load impedance	17.0 kHz 480 Ω
Discharge current, max. (8/20 μ s)	6 kA
Protection level on output side sym., input 1 kV/ μ s, typ.	82 V
Protection level on output side sym., input 8/20 μ s, typ.	130 V
Protection level on output side unsym., input 1kV/ μ s, typ.	160 V
Protection level on output side unsym., input 8/20 μ s, typ.	260 V
Design	Plug-in card
Type of connection	Plug-in connection
Storage temperature, min./max.	-25 °C/85 °C
Operating temperature, min./max.	-25 °C/60 °C

48 V
48 V
53 V
0.1 A
12.50 Ω
yes
yes
yes
17.0 kHz 480 Ω
6 kA
82 V
130 V
160 V
260 V
Plug-in card
Plug-in connection
-25 °C/85 °C
-25 °C/60 °C

115 V
115 V
130 V
0.1 A
12.50 Ω
yes
yes
yes
40.0 kHz 1100 Ω
6 kA
200 V
250 V
400 V
500 V
Plug-in card
Plug-in connection
-25 °C/85 °C
-25 °C/60 °C

Type of connection

Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm

Note

96.6 x 20 x 117
Height incl. housing SEG-U

96.6 x 20 x 117
Height incl. housing SEG-U

Ordering data

Type	Qty.	Order No.
LPU 48VUC 100MA	1	8008250000

Note

Can be tested with test case

Type	Qty.	Order No.
LPU 115VUC 100MA	1	8008260000

Can be tested with test case

Accessories

Note

Housing SEG-U 8007871001

Housing SEG-U 8007871001

Surge protection for instrumentation and control systems

3-stage protection on circuit card

Plug-in surge protection LPU

- Please note: the housing for the LPU protection card must be ordered separately

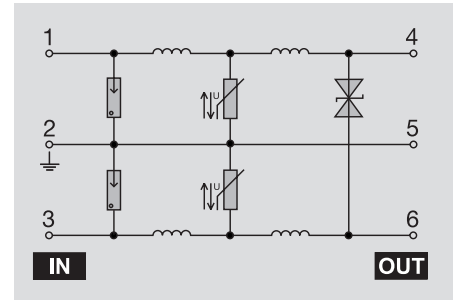
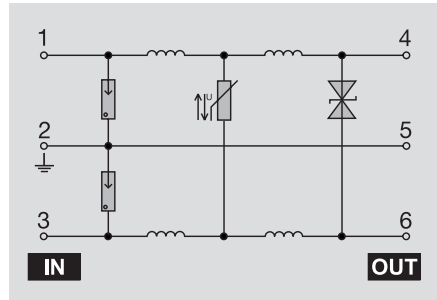
LPU 24 V UC 1.5 A

Protection for current loops



LPU 48 V UC 1.5 A

Protection for current loops



Technical data

Technical data

Rated voltage (AC)
 Rated voltage (DC)
 max. continuous current, I_{UC} (AC)
 Operating current, I_{max}
 Volume resistivity
 Gas discharge tube
 Varistor
 Suppression diodes
 Cut-off frequency (-3 dB) at load impedance
 Discharge current, max. (8/20 μ s)
 Protection level on output side sym., input 1 kV/ μ s, typ.
 Protection level on output side sym., input 8/20 μ s, typ.
 Protection level on output side unsym., input 1kV/ μ s, typ.
 Protection level on output side unsym., input 8/20 μ s, typ.
 Design
 Type of connection
 Storage temperature, min./max.
 Operating temperature, min./max.

24 V
 24 V
 27 V
 1.5 A
 0.20 Ω
 yes
 yes
 yes
 150.0 kHz 16 Ω
 6 kA
 34 V
 45 V
 34 V
 45 V
 Plug-in card
 Plug-in connection
 -25 °C/85 °C
 -25 °C/50 °C

48 V
 48 V
 53 V
 1.5 A
 0.20 Ω
 yes
 yes
 yes
 300.0 kHz 32 Ω
 6 kA
 82 V
 130 V
 82 V
 130 V
 Plug-in card
 Plug-in connection
 -25 °C/85 °C
 -25 °C/50 °C

Type of connection

Clamping range (rating- / min. / max.) mm²
 Length x width x height mm

Note

96.6 x 20 x 117

Height incl. housing SEG-U

96.6 x 20 x 117

Height incl. housing SEG-U

Ordering data

Type	Qty.	Order No.
LPU 24VUC/ 1,5A	1	8237700000

Type	Qty.	Order No.
LPU 48VUC 1,5A	1	8008440000

Note

Can be tested with test case

Can be tested with test case

Accessories

Note

Housing SEG-U 8007871001

Housing SEG-U 8007871001

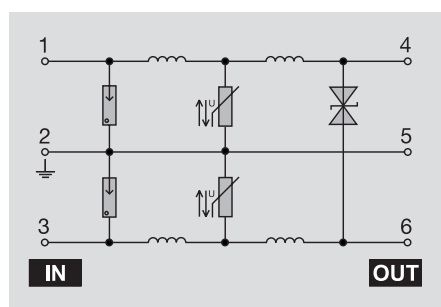
3-stage protection on circuit card

Plug-in surge protection LPU

- Please note: the housing for the LPU protection card must be ordered separately

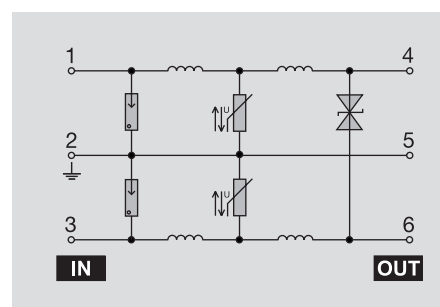
LPU 115 V UC 1.5 A

Protection for current loops



LPU 230 V UC 1.5 A

Protection for current loops



Technical data

Technical data

Rated voltage (AC)
Rated voltage (DC)
max. continuous current, I_c (AC)
Operating current, I_{max}
Volume resistivity
Gas discharge tube
Varistor
Suppression diodes
Cut-off frequency (-3 dB) at load impedance
Discharge current, max. (8/20 μ s)
Protection level on output side sym., input 1 kV/ μ s, typ.
Protection level on output side sym., input 8/20 μ s, typ.
Protection level on output side unsym., input 1 kV/ μ s, typ.
Protection level on output side unsym., input 8/20 μ s, typ.
Design
Type of connection
Storage temperature, min./max.
Operating temperature, min./max.

115 V
115 V
130 V
1.5 A
0.20 Ω
yes
yes
yes
600.0 kHz 70 k Ω
6 kA
200 V
250 V
200 V
250 V
Plug-in card
Plug-in connection
-25 °C/85 °C
-25 °C/50 °C

230 V
230 V
250 V
1.5 A
0.20 Ω
yes
yes
yes
1.0 MHz 150 k Ω
6 kA
400 V
420 V
400 V
420 V
Plug-in card
Plug-in connection
-25 °C/85 °C
-25 °C/50 °C

Type of connection

Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm

Note

Height incl. housing SFG-U

Ordering data

Note

Accessories

Note

Type	Qty.	Order No.
LPU 115VUC 1,5A	1	8008450000
Can be tested with test case		

Type	Qty.	Order No.
LPU 230VUC 1,5A	1	8008460000
Can be tested with test case		

Housing SEG-U 8007871001

Surge protection for instrumentation and control systems

3-stage protection on circuit card

Plug-in surge protection LPU

- Please note: the housing for the LPU protection card must be ordered separately

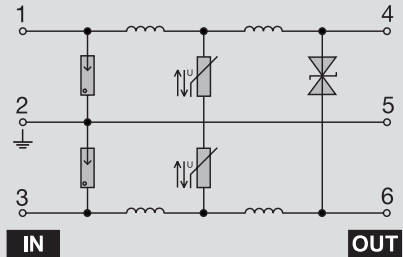
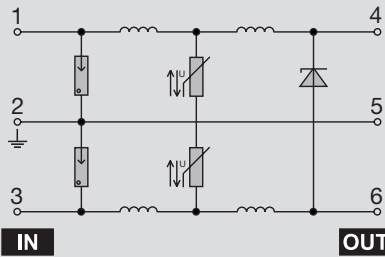
LPU 24 V DC 100 mA

not earthed



LPU 48 V UC 100 mA

not earthed



Technical data

Technical data

Rated voltage (AC)
Rated voltage (DC)
max. continuous current, $I_{c(A)}$
Operating current, I_{max}
Volume resistivity
Gas discharge tube
Varistor
Suppression diodes
Cut-off frequency (-3 dB) at load impedance
Discharge current, max. (8/20 μ s)
Protection level on output side sym., input 1 kV/ μ s, typ.
Protection level on output side sym., input 8/20 μ s, typ.
Protection level on output side unsym., input 1kV/ μ s, typ.
Protection level on output side unsym., input 8/20 μ s, typ.
Design
Type of connection
Storage temperature, min./max.
Operating temperature, min./max.

