BE ON THE SAFE SIDE

Surge Protection

Low Voltage Power Systems

ISKRA ZAŠČITE

Is your equipment at risk from surges? We can help!

Dear reader! We are proud to be able to present you our new catalog. We want to offer to you our knowledge and experience and thus contribute our share to the progress in the field of surge protection devices. The **quality of our products** has been recognized by a number of independent institutions which have **rewarded** our efforts with **internationally** recognized certificates, while we ourselves, strive to share our findings with professional associations and committees responsible for providing users with safe, reliable and technologically advanced devices.

Our team is having over 20 years of experiences in lightning and surge protection. With our **new series of Safetec and Power Quality products** we became one of the **leaders of the market**. Our mission is to offer products which will help mankind to tame unpredictable possible damages caused by lightning and other overvoltages. Because of global warming process, our weather is changing and we have to face with more unpredictable storm situations. On the other hand, usage of the modern electrical and electronic equipment which is very sensitive to overvoltage, increases every day.

Marketing and Sales

In today's world of quick changing technologies there are customers who create our policy and strategies, therefore, marketing and sales departments are the one who have to support you! We offer wide range of products and total flexibility in product development. Our sales people will take care of all your needs so do not hesitate to contact us or our representatives (more on www.iskrazascite.si).

R & D

We easily keep pace with the world trends. Our main interests are **safety, reliability and green technology**. We believe that in long-term company will grow only on the basis of its own development. Therefore, unlimited attention is paid to innovations and new solutions are constantly encouraged. Our own R&D equipment and **testing laboratory** is enabling us to have fast and quality R&D processes. Because of that we can offer maximal flexibility and **custom made solutions**.

Quality

The company is **ISO 9001:2008** certified. It is also certified to **EN 13980 (94/9/EC ATEX)** directives for intrinsic safety. These two international standards ensure that quality is part of each step from conceptual design to fitting. A number of our employees are technical experts to various committees developing international and local standards. Such involvement at the standards development level ensures that our products are always at the cutting edge of design and are in compliance with relevant certifications such as **VDE, ÖVE, IEC, IECEx and UL**.

International standards participation

We are presented on the following Standards and Conformity Assessment Committees and their Working Groups:

- **Slovenian institute for standardization - SIST**
  SIST/TC STZ - Protection against effects of lightning
  SIST/TC POD - Surge protection devices
  SIST/TC PVS - Photovoltaic systems
- **European Committee for Electrotechnical Standardization - CENELEC**
  CLC/TC37A - Low voltage surge protective devices
  WG1 and WG2
- **International Electrotechnical Committees - IEC**
  IEC TC81 - Lightning Protection. WG3 / WG9.
  IEC SC37A - Surge Protective Devices. WG3 / WG4 / WG5.
  IEC SC37B - Surge Protective Components.
- **Institute of Electrical and Electronic Engineers IEEE. SPDC 3.0 Surge Protective Devices Main Committee**
  WG3.6.4 LV Surge Protective Devices.
  WG3.6.6 Low Voltage Circuit Protective Devices.
  WG3.6.9 Low Voltage AC Power System SPDs - Line Side of the Service Equipment files.
  WG3.6.10 Protection of Equipment connected to both ac power and communication circuits.
- **Underwriters Laboratories Inc**
  STP 1449 - Standards Technical Panel, Surge protective Devices.

Common Power Distribution Systems (Europe)

IEC 364-4-41 (1992) designates low voltage distribution systems (networks) using two letters. The first letter details the grounding method used at the source (i.e. the secondary side of the power distribution transformer). The second letter details the grounding method used at the consumer's electrical installation for any conductive metal parts.

This method is used to define three basic systems:

TN system;

TT system;

IT system.

Where the abbreviations have the following meaning:

First letter - grounding method used at the source:

T direct connection to ground of power supply source (star point of transformer secondary winding).

I isolation of power supply source from ground, or connection via a high impedance.

Second letter - grounding method used at exposed conductive parts in the electrical installation:

T exposed conductive parts are directly grounded independent of eventual existing grounded feeding point

N exposed conductive parts are directly connected to grounding electrode (grounding resistor)

Subsequent prefixes may be used to describe the arrangement of neutral and protective conductors

S neutral and protective conductor are separated

C neutral and protective conductor are connected

Hence it follows that there are three possible TN systems: TN-S, TN-C and TN-C-S

Various protective devices may be installed on different distribution systems:

- Over-current protective device (CB, Fuses etc),
- Residual protective device (RCD, GFI)
- Insulation monitoring device
- Fault-voltage-operated protective device

It is important to ensure that an SPD is correctly selected and co-ordinated with the type of power system in use and any over-current protection devices installed. The following protective devices are encountered in the power systems shown:

TN System

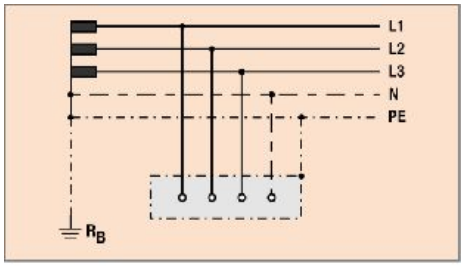
- Over-current protective device;
- Residual current protective device

TT System

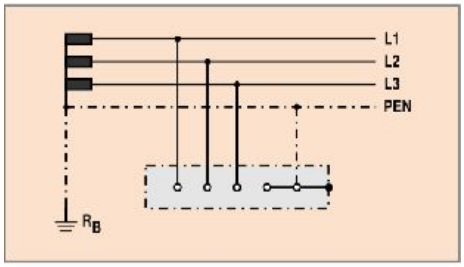
- Over-current protective device;
- Residual current protective device
- Fault-voltage-operated protective device

IT System

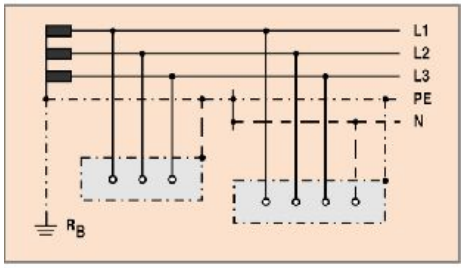
- Over-current protective device;
- Residual current protective device
- Insulation monitoring device
- Fault-voltage-operated protective device



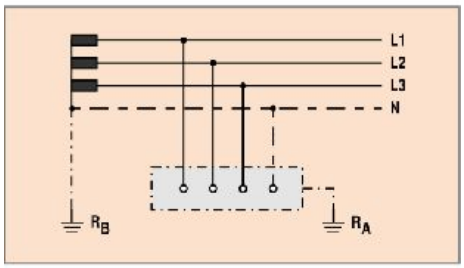
TN-S system



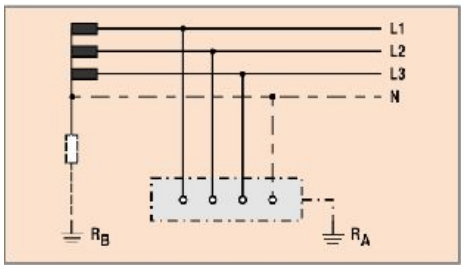
TN-C system



TN-C-S system

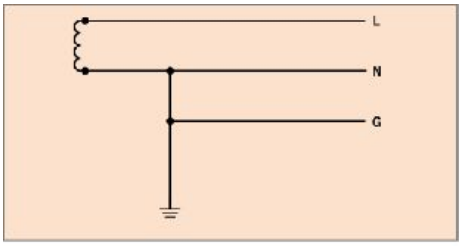
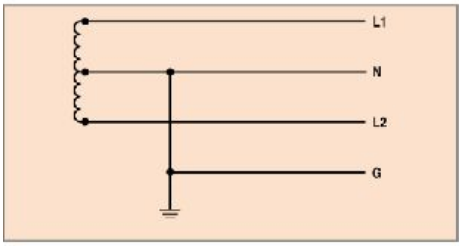
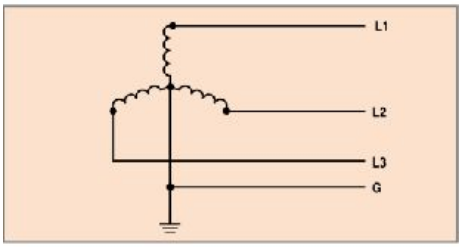
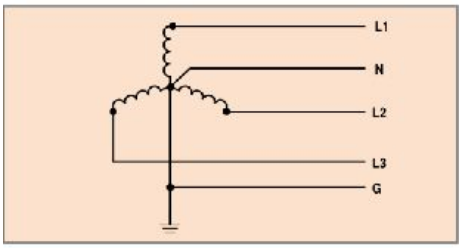
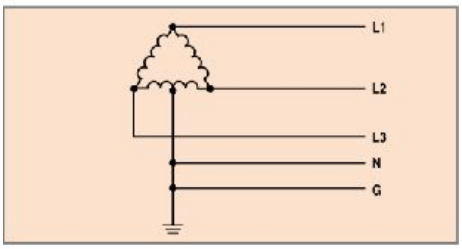
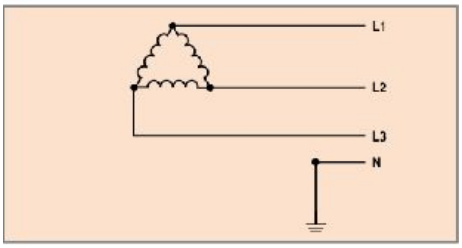
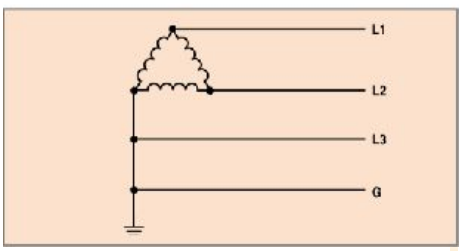


TT system



IT system

Common Power Distribution Systems (North America, Asia, Latin America)

Description	Typical Supply Voltages	Source Configuration
Single-phase **1Ph, 2W+G**	110V, 120V, 220V, 240V (L-N)	
Single-phase **1Ph, W+G** Also known as Split phase or Edison system	120/240V (L-N / L-L)	
3-phase WYE without neutral **3Ph Y, 4W+G**	480V (L-L)	
3-phase WYE with neutral **3Ph Y, 4W+G**	120/208V, 220/380V 230/400V, 240/415V 277/480V, 347/600V (L-N / L-L)	
Delta High Leg **3Ph, 4W+G**	120/240V (L-N / L-L)	
Delta Ungrounded **3Ph, 3W+G**	240V, 480V (L-L)	
Delta Grounded Corner **3Ph, 3W+G**	240V, 480V (L-L)	

SPD Terminology

Surge Protective Device SPD

A device that is intended to limit transient overvoltages and divert surge currents. It contains at least one nonlinear component.

Maximum continuous operating voltage U_C

The maximum r.m.s. or d.c. voltage, which may be continuously applied to the SPD´s mode of protection.

Voltage protection level U_p

A parameter that characterizes the performance of the SPD in limiting the voltage across its terminals, which is selected from a list of preferred values. This value shall be greater than the highest value of the measured limiting voltages.

Residual voltage U_{res}

The peak value of voltage that appears between the terminals of an SPD due to the passage of discharge current temporary overvoltage test value.

Impulse discharge current for class I test I_{imp}

The crest value of discharge current through the SPD with specific charge transfered Q and specified energy W/R in the specified time.

Nominal discharge current I_n

The crest value of the current through the SPD having a current waveshape of 8/20. This is used for the classification of the SPD for class II test and also for preconditioning of the SPD for class I and II tests.

Maximum discharge current I_{max} for class II test

Crest value of a current through the SPD having an 8/20 waveshape and magnitude according to the test sequence of the class II operating duty test. I_{max} is greater than I_n.

1.2/50 voltage impulse

Voltage impulse with a virtual front time of 1.2µs and a time to half-value of 50µs.

8/20 current impulse

Current impulse with a virtual front time of 8µs and a time to half-value of 20µs.

Combination wave

The combination wave is delivered by a generator that applies a 1.2/50 voltage impulse across an open circuit and an 8/20 current impulse into a short circuit. The voltage, current amplitude and waveforms that are delivered to the SPD are determined by the generator and the impedance of the SPD to which the surge is applied. The short-circuit current is symbolized by I_{SC}. The open-circuit voltage is symbolized by U_{OC}.

Degrees of protection provided by enclosure IP code

The extent of protection provided by an enclosure against access to hazardous parts, against ingress of solid foreign objects and/or against ingress of water (see IEC 60529).

SPD disconnector

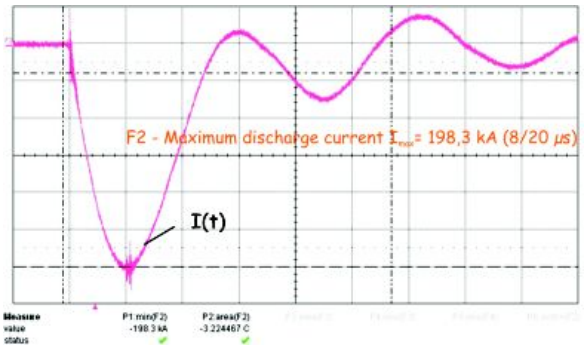
Device (internal and/or external) required for disconnecting an SPD from the power system.

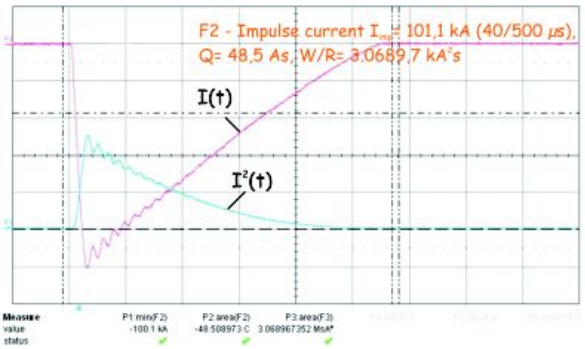
Follow current I_f

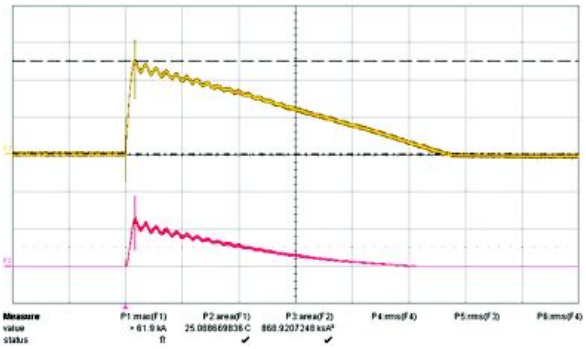
Current supplied by the electrical power system and flowing through the SPD after a discharge current impulse. The follow current is significantly different from the continuous operating current I_C.

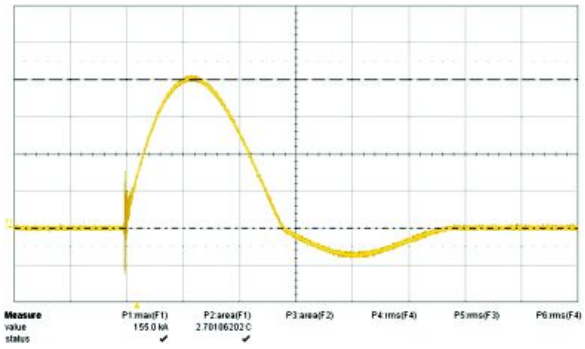
Back-up fuse

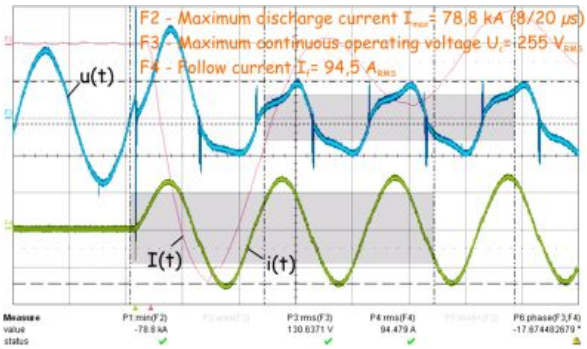
Overcurrent device (for example, circuit-breaker or fuse), which could be part of the electrical installation located externally upstream of the SPD.







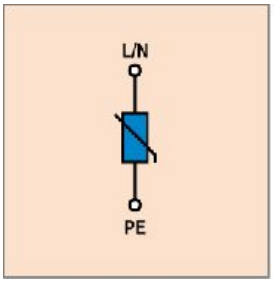




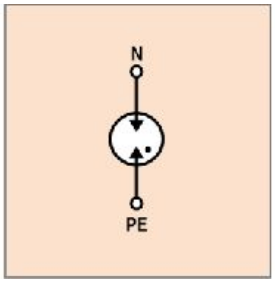
Reference

1. IEC 61643-1 Surge protective devices connected to low voltage power distribution systems - requirements and tests;
2. IEC 61643-12 Surge protective devices connected to low voltage power distribution systems - Selection and application principles;
3. IEC 61312-1 Protection against lightning electromagnetic impulse (LEMP) - Part 1: General principle
4. IEC 61312-2 Protection against lightning electromagnetic impulse (LEMP) - Part 2: Shielding of structures, bonding inside structures and earthing;
5. IEC 61312-3 Protection against lightning electromagnetic impulse (LEMP) - Part 3: Requirements of surge protection devices (SPDs);
6. IEC 61312-4 Protection against lightning electromagnetic impulse (LEMP) - Part 4: Protection of equipment in existing structures;
7. SIST EN 50614-3 Lightning Protection Components (LCP) - Part 3: Requirements for isolating spark gaps;
8. CEI IEC 60364-5-53 Electrical installation of buildings - Part 5-53: Selection and erection of electrical equipment - isolation, switching and control;
9. IEC PAS 60099-7 Surge arresters - Part 7: Glossary of terms and definitions from IEC publications 60099-1, 60099-4, 60099-6, 61643-1, 61643-12, 61643-21, 61643-311, 61643-321, 61643-331 and 61643-341;
10. IEC 61000-4-5: Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test;
11. IEC 62305-1 Protection against lightning - Part 1: General principles;
12. IEC 62305-2 Protection against lightning - Part 2: Risk management;
13. IEC 62305-3 Protection against lightning - Part 3: Physical damage to structures and life hazard;
14. IEC 62305-4 Protection against lightning - Part 4: Electrical and electronic systems within structures;
15. ITU-T K.20 Protection against interferences: Resistibility of telecommunication switching equipment to overvoltages and overcurrents;
16. ITU-T K.21 Protection against interferences: Resistibility of subscriber's terminal to overvoltages and overcurrents;
17. ITU-T K.44 Protection against interferences: Resistibility test for telecommunication equipment exposed to overvoltages and overcurrents - Basic Recommendation;
18. IEC 61643-21 Low voltage surge protective devices - Part 21: Surge protective devices connected to telecommunications and signaling networks - Performance requirements and testing methods;
19. IEC 61643-22 Low-Voltage Surge Protective Devices - Part 22: Surge protection devices connected to telecommunications and signaling networks - Selection and application principles;
20. UL 1449

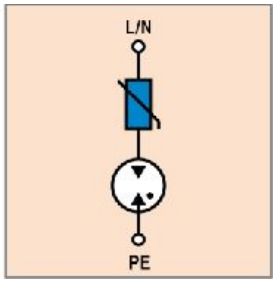
Typical component typologies used in SPDs



SPD comprising metal oxide varistor
- no problems with following current I_F
- quick response time t_A (≤ 25μs) means low residual voltage
- responds well to very low overvoltages
- high surge capacity, up to 50kA 10/350μs



SPD comprising gas discharge tube
- high surge capacity 100kA 10/350μs
- no exhausting of ionised gases
- used in TT systems as galvanic separation between N-PE conductors



SPD comprising series arrangement of varistor and gas discharge tube
- no following current I_f
- quick response time t_A (≤ 25μs) means low residual voltage
- responds well to low overvoltages
- high surge capacity, up to 25kA 10/350μs

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Surge Protective Devices for Low Voltage Power Systems

QUICK PRODUCT SELECTION

Surge Protective Devices for Low Voltage Power Systems

Category IEC/EN/VDE	Description	Product Name	Page	Product Photo
Class I, II Type 1, 2 B+C	SINGLE-POLE Surge Protective Devices I_{imp}: up to 100kA (10/350)	**PROTEC BS(R) 50**	8	
		PROTEC BS(R) 35	9	
		PROTEC BS(R) 25	10	
		PROTEC B2N(R) 12.5	11	
		PROTUBE BS 100	12	
		PROTUBE BS 50	12	
		PROTUBE B2N(R) 50	13	
Class I, II, III Type 1, 2, 3 B+C+D	MULTI-POLE Surge Protective Devices I_{imp}: up to 50kA per pole (10/350)	**PROBLOC BS(R) 100 (1+1)**	18	
		PROBLOC BS(R) 50 (2+0)	19	
		PROBLOC BS(R) 50 (1+1)	20	
		PROBLOC BS(R) 75 (3+0)	21	
		PROBLOC BS(R) 100 (4+0)	22	
		PROBLOC BS(R) 100 (3+1)	23	
	MULTI-POLE Surge Protective Devices I_{imp}: 12.5kA per pole (10/350)	**PROBLOC BS(R) 25 (2+0)**	28	
		PROBLOC BS(R) 25 (1+1)	29	
		PROBLOC BS(R) 37.5 (3+0)	30	
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		PROBLOC BS(R) 50 (3+1)	32	
Class I, II Type 1, 2 B+C	MULTI-POLE Surge Protective Devices I_{imp}: 12.5kA per pole (10/350)	**INPROTEC VV(R) (2+0)**	36	
		INPROTEC VG(R) (1+1)	37	
		INPROTEC VS(R) (1+0)	38	
	SINGLE & MULTI-POLE Surge Protective Devices I_{imp}: up to 25kA per pole (10/350)	**PROBLOC BSG(R) 100 (4+0)**	42	
		PROBLOC BSG(R) 100 (3+1)	43	
		PROBLOC BSG(R) 100N (3+1)	44	
		PROBLOC BSG(R) 25	45	
		PROBLOC BSG(R) 50 (4+0)	46	
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Class I, II, III Type 1, 2, 3 B+C+D	SINGLE & MULTI-POLE Surge Protective Devices I_{imp}: 12.5kA per pole (10/350)	**PROTEC B2S(R) 12.5**	52	
		PROTEC B2S(R) 25 (2+0)	53	
		PROTEC B2S(R) 25 (1+1)	54	
		PROTEC B2S(R) 37.5 (3+0)	55	
		PROTEC B2S(R) 50 (4+0)	56	
		PROTEC B2S(R) 50 (3+1)	57	
Class II Type 2 C	SINGLE & MULTI-POLE Surge Protective Devices I_{max}: 40kA per pole (8/20)	**SAFETEC C(R) 40**	60	
		SAFETEC C(R) 80 (2+0)	61	
		SAFETEC C(R) 80 (1+1)	62	
		SAFETEC C(R) 120 (3+0)	63	
		SAFETEC C(R) 160 (4+0)	64	
		SAFETEC C(R) 160 (3+1)	65	

U_c (V_{AC})	I_{imp} per pole (kA) (10/350)	I_{max} per pole (kA) (8/20)	U_{oc}/I_{sc} per pole (kV/kA) (1.2/50, 8/20)	Network Type TN-C	TN-S	TT	IT	Remote Signalization of Failure	Housing
150, 275, 320, 385, 440 *	50	100		✓	✓		✓	✓	Compact
150, 275, 320, 385, 440 *	35	100		✓	✓		✓	✓	Compact
150, 275, 320, 385, 440 *	25	100		✓	✓		✓	✓	Compact
150, 275, 320, 385, 440 *	12.5	50						✓	Compact
255	100	100				✓			Compact
255	50	100				✓			Compact
255	50	100				✓		✓	Compact
150, 275, 320, 385, 440 *	50/100 (L-N/N/PE)	100/100 (L-N/N/PE)				✓		✓	Compact
150, 275, 320, 385, 440 *	25	100			✓			✓	Compact
150, 275, 320, 385, 440 *	25/50 (L-N/N/PE)	100/100 (L-N/N/PE)				✓		✓	Compact
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150, 320	25	100			✓			✓	Compact
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150, 320	25/50 (L-N/N/PE)	100/100 (L-N/N/PE)				✓		✓	Compact
150, 320	25	100		✓	✓	✓	✓	✓	Compact
150, 320	12.5	50		✓		✓	✓	✓	Compact
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150, 275, 320, 385, 440 *	12.5	60	10/5	✓	✓		✓	✓	Modular
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150, 275, 320, 385, 440 *	12.5	60	10/5		✓			✓	Modular
150, 275, 320, 385, 440 *	12.5/50 (L-N/N/PE)	60/50 (L-N/N/PE)	10/5			✓			Modular
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150, 275, 320, 385, 440 *		40				✓		✓	Modular
150, 275, 320, 385, 440 *		40		✓				✓	Modular
150, 275, 320, 385, 440 *		40			✓			✓	Modular
150, 275, 320, 385, 440 *		40				✓		✓	Modular

* Other voltages on customer request

QUICK PRODUCT SELECTION

Surge Protective Devices for Low Voltage Power Systems

Category IEC/EN/VDE	Description	Product Name	Page	Product Photo
Class II Type 2 C	SINGLE & MULTI-POLE Surge Protective Devices I_{max}: up to 40kA per pole (8/20)	**PROTEC C(R) 40**	68	
		PROTUBE C 40	69	
		PROTEC C(R) 80 (2+0)	70	
		PROTEC C(R) 80 (1+1)	71	
		PROTEC C(R) 120 (3+0)	72	
		PROTEC C(R) 160 (4+0)	73	
		PROTEC C(R) 160 (3+1)	74	
		PROTEC C(R) 20	76	
		PROTEC CN(R) 40	77	
		PROTEC CN(R) 20	78	
		PROTUBE CN 40	79	
	Modular MULTI-POLE Surge Protective Devices I_{max}: 40kA per pole (8/20)	**PROTEC CM(R) 80 (2+0)**	82	
		PROTEC CM(R) 80 (1+1)	83	
		PROTEC CM(R) 80A (1+1)	84	
	Modular SINGLE & MULTI-POLE Surge Protective Devices I_{max}: up to 40kA per pole (8/20)	**PROTEC CG(R) 40**	88	
		PROTEC CG(R) 20	89	
		PROTEC CMG(R) 40 (2+0)	91	
Class III Type 3 D	Modular and Compact SINGLE & MULTI-POLE Surge Protective Devices Uoc/Isc: up to 10kV/5kA per pole (1.2/50, 8/20)	**PROTEC D(R) 10**	94	
		PROTEC DM(R) 20 (2+0)	95	
		PROTEC DMG(R) 20 (2+0)	96	
		MPE-ZE50	97	
		MPE-MINI	98	
		ZE 200 PS	99	
		VTC 10	100	
		PROFILT D	101	
Class II Type 2 A	SINGLE-POLE Surge Protective Devices for Overhead power Lines I_{max}: up to 40kA (8/20)	**PROTEC AQ 40**	104	
		PROTEC AQS 40	105	
		PROTEC A 30	106	
		PROTEC AQ 25	107	
ISG	Isolation Spark Gap for Equipotential Bonding I_{max}: 100kA (8/20)	**EPZ 100**	110	
		EPZ 100 Ex	111	
Class I, II; II Type 1, 2; 2 B+C; C	MULTI-POLE Surge Protective Devices for Photovoltaic Systems I_{imp}: 12.5kA per pole (10/350) I_{max}: 40kA per pole (8/20)	**PV PROTEC BS(R) 12.5**	114	
		SAFETEC C(R) 40 PV	115	
		PV PROTEC C(R) 40	116	
Class I, II; II Type 1, 2; 2 B+C; C	SINGLE & MULTI-POLE Surge Protective Devices for Wind Generation Systems I_{imp}: up to 25kA (10/350) I_{max}: 40kA (8/20)	**WT PROTEC BS(R) 25**	119	
		WT PROTEC BS(R) 12.5	120	
		SAFETEC C(R) 750 (3+0) WT	121	

U_c (V_{AC})	I_{imp} per pole (kA) (10/350)	I_{max} per pole (kA) (8/20)	U_{OC}/I_{SC} per pole (kV/kA) (1.2/50, 8/20)	Network Type TN-C	TN-S	TT	IT	Remote Signalization of Failure	Housing
75, 150, 275, 320, 385, 440 *		40		✓	✓		✓	✓	Modular
255		40				✓			Modular
150, 275, 320, 385, 440 *		40			✓			✓	Modular
150, 275, 320, 385, 440 *		40/40 (L-N/N/PE)				✓		✓	Modular
150, 275, 320, 385, 440 *		40		✓				✓	Modular
150, 275, 320, 385, 440 *		40			✓		✓	✓	Modular
150, 275, 320, 385, 440 *		40/40 (L-N/N/PE)				✓		✓	Modular
150, 275, 320, 385, 440 *		20		✓	✓		✓	✓	Modular
150, 275, 320, 385, 440 *		40		✓	✓		✓	✓	Compact
150, 275, 320, 385, 440 *		20		✓	✓		✓	✓	Compact
255		40				✓			Compact
150, 275, 320, 385, 440 *		40			✓			✓	Modular
150, 275, 320, 385, 440 *		40/40 (L-N/N/PE)				✓		✓	Modular
150, 275, 320, 385, 440 *		40/40 (L-N/N/PE)				✓		✓	Modular
150, 275, 385		40		✓	✓	✓	✓	✓	Modular
75, 275, 385		20		✓	✓	✓	✓	✓	Modular
150, 275		20			✓	✓	✓	✓	Modular
150, 275, 320, 385, 440 *		10	10/5	✓	✓		✓	✓	Modular
150, 275, 320, 385, 440 *		10	10/5		✓		✓	✓	Modular
320		10	10/5		✓	✓	✓	✓	Modular
320		5	5/2.5		✓	✓	✓		Compact
275			6/3		✓	✓	✓		Compact
275			6/3		✓	✓	✓		Compact
150, 275, 320, 440		10	10/5	✓	✓		✓		Compact
275			6/3		✓	✓	✓		Compact
150, 275, 320, 385, 440 *		40		✓	✓		✓		Compact
150, 275, 320, 440 *		40		✓	✓		✓		Compact
150, 275, 320, 385, 440 *		30		✓	✓		✓		Compact
150, 275, 320, 385, 440 *		25		✓	✓		✓		Compact
350, 500		100							Compact
350, 500		100							Compact
550, 1000	12.5	40						✓	Compact
75, 300, 600, 1000, 1200		40, 40, 40, 25, 40						✓	Modular
100, 550, 1000		40						✓	Modular
750	25	80						✓	Compact
750	12.5	40						✓	Compact
750		25						✓	Modular

* Other voltages on customer request

SINGLE-POLE Surge Protective Devices

Category IEC / EN / VDE:	**Class I, II / Type 1, 2 / B+ C**
Location of use:	**Main distribution boards**
Protection modes:	**L/N-PE, L-PEN**
Protective elements:	**High Energy MOV and GDT**
High surge discharge ratings:	**I_{imp} = up to 50kA**
Internal protection and safety:	**Separate thermal disconnector for each MOV block**
Status indication:	**Mechanical flag + remote contacts (R)**
Dimensions DIN 43880:	**1TE ,2TE, 3TE, 4TE**

PROTEC BS(R) 50
PROTEC BS(R) 35
PROTEC BS(R) 25
PROTUBE BS 100
PROTUBE BS 50

The PROTEC BS and PROTUBE BS series of over-voltage surge protective devices have been developed to protect against partial direct and indirect lightning discharges and are intended to provide protection in zones 0_A - 1 per IEC 62305.

PROTEC BS consists of two separate, high performance varistor blocks, each with a separate disconnection device.

PROTUBE BS consists of a high energy encapsulated air gap device and is used to provide galvanic separation between the N and PE conductors in a 1+1 or 3+1 power distribution system (TT single phase or three phase networks).

PROTEC B2N(R) 12.5
PROTUBE B2N(R) 50

The PROTEC B2N series of overvoltage surge protective devices has been developed to protect against partial direct and indirect lightning discharges and is intended to provide protection in zones 0_A - 1, per IEC 62305. The enclosure housing is a compact design. PROTEC B2N consists of a high performance varistor block with thermal disconnection device.

PROTUBE B2N consists of a high energy encapsulated air gap device and is used to provide galvanic separation between the N and PE conductors in a 1+1 or 3+1 power distribution system (TT single phase or three phase networks).

PROTEC BS(R) 50

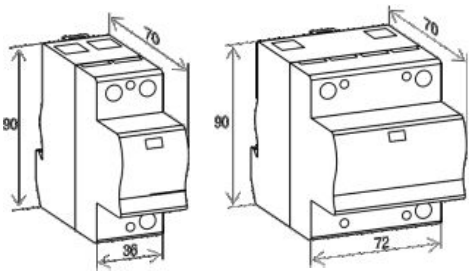
Class I, II Single-pole Surge Protective Device
I_{imp} = 50kA (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Connections:** TN-S, TN-C, IT
- **Protection modes:** L/N - PE, L- PEN
- **Protective element:** High Energy MOV
- **High surge discharge rating:** I_{imp}= 50kA
- **MOV max withstand capability 1 x 8/20:** I_{max}= 150kA
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

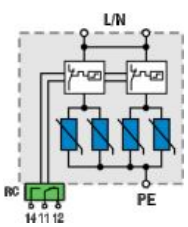
Technical data

Type		PROTEC BS(R) 50/xxx				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n			25kA		
Max. discharge current (8/20)	I_{max}			100kA		
Impulse current (10/350)	I_{imp}			50kA		
Specific energy				625kJ/Ω		
Charge				25As		
Protection level	U_p	< 0.6kV	< 1.2kV	< 1.2kV	< 1.6kV	< 1.9kV
Residual voltage at I_{imp}	U_{res}	< 0.7kV	< 1.2kV	< 1.2kV	< 1.5kV	< 1.8kV
Follow current	I_f			NO		
Response time	t_A			< 25ns		
Thermal protection				YES		
Back-up fuse (if mains > 500A)				500A gL		
Short-circuit withstand current				25kA/50Hz		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 4.5Nm		
Terminal cross section				35mm² (solid)/25mm² (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880		2TE	2TE	2TE	4TE	4TE
Weight per unit		266g	374g	374g	438g	458g
Ordering code **PROTEC BS 50/xxx)**		**502 314**	**502 315**	**502 316**	**502 296**	**502 297**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm²		
Remote terminal torque				0.25Nm		
Weight per unit		271g	379g	379g	443g	463g
Ordering code **PROTEC BSR 50/xxx** - with remote contacts		**502 317**	**502 318**	**502 319**	**502 298**	**502 299**
Packaging dimensions (single unit)			109 x 76.5 x 41.5mm		109 x 76.5 x 78mm	

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTEC BS(R) 35

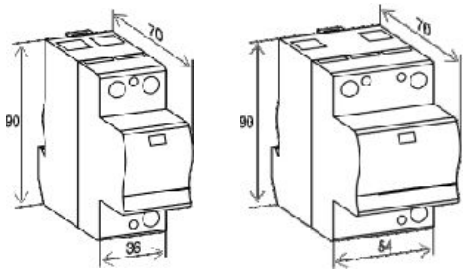
Class I, II Single-pole Surge Protective Device
I_{imp} = 35kA (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Connections:** TN-S, TN-C, IT
- **Protection modes:** L/N - PE, L- PEN
- **Protective element:** High Energy MOV
- **High surge discharge rating:** I_{imp}= 35kA
- **MOV max withstand capability 1 x 8/20:** I_{max}= 150kA
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

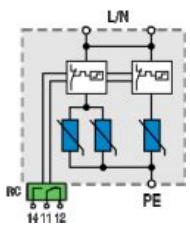
Technical data

Type		PROTEC BS(R) 35/xxx				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n			25kA		
Max. discharge current (8/20)	I_{max}			100kA		
Impulse current (10/350)	I_{imp}			35kA		
Specific energy				306kJ/Ω		
Charge				17.5As		
Protection level	U_p	< 0.6kV	< 1.2kV	< 1.2kV	< 1.6kV	< 1.9kV
Residual voltage at I_{imp}	U_{res}	< 0.7kV	< 1.2kV	< 1.2kV	< 1.5kV	< 1.8kV
Follow current	I_f			NO		
Response time	t_A			< 25ns		
Thermal protection				YES		
Back-up fuse (if mains > 315A)				315A gL		
Short-circuit withstand current				25kA/50Hz		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 4.5Nm		
Terminal cross section				35mm² (solid)/25mm² (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880		2TE	2TE	2TE	3TE	3TE
Weight per unit		254g	336g	336g	385g	415g
Ordering code **PROTEC BS 35/xxx**		**502 320**	**502 321**	**502 322**	**502 306**	**502 307**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm²		
Remote terminal torque				0.25Nm		
Weight per unit		259g	341g	341g	390g	420g
Ordering code **PROTEC BSR 35/xxx** - with remote contacts		**502 323**	**502 324**	**502 325**	**502 308**	**502 309**
Packaging dimensions (single unit)			109 x 76.5 x 41.5mm		109 x 76.5 x 60mm	

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTEC BS(R) 25

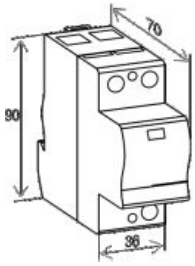
Class I, II Single-pole Surge Protective Device
I_{imp} = 25kA (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Connections:** TN-S, TN-C, IT
- **Protection modes:** L/N - PE, L- PEN
- **Protective element:** High Energy MOV
- **High surge discharge rating:** I_{imp}= 25kA
- **MOV max withstand capability 1 x 8/20:** I_{max}= 120kA
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

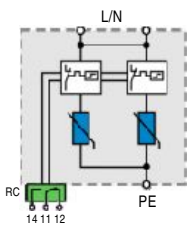
Technical data

Type		PROTEC BS(R) 25/xxx				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_c	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n			25kA		
Max. discharge current (8/20)	I_{max}			100kA		
Impulse current (10/350)	I_{imp}			25kA		
Specific energy				156kJ/Ω		
Charge				12.5As		
Protection level	U_p	< 0.7kV	< 1.3kV	< 1.3kV	< 1.7kV	< 2.0kV
Residual voltage at I_{imp}	U_{res}	< 0.7kV	< 1.2kV	< 1.2kV	< 1.5kV	< 1.8kV
Follow current	I_f			NO		
Response time	t_A			< 25ns		
Thermal protection				YES		
Back-up fuse (if mains > 250A)				250A gL		
Short-circuit withstand current				25kA/50Hz		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 4.5Nm		
Terminal cross section				35mm² (solid)/25mm² (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880				2TE		
Weight per unit		200g	252g	252g	268g	284g
Ordering code **PROTEC BS 25/xxx**		**502 326**	**502 327**	**502 328**	**502 329**	**502 330**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm²		
Remote terminal torque				0.25Nm		
Weight per unit		205g	257g	257g	273g	289g
Ordering code **PROTEC BSR 25/xxx** - with remote contacts		**502 331**	**502 332**	**502 333**	**502 334**	**502 335**
Packaging dimensions (single unit)				109 x 76.5 x 41.5mm		

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTEC B2N(R) 12.5

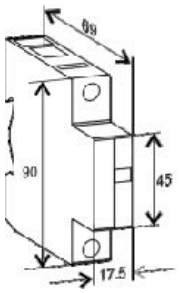
Class I, II Single-pole Surge Protective Device
I_{imp} = 12.5kA (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Connections:** TN-S, TN-C, IT
- **Protection modes:** L/N - PE, L- PEN
- **Protective element:** High Energy MOV
- **High surge discharge rating:** I_{imp}= 12.5kA
- **MOV max withstand capability 1 x 8/20:** I_{max}= 80kA
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

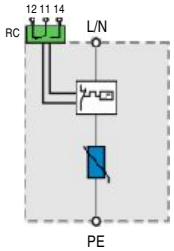
Technical data

Type		PROTEC B2N(R) 12.5/xxx				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n			20kA		
Max. discharge current (8/20)	I_{max}			50kA		
Impulse current (10/350)	I_{imp}			12.5kA		
Specific energy				39kJ/Ω		
Charge				6.25As		
Protection level	U_p	< 0.8kV	< 1.5kV	< 1.5kV	< 1.7kV	< 2.0kV
Residual voltage at I_{imp}	U_{res}	< 0.7kV	< 1.2kV	< 1.2kV	< 1.4kV	< 1.9kV
Follow current	I_f			NO		
Response time	t_A			< 25ns		
Thermal protection				YES		
Back-up fuse (if mains > 160A)				160A gL		
Short-circuit withstand current				25kA/50Hz		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 3.5Nm		
Terminal cross section				35mm² (solid)/25mm² (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880				1TE		
Weight per unit		124g	150g	150g	143g	146g
Ordering code **PROTEC B2N 12.5/xxx**		**507 501**	**507 503**	**507 505**	**507 535**	**507 507**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm²		
Remote terminal torque				0.25Nm		
Weight per unit		129g	155g	155g	148g	151g
Ordering code **PROTEC B2NR 12.5/xxx** - with remote contacts		**507 509**	**507 511**	**507 513**	**507 537**	**507 515**
Packaging dimensions (single unit)				108 x 74 x 24mm		

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTUBE BS

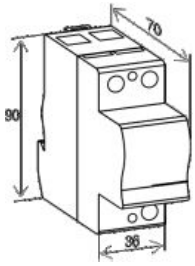
Class I, II Single-pole N-PE Surge Protective Device
I_{imp} = 100kA, 50kA (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Connections:** TT
- **Protection modes:** N - PE
- **Protective element:** High Energy GDT
- **High surge discharge rating:** I_{imp}= 100kA, 50kA
- **GDT max withstand capability 1 x 8/20:** I_{max}= 150kA
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

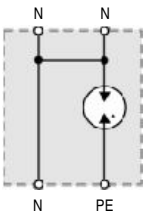
Technical data

Type		PROTUBE BS 100	PROTUBE BS 50
Electrical characteristics			
Max. continuous operating voltage (AC)	U_c	255V	
Nominal discharge current (8/20)	I_n	100kA	50kA
Max. discharge current (8/20)	I_{max}	100kA	
Impulse current (10/350)	I_{imp}	100kA	50kA
Specific energy		2.5MJ/Ω	625kJ/Ω
Charge		50As	25As
Protection level	U_p	< 1.75kV	< 1.5kV
Follow current	I_f	> 100A_{RMS}	
Response time	t_A	100ns	
Mechanical characteristics			
Temperature range		- 40°C ....+ 80°C	
Terminal screw torque		max. 4.5Nm	
Terminal cross section		35mm^2 (solid)/25mm^2 (stranded)	
Mounting EN 60715		35mm top-hat rail	
Degree of protection		IP 20	
Housing material		Thermoplastic; extinguishing degree UL 94 V-0	
Dimensions DIN 43880		2TE	
Weight per unit		238g	178g
Ordering code **PROTUBE BS**		**503 044**	**503 042**
Packaging dimensions (single unit)		109 x 76.5 x 41.5mm	

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTUBE B2N(R) 50

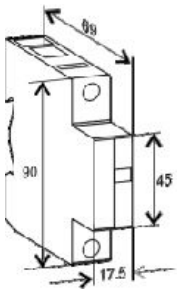
Class I, II Single-pole N-PE Surge Protective Device
I_{imp} = 50kA (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Connections:** TT
- **Protection modes:** N - PE
- **Protective element:** High Energy GDT
- **High surge discharge rating:** I_{imp}= 50kA
- **GDT max withstand capability 1 x 8/20:** I_{max}= 150kA
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

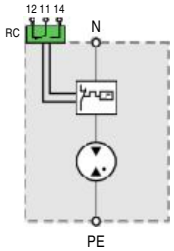
Technical data

Type		PROTUBE B2N(R) 50
Electrical characteristics		
Max. continuous operating voltage (AC)	U_C	255V
Nominal discharge current (8/20)	I_n	50kA
Max. discharge current (8/20)	I_{max}	100kA
Impulse current (10/350)	I_{imp}	50kA
Specific energy		625kJ/Ω
Charge		25As
Protection level	U_p	< 1.5kV
Follow current	I_f	> 100A_{RMS}
Response time	t_A	100ns
Mechanical characteristics		
Temperature range		- 40°C ….+ 80°C
Terminal screw torque		max. 3.5Nm
Terminal cross section		35mm^2 (solid)/25mm^2 (stranded)
Mounting EN 60715		35mm top-hat rail
Degree of protection		IP 20
Housing material		Thermoplastic; extinguishing degree UL 94 V-0
Dimensions DIN 43880		1TE
Weight per unit		106g
Ordering code **PROTUBE B2N 50**		**507 572**
Remote contacts		YES
Contact ratings		AC: 250V/0.5A; 125V/3A
Terminal cross section		max. 1.5mm^2
Remote terminal torque		0.25Nm
Weight per unit		111g
Ordering code **PROTUBE B2NR 50** - with remote contacts		**507 573**
Packaging dimensions (single unit)		108 x 74 x 24mm

Dimensions

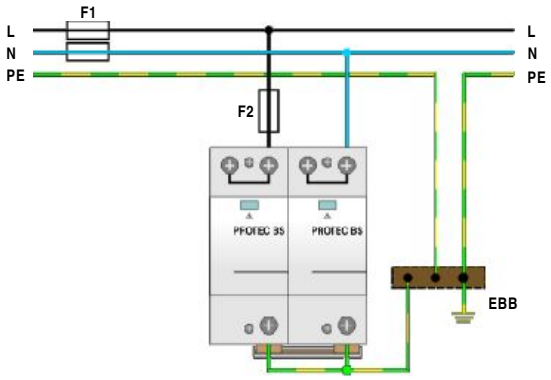


Connection diagram

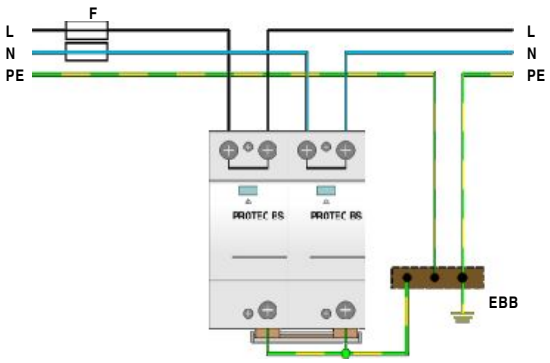


PROTEC BS(R), PROTUBE BS - Connections

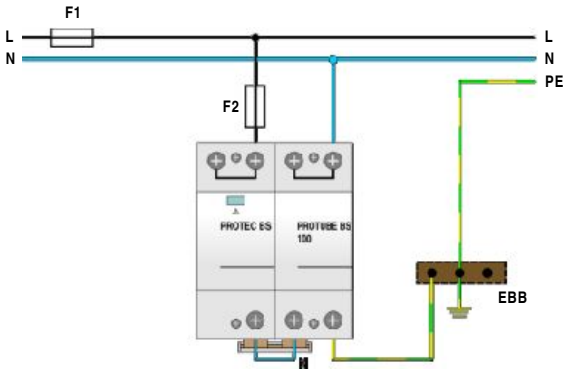
TN-S Network - Single-phase (T-connection)



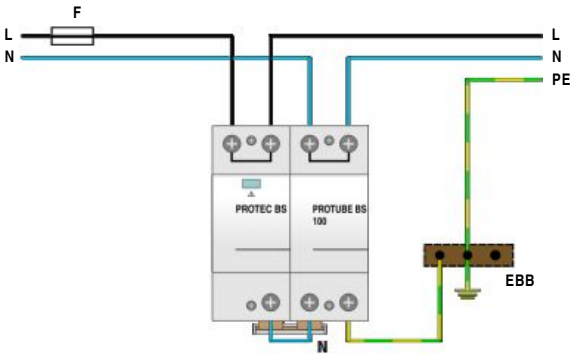
TN-S Network - Single-phase (V-connection)



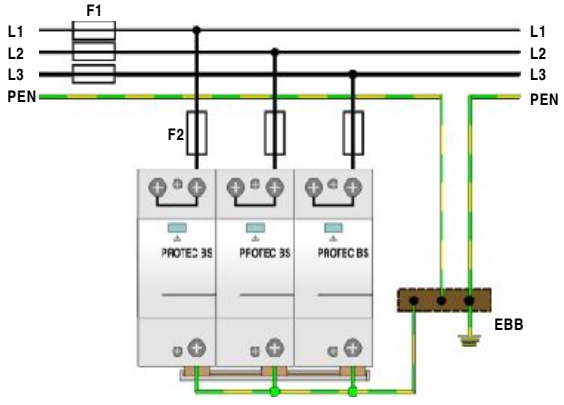
TT Network - Single-phase (T-connection)



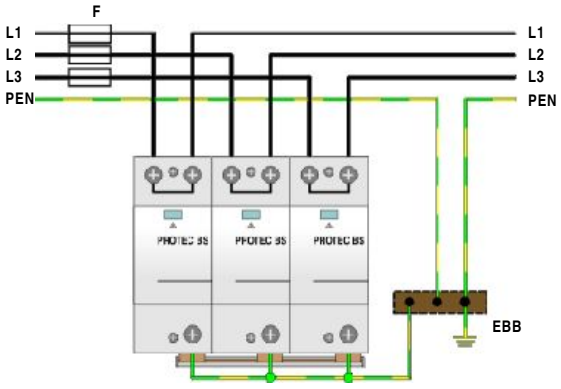
TT Network - Single-phase (V-connection)



TN-C Network - Three-phase (T-connection)

