Datasheet

Overvoltage protection

Surge arrestor

PU 1 TSG
PU 1 TSG +

NEW

- Triggered spark gap with up to 50 kA (10/350 µs) per unit
- Low response voltage of 0.9 kV or 1.5 kV
- Slim design
- Suitable for industrial and building applications
- No decoupling to connected Class II (C) surge arrestors required

United States
Weidmuller Inc.
821 Southlake Blvd.
Richmond, Virginia 23236
Telephone: (800) 849-9343
Facsimile: (804) 379-2593
Email: info@weidmuller.com
Website: www.weidmuller.com

Canada
Weidmuller Ltd.
10 Spy Court
Markham, Ontario L3R-5H6
Telephone: (800) 268-4080
Facsimile: (905) 475-2798
Email: info1@weidmuller.ca
Website: www.weidmuller.ca

Mexico
Weidmuller, S.A. de C.V.
5 Sur No. 4311
Col. Huexotitla
72534 Puebla, Pue. Mexico
Telephone: (22) 37 2549
Facsimile: (22) 43 1981
Email: weidmull@acnet.net

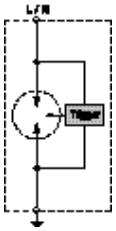
Weidmüller

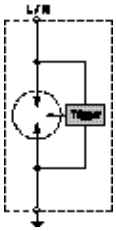
Lightning current surge arrestor with spark gap

PU 1 TSG

PU 1 TSG

Schematic circuit diagram





Ordering data	Type	Part No.	Type	Part No.
	PU 1 TSG 35 kA / 0.9 kV	**8561260000**	PU 1 TSG 50 kA / 1.5 kV	**8561230000**
Rated data				
Voltage, Vn per circuit	230 Vac		230 Vac	
Voltage, Vc per circuit	260 Vac		260 Vac	
Requirement category (Class)	I (B) surge arresters		I (B) surge arresters	
Lightning test current limp. (10/350µs)	35 kA with load of 17.5As		50 kA with load of 25 As	
Specific energy, per circuit	305 kJ/W		625 kJ/Ohm	
Safe disconnection with or without back-up fuse	3000 A / 50 Hz		500 A / 50 Hz	
Short-circuit proof with max. back-up fuse	25 kA_{eff}		–	
Discharge current I_{PE}	≤ 2.5 mA		≤ 0.1µA	
Response time, ta, typ.	≤ 1µs		≤ 1µs	
Back-up fuse max.	125 AgL		125 AgL	
Protection level Up	<0.9 kV		< 1.5 kV	
Visual function indicator	yes		no	
Design	Insta IP20 / 90 x 18 x 66 mm (3.54 x 0.71 x 2.60 in.)		Insta IP20 / 90 x 18 x 66 mm (3.54 x 0.71 x 2.60 in.)	
Color	grey		grey	
Temperature	-40°C…+85°C		-40°C…+85°C	
Connection in accordance with IEC 947-7-1				
solid core	10…35 mm² (8...2 AWG)		10…35 mm² (8...2 AWG)	
multiple core	10…25 mm² (8...2 AWG)		10…25 mm² (8...2 AWG)	
Accessories				
Cross-Connection QB unipolar 18-4		**8619440000**		**8619440000**
Cross-Connection QB unipolar 18-6		**8619450000**		**8619450000**
Markings				
BZ18 L1, L2, L3, N, PE		**8619460000**		**8619460000**
BZ18 PE, PE, PE, PE, PE		**8619470000**		**8619470000**
Approvals	UL, KEMA		UL, KEMA	

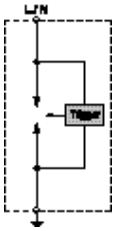
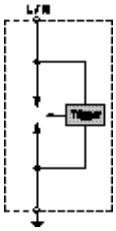
PU 1 TSG 8561260000

The lightning arrestor in accordance with Class B (after the IEC 61643-1 (2.98) is the interface between 0 on 1 (to IEC 1312-1) as a lightning protection potential compensation for DIN VDE 0675 part for 6 (draft.11.89) /A1: 3/96) for and the Class I.
The combination of several units is used for overvoltage protection in systems of type TN, TT and IT. By using an emission free spark gap, you can install these units before the electrical meter. The Lightning arrestor is installed in close proximity to the electrical supply of the plant to be protected. PU1TSG 35 kA /0,9kV 260 V is the L1, L2, L3 for the neutral conductor into combination of three or four Lightning arrestor between the Live Line and / or attached against the earthing system. The 3+1 are also called wiring and the 3+0/4+0 wirings (see illus. 1) here. A function display illuminates above 120 Vac also can indicate the failure of arrestor electronics besides the net black-out.