24 V
29 V
0.1 A
12.50 Ω
yes
yes
yes
7.5 kHz 240 Ω
6 kA
34 V
45 V
600 V
700 V
Plug-in card
Plug-in connection
-25 °C/85 °C
-25 °C/60 °C

48 V
48 V
53 V
0.1 A
12.50 Ω
yes
yes
yes
17.0 kHz 480 Ω
6 kA
82 V
130 V
600 V
700 V
Plug-in card
Plug-in connection
-25 °C/85 °C
-25 °C/60 °C

Type of connection

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

96.6 x 20 x 117

Height incl. housing SEG-U

96.6 x 20 x 117

Height incl. housing SEG-U

Ordering data

Type	Qty.	Order No.
LPU 24VDC 100MA	1	8008390000

Can be tested with test case

Type	Qty.	Order No.
LPU 48VUC 100MA	1	on request

Can be tested with test case

Accessories

Note

Housing SEG-U 8007871001

Housing SEG-U 8007871001

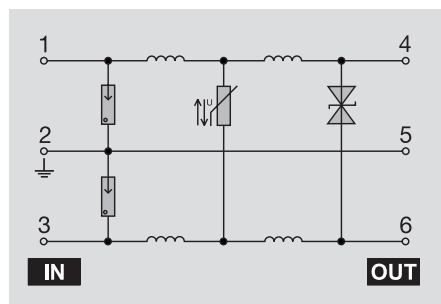
3-stage protection on circuit card

Plug-in surge protection LPU

- Please note: the housing for the LPU protection card must be ordered separately

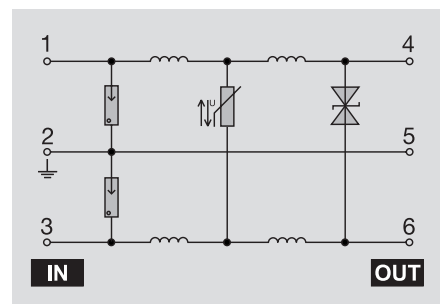
LPU 115 V UC 100 mA

not earthed



LPU 230 V UC 100 mA

not earthed



Technical data

Technical data

Rated voltage (AC)
Rated voltage (DC)
max. continuous current, I_c (AC)
Operating current, I_{max}
Volume resistivity
Gas discharge tube
Varistor
Suppression diodes
Cut-off frequency (-3 dB) at load impedance
Discharge current, max. (8/20 μ s)
Protection level on output side sym., input 1 kV/ μ s, typ.
Protection level on output side sym., input 8/20 μ s, typ.
Protection level on output side unsym., input 1 kV/ μ s, typ.
Protection level on output side unsym., input 8/20 μ s, typ.
Design
Type of connection
Storage temperature, min./max.
Operating temperature, min./max.

115 V
115 V
130 V
0.1 A
12.50 Ω
yes
yes
yes
40.0 kHz 1100 Ω
6 kA
200 V
220 V
600 V
700 V
Plug-in card
Plug-in connection
-25 °C/85 °C
-25 °C/60 °C

230 V
230 V
250 V
0.1 A
12.50 Ω
yes
yes
yes
80.0 kHz 2200 Ω
6 kA
400 V
420 V
600 V
700 V
Plug-in card
Plug-in connection
-25 °C/85 °C
-25 °C/60 °C

Type of connection

Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm

Note

Height incl. housing SFG-U

Ordering data

Note

Accessories

Note

Type	Qty.	Order No.
LPU 115VUC 100MA	1	on request
Can be tested with test case		

Type	Qty.	Order No.
LPU 230VUC 100MA	1	on request
Can be tested with test case		

Housing SEG-U 8007871001

Extract from the TRbF – Technical Rules for Combustible Fluids

Requirements:

1. Indoor plants that require licences and are situated above ground for the storage, filling or conveying of combustible fluids, or outdoor tanks above ground and underground tanks not surrounded on all sides by earth, masonry or concrete or several of these materials must be protected against ignition hazards and lightning strikes by suitable means.
2. Paragraph 1 also applies to outdoor tanks above ground that are used for the storage of combustible fluids of hazard class A III if certain fluids of this hazard class are stored together with those of hazard classes A I, A II or B within one tank bund.
3. Irrespective of paragraphs 1 and 2 and furthermore, intrinsically safe circuits whose lines enter the tank for the purpose of, for example, instrumentation and control, ...

... must satisfy the following requirements:

1. Surge protection in a metal enclosures (e.g. terminal box) must be incorporated before the line enters the tank. The steel enclosure containing the surge protection is to have a direct and dependable electrically conductive connection with the tank wall or the shielding that guarantees a safe and secure equipotential bonding.
2. A suitable cable/line complying with CENELEC harmonisation documents 21 and 22 is required from the control room to the steel enclosure containing the surge protection and the cable/line from the surge protection installation to the storage tank should be provided in a protective metal conduit. The metal sheathing, shielding or the protective metal conduit must be earthed. The test voltage U_{eff} between the wires and the metal sheathing, shielding or protective metal conduit for the cable/line from the metal housing containing the surge protection to the storage tank must be at least 1500 V.
3. The cable/line between the steel enclosure containing the surge protection and the entry into the tank should be routed in such a way that lightning is unlikely to affect this line.

Solutions:

Surge protection installation at the actuator (control room):

This is where the surge protection is earthed. Types LPU 800433 or LPU 800844 are used. The plug-in LPU surge protection is plugged into the SEG-U housing (available as an accessory). But the surge protection system can be used in the form of a terminal:

- for current loops – DKU 843777
- for binary signals
 - 24 V – DKU 801580 or 802581
 - 60 V – DKU 801928 or 801929

Surge protection installation at the sensor

This is where the surge protection installation has a floating earth connection via a gas discharge tube. The earth is achieved via a gas discharge tube for 470 V from the line to earth (DK4U 940044 / DK4U 940045). Surge protection may be incorporated between the lines, e.g. LPU 822524 / LPU 822525 or DK4U 940040, DK4U 940050. The surge protection installation upstream of the sensor must be incorporated in an enclosure complying with the TRbF regulations before the line enters the tank. Weidmüller housings, which carry the appropriate approval, can be used for this. The enclosure must have a conductive connection to the tank.

Installation of surge protection

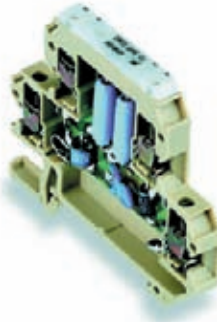
The surge protection developed by Weidmüller comprises “passive components” which can be used taking into account the internal inductance and capacitance in the instrumentation and control circuits. To simplify the installation, some other products from the standard surge protection range have been approved to ATEX requirements (complying with EN 50014, EN 50020 and EN 50281). These products can be employed in both intrinsically safe and non-intrinsically safe circuits. The difference lies in the maximum permissible rated data of these products. When planning your instrumentation and control circuits, please refer to the technical data on the following pages.