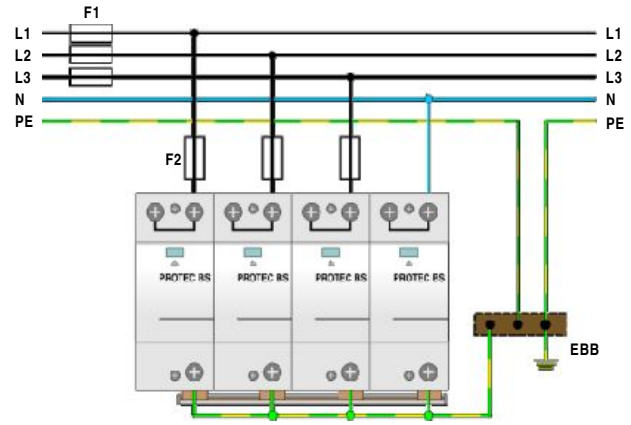


TN-C Network - Three-phase (V-connection)

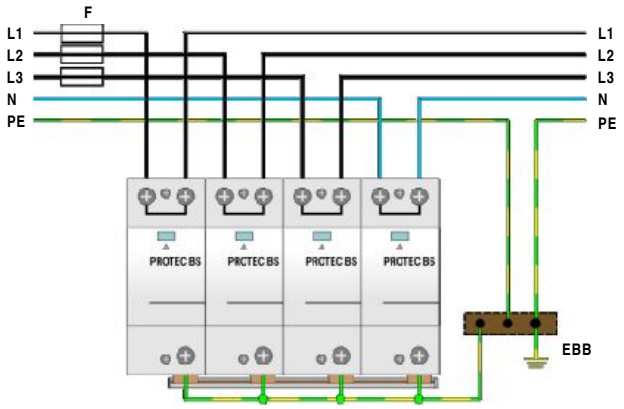


PROTEC BS(R), PROTUBE BS - Connections

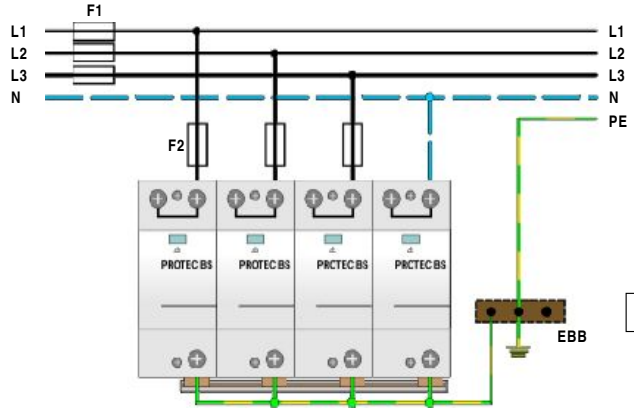
TN-S Network - Three-phase (T-connection)



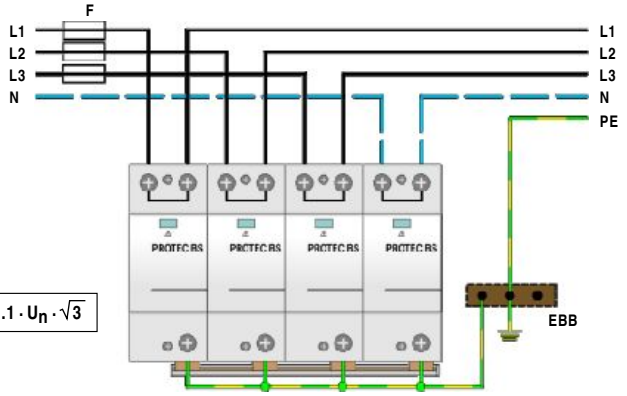
TN-S Network - Three-phase (V-connection)



IT Network - Three-phase (T-connection)

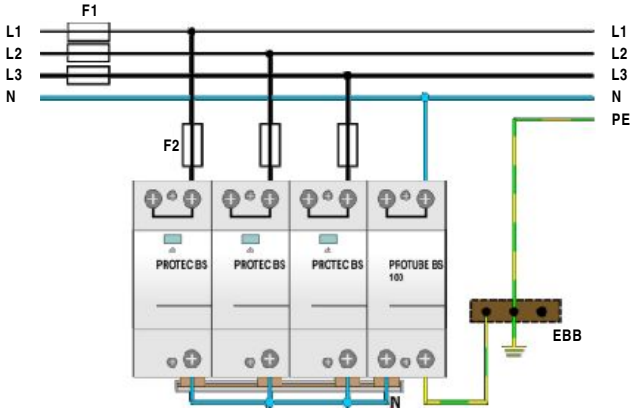


IT Network - Three-phase (V-connection)

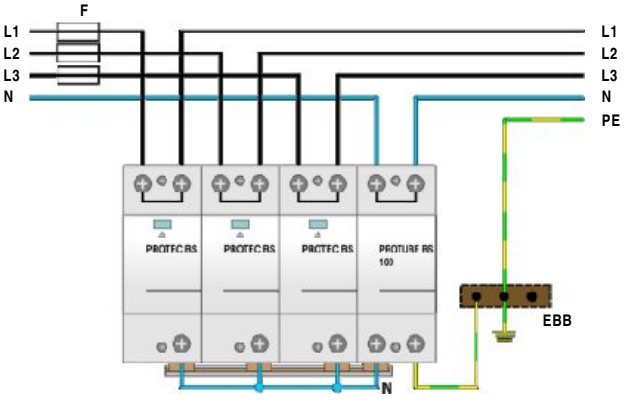


$$U_c \geq 1.1 \cdot U_n \cdot \sqrt{3}$$

TT Network - Three-phase (T-connection)

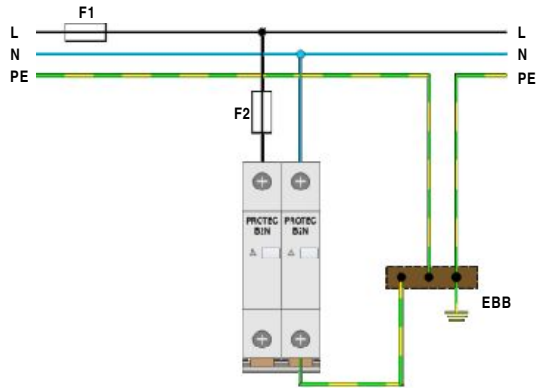


TT Network - Three-phase (V-connection)

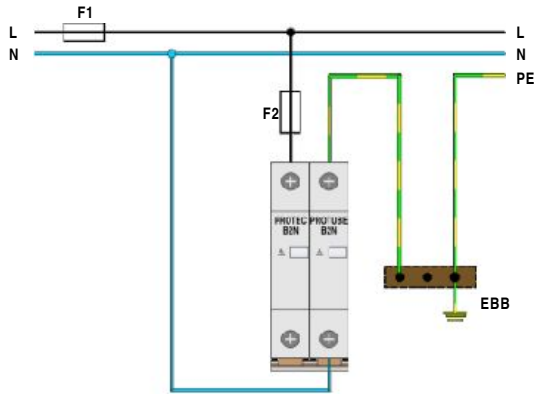


PROTEC B2N(R), PROTUBE B2N(R) - Connections

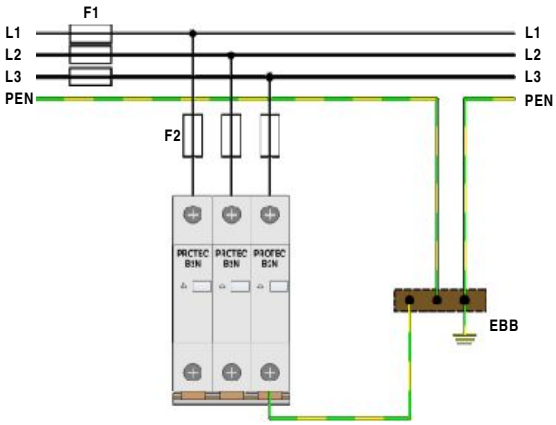
TN-S Network - Single-phase



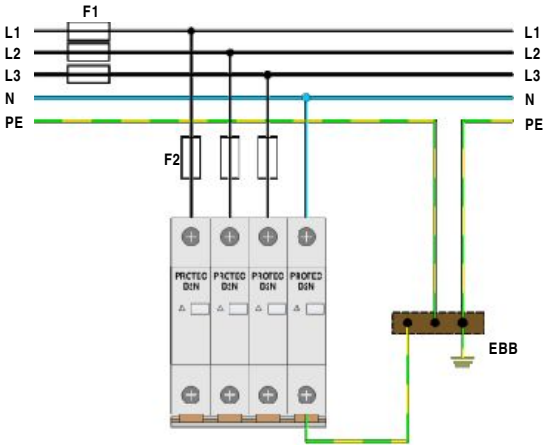
TT Network - Single-phase



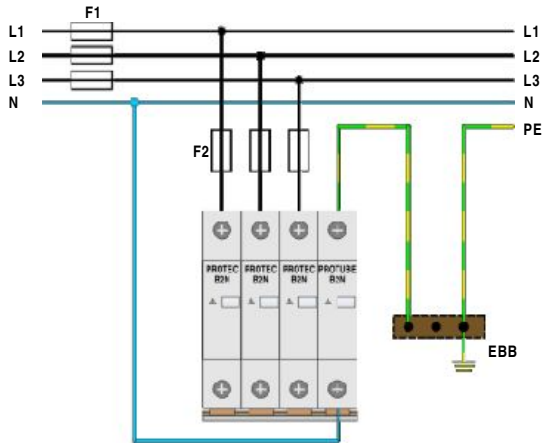
TN-C Network - Three-phase



TN-S Network - Three-phase



TT Network - Three-phase



MULTI-POLE Surge Protective Devices

Category IEC / EN / VDE:	**Class I, II, III / Type 1, 2, 3 / B+C+D**
Location of use:	**Main distribution boards**
Protection modes:	**L/N-PE, L-PEN**
Protective elements:	**High Energy MOV and GDT**
High surge discharge ratings:	**I_{imp} = 50kA / pole, 25kA / pole**
Internal protection and safety:	**Separate thermal disconnector for each MOV block**
Status indication:	**Mechanical flag + remote contacts (R)**
Dimensions DIN 43880:	**2TE, 3TE, 4TE, 5TE, 8TE**

PROBLOC BS(R) 100 (1+1)
PROBLOC BS(R) 50 (2+0)
PROBLOC BS(R) 50 (1+1)
PROBLOC BS(R) 75 (3+0)
PROBLOC BS(R) 100 (4+0)
PROBLOC BS(R) 100 (3+1)

The PROBLOC BS series of over-voltage surge protective devices has been developed to protect against partial direct and indirect lightning discharges and is intended to provide protection in zones 0_A - 1, per IEC 62305.

PROBLOC BS(R) (1+1): for TT single phase networks, where N to PE galvanic isolation is required.

PROBLOC BS(R) (2+0): for TNS single phase networks with separate N and PE conductors.

PROBLOC BS(R) (3+0): for TNC three phase networks with combined PEN conductor.

PROBLOC BS(R) (4+0): for TNS three phase networks with separate N and PE conductors.

PROBLOC BS(R) (3+1): for TT three phase networks, where N to PE galvanic isolation is required.

PROBLOC BS(R) 100 (1+1)

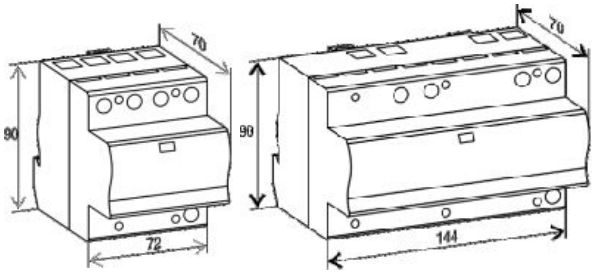
Class I, II Multi-pole Surge Protective Device
I_{imp} = 50kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Connections:** TT
- **Protection modes:** L - N , N - PE
- **Protective element:** High Energy MOV & GDT
- **High surge discharge rating:** I_{imp} (MOV/GDT)= 50/100kA
- **MOV max withstand capability 1 x 8/20:** I_{max}= 150kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

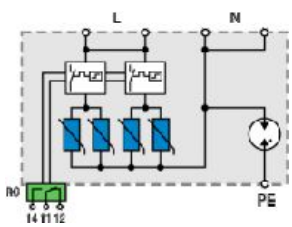
Technical data

Type		PROBLOC BS(R) 100/xxx (1+1)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n (L-N/N-PE)			25/100kA		
Max. discharge current (8/20)	I_{max} (L-N/N-PE)			100kA/100kA		
Impulse current (10/350)	I_{imp} (L-N/N-PE)			50kA/100kA		
Impulse current (10/350)	I_{imp} (L+N-PE)			100kA		
Specific energy	(L-N/N-PE)			625kJ/Ω/2.5MJ/Ω		
Charge	(L-N/N-PE)			25As/50As		
Protection level	U_p (L-N)	< 0.7kV	< 1.4kV	< 1.4kV	< 1.8kV	< 2.1kV
	U_p (N-PE)			< 1.75kV		
Residual voltage at I_{imp}	U_{res} (L-N)	< 0.7kV	< 1.2kV	< 1.2kV	< 1.5kV	< 1.8kV
Follow current	I_f (N-PE)			> 100A_{RMS}		
Response time	t_A (L-N/N-PE)			< 25ns/100ns		
Thermal protection	(L-N/N-PE)			YES/-		
Back-up fuse (if mains > 250A)	(L-N/N-PE)			250A gL/-		
Short-circuit withstand current	(L-N/N-PE)			25kA/50Hz/-		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 4.5Nm		
Terminal cross section				35mm² (solid)/25mm² (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880		4TE	4TE	4TE	8TE	8TE
Weight per unit		430g	540g	540g	654g	698g
Ordering code **PROBLOC BS 100/xxx (1+1)**		**504 512**	**504 513**	**504 514**	**504 396**	**504 397**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm²		
Remote terminal torque				0.25Nm		
Weight per unit		435g	545g	545g	559g	703g
Ordering code **PROBLOC BSR 100/xxx (1+1)** - with remote contacts		**504 515**	**504 516**	**504 517**	**504 398**	**504 399**
Packaging dimensions (single unit)			109 x 76.5 x 78mm		109 x 76.5 x 148mm	

Dimensions



Connection diagram



PROBLOC BS(R) 50 (2+0)

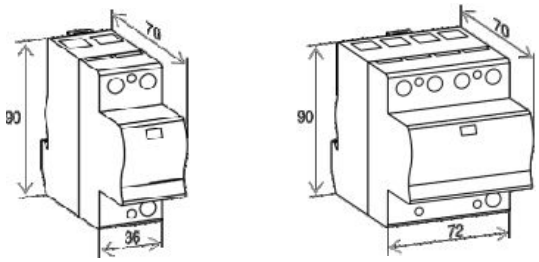
Class I, II Multi-pole Surge Protective Device
I_{imp} = 25kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Connections:** TN-S
- **Protection modes:** L/N - PE
- **Protective element:** High Energy MOV
- **High surge discharge rating:** I_{imp} = 25kA per pole
- **MOV max withstand capability 1 x 8/20:** I_{max}= 150kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

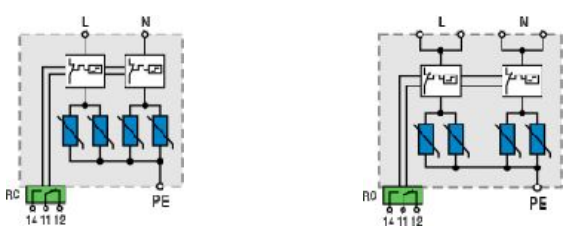
Technical data

Type		PROBLOC BS(R) 50/xxx (2+0)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n			25kA per pole		
Max. discharge current (8/20)	I_{max}			100kA per pole		
Impulse current (10/350)	I_{imp}			25kA per pole		
Impulse current (10/350)	I_{imp} (L+N-PE)			50kA		
Specific energy				156kJ/Ω per pole		
Charge				12.5As per pole		
Protection level	U_p	< 0.7kV	< 1.4kV	< 1.4kV	< 1.8kV	< 2.1kV
Residual voltage at I_{imp}	U_{res}	< 0.7kV	< 1.2kV	< 1.2kV	< 1.5kV	< 1.8kV
Follow current	I_f			NO		
Response time	t_A			< 25ns		
Thermal protection				YES		
Back-up fuse (if mains > 250A)				250A gL		
Short-circuit withstand current				25kA/50Hz		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 4.5Nm		
Terminal cross section				35mm² (solid)/25mm² (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880		2TE	2TE	2TE	4TE	4TE
Weight per unit		266g	374g	374g	438g	458g
Ordering code **PROBLOC BS 50/xxx (2+0)**		**504 435**	**504 436**	**504 437**	**504 438**	**504 439**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm²		
Remote terminal torque				0.25Nm		
Weight per unit		271g	379g	379g	443g	463g
Ordering code **PROBLOC BSR 50/xxx (2+0)** - with remote contacts		**504 445**	**504 446**	**504 447**	**504 448**	**504 449**
Packaging dimensions (single unit)			109 x 76.5 x 41.5mm		109 x 76.5 x 78mm	

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROBLOC BS(R) 50 (1+1)

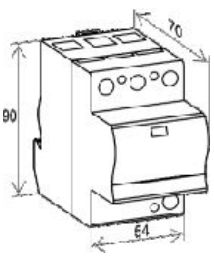
Class I, II Multi-pole Surge Protective Device
I_{imp} = 25kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Connections:** TT
- **Protection modes:** L - N , N - PE
- **Protective element:** High Energy MOV & GDT
- **High surge discharge rating:** I_{imp} (MOV/GDT)= 25/50kA
- **MOV max withstand capability 1 x 8/20:** I_{max}= 150kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

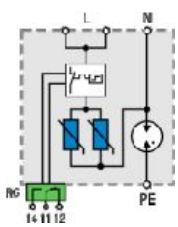
Technical data

Type		PROBLOC BS(R) 50/xxx (1+1)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n (L-N/N-PE)			25/50kA		
Max. discharge current (8/20)	I_{max} (L-N/N-PE)			100kA/100kA		
Impulse current (10/350)	I_{imp} (L-N/N-PE)			25kA/50kA		
Impulse current (10/350)	I_{imp} (L+N-PE)			50kA		
Specific energy	(L-N/N-PE)			156kJ/Ω/625MJ/Ω		
Charge	(L-N/N-PE)			12.5As/25As		
Protection level	U_p (L-N)	< 0.8kV	< 1.4kV	< 1.4kV	< 1.8kV	< 2.1kV
	U_p (N-PE)			< 1.5kV		
Residual voltage at I_{imp}	U_{res} (L-N)	< 0.7kV	< 1.2kV	< 1.2kV	< 1.5kV	< 1.8kV
Follow current	I_f (N-PE)			> 100A_{RMS}		
Response time	t_A (L-N/N-PE)			< 25ns/100ns		
Thermal protection	(L-N/N-PE)			YES/-		
Back-up fuse (if mains > 250A)	(L-N/N-PE)			250A gL/-		
Short-circuit withstand current	(L-N/N-PE)			25kA/50Hz/-		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 4.5Nm		
Terminal cross section				35mm² (solid)/25mm² (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880				3TE		
Weight per unit		308g	364g	364g	386g	408g
Ordering code **PROBLOC BS 50/xxx (1+1)**		**504 454**	**504 455**	**504 456**	**504 457**	**504 458**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm²		
Remote terminal torque				0.25Nm		
Weight per unit		313g	369g	369g	391g	414g
Ordering code **PROBLOC BSR 50/xxx (1+1)** - with remote contacts		**504 459**	**504 460**	**504 461**	**504 462**	**504 463**
Packaging dimensions (single unit)				109 x 76.5 x 60mm		

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROBLOC BS(R) 75 (3+0)

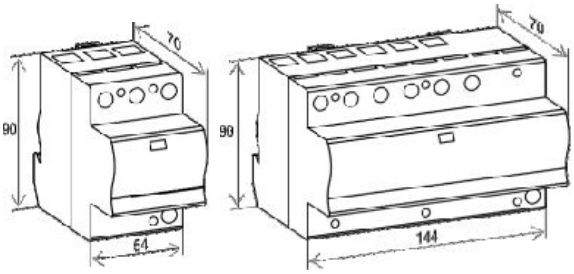
Class I, II, III Multi-pole Surge Protective Device
I_{imp} = 25kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II, III / Type 1, 2, 3 / B+C+D
- **Location of use:** Main distribution boards
- **Connections:** TN - C
- **Protection modes:** L - PEN
- **Protective element:** High Energy MOV
- **High surge discharge rating:** I_{imp} = 25kA per pole
- **MOV max withstand capability 1 x 8/20:** I_{max}= 150kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

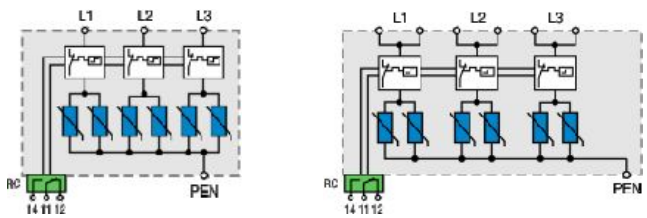
Technical data

Type		PROBLOC BS(R) 75/xxx (3+0)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n			25kA per pole		
Max. discharge current (8/20)	I_{max}			100kA per pole		
Combination wave (1.2/50, 8/20)	U_{OC}/I_{SC}			10kV/5kA		
Impulse current (10/350)	I_{imp}			25kA per pole		
Impulse current (10/350)	I_{imp} (L1+L2+L3-PEN)			75kA		
Specific energy				156kJ/Ω per pole		
Charge				12.5As per pole		
Protection level	U_p	< 0.8kV	< 1.4kV	< 1.4kV	< 1.9kV	< 2.2kV
Residual voltage at I_{imp}	U_{res}	< 0.8kV	< 1.3kV	< 1.3kV	< 1.6kV	< 1.9kV
Follow current	I_f			NO		
Response time	t_A			< 25ns		
Thermal protection				YES		
Back-up fuse (if mains > 250A)				250A gL		
Short-circuit withstand current				25kA/50Hz		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 4.5Nm		
Terminal cross section				35mm² (solid)/25mm² (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880		3TE	3TE	3TE	8TE	8TE
Weight per unit		400g	570g	570g	726g	792g
Ordering code **PROBLOC BS 75/xxx (3+0)**		**504 518**	**504 519**	**504 520**	**504 464**	**504 465**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm²		
Remote terminal torque				0.25Nm		
Weight per unit		405g	575g	575g	731g	797g
Ordering code **PROBLOC BSR 75/xxx (3+0)** - with remote contacts		**504 521**	**504 522**	**504 523**	**504 466**	**504 467**
Packaging dimensions (single unit)			109 x 76.5 x 60mm		109 x 76.5 x 148mm	

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROBLOC BS(R) 100 (4+0)

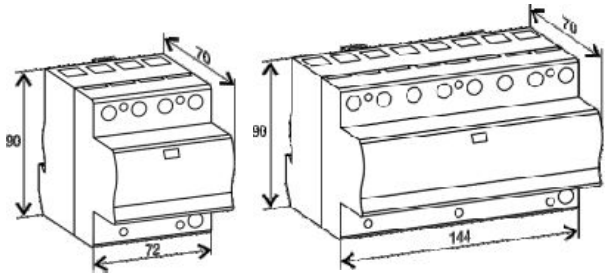
Class I, II, III Multi-pole Surge Protective Device
I_{imp} = 25kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II, III / Type 1, 2, 3 / B+C+D
- **Location of use:** Main distribution boards
- **Connections:** TN - S
- **Protection modes:** L/N - PE
- **Protective element:** High Energy MOV
- **High surge discharge rating:** I_{imp} = 25kA per pole
- **MOV max withstand capability 1 x 8/20:** I_{max}= 150kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

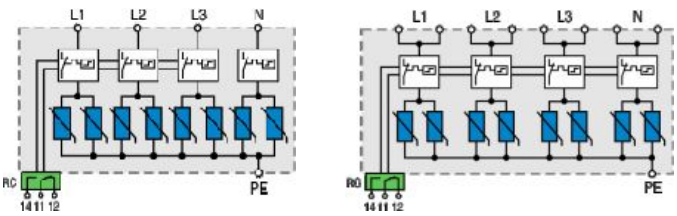
Technical data

Type		PROBLOC BS(R) 100/xxx (4+0)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n	25kA per pole				
Max. discharge current (8/20)	I_{max}	100kA per pole				
Combination wave (1.2/50, 8/20)	U_{OC}/I_{SC}	10kV/5kA				
Impulse current (10/350)	I_{imp}	25kA per pole				
Impulse current (10/350)	I_{imp} (L1+L2+L3+N-PE)	100kA				
Specific energy		156kJ/Ω per pole				
Charge		12.5As per pole				
Protection level	U_p	< 0.8kV	< 1.4kV	< 1.4kV	< 1.9kV	< 2.2kV
Residual voltage at I_{imp}	U_{res}	< 0.8kV	< 1.3kV	< 1.3kV	< 1.6kV	< 1.9kV
Follow current	I_f	NO				
Response time	t_A	< 25ns				
Thermal protection		YES				
Back-up fuse (if mains > 250A)		250A gL				
Short-circuit withstand current		25kA/50Hz				
Mechanical characteristics						
Temperature range		- 40°C ....+ 80°C				
Terminal screw torque		max. 4.5Nm				
Terminal cross section		35mm² (solid)/25mm² (stranded)				
Mounting EN 60715		35mm top-hat rail				
Degree of protection		IP 20				
Housing material		Thermoplastic; extinguishing degree UL 94 V-0				
Dimensions DIN 43880		4TE	4TE	4TE	8TE	8TE
Weight per unit		532g	756g	756g	912g	1000g
Ordering code **PROBLOC BS 100/xxx (4+0)**		**504 524**	**504 525**	**504 526**	**504 468**	**504 469**
Remote contacts		YES				
Contact ratings		AC: 250V/0.5A; 125V/3A				
Terminal cross section		max. 1.5mm²				
Remote terminal torque		0.25Nm				
Weight per unit		537g	761g	761g	917g	1005g
Ordering code **PROBLOC BSR 100/xxx (4+0)** - with remote contacts		**504 527**	**504 528**	**504 529**	**504 470**	**504 471**
Packaging dimensions (single unit)		109 x 76.5 x 78mm			109 x 76.5 x 148mm	

Dimensions



Connection diagram



PROBLOC BS(R) 100 (3+1)

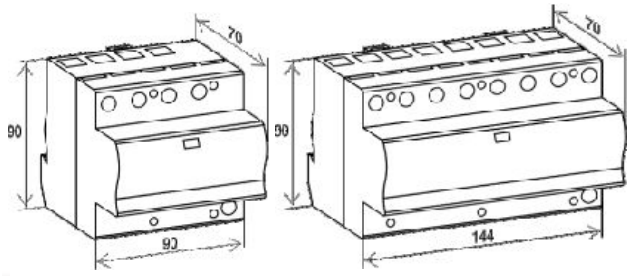
Class I, II, III Multi-pole Surge Protective Device
I_{imp} = 25kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II, III / Type 1, 2, 3 / B+C+D
- **Location of use:** Main distribution boards
- **Connections:** TT
- **Protection modes:** L - N , N - PE
- **Protective element:** High Energy MOV & GDT
- **High surge discharge rating:** I_{imp} (MOV/GDT)= 25/100kA
- **MOV max withstand capability 1 x 8/20:** I_{max}= 150kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

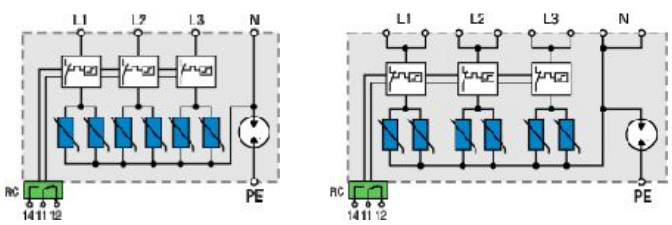
Technical data

Type		PROBLOC BS(R) 100/xxx (3+1)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_c	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n (L-N/N-PE)			25/100kA		
Max. discharge current (8/20)	I_{max} (L-N/N-PE)			100kA/100kA		
Combination wave (1.2/50, 8/20)	U_{oc}/I_{sc}			10kV/5kA		
Impulse current (10/350)	I_{imp} (L-N/N-PE)			25kA/100kA		
Impulse current (10/350)	I_{imp} (L1+L2+L3+N-PE)			100kA		
Specific energy	(L-N/N-PE)			156kJ/Ω/2.5MJ/Ω		
Charge	(L-N/N-PE)			12.5As/50As		
Protection level	U_p (L-N)	< 0.9kV	< 1.4kV	< 1.4kV	< 1.9kV	< 2.2kV
	U_p (N-PE)			< 1.75kV		
Residual voltage at I_{imp}	U_{res} (L-N)	< 0.8kV	< 1.3kV	< 1.3kV	< 1.6kV	< 1.9kV
Follow current	I_f (N-PE)			> 100A$_{RMS}$		
Response time	t_A (L-N/N-PE)			< 25ns/100ns		
Thermal protection	(L-N/N-PE)			YES/-		
Back-up fuse (if mains > 250A)	(L-N/N-PE)			250A gL/-		
Short-circuit withstand current	(L-N/N-PE)			25kA/50Hz/-		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 4.5Nm		
Terminal cross section				35mm^2 (solid)/25mm^2 (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880		5TE	5TE	5TE	8TE	8TE
Weight per unit		568g	728g	728g	834g	900g
Ordering code **PROBLOC BS 100/xxx (3+1)**		**504 530**	**504 531**	**504 532**	**504 472**	**504 473**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm^2		
Remote terminal torque				0.25Nm		
Weight per unit		573g	733g	733g	839g	905g
Ordering code **PROBLOC BSR 100/xxx (3+1)** - with remote contacts		**504 533**	**504 534**	**504 535**	**504 474**	**504 475**
Packaging dimensions (single unit)			109 x 76.5 x 96mm		109 x 76.5 x 148mm	

Dimensions



Connection diagram



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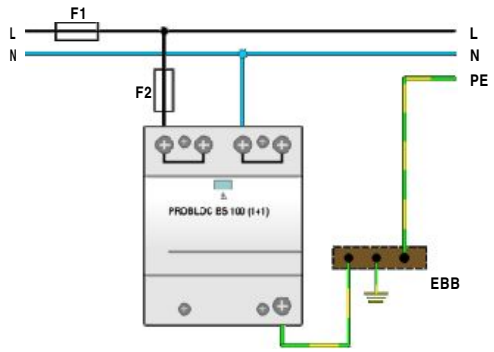
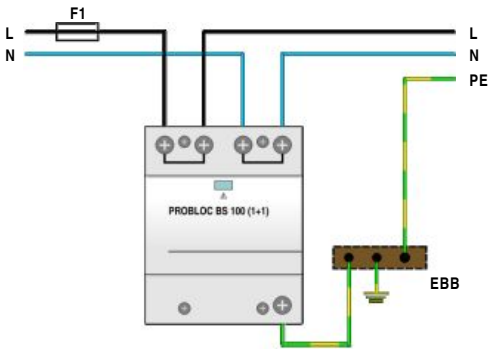
PROBLOC BS(R) - Connections

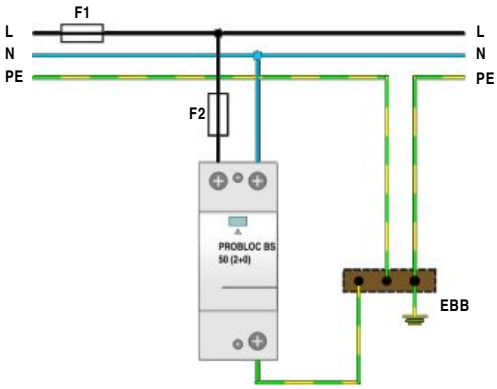
TT Network - Single-phase (T-connection)



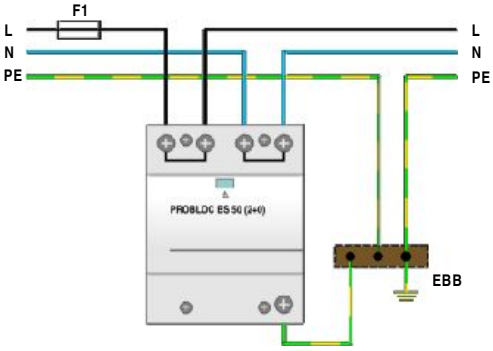
TT Network - Single-phase (V-connection)



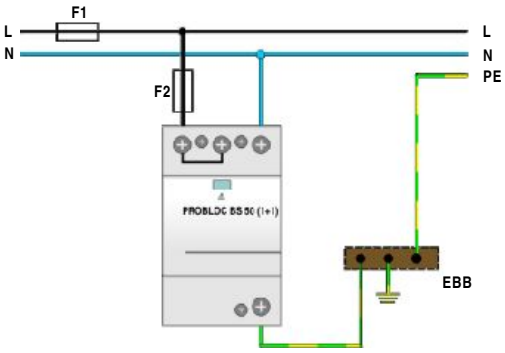
TN-S Network - Single-phase (T-connection)



TN-S Network - Single-phase (V-connection)

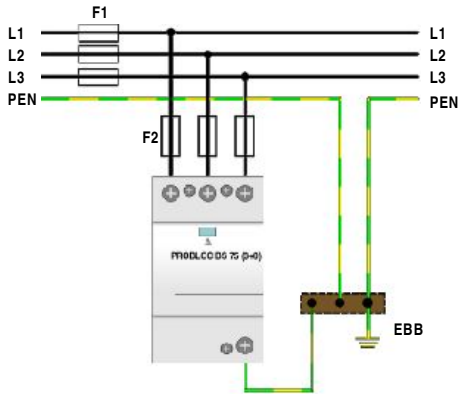


TT Network - Single-phase (T-connection)

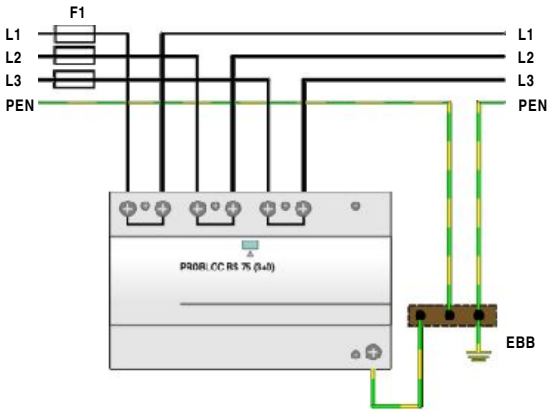


PROBLOC BS(R) - Connections

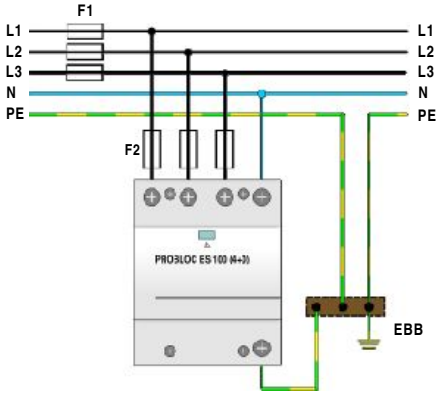
TN-C Network - Three-phase (T-connection)



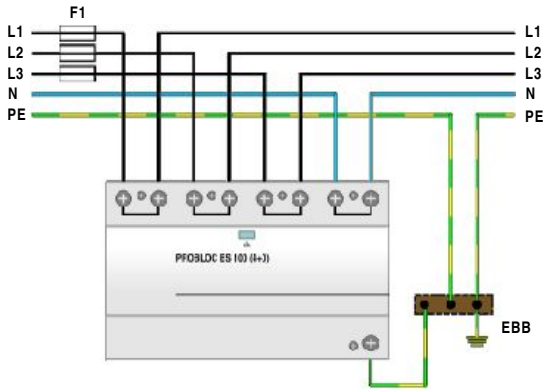
TN-C Network - Three-phase (V-connection)



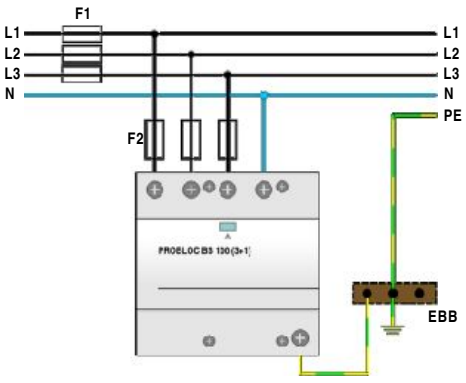
TN-S Network - Three-phase (T-connection)



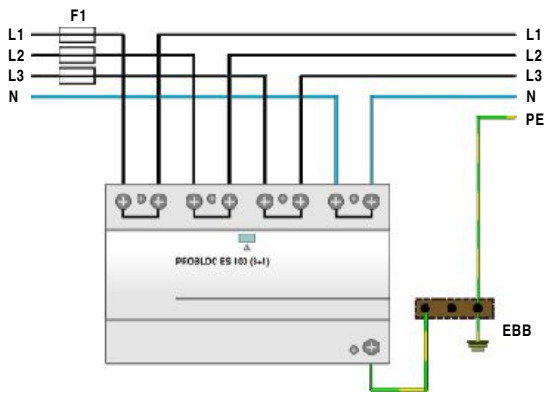
TN-S Network - Three-phase (V-connection)



TT Network - Three-phase (T-connection)



TT Network - Three-phase (V-connection)



MULTI-POLE Surge Protective Devices

Category IEC / EN / VDE:	**Class I, II, III / Type 1, 2, 3 / B+C+D**
Location of use:	**Main distribution boards**
Protection modes:	**L/N-PE, L-PEN, L-N, N-PE**
Protective elements:	**High Energy MOV and GDT**
High surge discharge ratings:	**I_{imp} = 12.5kA per pole**
Internal protection and safety:	**Separate thermal disconnector for each MOV block**
Status indication:	**Mechanical flag + remote contacts (R)**
Dimensions DIN 43880:	**2TE, 3TE, 4TE**

PROBLOC BS(R) 25 (2+0)
PROBLOC BS(R) 25 (1+1)
PROBLOC BS(R) 37.5 (3+0)
PROBLOC BS(R) 50 (4+0)
PROBLOC BS(R) 50 (3+1)

The PROBLOC BS series of over-voltage surge protective devices have been developed to protect against partial direct and indirect lightning discharges and are intended to provide protection in zones 0_A - 1, per IEC 62305.

PROBLOC BS(R) (2+0): for TNS single phase networks with separate N and PE conductors.

PROBLOC BS(R) (1+1): for TT single phase networks, where N to PE galvanic isolation is required.

PROBLOC BS(R) (3+0): for TNC three phase networks with combined PEN conductor.

PROBLOC BS(R) (4+0): for TNS three phase networks with separate N and PE conductors.

PROBLOC BS(R) (3+1): for TT three phase networks, where N to PE galvanic isolation is required.

PROBLOC BS(R) 25 (2+0)

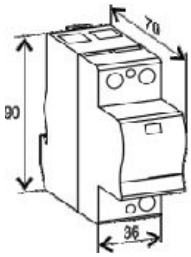
Class I, II Multi-pole Surge Protective Device
I_{imp} = 12.5kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Connections:** TN-S
- **Protection modes:** L/N - PE
- **Protective element:** High Energy MOV
- **High surge discharge rating:** I_{imp} = 12.5kA per pole
- **MOV max withstand capability 1 x 8/20:** I_{max}= 100kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

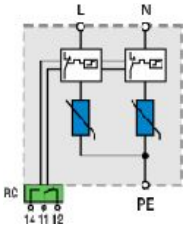
Technical data

Type		PROBLOC BS(R) 25/xxx (2+0)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n			20kA per pole		
Max. discharge current (8/20)	I_{max}			50kA per pole		
Impulse current (10/350)	I_{imp}			12.5kA per pole		
Impulse current (10/350)	I_{imp} (L+N-PE)			25kA		
Specific energy				39kJ/Ω per pole		
Charge				6.25As per pole		
Protection level	U_p	< 0.7kV	< 1.4kV	< 1.4kV	< 1.6kV	< 1.9kV
Residual voltage at I_{imp}	U_{res}	< 0.6kV	< 1.1kV	< 1.1kV	< 1.4kV	< 1.7kV
Follow current	I_f			NO		
Response time	t_A			< 25ns		
Thermal protection				YES		
Back-up fuse (if mains > 250A)				250A gL		
Short-circuit withstand current				25kA/50Hz		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 4.5Nm		
Terminal cross section				35mm² (solid)/25mm² (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880				2TE		
Weight per unit		198g	251g	251g	267g	283g
Ordering code **PROBLOC BS 25/xxx (2+0)**		**504 405**	**504 406**	**504 407**	**504 408**	**504 409**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm²		
Remote terminal torque				0.25Nm		
Weight per unit		203g	256g	256g	272g	288g
Ordering code **PROBLOC BSR 25/xxx (2+0)** - with remote contacts		**504 420**	**504 421**	**504 422**	**504 423**	**504 424**
Packaging dimensions (single unit)				109 x 76.5 x 41.5mm		

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROBLOC BS 25 (1+1)

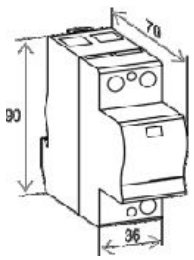
Class I, II Multi-pole Surge Protective Device
I_{imp} = 12.5kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Connections:** TT
- **Protection modes:** L - N , N - PE
- **Protective element:** High Energy MOV & GDT
- **High surge discharge rating:** I_{imp} (MOV/GDT) = 12.5/50kA
- **MOV max withstand capability 1 x 8/20:** I_{max}= 100kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

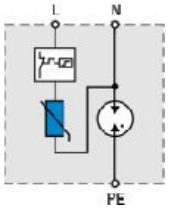
Technical data

Type		PROBLOC BS(R) 50/xxx (1+1)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_c	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n (L-N/N-PE)			20/50kA		
Max. discharge current (8/20)	I_{max} (L-N/N-PE)			50kA/100kA		
Impulse current (10/350)	I_{imp} (L-N/N-PE)			12.5kA/50kA		
Impulse current (10/350)	I_{imp} (L+N-PE)			25kA		
Specific energy	(L-N/N-PE)			39kJ/Ω/625kJ/Ω		
Charge	(L-N/N-PE)			6.25As/25As		
Protection level	U_p (L-N)	< 0.7kV	< 1.4kV	< 1.4kV	< 1.6kV	< 1.9kV
	U_p (N-PE)			< 1.5kV		
Residual voltage at I_{imp}	U_{res} (L-N)	< 0.6kV	< 1.1kV	< 1.1kV	< 1.4kV	< 1.7kV
Follow current	I_f (N-PE)			> 100A_{RMS}		
Response time	t_A (L-N/N-PE)			< 25ns/100ns		
Thermal protection	(L-N/N-PE)			YES/-		
Back-up fuse (if mains > 250A)	(L-N/N-PE)			250A gL/-		
Short-circuit withstand current	(L-N/N-PE)			25kA/50Hz/-		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 4.5Nm		
Terminal cross section				35mm² (solid)/25mm² (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880				2TE		
Weight per unit		192g	245g	245g	261g	277g
Ordering code **PROBLOC BS 25/xxx (1+1)**		**504 410**	**504 411**	**504 412**	**504 413**	**504 414**
Packaging dimensions (single unit)				109 x 76.5 x 41.5mm		

Dimensions



Connection diagram



PROBLOC BS(R) 37.5 (3+0)

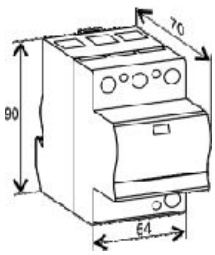
Class I, II, III Multi-pole Surge Protective Device
I_{imp} = 12.5kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II, III / Type 1, 2, 3 / B+C+D
- **Location of use:** Main distribution boards
- **Connection:** TN-C
- **Protection modes:** L - PEN
- **Protective element:** High Energy MOV
- **High surge discharge rating:** I_{imp} = 12.5kA per pole
- **MOV max withstand capability 1 x 8/20:** I_{max}= 100kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

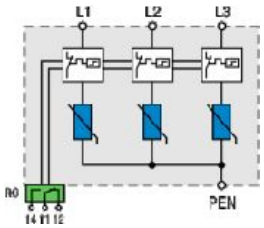
Technical data

Type		PROBLOC BS(R) 37.5/xxx (3+0)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n			20kA per pole		
Max. discharge current (8/20)	I_{max}			50kA per pole		
Combination wave (1.2/50, 8/20)	U_{OC}/I_{SC}			10kA/5kV		
Impulse current (10/350)	I_{imp}			12.5kA per pole		
Impulse current (10/350)	I_{imp} (L1+L2+L3-PEN)			37.5kA		
Specific energy				39kJ/Ω per pole		
Charge				6.25As per pole		
Protection level	U_p	< 0.9kV	< 1.4kV	< 1.4kV	< 1.8kV	< 2.1kV
Residual voltage at I_{imp}	U_{res}	< 0.7kV	< 1.2kV	< 1.2kV	< 1.5kV	< 1.8kV
Follow current	I_f			NO		
Response time	t_A			< 25ns		
Thermal protection				YES		
Back-up fuse (if mains > 250A)				250A gL		
Short-circuit withstand current				25kA/50Hz		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 4.5Nm		
Terminal cross section				35mm² (solid)/25mm² (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880				3TE		
Weight per unit		300g	382g	382g	394g	432g
Ordering code **PROBLOC BS 37.5/xxx (3+0)**		**504 049**	**504 051**	**504 053**	**504 267**	**504 055**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm²		
Remote terminal torque				0.25Nm		
Weight per unit		305g	387g	387g	399g	437g
Ordering code **PROBLOC BSR 37.5/xxx (3+0)** - with remote contacts		**504 057**	**504 059**	**504 061**	**504 269**	**504 063**
Packaging dimensions (single unit)				109 x 76.5 x 60mm		

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROBLOC BS(R) 50 (4+0)

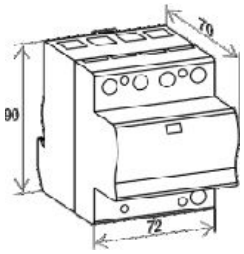
Class I, II, III Multi-pole Surge Protective Device
I_{imp} = 12.5kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II, III / Type 1, 2, 3 / B+C+D
- **Location of use:** Main distribution boards
- **Connections:** TN-S
- **Protection modes:** L/N - PE
- **Protective element:** High Energy MOV
- **High surge discharge rating:** I_{imp} = 12.5kA per pole
- **MOV max withstand capability 1 x 8/20:** I_{max}= 100kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

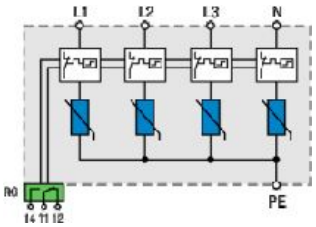
Technical data

Type		PROBLOC BS(R) 50/xxx (4+0)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n			20kA per pole		
Max. discharge current (8/20)	I_{max}			50kA per pole		
Combination wave (1.2/50, 8/20)	U_{OC}/I_{SC}			10kV/5kA		
Impulse current (10/350)	I_{imp}			12.5kA per pole		
Impulse current (10/350)	I_{imp} (L1+L2+L3+N-PE)			50kA		
Specific energy				39kJ/Ω per pole		
Charge				6.25As per pole		
Protection level	U_p	< 0.9kV	< 1.4kV	< 1.4kV	< 1.8kV	< 2.1kV
Residual voltage at I_{imp}	U_{res}	< 0.7kV	< 1.2kV	< 1.2kV	< 1.5kV	< 1.8kV
Follow current	I_f			NO		
Response time	t_A			< 25ns		
Thermal protection				YES		
Back-up fuse (if mains > 250A)				250A gL		
Short-circuit withstand current				25kA/50Hz		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 4.5Nm		
Terminal cross section				35mm² (solid)/25mm² (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880		366g	462g	462g	494g	526g
Weight per unit		**504 065**	**504 067**	**504 069**	**504 271**	**504 071**
Ordering code **PROBLOC BS 50/xxx (4+0)**				YES		
Remote contacts				AC: 250V/0.5A; 125V/3A		
Contact ratings				max. 1.5mm²		
Terminal cross section				0.25Nm		
Remote terminal torque		371g	467g	467g	499g	531g
Weight per unit		**504 073**	**504 075**	**504 077**	**504 273**	**504 079**
Ordering code **PROBLOC BSR 50/xxx (4+0)** - with remote contacts				109 x 76.5 x 78mm		
Packaging dimensions (single unit)						

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROBLOC BS(R) 50 (3+1)

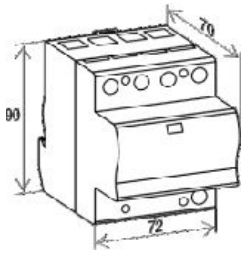
Class I, II, III Multi-pole Surge Protective Device
I_{imp} = 12.5kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II , III/ Type 1, 2, 3 / B+C+D
- **Location of use:** Main distribution boards
- **Connections:** TT
- **Protection modes:** L - N , N - PE
- **Protective element:** High Energy MOV & GDT
- **High surge discharge rating:** I_{imp} (MOV/GDT)= 12.5/50kA
- **MOV max withstand capability 1 x 8/20:** I_{max}= 100kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

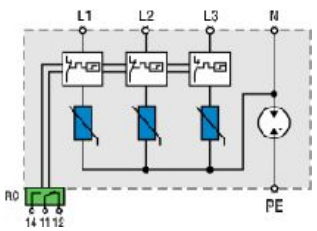
Technical data

Type		PROBLOC BS(R) 50/xxx (3+1)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n (L-N/N-PE)			20/50kA		
Max. discharge current (8/20)	I_{max} (L-N/N-PE)			50kA/100kA		
Combination wave (1.2/50, 8/20)	U_{OC}/I_{SC}			10kV/5kA		
Impulse current (10/350)	I_{imp} (L-N/N-PE)			12.5kA/50kA		
Impulse current (10/350)	I_{imp} (L1+L2+L3+N-PE)			50kA		
Specific energy	(L-N/N-PE)			39kJ/Ω/625kJ/Ω		
Charge	(L-N/N-PE)			6.25As/25As		
Protection level	U_p (L-N)	< 0.9kV	< 1.4kV	< 1.4kV	< 1.8kV	< 2.1kV
	U_p (N-PE)			< 1.5kV		
Residual voltage at I_{imp}	U_{res} (L-N)	< 0.7kV	< 1.2kV	< 1.2kV	< 1.5kV	< 1.8kV
Follow current	I_f (N-PE)			> 100A$_{RMS}$		
Response time	t_A (L-N/N-PE)			< 25ns/100ns		
Thermal protection	(L-N/N-PE)			YES/-		
Back-up fuse (if mains > 250A)	(L-N/N-PE)			250A gL/-		
Short-circuit withstand current	(L-N/N-PE)			25kA/50Hz/-		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 4.5Nm		
Terminal cross section				35mm^2 (solid)/25mm^2 (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880				4TE		
Weight per unit		442g	538g	538g	548g	577g
Ordering code **PROBLOC BS 50/xxx (3+1)**		**504 480**	**504 481**	**504 482**	**504 483**	**504 484**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm^2		
Remote terminal torque				0.25Nm		
Weight per unit		447g	543g	543g	553g	582g
Ordering code **PROBLOC BSR 50/xxx (3+1)** - with remote contacts		**504 485**	**504 486**	**504 487**	**504 488**	**504 489**
Packaging dimensions (single unit)				109 x 76.5 x 78mm		

Dimensions

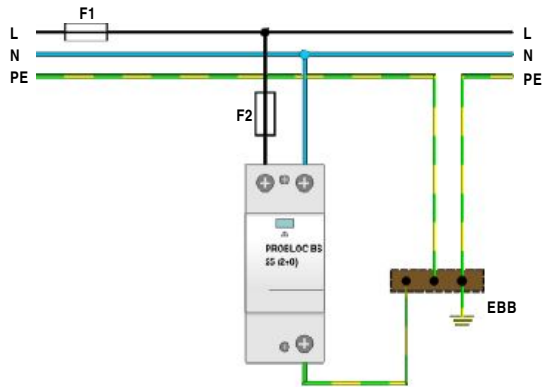


Connection diagram

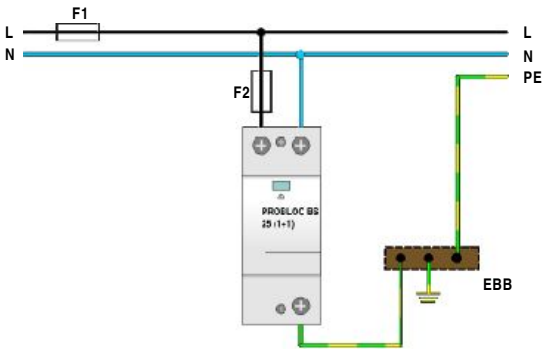


PROBLOC BS(R) - Connections

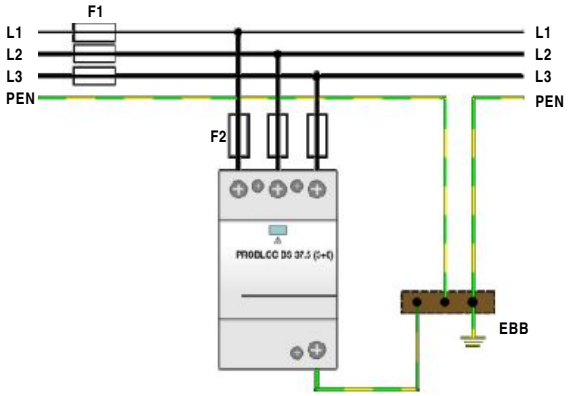
TN-S Network - Single-phase



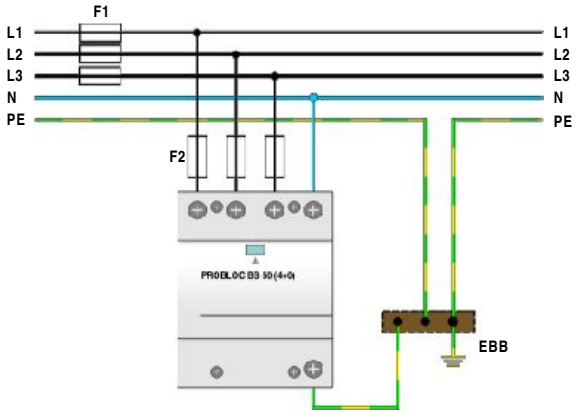
TT Network - Single-phase



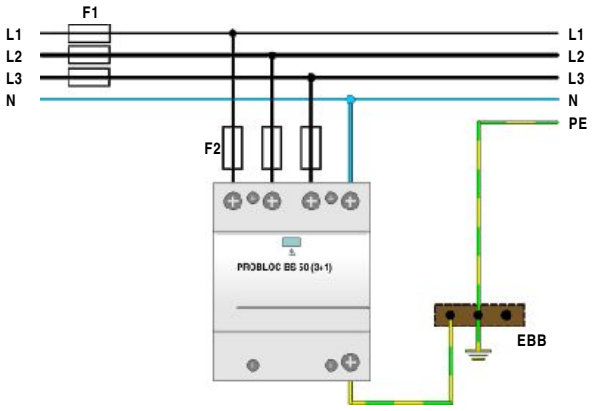
TN-C Network - Three-phase



TN-S Network - Three-phase



TT Network - Three-phase



MULTI-POLE Surge Protective Devices

Category IEC / EN / VDE:	**Class I, II / Type 1, 2 / B+ C**
Location of use:	**Main distribution boards**
Protection modes:	**L/N-PE, L-PEN, L-N, N-PE**
Protective elements:	**High Energy MOV and GDT**
High surge discharge ratings:	**I_{imp} = 12.5kA per pole**
Internal protection and safety:	**Separate thermal disconnector for each MOV block**
Status indication:	**Mechanical flag + remote contacts (R)**
Dimensions DIN 43880:	**2TE**

INPROTEC VV(R) (2+0)
INPROTEC VG(R) (1+1)
INPROTEC VS(R) (1+0)

The INPROTEC series of over-voltage surge protective devices have been developed to protect against partial direct and indirect lightning discharges and are intended to provide protection in zones 0_A - 1, per IEC 62305.