PU 1 TSG 8561230000

The lightning arrestor in accordance with the requirements of Class 1 (IEC 61643-1 (2.98) is the interface between 0 on 1 (to IEC 1312-1) as a lightning protection potential compensation for DIN VDE 0675 part for 6 (draft.11.89) /A1: 3/96) for and the Class I. The combination of several units are used for overvoltage protection in systems of the type TN, TT and IT. By using an emmission free spark gap, you can install these units before the electrical meter. The Lightning arrestor is installed in close proximity to the incoming supply of the plant to be protected. (PU1TSG 50 kA 260 V) is the L1, L2, L3 for the neutral conductor into combination of three or four Lightning arrestor between the Live Line and P by a short circuit voltage without back-up fuse 500 A. The normal application is to connect between N & PE in 3 phase + switched neutral systems.

Lightning current surge arrestor with spark gap

	PU 1 TSG +	PU 1 TSG +
		
Schematic circuit diagram		

Ordering data	**Type**	**Part No.**	**Type**	**Part No.**
	PU 1 TSG+ 50 kA / 0.9 kV	**8561220000**	PU 1 TSG+ 50 kA / 1.5 kV	**8561250000**
Rated data				
Voltage, Vn per circuit	330 Vac		440 Vac	
Voltage, Vc per circuit	330 Vac		440 Vac	
Requirement category (Class)	I (B) surge arresters		I (B) surge arresters	
Lightning test current limp. (10/350µs)	50 kA with load of 25 As		50 kA with load of 25 As	
Specific energy, per circuit	625 kJ/Ohm		625 kJ/Ohm	
Safe disconnection with or without back-up fuse	50 kA / 50 Hz		50 kA / 50 Hz	
Short-circuit proof with max. back-up fuse	25 kA_{eff}		25 kA_{eff}	
Discharge current I_{PE}	≤ 2.5 mA		≤ 2.5 mA	
Response time, ta, typ.	≤ 100 ns		≤ 100 ns	
Back-up fuse max.	250 AgL		250 AgL	
Protection level Up	< 0.9 kV		< 1.5 kV	
Visual function indicator	yes		yes	
Design	Insta IP20 / 151 x 36 x 81 mm (5.94 x 1.42 x 3.19 in.)		Insta IP20 / 151 x 36 x 81 mm (5.94 x 1.42 x 3.19 in.)	
Color	black		black	
Temperature	-40°C…+85°C		-40°C…+85°C	
Connection in accordance with IEC 947-7-1				
solid core	10…35 mm^2 (8...2 AWG)		10…35 mm^2 (8...2 AWG)	
multiple core	10…25 mm^2 (8...2 AWG)		10…25 mm^2 (8...2 AWG)	
Accessories				
Cross-Connection QB unipolar 18-4		**8619440000**		**8619440000**
Cross-Connection QB unipolar 18-6		**8619450000**		**8619450000**
Markings				
BZ18 L1, L2, L3, N, PE		**8619460000**		**8619460000**
BZ18 PE, PE, PE, PE, PE		**8619470000**		**8619470000**
Approvals	UL, KEMA		UL, KEMA	

PU 1 TSG+ 8561220000 / PU 1 TSG+ 8561250000

The lightning arrestor in accordance with Class B (after the IEC 61643-1 (2.98) is the interface between 0 on 1 (to IEC 1312-1) as a lightning protection potential compensation for DIN VDE 0675 part for 6 (draft.11.89) /A1: 3/96) for and the Class I.
The combination of several units is used for overvoltage protection in systems of type TN, TT and IT. By using an emission free spark gap, you can install these units before the electical meter. The Lightning arrestor is installed in close proximity to the electrical supply of the plant to be protected.

PU1TSG+ 50 kA 330 V or 440V is the L1, L2, L3 for the neutral conductor into combination of three or four Lightning arrestor between the Live Line and / or attached against the earthing system. The 3+1 are also called wiring and the 3+0/4+0 wirings here. This when mentioning the spark gap results for issues, a safe distance must be adhered of min 10 cm to potential leading parts through it. A function display illuminates above 120 Vac also can indicate the failure of arrestor electronics besides the net black-out.