DKU

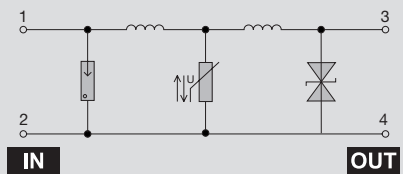
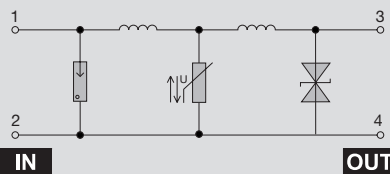
Slimline surge protection terminals with ATEX approval

DKU 24 V

for TS 32

**DKU 24 V**

for TS 35

**Technical data****Technical data**

DC voltage
Volume resistance 1/3
Rated current per path
Inductance of 4-pole network L_i
Capacitance of 4-pole network C_i
Source impedance frequency response at 50 Ω -3 dB
 $\Delta T_{\bar{u}}$ at 0.1 A and 60 °C ambient temperature, typical
Sparkover voltage of gas discharge tube at 1 kV/ μ s, typical
Interference voltage at output for 1 kV/ μ s at input, typical
Interference voltage at output for 8/20 μ s and 2.5 kA at input, typical
max. leakage current to PE
Ingress protection class
Circuit earthed for safety
Operating temperature
Clamping point with self-locking screw
Approval
Registered design No.

28 V
3.5 Ω
0.22 A
0.2 mH
2.5 nF
500 kHz at $R_i = 240 \Omega$
18 K
700 V
33 V
38 V
10 μ A
IP20
yes
-25 °C ... +60 °C
yes
II 2 G EEx ia IIC T6 or II 2 D T85 °C IP6X
TÜV 04 ATEX 2551 X

28 V
3.5 Ω
0.22 A
0.2 mH
2.5 nF
500 kHz at $R_i = 240 \Omega$
18 K
700 V
33 V
38 V
10 μ A
IP20
yes
-25 °C ... +60 °C
yes
II 2 G EEx ia IIC T6 or II 2 D T85 °C IP6X
TÜV 04 ATEX 2551 X

Connect the earth terminal to the equipotential bonding.

When using the surge protection component in areas at risk of dust explosion, provide a housing that complies with class of protection IP 6X at least (to EN 60529) and also satisfies the conditions of EN 50281-1-1 points 4, 8 and 9.

Connect the earth terminal to the equipotential bonding.

When using the surge protection component in areas at risk of dust explosion, provide a housing that complies with class of protection IP 6X at least (to EN 60529) and also satisfies the conditions of EN 50281-1-1 points 4, 8 and 9.

Notes**Ordering data****Version**

Type	Qty	Order No.
DKU 32 24 VDC 0.22 A		8015800000

Type	Qty	Order No.
DKU 35 24 VDC 0.22 A		8015810000

Notes**Accessories**

Type	Qty	Order No.
Abschlussplatte AP DKT 4 PA		0687560000

Type	Qty	Order No.
Abschlussplatte AP DKT 4 PA		0687560000

Notes

Surge protection for instrumentation and control systems

DKU

Slimline surge protection terminals with ATEX approval

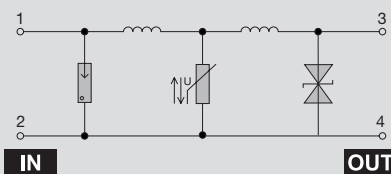
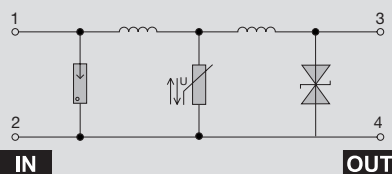
DKU 48 V

for TS 32



DKU 48 V

for TS 35



Technical data

Technical data

DC voltage
Volume resistance 1/3
Rated current per path
Inductance of 4-pole network L_i
Capacitance of 4-pole network C_i
Source impedance frequency response at 50 Ω -3 dB
 Δ $T_{\text{Ü}}$ at 0.1 A and 60 °C ambient temperature, typical
Sparkover voltage of gas discharge tube at 1 kV/ μ s, typical
Interference voltage at output for 1 kV/ μ s at input, typical
Interference voltage at output for 8/20 μ s and 2.5 kA at input, typical
max. leakage current to PE
Ingress protection class
Circuit earthed for safety
Operating temperature
Clamping point with self-locking screw
Approval
Registered design No.

60 V
3.5 Ω
0.22 A
0.2 mH
1 nF
1000 kHz at $R_i = 480 \Omega$
11 K
700 V
82 V
100 V

10 μ A
IP20
yes
-25 °C ... +60 °C
yes
II 2 G EEx ia IIC T6 or II 2 D T85 °C IP6X
TÜV 04 ATEX 2551 X

60 V
3.5 Ω
0.22 A
0.2 mH
1 nF
1000 kHz at $R_i = 480 \Omega$
11 K
700 V
82 V
100 V

10 μ A
IP20
yes
-25 °C ... +60 °C
yes
II 2 G EEx ia IIC T6 or II 2 D T85 °C IP6X
TÜV 04 ATEX 2551 X

Connect the earth terminal to the equipotential bonding.
When using the surge protection component in areas at risk of dust explosion, provide a housing that complies with class of protection IP 6X at least (to EN 60529) and also satisfies the conditions of EN 50281-1-1 points 4, 8 and 9.

Connect the earth terminal to the equipotential bonding.
When using the surge protection component in areas at risk of dust explosion, provide a housing that complies with class of protection IP 6X at least (to EN 60529) and also satisfies the conditions of EN 50281-1-1 points 4, 8 and 9.

Notes

Ordering data

Version

Type	Qty	Order No.
DKU 32 48 VUC 0.22 A		8019280000

Type	Qty	Order No.
DKU 35 48 VUC 0.22 A		8019290000

Notes

Accessories

Type	Qty	Order No.
Abschlussplatte AP DKT 4 PA		0687560000

Type	Qty	Order No.
Abschlussplatte AP DKT 4 PA		0687560000

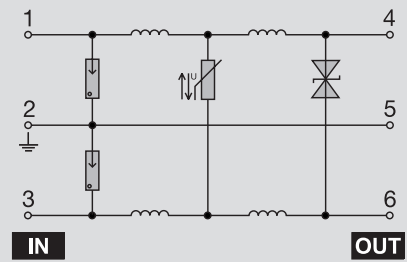
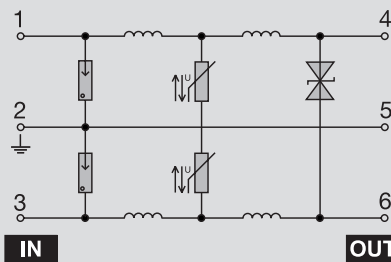
Notes

LPU pluggable surge protection

with ATEX approval

LPU 24 V 0.5 A

LPU 29 V 0.062 A



Technical data

Technical data

DC voltage
Volume resistance 1/3
Rated current per path
Inductance of 4-pole network L_i
Capacitance of 4-pole network C_i
Source impedance frequency response at 50 Ω -3 dB
 ΔT_u at 0.1 A and 60 °C ambient temperature, typical
Sparkover voltage of gas discharge tube at 1 kV/ μ s, typical
Interference voltage at output for 1 kV/ μ s at input, typical
Interference voltage at output for 8/20 μ s and 2.5 kA at input, typical
max. leakage current to PE
Ingress protection class
Storage temperature
Operating temperature
Circuit earthed for safety
Clamping point with self-locking screw
Approval
Registered design No.

24 V
0.15 Ω
0.5 A
< 0.1 mH
7.5 nF
150 kHz at $R_i = 16 \Omega$
< 15 K
700 V
39 V
65 V
10 μ A
IP20
-25 °C ... +85 °C
-25 °C ... +60 °C
yes
yes
II 2 G EEx ia IIC T6 or II 2 D T85 °C IP6X
TÜV 04 ATEX 2551 X

Connect the earth terminal to the equipotential bonding.

When using the surge protection component in areas at risk of dust explosion, provide a housing that complies with class of protection IP 6X at least (to EN 60529) and also satisfies the conditions of EN 50281-1-1 points 4, 8 and 9.

29 V
0.15 Ω
62 mA
9.5 mH
6 nF
4.5 kHz at $R_i = 240 \Omega$
< 15 K
800 V
33 V
38 V
10 μ A
IP20
-25 °C ... +85 °C
-25 °C ... +60 °C
no
yes
II 2 G EEx ia IIC T6 or II 2 D T85 °C IP6X
TÜV 04 ATEX 2551 X

Connect the earth terminal to the equipotential bonding.