The INPROTEC VV series of over-voltage surge protective devices is intended for stand-alone use in single phase systems or for use in conjunction with the INPROTEC VV or INPROTEC VS or INPROTEC VG series when protecting a three phase system. With simple combinations of the three variants, an over-voltage protection system can be constructed for TT, TNC, TNC-S and IT networks.

INPROTEC VG(R) (1+1): for TT single phase networks, where N to PE galvanic isolation is required.

INPROTEC VV(R) (2+0): for TNS single phase networks with separate N and PE conductors.

INPROTEC VV(R)+VS(R) (3+0): for TNC three phase networks with combined PEN conductor.

INPROTEC VV(R)+VV(R) (4+0): for TNS three phase networks with separate N and PE conductors.

INPROTEC VV(R)+VV(R) (3+1): for TT three phase networks, where N to PE galvanic isolation is required.

INPROTEC VV(R) (2+0)

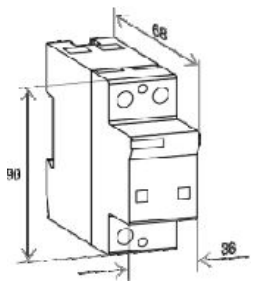
Class I, II Multi-pole Surge Protective Device
I_{imp} = 12.5kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Connections:** TN-S, IT
- **Protection modes:** L/N - PE, L - PEN
- **Protective element:** High Energy MOV
- **High surge discharge rating:** I_{imp} = 12.5kA per pole
- **MOV max withstand capability 1 x 8/20:** I_{max}= 100kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

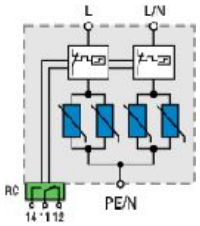
Technical data

Type		INPROTEC VV(R) (2+0)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_c	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n			40kA per pole		
Max. discharge current (8/20)	I_{max}			80kA per pole		
Impulse current (10/350)	I_{imp}			12.5kA per pole		
Impulse current (10/350)	I_{imp} (L+N-PE)			25kA		
Specific energy				39kJ/Ω per pole		
Charge				6.25As per pole		
Protection level	U_p	< 1.0kV	< 1.8kV	< 1.8kV	< 2.2kV	< 2.4kV
Residual voltage at I_{imp}	U_{res}	< 0.6kV	< 1.1kV	< 1.1kV	< 2.1kV	< 2.3kV
Follow current	I_f			NO		
Response time	t_A			< 25ns		
Thermal protection				YES		
Back-up fuse (if mains > 250A)				250A gL		
Short-circuit withstand current				25kA/50Hz		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 4.5Nm		
Terminal cross section				35mm² (solid)/25mm² (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880				2TE		
Weight per unit		270g	300g	300g	322g	290g
Ordering code **INPROTEC VV (2+0)**		**505 017**	**505 019**	**505 021**	**505 061**	**505 023**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm²		
Remote terminal torque				0.25Nm		
Weight per unit		275g	305g	305g	327g	295g
Ordering code **INPROTEC VVR (2+0)** - with remote contacts		**505 025**	**505 027**	**505 029**	**505 063**	**505 031**
Packaging dimensions (single unit)				109 x 76.5 x 41.5mm		

Dimensions



Connection diagram



ISKRA ZAŠČITE

INPROTEC VG(R) (1+1)

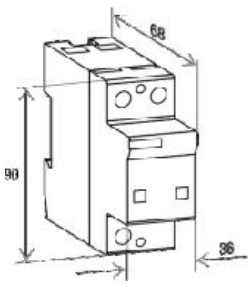
Class I, II Multi-pole Surge Protective Device
I_{imp} = 12.5kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Connections:** TT
- **Protection modes:** L - N , N - PE
- **Protective element:** High Energy MOV & GDT
- **High surge discharge rating:** I_{imp} (MOV/GDT)= 12.5/50kA
- **MOV max withstand capability 1 x 8/20:** I_{max}= 100kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

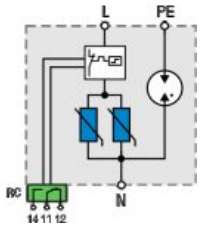
Technical data

Type		INPROTEC VG(R) (1+1)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n (L-N/N-PE)			40/40kA		
Max. discharge current (8/20)	I_{max} (L-N/N-PE)			80kA/80kA		
Impulse current (10/350)	I_{imp} (L-N/N-PE)			12.5kA/50kA		
Impulse current (10/350)	I_{imp} (L+N-PE)			25kA		
Specific energy	(L-N/N-PE)			39kJ/Ω/625kJ/Ω		
Charge	(L-N/N-PE)			6.25As/25As		
Protection level	U_p (L-N)	< 1.0kV	< 1.8kV	< 1.8kV	< 2.2kV	< 2.4kV
	U_p (N-PE)			< 1.5kV		
Residual voltage at I_{imp}	U_{res} (L-N)	< 0.6kV	< 1.1kV	< 1.1kV	< 2.1kV	< 2.3kV
Follow current	I_f (N-PE)			> 100A$_{RMS}$		
Response time	t_A (L-N/N-PE)			< 25ns/100ns		
Thermal protection	(L-N/N-PE)			YES/-		
Back-up fuse (if mains > 250A)	(L-N/N-PE)			250A gL/-		
Short-circuit withstand current	(L-N/N-PE)			25kA/50Hz/-		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 4.5Nm		
Terminal cross section				35mm^2 (solid)/25mm^2 (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880				2TE		
Weight per unit		234g	268g	268g	288g	254g
Ordering code **INPROTEC VG (1+1)**		**505 033**	**505 035**	**505 037**	**505 065**	**505 039**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm^2		
Remote terminal torque				0.25Nm		
Weight per unit		239g	273g	273g	293g	259g
Ordering code **INPROTEC VGR (1+1)** - with remote contacts		**505 041**	**505 043**	**505 045**	**505 067**	**505 047**
Packaging dimensions (single unit)				109 x 76.5 x 41.5mm		

Dimensions



Connection diagram



ISKRA ZAŠČITE

INPROTEC VS(R) (1+0)

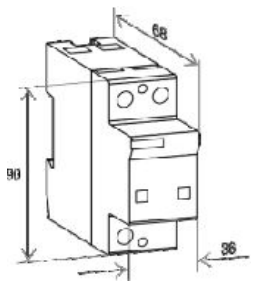
Class I, II Single-pole Surge Protective Device
I_{imp} = 12.5kA (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Connections:** TN-C
- **Protection modes:** L/N - PE, L - PEN
- **Protective element:** High Energy MOV
- **High surge discharge rating:** I_{imp} = 12.5kA
- **MOV max withstand capability 1 x 8/20:** I_{max}= 100kA
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

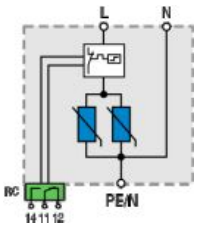
Technical data

Type		INPROTEC VS(R) (1+0)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n			40kA		
Max. discharge current (8/20)	I_{max}			80kA		
Impulse current (10/350)	I_{imp}			12.5kA		
Impulse current (10/350)	I_{imp} (L+N-PE)			12.5kA		
Specific energy				39kJ/Ω		
Charge				6.25As		
Protection level	U_p	< 1.0kV	< 1.8kV	< 1.8kV	< 2.2kV	< 2.4kV
Residual voltage at I_{imp}	U_{res}	< 0.6kV	< 1.1kV	< 1.1kV	< 2.1kV	< 2.3kV
Follow current	I_f			NO		
Response time	t_A			< 25ns		
Thermal protection				YES		
Back-up fuse (if mains > 250A)				250A gL		
Short-circuit withstand current				25kA/50Hz		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 4.5Nm		
Terminal cross section				35mm² (solid)/25mm² (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880				2TE		
Weight per unit		198g	232g	232g	252g	218g
Ordering code **INPROTEC VV (2+0)**		**505 001**	**505 003**	**505 005**	**505 057**	**505 007**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm²		
Remote terminal torque				0.25Nm		
Weight per unit		203g	237g	237g	257g	223g
Ordering code **INPROTEC VVR (2+0)** - with remote contacts		**505 009**	**505 011**	**505 013**	**505 059**	**505 015**
Packaging dimensions (single unit)				109 x 76.5 x 41.5mm		

Dimensions



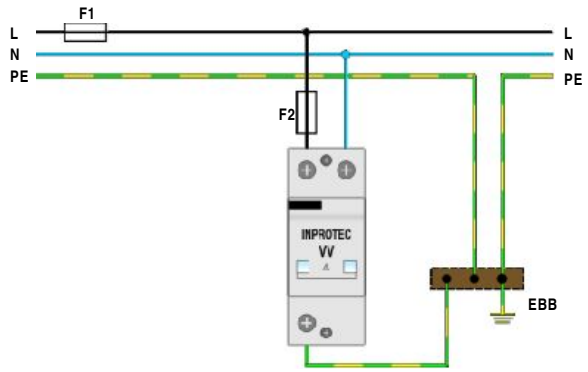
Connection diagram



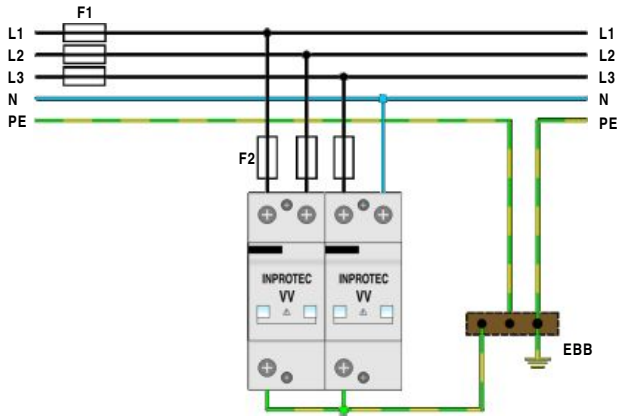
ISKRA ZAŠČITE

INPROTEC - Connections

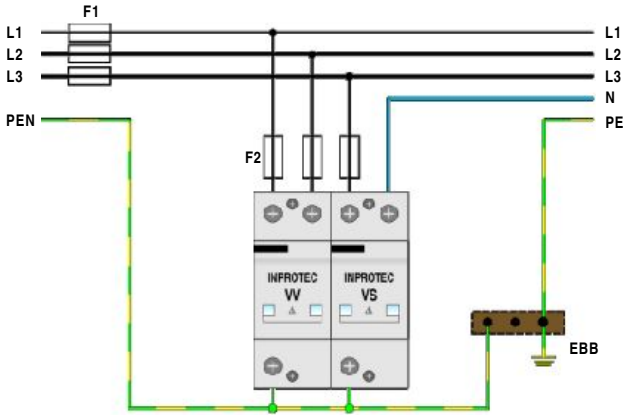
TN-S Network - Single-phase



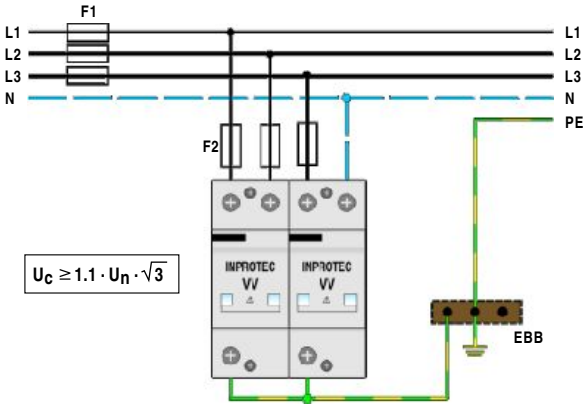
TNS Network - Three-phase



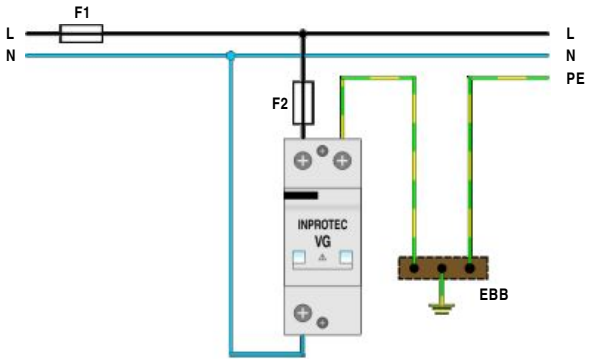
TN-C Network - Three-phase



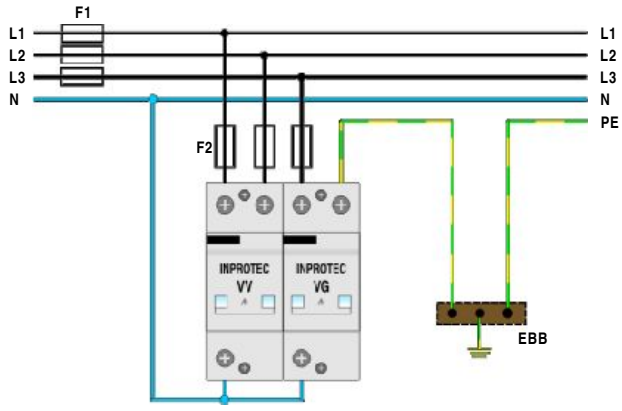
IT Network - Three-phase



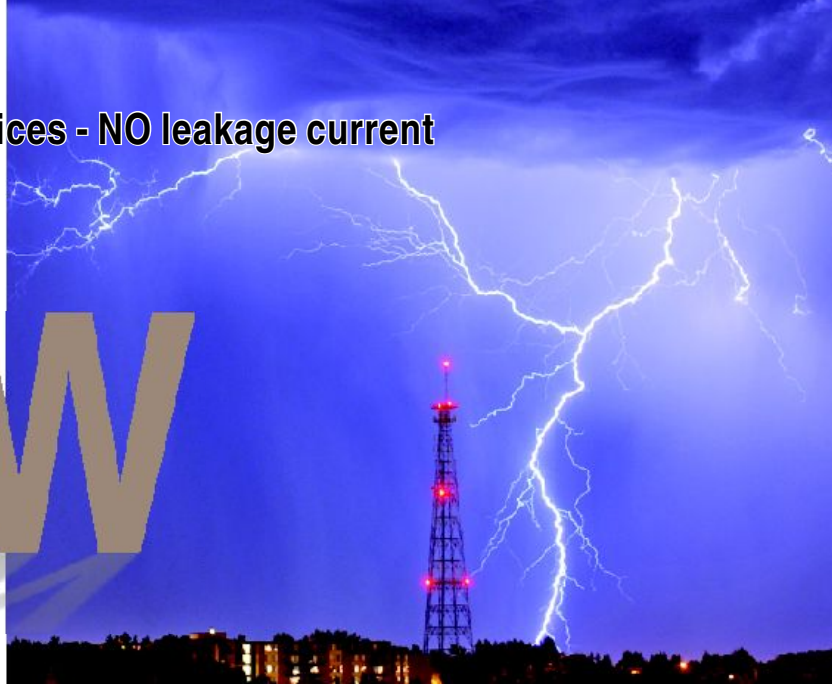
TT Network - Single-phase



TT Network - Three-phase



MULTI-POLE Surge Protective Devices - NO leakage current



NEW

Category IEC / EN / VDE:	**Class I, II / Type 1, 2 / B+ C**
Location of use:	**Main distribution boards**
Protection modes:	**L/N-PE, L-PEN, L-N, N-PE**
Protective elements:	**High Energy MOV and GDT**
High surge discharge ratings:	**I_{imp} = 25kA per pole**
Internal protection and safety:	**Separate thermal disconnector for each MOV block**
Status indication:	**Mechanical flag + remote contacts (R)**
Dimensions DIN 43880:	**2TE, 5TE**

PROBLOC BSG(R) 100 (4+0)
PROBLOC BSG(R) 100 (3+1)
PROBLOC BSG(R) 100N (3+1)
PROBLOC BSG(R) 25
PROBLOC BSG(R) 50 (4+0)
PROBLOC BSG(R) 50 (3+1)
PROBLOC BSG(R) 12.5

The PROBLOC BSG series of over-voltage surge protective devices have been developed to protect against partial direct and indirect lightning discharges and are intended to provide protection in zones 0_A - 1, per IEC 62305.

As a protective element the serial connection MOV and GDT is used. Advantage of this kind of connection is absense of leakage current.

PROBLOC BSG(R) (4+0) series: for TNS three phase networks with separate N and PE conductors.

PROBLOC BSG(R) (3+1) series: for TT three phase networks, where N to PE galvanic isolation is required.

PROBLOC BSG(R) 25 and 12.5 series: for TNS single phase networks with separate N and PE conductors, TNC three phase networks with combined PEN conductor, TT single phase networks, where N to PE galvanic isolation is required.

PROBLOC BSG(R) 100 (4+0)

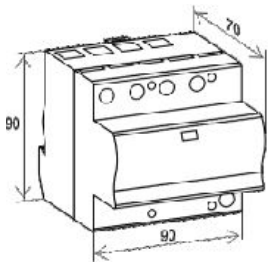
Class I, II Multi-pole Surge Protective Device
I_{imp} = 25kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Connections:** TN-S
- **Protection modes:** L - N/PE
- **Protective element:** High Energy MOV & GDT
- **High surge discharge rating:** I_{imp} = 25kA per pole
- **MOV max withstand capability 1 x 8/20:** I_{max}= 150kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

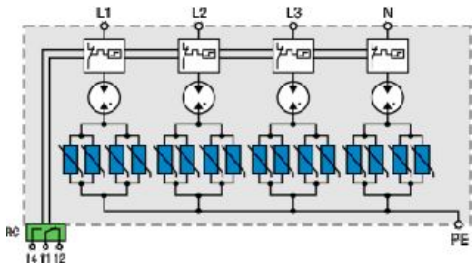
Technical data

Type		PROBLOC BSG(R) 100/xxx (4+0) 150	320
Electrical characteristics			
Max. continuous operating voltage (AC/DC)	U_C	150/200V	320/420V
Nominal discharge current (8/20)	I_n	25kA per pole	
Max. discharge current (8/20)	I_{max}	100kA per pole	
Impulse current (10/350)	I_{imp}	25kA per pole	
Impulse current (10/350)	I_{imp} (L1+L2+L3+N-PE)	100kA	
Specific energy		156kJ/Ω	
Charge		12.5As	
Protection level	U_p	< 1.4kV	< 1.6kV
Residual voltage at I_n	U_{res}	< 0.9kV	< 1.1kV
Residual voltage at I_{imp}	U_{res}	< 0.6kV	< 0.8kV
Follow current	I_f	NO	
Response time	t_A	< 25ns	
Thermal protection		YES	
Back-up fuse (if mains > 250A)		250A gL	
Short-circuit withstand current		25kA/50Hz	
Mechanical characteristics			
Temperature range		- 40°C ....+ 80°C	
Terminal screw torque		max. 4.5Nm	
Terminal cross section		35mm² (solid)/25mm² (stranded)	
Mounting EN 60715		35mm top-hat rail	
Degree of protection		IP 20	
Housing material		Thermoplastic; extinguishing degree UL 94 V-0	
Dimensions DIN 43880		5TE	
Weight per unit		656g	748g
Ordering code **PROBLOC BSG 100/xxx (4+0)**		**513 034**	**513 036**
Remote contacts		YES	
Contact ratings		AC: 250V/0.5A; 125V/3A	
Terminal cross section		max. 1.5mm²	
Remote terminal torque		0.25Nm	
Weight per unit		660g	752g
Ordering code **PROBLOC BSGR 100/xxx (4+0)** - with remote contacts		**513 035**	**513 037**
Packaging dimensions (single unit)		109 x 76.5 x 96mm	

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROBLOC BSG(R) 100 (3+1)

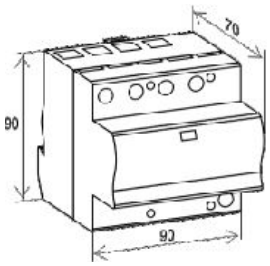
Class I, II Multi-pole Surge Protective Device
I_{imp} = 25kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Connections:** TT
- **Protection modes:** L - N , N - PE
- **Protective element:** High Energy MOV & GDT
- **High surge discharge rating:** I_{imp} (MOV/GDT) = 25/100kA
- **MOV max withstand capability 1 x 8/20:** I_{max}= 150kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

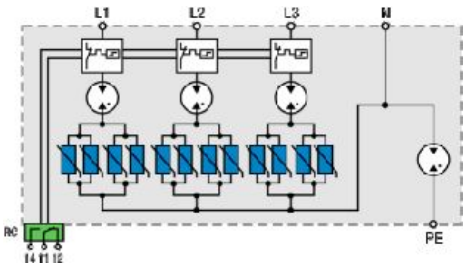
Technical data

Type		PROBLOC BSG(R) 100/xxx (3+1) 150	320
Electrical characteristics			
Max. continuous operating voltage (AC/DC)	U_C	150/200V	320/420V
Nominal discharge current (8/20)	I_n (L-N/N-PE)	25/100kA	
Max. discharge current (8/20)	I_{max} (L-N/N-PE)	100kA/100kA	
Impulse current (10/350)	I_{imp} (L-N/N-PE)	25kA/100kA	
Impulse current (10/350)	I_{imp} (L1+L2+L3+N-PE)	100kA	
Specific energy	(L-N/N-PE)	156kJ/Ω/2.5MJ/Ω	
Charge	(L-N/N-PE)	12.5As/50As	
Protection level	U_p (L-N)	< 1.4kV	< 1.6kV
	U_p (N-PE)	< 1.75kV	
Residual voltage at I_n	U_{res} (L-N)	< 0.9kV	< 1.1kV
Residual voltage at I_{imp}	U_{res} (L-N)	< 0.6kV	< 0.8kV
Follow current	I_f (N-PE)	> 100A_{RMS}	
Response time	t_A (L-N/N-PE)	< 25ns/100ns	
Thermal protection	(L-N/N-PE)	YES/-	
Back-up fuse (if mains > 250A)	(L-N/N-PE)	250A gL/-	
Short-circuit withstand current	(L-N/N-PE)	25kA/50Hz/-	
Mechanical characteristics			
Temperature range		- 40°C ....+ 80°C	
Terminal screw torque		max. 4.5Nm	
Terminal cross section		35mm^2 (solid)/25mm^2 (stranded)	
Mounting EN 60715		35mm top-hat rail	
Degree of protection		IP 20	
Housing material		Thermoplastic; extinguishing degree UL 94 V-0	
Dimensions DIN 43880		5TE	
Weight per unit		646g	738g
Ordering code **PROBLOC BSG 100/xxx (3+1)**		**513 011**	**513 005**
Remote contacts		YES	
Contact ratings		AC: 250V/0.5A; 125V/3A	
Terminal cross section		max. 1.5mm^2	
Remote terminal torque		0.25Nm	
Weight per unit		650g	742g
Ordering code **PROBLOC BSGR 100/xxx (3+1)** - with remote contacts		**513 012**	**513 006**
Packaging dimensions (single unit)		109 x 76.5 x 96mm	

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROBLOC BSG(R) 100N (3+1)

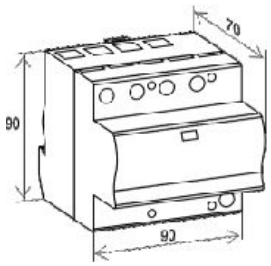
Class I, II Multi-pole Surge Protective Device
I_{imp} = 25kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Connections:** TT
- **Protection modes:** L - N , N - PE
- **Protective element:** High Energy MOV & GDT
- **High surge discharge rating:** I_{imp} (MOV/GDT) = 25/50kA
- **MOV max withstand capability 1 x 8/20:** I_{max}= 150kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

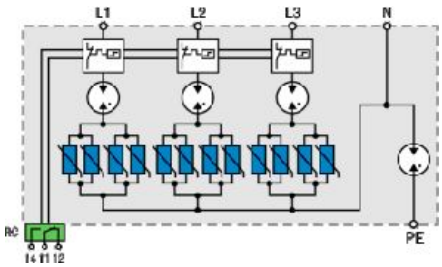
Technical data

Type		PROBLOC BSG(R) 100N/x xx (3+1) 150	320
Electrical characteristics			
Max. continuous operating voltage (AC/DC)	U_C	150/200V	320/420V
Nominal discharge current (8/20)	I_n (L-N/N-PE)	25/50kA	
Max. discharge current (8/20)	I_{max} (L-N/N-PE)	100kA/100kA	
Impulse current (10/350)	I_{imp} (L-N/N-PE)	25kA/50kA	
Impulse current (10/350)	I_{imp} (L1+L2+L3+N-PE)	100kA	
Specific energy	(L-N/N-PE)	156kJ/Ω/625kJ/Ω	
Charge	(L-N/N-PE)	12.5As/25As	
Protection level	U_p (L-N)	< 1.4kV	< 1.6kV
	U_p (N-PE)	< 1.5kV	
Residual voltage at I_n	U_{res} (L-N)	< 0.9kV	< 1.1kV
Residual voltage at I_{imp}	U_{res} (L-N)	< 0.6kV	< 0.8kV
Follow current	I_f (N-PE)	> 100A_{RMS}	
Response time	t_A (L-N/N-PE)	< 25ns/100ns	
Thermal protection	(L-N/N-PE)	YES/-	
Back-up fuse (if mains > 250A)	(L-N/N-PE)	250A gL/-	
Short-circuit withstand current	(L-N/N-PE)	25kA/50Hz/-	
Mechanical characteristics			
Temperature range		- 40°C ....+ 80°C	
Terminal screw torque		max. 4.5Nm	
Terminal cross section		35mm^2 (solid)/25mm^2 (stranded)	
Mounting EN 60715		35mm top-hat rail	
Degree of protection		IP 20	
Housing material		Thermoplastic; extinguishing degree UL 94 V-0	
Dimensions DIN 43880		5TE	
Weight per unit		656g	706g
Ordering code **PROBLOC BSG 100N/xxx (3+1)**		**513 015**	**513 003**
Remote contacts		YES	
Contact ratings		AC: 250V/0.5A; 125V/3A	
Terminal cross section		max. 1.5mm^2	
Remote terminal torque		0.25Nm	
Weight per unit		660g	710g
Ordering code **PROBLOC BSGR 100N/xxx (3+1)** - with remote contacts		**513 016**	**513 004**
Packaging dimensions (single unit)		109 x 76.5 x 96mm	

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROBLOC BSG(R) 25

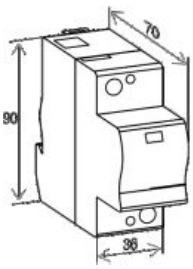
Class I, II Single-pole Surge Protective Device
I_{imp} = 25kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Connections:** TN-S, TN-C, IT, TT
- **Protection modes:** L - N/PE
- **Protective element:** High Energy MOV & GDT
- **High surge discharge rating:** I_{imp} = 25kA
- **MOV max withstand capability 1 x 8/20:** I_{max}= 150kA
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

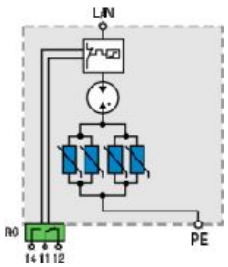
Technical data

Type		PROBLOC BSG(R) 25/xxx	
		150	320
Electrical characteristics			
Max. continuous operating voltage (AC/DC)	U_C	150/200V	320/420V
Nominal discharge current (8/20)	I_n	25kA	
Max. discharge current (8/20)	I_{max}	100kA	
Impulse current (10/350)	I_{imp}	25kA	
Specific energy		156kJ/Ω	
Charge		12.5As	
Protection level	U_p	< 1.4kV	< 1.6kV
Residual voltage at I_n	U_{res}	< 0.9kV	< 1.1kV
Residual voltage at I_{imp}	U_{res}	< 0.6kV	< 0.8kV
Follow current	I_f	NO	
Response time	t_A	< 25ns	
Thermal protection		YES	
Back-up fuse (if mains > 250A)		250A gL	
Short-circuit withstand current		25kA/50Hz	
Mechanical characteristics			
Temperature range		- 40°C ....+ 80°C	
Terminal screw torque		max. 4.5Nm	
Terminal cross section		35mm^2 (solid)/25mm^2 (stranded)	
Mounting EN 60715		35mm top-hat rail	
Degree of protection		IP 20	
Housing material		Thermoplastic; extinguishing degree UL 94 V-0	
Dimensions DIN 43880		2TE	
Weight per unit		213g	233g
Ordering code **PROBLOC BSG 25/xxx**		**513 026**	**513 028**
Remote contacts		YES	
Contact ratings		AC: 250V/0.5A; 125V/3A	
Terminal cross section		max. 1.5mm^2	
Remote terminal torque		0.25Nm	
Weight per unit		218g	235g
Ordering code **PROBLOC BSGR 25/xxx** - with remote contacts		**513 027**	**513 029**
Packaging dimensions (single unit)		109 x 76.5 x 41.5mm	

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROBLOC BSG(R) 50 (4+0)

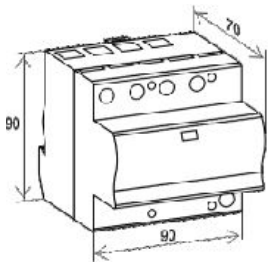
Class I, II Multi-pole Surge Protective Device
I_{imp} = 12.5kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Connections:** TN-S, IT, TT
- **Protection modes:** L - N/PE
- **Protective element:** High Energy MOV & GDT
- **High surge discharge rating:** I_{imp} (MOV/GDT) = 12.5/50kA
- **MOV max withstand capability 1 x 8/20:** I_{max}= 100kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

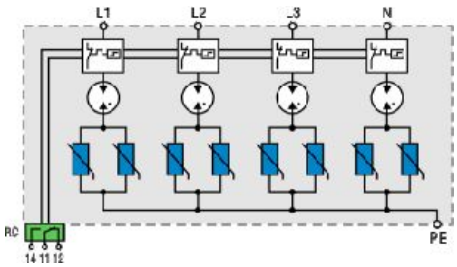
Technical data

Type		PROBLOC BSG(R) 50/xxx (4+0) 150	320
Electrical characteristics			
Max. continuous operating voltage (AC/DC)	U_C	150/200V	320/420V
Nominal discharge current (8/20)	I_n	25kA	
Max. discharge current (8/20)	I_{max}	50kA	
Impulse current (10/350)	I_{imp}	12.5kA	
Impulse current (10/350)	I_{imp} (L1+L2+L3+N-PE)	50kA	
Specific energy		39kJ/Ω	
Charge		6.5As	
Protection level	U_p	< 1.3kV	< 1.6kV
Residual voltage at I_{in}	U_{res}	< 1.0kV	< 1.1kV
Residual voltage at I_{imp}	U_{res}	< 0.6kV	< 0.7kV
Follow current	I_f	NO	
Response time	t_A	< 25ns	
Thermal protection		YES	
Back-up fuse (if mains > 250A)		250A gL	
Short-circuit withstand current		25kA/50Hz	
Mechanical characteristics			
Temperature range		- 40°C ....+ 80°C	
Terminal screw torque		max. 4.5Nm	
Terminal cross section		35mm² (solid)/25mm² (stranded)	
Mounting EN 60715		35mm top-hat rail	
Degree of protection		IP 20	
Housing material		Thermoplastic; extinguishing degree UL 94 V-0	
Dimensions DIN 43880		5TE	
Weight per unit		474g	540g
Ordering code **PROBLOC BSG 50/xxx (4+0)**		**513 030**	**513 032**
Remote contacts		YES	
Contact ratings		AC: 250V/0.5A; 125V/3A	
Terminal cross section		max. 1.5mm²	
Remote terminal torque		0.25Nm	
Weight per unit		479g	545g
Ordering code **PROBLOC BSGR 50/xxx (4+0)** - with remote contacts		**513 031**	**513 033**
Packaging dimensions (single unit)		109 x 76.5 x 96mm	

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROBLOC BSG(R) 50 (3+1)

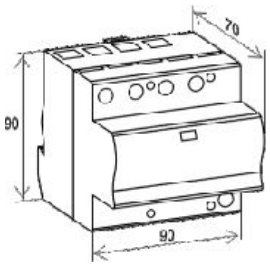
Class I, II Multi-pole Surge Protective Device
I_{imp} = 12.5kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Connections:** TT
- **Protection modes:** L - N , N - PE
- **Protective element:** High Energy MOV & GDT
- **High surge discharge rating:** I_{imp} (MOV/GDT) = 12.5/50kA
- **MOV max withstand capability 1 x 8/20:** I_{max}= 100kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

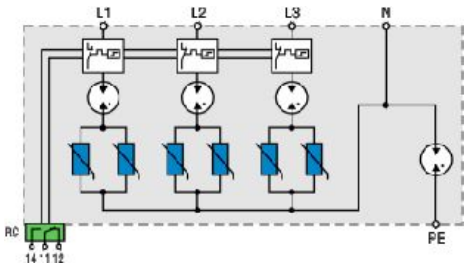
Technical data

Type		PROBLOC BSG(R) 50/xxx (3+1) 150	320
Electrical characteristics			
Max. continuous operating voltage (AC/DC)	U_C	150/200V	320/420V
Nominal discharge current (8/20)	I_n (L-N/N-PE)	25/50kA	
Max. discharge current (8/20)	I_{max} (L-N/N-PE)	50kA/100kA	
Impulse current (10/350)	I_{imp} (L-N/N-PE)	12.5kA/50kA	
Impulse current (10/350)	I_{imp} (L1+L2+L3+N-PE)	50kA	
Specific energy	(L-N/N-PE)	39kJ/Ω/625kJ/Ω	
Charge	(L-N/N-PE)	6.5As/25As	
Protection level	U_p (L-N)	< 1.3kV	< 1.6kV
	U_p (N-PE)	< 1.5kV	
Residual voltage at I_n	U_{res} (L-N)	< 1.0kV	< 1.1kV
Residual voltage at I_{imp}	U_{res} (L-N)	< 0.5kV	< 0.7kV
Follow current	I_f (N-PE)	> 100A_{RMS}	
Response time	t_A (L-N/N-PE)	< 25ns/100ns	
Thermal protection	(L-N/N-PE)	YES/-	
Back-up fuse (if mains > 250A)	(L-N/N-PE)	250A gL/-	
Short-circuit withstand current	(L-N/N-PE)	25kA/50Hz/-	
Mechanical characteristics			
Temperature range		- 40°C ....+ 80°C	
Terminal screw torque		max. 4.5Nm	
Terminal cross section		35mm^2 (solid)/25mm^2 (stranded)	
Mounting EN 60715		35mm top-hat rail	
Degree of protection		IP 20	
Housing material		Thermoplastic; extinguishing degree UL 94 V-0	
Dimensions DIN 43880		5TE	
Weight per unit		475g	530g
Ordering code **PROBLOC BSG 50/xxx (3+1)**		**513 007**	**513 001**
Remote contacts		YES	
Contact ratings		AC: 250V/0.5A; 125V/3A	
Terminal cross section		max. 1.5mm^2	
Remote terminal torque		0.25Nm	
Weight per unit		480g	535g
Ordering code **PROBLOC BSGR 50/xxx (3+1)** - with remote contacts		**513 008**	**513 002**
Packaging dimensions (single unit)		109 x 76.5 x 96mm	

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROBLOC BSG(R) 12.5

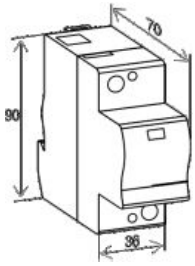
Class I, II Single-pole Surge Protective Device
I_{imp} = 12.5kA (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Connections:** TN-S, TN-C, IT, TT
- **Protection modes:** L/N - PE
- **Protective element:** High Energy MOV & GDT
- **High surge discharge rating:** I_{imp} = 12.5kA
- **MOV max withstand capability 1 x 8/20:** I_{max}= 100kA
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

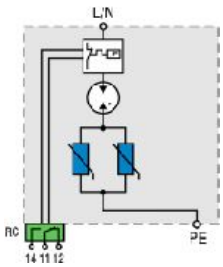
Technical data

Type		PROBLOC BSG(R) 12.5/xxx 150	320
Electrical characteristics			
Max. continuous operating voltage (AC/DC)	U_C	150/200V	320/420V
Nominal discharge current (8/20)	I_n	25kA	
Max. discharge current (8/20)	I_{max}	50kA	
Impulse current (10/350)	I_{imp}	12.5kA	
Specific energy		39kJ/Ω	
Charge		6.5As	
Protection level	U_p	< 1.3kV	< 1.6kV
Residual voltage at I_n	U_{res}	< 1.0kV	< 1.1kV
Residual voltage at I_{imp}	U_{res}	< 0.5kV	< 0.7kV
Follow current	I_f	NO	
Response time	t_A	< 25ns	
Thermal protection		YES	
Back-up fuse (if mains > 250A)		250A gL	
Short-circuit withstand current		25kA/50Hz	
Mechanical characteristics			
Temperature range		- 40°C ....+ 80°C	
Terminal screw torque		max. 4.5Nm	
Terminal cross section		35mm² (solid)/25mm² (stranded)	
Mounting EN 60715		35mm top-hat rail	
Degree of protection		IP 20	
Housing material		Thermoplastic; extinguishing degree UL 94 V-0	
Dimensions DIN 43880		2TE	
Weight per unit		143g	183g
Ordering code **PROBLOC BSG 12.5/xxx**		**513 022**	**513 024**
Remote contacts		YES	
Contact ratings		AC: 250V/0.5A; 125V/3A	
Terminal cross section		max. 1.5mm²	
Remote terminal torque		0.25Nm	
Weight per unit		148g	188g
Ordering code **PROBLOC BSGR 12.5/xxx** - with remote contacts		**513 023**	**513 025**
Packaging dimensions (single unit)		109 x 76.5 x 41,5mm	

Dimensions



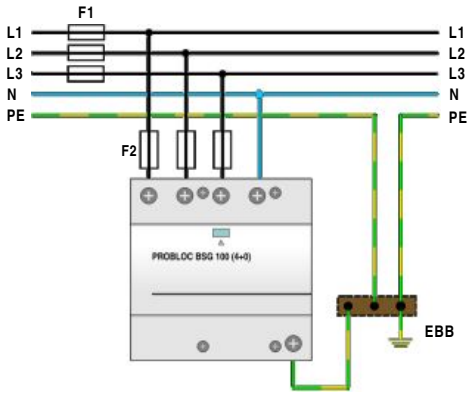
Connection diagram



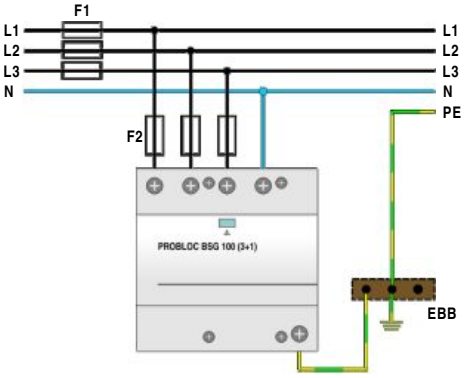
ISKRA ZAŠČITE

PROBLOC BSG(R) - Connections

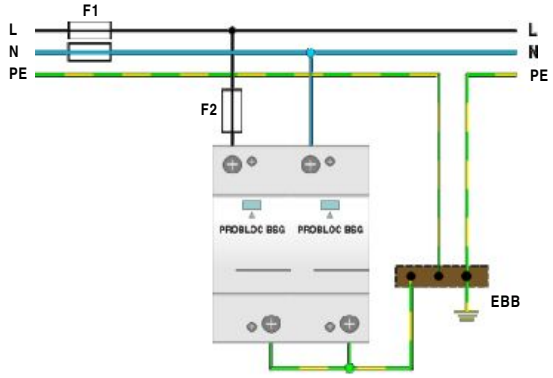
TN-S Network - Three-phase (T-connection)



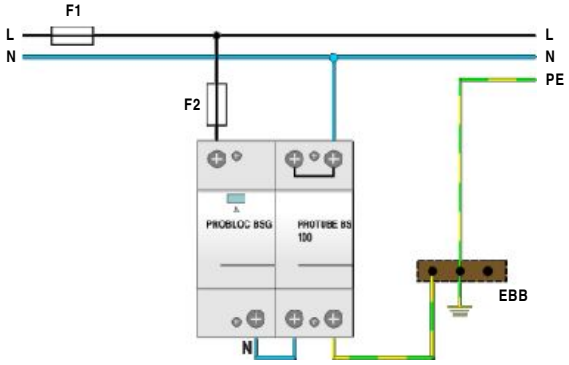
TT Network - Three-phase (T-connection)



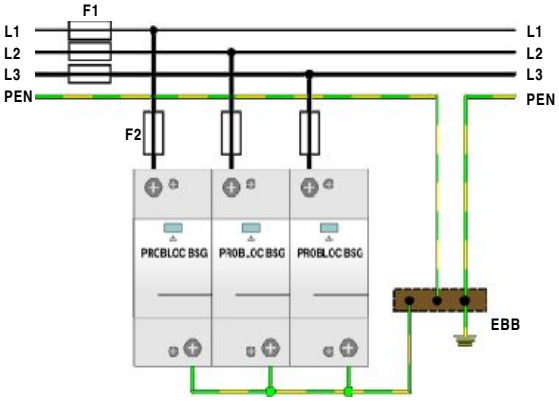
TN-S Network - Single-phase (T-connection)



TT Network - Single-phase (T-connection)



TN-C Network - Three-phase (T-connection)



Modular MULTI-POLE and SINGLE-POLE Surge Protective Devices

Category IEC / EN / VDE:	**Class I, II, III / Type 1, 2, 3 / B+C+D**
Location of use:	**Main distribution boards**
Protection modes:	**L/N-PE, L-PEN, L-N, N-PE**
Protective elements:	**High Energy MOV & GDT**
High surge discharge ratings:	**I_{imp} = 12.5kA / pole**
Internal protection and safety:	**Separate thermal disconnector for each MOV block**
Status indication:	**Mechanical flag + remote contacts (R)**
Dimensions DIN 43880:	**1TE, 2TE, 3TE, 4TE**

PROTEC B2S(R) 12.5
PROTEC B2S(R) 25 (2+0)
PROTEC B2S(R) 25 (1+1)
PROTEC B2S(R) 37.5 (3+0)
PROTEC B2S(R) 50 (4+0)
PROTEC B2S(R) 50 (3+1)

The PROTEC B2S 12.5 series of overvoltage surge protective devices has been developed to protect against partial direct and indirect lightning discharges and is intended to provide protection in zones 0_A - 1, per IEC 62305.