Lightning current surge arrestor with spark gap

Lightning current surge arrestor with spark gap for lightning protection potential equalization

Class I overvoltage protection (B-surge arrestor)

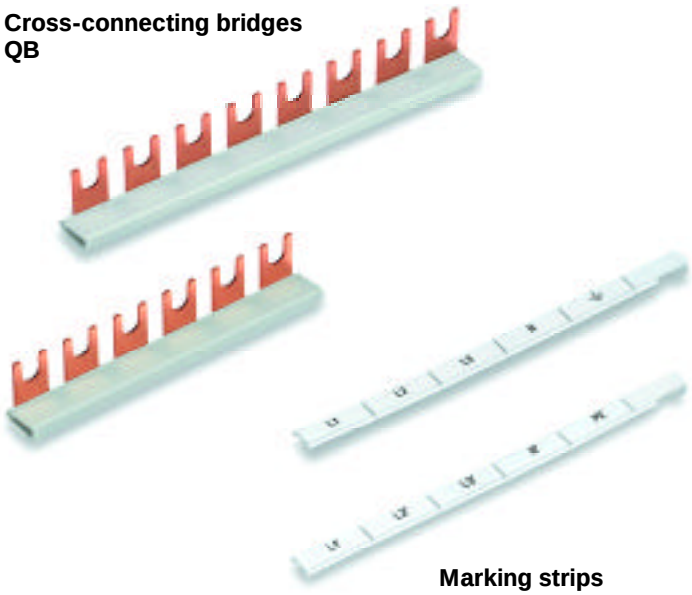
In accordance with the requirements of **Class B** (DIN VDE 0675 Part 6 (draft 11.89)/A1: 3/96) and **Class I** (in accordance with IEC 61643-1 [2.98]), lightning current arrestor serves as a lightning protection potential equalization during interface transition from 0 to 1 (in accordance with IEC 1312-1).

With several in combination, the overvoltage protection is used in the TN, TT and IT power supplies.

The triggered spark gaps ensure the required potential equalization between building lightning protection and the grounding system of the power supply in case of lightning strikes.

Through the use of a spark gap, this product meets the requirements for Class B overvoltage protection protective equipment in accordance with the German VDEW directive (1st edition 1998).

Cross-connecting bridges QB



Marking strips BZ

Class connections for building installations

The PU1TSG 35kA Class I lightning current arrestor can be connected between the main poles (L1, L2, L3). The N-PE spark gap is manufactured with the PU1TSG 50kA. Relatively short cables should be used for this purpose.

The triggered and unblown PU1TSG are either snapped onto the TS35 mounting rail in a switchgear cabinet or on a distribution board.

The maximum permissible operational voltage Uc is 260V AC. A decoupling to connected Class II (C) surge arrestors is not necessary because triggered spark gaps with low pull-in voltage are used.

Please pay attention to the installation references.

Electrical connections for industrial installations

The PU1TSG+ 50kA/330V or 440V Class I lightning current arrestor can be connected between the main poles (L1, L2, L3). The N-PE spark gap is manufactured with the PU1TSG 50kA. Relatively short cables should be used for this purpose.

The triggered and unblown PU1TSG+ 50kA are either snapped onto the TS35 mounting rail in a switchgear cabinet or on a distribution board. Due to the fact that emissions may arise during the response of the spark gap, a safety distance of at least 10cm must be kept from energized parts.

The maximum permissible operational voltage Uc is 330 or 440V AC. A decoupling to connected Class II (C) surge arrestors for 470V is not necessary because triggered spark gaps with low pull-in voltage are used.

Please pay attention to the installation references.

Functional test, maintenance and approval

You can check the PU1TSG and PU1TSG+ overvoltage protection modules by visual inspection. A function display is illuminated from 120V AC on. This display can report a power failure or an ignition electronics failure. This functional test should be done more often during thunderstorms.

Through triggered spark gaps a very low protection level of below 1.5 kV, with high discharge current, is reached. The surge arrestor PU1TSG is protected up to max. 125 AgL, depending on the conductor cross-section, and the PU1TSG+ up to 250 AgL.

The connection is rated for the following cross-sections:

solid core: 10...35 mm^2 (8...2 AWG)
multiple core: 10...25 mm^2 (8...2 AWG)

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

The PU B lightning current surge arrestors are approved by UL and KEMA. guaranteed. With these approvals the products can be used worldwide.