When using the surge protection component in areas at risk of dust explosion, provide a housing that complies with class of protection IP 6X at least (to EN 60529) and also satisfies the conditions of EN 50281-1-1 points 4, 8 and 9.

Notes

Ordering data

Version

Type	Qty	Order No
LPU 24 VUC 0.5A		8008430000

Type	Qty	Order No
LPU 24 V DC 62 mA		8225240000

Notes

Accessories

Version

Type	Qty	Order No
Gehäuse SEG-U		8007871001

Type	Qty	Order No
Gehäuse SEG-U		8007871001

Notes

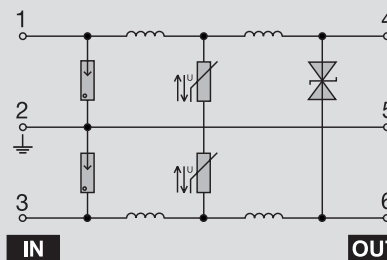
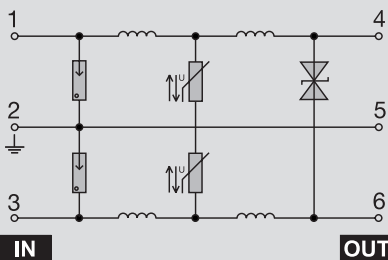
Surge protection for instrumentation and control systems

LPU pluggable surge protection LPU

with ATEX approval

LPU 48 V 0.062 A

LPU 60 V 0.5 A



Technical data

Technical data

DC voltage
Volume resistance 1/3
Rated current per path
Inductance of 4-pole network L_i
Capacitance of 4-pole network C_i
Source impedance frequency response at 50 Ω -3 dB
 ΔT_u at 0.1 A and 60 °C ambient temperature, typical
Sparkover voltage of gas discharge tube at 1 kV/ μ s, typical
Interference voltage at output for 1 kV/ μ s at input, typical
Interference voltage at output for 8/20 μ s and 2.5 kA at input, typical
max. leakage current to PE
Ingress protection class
Storage temperature
Operating temperature
Circuit earthed for safety
Clamping point with self-locking screw
Approval
Registered design No.

48 V
13 Ω
62 mA
9.5 mH
1.8 nF
9 kHz at $R_i = 480 \Omega$
< 15 K
800 V
82 V
90 V
10 μ A
IP20
-25 °C ... +85 °C
-25 °C ... +60 °C
no
yes
II 2 G EEx ia IIC T6 to II 2 D T85 °C IP6X
TÜV 04 ATEX 2551 X

60 V
13 Ω
0.5 A
< 0.1 mH
3.5 nF
300 kHz at $R_i = 32 \Omega$
< 15 K
700 V
82 V
115 V
10 μ A
IP20
-25 °C ... +85 °C
-25 °C ... +60 °C
yes
yes
II 2 G EEx ia IIC T6 to II 2 D T85 °C IP6X
TÜV 04 ATEX 2551 X

Connect the earth terminal to the equipotential bonding.

When using the surge protection component in areas at risk of dust explosion, provide a housing that complies with class of protection IP 6X at least (to EN 60529) and also satisfies the conditions of EN 50281-1-1 points 4, 8 and 9.

Connect the earth terminal to the equipotential bonding.

When using the surge protection component in areas at risk of dust explosion, provide a housing that complies with class of protection IP 6X at least (to EN 60529) and also satisfies the conditions of EN 50281-1-1 points 4, 8 and 9.

Notes

Ordering data

Version

Type	Qty	Order No.
LPU 48 V 62mA		8225250000

Type	Qty	Order No.
LPU 60V 0,5A		8008440000

Notes

Accessories

Version

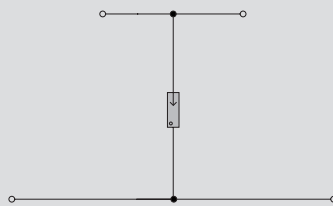
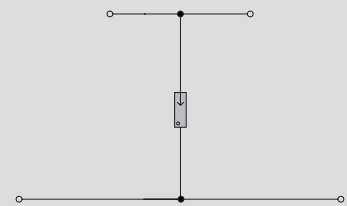
Type	Qty	Order No.
Gehäuse SEG-U		8007871001

Type	Qty	Order No.
Gehäuse SEG-U		8007871001

Notes

DKU slimline surge protection terminals

with ATEX approval

DKU 48 V**DKU 65 V****Technical data****Technical data**

DC voltage
Volume resistance 1/3
Rated current per path
Inductance of 4-pole network L_i
Capacitance of 4-pole network C_i
Source impedance frequency response at 50 Ω -3 dB
 Δ T_U at 0.1 A and 60 °C ambient temperature, typical
Sparkover voltage of gas discharge tube at 1 kV/ μ s, typical
Interference voltage at output for 1 kV/ μ s at input, typical
Interference voltage at output for 8/20 μ s and 2.5 kA at input, typical
max. leakage current to PE
Ingress protection class
Circuit earthed for safety
Operating temperature
Circuit safety grounded
Clamping point with self-locking screw
Approval
Registered design No.

48 V
-
0.5 A
-
-
-
< 15 K
700 V
700 V
800 V
1 μ A
IP20
-25 °C ... +85 °C
-25 °C ... +60 °C
yes
yes
II 2 G EEx ia IIC T6 or II 2 D T85 °C IP6X
TÜV 04 ATEX 2551 X

Connect the earth terminal to the equipotential bonding.

When using the surge protection component in areas at risk of dust explosion, provide a housing that complies with class of protection IP 6X at least (to EN 60529) and also satisfies the conditions of EN 50281-1-1 points 4, 8 and 9.

65 V
-
0.5 A
-
-
-
< 15 K
1100 V
1100 V
1200 V
1 μ A
IP20
-25 °C ... +85 °C
-25 °C ... +60 °C
no
yes
II 2 G EEx ia IIC T6 or II 2 D T85 °C IP6X
TÜV 04 ATEX 2551 X

Connect the earth terminal to the equipotential bonding.

When using the surge protection component in areas at risk of dust explosion, provide a housing that complies with class of protection IP 6X at least (to EN 60529) and also satisfies the conditions of EN 50281-1-1 points 4, 8 and 9.

Notes**Ordering data****Version**

Type	Qty	Order No.
DK 4/35 U 90 V 20 kA		9400500000
DK 4/32 U 90 V 20 kA		9400400000

Type	Qty	Order No.
DK 4/35 U 470 V 20 kA		9400540000
DK 4/32 U 470 V 20 kA		on request

Notes**Accessories**

Type	Qty	Order No.
AP DK4		0359260000

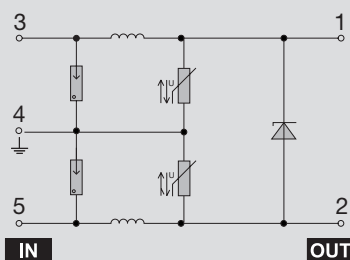
Type	Qty	Order No.
AP DK4		0359260000

Notes

DKU slimline surge protection

with ATEX approval

DKU DK 5 28 V



Technical data

Technical data

DC voltage
Volume resistance 1/3
Rated current per path
Inductance of 4-pole network Li
Capacitance of 4-pole network Ci
Source impedance frequency response at 50 Ω -3 dB
 Δ Tü at 0.1 A and 60 °C ambient temperature, typical
Sparkover voltage of gas discharge tube at 1 kV/ μ s, typical
Interference voltage at output for 1 kV/ μ s at input, typical
Interference voltage at output for 8/20 μ s and 2.5 kA at input, typical
typical
max. leakage current to PE
Ingress protection class
Storage temperature
Operating temperature
Circuit earthed for safety
Clamping point with self-locking screw
Approval
Registered design No.

28 V
3.5 Ω
0.3 A
0.2 mH
1.3 nF
500 kHz at Ri = 240 Ω
< 15 K
700 V
33 V
38 V
10 μA
IP20
-25 °C ... +85 °C
-25 °C ... +60 °C
yes
yes
II 2 G EEx ia IIC T6 or II 2 D T85 °C IP6X
TÜV 04 ATEX 2551 X

Connect the earth terminal to the equipotential bonding.