The plug-in module / base design facilitates replacement of a failed module in situ without the need to remove system wiring.

PROTEC B2S 12.5 consists of a high performance varistor block with thermal disconnection device.

PROTEC B2S 25 (2+0) series combines two PROTEC B2S 12.5 modules to provide protection for single phase TNS networks.

PROTEC B2S 25 (1+1) combines a PROTEC B2S 12.5 and PROTUBE B2S to provide protection for TT single phase networks, where N to PE galvanic isolation is required.

PROTEC B2S 37.5 (3+0) combines three PROTEC B2S 12.5 units, to provide protection for TNC three phase networks with a combined PEN conductor.

PROTEC B2S 50 (4+0) combines four PROTEC B2S 12.5 units, to provide protection for TNS three phase networks with a separate N and PE conductor.

PROTEC B2S 50 (3+1) combines three PROTEC B2S 12.5 units and a PROTUBE B2S, to provide protection for TT three phase networks, where N to PE galvanic isolation is required.

PROTEC B2S(R) 12.5

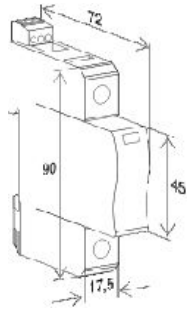
Class I, II, III Single-pole Surge Protective Device
I_{imp} = 12.5kA (10/350)

- **Category IEC / EN / VDE:** Class I, II, III / Type 1, 2, 3 / B+C+D
- **Location of use:** Main distribution boards
- **Connections:** TN-S, TN-C, IT
- **Protection modes:** L/N - PE, L - PEN
- **Protective element:** High Energy MOV
- **High surge discharge rating:** I_{imp} = 12.5kA
- **MOV max withstand capability 1 x 8/20:** I_{max}= 100kA
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

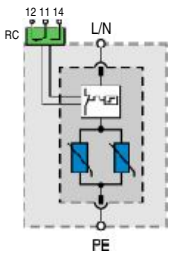
Technical data

Type		PROTEC B2S(R) 12.5/xxx				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n			25kA		
Max. discharge current (8/20)	I_{max}			60kA		
Combination wave (1.2/50, 8/20)	U_{OC}/I_{SC}			10kV/5kA		
Impulse current (10/350)	I_{imp}			12.5kA		
Specific energy				39kJ/Ω		
Charge				6.25As		
Protection level	U_p	< 1.0kV	< 1.4kV	< 1.5kV	< 1.7kV	< 2.0kV
Residual voltage at I_{imp}	U_{res}	< 0.7kV	< 1.0kV	< 1.1kV	< 1.4kV	< 1.5kV
Follow current	I_f			NO		
Response time	t_A			< 25ns		
Thermal protection				YES		
Back-up fuse (if mains > 160A)				160A gL		
Short-circuit withstand current				25kA / 50Hz		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 3.5Nm		
Terminal cross section				35mm² (solid)/25mm² (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880				1TE		
Weight per unit		141g	161g	177g	189g	191g
Ordering code **PROTEC B2S 12.5/xxx**		**506 017**	**506 018**	**506 019**	**506 020**	**506 021**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm²		
Remote terminal torque				0.25Nm		
Weight per unit		146g	166g	182g	194g	196g
Ordering code **PROTEC B2SR 12.5/xxx** - with remote contacts		**506 022**	**506 023**	**506 024**	**506 025**	**506 026**
Packaging dimensions (single unit)				108 x 74 x 24mm		
Ordering code **Module PROTEC B2S(R) 12.5/xxx**		**506 001**	**506 002**	**506 003**	**506 004**	**506 005**
Packaging dimensions (12 pcs.)				219 x 62 x 47mm		

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTEC B2S(R) 25 (2+0)

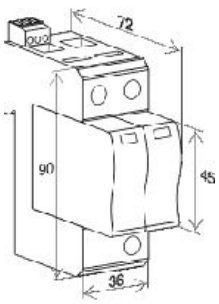
Class I, II, III Multi-pole Surge Protective Device
I_{imp} = 12.5kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II, III / Type 1, 2, 3 / B+C+D
- **Location of use:** Main distribution boards
- **Connections:** TN-S
- **Protection modes:** L/N - PE, L - PEN
- **Protective element:** High Energy MOV
- **High surge discharge rating:** I_{imp} = 12.5kA per pole
- **MOV max withstand capability 1 x 8/20:** I_{max}= 100kA per pole
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

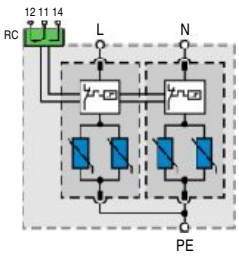
Technical data

Type		PROTEC B2S(R) 25/xxx (2+0)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n	25kA per pole				
Max. discharge current (8/20)	I_{max}	60kA per pole				
Combination wave (1.2/50, 8/20)	U_{oc}/I_{sc}	10kV/5kA				
Impulse current (10/350)	I_{imp}	12.5kA per pole				
Impulse current (10/350)	I_{imp} (L+N-PE)	25kA				
Specific energy		39kJ/Ω per pole				
Charge		6.25As per pole				
Protection level	U_p	< 1.0kV	< 1.4kV	< 1.5kV	< 1.7kV	< 2.0kV
Residual voltage at I_{imp}	U_{res}	< 0.7kV	< 1.0kV	< 1.1kV	< 1.4kV	< 1.5kV
Follow current	I_f	NO				
Response time	t_A	< 25ns				
Thermal protection		YES				
Back-up fuse (if mains > 160A)		160A gL				
Short-circuit withstand current		25kA / 50Hz				
Mechanical characteristics						
Temperature range		- 40°C ....+ 80°C				
Terminal screw torque		max. 3.5Nm				
Terminal cross section		35mm² (solid)/25mm² (stranded)				
Mounting EN 60715		35mm top-hat rail				
Degree of protection		IP 20				
Housing material		Thermoplastic; extinguishing degree UL 94 V-0				
Dimensions DIN 43880		2TE				
Weight per unit		274g	314g	346g	370g	374g
Ordering code **PROTEC B2S 25/xxx (2+0)**		**506 027**	**506 028**	**506 029**	**506 030**	**506 031**
Remote contacts		YES				
Contact ratings		AC: 250V/0.5A; 125V/3A				
Terminal cross section		max. 1.5mm²				
Remote terminal torque		0.25Nm				
Weight per unit		279g	319g	351g	375g	379g
Ordering code **PROTEC B2SR 25/xxx (2+0)** - with remote contacts		**506 032**	**506 033**	**506 034**	**506 035**	**506 036**
Packaging dimensions (single unit)		109 x 76.5 x 41.5mm				
Ordering code **Module PROTEC B2S(R) 12.5/xxx**		**506 001**	**506 002**	**506 003**	**506 004**	**506 005**
Packaging dimensions (12 pcs.)		219 x 62 x 47mm				

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTEC B2S(R) 25 (1+1)

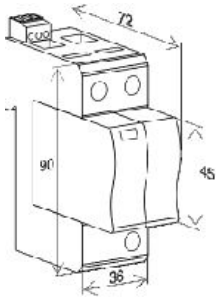
Class I, II, III Multi-pole Surge Protective Device
I_{imp} = 12.5kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II, III / Type 1, 2, 3 / B+C+D
- **Location of use:** Main distribution boards
- **Connections:** TT
- **Protection modes:** L - N, N - PE
- **Protective element:** High Energy MOV & GDT
- **High surge discharge rating:** I_{imp} (MOV/GDT)= 1 2.5/50kA
- **MOV max withstand capability 1 x 8/20:** I_{max}= 100kA per pole
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

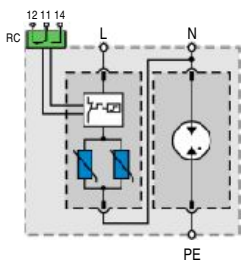
Technical data

Type		PROTEC B2S(R) 25/xxx (1+1)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n (L-N/N-PE)			25kA/30kA		
Max. discharge current (8/20)	I_{max} (L-N/N-PE)			60kA/50kA		
Combination wave (1.2/50, 8/20)	U_{OC}/I_{SC} (L-N/N-PE)			10kV/5kA		
Impulse current (10/350)	I_{imp} (L-N/N-PE)			12.5kA/50kA		
Impulse current (10/350)	I_{imp} (L+N-PE)			25kA		
Specific energy	(L-N/N-PE)			39kJ/Ω/2.5MJ/Ω		
Charge	(L-N/N-PE)			6.25As/50As		
Protection level	U_p (L-N)	< 1.0kV	< 1.4kV	< 1.5kV	< 1.7kV	< 2.0kV
	U_p (N-PE)			< 1.7kV		
Residual voltage at I_{imp}	U_{res} (L-N)	< 0.7kV	< 1.0kV	< 1.1kV	< 1.4kV	< 1.5kV
Follow current	I_f (N-PE)			> 100A_{RMS}		
Response time	t_A (L-N/N-PE)			< 25ns/100ns		
Thermal protection	(L-N/N-PE)			YES/-		
Back-up fuse (if mains > 160A)	(L-N/N-PE)			160A gL/-		
Short-circuit withstand current	(L-N/N-PE)			25kA/50Hz/-		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 3.5Nm		
Terminal cross section				35mm² (solid)/25mm² (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880				2TE		
Weight per unit		270g	310g	342g	366g	370g
Ordering code **PROTEC B2S 25/xxx (1+1)**		**506 037**	**506 038**	**506 039**	**506 040**	**506 041**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm²		
Remote terminal torque				0.25Nm		
Weight per unit		275g	315g	347g	371g	375g
Ordering code **PROTEC B2SR 25/xxx (1+1)** - with remote contacts		**506 042**	**506 043**	**506 044**	**506 045**	**506 046**
Packaging dimensions (single unit)				109 x 76.5 x 41.5mm		
Ordering code **Module PROTEC B2S(R) 12.5/xxx**		**506 001**	**506 002**	**506 003**	**506 004**	**506 005**
Ordering code **Module PROTUBE B2S 50/255**				**506 006**		
Packaging dimensions (12 pcs.)				219 x 62 x 47mm		

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTEC B2S(R) 37.5 (3+0)

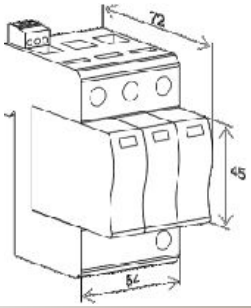
Class I, II, III Multi-pole Surge Protective Device
I_{imp} = 12.5kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II, III / Type 1, 2, 3 / B+C+D
- **Location of use:** Main distribution boards
- **Connections:** TN-C
- **Protection modes:** L - PEN
- **Protective element:** High Energy MOV
- **High surge discharge rating:** I_{imp} = 12.5kA per pole
- **MOV max withstand capability 1 x 8/20:** I_{max}= 100kA per pole
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

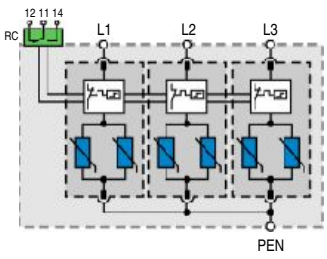
Technical data

Type		PROTEC B2S(R) 37.5/xxx (3+0)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n			25kA per pole		
Max. discharge current (8/20)	I_{max}			60kA per pole		
Combination wave (1.2/50, 8/20)	U_{oc}/I_{sc}			10kV/5kA		
Impulse current (10/350)	I_{imp}			12.5kA per pole		
Impulse current (10/350)	I_{imp} (L1+L2+L3-PEN)			37.5kA		
Specific energy				39kJ/Ω per pole		
Charge				6.25As per pole		
Protection level	U_p	< 1.0kV	< 1.4kV	< 1.5kV	< 1.7kV	< 2.0kV
Residual voltage at I_{imp}	U_{res}	< 0.7kV	< 1.0kV	< 1.1kV	< 1.4kV	< 1.5kV
Follow current	I_f			NO		
Response time	t_A			< 25ns		
Thermal protection				YES		
Back-up fuse (if mains > 160A)				160A gL		
Short-circuit withstand current				25kA / 50Hz		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 3.5Nm		
Terminal cross section				35mm² (solid)/25mm² (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880				3TE		
Weight per unit		408g	468g	516g	552g	558g
Ordering code **PROTEC B2S 37.5/xxx (3+0)**		**506 047**	**506 048**	**506 049**	**506 050**	**506 051**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm²		
Remote terminal torque				0.25Nm		
Weight per unit		413g	473g	521g	557g	563g
Ordering code **PROTEC B2SR 37.5/xxx (3+0)** - with remote contacts		**506 052**	**506 053**	**506 054**	**506 055**	**506 056**
Packaging dimensions (single unit)				109 x 76.5 x 60mm		
Ordering code **Module PROTEC B2S(R) 12.5/xxx**		**506 001**	**506 002**	**506 003**	**506 004**	**506 005**
Packaging dimensions (12 pcs.)				219 x 62 x 47mm		

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTEC B2S(R) 50 (4+0)

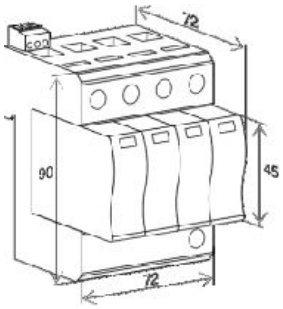
Class I, II, III Multi-pole Surge Protective Device
I_{imp} = 12.5kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II, III / Type 1, 2, 3 / B+C+D
- **Location of use:** Main distribution boards
- **Connections:** TN-S
- **Protection modes:** L/N - PE, L - PEN
- **Protective element:** High Energy MOV
- **High surge discharge rating:** I_{imp} = 12.5kA per pole
- **MOV max withstand capability 1 x 8/20:** I_{max}= 100kA per pole
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

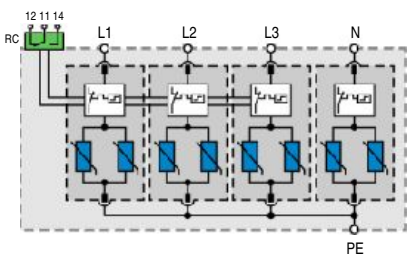
Technical data

Type		PROTEC B2S(R) 50/xxx (4+0)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n	25kA per pole				
Max. discharge current (8/20)	I_{max}	60kA per pole				
Combination wave (1.2/50, 8/20)	U_{OC}/I_{SC}	10kV/5kA				
Impulse current (10/350)	I_{imp}	12.5kA per pole				
Impulse current (10/350)	I_{imp} (L1+L2+L3+N+PE)	50kA				
Specific energy		39kJ/Ω per pole				
Charge		6.25As per pole				
Protection level	U_p	< 1.0kV	< 1.4kV	< 1.5kV	< 1.7kV	< 2.0kV
Residual voltage at I_{imp}	U_{res}	< 0.7kV	< 1.0kV	< 1.1kV	< 1.4kV	< 1.5kV
Follow current	I_f	NO				
Response time	t_A	< 25ns				
Thermal protection		YES				
Back-up fuse (if mains > 160A)		160A gL				
Short-circuit withstand current		25kA / 50Hz				
Mechanical characteristics						
Temperature range		- 40°C ....+ 80°C				
Terminal screw torque		max. 3.5Nm				
Terminal cross section		35mm² (solid)/25mm² (stranded)				
Mounting EN 60715		35mm top-hat rail				
Degree of protection		IP 20				
Housing material		Thermoplastic; extinguishing degree UL 94 V-0				
Dimensions DIN 43880						
Weight per unit		517g	597g	661g	709g	717g
Ordering code **PROTEC B2S 50/xxx (4+0)**		**506 057**	**506 058**	**506 059**	**506 060**	**506 061**
Remote contacts		YES				
Contact ratings		AC: 250V/0.5A; 125V/3A				
Terminal cross section		max. 1.5mm²				
Remote terminal torque		0.25Nm				
Weight per unit		522g	602g	667g	714g	722g
Ordering code **PROTEC B2SR 50/xxx (4+0)** - with remote contacts		**506 062**	**506 063**	**506 064**	**506 065**	**506 066**
Packaging dimensions (single unit)		109 x 76.5 x 78mm				
Ordering code **Module PROTEC B2S(R) 12.5/xxx**		**506 001**	**506 002**	**506 003**	**506 004**	**506 005**
Packaging dimensions (12 pcs.)		219 x 62 x 47mm				

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTEC B2S(R) 50 (3+1)

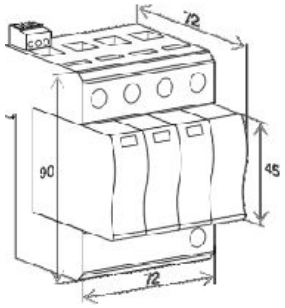
Class I, II, III Multi-pole Surge Protective Device
I_{imp} = 12.5kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II, III / Type 1, 2, 3 / B+C+D
- **Location of use:** Main distribution boards
- **Connections:** TT
- **Protection modes:** L/N - PE, L - PEN
- **Protective element:** High Energy MOV & GDT
- **High surge discharge rating:** I_{imp} (MOV/GDT) = 12.5/50kA
- **MOV max withstand capability 1 x 8/20:** I_{max}= 100kA per pole
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

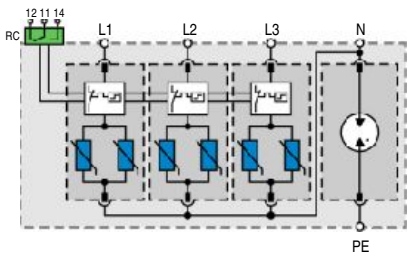
Technical data

Type		PROTEC B2S(R) 50/xxx (3+1)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n (L-N/N-PE)			25kA per pole/30kA		
Max. discharge current (8/20)	I_{max} (L-N/N-PE)			60kA per pole/50kA		
Combination wave (1.2/50, 8/20)	U_{OC}/I_{SC}			10kV/5kA		
Impulse current (10/350)	I_{imp} (L-N/N-PE)			12.5kA per pole/50kA		
Impulse current (10/350)	I_{imp} (L1+L2+L3+N-PE)			50kA		
Specific energy	(L-N/N-PE)			39kJ/Ω/2.5MJ/Ω		
Charge	(L-N/N-PE)			6.25As/50As		
Protection level	U_p (L-N)	< 1.0kV	< 1.4kV	< 1.5kV	< 1.7kV	< 2.0kV
	U_p (N-PE)			< 1.7kV		
Residual voltage at I_{imp}	U_{res} (L-N)	< 0.7kV	< 1.0kV	< 1.1kV	< 1.4kV	< 1.5kV
Follow current	I_f (N-PE)			> 100A_{RMS}		
Response time	t_A (L-N/N-PE)			< 25ns/100ns		
Thermal protection	(L-N/N-PE)			YES/-		
Back-up fuse (if mains > 160A)	(L-N/N-PE)			160A gL/-		
Short-circuit withstand current	(L-N/N-PE)			25kA/50Hz/-		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 3.5Nm		
Terminal cross section				35mm^2 (solid)/25mm^2 (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880				4TE		
Weight per unit		498g	578g	642g	690g	698g
Ordering code **PROTEC B2S 50/xxx (3+1)**		**506 067**	**506 068**	**506 069**	**506 070**	**506 071**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm^2		
Remote terminal torque				0.25Nm		
Weight per unit		503g	583g	647g	695g	703g
Ordering code **PROTEC B2SR 50/xxx (3+1)** - with remote contacts		**506 072**	**506 073**	**506 074**	**506 075**	**506 076**
Packaging dimensions (single unit)				109 x 76.5 x 78mm		
Ordering code **Module PROTEC B2S(R) 12.5/xxx**		**506 001**	**506 002**	**506 003**	**506 004**	**506 005**
Ordering code **Module PROTUBE B2S 50/255**				**506 006**		
Packaging dimensions (12 pcs.)				219 x 62 x 47mm		

Dimensions



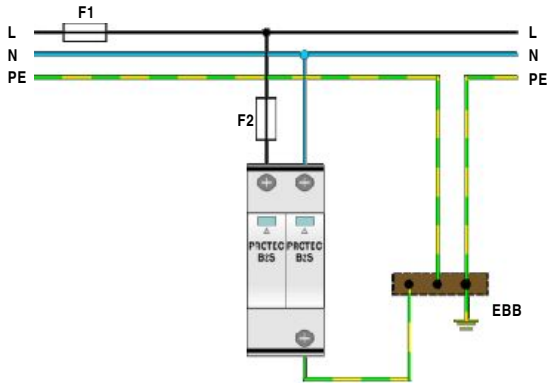
Connection diagram



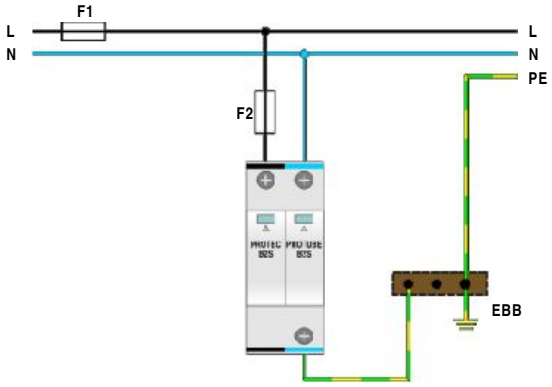
ISKRA ZAŠČITE

PROTEC B2S(R) Connections

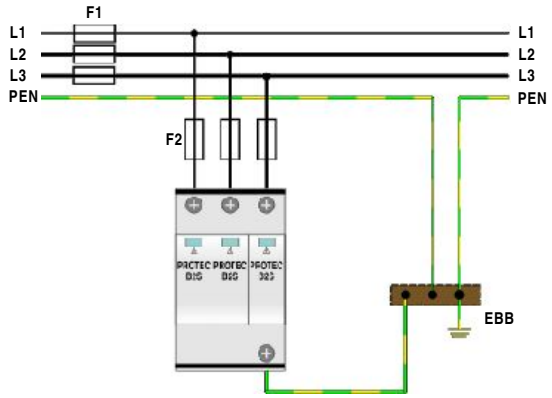
TN-S Network (Single-phase)



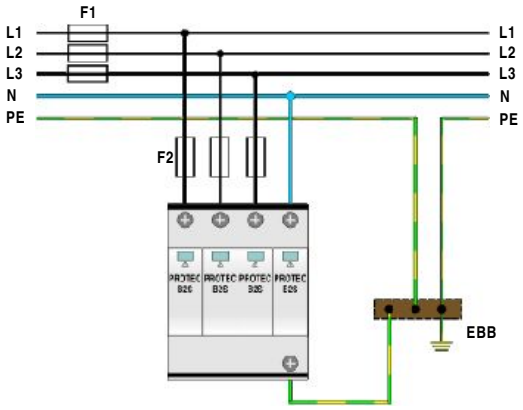
TT Network (Single-phase)



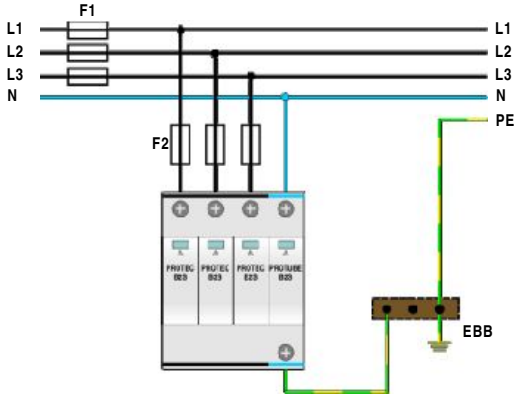
TN-C Network (Three-phase)



TN-S Network (Three-phase)



TT Network (Three-phase)



Modular SINGLE-POLE and MULTI-POLE Surge Protective Devices

NEW

Category IEC / EN / VDE:	Class II / Type 2 / C
Location of use:	Branch Sub-distribution Boards
Protection modes:	L/N-PE, L-PEN, N-PE
Protective elements:	MOV and GDT
Surge discharge ratings:	I_{max} = 40kA per pole
Internal protection and safety:	Separate thermal disconnector for each MOV
Status indication:	Mechanical flag + remote contacts (R)
Dimensions DIN 43880:	1TE, 2TE, 3TE, 4TE

SAFETEC C(R) 40
SAFETEC C(R) 80 (2+0)
SAFETEC C(R) 80 (1+1)
SAFETEC C(R) 120 (3+0)
SAFETEC C(R) 160 (4+0)
SAFETEC C(R) 160 (3+1)

The new SAFETEC series of surge protective devices (SPDs) provide:

- Protection from overvoltages, surge and transients on the system network
- Protection against loss of neutral, or loose neutral connections, which are common to MEN (Multiple earthed neutral) systems
- Unstable or poorly regulated power networks where sustained overvoltages for some minutes or longer may exist
- Patented TC technology prevent catastrophic failures in case of TOV (temporary overvoltages)

SAFETEC C(R) 40

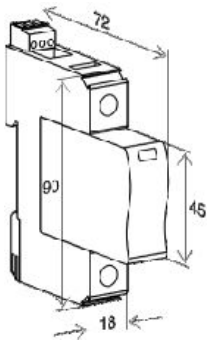
Class II Single-pole Surge Protective Device
I_{max} = 40kA (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TN-S, TN-C, IT
- **Protection modes:** L/N - PE
- **Protective element:** MOV
- **High surge discharge rating:** I_{max}= 40kA
- **Safety:** Immunity against TOV
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

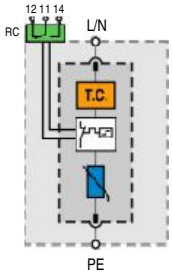
Technical data

Type		SAFETEC C(R) 40/xxx 150	275	440
Electrical characteristics				
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	440/580V
Nominal discharge current (8/20)	I_n	20kA	20kA	20kA
Max. discharge current (8/20)	I_{max}	40kA	40kA	40kA
Protection level	U_p	< 1.0kV	< 1.6kV	< 2.2kV
Follow current	I_f		NO	
Response time	t_A		< 25ns	
Thermal protection			YES	
TOV whithstand for 5 sec.			1.32 x U_{REF} (335V) $\sqrt{3}$ x U_{REF} (400V)	
Short-circuit withstand current			25kA/50Hz	
Mechanical characteristics				
Terminal screw torque			max. 3.5Nm	
Temperature range			- 40°C .... + 80°C	
Terminal cross section			35mm² (solid) / 25mm² (stranded)	
Mounting EN 60715			35mm top-hat rail	
Degree of protection			IP 20	
Housing material			thermoplastic; extinguishing degree UL 94 V-0	
Dimensions DIN 43880			1TE	
Weight per unit				
Ordering code **SAFETEC C 40/xxx**		**516 001**	**516 003**	**516 005**
Remote contacts			YES	
Contact ratings			AC: 250V/0.5A; 125V/3A	
Terminal cross section			max. 1.5mm²	
Remote terminal torque			0.25Nm	
Weight per unit				
Ordering code **SAFETEC C(R) 40/xxx** (with remote contacts)		**516 002**	**516 004**	**516 006**
Packaging dimensions (single unit)			108 x 74 x 24mm	
Ordering code **Module SAFETEC C(R) 40/xxx**		**516 037**	**516 038**	**516 039**
Packaging dimensions (12 pcs.)			219 x 62 x 47mm	

Dimensions



Connection diagram



ISKRA ZAŠČITE

SAFETEC C(R) 80 (2+0)

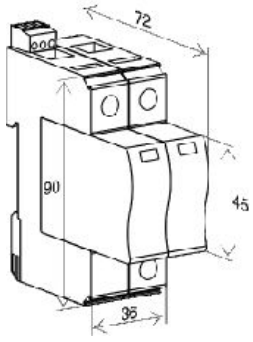
Class II Multi-pole Surge Protective Device
I_{max} = 40kA per pole (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TN-S
- **Protection modes:** L/N - PE, L - PEN
- **Protective element:** MOV
- **High surge discharge rating:** I_{max}= 40kA per pole
- **Safety:** Immunity against TOV
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

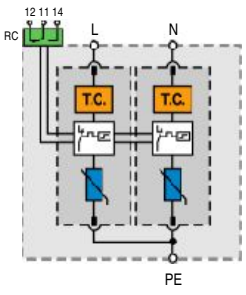
Technical data

Type		SAFETEC C(R) 80/xxx (2+0) 150	275	440
Electrical characteristics				
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	440/580V
Nominal discharge current (8/20)	I_n	20kA per pole	20kA per pole	20kA per pole
Max. discharge current (8/20)	I_{max}	40kA per pole	40kA per pole	40kA per pole
Protection level	U_p	< 1.0kV	< 1.6kV	< 2.2kV
Follow current	I_f		NO	
Response time	t_A		< 25ns	
Thermal protection			YES	
TOV whithstand for 5 sec.			1.32 x U_{REF} (335V) $\sqrt{3}$ x U_{REF} (400V)	
Short-circuit withstand current			25kA/50Hz	
Mechanical characteristics				
Terminal screw torque			max. 3.5Nm	
Temperature range			- 40°C .... + 80°C	
Terminal cross section			35mm² (solid) / 25mm² (stranded)	
Mounting EN 60715			35mm top-hat rail	
Degree of protection			IP 20	
Housing material			thermoplastic; extinguishing degree UL 94 V-0	
Dimensions DIN 43880			2TE	
Weight per unit				
Ordering code **SAFETEC C 80/xxx (2+0)**		**516 007**	**516 009**	**516 011**
Remote contacts			YES	
Contact ratings			AC: 250V/0.5A; 125V/3A	
Terminal cross section			max. 1.5mm²	
Remote terminal torque			0.25Nm	
Weight per unit				
Ordering code **SAFETEC C(R) 80/xxx (2+0)** (with remote contacts)		**516 008**	**516 010**	**516 012**
Packaging dimensions (single unit)			109 x 76.5 x 41.5mm	
Ordering code **Module SAFETEC C(R) 40/xxx**		**516 037**	**516 038**	**516 039**
Packaging dimensions (12 pcs.)			219 x 62 x 47mm	

Dimensions



Connection diagram



ISKRA ZAŠČITE

SAFETEC C(R) 80 (1+1)

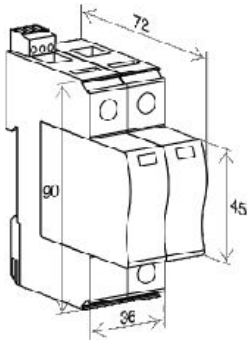
Class II Multi-pole Surge Protective Device
I_{max} = 40kA per pole (8/20)

Category IEC / EN / VDE:	Class II / Type 2 / C
Location of use:	Branch sub-distribution boards
Connections:	TT
Protection modes:	L - N, N - PE
Protective element:	MOV and GDT
High surge discharge rating:	I_{max}= 40kA per pole
Safety:	Immunity against TOV
Housing:	Modular design
Complies with:	IEC-61643-1

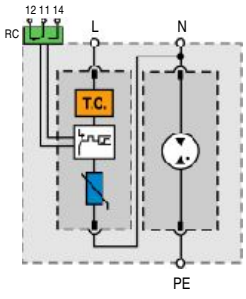
Technical data

Type		SAFETEC C(R) 80/xxx (1+1) 150	275	440
Electrical characteristics				
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	440/580V
Nominal discharge current (8/20)	I_n (L-N/N-PE)	20kA per pole	20kA per pole	20kA per pole
Max. discharge current (8/20)	I_{max} (L-N/N-PE)	40kA per pole	40kA per pole	40kA per pole
Protection level	U_p (L-N)	< 1.0kV	< 1.6kV	< 2.2kV
	U_p (N-PE)		< 2.0kV	
Follow current	I_f (N-PE)		> 100A_{RMS}	
Response time	t_A (L-N/N-PE)		< 25ns/100ns	
Thermal protection	(L-N/N-PE)		YES	
TOV whithstand for 5 sec.			1.32 x U_{REF} (335V)	
			$\sqrt{3}$ x U_{REF} (400V)	
Short-circuit withstand current	(L-N/N-PE)		25kA/50Hz/-	
Mechanical characteristics				
Terminal screw torque			max. 3.5Nm	
Temperature range			- 40°C .... + 80°C	
Terminal cross section			35mm² (solid) / 25mm² (stranded)	
Mounting EN 60715			35mm top-hat rail	
Degree of protection			IP 20	
Housing material			thermoplastic; extinguishing degree UL 94 V-0	
Dimensions DIN 43880			2TE	
Weight per unit				
Ordering code **SAFETEC C 80/xxx (1+1)**		**516 013**	**516 015**	**516 017**
Remote contacts			YES	
Contact ratings			AC: 250V/0.5A; 125V/3A	
Terminal cross section			max. 1.5mm²	
Remote terminal torque			0.25Nm	
Weight per unit				
Ordering code **SAFETEC C(R) 80/xxx (1+1)** (with remote contacts)		**516 014**	**516 016**	**516 018**
Packaging dimensions (single unit)			109 x 76.5 x 41.5mm	
Ordering code **Module SAFETEC C(R) 40/xxx**		**516 037**	**516 038**	**516 039**
Ordering code **Module SAFETUBE C 40/255**			**516 115**	
Packaging dimensions (12 pcs.)			219 x 62 x 47mm	

Dimensions



Connection diagram



Iskra Zaščite

SAFETEC C(R) 120 (3+0)

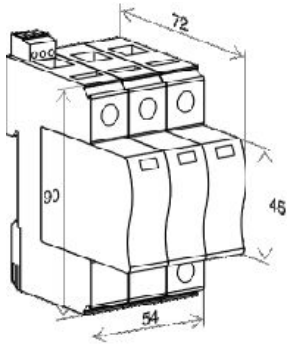
Class II Multi-pole Surge Protective Device
I_{max} = 40kA per pole (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TN-C
- **Protection modes:** L - PEN
- **Protective element:** MOV
- **High surge discharge rating:** I_{max}= 40kA per pole
- **Safety:** Immunity against TOV
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

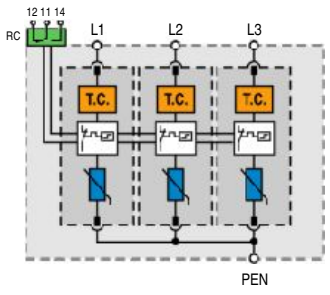
Technical data

Type		SAFETEC C(R) 120/xxx (3+0) 150	275	440
Electrical characteristics				
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	440/580V
Nominal discharge current (8/20)	I_n	20kA per pole	20kA per pole	20kA per pole
Max. discharge current (8/20)	I_{max}	40kA per pole	40kA per pole	40kA per pole
Protection level	U_p	< 1.0kV	< 1.6kV	< 2.2kV
Follow current	I_f		NO	
Response time	t_A		< 25ns	
Thermal protection			YES	
TOV whithstand for 5 sec.			$1.32 \times U_{REF}$ (335V) $\sqrt{3} \times U_{REF}$ (400V)	
Short-circuit withstand current			25kA/50Hz	
Mechanical characteristics				
Terminal screw torque			max. 3.5Nm	
Temperature range			- 40°C .... + 80°C	
Terminal cross section			35mm² (solid) / 25mm² (stranded)	
Mounting EN 60715			35mm top-hat rail	
Degree of protection			IP 20	
Housing material			thermoplastic; extinguishing degree UL 94 V-0	
Dimensions DIN 43880			3TE	
Weight per unit				
Ordering code **SAFETEC C 120/xxx (3+0)**		**516 019**	**516 021**	**516 023**
Remote contacts			YES	
Contact ratings			AC: 250V/0.5A; 125V/3A	
Terminal cross section			max. 1.5mm²	
Remote terminal torque			0.25Nm	
Weight per unit				
Ordering code **SAFETEC C(R) 120/xxx (3+0)** (with remote contacts)		**516 020**	**516 022**	**516 024**
Packaging dimensions (single unit)			109 x 76.5 x 60mm	
Ordering code **Module SAFETEC C(R) 40/xxx**		**516 037**	**516 038**	**516 039**
Packaging dimensions (12 pcs.)			219 x 62 x 47mm	

Dimensions



Connection diagram



ISKRA ZAŠČITE

SAFETEC C(R) 160 (4+0)

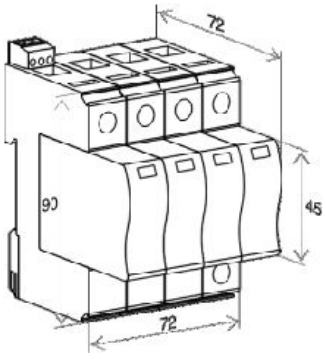
Class II Multi-pole Surge Protective Device
I_{max} = 40kA per pole (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TN-S, IT
- **Protection modes:** L/N - PE
- **Protective element:** MOV
- **High surge discharge rating:** I_{max}= 40kA per pole
- **Safety:** Immunity against TOV
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

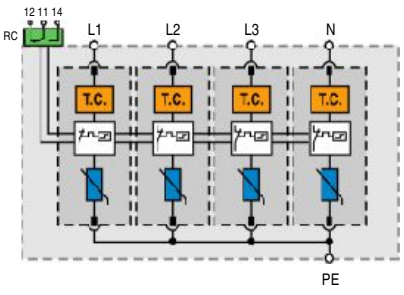
Technical data

Type		SAFETEC C(R) 160/xxx (4+0) 150	275	440
Electrical characteristics				
Max. continuous operating voltage (AC/DC)	U_c	150/200V	275/350V	440/580V
Nominal discharge current (8/20)	I_n	20kA per pole	20kA per pole	20kA per pole
Max. discharge current (8/20)	I_{max}	40kA per pole	40kA per pole	40kA per pole
Protection level	U_p	< 1.0kV	< 1.6kV	< 2.2kV
Follow current	I_f		NO	
Response time	t_A		< 25ns	
Thermal protection			YES	
TOV whithstand for 5 sec.			$1.32 \times U_{REF}$ (335V) $\sqrt{3} \times U_{REF}$ (400V)	
Short-circuit withstand current			25kA/50Hz	
Mechanical characteristics				
Terminal screw torque			max. 3.5Nm	
Temperature range			- 40°C .... + 80°C	
Terminal cross section			35mm² (solid) / 25mm² (stranded)	
Mounting EN 60715			35mm top-hat rail	
Degree of protection			IP 20	
Housing material			thermoplastic; extinguishing degree UL 94 V-0	
Dimensions DIN 43880			4TE	
Weight per unit				
Ordering code **SAFETEC C 160/xxx (4+0)**		**516 025**	**516 027**	**516 029**
Remote contacts			YES	
Contact ratings			AC: 250V/0.5A; 125V/3A	
Terminal cross section			max. 1.5mm²	
Remote terminal torque			0.25Nm	
Weight per unit				
Ordering code **SAFETEC C(R) 160/xxx (4+0)** (with remote contacts)		**516 026**	**516 028**	**516 030**
Packaging dimensions (single unit)			109 x 76.5 x 78mm	
Ordering code **Module SAFETEC C(R) 40/xxx**		**516 037**	**516 038**	**516 039**
Packaging dimensions (12 pcs.)			219 x 62 x 47mm	

Dimensions



Connection diagram



Iskra Zaščite

SAFETEC C(R) 160 (3+1)

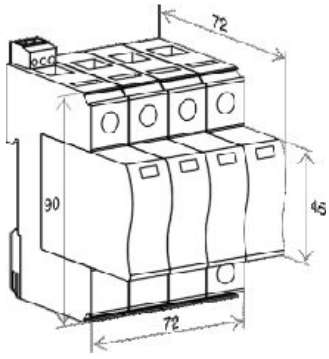
Class II Multi-pole Surge Protective Device
I_{max} = 40kA per pole (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TT
- **Protection modes:** L - N, N - PE
- **Protective element:** MOV and GDT
- **High surge discharge rating:** I_{max}= 40kA per pole
- **Safety:** Immunity against TOV
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

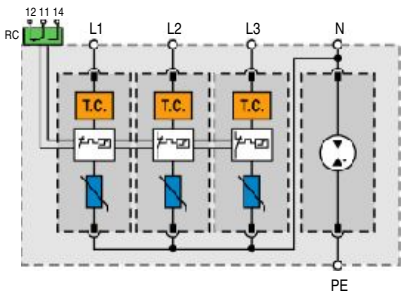
Technical data

Type		SAFETEC C(R) 160/xxx (3+1)		
		150	275	440
Electrical characteristics				
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	440/580V
Nominal discharge current (8/20)	I_n (L-N/N-PE)	20kA per pole	20kA per pole	20kA per pole
Max. discharge current (8/20)	I_{max} (L-N/N-PE)	40kA per pole	40kA per pole	40kA per pole
Protection level	U_p (L-N)	< 1.0kV	< 1.6kV	< 2.2kV
	U_p (N-PE)		< 2.0kV	
Follow current	I_f (N-PE)		> 100A_{RMS}	
Response time	t_A (L-N/N-PE)		< 25ns/100ns	
Thermal protection	(L-N/N-PE)		YES	
TOV whithstand for 5 sec.			1.32 x U_{REF} (335V)	
			$\sqrt{3}$ x U_{REF} (400V)	
Short-circuit withstand current	(L-N/N-PE)		25kA/50Hz/-	
Mechanical characteristics				
Terminal screw torque			max. 3.5Nm	
Temperature range			- 40°C .... + 80°C	
Terminal cross section			35mm² (solid) / 25mm² (stranded)	
Mounting EN 60715			35mm top-hat rail	
Degree of protection			IP 20	
Housing material			thermoplastic; extinguishing degree UL 94 V-0	
Dimensions DIN 43880			4TE	
Weight per unit				
Ordering code **SAFETEC C 160/xxx (3+1)**		**516 031**	**516 033**	**516 035**
Remote contacts			YES	
Contact ratings			AC: 250V/0.5A; 125V/3A	
Terminal cross section			max. 1.5mm²	
Remote terminal torque			0.25Nm	
Weight per unit				
Ordering code **SAFETEC C(R) 160/xxx (3+1)** (with remote contacts)		**516 032**	**516 034**	**516 036**
Packaging dimensions (single unit)			109 x 76.5 x 78mm	
Ordering code **Module SAFETEC C(R) 40/xxx**		**516 037**	**516 038**	**516 039**
Ordering code **Module SAFETUBE C 40/255**			**516 115**	
Packaging dimensions (12 pcs.)			219 x 62 x 47mm	

Dimensions



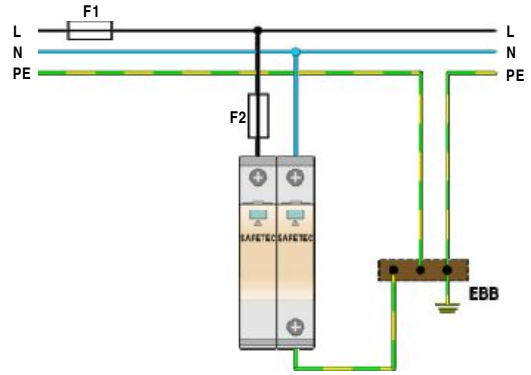
Connection diagram



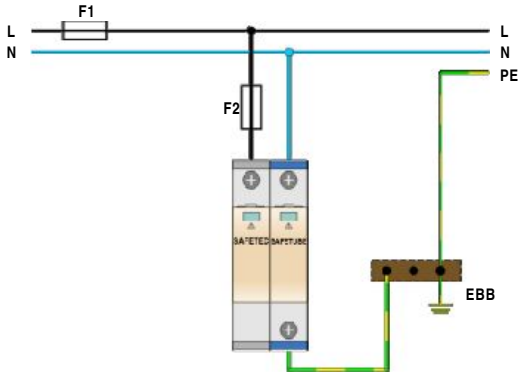
ISKRA ZAŠČITE

SAFETEC C(R), SAFETUBE C - Connections

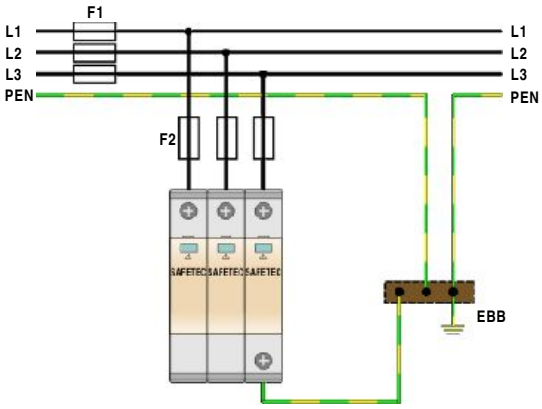
TN-S Network (Single-phase)



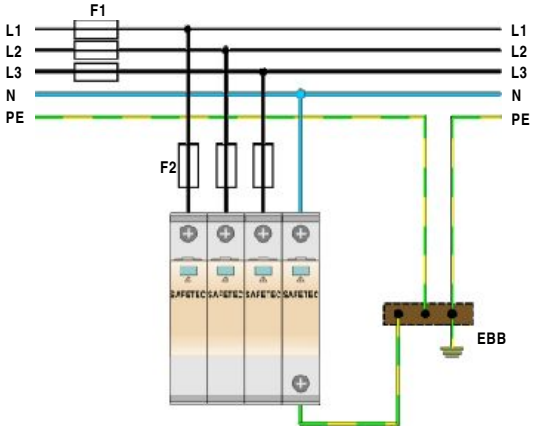
TT Network (Single-phase)



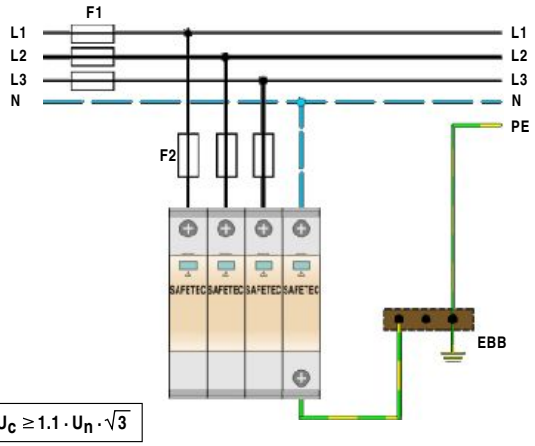
TN-C Network (Three-phase)



TN-S Network (Three-phase)

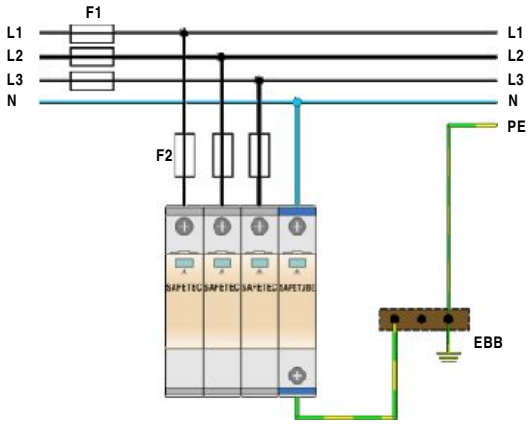


IT Network (Three-phase)



$U_C \geq 1.1 \cdot U_n \cdot \sqrt{3}$

TT Network (Three-phase)



Modular SINGLE-POLE and MULTI-POLE Surge Protective Devices

Category IEC / EN / VDE:	**Class II / Type 2 / C**
Location of use:	**Branch Sub-distribution Boards**
Protection modes:	**L/N-PE, L-PEN, N-PE**
Protective elements:	**MOV and GDT**
Surge discharge ratings:	**I_{max} = 40kA per pole**
Internal protection and safety:	**Separate thermal disconnector for each MOV**
Status indication:	**Mechanical flag + remote contacts (R)**
Dimensions DIN 43880:	**1TE, 2TE, 3TE, 4TE**

PROTEC C(R) 40
PROTUBE C(R) 40
PROTEC C(R) 80 (2+0)
PROTEC C(R) 80 (1+1)
PROTEC C(R) 120 (3+0)
PROTEC C(R) 160 (4+0)
PROTEC C(R) 160 (3+1)
PROTEC C(R) 20

The PROTEC C 40 series of over-voltage surge protective devices has been developed to protect against the effects of indirect lightning discharges and induced voltages and is intended to provide protection in zones 1 - 2 per IEC 62305.

PROTEC C 40 consists of a high performance varistor block with thermal disconnection device.

The plug-in module / base design facilitates replacement of a failed module in situ without the need to remove system wiring.

PROTEC C 80 (2+0) series combines two PROTEC C 40 modules to provide protection for single phase TNS networks.

PROTEC C 80 (1+1) series combines a PROTEC C 40 and PROTUBE C to provide protection for TT single phase networks, where N to PE galvanic isolation is required.

PROTEC C 120 (3+0) series combines three PROTEC C 40 modules, to provide protection for TNC three phase networks with a combined PEN conductor.

The PROTEC C 160 (4+0) series combines four PROTEC C 40 modules, to provide protection for TNS three phase networks with separate PE and N conductors.

The PROTEC C 160 (3+1) series combines three PROTEC C 40 modules and a PROTUBE C, to provide protection for TT three phase networks, where N to PE galvanic isolation is required.

PROTEC CN(R) 40
PROTEC CN(R) 20
PROTUBE CN

PROTEC CN 40 consists of a high performance varistor block with thermal disconnection device.

PROTUBE CN consists of an encapsulated air gap device, and is used as a galvanic separation between the N-PE conductors in a 1+1 or 3+1 power distribution system (TT networks).

PROTEC C(R) 40

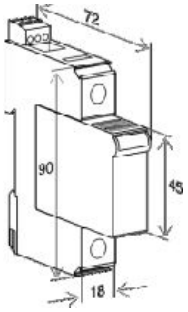
Class II Single-pole Surge Protective Device
I_{max} = 40kA (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TN-S, TN-C, IT
- **Protection modes:** L/N - PE, L- PEN
- **Protective element:** MOV
- **High surge discharge rating:** I_{max}= 40kA
- **MOV max withstand capability 1 x 8/20:** 60kA
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

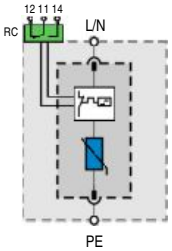
Technical data

Type		PROTEC C(R) 40/xxx					
		75	150	275	320	385	440
Electrical characteristics							
Max. continuous operating voltage (AC/DC)	U_C	75/100V	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n	20kA					
Max. discharge current (8/20)	I_{max}	40kA					
Protection level	U_p	< 0.6V	< 0.9kV	< 1.5kV	< 1.5kV	< 1.9kV	< 2.2kV
Follow current	I_f	NO					
Response time	t_A	< 25ns					
Thermal protection		YES					
Back-up fuse (if mains > 125A)		125A gL					
Short-circuit withstand current		25kA/50Hz					
Mechanical characteristics							
Temperature range		- 40°C ....+ 80°C					
Terminal screw torque		max. 4.5Nm					
Terminal cross section		35mm^2 (solid)/25mm^2 (stranded)					
Mounting EN 60715		35mm top-hat rail					
Degree of protection		IP 20					
Housing material		Thermoplastic; extinguishing degree UL 94 V-0					
Dimensions DIN 43880		1TE					
Weight per unit		112g	122g	128g	128g	129g	130g
Ordering code **PROTEC C 40/xxx**		**500 001**	**500 003**	**500 005**	**500 007**	**500 171**	**500 009**
Remote contacts		YES					
Contact ratings		AC: 250V/0.5A; 125V/3A					
Terminal cross section		max. 1.5mm^2					
Remote terminal torque		0.25Nm					
Weight per unit		117g	127g	133g	133g	134g	135g
Ordering code **PROTEC CR 40/xxx** - with remote contacts		**500 011**	**500 013**	**500 015**	**500 017**	**500 175**	**500 019**
Packaging dimensions (single unit)		108 x 74 x 24mm					
Ordering code **Module PROTEC C(R) 40/xxx**		**500 216**	**500 217**	**500 219**	**500 220**	**500 221**	**500 222**
Packaging dimensions (12 pcs.)		219 x 62 x 47mm					

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTUBE C 40

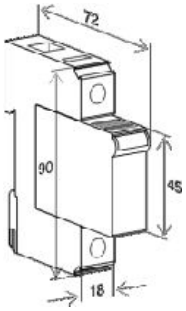
Class II Single-pole N-PE Surge Protective Device
I_{max} = 40kA (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TT
- **Protection modes:** N - PE
- **Protective element:** GDT
- **High surge discharge rating:** I_{max}= 40kA
- **GDT max withstand capability 1 x 8/20:** 60kA
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

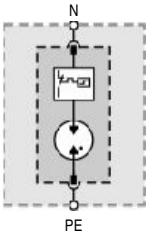
Technical data

Type		PROTUBE C 40/255
Electrical characteristics		
Max. continuous operating voltage (AC)	U_C	255V
Nominal discharge current (8/20)	I_n	20kA
Max. discharge current (8/20)	I_{max}	40kA
Protection level	U_p	< 2.0kV
Follow current	I_f	> 100A_{RMS}
Response time	t_A	< 100ns
Mechanical characteristics		
Temperature range		- 40°C ....+ 80°C
Terminal screw torque		max. 4.5Nm
Terminal cross section		35mm^2 (solid)/25mm^2 (stranded)
Mounting EN 60715		35mm top-hat rail
Degree of protection		IP 20
Housing material		Thermoplastic; extinguishing degree UL 94 V-0
Dimensions DIN 43880		1TE
Weight per unit		118g
Ordering code **PROTUBE C 40**		**503 005**
Packaging dimensions (single unit)		108 x 74 x 24mm
Ordering code **Module PROTUBE C 40/255**		**500 234**
Packaging dimensions (12 pcs.)		219 x 62 x 47mm

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTEC C(R) 80 (2+0)

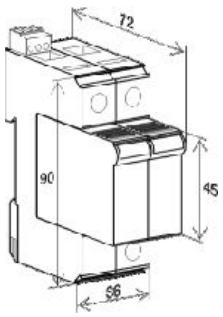
Class II Multi-pole Surge Protective Device
I_{max} = 40kA per pole (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TN-S
- **Protection modes:** L/N - PE, L- PEN
- **Protective element:** MOV
- **High surge discharge rating:** I_{max}= 40kA per pole
- **MOV max withstand capability 1 x 8/20:** 60kA per pole
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

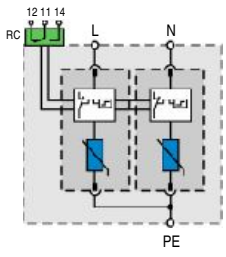
Technical data

Type		PROTEC C(R) 80/xxx (2+0)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n	20kA per pole				
Max. discharge current (8/20)	I_{max}	40kA per pole				
Protection level	U_p	< 0.9kV	< 1.5kV	< 1.5kV	< 1.9kV	< 2.2kV
Follow current	I_f	NO				
Response time	t_A	< 25ns				
Thermal protection		YES				
Back-up fuse (if mains > 125A)		125A gL				
Short-circuit withstand current		25kA/50Hz				
Mechanical characteristics						
Temperature range		- 40°C ....+ 80°C				
Terminal screw torque		max. 4.5Nm				
Terminal cross section		35mm^2 (solid)/25mm^2 (stranded)				
Mounting EN 60715		35mm top-hat rail				
Degree of protection		IP 20				
Housing material		Thermoplastic; extinguishing degree UL 94 V-0				
Dimensions DIN 43880		2TE				
Weight per unit		234g	244g	244g	245g	247g
Ordering code **PROTEC C 80/xxx (2+0)**		**500 073**	**500 075**	**500 077**	**500 179**	**500 079**
Remote contacts		YES				
Contact ratings		AC: 250V/0.5A; 125V/3A				
Terminal cross section		max. 1.5mm^2				
Remote terminal torque		0.25Nm				
Weight per unit		239g	249g	249g	250g	252g
Ordering code **PROTEC CR 80/xxx (2+0)** - with remote contacts		**500 081**	**500 083**	**500 085**	**500 183**	**500 087**
Packaging dimensions (single unit)		109 x 76.5 x 41.5				
Ordering code **Module PROTEC C(R) 40/xxx**		**500 217**	**500 219**	**500 220**	**500 221**	**500 222**
Packaging dimensions (12 pcs.)		219 x 62 x 47mm				

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTEC C(R) 80 (1+1)

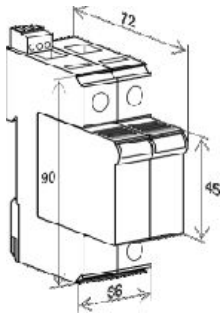
Class II Multi-pole Surge Protective Device
I_{max} = 40kA per pole (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TT
- **Protection modes:** L - N, N - PE
- **Protective element:** MOV & GDT
- **High surge discharge rating:** I_{max}= 40kA per pole
- **MOV max withstand capability 1 x 8/20:** 60kA per pole
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

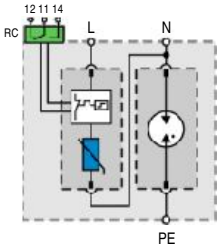
Technical data

Type		PROTEC C(R) 80/xxx (1+1)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n (L-N/N-PE)			20kA/20kA		
Max. discharge current (8/20)	I_{max} (L-N/N-PE)			40kA/40kA		
Protection level	U_p (L-N)	< 0.9kV	< 1.5kV	< 1.5kV	< 1.9kV	< 2.2kV
	U_p (N-PE)			< 2.0kV		
Follow current	I_f (N-PE)			> 100A_{RMS}		
Response time	t_A (L-N/N-PE)			< 25ns/100ns		
Thermal protection	(L-N/N-PE)			YES		
Back-up fuse (if mains > 125A)	(L-N/N-PE)			125A gL/-		
Short-circuit withstand current	(L-N/N-PE)			25kA/50Hz/-		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 4.5Nm		
Terminal cross section				35mm^2 (solid)/25mm^2 (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880				2TE		
Weight per unit		221g	225g	225g	226g	227g
Ordering code **PROTEC C 80/xxx (1+1)**		**500 089**	**500 091**	**500 093**	**500 187**	**500 095**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm^2		
Remote terminal torque				0.25Nm		
Weight per unit		226g	230g	230g	231g	232g
Ordering code **PROTEC CR 80/xxx (1+1)** - with remote contacts		**500 097**	**500 099**	**500 101**	**500 191**	**500 103**
Packaging dimensions (single unit)				109 x 76.5 x 41.5mm		
Ordering code **Module PROTEC C(R) 40/xxx**		**500 217**	**500 219**	**500 220**	**500 221**	**500 222**
Ordering code **Module PROTUBE C 40/255**				**500 234**		
Packaging dimensions (12 pcs.)				219 x 62 x 47mm		

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTEC C(R) 120 (3+0)

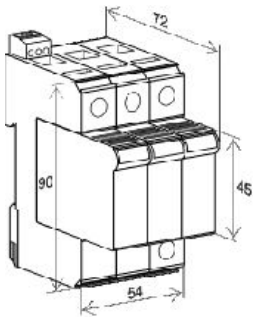
Class II Multi-pole Surge Protective Device
I_{max} = 40kA per pole (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TN-C
- **Protection modes:** L- PEN
- **Protective element:** MOV
- **High surge discharge rating:** I_{max}= 40kA per pole
- **MOV max withstand capability 1 x 8/20:** 60kA per pole
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

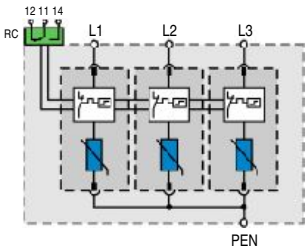
Technical data

Type		PROTEC C(R) 120/xxx (3+0)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n	20kA per pole				
Max. discharge current (8/20)	I_{max}	40kA per pole				
Protection level	U_p	< 0.9kV	< 1.5kV	< 1.5kV	< 1.9kV	< 2.2kV
Follow current	I_f	NO				
Response time	t_A	< 25ns				
Thermal protection		YES				
Back-up fuse (if mains > 125A)		125A gL				
Short-circuit withstand current		25kA/50Hz				
Mechanical characteristics						
Temperature range		- 40°C ....+ 80°C				
Terminal screw torque		max. 4.5Nm				
Terminal cross section		35mm^2 (solid)/25mm^2 (stranded)				
Mounting EN 60715		35mm top-hat rail				
Degree of protection		IP 20				
Housing material		Thermoplastic; extinguishing degree UL 94 V-0				
Dimensions DIN 43880		3TE				
Weight per unit		330g	352g	352g	354g	356g
Ordering code **PROTEC C 120/xxx (3+0)**		**500 105**	**500 107**	**500 109**	**500 195**	**500 111**
Remote contacts		YES				
Contact ratings		AC: 250V/0.5A; 125V/3A				
Terminal cross section		max. 1.5mm^2				
Remote terminal torque		0.25Nm				
Weight per unit		335g	357g	357g	359g	361g
Ordering code **PROTEC CR 120/xxx (3+0)** - with remote contacts		**500 113**	**500 115**	**500 117**	**500 199**	**500 119**
Packaging dimensions (single unit)		109 x 76.5 x 60mm				
Ordering code **Module PROTEC C(R) 40/xxx**		**500 217**	**500 219**	**500 220**	**500 221**	**500 222**
Packaging dimensions (12 pcs.)		219 x 62 x 47mm				

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTEC C(R) 160 (4+0)

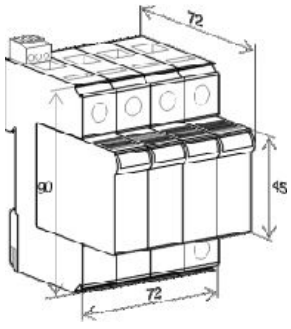
Class II Multi-pole Surge Protective Device
I_{max} = 40kA per pole (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TN-S, IT
- **Protection modes:** L/N - PE
- **Protective element:** MOV
- **High surge discharge rating:** I_{max}= 40kA per pole
- **MOV max withstand capability 1 x 8/20:** 60kA per pole
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

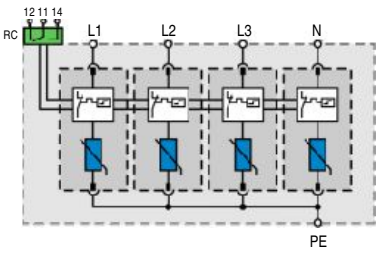
Technical data

Type		PROTEC C(R) 160/xxx (4+0)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n	20kA per pole				
Max. discharge current (8/20)	I_{max}	40kA per pole				
Protection level	U_p	< 0.9kV	< 1.5kV	< 1.5kV	< 1.9kV	< 2.2kV
Follow current	I_f	NO				
Response time	t_A	< 25ns				
Thermal protection		YES				
Back-up fuse (if mains > 125A)		125A gL				
Short-circuit withstand current		25kA/50Hz				
Mechanical characteristics						
Temperature range		- 40°C ....+ 80°C				
Terminal screw torque		max. 4.5Nm				
Terminal cross section		35mm^2 (solid)/25mm^2 (stranded)				
Mounting EN 60715		35mm top-hat rail				
Degree of protection		IP 20				
Housing material		Thermoplastic; extinguishing degree UL 94 V-0				
Dimensions DIN 43880		4TE				
Weight per unit		432g	456g	456g	460g	466g
Ordering code **PROTEC C 160/xxx (4+0)**		**500 121**	**500 123**	**500 125**	**500 203**	**500 127**
Remote contacts		YES				
Contact ratings		AC: 250V/0.5A; 125V/3A				
Terminal cross section		max. 1.5mm^2				
Remote terminal torque		0.25Nm				
Weight per unit		437g	461g	461g	465g	471g
Ordering code **PROTEC CR 160/xxx (4+0)** - with remote contacts		**500 129**	**500 131**	**500 133**	**500 207**	**500 135**
Packaging dimensions (single unit)		109 x 76.5 x 78mm				
Ordering code **Module PROTEC C(R) 40/xxx**		**500 217**	**500 219**	**500 220**	**500 221**	**500 222**
Packaging dimensions (12 pcs.)		219 x 62 x 47mm				

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTEC C(R) 160 (3+1)

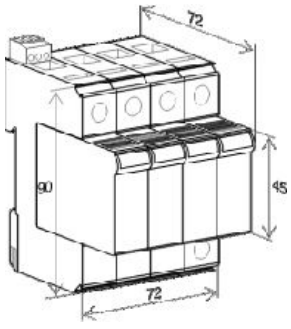
Class II Multi-pole Surge Protective Device
I_{max} = 40kA per pole (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TT
- **Protection modes:** L - N, N - PE
- **Protective element:** MOV & GDT
- **High surge discharge rating:** I_{max}= 40kA per pole
- **MOV max withstand capability 1 x 8/20:** 60kA per pole
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

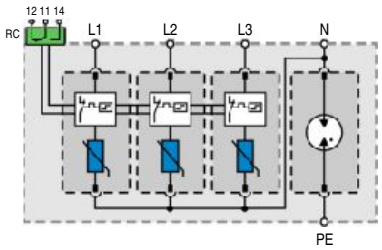
Technical data

Type		PROTEC C(R) 160/xxx (3+1)				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n (L-N/N-PE)			20kA/20kA		
Max. discharge current (8/20)	I_{max} (L-N/N-PE)			40kA/40kA		
Protection level	U_p (L-N)	< 0.9kV	< 1.5kV	< 1.5kV	< 1.9kV	< 2.2kV
	U_p (N-PE)			< 2.0kV		
Follow current	I_f (N-PE)			> 100A_{RMS}		
Response time	t_A (L-N/N-PE)			< 25ns/100ns		
Thermal protection	(L-N/N-PE)			YES		
Back-up fuse (if mains > 125A)	(L-N/N-PE)			125A gL/-		
Short-circuit withstand current	(L-N/N-PE)			25kA/50Hz/-		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 4.5Nm		
Terminal cross section				35mm^2 (solid)/25mm^2 (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880				4TE		
Weight per unit		423g	441g	441g	445g	447g
Ordering code **PROTEC C 160/xxx (3+1)**		**500 137**	**500 139**	**500 141**	**500 211**	**500 143**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm^2		
Remote terminal torque				0.25Nm		
Weight per unit		428g	446g	446g	450g	452g
Ordering code **PROTEC CR 160/xxx (3+1)** - with remote contacts		**500 145**	**500 147**	**500 149**	**500 215**	**500 151**
Packaging dimensions (single unit)				109 x 76.5 x 78mm		
Ordering code **Module PROTEC C(R) 40/xxx**		**500 217**	**500 219**	**500 220**	**500 221**	**500 222**
Ordering code **Module PROTUBE C 40/255**				**500 234**		
Packaging dimensions (12 pcs.)				219 x 62 x 47mm		

Dimensions



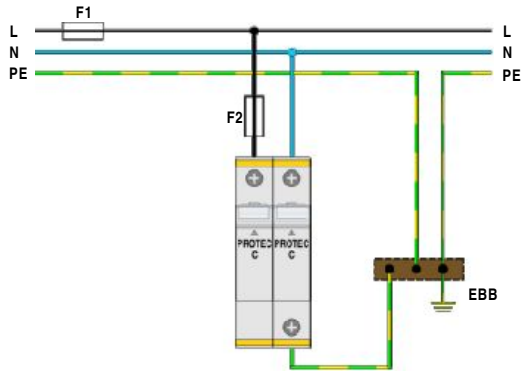
Connection diagram



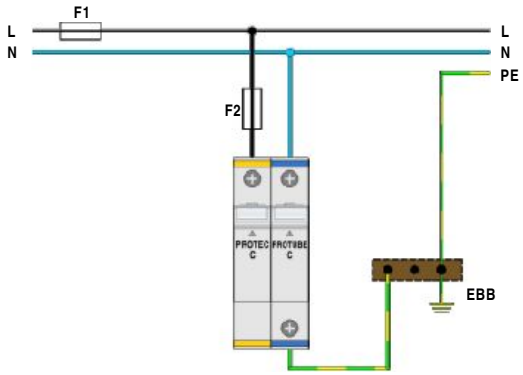
ISKRA ZAŠČITE

PROTEC C(R), PROTUBE C - Connections

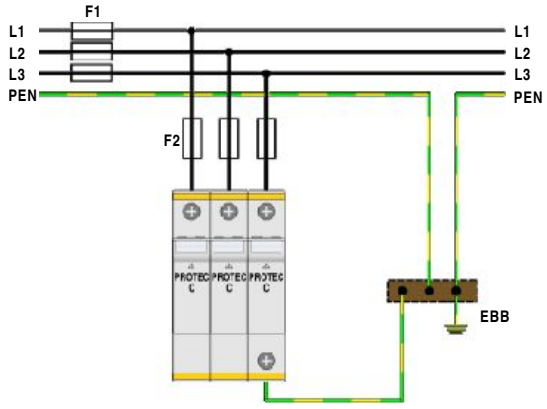
TN-S Network (Single-phase)



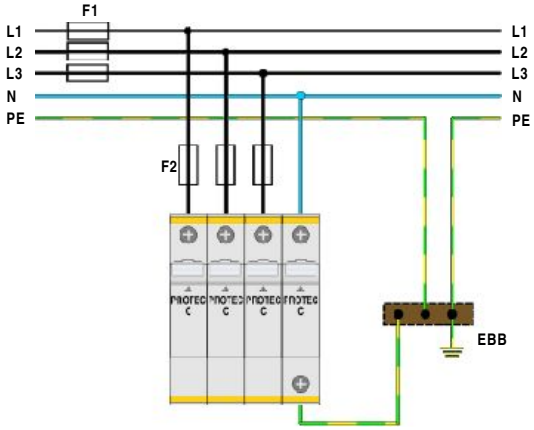
TT Network (Single-phase)



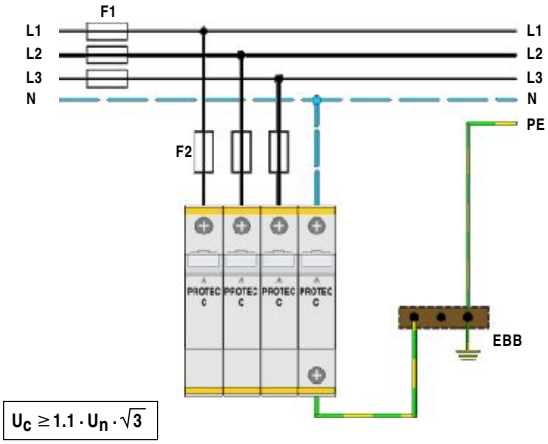
TN-C Network (Three-phase)



TN-S Network (Three-phase)

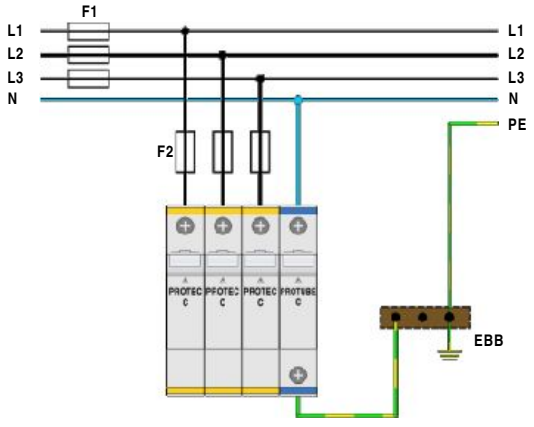


IT Network (Three-phase)



$U_C \geq 1.1 \cdot U_n \cdot \sqrt{3}$

TT Network (Three-phase)



PROTEC C(R) 20

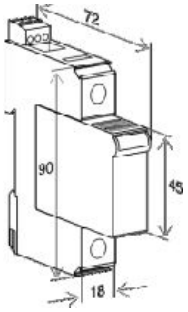
Class II Single-pole Surge Protective Device
I_{max} = 20kA (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TN-S, TN-C, IT
- **Protection modes:** L/N - PE, L- PEN
- **Protective element:** MOV
- **High surge discharge rating:** I_{max}= 20kA
- **MOV max withstand capability 1 x 8/20:** 40kA per pole
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

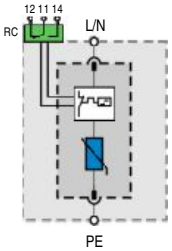
Technical data

Type		PROTEC C(R) 20/xxx				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n			10kA		
Max. discharge current (8/20)	I_{max}			20kA		
Protection level	U_p	< 0.7kV	< 1.2kV	< 1.2kV	< 1.6kV	< 1.8kV
Follow current	I_f			NO		
Response time	t_A			< 25ns		
Thermal protection				YES		
Back-up fuse (if mains > 125A)				100A gL		
Short-circuit withstand current				25kA/50Hz		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 4.5Nm		
Terminal cross section				35mm^2 (solid)/25mm^2 (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880				1TE		
Weight per unit		119g	125g	125g	126g	127g
Ordering code **PROTEC C 20/xxx**		**500 037**	**500 039**	**500 041**	**500 315**	**500 043**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm^2		
Remote terminal torque				0.25Nm		
Weight per unit		124g	130g	130g	131g	132g
Ordering code **PROTEC CR 20/xxx** - with remote contacts		**500 045**	**500 047**	**500 049**	**500 317**	**500 051**
Packaging dimensions (single unit)				108 x 74 x 24mm		
Ordering code **Module PROTEC C(R) 20/xxx**		**500 479**	**500 480**	**500 481**	**500 482**	**500 483**
Packaging dimensions (12 pcs.)				219 x 62 x 47mm		

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTEC CN(R) 40

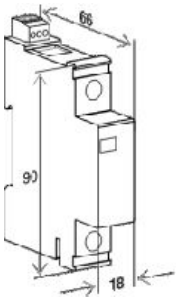
Class II Single-pole Surge Protective Device
I_{max} = 40kA (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TN-S, TN-C, IT
- **Protection modes:** L/N - PE, L- PEN
- **Protective element:** MOV
- **High surge discharge rating:** I_{max}= 40kA
- **MOV max withstand capability 1 x 8/20:** 50kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

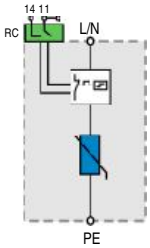
Technical data

Type		PROTEC CN(R) 40/xxx					
		75	150	275	320	385	440
Electrical characteristics							
Max. continuous operating voltage (AC/DC)	U_C	75/100V	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n	20kA					
Max. discharge current (8/20)	I_{max}	40kA					
Protection level	U_p	< 0.6V	< 0.9kV	< 1.5kV	< 1.5kV	< 1.9kV	< 2.2kV
Follow current	I_f	NO					
Response time	t_A	< 25ns					
Thermal protection		YES					
Back-up fuse (if mains > 125A)		125A gL					
Short-circuit withstand current		25kA/50Hz					
Mechanical characteristics							
Temperature range		- 40°C ....+ 80°C					
Terminal screw torque		max. 4.5Nm					
Terminal cross section		35mm^2 (solid)/25mm^2 (stranded)					
Mounting EN 60715		35mm top-hat rail					
Degree of protection		IP 20					
Housing material		Thermoplastic; extinguishing degree UL 94 V-0					
Dimensions DIN 43880		1TE					
Weight per unit		127g	134g	112g	112g	139g	140g
Ordering code **PROTEC CN 40/xxx**		**507 001**	**507 003**	**507 005**	**507 007**	**507 021**	**507 009**
Remote contacts		YES					
Contact ratings		AC: 250V/0.5A; 125V/3A					
Terminal cross section		max. 1.5mm^2					
Remote terminal torque		0.25Nm					
Weight per unit		132g	139g	117g	117g	144g	145g
Ordering code **PROTEC CNR 40/xxx** - with remote contacts		**507 011**	**507 013**	**507 015**	**507 017**	**507 023**	**507 019**
Packaging dimensions (single unit)		108 x 74 x 24mm					

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTEC CN(R) 20

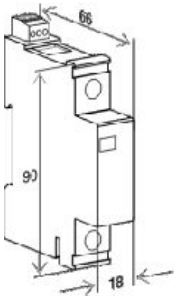
Class II Single-pole Surge Protective Device
I_{max} = 20kA (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TN-S, TN-C, IT
- **Protection modes:** L/N - PE, L- PEN
- **Protective element:** MOV
- **High surge discharge rating:** I_{max}= 20kA
- **MOV max withstand capability 1 x 8/20:** 35kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

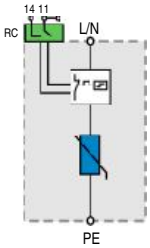
Technical data

Type		PROTEC CN(R) 20/xxx				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n	10kA				
Max. discharge current (8/20)	I_{max}	20kA				
Protection level	U_p	< 0.7kV	< 1.2kV	< 1.2kV	< 1.6kV	< 1.8kV
Follow current	I_f	NO				
Response time	t_A	< 25ns				
Thermal protection		YES				
Back-up fuse (if mains > 125A)		100A gL				
Short-circuit withstand current		25kA/50Hz				
Mechanical characteristics						
Temperature range		- 40°C ....+ 80°C				
Terminal screw torque		max. 3.5Nm				
Terminal cross section		35mm^2 (solid)/25mm^2 (stranded)				
Mounting EN 60715		35mm top-hat rail				
Degree of protection		IP 20				
Housing material		Thermoplastic; extinguishing degree UL 94 V-0				
Dimensions DIN 43880		1TE				
Weight per unit		131g	109g	109g	136g	137g
Ordering code **PROTEC CN 20/xxx**		**507 253**	**507 254**	**507 255**	**507 256**	**507 257**
Remote contacts		YES				
Contact ratings		AC: 250V/0.5A; 125V/3A				
Terminal cross section		max. 1.5mm^2				
Remote terminal torque		0.25Nm				
Weight per unit		136g	114g	114g	141g	142g
Ordering code **PROTEC CNR 20/xxx** - with remote contacts		**507 258**	**507 259**	**507 260**	**507 261**	**507 262**
Packaging dimensions (single unit)		108 x 74 x 24mm				

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTUBE CN 40

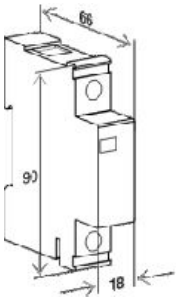
Class II Single-pole N-PE Surge Protective Device
I_{max} = 40kA (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TT
- **Protection modes:** N - PE
- **Protective element:** GDT
- **High surge discharge rating:** I_{max}= 40kA
- **MOV max withstand capability 1 x 8/20:** 50kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

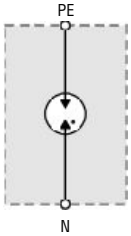
Technical data

Type		PROTUBE CN 40/255
Electrical characteristics		
Max. continuous operating voltage (AC)	U_C	255V
Nominal discharge current (8/20)	I_n	20kA
Max. discharge current (8/20)	I_{max}	40kA
Protection level	U_p	< 1.2kV
Follow current	I_f	> 100A_{RMS}
Response time	t_A	< 100ns
Mechanical characteristics		
Temperature range		- 40°C ....+ 80°C
Terminal screw torque		max. 3.5Nm
Terminal cross section		35mm^2 (solid)/25mm^2 (stranded)
Mounting EN 60715		35mm top-hat rail
Degree of protection		IP 20
Housing material		Thermoplastic; extinguishing degree UL 94 V-0
Dimensions DIN 43880		1TE
Weight per unit		122g
Ordering code **PROTUBE CN 40/255**		**507 574**
Packaging dimensions (single unit)		108 x 74 x 24mm

Dimensions

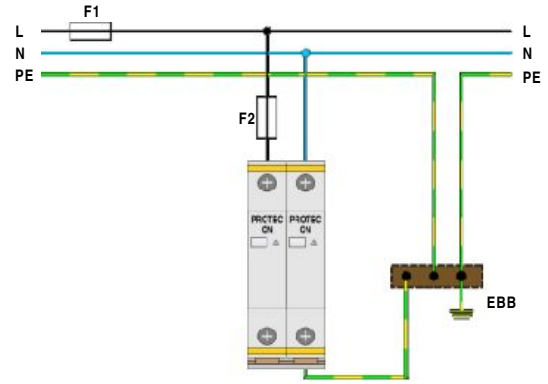


Connection diagram

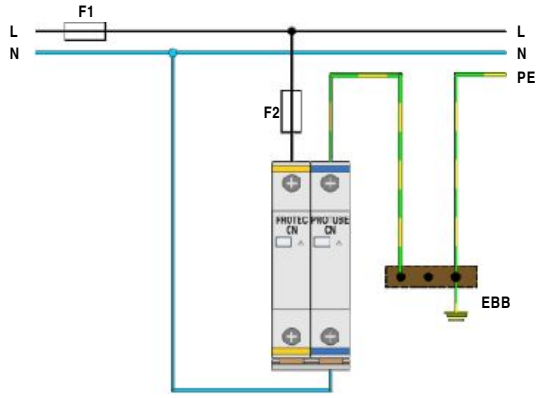


PROTEC CN(R), PROTUBE CN - Connections

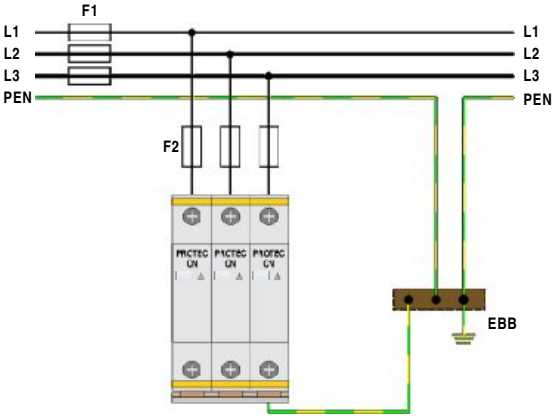
TN-S Network (Single-phase)



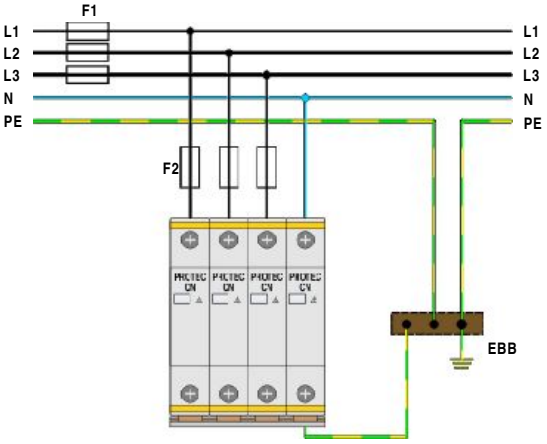
TT Network (Single-phase)



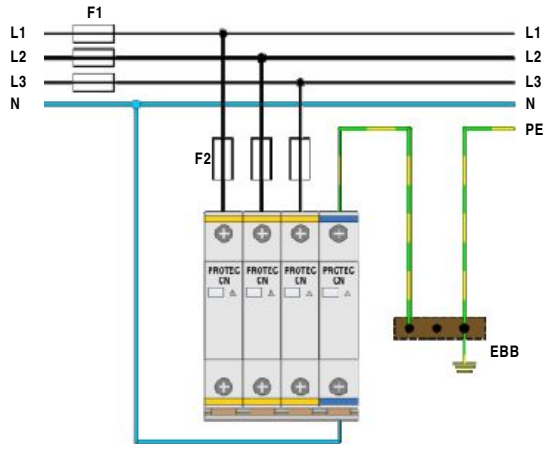
TN-C Network (Three-phase)



TN-S Network (Three-phase)



TT Network (Three-phase)



Modular MULTI-POLE Surge Protective Devices

Category IEC / EN / VDE:	**Class II / Type 2 / C**
Location of use:	**Branch Sub-distribution Boards**
Protection modes:	**L/N-PE, L-PEN, N-PE**
Protective elements:	**MOV and GDT**
Surge discharge ratings:	**I_{max} = 40kA per pole**
Internal protection and safety:	**Separate thermal disconnector for each MOV**
Status indication:	**Mechanical flag + remote contacts (R)**
Dimensions DIN 43880:	**1TE**

PROTEC CM 80 (2+0)
PROTEC CM 80 (1+1)
PROTEC CM 80A (1+1)

The PROTEC CM 80 series of over-voltage surge protective devices has been developed to protect against the effects of indirect lightning discharges and induced voltages and is intended to provide protection in zones 1 - 2 per IEC 62305.

The plug-in module / base design facilitates replacement of a failed module in situ without the need to remove system wiring.

PROTEC CM 80 (2+0) consists of two high performance varistor blocks with thermal disconnection devices providing both L-PE and N-PE protection modes.

PROTEC CM 80 (1+1) consists of high performance varistor blocks with thermal disconnection and encapsulated air gap device providing both L-N and N-PE protection modes.

The plug-in module / base design facilitates replacement of a failed module without the need to remove system wiring.

PROTEC CM(R) 80 (2+0)

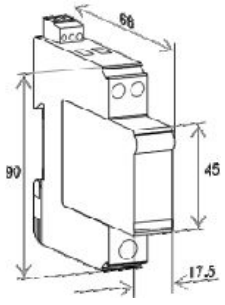
Class II Multi-pole Surge Protective Device
I_{max} = 40kA per pole (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TN-S
- **Protection modes:** L/N - PE
- **Protective element:** MOV
- **High surge discharge rating:** I_{max}= 40kA per pole
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

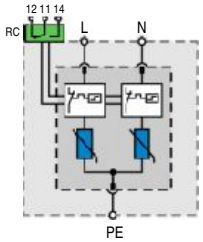
Technical data

Type			PROTEC CM(R) 80/xxx (2+0) 150	275	320	385	440
Electrical characteristics							
Max. continuous operating voltage (AC/DC)		U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)		I_n			15kA per pole		
Max. discharge current (8/20)		I_{max}			40kA per pole		
Protection level		U_p	< 0.8kV	< 1.4kV	< 1.4kV	< 1.8kV	< 2.0kV
Follow current		I_f			NO		
Response time		t_A			< 25ns		
Thermal protection					YES		
Back-up fuse (if mains > 125A)					100A gL		
Short-circuit withstand current					25kA/50Hz		
Mechanical characteristics							
Temperature range					- 40°C ....+ 80°C		
Terminal screw torque	Upper terminal				max. 2Nm		
	Lower terminal				max. 3.5Nm		
Terminal cross section	Upper terminal				$6mm^2$ (solid)/$4mm^2$ (stranded)		
	Lower terminal				$35mm^2$ (solid)/$25mm^2$ (stranded)		
Mounting EN 60715					35mm top-hat rail		
Degree of protection					IP 20		
Housing material					Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880					1TE		
Weight per unit			134g	144g	144g	150g	152g
Ordering code **PROTEC CM 80/xxx (2+0)**			**508 001**	**508 003**	**508 005**	**508 109**	**508 007**
Remote contacts					YES		
Contact ratings					AC: 250V/0.5A; 125V/3A		
Terminal cross section					max. $1.5mm^2$		
Remote terminal torque					0.25Nm		
Weight per unit			139g	149g	149g	155g	157g
Ordering code **PROTEC CMR 80/xxx (2+0)** - with remote contacts			**508 009**	**508 011**	**508 013**	**508 111**	**508 015**
Packaging dimensions (single unit)					108 x 74 x 24mm		
Ordering code **Module PROTEC CM(R) 80/xxx (2+0)**			**508 174**	**508 164**	**508 175**	**508 146**	**508 147**
Packaging dimensions (12 pcs.)					219 x 62 x 47mm		

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTEC CM(R) 80 (1+1)

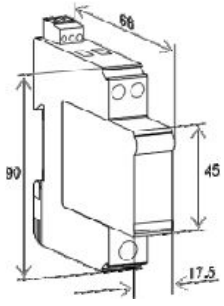
Class II Multi-pole Surge Protective Device
I_{max} = 40kA per pole (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TT
- **Protection modes:** L - N, N - PE
- **Protective element:** MOV and GDT
- **High surge discharge rating:** I_{max}= 40kA/40kA (MOV/GDT)
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

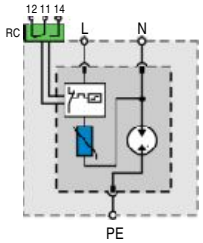
Technical data

Type			PROTEC CM(R) 80/xxx (1+1)				
			150	275	320	385	440
Electrical characteristics							
Max. continuous operating voltage (AC/DC)		U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)		I_n (L-N/N-PE)	15kA/20kA				
Max. discharge current (8/20)		I_{max} (L-N/N-PE)	40kA/40kA				
Protection level		U_p (L-N)	< 0.8kV	< 1.4kV	< 1.4kV	< 1.8kV	< 2.0kV
		U_p (N-PE)			< 1.5kV		
Follow current		I_f (N-PE)	100A_{RMS}				
Response time		t_A (L-N/N-PE)	< 25ns/<100ns				
Thermal protection			YES				
Back-up fuse (if mains > 125A)			100A gL				
Short-circuit withstand current			25kA/50Hz				
Mechanical characteristics							
Temperature range			- 40°C ....+ 80°C				
Terminal screw torque	Upper terminal		max. 2Nm				
	Lower terminal		max. 3.5Nm				
Terminal cross section	Upper terminal		6mm^2 (solid)/4mm^2 (stranded)				
	Lower terminal		35mm^2 (solid)/25mm^2 (stranded)				
Mounting EN 60715			35mm top-hat rail				
Degree of protection			IP 20				
Housing material			Thermoplastic; extinguishing degree UL 94 V-0				
Dimensions DIN 43880			1TE				
Weight per unit			124g	126g	126g	129g	130g
Ordering code **PROTEC CM 80/xxx (1+1)**			**508 045**	**508 047**	**508 049**	**508 117**	**508 051**
Remote contacts			YES				
Contact ratings			AC: 250V/0.5A; 125V/3A				
Terminal cross section			max. 1.5mm^2				
Remote terminal torque			0.25Nm				
Weight per unit			129g	131g	131g	134g	135g
Ordering code **PROTEC CMR 80/xxx (1+1)** - with remote contacts			**508 053**	**508 055**	**508 057**	**508 119**	**508 059**
Packaging dimensions (single unit)			108 x 74 x 24mm				
Ordering code **Module PROTEC CM(R) 80/xxx (1+1)**			**508 186**	**508 187**	**508 188**	**508 189**	**508 190**
Packaging dimensions (12 pcs.)			219 x 62 x 47mm				

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTEC CM(R) 80A (1+1)

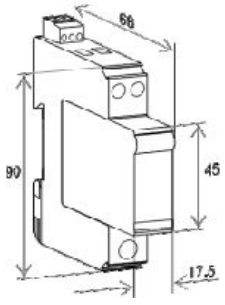
Class II Multi-pole Surge Protective Device
I_{max} = 40kA per pole (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TT
- **Protection modes:** L - N, N - PE
- **Protective element:** MOV and GDT
- **High surge discharge rating:** I_{max}= 40kA/40kA (MOV/GDT)
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

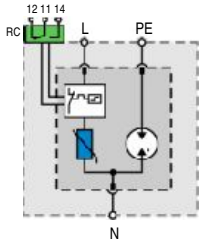
Technical data

Type			PROTEC CM(R) 80A/xxx (1+1)				
			150	275	320	385	440
Electrical characteristics							
Max. continuous operating voltage (AC/DC)		U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)		I_n (L-N/N-PE)	15kA/20kA				
Max. discharge current (8/20)		I_{max} (L-N/N-PE)	40kA/40kA				
Protection level		U_p (L-N)	< 0.8kV	< 1.4kV	< 1.4kV	< 1.8kV	< 2.0kV
		U_p (N-PE)			< 1.5kV		
Follow current		I_f (N-PE)	100A_{RMS}				
Response time		t_A (L-N/N-PE)	< 25ns/<100ns				
Thermal protection			YES				
Back-up fuse (if mains > 125A)			100A gL				
Short-circuit withstand current			25kA/50Hz				
Mechanical characteristics							
Temperature range			- 40°C ....+ 80°C				
Terminal screw torque	Upper terminal		max. 2Nm				
	Lower terminal		max. 3.5Nm				
Terminal cross section	Upper terminal		6mm^2 (solid)/4mm^2 (stranded)				
	Lower terminal		35mm^2 (solid)/25mm^2 (stranded)				
Mounting EN 60715			35mm top-hat rail				
Degree of protection			IP 20				
Housing material			Thermoplastic; extinguishing degree UL 94 V-0				
Dimensions DIN 43880			1TE				
Weight per unit			124g	126g	126g	129g	130g
Ordering code **PROTEC CM 80A/xxx (1+1)**			**508 120**	**508 122**	**508 124**	**508 126**	**508 128**
Remote contacts			YES				
Contact ratings			AC: 250V/0.5A; 125V/3A				
Terminal cross section			max. 1.5mm^2				
Remote terminal torque			0.25Nm				
Weight per unit			129g	131g	131g	134g	135g
Ordering code **PROTEC CMR 80A/xxx (1+1)** - with remote contacts			**508 130**	**508 132**	**508 134**	**508 136**	**508 138**
Packaging dimensions (single unit)			108 x 74 x 24mm				
Ordering code **Module PROTEC CM(R) 80A/xxx (1+1)**			**508 176**	**508 143**	**508 177**	**508 144**	**508 145**
Packaging dimensions (12 pcs.)			219 x 62 x 47mm				

Dimensions



Connection diagram

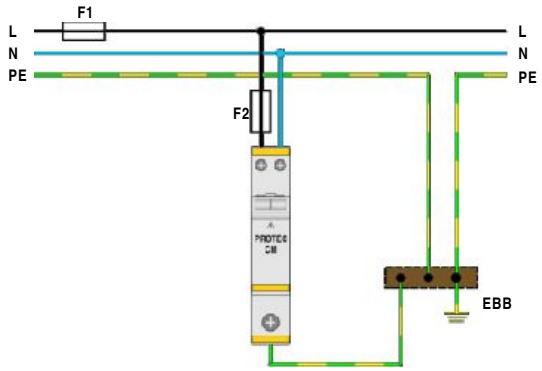


ISKRA ZAŠČITE

PROTEC CM(R) - Connections

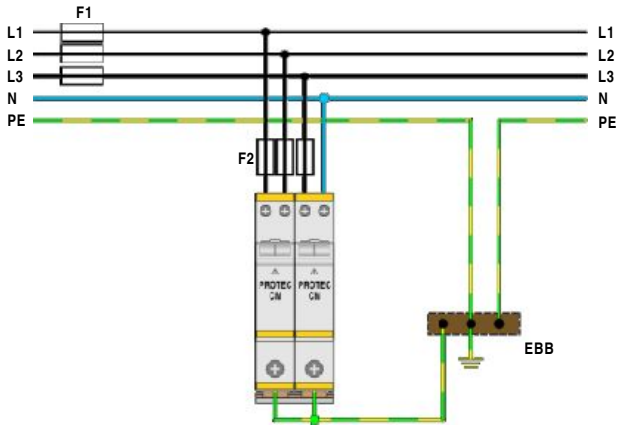
TN-S Network (Single-phase)

PROTEC CM 80 (2+0)



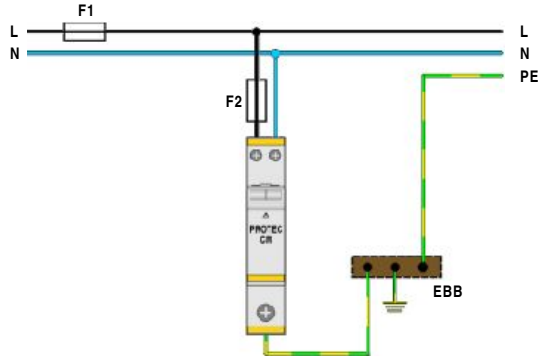
TN-S Network (Three-phase)

2x PROTEC CM 80 (2+0)



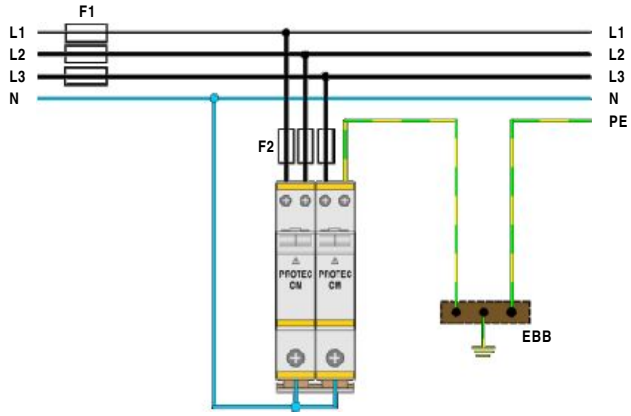
TT Network (Single-phase)

PROTEC CM 80 (1+1)



TT Network (Three-phase)

PROTEC CM 80 (2+0) + PROTEC CM 80A (1+1)



Modular SINGLE-POLE and MULTI-POLE Surge Protective Devices

Category IEC / EN / VDE:	**Class II / Type 2 / C**
Location of use:	**Branch Sub-distribution Boards**
Protection modes:	**L-PE, N-PE**
Protective elements:	**MOV and GDT**
Surge discharge ratings:	**I_{max} = up to 40kA per pole**
Internal protection and safety:	**Separate thermal disconnector for each MOV**
Status indication:	**Mechanical flag + remote contacts (R)**
Dimensions DIN 43880:	**1TE**

PROTEC CG(R) 40
PROTEC CG(R) 20

The PROTEC CG series of over-voltage surge protective devices has been developed to protect against indirect lightning discharges and induced voltages and is intended to provide protection in zones 1 - 2 per IEC 62305.

PROTEC CG consists of a high performance varistor blocks with thermal disconnection device in series with an encapsulated air gap to limit leakage current.

The plug-in module / base design facilitates replacement of a failed module in situ without the need to remove system wiring.

PROTEC CMG(R) 40 (2+0)

The PROTEC CMG series of over voltage surge protective devices has been developed to protect against indirect lightning discharges and induced voltages and is intended to provide protection in zones 1/2 as per IEC 62305.

It consists of a two high performance varistor blocks with thermal disconnection devices in series with an encapsulated air gap to limit leakage current. It provides both L-PE and N-PE protection modes.

The plug-in module / base design facilitates replacement of a failed module without the need to remove system wiring.