When using the surge protection component in areas at risk of dust explosion, provide a housing that complies with class of protection IP 6X at least (to EN 60529) and also satisfies the conditions of EN 50281-1-1 points 4, 8 and 9.

Notes

Ordering data

Version
Notes

Type	Qty	Order No.
DKU DK5 24 VDC 100 MA		8437770000

Accessories

Notes

Type	Qty	Order No.
AP DK5		4036780000

ATEX certificates

**TÜV
CERT**
Translation

EC-TYPE EXAMINATION CERTIFICATE

(1) **EC-TYPE EXAMINATION CERTIFICATE**

(2) Equipment and protective systems intended for use in potentially explosive atmospheres - **Directive 94/9/EC**

(3) EC-Type Examination Certificate Number

TÜV 04 ATEX 2551 X

(4) Equipment: Overvoltage protection component type DK... resp. LPU...

(5) Manufacturer: Weidmüller Interface GmbH & Co. KG

(6) Address: Ringenbergstraße 16
D-32758 Detmold

(7) This equipment or protective system and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The TÜV NORD CERT GmbH & Co. KG, TÜV CERT-Certification Body, notified body number N° 0032 in accordance with Article 9 of the Council Directive of the E.C. of March 23, 1994 (94/9/EC), certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential report N° 04 YEX 551504.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60014-1997 • A1 • A2 EN 60020-2002 EN 50281-1-1:1998 • A1

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-type examination certificate relates only to the design, examination and tests of the specified equipment in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment or protective system must include the following:

**II 2 G EEx ia IIC T6 resp.
II 2 D T85°C IP6X**

TÜV NORD CERT GmbH & Co. KG
TÜV CERT-Certification Body
Am TÜV 1
D-50579 Hannover
Tel.: 0511 988-1470
Fax: 0511 988-0259

Hannover, 2008-09-21

**TÜV
NORD
CERT**

Head of the Certification Body

This certificate may only be reproduced without any change. Activities included.
Examples or changes shall be allowed by the TÜV NORD CERT GmbH & Co. KG

page 1/3

SCHEDULE

**TÜV
NORD**

(14) **EC-TYPE EXAMINATION CERTIFICATE N° TÜV 04 ATEX 2551 X**

(15) **Description of equipment**

The overvoltage protection component type DK... resp. LPU... is for the serial installation into the intrinsically safe circuit that has to be protected. The component limits overvoltages in the intrinsically safe circuit.

The permissible ambient temperature range is -25°C to +60°C.

Electrical data

Supply and output circuit in type of protection intrinsic Safety EEx ia IIC resp. IIB only for the connection of certified intrinsically safe circuits

The electrical data, the permissible ambient temperature and the data about the safety-relevant earthing in dependence on the type have to be taken from the tables.

Type	DKU 801508 DKU 801501	DKU 801509 DKU 801509	DKAU 940544 DKAU 940554	DKAU 940548 DKAU 940550
Voltage	28 V	30 V	60 V	48 V
Current	200 mA	200 mA	500 mA	500 mA
Internal capacitance	2,3 nF	1 nF		
Internal inductance	0,2 mH	0,2 mH		
Circuit safety-relevant earthing	yes	yes	No	Yes

Type	LPU 800843	LPU 802524	LPU 802525	LPU 800844
Voltage	34 V	28 V	60 V	60 V
Current	500 mA	60 mA	60 mA	500 mA
Internal capacitance	7,3 nF	9 nF	1,8 nF	3,3 nF
Internal inductance	< 0,1 mH	0,5 mH	0,5 mH	< 0,1 mH
Circuit safety-relevant earthing	yes	no	No	yes

Type	DKU 943777
Voltage	28 V
Current	300 mA
Internal capacitance	1,3 nF
Internal inductance	0,2 mH
Circuit safety-relevant earthing	yes

(16) Test documents are listed in the test report No.: 04 YEX 551543.

page 2/3

**TÜV
NORD**

Schedule EC-Type Examination Certificate N° TÜV 04 ATEX 2551 X

(17) **Special conditions for safe use**

The earthing terminal has to be connected to the potential equalization system.

If the overvoltage protection component is used in hazardous areas caused by the presence of combustible dust an enclosure must be provided that at least fulfils the degree of protection of IP6X according to EN 60529 and the requirements of the standard EN 50281-1-1 paragraph 4, 6 and 9.

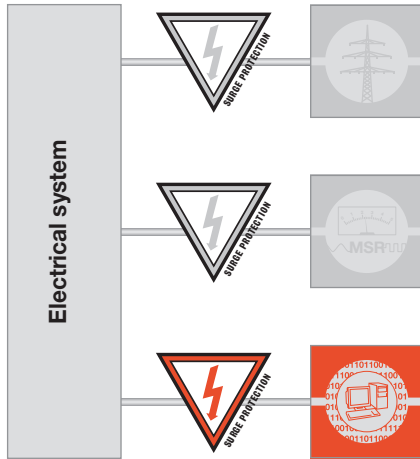
(18) **Essential Health and Safety Requirements**

no additional ones

page 3/3

Surge protection for data interfaces

The principles of data transmission



"Data transmission" is the name given to the sending of characters, numbers, statuses and measurements between different, decentralised units. Decentralised units are, for example, controls, computers, measuring sensors, actuators, etc. One unit transmits the data, the second unit receives it. This corresponds to the simplest method of data transmission. It is often necessary for one unit to receive data and then send an "answer" back to the other unit. Two data lines in a back-to-back arrangement are required for this, or data lines are combined by providing each end of the data line with a transmitter and receiver.

Structures and properties of networks

There are various options for networking data terminals. We distinguish between star, ring, point-to-point and bus networks.

Star networks

The main unit is located in the centre. The individual data lines then radiate out from this centre to the individual terminals. In this system all data terminals are connected to the central terminal via their own cable.

Ring networks

The computers or data terminals are all connected to each other like a chain by means of, for example, coaxial cable. In this case the data is passed on from one data terminal to the next. Therefore, the entire ring is always under load. The advantage of the ring network is that it can cover a larger area than a star network because the length of the transmission path is only ever the distance between two adjacent data terminals.

Point-to-point networks

These are basically networks between two data terminals that are connected directly with each other, e.g. an RS 232 or RS 422 link.

Bus networks

These are networks based on the parallel connection of modules. All components operate on one and the same line. Therefore, only two/four wires are required for the data bus. If bus cabling includes branches, then we call that a tree structure. Every bus system includes a bus controller that issues "transmission licences" to the individual data terminals.

Transmission media

In order to be able to send any data at all, data lines are necessary:

Two- and three-wire systems

Data transmissions requiring relatively low transmission rates can make use of two-wire systems. For example, an ISDN system acting as an exchange line to a building requires only two wires. However, other types of bus systems also require only two or three wires.

Four-wire systems

This is the current standard for the majority of corporate data networks. Two wires are used for transmitting data and two for receiving. These cables are well shielded and can transmit data with frequencies of up to 500 MHz over distances of up to 100 m.

Coaxial cable

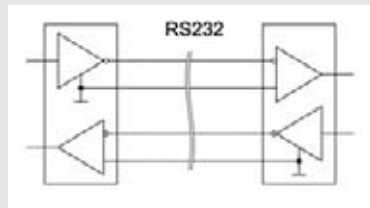
Sending data via coaxial cables is a rather old technique. This method is too slow and inflexible and so only a few businesses are still using such systems. Speeds of up to about 12 Mbps are no longer adequate these days. Over longer distances, modern fibre-optic cables are replacing this technology; these can transmit several hundred Mbps.

Serial interfaces

A serial interface operates with 8 data bits (1 byte). A start bit (low bit) is always sent before the output of a byte, and one or two stop bits (high bits) are appended to the end of the byte. This encryption is critical for the data receiver as it can then detect where each data byte begins and ends. Serial interfaces frequently operate with +5 V (logical 1) and 0 V (logical 0). Advantage: less cabling (only 3 wires). Disadvantage: slow data transmission.

**RS232**

Serial interface for point-to-point connections up to 20 kbit/s
Voltage signal to earth:
logic 1 (mark) -15 V to -3 V
logic 0 (space) +3 V to +15 V
max. signal level ± 15 V
Lines up to 20 m long depending on transmission rate.