PROTEC CG(R) 40

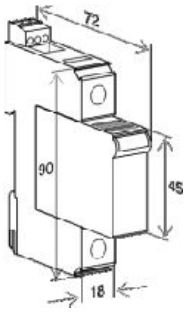
Class II Single-pole Surge Protective Device
I_{max} = 40kA (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TN-S, TN-C, IT, TT
- **Protection modes:** L/N - PE, L - PEN
- **Protective element:** MOV and GDT
- **High surge discharge rating:** I_{max}= 40kA
- **MOV max withstand capability 1 x 8/20:** 60kA per pole
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

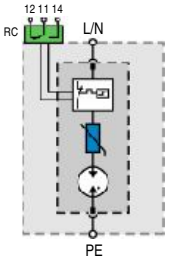
Technical data

Type		PROTEC CG(R) 40/xxx		
		150	275	385
Electrical characteristics				
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	385/500V
Nominal discharge current (8/20)	I_n		20kA	
Max. discharge current (8/20)	I_{max}		40kA	
Protection level	U_p	< 0.9kV	< 1.3kV	< 1.8kV
Follow current	I_f		NO	
Response time	t_A		< 100ns	
Thermal protection			YES	
Back-up fuse (if mains > 125A)			125A gL	
Short-circuit withstand current			25kA/50Hz	
Mechanical characteristics				
Temperature range			- 40°C ....+ 80°C	
Terminal screw torque			max. 4.5Nm	
Terminal cross section			35mm^2 (solid)/25mm^2 (stranded)	
Mounting EN 60715			35mm top-hat rail	
Degree of protection			IP 20	
Housing material			Thermoplastic; extinguishing degree UL 94 V-0	
Dimensions DIN 43880			1TE	
Weight per unit		112g	130g	132g
Ordering code **PROTEC CG 40/xxx**		**500 323**	**500 325**	**500 327**
Remote contacts			YES	
Contact ratings			AC: 250V/0.5A; 125V/3A	
Terminal cross section			max. 1.5mm^2	
Remote terminal torque			0.25Nm	
Weight per unit		117g	135g	137g
Ordering code **PROTEC CGR 40/xxx** - with remote contacts		**500 329**	**500 331**	**500 333**
Packaging dimensions (single unit)			108 x 74 x 24mm	
Ordering code **Module PROTEC CG(R) 40/xxx**		**500 484**	**500 485**	**500 486**
Packaging dimensions (12 pcs.)			219 x 62 x 47mm	

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTEC CG(R) 20

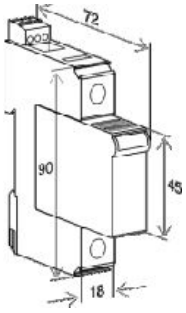
Class II Single-pole Surge Protective Device
I_{max} = 20kA (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TN-S, TN-C, TT, IT
- **Protection modes:** L/N - PE, L - PEN
- **Protective element:** MOV and GDT
- **High surge discharge rating:** I_{max}= 20kA
- **MOV max withstand capability 1 x 8/20:** 60kA per pole
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

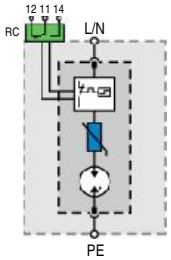
Technical data

Type		PROTEC CG(R) 20/xxx 150	275	385
Electrical characteristics				
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	385/500V
Nominal discharge current (8/20)	I_n		10kA	
Max. discharge current (8/20)	I_{max}		20kA	
Protection level	U_p	< 0.8kV	< 1.2kV	< 1.7kV
Follow current	I_f		NO	
Response time	t_A		< 100ns	
Thermal protection			YES	
Back-up fuse (if mains > 125A)			125A gL	
Short-circuit withstand current			25kA/50Hz	
Mechanical characteristics				
Temperature range			- 40°C ....+ 80°C	
Terminal screw torque			max. 4.5Nm	
Terminal cross section			35mm² (solid)/25mm² (stranded)	
Mounting EN 60715			35mm top-hat rail	
Degree of protection			IP 20	
Housing material			Thermoplastic; extinguishing degree UL 94 V-0	
Dimensions DIN 43880			1TE	
Weight per unit		112g	128g	130g
Ordering code **PROTEC CG 20/xxx**		**500 239**	**500 241**	**500 243**
Remote contacts			YES	
Contact ratings			AC: 250V/0.5A; 125V/3A	
Terminal cross section			max. 1.5mm²	
Remote terminal torque			0.25Nm	
Weight per unit		115g	133g	135g
Ordering code **PROTEC CGR 20/xxx** - with remote contacts		**500 245**	**500 247**	**500 249**
Packaging dimensions (single unit)			108 x 74 x 24mm	
Ordering code **Module PROTEC CG(R) 20/xxx**		**500 487**	**500 488**	**500 489**
Packaging dimensions (12 pcs.)			219 x 62 x 47mm	

Dimensions



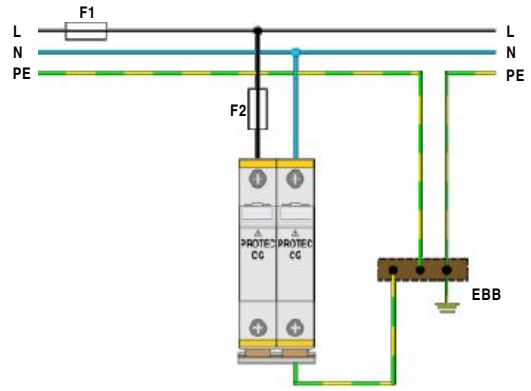
Connection diagram



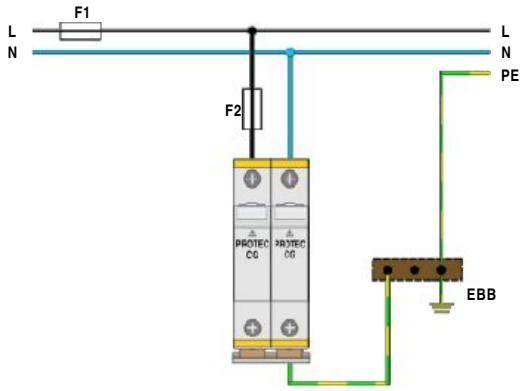
ISKRA ZAŠČITE

PROTEC CG(R) - Connections

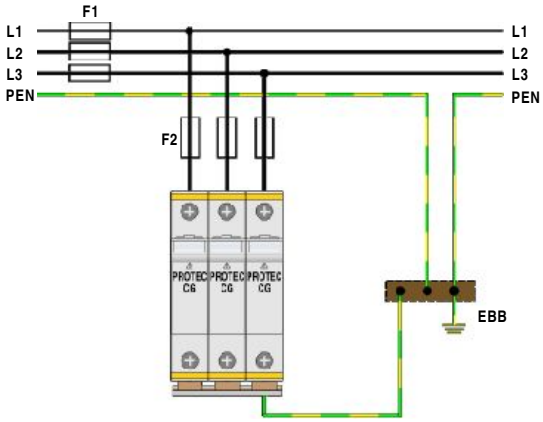
TN-S Network (Single-phase)



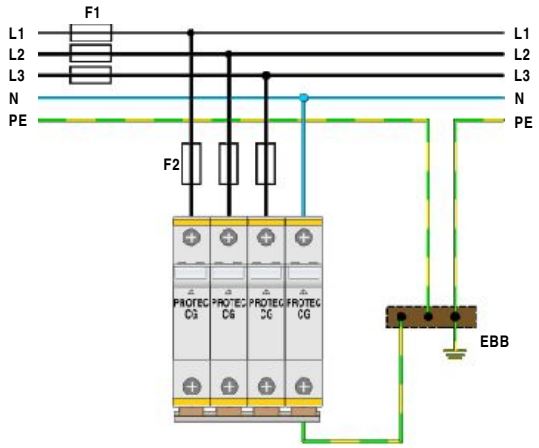
TT Network (Single-phase)



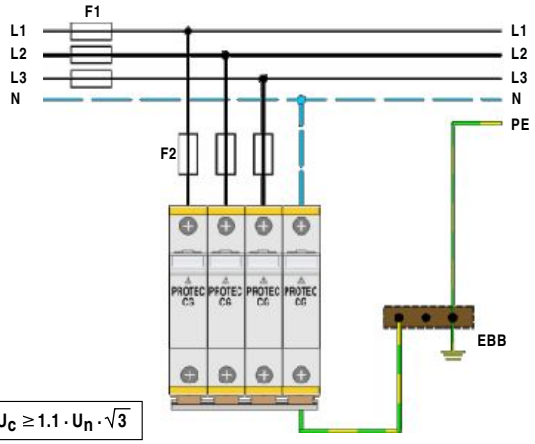
TN-C Network (Three-phase)



TN-S Network (Three-phase)

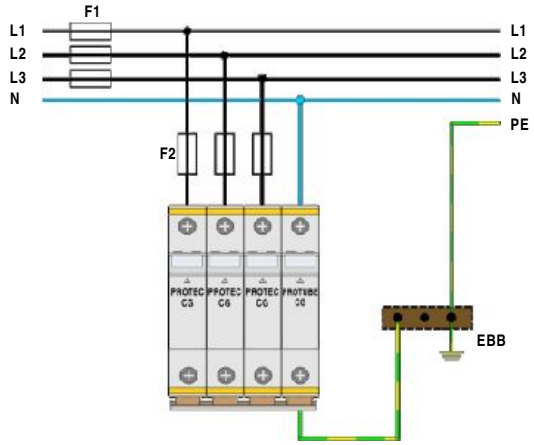


IT Network (Three-phase)



$U_C \geq 1.1 \cdot U_n \cdot \sqrt{3}$

TT Network (Three-phase)



PROTEC CMG(R) 40 (2+0)

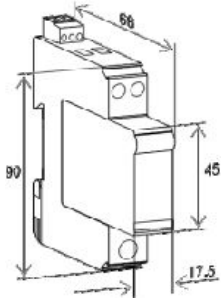
Class II Multi-pole Surge Protective Device
I_{max} = 20kA per pole (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TN-S, TT, IT
- **Protection modes:** L/N - PE, L - N
- **Protective element:** MOV and GDT
- **High surge discharge rating:** I_{max}= 20kA per pole
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

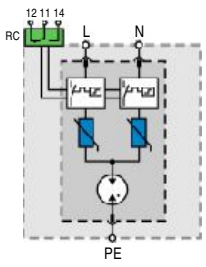
Technical data

Type		PROTEC CMG(R) 40/xxx (2+0) 150	275
Electrical characteristics			
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V
Nominal discharge current (8/20)	I_n (L/N-PE, L-N)	10kA per pole	
Max. discharge current (8/20)	I_{max} (L/N-PE, L-N)	20kA per pole	
Protection level	U_p (L/N-PE)	< 0.7kV	< 1.1kV
	U_p (L-N)	< 1.2kV	< 1.9kV
Residual voltage at 3kA (8/20)	U_{res} (L/N-PE)	< 0.5kV	< 0.8kV
	U_{res} (L-N)	< 0.8kV	< 1.4kV
Follow current	I_f	NO	
Response time	t_A (L/N-PE, L-N)	< 100ns/< 25ns	
Thermal protection		YES	
Back-up fuse (if mains > 125A)		125A gL	
Short-circuit withstand current		25kA/50Hz	
Mechanical characteristics			
Temperature range		- 40°C ....+ 80°C	
Terminal screw torque	Upper terminals	max. 2Nm	
	Lower terminal	max. 3.5Nm	
Terminal cross section	Upper terminals	6mm² (solid)/4mm² (stranded)	
	Lower terminal	35mm² (solid)/25mm² (stranded)	
Mounting EN 60715		35mm top-hat rail	
Degree of protection		IP 20	
Housing material		Thermoplastic; extinguishing degree UL 94 V-0	
Dimensions DIN 43880		1TE	
Weight per unit		130g	146g
Ordering code **PROTEC CMG 40/xxx (2+0)**		**508 197**	**508 198**
Remote contacts		YES	
Contact ratings		AC: 250V/0.5A; 125V/3A	
Terminal cross section		max. 1.5mm²	
Remote terminal torque		0.25Nm	
Weight per unit		135g	151g
Ordering code **PROTEC CMGR 40/xxx (2+0)** - with remote contacts		**508 199**	**508 200**
Packaging dimensions (single unit)		108 x 74 x 24mm	
Ordering code **Module PROTEC CMG(R) 40/xxx (2+0)**		**508 201**	**508 202**
Packaging dimensions (12 pcs.)		219 x 62 x 47mm	

Dimensions



Connection diagram



Modular and Compact SINGLE and MULTI-POLE Surge Protective Devices

Category IEC / EN / VDE:	**Class III / Type 3 / D**
Location of use:	**Branch Sub-distribution Boards**
Protection modes:	**L/N-PE**
Protective elements:	**MOV and GDT**
Surge discharge ratings:	**U_{OC}/I_{SC} = 10kV/5kA per pole (1.2/50, 8/20)**
Internal protection and safety:	**Separate thermal disconnector for each MOV**
Status indication:	**Mechanical flag + remote contacts (R)**
Dimensions DIN 43880:	**1TE**

PROTEC D(R) 10

The PROTEC D series of overvoltage surge protective devices has been developed to protect against indirect lightning discharges and induced voltages. It is intended to provide protection in zones 2 - 3 as per IEC 62305. The plug-in module / base design facilitate replacement of a failed module without the need to remove system wiring etc.

PROTEC D consists of a high performance varistor block with thermal disconnection device.

PROTEC DM(R) 20 (2+0)

PROTEC DM consists of two performance varistor blocks with thermal disconnection devices configured to provide multi-pole protection to L-PE and N-PE in one enclosure.

PROTEC DMG(R) 20 (2+0)

PROTEC DMG consists of two performance varistor blocks with thermal disconnection devices and galvanic isolation N to PE for TT single phase networks.

MPE-ZE50

MPE-ZE50 is similar in internal construction to the PROTEC DMG and is intended for inclusion in cable duct raceways. An LED indicator is provided for external visual indication of operating status.

MPE-MINI

MPE-MINI is designed to protect sensitive electronic equipment against surges. It is developed for installation into electrical installation systems, cable ducts and wiring sockets.

ZE 200 PS
VTC 10

VTC Series are designed to protect sensitive electronic equipment against surges. It is developed for mounting on printed circuit boards.

VTC is protective element MOV with thermal protection and decoupling device for remote signalisation of arrester failure.

PROFILT D

PROFILT series contains surge arresters and filter, which are serially connected. It consists of two VTCs, gas discharge tube (GDT) and filter. It is suitable for protection for sensitive electronic appliances.

PROTEC D(R) 10

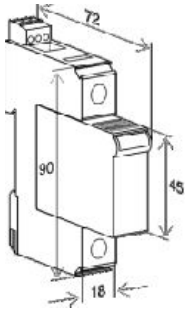
Class III Single-pole Surge Protective Device
U_{oc}/I_{sc} = 10kV/5kA (1.2/50, 8/20)

- **Category IEC / EN / VDE:** Class III / Type 3 / D
- **Location of use:** Branch sub-distribution boards
- **Connections:** TN-S, TN-C, IT
- **Protection modes:** L/N - PE
- **Protective element:** MOV
- **Surge discharge rating:** U_{oc}/I_{sc} = 10kV/5kA
- **MOV max withstand capability 1 x 8/20:** 20kA
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

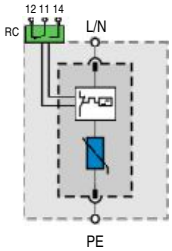
Technical data

Type		PROTEC D(R) 10/xxx				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Combination wave (1.2/50, 8/20)	U_{oc}/I_{sc}			10kV/5kA		
Max. discharge current (8/20)	I_{max}			10kA		
Protection level at U_{oc}/I_{sc}	U_p	< 0.8kV	< 1.2kV	< 1.2kV	< 1.6kV	< 2.0kV
Follow current	I_f			NO		
Response time	t_A			< 25ns		
Thermal protection				YES		
Back-up fuse (if mains > 63A)				125A gL		
Short-circuit withstand current				10kA/50Hz		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 4.5Nm		
Terminal cross section				35mm^2 (solid)/25mm^2 (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880				1TE		
Weight per unit		124g	130g	130g	131g	132g
Ordering code **PROTEC D 10/xxx**		**508 601**	**508 603**	**508 605**	**508 617**	**508 607**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm^2		
Remote terminal torque				0.25Nm		
Weight per unit		129g	135g	135g	136g	137g
Ordering code **PROTEC DR 10/xxx** - with remote contacts		**508 609**	**508 611**	**508 613**	**508 619**	**508 615**
Packaging dimensions (single unit)				108 x 74 x 24mm		
Ordering code **Module PROTEC D(R) 10/xxx**		**508 620**	**508 621**	**508 622**	**508 623**	**508 624**
Packaging dimensions (12 pcs.)				219 x 62 x 47mm		

Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTEC DM(R) 20 (2+0)

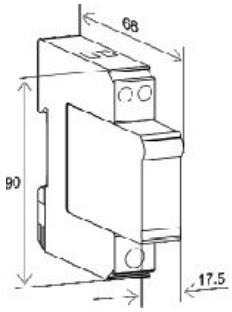
Class III Multi-pole Surge Protective Device
U_{OC}/I_{SC} = 10kV/5kA per pole (1.2/50, 8/20)

- **Category IEC / EN / VDE:** Class III / Type 3 / D
- **Location of use:** Branch sub-distribution boards
- **Connections:** TN-S, IT
- **Protection modes:** L/N - PE
- **Protective element:** MOV
- **Surge discharge rating:** U_{OC}/I_{SC} = 10kV/5kA per pole
- **MOV max withstand capability 1 x 8/20:** 20kA per pole
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

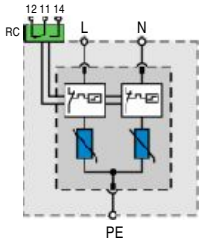
Technical data

Type			PROTEC DM(R) 20/xxx (2+0) 150	275	320	385	440
Electrical characteristics							
Max. continuous operating voltage (AC/DC)		U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Combination wave (1.2/50, 8/20)		U_{OC}/I_{SC}	10kV/5kA per pole				
Max. discharge current (8/20)		I_{max}	10kA per pole				
Protection level at U_{OC}/I_{SC}		U_p	< 0.8kV	< 1.2kV	< 1.2kV	< 1.6kV	< 2.0kV
Follow current		I_f	NO				
Response time		t_A	< 25ns				
Thermal protection			YES				
Back-up fuse (if mains > 63A)			63A gL				
Short-circuit withstand current			10kA/50Hz				
Mechanical characteristics							
Temperature range			- 40°C ....+ 80°C				
Terminal screw torque	Upper terminals		max. 2Nm				
	Lower terminal		max. 3.5Nm				
Terminal cross section	Upper terminals		6mm² (solid)/4mm² (stranded)				
	Lower terminal		35mm² (solid)/25mm² (stranded)				
Mounting EN 60715			35mm top-hat rail				
Degree of protection			IP 20				
Housing material			Thermoplastic; extinguishing degree UL 94 V-0				
Dimensions DIN 43880			1TE				
Weight per unit			136g	140g	150g	153g	155g
Ordering code **PROTEC DM 20/xxx (2+0)**			**508 029**	**508 031**	**508 033**	**508 113**	**508 035**
Remote contacts			YES				
Contact ratings			AC: 250V/0.5A; 125V/3A				
Terminal cross section			max. 1.5mm²				
Remote terminal torque			0.25Nm				
Weight per unit			141g	145g	155g	158g	160g
Ordering code **PROTEC DMR 20/xxx (2+0)** - with remote contacts			**508 037**	**508 039**	**508 041**	**508 115**	**508 043**
Packaging dimensions (single unit)			108 x 74 x 24mm				
Ordering code **Module PROTEC DM(R) 20/xxx (2+0)**			**508 191**	**508 192**	**508 193**	**508 194**	**508 195**
Packaging dimensions (12 pcs.)			219 x 62 x 47mm				

Dimensions



Connection diagram



PROTEC DMG(R) 20 (2+0)

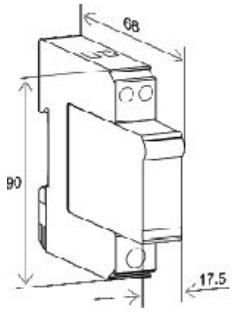
Class III Multi-pole Surge Protective Device
U_{oc}/I_{sc} = 10kV/5kA per pole (1.2/50, 8/20)

- **Category IEC / EN / VDE:** Class III / Type 3 / D
- **Location of use:** Branch sub-distribution boards
- **Connections:** TN - S, TT, IT
- **Protection modes:** L/N - PE
- **Protective element:** MOV and GDT
- **Surge discharge rating:** U_{oc}/I_{sc} = 10kV/5kA per pole
- **MOV max withstand capability 1 x 8/20:** 20kA per pole
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

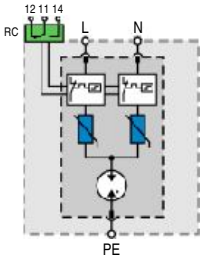
Technical data

Type		PROTEC DMG(R) 20/xxx (2+0) 320
Electrical characteristics		
Max. continuous operating voltage (AC/DC)	U_C	320/420V
Combination wave (1.2/50, 8/20)	U_{oc}/I_{sc}	10kV/5kA per pole
Max. discharge current (8/20)	I_{max}	10kA per pole
Protection level at U_{oc}/I_{sc}	U_p	< 1.0kV
Follow current	I_f	NO
Response time	t_A	< 100ns
Thermal protection		YES
Back-up fuse (if mains > 63A)		63A gL
Short-circuit withstand current		10kA/50Hz
Mechanical characteristics		
Temperature range		- 40°C ....+ 80°C
Terminal screw torque	Upper terminals	max. 2Nm
	Lower terminal	max. 3.5Nm
Terminal cross section	Upper terminals	6mm² (solid)/4mm² (stranded)
	Lower terminal	35mm² (solid)/25mm² (stranded)
Mounting EN 60715		35mm top-hat rail
Degree of protection		IP 20
Housing material		Thermoplastic; extinguishing degree UL 94 V-0
Dimensions DIN 43880		1TE
Weight per unit		118g
Ordering code **PROTEC DMG 20/xxx (2+0)**		**508 021**
Remote contacts		YES
Contact ratings		AC: 250V/0.5A; 125V/3A
Terminal cross section		max. 1.5mm²
Remote terminal torque		0.25Nm
Weight per unit		123g
Ordering code **PROTEC DMGR 20/xxx (2+0)** - with remote contacts		**508 027**
Packaging dimensions (single unit)		108 x 74 x 24mm
Ordering code **Module PROTEC DMG(R) 20/xxx (2+0)**		**508 196**
Packaging dimensions (12 pcs.)		219 x 62 x 47mm

Dimensions



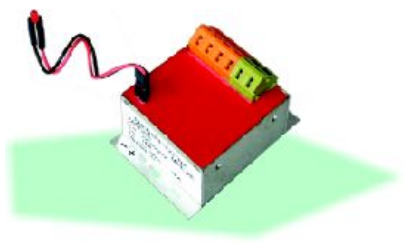
Connection diagram



ISKRA ZAŠČITE

MPE-ZE 50

Class III Multi-pole Surge Protective Device
U_{OC}/I_{SC} = 5kV/2.5kA per pole (1.2/50, 8/20)



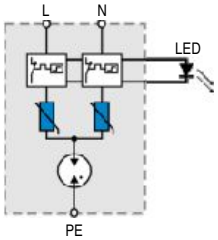
- **Category IEC / EN / VDE:** Class III / Type 3 / D
- **Location of use:** Cable ducts
- **Connections:** TN - S, TT, IT
- **Protection modes:** L/N - PE
- **Protective element:** MOV and GDT
- **Surge discharge rating:** U_{OC}/I_{SC} = 5kV/2.5kA per pole
- **Fault indication:** LED
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

Technical data

Type		MPE-ZE 50
Electrical characteristics		
Max. continuous operating voltage (AC/DC)	U_C	320/420V
Combination wave (1.2/50, 8/20)	U_{OC}/I_{SC}	5kV/2.5kA per pole
Max. discharge current (8/20)	I_{max}	5kA
Protection level at U_{OC}/I_{SC}	U_p	< 1.5kV
Follow current	I_f	NO
Response time	t_A	< 100ns
Thermal protection		YES
Back-up fuse (if mains > 35A)		25A gL
Short-circuit withstand current		10kA/50Hz
Mechanical characteristics		
Temperature range		- 40°C ....+ 80°C
Terminal cross section		2.5mm² (stranded)
Mounting		Cable ducts
Degree of protection		IP 20
Housing material		Thin plate (metal)
Dimensions		/
Weight per unit		52g
Ordering code **MPE-ZE 50**		**121 207**
Packaging dimensions (single unit)		

Dimensions

Connection diagram



MPE-MINI

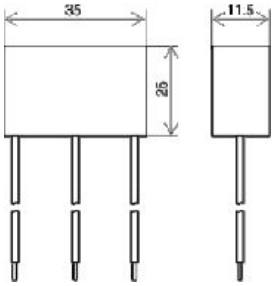
Class III Multi-pole Surge Protective Device
U_{OC}/I_{SC} = 6kV/3kA per pole (1.2/50, 8/20)

- **Category IEC / EN / VDE:** Class III / Type 3 / D
- **Location of use:** Cable ducts, wiring sockets
- **Connections:** TN - S, TT, IT
- **Protection modes:** L/N - PE
- **Protective element:** MOV and GDT
- **Surge discharge rating:** U_{OC}/I_{SC} = 6kV/3kA per pole
- **Fault indication:** Buzzer
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

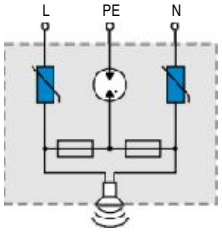
Technical data

Type		MPE-MINI
Electrical characteristics		
Max. continuous operating voltage (AC/DC)	U_C	275V/50Hz
Combination wave (1.2/50, 8/20)	U_{OC}/I_{SC}	6kV/3kA per pole
Protection level at U_{OC}/I_{SC}	U_p	< 0.8kV
Follow current	I_f	NO
Response time	t_A	< 100ns
Thermal protection		YES
Back-up fuse (if mains > 16A)		16A gL
Mechanical characteristics		
Temperature range		- 40°C ....+ 80°C
Terminal cross section		1.5mm² (stranded)
Mounting		Cable ducts
Degree of protection		IP 20
Housing material		Thermoplastic
Dimensions		/
Weight per unit		52g
Ordering code **MPE-ZE 50**		**121 501**
Packaging dimensions (single unit)		

Dimensions



Connection diagram



ZE 200 PS

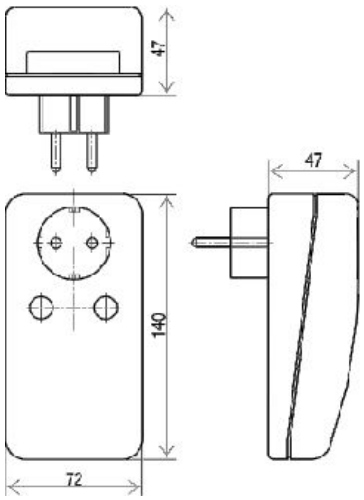
Class III Multi-pole Surge Protective Device
U_{OC}/I_{SC} = 6kV/3kA per pole (1.2/50, 8/20)

- **Category IEC / EN / VDE:** Class III / Type 3 / D
- **Location of use:** Power socket
- **Connections:** TN-S, IT, TT
- **Protection modes:** L(N) - PE, L - N
- **Protective element:** MOV and GDT
- **Surge discharge rating:** U_{OC}/I_{SC} = 6kV/3kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

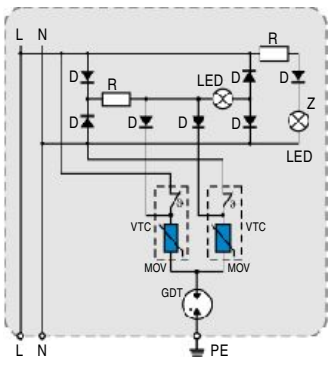
Technical data

Type		ZE 200 PS
Electrical characteristics		
Max. permitted voltage	U_C	275V/50Hz
Rated voltage	U_n	230V/50Hz
Combination wave (1.2/50, 8/20)	U_{OC}/I_{SC}	6kV/3kA
Protection level at U_{OC}/I_{SC}	U_p	< 1000V (L - N) < 1500V (L(N) - PE)
Response time	t_A	< 25ns (L - N) < 100ns (L(N) - PE)
Back-up fuse (if mains /)		16A gL, C 16A
Mechanical characteristics		
Temperature range		- 25°C ....+ 60°C
Connection		DIN 49 440-CE(7)III DIN 49 441-CEE(7)IV Grounding contact
Controlling device		Green and red light
Degree of protection		IP 20
Housing material		Thermoplastic; extinguishing degree UL 94 V-0
Weight per unit		/
Ordering code **ZE 200 PS**		**121 532**
Packaging dimensions		95 x 150 x 80mm

Dimensions

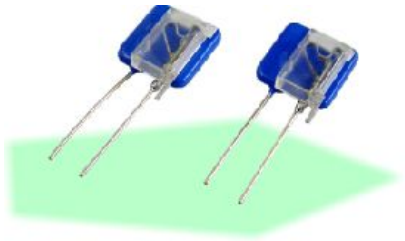


Connection diagram



VTC 10

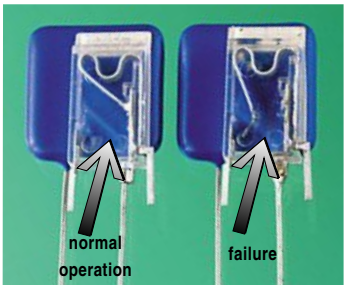
Class III Single-pole Surge Protective Device
U_{OC}/I_{SC} = 10kV/5kA (1.2/50, 8/20)



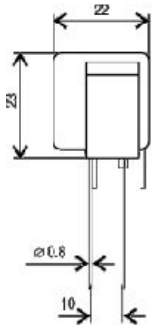
- **Category IEC / EN / VDE:** Class III / Type 3 / D
- **Location of use:** PCB
- **Connections:** TN-S, TN-C, IT
- **Protection modes:** L/N - PE
- **Protective element:** MOV
- **Surge discharge rating:** U_{OC}/I_{SC} = 10kV/5kA
- **MOV max withstand capability 1 x 8/20:** 15kA
- **Complies with:** IEC-61643-1

Technical data

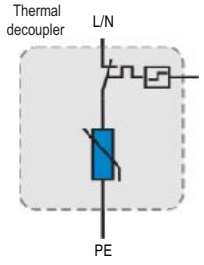
Type		VTC 10			
		150	275	320	440
Electrical characteristics					
Max. continuous operating voltage (AC)	U_C	150V	275V	320V	440V
Combination wave (1.2/50, 8/20)	U_{OC}/I_{SC}	10kV/5kA			
Max. discharge current (8/20)	I_{max}	10kA			
Protection level at U_{OC}/I_{SC}	U_p	< 0.9kV	< 1.4kV	< 1.6kV	< 1.8kV
Follow current	I_f	NO			
Response time	t_A	< 25ns			
Thermal protection		YES			
Mechanical characteristics					
Temperature range		- 40°C ....+ 80°C			
Mounting		On printed circuit board			
Degree of protection		IP 20			
Housing material		Thermoplastic, extinguishing degree Ul94 V-O			
Weight per unit		6g	8g	12g	16g
Ordering code **VTC 10**		**122 646**	**122 636**	**509 313**	**122 808**
Packaging dimensions (single unit)					



Dimensions



Connection diagram



PROFILT D

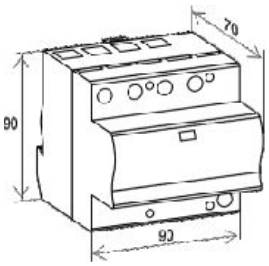
Class III Multi-pole Surge Protective Device
U_{OC}/I_{SC} = 6kV/3kA (1.2/50, 8/20)

- **Category IEC / EN / VDE:** Class III / Type 3 / D
- **Location of use:** Sub-distribution boards
- **Connections:** TN-S, TT, IT
- **Protection modes:** L/N - PE
- **Protective element:** MOV, GDT and filter
- **Surge discharge rating:** U_{OC}/I_{SC} = 6kV/3kA
- **Fault indication:** Red light
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

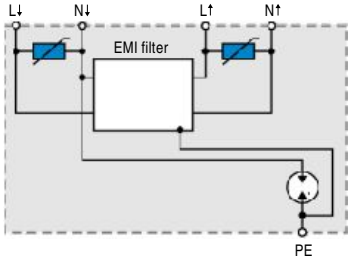
Technical data

Type		PROFILT D			
		10A	16A	25A	30A
Electrical characteristics					
Max. continuous operating voltage (AC/DC)	U_C	275V/50 (60) Hz			
Nominal voltage	U_n	230V/50 (60) Hz			
Max. load current	I_L	10A	16A	25A	30A
Combination wave (1.2/50, 8/20)	U_{OC}/I_{SC}	6kV/3kA			
Voltage protection level at U_{OC}/I_{SC}	U_p (L-N)	< 0.85kV			
	U_p (L-PE)	< 1.4kV			
Residual voltage at I_n	U_{res} (L-N)	< 0.83kV			
	U_{res} (L-PE)	< 1.38kV			
Follow current	I_f	NO			
Thermal protection		YES			
Filter					
	Cx	2 x 0.47µF			
	Cy	2 x 2.2nF			
	L	2 x 0.8mF			
Mechanical characteristics					
Temperature range		- 40°C ....+ 80°C			
Terminal screw torque		max. 4.5Nm			
Terminal cross section		35mm² (solid)/25mm² (stranded)			
Mounting EN 60715		35mm top-hat rail			
Degree of protection		IP 20			
Housing material		Thermoplastic; extinguishing degree UL 94 V-0			
Dimensions DIN 43880		5TE			
Weight per unit		420g			
Ordering code **PROFILT D**		**130 051**	**130 052**	**130 053**	**130 050**
Packaging dimensions (single unit)		108 x 76.5 x 96mm			

Dimensions



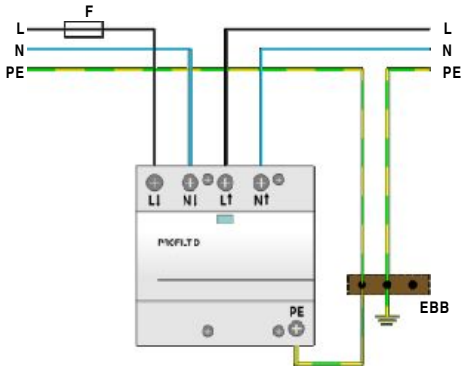
Connection diagram



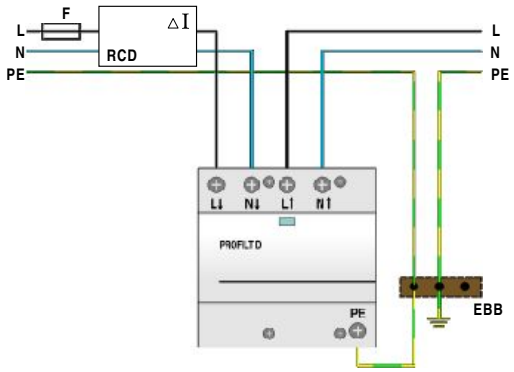
ISKRA ZAŠČITE

PROFILT D - Connections

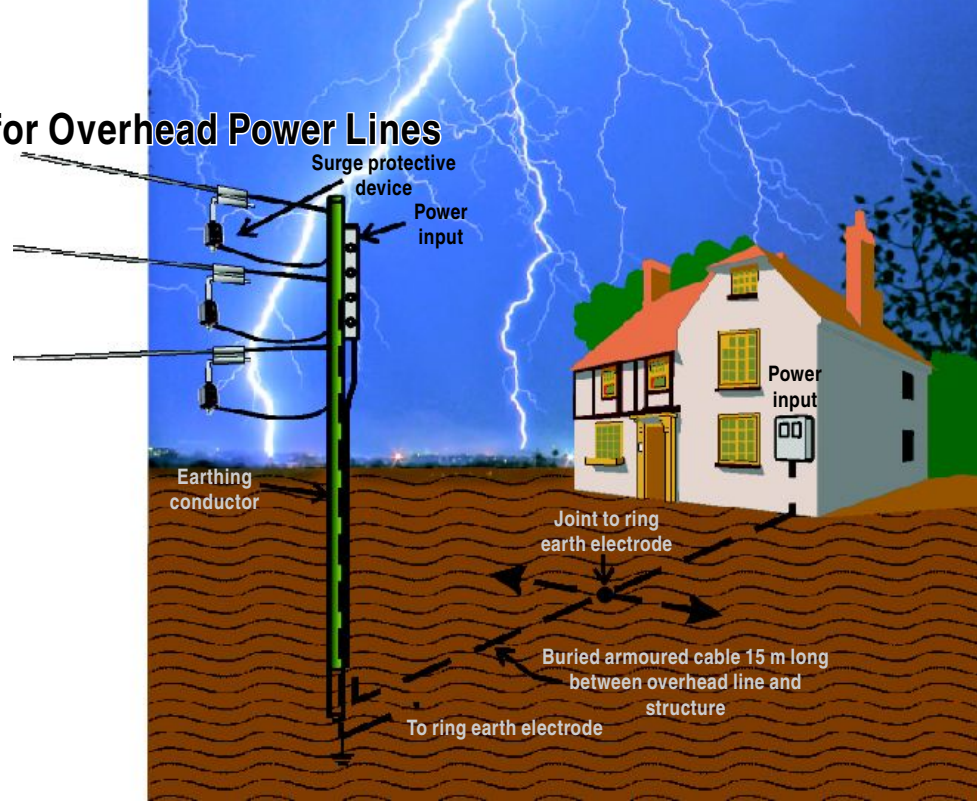
TN-S Network



TT Network



Surge Protective Devices for Overhead Power Lines



Category IEC / EN / VDE:	**Class II / Type 2 / A**
Location of use:	**Overhead power lines**
Protection modes:	**L/N-PE**
Protective elements:	**MOV**
Surge discharge ratings:	**I_{max} = 40kA**
Internal protection and safety:	**Thermal disconnector for MOV**

PROTEC AQ 40
PROTEC AQS 40
PROTEC A 30
PROTEC AQ 25

The PROTEC A series of overvoltage surge protective devices has been developed to protect against indirect lightning discharges on overhead power lines. It consists of a high performance varistor block with disconnection device which protects against short circuit conditions.

PROTEC A - provides visual status indication via a bright RED pop-out flag in the event of failure which can easily been seen from beneath the line.

PROTEC AQ - provides a more compact design.

PROTEC AQS - provides the same compactness as the AQ but with a silicon jacket for greater hermetic sealing properties.

PROTEC AQ 40

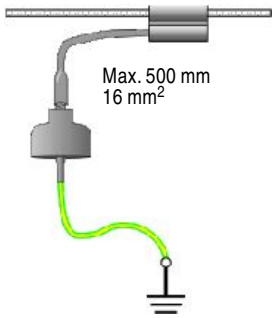
Class II Single-pole Surge Protective Device
I_{max} = 40kA (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / A
- **Location of use:** Overhead power lines
- **Connections:** TN-C, TN-S, IT
- **Protection modes:** L/N - PE
- **Protective element:** MOV
- **High surge discharge rating:** I_{max}= 40kA
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

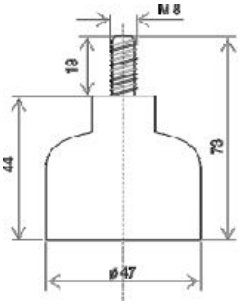
Technical data

Type		PROTEC AQ 40/xxx				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_c	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n			20kA		
Max. discharge current (8/20)	I_{max}			40kA		
Protection level	U_p	< 1.2kV	< 1.7kV	< 1.8kV	< 2.1kV	< 2.3kV
Follow current	I_f			NO		
Response time	t_A			< 25ns		
Thermal protection				YES		
Back-up fuse				NO		
Short-circuit withstand current				25kA/50Hz		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 3.5Nm		
Terminal cross section	L/N			M8		
	PE			6mm^2 (stranded)		
Mounting				Outdoors		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions				/		
Weight per unit		144g	146g	149g	154g	157g
Ordering code **PROTEC AQ 40/xxx**		**509 029**	**509 031**	**509 033**	**509 047**	**509 035**
Packaging dimensions (60 pcs.)				290 x 250 x 210mm		

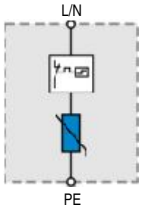
Mounting



Dimensions



Connection diagram



PROTEC AQS 40

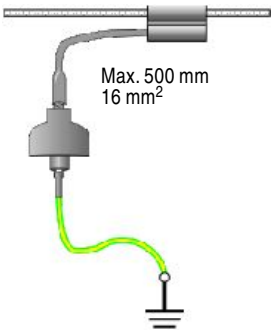
Class II Single-pole Surge Protective Device
I_{max} = 40kA (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / A
- **Location of use:** Overhead power lines
- **Connections:** TN-C, TN-S, IT
- **Protection modes:** L/N - PE
- **Protective element:** MOV
- **High surge discharge rating:** I_{max}= 40kA
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

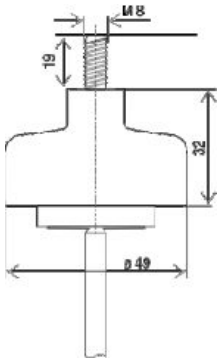
Technical data

Type		PROTEC AQS 40/xxx			
		150	275	320	440
Electrical characteristics					
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	440/580V
Nominal discharge current (8/20)	I_n	20kA			
Max. discharge current (8/20)	I_{max}	40kA			
Protection level	U_p	< 0.9kV	< 1.4kV	< 1.4kV	< 2.0kV
Follow current	I_f	NO			
Response time	t_A	< 25ns			
Thermal protection		YES			
Back-up fuse		NO			
Short-circuit withstand current		25kA/50Hz			
Mechanical characteristics					
Temperature range		- 40°C ....+ 80°C			
Terminal screw torque		max. 3.5Nm			
Terminal cross section	L/N	M8			
	PE	6mm^2 (stranded)			
Mounting		Outdoors			
Degree of protection		IP 67			
Housing material		Silicon			
Dimensions		/			
Weight per unit		122g	126g	130g	134g
Ordering code **PROTEC AQS 40/xxx**		**509 049**	**509 051**	**509 053**	**509 055**
Packaging dimensions (100 pcs.)		382 x 349 x 250mm			

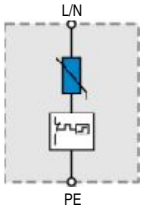
Mounting



Dimensions



Connection diagram



ISKRA ZAŠČITE

PROTEC A 30

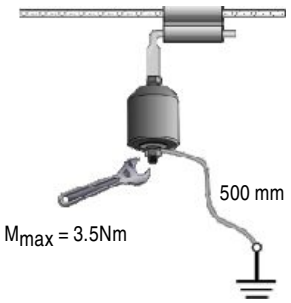
Class II Single-pole Surge Protective Device
I_{max} = 30kA (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / A
- **Location of use:** Overhead power lines
- **Connections:** TN-C, TN-S, IT
- **Protection modes:** L/N - PE
- **Protective element:** MOV
- **High surge discharge rating:** I_{max}= 30kA
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

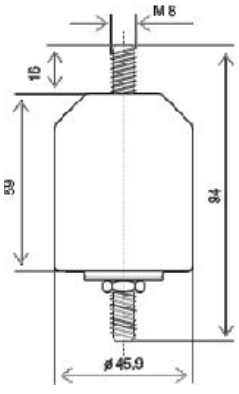
Technical data

Type		PROTEC A 30/xxx				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n			15kA		
Max. discharge current (8/20)	I_{max}			30kA		
Protection level	U_p	< 1.0kV	< 1.3kV	< 1.5kV	< 1.6kV	< 1.8kV
Follow current	I_f			NO		
Response time	t_A			< 25ns		
Thermal protection				YES		
Back-up fuse				NO		
Short-circuit withstand current				25kA/50Hz		
Mechanical characteristics						
Temperature range				- 40°C ....+ 80°C		
Terminal screw torque				max. 3.5Nm		
Terminal cross section	L/N			M8		
	PE			6mm^2 (stranded)		
Mounting				Outdoors		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Dimensions				/		
Weight per unit		132g	134g	137g	142g	145g
Ordering code **PROTEC A 30/xxx**		**509 009**	**509 011**	**509 013**	**509 043**	**509 015**
Packaging dimensions (single unit)				105 x 54 x 50mm		

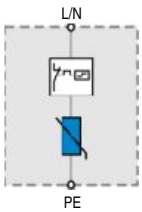
Mounting



Dimensions



Connection diagram



PROTEC AQ 25

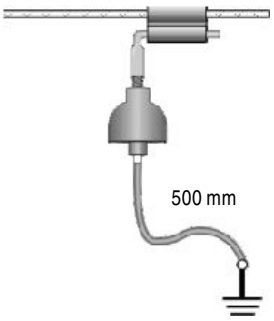
Class II Single-pole Surge Protective Device
I_{max} = 25kA (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / A
- **Location of use:** Overhead power lines
- **Connections:** TN-C, TN-S, IT
- **Protection modes:** L/N - PE
- **Protective element:** MOV
- **High surge discharge rating:** I_{max}= 25kA
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

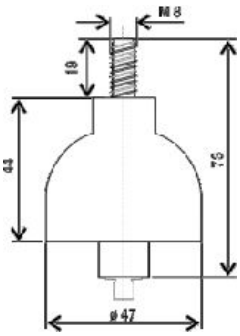
Technical data

Type		PROTEC AQ 25/xxx				
		150	275	320	385	440
Electrical characteristics						
Max. continuous operating voltage (AC/DC)	U_C	150/200V	275/350V	320/420V	385/500V	440/580V
Nominal discharge current (8/20)	I_n	10kA				
Max. discharge current (8/20)	I_{max}	25kA				
Protection level	U_p	< 0.9kV	< 1.3kV	< 1.4kV	< 1.7kV	< 1.9kV
Follow current	I_f	NO				
Response time	t_A	< 25ns				
Thermal protection		YES				
Back-up fuse		NO				
Short-circuit withstand current		25kA/50Hz				
Mechanical characteristics						
Temperature range		- 40°C ....+ 80°C				
Terminal screw torque		max. 3.5Nm				
Terminal cross section	L/N	M8				
	PE	6mm^2 (stranded)				
Mounting		Outdoors				
Degree of protection		IP 20				
Housing material		Thermoplastic; extinguishing degree UL 94 V-0				
Dimensions		/				
Weight per unit		104g	106g	108g	110g	112g
Ordering code **PROTEC AQ 25/xxx**		**509 017**	**509 019**	**509 021**	**509 045**	**509 023**
Packaging dimensions (60 pcs.)		295 x 245 x 210mm				

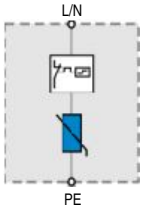
Mounting



Dimensions

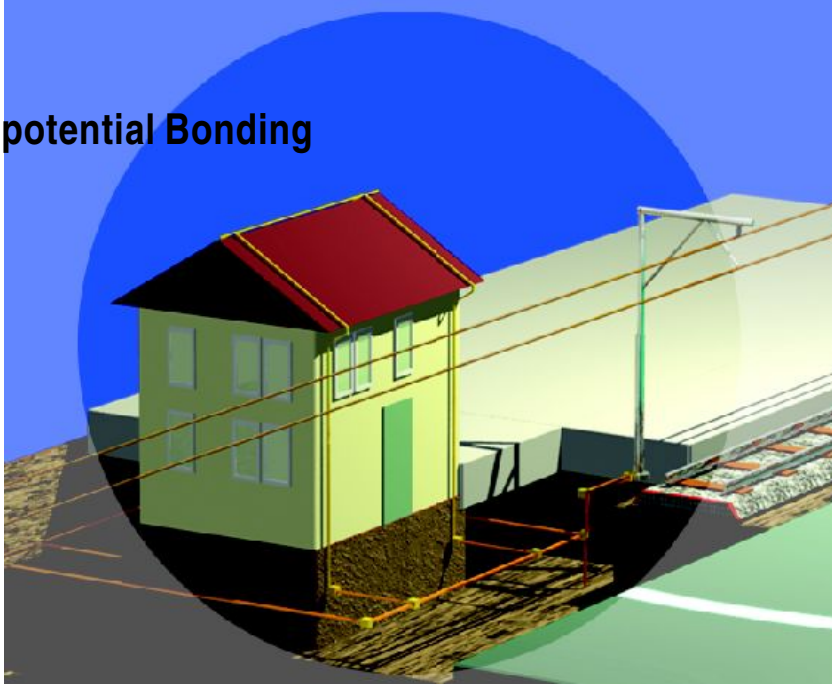


Connection diagram



ISKRA ZAŠČITE

Isolating Spark Gaps (ISG) for Equipotential Bonding



Location of use:	**Exposed environments or direct burial**
Protective element:	**GDT**
High surge discharge rating:	**I_{max}= 100kA**
Housing:	**Corrosion resistant enclosure with hermetic environmental seal and flying leads for ease of connection**
Complies with:	**IEC-61643-1**

EPZ 100
EPZ 100 Ex

The EPZ series of isolating spark gaps have been developed to prevent unsafe potential gradients from establishing between adjacent metallic structures or surfaces during lightning discharges. This is achieved by an internal voltage switching component which operates to establish equi-potential equalisation when its predetermined spark-over voltage is reached, thereby preventing damage to equipment or eliminating unsafe conditions to personnel.

The EPZ has been developed for use in applications such as: lightning protection grounding, where for instance circumstances may dictate that a “clean” signal ground can not be directly connected to a “dirty” power system ground. It has also found wide application in the petrochemical industry in the protection of oil and gas pipeline insulating flanges from flash-overs during direct or nearby lightning discharges or when ground faults of nearby power transmission lines can cause large potential gradients across these flanges. The EPZ is available in a hermetically sealed version for direct burial applications. It is also available with Baseefa Ex approval certificate for use in hazardous locations.

These devices have been developed to meet the requirements EN 50164-3 Lightning Protection Components (LPC) - Requirements for Isolating Spark Gaps, and the soon to be released standard IEC 62561-3 Ed. 1.0 - Requirements for Lightning Protection Components (LPC) - Part 3: Requirements for isolating spark gaps.