Protective module in adapter plug housing

RS232-8 B/S25

Page F.106

RS232-8 S/B25

Page F.106

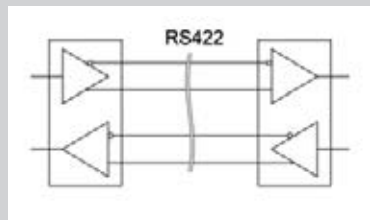
Protective module in housing for fitting to mounting rail
EGU4 EG3 RS232

Page F.106

F

RS422

Serial unidirectional high-speed interface for up to 10 parallel receivers
Differential voltage signal:
logic 1 (mark) $A-B < -0.3$ V
logic 0 (space) $A-B > +0.3$ V
max. signal level ± 12 V
Lines up to 1200 m long
max. data rate 10 Mbit/s



Protective module in housing for fitting to mounting rail
LPU RS422 / RS485

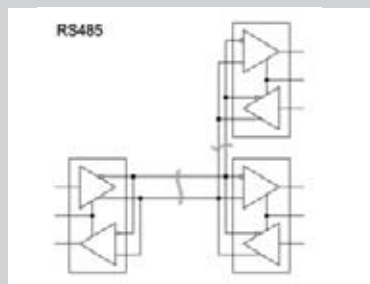
Page F.107

Protective module in housing for fitting to mounting rail
RS 485 K21 / RS 422

Page F.107

RS485

Serial bidirectional high-speed interface for up to 32 subscribers
2- or 4-wire system
Differential voltage signal:
logic 1 (mark) $A-B < -0.3$ V
logic 0 (space) $A-B > +0.3$ V
max. signal level -7 V to +12 V
Lines up to 1200 m long
max. data rate 10 Mbit/s



Protective module in housing for fitting to mounting rail
MCZ sp LON-Bus

Page F.108

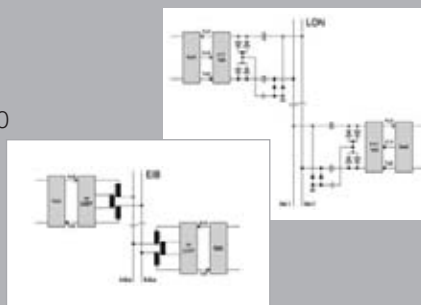
LON™ termination
DIALOG BUS TERMINATION

Page F.108

Ethernet Cat.5

Page F.109

LON™ (twisted pair)
Series bus with TP/XF-78 (old)
Series bus with TP/XF-1250
Series bus or free topology with TP/FT-10
Series bus or free topology with LPT-10
EIB (European Installation Bus)
Twisted pair or power line
Series, star-type or tree bus
(also combinations thereof) 9600 bit/s
Building services automation



Surge protection for data interface

RS232

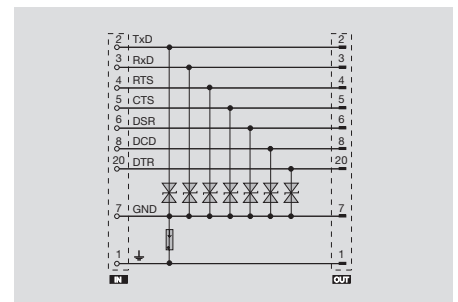
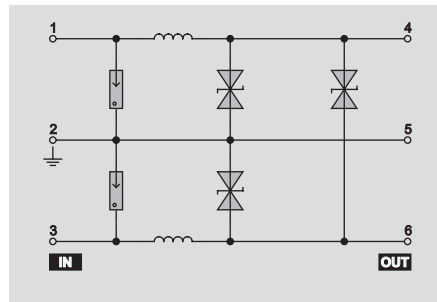
RS 232

EGU 4 RS232



RS 232

RS232 adapter plug



Technical data

Technical data

Rated voltage (AC)	12 V
max. continuous current, I_c (AC)	14.5 V
Operating current, I_{max}	0.1 A
Volume resistivity	1.30 Ω
Build rate	≤ 9600 Bd
Response time	≤ 5 ns
Gas discharge tube	yes
Varistor	no
Suppression diodes	yes
Cut-off frequency (-3 dB) at load impedance	30.0 kHz 600 Ω
Discharge current, max. (8/20 μ s)	5 kA
Protection level on output side sym., input 1 kV/ μ s, typ.	20 V
Protection level on output side sym., input 8/20 μ s, typ.	32 V
Protection level on output side unsym., input 1 kV/ μ s, typ.	20 V
Protection level on output side unsym., input 8/20 μ s, typ.	32 V
Design	integral housing
Type of connection	Screw connection
Storage temperature, min./max.	-25 °C/85 °C
Operating temperature, min./max.	-25 °C/60 °C

12 V
14.5 V
0.1 A
1.30 Ω
≤ 9600 Bd
≤ 5 ns
yes
no
yes
30.0 kHz 600 Ω
5 kA
20 V
32 V
20 V
32 V
integral housing
Screw connection
-25 °C/85 °C
-25 °C/60 °C

12 V
15 V
0.1 A
1.00 Ω
≤ 19200 Bd
≤ 5 ns
yes
no
yes
30.0 kHz 1200 Ω
0.5 kA
20 V
28 V
20 V
28 V
adapter plug
-40 °C/60 °C
-20 °C/55 °C

Dimensions

Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm

Note

Screw connection

2.5 / 0.5 / 4
58 x 22.5 x 95

Protection for data lines Rx/D, Tx/D and Gnd

64 x 56 x 16.5

Protection for data and handshake lines

Ordering data

Version

Type Qty. Order No.

EGU4 EG3 RS232 DATENLTG 1 1170460000

Type Qty. Order No.

RS232-8 B/S25 1 8570500000

RS232-8 S/B25 1 8570510000

Note

ZS-RS 232/B-S cable-side 25-pole SUB-D socket, unprotected
ZS-RS 232/S-B cable-side 25-pole SUB-D plug, unprotected

Accessories

Note

RS485/422

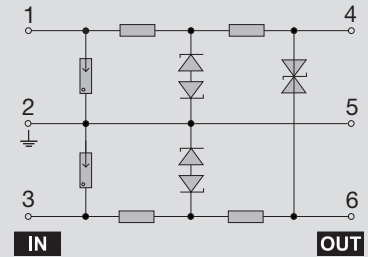
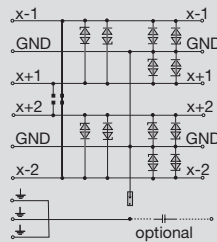
RS 485

RS485/RS422 surge protection



RS 485

RS485/RS422 plug-in surge protection



Technical data

Technical data

Rated voltage (AC)	12 V
max. continuous current, I_c (AC)	12 V
Operating current, I_{max}	1.5 A
Volume resistivity	0.50 Ω
Build rate	≤ 6 MB
Response time	≤ 5 ns
Gas discharge tube	yes
Varistor	no
Suppression diodes	yes
Cut-off frequency (-3 dB) at load impedance	
Discharge current, max. (8/20 μ s)	0.5 kA
Protection level on output side sym., input 1 kV/ μ s, typ.	18 V
Protection level on output side sym., input 8/20 μ s, typ.	28 V
Protection level on output side unsym., input 1 kV/ μ s, typ.	18 V
Protection level on output side unsym., input 8/20 μ s, typ.	28 V
Design	Miscellaneous
Type of connection	Screw connection
Storage temperature, min./max.	-25 °C/85 °C
Operating temperature, min./max.	-25 °C/60 °C

Rated voltage (AC)	6 V
max. continuous current, I_c (AC)	12 V
Operating current, I_{max}	1.5 A
Volume resistivity	12.00 Ω
Build rate	≤ 9600 Bd
Response time	≤ 5 ns
Gas discharge tube	yes
Varistor	no
Suppression diodes	yes
Cut-off frequency (-3 dB) at load impedance	
Discharge current, max. (8/20 μ s)	5 kA
Protection level on output side sym., input 1 kV/ μ s, typ.	18 V
Protection level on output side sym., input 8/20 μ s, typ.	36 V
Protection level on output side unsym., input 1 kV/ μ s, typ.	18 V
Protection level on output side unsym., input 8/20 μ s, typ.	36 V
Design	Plug-in card
Type of connection	Plug-in connection
Storage temperature, min./max.	-25 °C/85 °C
Operating temperature, min./max.	-25 °C/60 °C

Rated voltage (AC)	6 V
max. continuous current, I_c (AC)	12 V
Operating current, I_{max}	1.5 A
Volume resistivity	12.00 Ω
Build rate	≤ 9600 Bd
Response time	≤ 5 ns
Gas discharge tube	yes
Varistor	no
Suppression diodes	yes
Cut-off frequency (-3 dB) at load impedance	
Discharge current, max. (8/20 μ s)	5 kA
Protection level on output side sym., input 1 kV/ μ s, typ.	18 V
Protection level on output side sym., input 8/20 μ s, typ.	36 V
Protection level on output side unsym., input 1 kV/ μ s, typ.	18 V
Protection level on output side unsym., input 8/20 μ s, typ.	36 V
Design	Plug-in card
Type of connection	Plug-in connection
Storage temperature, min./max.	-25 °C/85 °C
Operating temperature, min./max.	-25 °C/60 °C

Dimensions

Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm

Note

Screw connection

1.5 / 0.5 / 4
125 x 80 x 57

Plug-in connection

96.6 x 20 x 117

Ordering data

Version

Type	Qty.	Order No.
RS 485 K21 UE-SCHUTZ SE	1	8008501001

Type	Qty.	Order No.
LPU RS 485	1	9454930000

Note

Accessories

Note

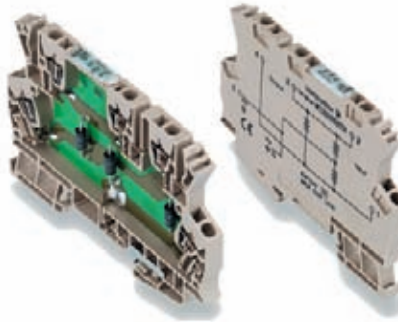
Housing SEG-U 8007871001

Surge protection for data interface

LON™

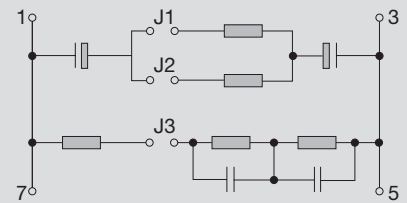
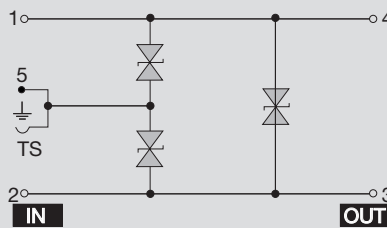
LON FTT / TP78

Protection for LonWorks signals



Dialog termination

Bus terminator for LonWorks signals



Technical data

Technical data

Rated voltage (AC)
max. continuous current, I_c (AC)
Operating current, I_{max}
Volume resistivity
Build rate
Response time
Gas discharge tube
Varistor
Suppression diodes
Cut-off frequency (-3 dB) at load impedance
Discharge current, max. (8/20 μ s)
Protection level on output side sym., input 1 kV/ μ s, typ.
Protection level on output side sym., input 8/20 μ s, typ.
Protection level on output side unsym., input 1 kV/ μ s, typ.
Protection level on output side unsym., input 8/20 μ s, typ.
Design
Type of connection
Storage temperature, min./max.
Operating temperature, min./max.

12 V
14 V
16 A
0.50 Ω

≤ 100 ps

no

no

yes

0.1 kA

20 V

32 V

20 V

32 V

terminal

tension clamp connection

-25 °C/60 °C

-25 °C/55 °C

48 V
60 V
16 A
0.50 Ω

no

no

no

terminal

Screw connection

-25 °C/60 °C

-25 °C/55 °C

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

tension clamp connection

1.5 / 0.5 / 1.5

91 x 6 x 63.2

Screw connection

2.5 / 0.5 / 4

65 x 12 x 57

Ordering data

Version

Type	Qty.	Order No.
MCZ OVP LON-Bus	10	8473470000

Type	Qty.	Order No.
DIALOG BUS TERMINATION Abschluss 5	5	8496110000

Note

LON is a trademark of Echolon

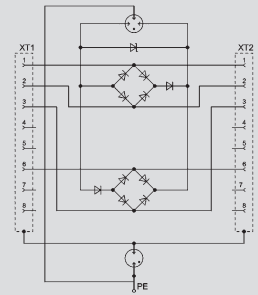
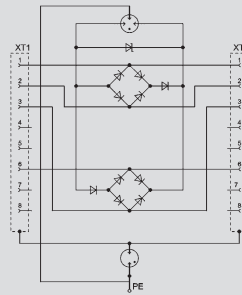
Select termination LPT/FTT/TP78 via jumper

Accessories

Note

Cat.5 surge protection

- Connection via RJ 45 sockets
- Protection for all signal lines
- Suitable for 10BaseTx and 100BaseTx
- PE connection via M4 screw

DME 100Tx-4RJ**Ethernet Cat.5****DME 100Tx-4RJ TS 35****Ethernet Cat.5****Technical data****Technical data**

Rated voltage (AC)	5 V
max. continuous current, I_c (AC)	7 V
Operating current, I_{max}	
Volume resistivity	1.30 Ω
Build rate	
Response time	≤ 5 ns
Gas discharge tube	yes
Varistor	no
Suppression diodes	yes
Cut-off frequency (-3 dB) at load impedance	
Discharge current, max. (8/20 μ s)	2 kA
Protection level on output side sym., input 1 kV/ μ s, typ.	40 V
Protection level on output side sym., input 8/20 μ s, typ.	45 V
Protection level on output side unsym., input 1 kV/ μ s, typ.	450 V
Protection level on output side unsym., input 8/20 μ s, typ.	500 V
Design	Miscellaneous
Type of connection	RJ45
Storage temperature, min./max.	-25 °C/60 °C
Operating temperature, min./max.	-20 °C/50 °C

Dimensions

Clamping range (rating- / min. / max.)	mm ²
Length x width x height	mm

Note**RJ45**

51 x 47 x 22
Data line protection for 10BaseT and 100BaseT

RJ45

55 x 64 x 22
Data line protection for 10BaseT and 100BaseT

Ordering data**Version**

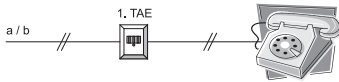
Type	Qty.	Order No.
DME100TX-4RJ	1	8738780000

Type	Qty.	Order No.
DME 100TX-4RJ TS35 Ether. Cat5	1	8830230000

Note**Accessories****Note**

Surge protection for TAE telecommunications interfaces

Surge protection for analogue connections



Besides the use of standard telephones, an analogue installation can also be used to transmit data services like fault signalling systems and Internet. The fact that besides telephones other devices like fax machines and modems are also connected to the analogue line means that the hazards due to transient interference phenomena like surges are on the increase.

TAE surge protection for analogue lines is necessary to achieve protection against these surges. The basic version of the surface-mounted TAE-NFN socket has two-stage surge protection provided by a gas discharge tube and fast-acting suppression diodes.

The gas discharge tube achieves a high energy discharge; the suppression diodes ensure a low residual voltage. This setup protects the end terminals. Other TAE surge protection sockets with monitoring functions are also available.

These monitor the connection of the voice voltage/operating voltage. As soon as this is interrupted or short-circuited, the output is switched to high resistance. This signal can be evaluated via a PLC input. A visual indication (green LED) instead of the remote signalling can be selected as an option.

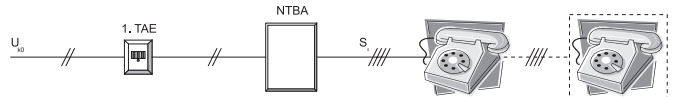
Installation instructions

The incoming telephone line must be connected with the right polarity La (-) / Lb (+). The connection of the operating voltage for the UK0 interface is monitored (transistor output is enabled). As soon as this is interrupted or short-circuited, the output is switched to high resistance. This signalling voltage of the TAE sp ISDN FM can be evaluated via a PLC input.

On the TAE SP ISDN LED model an LED indicates the operating status.

Surge protection for ISDN connections

Telephone connections at the UK0/So interface



Digital signalling enables more intensive use of larger volumes of data and higher demands to be placed on communications.