EPZ 100

Equipotential bonding
I_{max} = 100kA (8/20)

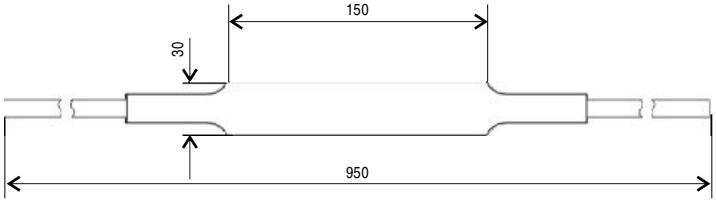
- **Location of use:** Exposed environments or direct burial
- **Protective element:** GDT
- **High surge discharge rating:** I_{max}= 100kA
- **Housing:** Corrosion resistant enclosure with hermetic environmental seal and flying leads for ease of connection
- **Complies with:** IEC-61643-1

Technical data

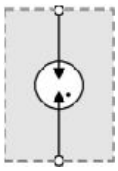
Type		EPZ 100/xxx 350	500
Electrical Characteristics			
DC sparkover voltage (100V/s)	U_{ss}	350V	500V
Impulse sparkover voltage (1 kV/µs)	U_{sd}	1000V	1500V
Max. Discharge current (8/20 µs)	I_{max}	100kA	100kA
Capacitance at 1MHz	C	< 10pf	
Insulation resistance at 100V_{DC}	R	> 1GΩ	
Dimensions			
Nom. outer diameter		28mm	
Nom. length		140mm	
Length with cables		1m approx.	
Cable			
Cross sectional area		16mm^2	
Length		450mm approx.	
Number of conductors		≥ 462/0.21	
Insulation		Double insulated	
Environmental protection		UV stabilised, flame retardant	
Resistant		Acids, solvents and oils	
Connection		Suitable for screw or lug termination	
Physicals			
Housing		IP 67	
Application		Below / above grade	
Weight		0.5kg approx.	
Operating temperature		- 40°C ... + 80°C	
LIMITATIONS			
Connections		Electrical connections must be terminated in a suitably certified enclosure or safe area	
Service temperature range		- 30°C ... + 70°C	
Ordering code		**509 509**	**509 511**

Mounting

Dimensions



Connection diagram



EPZ 100 Ex

Equipotential bonding
I_{max} = 100kA (8/20)

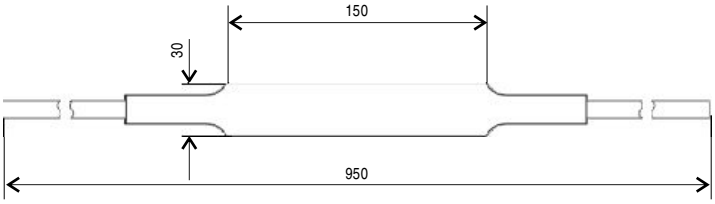
- **Location of use:** Exposed environments or direct burial
- **Protective element:** GDT
- **High surge discharge rating:** I_{max}= 100kA
- **Housing:** Corrosion resistant enclosure with hermetic environmental seal and flying leads for ease of connection
- **Complies with:** IEC-61643-1

Technical data

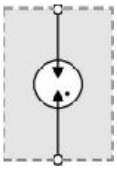
Type		EPZ 100 Ex/xx x	
		350	500
Electrical Characteristics			
DC sparkover voltage (100V/s)	U_{ss}	350V	500V
Impulse sparkover voltage (1 kV/µs)	U_{sd}	1000V	1500V
Max. Discharge current (8/20 µs)	I_{max}	100kA	100kA
Capacitance at 1MHz	C	< 10pf	
Insulation resistance at 100V_{DC}	R	> 1GΩ	
Dimensions			
Nom. outer diameter		28mm	
Nom. length		140mm	
Length with cables		1m approx.	
Cable			
Cross sectional area		16mm^2	
Length		450mm approx.	
Number of conductors		≥ 462/0.21	
Insulation		Double insulated	
Environmental protection		UV stabilised, flame retardant	
Resistant		Acids, solvents and oils	
Connection		Suitable for screw or lug termination	
Physicals			
Housing		IP 67	
Application		Below / above grade	
Weight		0.5kg approx.	
Operating temperature		- 40°C ... + 80°C	
LIMITATIONS			
Connections		Electrical connections must be terminated in a suitably certified enclosure or safe area	
Service temperature range		- 30°C ... + 70°C	
Ordering code		322 973	**322 975**

Mounting

Dimensions



Connection diagram



ISKRA ZAŠČITE

MULTI-POLE Surge Protective Devices for PHOTOVOLTAIC SYSTEMS

Category IEC / EN / VDE:	**Class I; II /Type 1; 2 / B; C**
Location of use:	**Photovoltaic system - PV module side**
Protection modes:	**(+) - PE, (-) - PE**
Protective elements:	**High energy MOV**
High surge discharge ratings:	**Iimp = 12.5kA per pole; Imax = 40kA per pole**
Internal protection and safety:	**Separate thermal disconnector for each MOV**
Status indication:	**Mechanical flag + remote contacts (R)**
Dimensions DIN 43880:	**4TE, 2TE, 3TE**

PV PROTEC BS(R) 12.5

The PV PROTEC series of overvoltage surge protective devices has been developed to protect Photovoltaic systems against partial direct and indirect lightning discharges and is intended for installation between the photovoltaic panels and DC-AC inverter.

PV PROTEC BS 12.5 - Provides common mode protection and consists of two high performance varistor stages protected by thermal disconnection devices. A unique indicator monitors all disconnectors and brings up a common status flag if any one stage should fail. The use of parallel terminal connection allow both 'T' and 'V' type wiring connections to be made.

SAFETEC C(R) 40 PV
PV PROTEC C(R) 40

SAFETEC C PV and PV PROTEC C series are intended to provide protection in zones 1 - 2 per IEC 62305 for induced surges and is intended to be used in conjunction with the PV PROTEC BS series. Again, a unique indicator monitors all disconnectors and brings up a common status flag if any one stage should fail, while the plug-in module / base design facilitates replacement of a failed module in situ without the need to remove system wiring.

PV PROTEC BS(R) 12.5

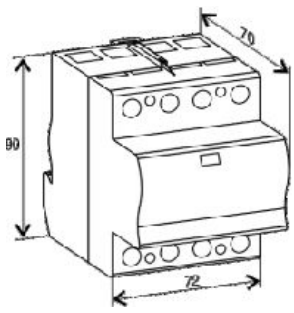
Class I, II Surge Protective Device for PV System
I_{imp} = 12.5kA per pole (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B
- **Location of use:** Photovoltaic system - PV module side
- **Protection modes:** (+) - PE, (-) - PE
- **Protective element:** High Energy MOV
- **High surge discharge rating:** I_{imp}= 12.5kA per pole
- **Housing:** Compact design
- **Complies with:** IEC-61643-1, UTE C 61-740-51

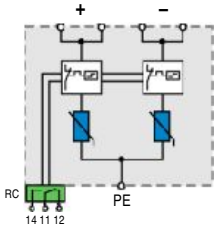
Technical data

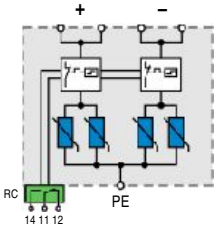
Type		PV PROTEC BS(R) 12.5/xxxx 550	PV PROTEC BS(R) 12.5/xxxx 1000
Electrical characteristics			
Max. continuous operating voltage (DC)	U_c	550V	1000V
Nominal discharge current (8/20)	I_n	20kA per pole	
Max. discharge current (8/20)	I_{max}	40kA per pole	
Impulse current (10/350)	I_{imp}	12.5kA per pole	
Specific energy		39kJ/Ω	
Charge		6.25As	
Protection level	U_p	< 1.75kV	< 2.6kV
Residual voltage at I_{imp}	U_{res}	< 1.45kV	< 2.2kV
Follow current	I_f	NO	
Response time	t_A	< 25ns	
Thermal protection		YES	
Mechanical characteristics			
Temperature range		- 40°C ....+ 80°C	
Terminal screw torque		max. 4.5Nm	
Terminal cross section		35mm² (solid)/25mm² (stranded)	
Mounting EN 60715		35mm top-hat rail	
Degree of protection		IP 20	
Housing material		Thermoplastic; extinguishing degree UL 94 V-0	
Dimensions DIN 43880		4TE	
Weight per unit		370g	578g
Ordering code **PV PROTEC BS 12.5/xxxx**		**501 507**	**501 541**
Remote contacts		YES	
Contact ratings		AC: 250V/0.5A; 125V/3A	
Terminal cross section		max. 1.5mm²	
Remote terminal torque		0.25Nm	
Weight per unit		375g	583g
Ordering code **PV PROTEC BSR 12.5/xxxx** - with remote contacts		**501 517**	**501 545**
Packaging dimensions (single unit)		109 x 76.5 x 78mm	

Dimensions



Connection diagram





SAFETEC C(R) 40 PV

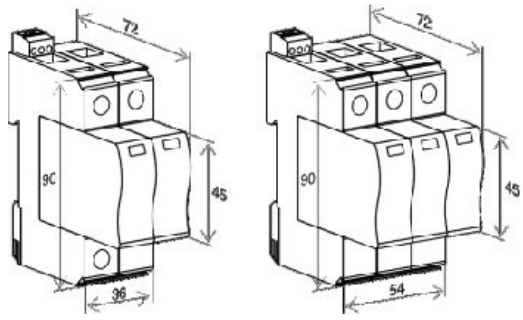
Class II Multi-pole Surge Protective Device for PV System
I_{max} = 40kA (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Protection modes:** ((+)+(-) - PE, (+) - PE/(-) - PE
- **Protective element:** MOV
- **High surge discharge rating:** I_{max}= 40kA
- **Housing:** Modular design
- **Complies with:** IEC-61643-1, UTE C 61-740-51

Technical data

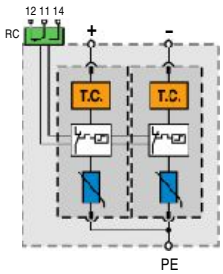
Type		SAFETEC C(R) 40/xxxx PV				
		75	300	600	1000	1200
Electrical characteristics						
Max. continuous operating voltage (DC)	U_C	75V	300V	600V	1000V	1200V
Nominal discharge current (8/20)	I_n (+) - PE/(-) - PE)	20kA	20kA	20kA	12.5kA	20kA
	I_n ((+)+(-) - PE)	40kA	40kA	40kA	25kA	20kA
Max. discharge current (8/20)	I_{max} (+) - PE/(-) - PE)	40kA	40kA	40kA	25kA	40kA
	I_{max} ((+)+(-) - PE)	80kA	80kA	80kA	50kA	40kA
Protection level	U_p	< 0.6kV	< 1.6kV	< 2.2kV	< 2.8kV	< 4.4kV
Follow current	I_f			NO		
Response time	t_A			< 25ns		
Thermal protection				YES		
Mechanical characteristics						
Terminal screw torque				max. 3.5Nm		
Temperature range				- 40°C .... + 80°C		
Terminal cross section				35mm² (solid) / 25mm² (stranded)		
Mounting EN 60715				35mm top-hat rail		
Degree of protection				IP 20		
Housing material				thermoplastic; extinguishing degree UL 94 V-0		
Dimensions DIN 43880		2TE	2TE	2TE	2TE	3TE
Weight per unit						
Ordering code **SAFETEC C 40/xxxx PV**		**516 040**	**516 042**	**516 044**	**516 046**	**516 048**
Remote contacts				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm²		
Remote terminal torque				0.25Nm		
Weight per unit						
Ordering code **SAFETEC C(R) 40/xxxx PV** (with remote contacts)		**516 041**	**516 043**	**516 045**	**516 047**	**516 049**
Packaging dimensions (single unit)			109 x 76,5 x 41.5mm			109 x 76,5 x 60mm
Ordering code **Module SAFETEC C(R) 40/xxxx PV**		**516 050**	**516 051**	**516 052**	**516 053**	**516 054**
Packaging dimensions (12 pcs.)				219 x 62 x 47mm		

Dimensions

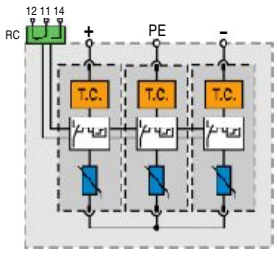


Connection diagram

SAFETEC CR 40/75 - 1000 PV



SAFETEC CR 40/1200 PV



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PV PROTEC C(R) 40

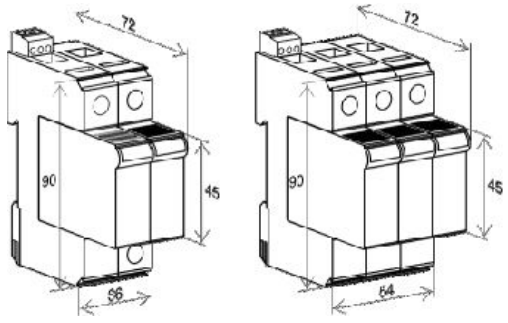
Class II Surge Protective Devices for PV System
I_{max} = 40kA per pole (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Protection modes:** (+) - PE, (-) - PE
- **Protective element:** High Energy MOV
- **High surge discharge rating:** I_{max}= 40kA per pole
- **Housing:** Modular design
- **Complies with:** IEC-61643-1, UTE C 61-740-51

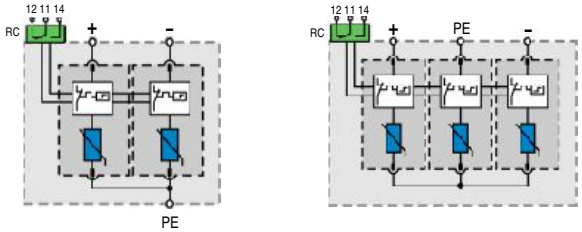
Technical data

Type		PV PROTEC C(R) 40/xxxx		
		100	550	1000
Electrical characteristics				
Max. continuous operating voltage (DC)	U_c	100V	550V	1000V
Nominal discharge current (8/20)	I_n		20kA per pole	
Max. discharge current (8/20)	I_{max}		40kA per pole	
Protection level	U_p	< 0.7kV	< 1.9kV	< 3.65kV
Follow current	I_f		NO	
Response time	t_A		< 25ns	
Thermal protection			YES	
Mechanical characteristics				
Temperature range			- 40°C ....+ 80°C	
Terminal screw torque			max. 4.5Nm	
Terminal cross section			35mm² (solid)/25mm² (stranded)	
Mounting EN 60715			35mm top-hat rail	
Degree of protection			IP 20	
Housing material			Thermoplastic; extinguishing degree UL 94 V-0	
Dimensions DIN 43880		2TE	2TE	3TE
Weight per unit		274g	302g	398g
Ordering code **PV PROTEC C 40/xxxx**		**501 521**	**501 527**	**501 543**
Remote contacts			YES	
Contact ratings			AC: 250V/0.5A; 125V/3A	
Terminal cross section			max. 1.5mm²	
Remote terminal torque			0.25Nm	
Weight per unit		279g	307g	403g
Ordering code **PV PROTEC CR 40/xxxx** - with remote contacts		**501 531**	**501 537**	**501 547**
Packaging dimensions (single unit)		109 x 76.5 x 41.5mm		109 x 76.5 x 60mm
Ordering code **Module PV PROTEC CR 40/xxxx** - with remote contacts		**500 496**	**500 497**	**500 498**
Packaging dimensions (12 pcs.)			219 x 62 x 47mm	

Dimensions

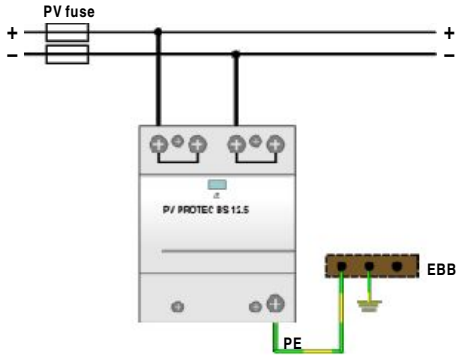


Connection diagram

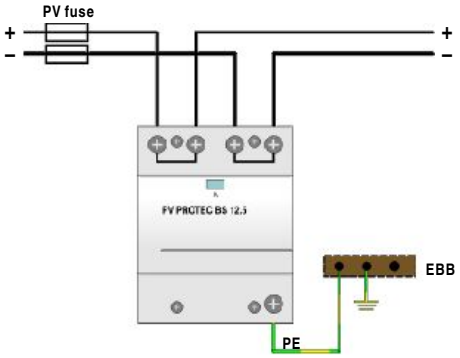


PV PROTEC BS(R), PV PROTEC C(R), SAFETEC C(R) PV - Connections

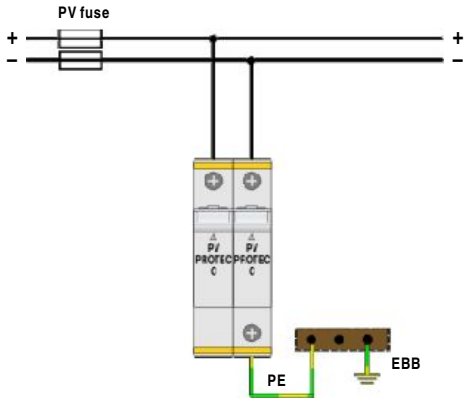
PV PROTEC BS(R) (T-connection)



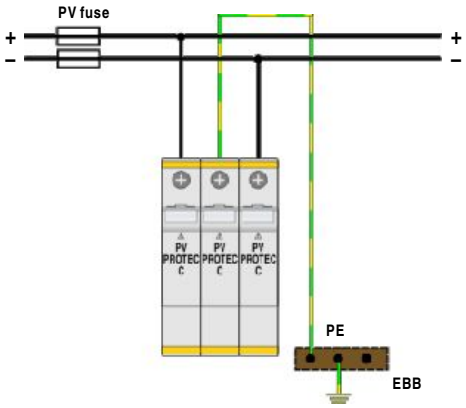
PV PROTEC BS(R) (V-connection)



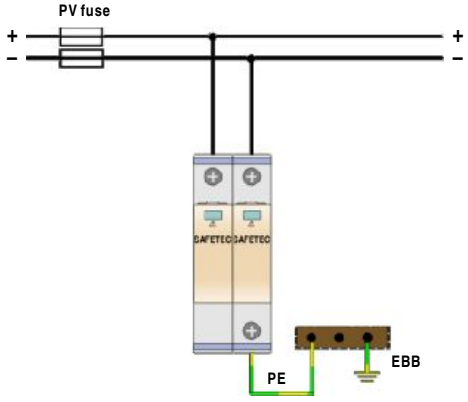
PV PROTEC C(R) 40/100, 40/550



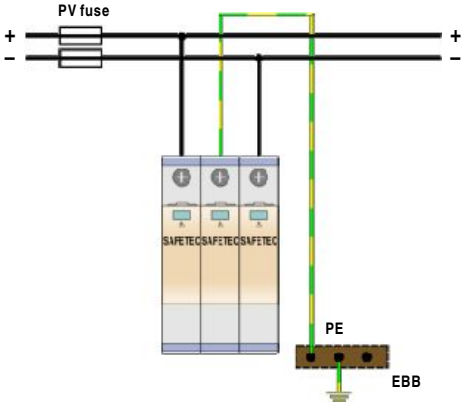
PV PROTEC C(R) 40/1000



SAFETEC C (R) 40/75 - 40/1000



SAFETEC C (R) 40/1200 PV



PV fuse selection

String fuses of solar array are selected according to the nominal current of photovoltaic module, multiplied by 1.4. The closest, higher value of the fuse should be selected.

Voltage withstand of fuses should be higher than the open circuit voltage of the solar array, multiplied by 1.2.

We recommend to use the fuses, that were specially designed for photovoltaic systems.

MULTI-POLE Surge Protective Devices for WIND GENERATION SYSTEMS

Category IEC / EN / VDE:	**Class I, II; II /Type 1, 2; 2 / B+C; C**
Location of use:	**Main distribution board**
Protection modes:	**L/N - PE**
Protective elements:	**MOV**
Surge discharge ratings:	**Iimp= up to 25kA;**
	Imax= 40kA
Internal protection and safety:	**Separate thermal disconnector for each MOV**
Status indication:	**Mechanical flag + remote contacts (R)**
Dimensions DIN 43880:	**3TE, 4TE**

WT PROTEC BS(R) 25
WT PROTEC BS(R) 12.5

The WT PROTEC series has been developed to meet the growing needs of wind generation facilities where exposure to direct and indirect lightning discharges is well known problem, primarily due to the often exposed location of such facilities e.g. on hill tops and open land topography.

Units are available in a range of surge ratings per recommendation in IEC 62305 such as Iimp 25kA and 12.5kA test class I, and Imax 40kA test class II.

SAFETEC C(R) 750 (3+0) WT

SAFETEC C(R) WT - Is intended to provide protection in zones 1 - 2 per IEC 62305 for induced surges and is intended to be used in conjunction with the WT PROTEC BS(R) series.

The new SAFETEC series of surge protective devices (SPDs) provide:

- **Protection from overvoltages, surge and transients on the system network**
- **Protection against loss of neutral, or loose neutral connections, which are common to MEN (Multiple earthed neutral) systems**
- **Unstable or poorly regulated power networks where sustained overvoltages for some minutes or longer may exist**
- **Patented TC technology prevent catastrophic failures in case of TOV (temporary overvoltages)**

WT PROTEC BS(R) 25

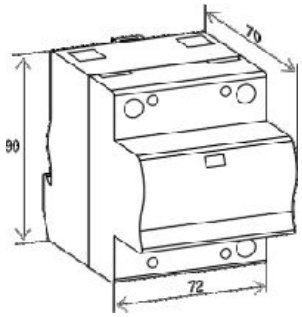
Class I, II Single-pole Surge Protective Devices
I_{imp} = 25kA (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Protection modes:** L/N - PE
- **Protective element:** High Energy MOV
- **High surge discharge rating:** I_{imp}= 25kA
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

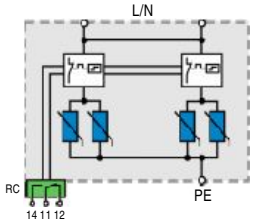
Technical data

Type		WT PROTEC BS(R) 25/750
Electrical characteristics		
Max. continuous operating voltage (AC/DC)	U_C	750/1000V
Nominal discharge current (8/20)	I_n	40kA
Max. discharge current (8/20)	I_{max}	80kA
Impulse current (10/350)	I_{imp}	25kA
Specific energy		156kJ/Ω
Charge		12.5As
Protection level	U_p	< 2.5kV
Residual voltage at I_{imp}	U_{res}	< 2.0kV
Follow current	I_f	NO
Response time	t_A	< 25ns
Thermal protection		YES
Back-up fuse (if mains > 250A)		250A gL
Short-circuit withstand current		25kA/50Hz
Mechanical characteristics		
Temperature range		- 40°C ....+ 80°C
Terminal screw torque		max. 4.5Nm
Terminal cross section		35mm² (solid)/25mm² (stranded)
Mounting EN 60715		35mm top-hat rail
Degree of protection		IP 20
Housing material		Thermoplastic; extinguishing degree UL 94 V-0
Dimensions DIN 43880		4TE
Weight per unit		494g
Ordering code **WT PROTEC BS 25/750**		**502 310**
Remote contacts		YES
Contact ratings		AC: 250V/0.5A; 125V/3A
Terminal cross section		max. 1.5mm²
Remote terminal torque		0.25Nm
Weight per unit		499g
Ordering code **WT PROTEC BSR 25/750** - with remote contacts		**502 311**
Packaging dimensions (single unit)		109 x 76.5 x 78mm

Dimensions



Connection diagram



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WT PROTEC BS(R) 12.5

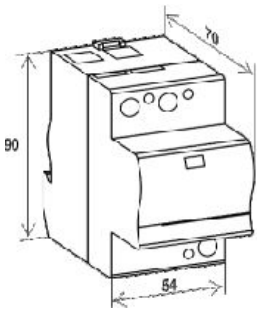
Class I, II Single-pole Surge Protective Devices
I_{imp} = 12.5kA (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** Main distribution boards
- **Protection modes:** L/N - PE
- **Protective element:** High Energy MOV
- **High surge discharge rating:** I_{imp}= 12.5kA
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

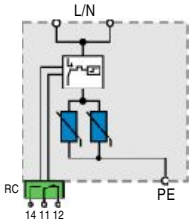
Technical data

Type		WT PROTEC BS(R) 12.5/750
Electrical characteristics		
Max. continuous operating voltage (AC/DC)	U_C	750/1000V
Nominal discharge current (8/20)	I_n	20kA
Max. discharge current (8/20)	I_{max}	40kA
Impulse current (10/350)	I_{imp}	12.5kA
Specific energy		39kJ/Ω
Charge		6.25As
Protection level	U_p	< 2.5kV
Residual voltage at I_{imp}	U_{res}	< 2.0kV
Follow current	I_f	NO
Response time	t_A	< 25ns
Thermal protection		YES
Back-up fuse (if mains > 250A)		250A gL
Short-circuit withstand current		25kA/50Hz
Mechanical characteristics		
Temperature range		- 40°C ....+ 80°C
Terminal screw torque		max. 4.5Nm
Terminal cross section		35mm^2 (solid)/25mm^2 (stranded)
Mounting EN 60715		35mm top-hat rail
Degree of protection		IP 20
Housing material		Thermoplastic; extinguishing degree UL 94 V-0
Dimensions DIN 43880		3TE
Weight per unit		319g
Ordering code **WT PROTEC BS 12.5/750**		**502 312**
Remote contacts		YES
Contact ratings		AC: 250V/0.5A; 125V/3A
Terminal cross section		max. 1.5mm^2
Remote terminal torque		0.25Nm
Weight per unit		324g
Ordering code **WT PROTEC BSR 12.5/750** - with remote contacts		**502 313**
Packaging dimensions (single unit)		109 x 76.5 x 60mm

Dimensions



Connection diagram



SAFETEC C(R) 750 (3+0) WT

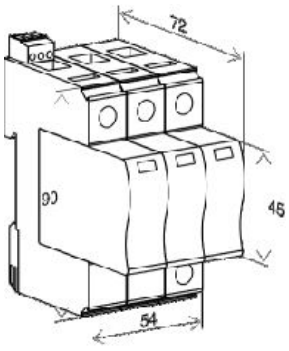
Class II Multi-pole Surge Protective Devices
I_{max} = 25kA per pole (8/20)

- **Category IEC / EN / VDE:** Class II / Type 2 / C
- **Location of use:** Branch sub-distribution boards
- **Connections:** TN-C
- **Protection modes:** L - PEN
- **Protective element:** MOV
- **High surge discharge rating:** I_{max}= 25kA per pole
- **Safety:** Immunity against TOV
- **Housing:** Modular design
- **Complies with:** IEC-61643-1

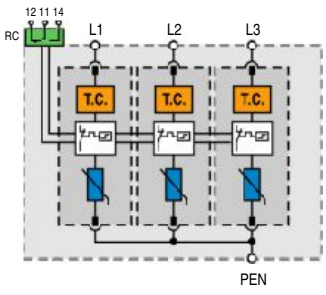
Technical data

Type		SAFETEC C(R) 750 (3+0) WT
Electrical characteristics		
Max. continuous operating voltage (AC/DC)	U_C	750/1000V
Nominal discharge current (8/20)	I_n (L-PEN/L1+L2+L3-PEN)	12.5kA per pole/37.5kA
Max. discharge current (8/20)	I_{max} (L-PEN/L1+L2+L3-PEN)	25kA per pole/75kA
Protection level	U_p	< 2.8kV
Follow current	I_f	NO
Response time	t_A	< 25ns
Thermal protection		YES
Short-circuit withstand current		25kA/50Hz
Mechanical characteristics		
Temperature range		- 40°C ....+ 80°C
Terminal screw torque		max. 4.5Nm
Terminal cross section		35mm^2 (solid)/25mm^2 (stranded)
Mounting EN 60715		35mm top-hat rail
Degree of protection		IP 20
Housing material		Thermoplastic; extinguishing degree UL 94 V-0
Dimensions DIN 43880		3TE
Weight per unit		364g
Ordering code **SAFETEC C 750 (3+0) WT**		**516 055**
Remote contacts		YES
Contact ratings		AC: 250V/0.5A; 125V/3A
Terminal cross section		max. 1.5mm^2
Remote terminal torque		0.25Nm
Weight per unit		369g
Ordering code **SAFETEC CR 750 (3+0) WT** - with remote contacts		**516 056**
Packaging dimensions (single unit)		109 x 76.5 x 60mm
Ordering code **Module SAFETEC C(R) 750 (3+0) WT** - with remote contacts		**516 057**
Packaging dimensions (12 pcs.)		219 x 62 x 47mm

Dimensions

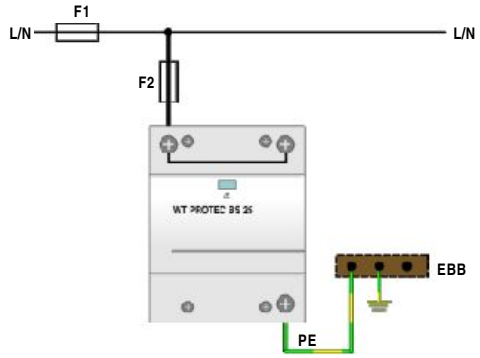


Connection diagram

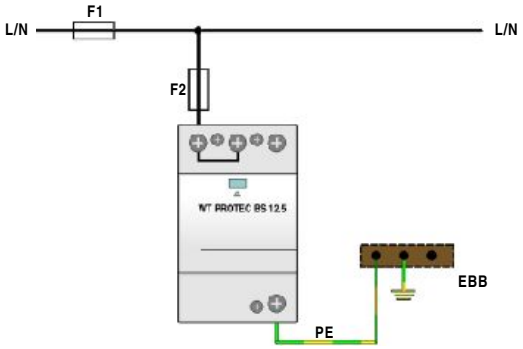


WT PROTEC BS(R), SAFETEC C(R) 750 (3+0) WT - Connections

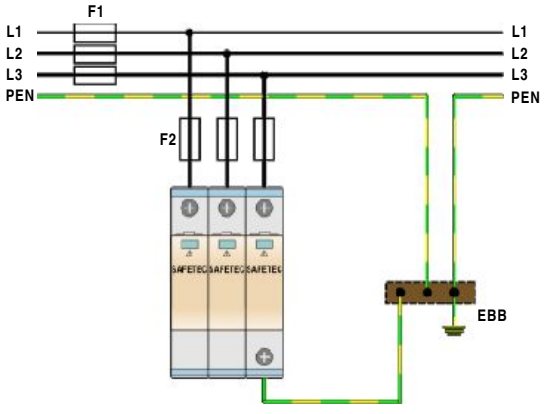
WT PROTEC BS(R) 25



WT PROTEC BS(R) 12.5



SAFETEC C(R) 750 (3+0) WT



Power Quality Surge Protection Solutions

PROFILT PSF Series

Profilt PSF contains overvoltage protection Class I and II, a special low-pass filter and overcurrent protection. In addition, Profilt PSF will reduce the voltage rise rate dU/dt and thus contrubute to a longer service life of electronic components of the protected device. Profilt PSF is the right protection for extremely sensitive devices exposed to electric discharges and transient voltages.

PBS Box Series
PBL Box Series
PB Box Series

Overvoltage protection devices PBS-D20, PBL-D40 or PB-D40 for electric appliances and equipment with sensitive electronic components. PBS-D20, PBL-D40 or PB-D40 are installed directly before the protected component, when Class I and II overvoltage protection is already provided in the building.

Overvoltage protection devices PBS-C80 , PBL-C160 or PB-C160 for electrical appliances and equipment. If only overvoltage protection Class I is installed, and the supply leads to individual appliances or to the distribution board are very long, the voltage rises again. To protect the equipment, a unit PBS-C80, PBL-C160 ali PB-C160 is installed before the protected device.

All multi-functional overvoltage protection solutions are integrated in moisture and water-resistant enclosures (IP 65).

PCD Box

PCD Box is used to ensure safe operation and to provide greater flexibility and expandability in configuration of photovoltaic systems.

PCD Box offers complete solution for the protection of DC side of photovoltaic systems, as it is equipped with fuses and surge arrester. Another function of the product is to connect separate strings of photovoltaic array in parallel which enables easy setup of the photovoltaic system configuration.

To ensure safe mainteinance of the inverter the product is equipped with disconnecting switch.

The polycarbonate enclosure with transparent cover is rated for oudoor installations and offers superb temperature and impact resistance.

The design solution minimizes the number of components, resulting in the most robust, easy to install and reliable product.

ProAlyser

SPD Status Monitoring / Network Power Analysis

PROFILT PSF

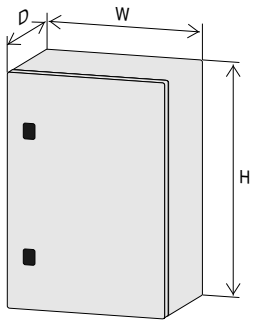
Class I, II Multi-pole Surge and Transient Protective Device
I_{imp} = 25kA (10/350)

- **Category IEC / EN / VDE:** Class I, II / Type 1, 2 / B+C
- **Location of use:** The point of entry to the building, as close as possible to a protected device
- **Connections:** TT, TN
- **Protection modes:** L/N - PE
- **Protective element:** SPD Class I, Surge Filter, SPD Class II
- **High surge discharge rating:** I_{imp}= 25kA
- **Housing:** Steel Enclosure
- **Complies with:** IEC-61643-1

Technical data

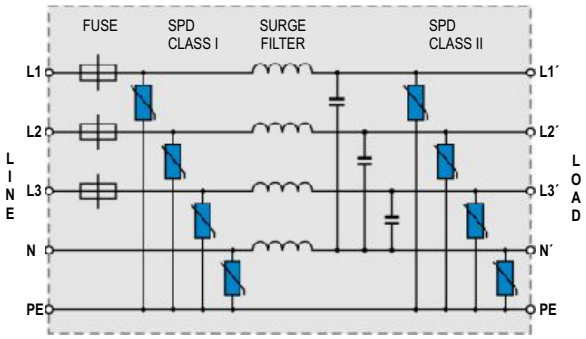
Type		PROFILT PSF					
		3/35TN	3/63TN	3/125TN	3/35TT	3/63TT	3/125TT
Electrical characteristics							
Max. continuous operating voltage (AC/DC)	U_C	275V/50Hz					
Nominal voltage	U_O	230V/50Hz					
Max. load current	I_L	35A	63A	125A	35A	63A	125A
Nominal discharge current (8/20)	I_n (L-PE)	25kA					
Max. discharge current (8/20)	I_{max} (L-PE)	100kA					
Impulse current (10/350)	I_{imp} (L-PE)	25kA					
Voltage protection level 25kA (8/20)	U_p (L-PE)	< 1.08kV	< 1.08kV	< 1.08kV	< 0.72kV	< 0.72kV	< 0.72kV
Max. Voltage drop	ΔU	< 1%					
Mechanical characteristics							
Temperature range		- 20°C ....+ 40°C					
Terminal cross section		6mm²	16mm²	35mm²	6mm²	16mm²	35mm²
Degree of protection		IP 65					
Housing material		Steel enclosure					
Housing dimensions (cm) W x H x D		40 x 50 x 21	40 x 60 x 21	60 x 80 x 21	40 x 50 x 21	40 x 60 x 21	60 x 80 x 21
Ordering code **PROFILT PSF x/xxxxx**		**130 040**	**130 041**	**130 042**	**130 043**	**130 044**	**130 045**

Dimensions

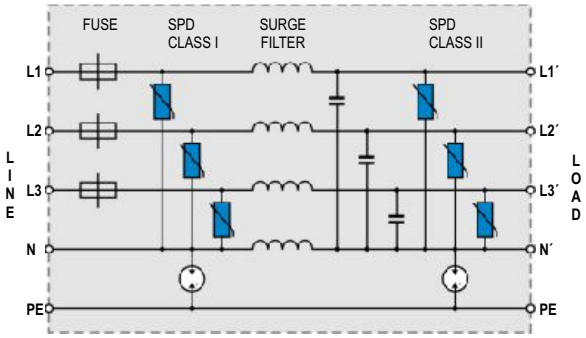


Connection diagram

TN Network

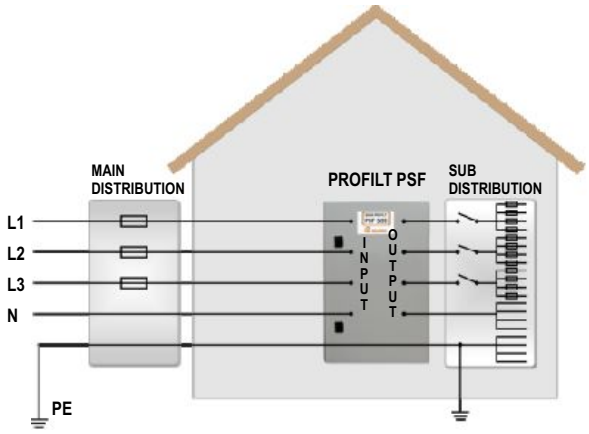


TT Network

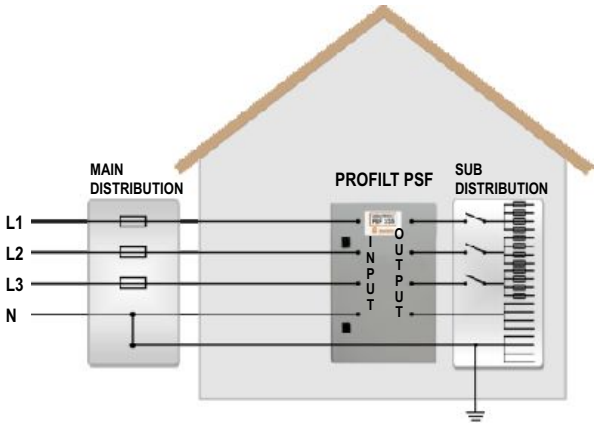


PROFILT PSF - Connections

TT Network

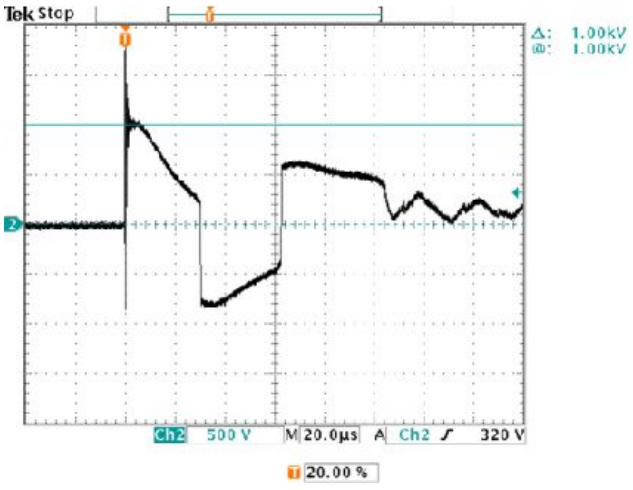


TN Network



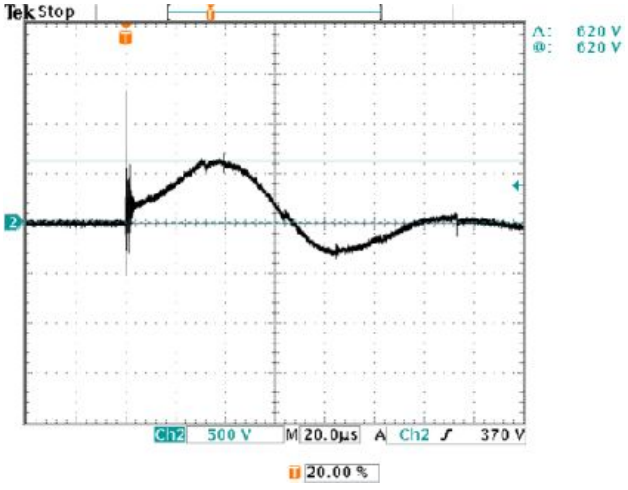
Difference between classic SPD and Profilt PSF

SPD



- Discharge current (8/20) = 25kA
- Residual voltage = 1000V

PROFILT PSF



- Discharge current (8/20) = 25kA
- Residual voltage = 620V

$\Delta U_{PSF} < \Delta U_{SPD}$

U_{RES} (PSF) < U_{RES} (SPD)

PBS BOX Series

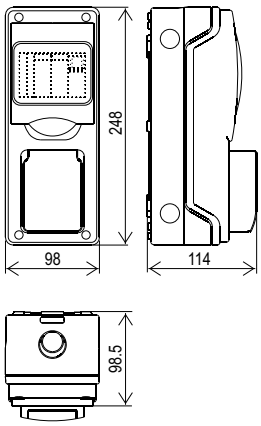
Class II; III Multi-pole Surge Protective Device
I_{max} = 40kA per pole (8/20)

- **Category IEC / EN / VDE:** Class II; III / Type 2; 3 / C; D
- **Location of use:** As close as possible to a protected device
- **Connections:** TN, TT
- **Protection modes:** L/N - PE
- **Protective element:** MOV, GDT, circuit breaker
- **High surge discharge rating:** I_{max}= 40kA per pole
- **Housing:** Weatherproof Enclosure
- **Complies with:** IEC-61643-1

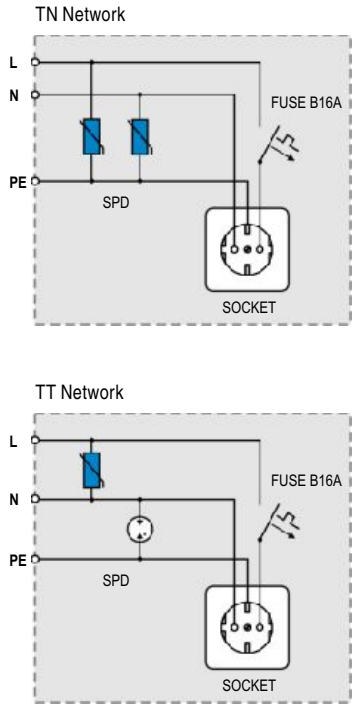
Technical data

Type		PBS-C80 (2+0)-F16	PBS-C80 (1+1)-F16	PSS-D10 (2+0)-F16
Electrical characteristics				
Max. continuous operating voltage (AC/DC)	U_C	320V/50(60)Hz	320V/50(60)Hz	320V/50(60)Hz
Nominal voltage	U_O	230V/50(60)Hz	230V/50(60)Hz	230V/50(60)Hz
Max. load current	I_L	16A	16A	16A
Combination wave (1.2/50, 8/20)	U_{OC}/I_{SC}			10kV/5kA
Nominal discharge current (8/20)	I_n	20kA per pole	20kA/20kA	/
Max. discharge current (8/20)	I_{max}	40kA per pole	40kA/40kA	/
Voltage protection level 25kA (8/20)	U_p	1.5kV	1.5kV	1.2kV
Mechanical characteristics				
Temperature range			- 40°C ....+ 80°C	
Terminal cross section			2.5mm^2	
Degree of protection			IP 65	
Housing material			Technical polymer	
Housing dimensions (cm) W x H x D			9.8 x 24.8 x 11.4	
Ordering code		130 021	130 022	130 023

Dimensions



Connection diagram



ISKRA ZAŠČITE

PBL BOX Series

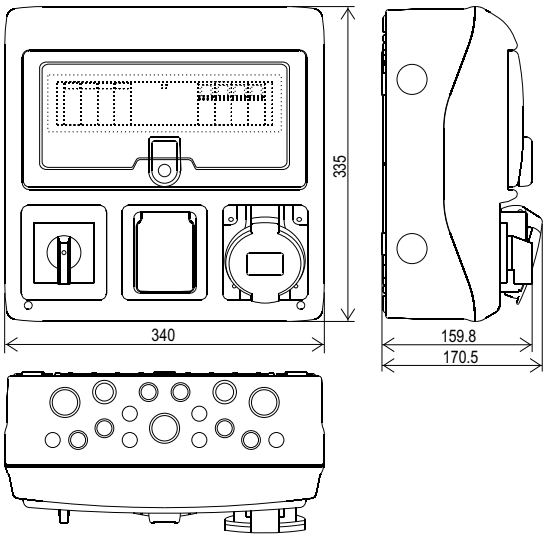
Class II; III Multi-pole Surge Protective Device
I_{max} = 40kA per pole (8/20)

- **Category IEC / EN / VDE:** Class II; III / Type 2; 3 / C; D
- **Location of use:** As close as possible to a protected device
- **Connections:** TN, TT
- **Protection modes:** L/N - PE
- **Protective element:** MOV, GDT, circuit breaker
- **High surge discharge rating:** I_{max}= 40kA per pole
- **Housing:** Weatherproof Enclosure
- **Complies with:** IEC-61643-1

Technical data

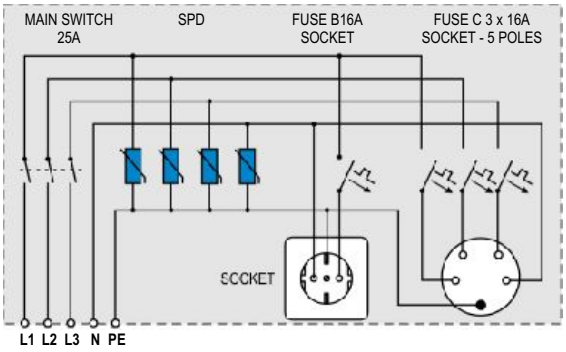
Type		PBL-C160 (4+0)-F16	PBL-C160 (3+1)-F16	PBL-D40 (4+0)-F16
Electrical characteristics				
Max. continuous operating voltage (AC/DC)	U_C	320V/50(60)Hz	320V/50(60)Hz	320V/50(60)Hz
Nominal voltage	U_O	230V/50(60)Hz	230V/50(60)Hz	230V/50(60)Hz
Max. load current	I_L	16A	16A	16A
Combination wave (1.2/50, 8/20)	U_{OC}/I_{SC}			10kV/5kA
Nominal discharge current (8/20)	I_n	20kA per pole	20kA/20kA	/
Max. discharge current (8/20)	I_{max}	40kA per pole	40kA/40kA	/
Voltage protection level 25kA (8/20)	U_p	1.5kV	1.5kV	1.2kV
Mechanical characteristics				
Temperature range			- 40°C ....+ 80°C	
Terminal cross section			4mm^2	
Degree of protection			IP 44	
Housing material			Technical polymer	
Housing dimensions (cm) W x H x D			34 x 33.5 x 17.5	
Ordering code		130 024	130 025	130 026

Dimensions

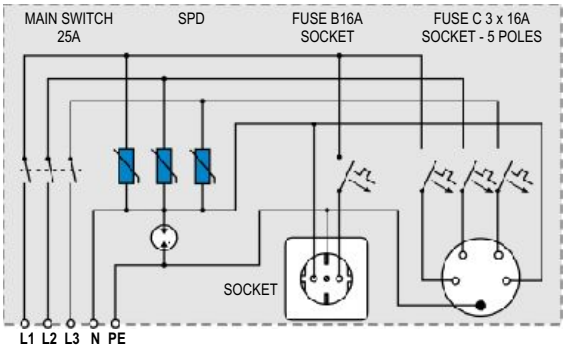


Connection diagram

TN Network



TT Network



PB BOX Series

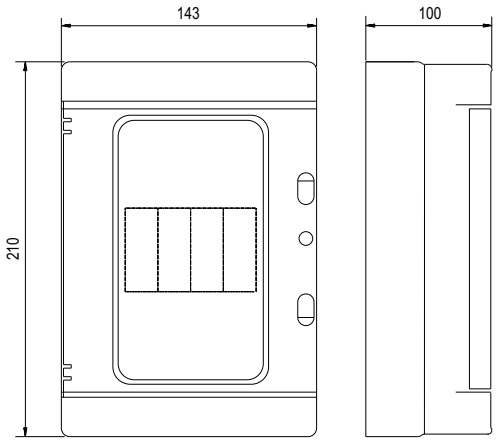
Class II; III Multi-pole Surge Protective Device
I_{max} = 40kA per pole (8/20)

- **Category IEC / EN / VDE:** Class II; III / Type 2; 3 / C; D
- **Location of use:** As close as possible to a protected device
- **Connections:** TN, TT
- **Protection modes:** L/N - PE
- **Protective element:** MOV, GDT, circuit breaker
- **High surge discharge rating:** I_{max}= 40kA per pole
- **Housing:** Weatherproof Enclosure
- **Complies with:** IEC-61643-1

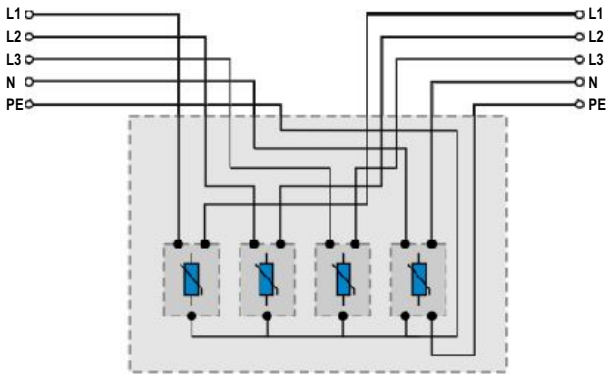
Technical data

Type		PB-C160 (4+0)	PB-C160 (3+1)	PB-D40 (4+0)
Electrical characteristics				
Max. continuous operating voltage (AC/DC)	U_C	320V/50(60)Hz	320V/50(60)Hz	320V/50(60)Hz
Nominal voltage	U_O	230V/50(60)Hz	230V/50(60)Hz	230V/50(60)Hz
Max. load current	I_L	/	/	/
Combination wave (1.2/50, 8/20)	U_{OC}/I_{SC}			10kV/5kA
Nominal discharge current (8/20)	I_n	20kA per pole	20kA/20kA	/
Max. discharge current (8/20)	I_{max}	40kA per pole	40kA/40kA	/
Voltage protection level 25kA (8/20)	U_p	1.5kV	1.5kV	1.2kV
Mechanical characteristics				
Temperature range			- 40°C ....+ 80°C	
Terminal cross section			6mm^2	
Degree of protection			IP 65	
Housing material			Technical polymer	
Housing dimensions (cm) W x H x D			14.3 x 21 x 10	
Ordering code		130 033	130 031	130 032

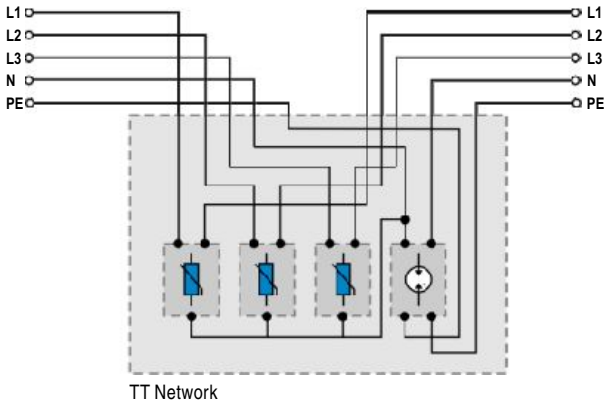
Dimensions



Connection diagram



TN Network



TT Network

PCD Box

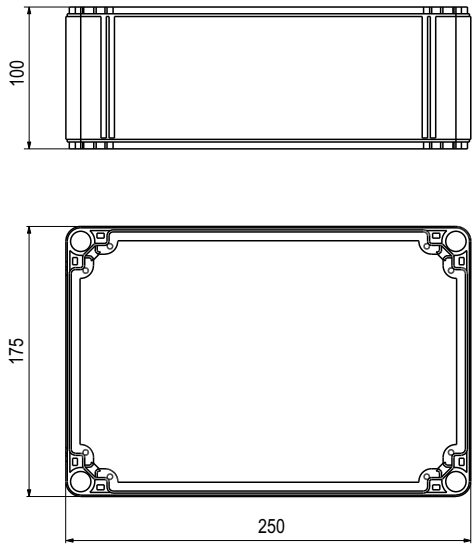
- **Category IEC / EN / VDE:** Class I; II / Type 1; 2 / B; C
- **Location of use:** As close as possible to a protected device
- **Protection modes:** (+) - PE, (-) - PE;
- **Protective element:** MOV
- **High surge discharge rating:** I_{imp}= 12.5kA per pole; I_{max}= 40kA
- **Housing:** Weatherproof Enclosure (IP 67)
- **Complies with:** IEC-61643-1, UTE C 61-740-51

Technical data

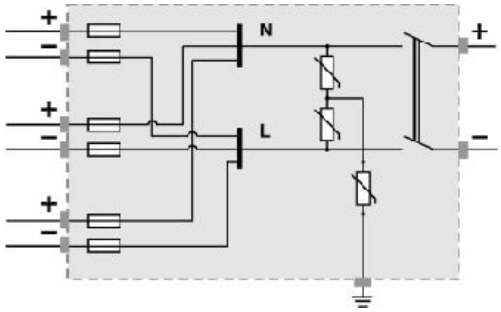
Type	PCD Box
Electrical characteristics	
Max. input voltage	800V
Max. number of strings	4
Max. current persting (DC)	15A
Mechanical characteristics	
Temperature range	- 50°C ....+ 120°C
Terminal cross section	4mm^2
Degree of protection	IP 65
Housing material	Polycarbonate
Weight	2.6kg
Dimensions (cm) W x H x D	25 x 17.5 x 10

PCD Box is a product that needs to be configurated according to the photovoltaic system configuration and to specific customer needs.
Because of this, the product is always custom made.