The desire to communicate via several lines calls for the installation of a digital system. Such systems make use of special modems as well as ISDN telephones. This considerably increases the risk of transient interference such as surges.

The TAE surge protection for ISDN lines can be installed to protect against these surges.

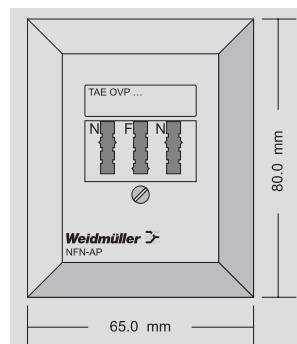
The basic version of the surface-mounted TAE-NFN socket has two-stage surge protection provided by a gas discharge tube and fast-acting suppression diodes.

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Other TAE surge protection sockets with monitoring functions are also available.

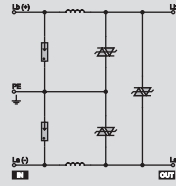
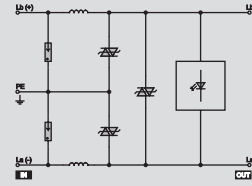
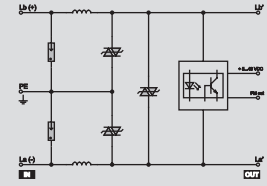
These monitor the connection of the voice voltage/operating voltage. As soon as this is interrupted or short-circuited, the output is switched to high resistance. This signal can be evaluated via a PLC input. A visual indication (green LED) instead of the remote signalling can be selected as an option.

Drawing with dimensions:



for telecommunication interface

- Surge protection for telecommunication interfaces
- High energy discharge with gas discharge tube
- Low residual voltage with special Transil diodes
- Surge protection for analogue telephone connections
- Including TAE-NFN wall-mounted socket

TAE SP**TAE SP analog****TAE SP****TAE SP analog LED****TAE SP****TAE SP analog FM****Technical data****Technical data**

Rated voltage (AC)
max. continuous current, I_c (AC)
Operating current, I_{max}
Discharge current, max. (8/20 μ s)
Response time
Protection level on output side sym., input
8/20 μ s, typ.
Protection level on output side unsym., input
8/20 μ s, typ.
Optical function indicator
Pollution severity
Surge category
Operating temperature, min./max.
Storage temperature, min./max.

General data

Input voltage, max.
Standard signal
Rated discharge current (8/20 μ s)
Total current
Response time, typical
Resistance per path
Cut-off frequency fg,600 Ω system
Transistor output, positive-switching
Residual voltage at output for input pulse of
1 kV/ μ s
Residual voltage at output for 8/20 μ s and
input pulse of 5kA

190 V
190 V
0.5 A
10 kA
 ≤ 5 ns
100 V @5kA
100 V @5kA
2
III
0 °C/60 °C
-25 °C/85 °C

190 V
Analogue telephone signal Uko
4 kA
10 kA (8/20 μ s)
 < 5 ns
1.1 Ω
2 MHz

a/b < 270 V, a-b/PE < 270V>

a-b/PE < 100 V, a-b/PE < 100V

Clamp. yoke connection

0.8 / 0.5 / 1.5
30 x 65 x 80

AP Housing NFN

190 V
190 V
0.5 A
10 kA
 ≤ 5 ns
100 V @5kA
100 V @5kA
LED
2
III
0 °C/60 °C
-25 °C/85 °C

190 V
Analogue telephone signal Uko
4 kA
10 kA (8/20 μ s)
 < 5 ns
1.1 Ω
2 MHz

a/b < 270 V, a-b/PE < 270V>

a-b/PE < 100 V, a-b/PE < 100V

Clamp. yoke connection

0.8 / 0.5 / 1.5
30 x 65 x 80

AP Housing NFN

190 V
190 V
0.5 A
10 kA
 ≤ 5 ns
100 V @5kA
100 V @5kA
2
III
0 °C/60 °C
-25 °C/85 °C

190 V
Analogue telephone signal Uko
4 kA
10 kA (8/20 μ s)
 < 5 ns
1.1 Ω
2 MHz
5...48V DC / 0,1 A

a/b < 270 V, a-b/PE < 270V>

a-b/PE < 100 V, a-b/PE < 100V

Clamp. yoke connection

0.8 / 0.5 / 1.5
30 x 65 x 80

AP Housing NFN

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note**Ordering data****Version**

Type	(Qty.=1)	Order No.
TAE OVP analog		8673980000

Note

Type	(Qty.=1)	Order No.
TAE OVP analog LED		8674020000

Type	(Qty.=1)	Order No.
TAE OVP analog FM		8649910000

Accessories**Note**

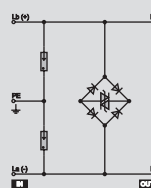
Surge protection for data interface

for telecommunication interface

- High energy discharge thanks to gas charge eliminator
- Low residual voltage thanks to special Transil diodes
- Surge protection for ISDN, including TAE-NFN wall-mounted socket

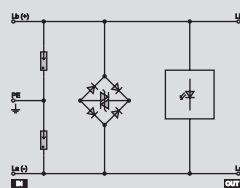
TAE SP

TAE SP ISDN



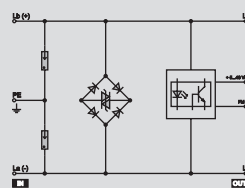
TAE SP

TAE SP ISDN LED



TAE SP

TAE SP ISDN FM



Technical data

Technical data

Rated voltage (AC)
max. continuous current, U_c (AC)
Operating current, I_{max}
Discharge current, max. (8/20 μ s)
Response time
Protection level on output side sym., input
8/20 μ s, typ.
Protection level on output side unsym., input
8/20 μ s, typ.
Optical function indicator
Pollution severity
Surge category
Operating temperature, min./max.
Storage temperature, min./max.

General data

Input voltage, max.
Standard signal
Rated discharge current (8/20 μ s)
Total current
Response time, typical
Resistance per path
Cut-off frequency fg, 600 Ω system
Transistor output, positive-switching
Residual voltage at output for input pulse of
1 kV/ μ s
Residual voltage at output for 8/20 μ s and
input pulse of 5kA

190 V
190 V
0.5 A
10 kA
 ≤ 5 ns
100 V @5kA
100 V @5kA
2
III
0 °C/60 °C
-25 °C/85 °C

190 V
ISDN telephone signal Uko interface
4 kA
10 kA (8/20 μ s)
 < 5 ns
1.1 Ω
80 MHz

a/b < 270 V, a-b/PE < 270V>

a-b/PE < 100 V, a-b/PE < 100V

Clamp. yoke connection

0.8 / 0.5 / 1.5
30 x 65 x 80

AP Housing NFN

190 V
190 V
0.5 A
10 kA
 ≤ 5 ns
100 V @5kA
100 V @5kA
green LED
2
III
0 °C/60 °C
-25 °C/85 °C

190 V
ISDN telephone signal Uko interface
4 kA
10 kA (8/20 μ s)
 < 5 ns
1.1 Ω
2 MHz

a/b < 270 V, a-b/PE < 270V>

a-b/PE < 100 V, a-b/PE < 100V

Clamp. yoke connection

0.8 / 0.5 / 1.5
30 x 65 x 80

AP Housing NFN

190 V
190 V
0.5 A
10 kA
 ≤ 5 ns
100 V @5kA
100 V @5kA
2
III
0 °C/60 °C
-25 °C/85 °C

190 V
ISDN telephone signal Uko interface
4 kA
10 kA (8/20 μ s)
 < 5 ns
1.1 Ω
2 MHz
5...48V DC / 0,1 A
a/b < 270 V, a-b/PE < 270V>

a-b/PE < 100 V, a-b/PE < 100V

Clamp. yoke connection

0.8 / 0.5 / 1.5
30 x 65 x 80

AP Housing NFN

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

Ordering data

Version

Type	(Qty.=1)	Order No.
TAE OVP ISDN		8674000000

Note

Type	(Qty.=1)	Order No.
TAE OVP ISDN LED		8674010000

Type	(Qty.=1)	Order No.
TAE OVP ISDN FM		8673970000

Accessories

Note