Dimensions

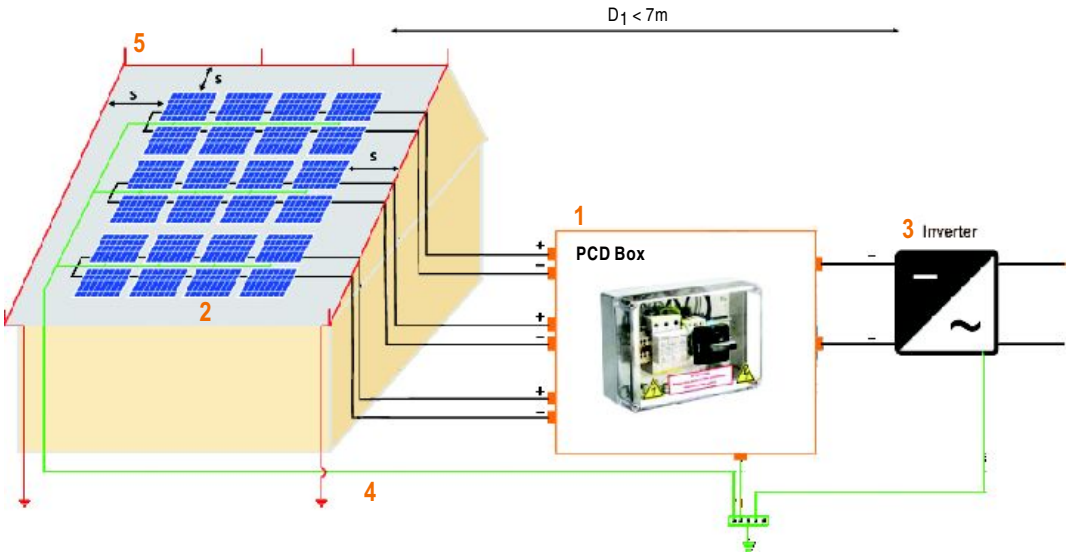


Connection diagram



PCD Box

Possible installation of SPDs in case of a building with LPS



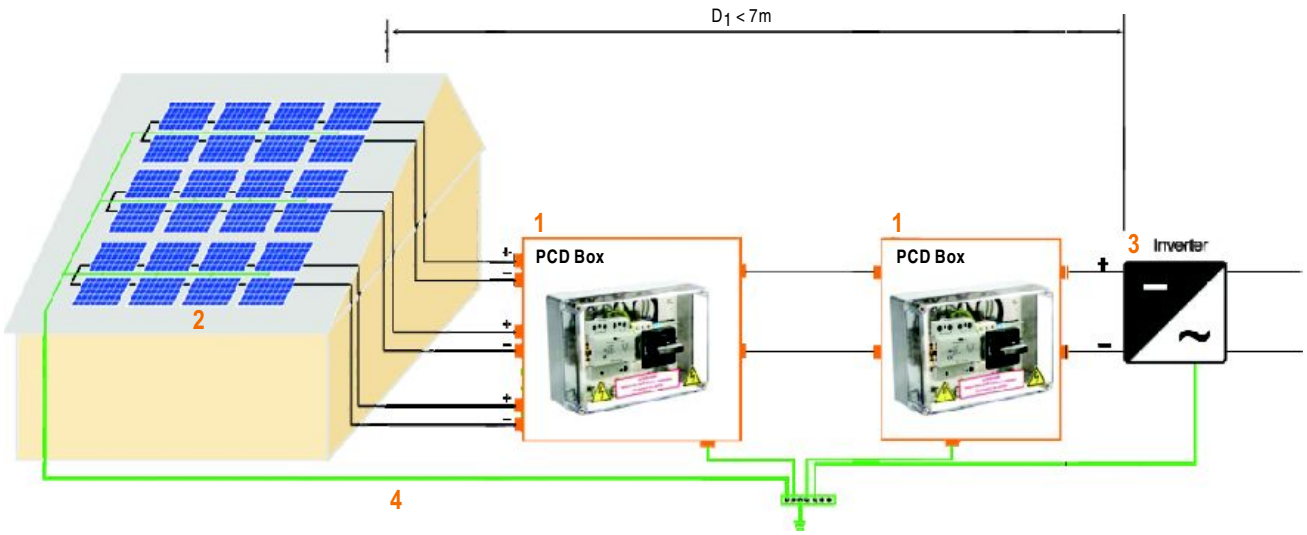
1. PCD Box (Type 2 tested SPD for DC application)
2. Array of photovoltaic modules
3. Inverter (1 phase)
4. Earth termination system
5. Air termination system

S separation distance according to IEC 62305

D_1 distance between PV modules and inverter

PCD Box

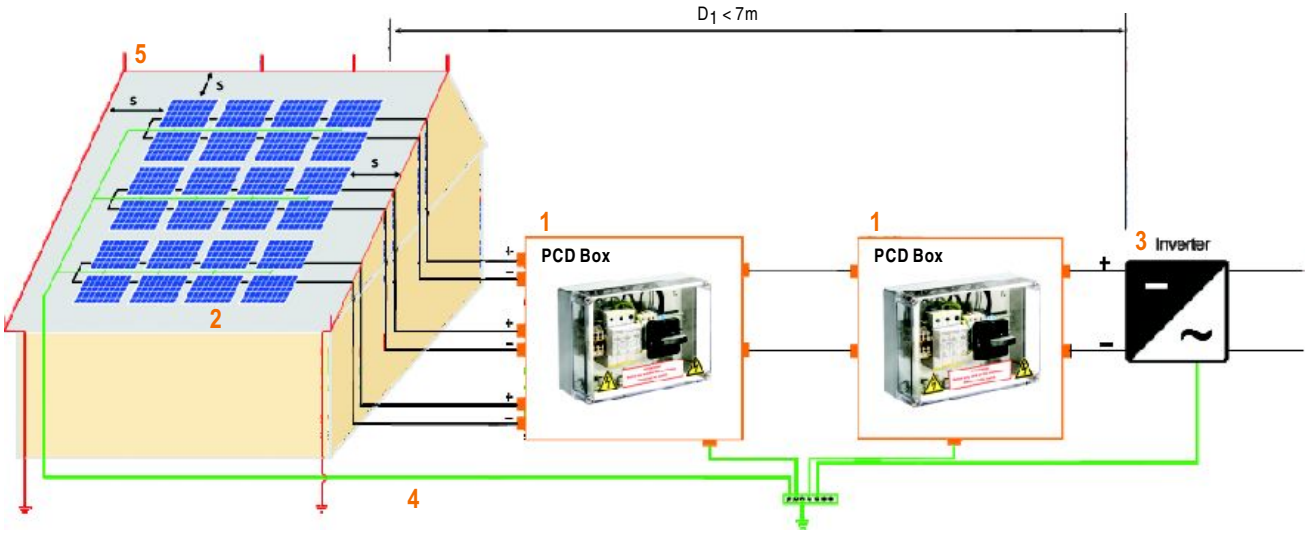
Possible installation of SPDs in case of a building without LPS



1. PCD Box (Type 1 tested SPD for DC application)
2. Array of photovoltaic modules
3. Inverter (1 phase)
4. Earth termination system

D_1 distance between PV modules and inverter

Possible installation of SPDs in case of a building with LPS



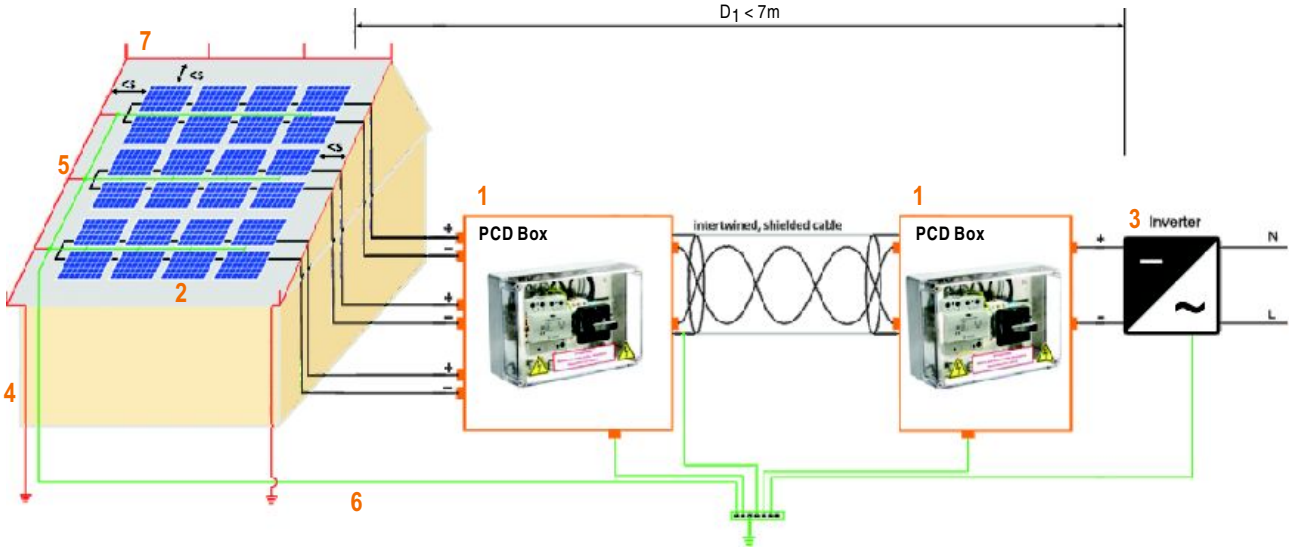
1. PCD Box (Type 2 tested SPD for DC application)
2. Array of photovoltaic modules
3. Inverter (1 phase)
4. Earth termination system
5. Air termination system

S separation distance according to IEC 62305

D_1 distance between PV modules and inverter

PCD Box

Possible installation of SPDs in case of a building with LPS



1. PCD Box (Type 1 tested SPD for DC application)
2. Array of photovoltaic modules
3. Inverter (1 phase)
4. Down conductor
5. Connection between metal structure of PV system and LPS
6. Earth termination system
7. Air termination system

S separation distance according to IEC 62305 is not being kept

D_1 distance between PV modules and inverter

ProAlyser

- **SPD Life Status** — Measurement of MOV degradation in %
- **SPD Failure** — Indication of SPD disconnection or impending failure
- **Surge Counter** — Surge Recorder, Time/Date, Magnitude, Logging
- **Power Quality** — Logging of power disturbances on electrical network
- **Power Monitor** — Measuring basic electric supply parameters
- **Remote Interface** — RS232 serial link with PROPAC Software

ProAlyser

SLS (SPD Life Status)

- Three phase SPD monitoring
- Percentage Residual SPD Life - 100% to 0%
- Warning each 10% degradation of Residual SPD Life
- Critical Visual and Audible alarm for permanent SPD disconnection, or when Life Status < 30%

SURGE COUNTER

- Visual notification that a surge event has occurred
- Records: - Date (dd:mm:yy)
  - Time (hh:mm:ss)
  - Surge amplitude (kA)
- Logging of last 10 events in non-volatile memory
- Running total of number of surges and highest surge recorded

POWER QUALITY INDICATOR

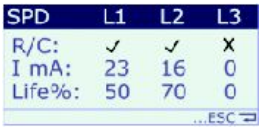
- Log of Temporary Overvoltages (Vn + 10%)
  - Records: - Date (dd:mm:yy)
    - Time (hh:mm:ss)
    - Peak voltage (v)
- Log of Voltage Sags (Brownouts)
  - Records: - Date (dd:mm:yy)
    - Time (hh:mm:ss)
    - Peak voltage (v)
- Log of Power Failures
  - Records: - Date (dd:mm:yy)
    - Time (hh:mm:ss)
- Log of Network parameters
  - Records: - MIN/MAX values (V, I, W, Hz, PF) per phase

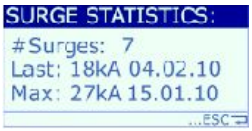
3-PHASE POWER METER (PER PHASE)

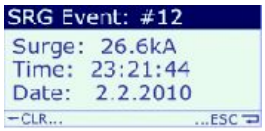
- Voltage (VRSM)
- Current (IRMS)
- Frequency (Hz)
- Power Pactor (Cos Phi)
- Peak Voltage (Vpk)
- Energy Measurment (kWh, kVARh, kVAh)

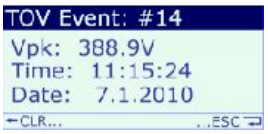
REMOTE INTERFACE AND MONITORING APPLICATION (PROPAC Software)

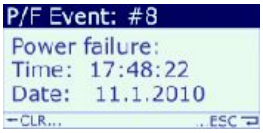
- Real-time monitor
- Last five alarms and measurments
- Graphical data preview
- History log of alarms and measurments
- E-mail notification when alarm is triggered
- Data can be used for further analysis (Web page, Xml, data export…)

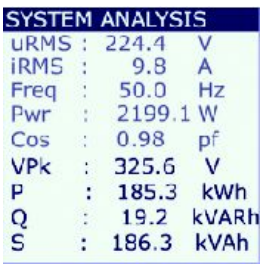




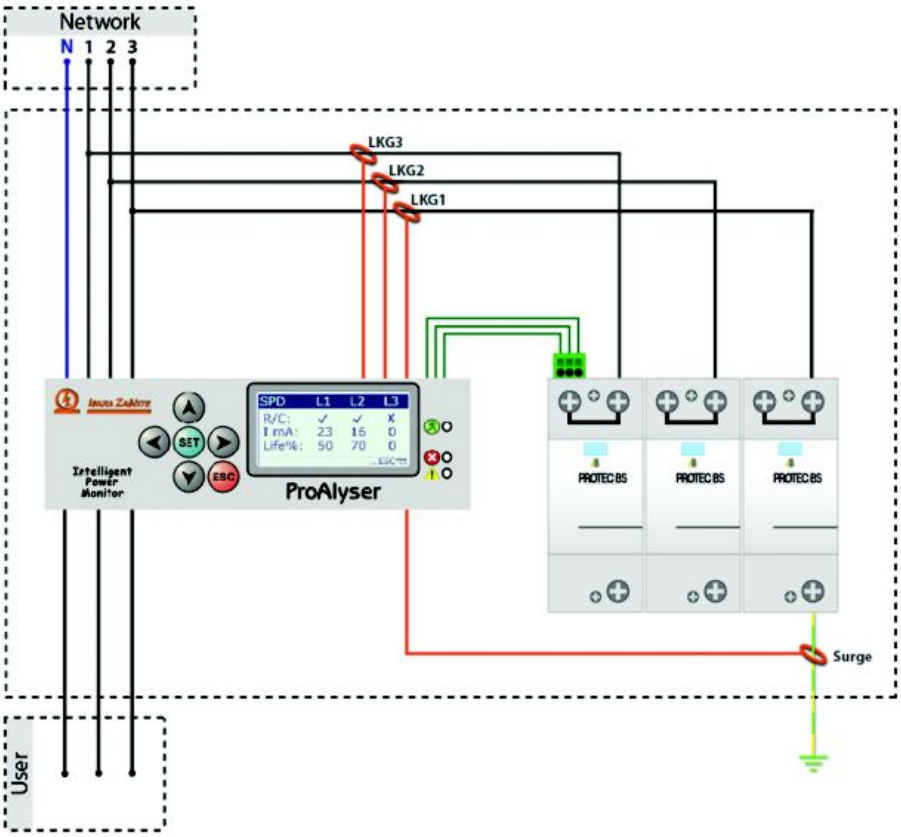




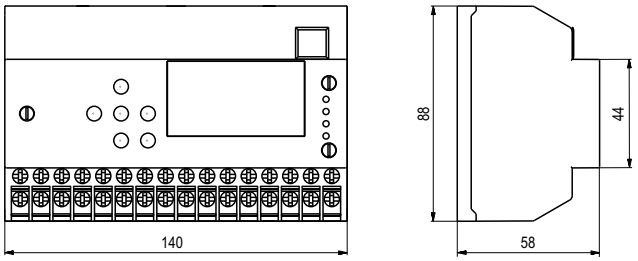




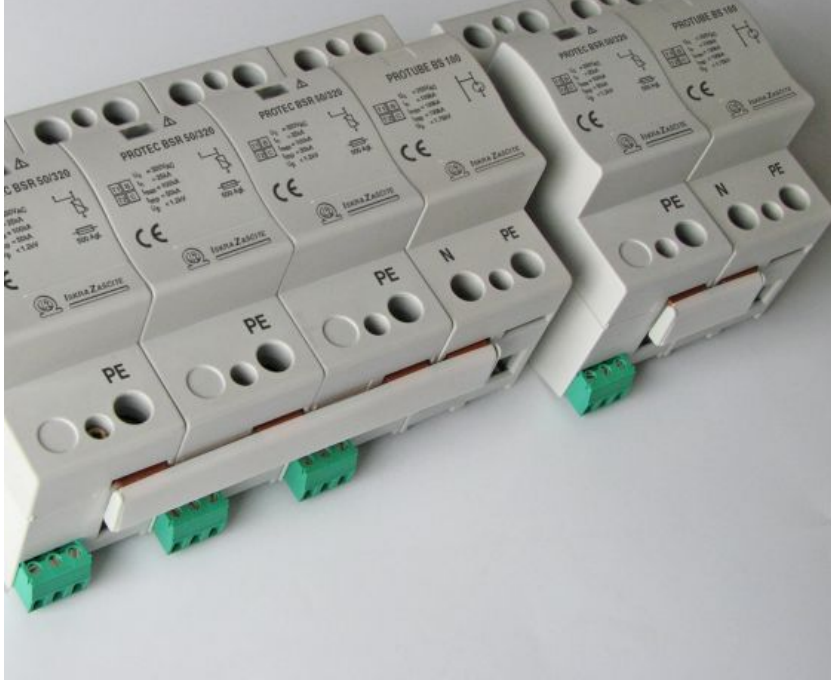
ProAlyser Connection



Dimensions



Connection Accessories



PROSHORT

The PROSHORT is an accessory used with the PROTEC family to provide simple through connections when needed to facilitateas of wiring installations.

PROBAR
Connection parts for PROTEC A, AQ, AQS

ISKRA is able to provide a large range of connection accessories, such as its PROBAR series of insulated busbar inter-connects for use with its PROTEC DIN rail family, as its fixing and fastening devices for use on overhead lines for its PROTEC A series.

PRONET S

The PRONET S decoupling coil has been developed to establish co-ordination between spark-gap lightning arresters (requirement Class I) and varistor-based surge arresters (Class II).

It is only necessary to install the PRONET S if the distance between lightning arrester and surge arrester at the zone interfaces (total line length) is not more than 7 meters.

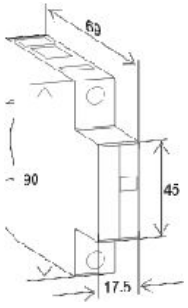
PROSHORT

- **Category IEC / EN / VDE:** Class I; II; III / Type 1; 2; 3 / B; C; D
- **Location of use:** All kind of distribution boards
- **Housing:** Compact design
- **Complies with:** IEC-61643-1

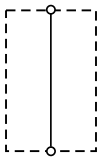
Technical data

Type		PROSHORT
Electrical characteristics		
Nominal voltage	U_o	230V
Nominal discharge current (8/20)	I_n	100A
Max. discharge current (10/350)	I_{imp}	100kA
Mechanical characteristics		
Temperature range		- 40°C ... + 80°C
Terminal cross section		35mm² (solid) / 25mm² (stranded)
Mounting EN 60715		35mm top-hat rail
Degree of protection		IP 20
Housing material		Thermoplastic; extinguishing degree UL 94 V-0
Dimensions DIN 43880		1 TE
Weight per unit		72g
Ordering code		**501 101**
Packaging dimensions (single unit)		108 x 74 x 24mm

Dimensions



Connection diagram



Single phase busbars

Type	PROBAR 1-2
No. of poles	2
Busbar cross section	16mm^2
Ordering code	**501 301**

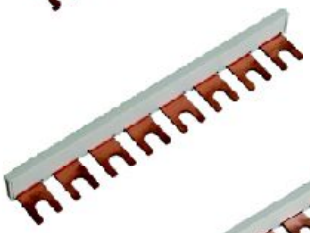
Type	PROBAR 1-3
No. of poles	3
Busbar cross section	16mm^2
Ordering code	**501 303**

Type	PROBAR 1-4
No. of poles	4
Busbar cross section	16mm^2
Ordering code	**501 305**

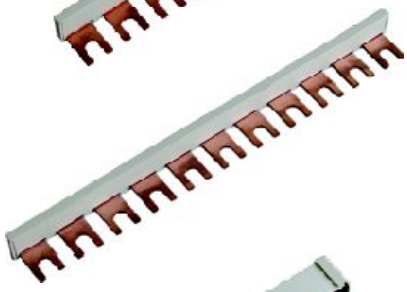
Type	PROBAR 1-5
No. of poles	5
Busbar cross section	16mm^2
Ordering code	**501 307**

Type	PROBAR 1-6
No. of poles	6
Busbar cross section	16mm^2
Ordering code	**501 309**

Type	PROBAR 1-7
No. of poles	7
Busbar cross section	16mm^2
Ordering code	**501 311**



Type	PROBAR 1-8
No. of poles	8
Busbar cross section	16mm^2
Ordering code	**501 313**



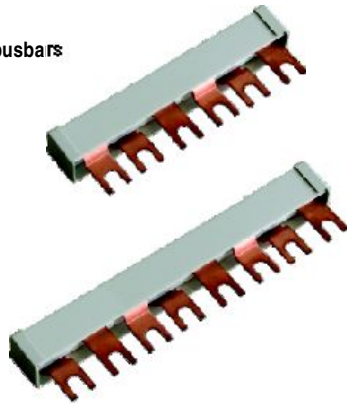
Type	PROBAR 1-11
No. of poles	11
Busbar cross section	16mm^2
Ordering code	**501 315**

Two phase busbars

Type	PROBAR 2-8
No. of poles	8
Busbar cross section	16mm^2
Ordering code	**501 317**

Connection Accessories
BUSBARS - Modular wiring system

Three phase busbars



Type	PROBAR 3-6
No. of poles	6
Busbar cross section	16mm^2
Ordering code	**501 319**

Type	PROBAR 3-8
No. of poles	8
Busbar cross section	16mm^2
Ordering code	**501 321**

Single phase busbars
(PROTEC BS - 2TE)

Type	PB-1-(2+0)
No. of poles	2
Busbar cross section	16mm^2
Ordering code	**501 331**

Type	PB-1-(3+0)
No. of poles	3
Busbar cross section	16mm^2
Ordering code	**501 332**

Type	PB-1-(4+0)
No. of poles	4
Busbar cross section	16mm^2
Ordering code	**501 335**

Type	PB-1-(3+1)
No. of poles	4
Busbar cross section	16mm^2
Ordering code	**501 334**

Connection Accessories
Connection parts for PROTEC A, AQ, AQS

Type	Fixing cable
Ordering code	**509 507**

Type	Fixing hook
Ordering code	**509 501**

Type	PSN
	(Connection clamp for non isulated conductor)
Ordering code	**509 503**

Type	PSI
	(Connection clamp for isulated conductor)
Ordering code	**509 505**

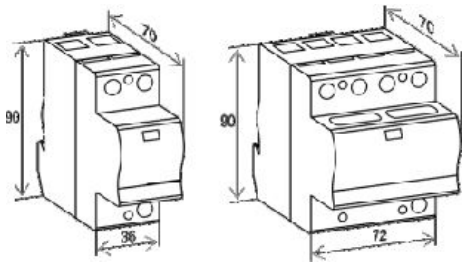
PRONET S

- **Category IEC / EN / VDE:** Class I / Type 1 / B
- **Location of use:** Main distribution boards
- **Coordination element:** Decoupling coil
- **High nominal current:** I_n= 35A; 63A
- **Housing:** Compact housing
- **Complies with:** IEC-61643-1

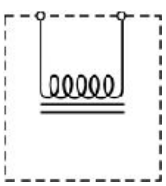
Technical data

Type		PRONET S 35	PRONET S 63
Electrical characteristics			
Nominal discharge current (8/20)	I_n	35A	63A
Nominal voltage	U_n	230V	
Inductance	L	15µH	
Mechanical characteristics			
Temperature range		- 40°C ... + 80°C	
Terminal screw torque		max. 4.5Nm	
Terminal cross section		35mm² (solid) / 25mm² (stranded)	
Mounting EN 60715		35mm top-hat rail	
Degree of protection		IP 20	
Housing material		Thermoplastic; extinguishing degree UL 94 V-0	
Dimensions DIN 43880		2 TE	4TE
Weight per unit			
Ordering code		**501 001**	**501 003**
Packaging dimensions (single unit)		109 x 76.5 x 41.5mm	109 x 76.5 x 78mm

Dimensions



Connection diagram



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	Product Name	Ordering Code	Dimensions /mm 1TE	2TE	3TE	4TE	5TE	8TE	Min. packaging quantity	Page
PROTEC BS(R) Iimp= 50, 35, 25kA - Class I, II: SINGLE-pole, COMPACT HOUSING										
	PROTEC BS 50/150	502 314		36					7	8
	PROTEC BS 50/275	502 315		36					7	8
	PROTEC BS 50/320	502 316		36					7	8
	PROTEC BS 50/385	502 296				72			3	8
	PROTEC BS 50/440	502 297				72			3	8
	PROTEC BSR 50/150	502 317		36					7	8
	PROTEC BSR 50/275	502 318		36					7	8
	PROTEC BSR 50/320	502 319		36					7	8
	PROTEC BSR 50/385	502 298				72			3	8
	PROTEC BSR 50/440	502 299				72			3	8
	PROTEC BS 35/150	502 320		36					7	9
	PROTEC BS 35/275	502 321		36					7	9
	PROTEC BS 35/320	502 322		36					7	9
	PROTEC BS 35/385	502 306			54				5	9
	PROTEC BS 35/440	502 307			54				5	9
	PROTEC BSR 35/150	502 323		36					7	9
	PROTEC BSR 35/275	502 324		36					7	9
	PROTEC BSR 35/320	502 325		36					7	9
	PROTEC BSR 35/385	502 308			54				5	9
	PROTEC BSR 35/440	502 309			54				5	9
	PROTEC BS 25/150	502 326		36					7	10
	PROTEC BS 25/275	502 327		36					7	10
	PROTEC BS 25/320	502 328		36					7	10
	PROTEC BS 25/385	502 329		36					7	10
	PROTEC BS 25/440	502 330		36					7	10
	PROTEC BSR 25/150	502 331		36					7	10
	PROTEC BSR 25/275	502 332		36					7	10
	PROTEC BSR 25/320	502 333		36					7	10
	PROTEC BSR 25/385	502 334		36					7	10
	PROTEC BSR 25/440	502 335		36					7	10
PROTEC B2N(R) Iimp= 12.5kA - Class I, II: SINGLE-pole, COMPACT HOUSING										
	PROTEC B2N 12.5/150	507 501	17.5						12	11
	PROTEC B2N 12.5/275	507 503	17.5						12	11
	PROTEC B2N 12.5/320	507 505	17.5						12	11
	PROTEC B2N 12.5/385	507 535	17.5						12	11
	PROTEC B2N 12.5/440	507 507	17.5						12	11
	PROTEC B2NR 12.5/150	507 509	17.5						12	11
	PROTEC B2NR 12.5/275	507 511	17.5						12	11
	PROTEC B2NR 12.5/320	507 513	17.5						12	11
	PROTEC B2NR 12.5/385	507 537	17.5						12	11
	PROTEC B2NR 12.5/440	507 515	17.5						12	11
PROTUBE BS Iimp= 100, 50kA (N-PE); PROTUBE B2N(R) Iimp= 50kA (N-PE) - Class I, II: SINGLE-pole, COMPACT HOUSING										
	PROTUBE BS 100	503 017		36					7	12
	PROTUBE BS 50	503 042		36					7	12
	PROTUBE B2N 50	507 572	17.5						12	13
	PROTUBE B2NR 50	507 573	17.5						12	13
PROBLOC BS(R) Iimp= 50kA per pole - Class I, II; MULTI-pole, COMPACT HOUSING										
	PROBLOC BS 100/150 (1+1)	504 512				72			3	18
	PROBLOC BS 100/275 (1+1)	504 513				72			3	18
	PROBLOC BS 100/320 (1+1)	504 514				72			3	18
	PROBLOC BS 100/385 (1+1)	504 396						144	2	18
	PROBLOC BS 100/440 (1+1)	504 397						144	2	18
	PROBLOC BSR 100/150 (1+1)	504 515				72			3	18
	PROBLOC BSR 100/275 (1+1)	504 516				72			3	18
	PROBLOC BSR 100/320 (1+1)	504 517				72			3	18

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	Product Name	Ordering Code	Dimensions /mm 1TE	2TE	3TE	4TE	5TE	8TE	Min. packaging quantity	Page
PROBLOC BS(R) Iimp= 50kA per pole - Class I, II: MULTI-pole, COMPACT HOUSING										
	PROBLOC BSR 100/385 (1+1)	504 398						144	2	18
	PROBLOC BSR 100/440 (1+1)	504 399						144	2	18
PROBLOC BS(R) Iimp= 25kA per pole - Class I, II, III: MULTI-pole, COMPACT HOUSING										
	PROBLOC BS 50/150 (2+0)	504 435		36					7	19
	PROBLOC BS 50/275 (2+0)	504 436		36					7	19
	PROBLOC BS 50/320 (2+0)	504 437		36					7	19
	PROBLOC BS 50/385 (2+0)	504 438				72			3	19
	PROBLOC BS 50/440 (2+0)	504 439				72			3	19
	PROBLOC BSR 50/150 (2+0)	504 445		36					7	19
	PROBLOC BSR 50/275 (2+0)	504 446		36					7	19
	PROBLOC BSR 50/320 (2+0)	504 447		36					7	19
	PROBLOC BSR 50/385 (2+0)	504 448				72			3	19
	PROBLOC BSR 50/440 (2+0)	504 449				72			3	19
	PROBLOC BS 50/150 (1+1)	504 454			54				5	20
	PROBLOC BS 50/275 (1+1)	504 455			54				5	20
	PROBLOC BS 50/320 (1+1)	504 456			54				5	20
	PROBLOC BS 50/385 (1+1)	504 457			54				5	20
	PROBLOC BS 50/440 (1+1)	504 458			54				5	20
	PROBLOC BSR 50/150 (1+1)	504 459			54				5	20
	PROBLOC BSR 50/275 (1+1)	504 460			54				5	20
	PROBLOC BSR 50/320 (1+1)	504 461			54				5	20
	PROBLOC BSR 50/385 (1+1)	504 462			54				5	20
	PROBLOC BSR 50/440 (1+1)	504 463			54				5	20
	PROBLOC BS 75/150 (3+0)	504 518			54				5	21
	PROBLOC BS 75/275 (3+0)	504 519			54				5	21
	PROBLOC BS 75/320 (3+0)	504 520			54				5	21
	PROBLOC BS 75/385 (3+0)	504 464						144	2	21
	PROBLOC BS 75/440 (3+0)	504 465						144	2	21
	PROBLOC BSR 75/150 (3+0)	504 521			54				5	21
	PROBLOC BSR 75/275 (3+0)	504 522			54				5	21
	PROBLOC BSR 75/320 (3+0)	504 523			54				5	21
	PROBLOC BSR 75/385 (3+0)	504 466						144	2	21
	PROBLOC BSR 75/440 (3+0)	504 467						144	2	21
	PROBLOC BS 100/150 (4+0)	504 524				72			3	22
	PROBLOC BS 100/275 (4+0)	504 525				72			3	22
	PROBLOC BS 100/320 (4+0)	504 526				72			3	22
	PROBLOC BS 100/385 (4+0)	504 468						144	2	22
	PROBLOC BS 100/440 (4+0)	504 469						144	2	22
	PROBLOC BSR 100/150 (4+0)	504 527				72			3	22
	PROBLOC BSR 100/275 (4+0)	504 528				72			3	22
	PROBLOC BSR 100/320 (4+0)	504 529				72			3	22
	PROBLOC BSR 100/385 (4+0)	504 470						144	2	22
	PROBLOC BSR 100/440 (4+0)	504 471						144	2	22
	PROBLOC BS 100/150 (3+1)	504 530					90		3	23
	PROBLOC BS 100/275 (3+1)	504 531					90		3	23
	PROBLOC BS 100/320 (3+1)	504 532					90		3	23
	PROBLOC BS 100/385 (3+1)	504 472						144	2	23
	PROBLOC BS 100/440 (3+1)	504 473						144	2	23
	PROBLOC BSR 100/150 (3+1)	504 533					90		3	23
	PROBLOC BSR 100/275 (3+1)	504 534					90		3	23
	PROBLOC BSR 100/320 (3+1)	504 535					90		3	23
	PROBLOC BSR 100/385 (3+1)	504 474						144	2	23
	PROBLOC BSR 100/440 (3+1)	504 475						144	2	23

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	Product Name	Ordering Code	Dimensions /mm 1TE	2TE	3TE	4TE	5TE	8TE	Min. packaging quantity	Page
PROBLOC BS(R) Iimp= 12.5kA per pole - Class I, II, III: MULTI-pole, COMPACT HOUSING										
	PROBLOC BS 25/150 (2+0)	504 405		36					7	28
	PROBLOC BS 25/275 (2+0)	504 406		36					7	28
	PROBLOC BS 25/320 (2+0)	504 407		36					7	28
	PROBLOC BS 25/385 (2+0)	504 408		36					7	28
	PROBLOC BS 25/440 (2+0)	504 409		36					7	28
	PROBLOC BSR 25/150 (2+0)	504 420		36					7	28
	PROBLOC BSR 25/275 (2+0)	504 421		36					7	28
	PROBLOC BSR 25/320 (2+0)	504 422		36					7	28
	PROBLOC BSR 25/385 (2+0)	504 423		36					7	28
	PROBLOC BSR 25/440 (2+0)	504 424		36					7	28
	PROBLOC BS 25/150 (1+1)	504 410		36					7	29
	PROBLOC BS 25/275 (1+1)	504 411		36					7	29
	PROBLOC BS 25/320 (1+1)	504 412		36					7	29
	PROBLOC BS 25/385 (1+1)	504 413		36					7	29
	PROBLOC BS 25/440 (1+1)	504 414		36					7	29
	PROBLOC BS 37.5/150 (3+0)	504 049			54				5	29
	PROBLOC BS 37.5/275 (3+0)	504 051			54				5	29
	PROBLOC BS 37.5/320 (3+0)	504 053			54				5	29
	PROBLOC BS 37.5/385 (3+0)	504 267			54				5	29
	PROBLOC BS 37.5/440 (3+0)	504 055			54				5	29
	PROBLOC BSR 37.5/150 (3+0)	504 057			54				5	30
	PROBLOC BSR 37.5/275 (3+0)	504 059			54				5	30
	PROBLOC BSR 37.5/320 (3+0)	504 061			54				5	30
	PROBLOC BSR 37.5/385 (3+0)	504 269			54				5	30
	PROBLOC BSR 37.5/440 (3+0)	504 063			54				5	30
	PROBLOC BS 50/150 (4+0)	504 065				72			3	31
	PROBLOC BS 50/275 (4+0)	504 067				72			3	31
	PROBLOC BS 50/320 (4+0)	504 069				72			3	31
	PROBLOC BS 50/385 (4+0)	504 271				72			3	31
	PROBLOC BS 50/440 (4+0)	504 071				72			3	31
	PROBLOC BSR 50/150 (4+0)	504 073				72			3	31
	PROBLOC BSR 50/275 (4+0)	504 075				72			3	31
	PROBLOC BSR 50/320 (4+0)	504 077				72			3	31
	PROBLOC BSR 50/385 (4+0)	504 273				72			3	31
	PROBLOC BSR 50/440 (4+0)	504 079				72			3	31
	PROBLOC BS 50/150 (3+1)	504 480				72			3	32
	PROBLOC BS 50/275 (3+1)	504 481				72			3	32
	PROBLOC BS 50/320 (3+1)	504 482				72			3	32
	PROBLOC BS 50/385 (3+1)	504 483				72			3	32
	PROBLOC BS 50/440 (3+1)	504 484				72			3	32
	PROBLOC BSR 50/150 (3+1)	504 485				72			3	32
	PROBLOC BSR 50/275 (3+1)	504 486				72			3	32
	PROBLOC BSR 50/320 (3+1)	504 487				72			3	32
	PROBLOC BSR 50/385 (3+1)	504 488				72			3	32
	PROBLOC BSR 50/440 (3+1)	504 489				72			3	32
INPROTEC Iimp= 12.5kA per pole - Class I, II: MULTI-pole, COMPACT HOUSING										
	INPROTEC VV 150 (2+0)	505 017		36					7	36
	INPROTEC VV 275 (2+0)	505 019		36					7	36
	INPROTEC VV 320 (2+0)	505 021		36					7	36
	INPROTEC VV 385 (2+0)	505 061		36					7	36
	INPROTEC VV 440 (2+0)	505 023		36					7	36
	INPROTEC VVR 150 (2+0)	505 025		36					7	36
	INPROTEC VVR 275 (2+0)	505 027		36					7	36
	INPROTEC VVR 320 (2+0)	505 029		36					7	36
	INPROTEC VVR 385 (2+0)	505 063		36					7	36

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	Product Name	Ordering Code	Dimensions /mm 1TE	2TE	3TE	4TE	5TE	8TE	Min. Packaging quantity	Page
INPROTEC Iimp= 12.5kA per pole - Class I, II: MULTI-pole, COMPACT HOUSING										
	INPROTEC VVR 440 (2+0)	505 031		36					7	36
	INPROTEC VG 150 (1+1)	505 033		36					7	37
	INPROTEC VG 275 (1+1)	505 035		36					7	37
	INPROTEC VG 320 (1+1)	505 037		36					7	37
	INPROTEC VG 385 (1+1)	505 065		36					7	37
	INPROTEC VG 440 (1+1)	505 039		36					7	37
	INPROTEC VGR 150 (1+1)	505 041		36					7	37
	INPROTEC VGR 275 (1+1)	505 043		36					7	37
	INPROTEC VGR 320 (1+1)	505 045		36					7	37
	INPROTEC VGR 385 (1+1)	505 067		36					7	37
	INPROTEC VGR 440 (1+1)	505 047		36					7	37
	INPROTEC VS 150 (1+0)	505 001		36					7	38
	INPROTEC VS 275 (1+0)	505 003		36					7	38
	INPROTEC VS 320 (1+0)	505 005		36					7	38
	INPROTEC VS 385 (1+0)	505 057		36					7	38
	INPROTEC VS 440 (1+0)	505 007		36					7	38
	INPROTEC VSR 150 (1+0)	505 009		36					7	38
	INPROTEC VSR 275 (1+0)	505 011		36					7	38
	INPROTEC VSR 320 (1+0)	505 013		36					7	38
	INPROTEC VSR 385 (1+0)	505 059		36					7	38
	INPROTEC VSR 440 (1+0)	505 015		36					7	38
PROBLOC BSG(R) Iimp= 25kA per pole - Class I, II: MULTI-pole, COMPACT HOUSING										
	PROBLOC BSG 100/150 (4+0)	513 034					90		3	42
	PROBLOC BSG 100/320 (4+0)	513 036					90		3	42
	PROBLOC BSGR 100/150 (4+0)	513 035					90		3	42
	PROBLOC BSGR 100/320 (4+0)	513 037					90		3	42
	PROBLOC BSG 100/150 (3+1)	513 011					90		3	43
	PROBLOC BSG 100/320 (3+1)	513 005					90		3	43
	PROBLOC BSGR 100/150 (3+1)	513 012					90		3	43
	PROBLOC BSGR 100/320 (3+1)	513 006					90		3	43
	PROBLOC BSG 100N/150 (3+1)	513 015					90		3	44
	PROBLOC BSG 100N/320 (3+1)	513 003					90		3	44
	PROBLOC BSGR 100N/150 (3+1)	513 016					90		3	44
	PROBLOC BSGR 100N/320 (3+1)	513 004					90		3	44
	PROBLOC BSG 25/150	513 026		36					7	45
	PROBLOC BSG 25/320	513 028		36					7	45
	PROBLOC BSGR 25/150	513 027		36					7	45
	PROBLOC BSGR 25/320	513 029		36					7	45
PROBLOC BSG(R) Iimp= 12.5kA per pole - Class I, II: MULTI-pole, COMPACT HOUSING										
	PROBLOC BSG 50/150 (4+0)	513 030					90		3	46
	PROBLOC BSG 50/320 (4+0)	513 032					90		3	46
	PROBLOC BSGR 50/150 (4+0)	513 031					90		3	46
	PROBLOC BSGR 50/320 (4+0)	513 033					90		3	46
	PROBLOC BSG 50/150 (3+1)	513 007					90		3	47
	PROBLOC BSG 50/320 (3+1)	513 001					90		3	47
	PROBLOC BSGR 50/150 (3+1)	513 008					90		3	47
	PROBLOC BSGR 50/320 (3+1)	513 002					90		3	47
	PROBLOC BSG 12.5/150	513 022		36					7	48
	PROBLOC BSG 12.5/320	513 024		36					7	48
	PROBLOC BSGR 12.5/150	513 023		36					7	48
	PROBLOC BSGR 12.5/320	513 025		36					7	48

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PROTEC B2S(R) Iimp= 12.5kA - Class I, II, III: SINGLE-pole, MODULAR HOUSING										
	PROTEC B2S 12.5/150	506 017	17.5						12	52
	PROTEC B2S 12.5/275	506 018	17.5						12	52
	PROTEC B2S 12.5/320	506 019	17.5						12	52
	PROTEC B2S 12.5/385	506 020	17.5						12	52
	PROTEC B2S 12.5/440	506 021	17.5						12	52
	PROTEC B2SR 12.5/150	506 022	17.5						12	52
	PROTEC B2SR 12.5/275	506 023	17.5						12	52
	PROTEC B2SR 12.5/320	506 024	17.5						12	52
	PROTEC B2SR 12.5/385	506 025	17.5						12	52
	PROTEC B2SR 12.5/440	506 026	17.5						12	52
PROTEC B2S(R) Iimp= 12.5kA per pole - Class I, II, III: MULTI-pole, MODULAR HOUSING										
	PROTEC B2S 25/150 (2+0)	506 027		36					7	53
	PROTEC B2S 25/275 (2+0)	506 028		36					7	53
	PROTEC B2S 25/320 (2+0)	506 029		36					7	53
	PROTEC B2S 25/385 (2+0)	506 030		36					7	53
	PROTEC B2S 25/440 (2+0)	506 031		36					7	53
	PROTEC B2SR 25/150 (2+0)	506 032		36					7	53
	PROTEC B2SR 25/275 (2+0)	506 033		36					7	53
	PROTEC B2SR 25/320 (2+0)	506 034		36					7	53
	PROTEC B2SR 25/385 (2+0)	506 035		36					7	53
	PROTEC B2SR 25/440 (2+0)	506 036		36					7	53
	PROTEC B2S 25/150 (1+1)	506 037		36					7	54
	PROTEC B2S 25/275 (1+1)	506 038		36					7	54
	PROTEC B2S 25/320 (1+1)	506 039		36					7	54
	PROTEC B2S 25/385 (1+1)	506 040		36					7	54
	PROTEC B2S 25/440 (1+1)	506 041		36					7	54
	PROTEC B2SR 25/150 (1+1)	506 042		36					7	54
	PROTEC B2SR 25/275 (1+1)	506 043		36					7	54
	PROTEC B2SR 25/320 (1+1)	506 044		36					7	54
	PROTEC B2SR 25/385 (1+1)	506 045		36					7	54
	PROTEC B2SR 25/440 (1+1)	506 046		36					7	54
	PROTEC B2S 37.5/150 (3+0)	506 047			54				5	55
	PROTEC B2S 37.5/275 (3+0)	506 048			54				5	55
	PROTEC B2S 37.5/320 (3+0)	506 049			54				5	55
	PROTEC B2S 37.5/385 (3+0)	506 050			54				5	55
	PROTEC B2S 37.5/440 (3+0)	506 051			54				5	55
	PROTEC B2SR 37.5/150 (3+0)	506 052			54				5	55
	PROTEC B2SR 37.5/275 (3+0)	506 053			54				5	55
	PROTEC B2SR 37.5/320 (3+0)	506 054			54				5	55
	PROTEC B2SR 37.5/385 (3+0)	506 055			54				5	55
	PROTEC B2SR 37.5/440 (3+0)	506 056			54				5	55
	PROTEC B2S 50/150 (4+0)	506 057				72			3	56
	PROTEC B2S 50/275 (4+0)	506 058				72			3	56
	PROTEC B2S 50/320 (4+0)	506 059				72			3	56
	PROTEC B2S 50/385 (4+0)	506 060				72			3	56
	PROTEC B2S 50/440 (4+0)	506 061				72			3	56
	PROTEC B2SR 50/150 (4+0)	506 062				72			3	56
	PROTEC B2SR 50/275 (4+0)	506 063				72			3	56
	PROTEC B2SR 50/320 (4+0)	506 064				72			3	56
	PROTEC B2SR 50/385 (4+0)	506 065				72			3	56
	PROTEC B2SR 50/440 (4+0)	506 066				72			3	56
	PROTEC B2S 50/150 (3+1)	506 067				72			3	57
	PROTEC B2S 50/275 (3+1)	506 068				72			3	57
	PROTEC B2S 50/320 (3+1)	506 069				72			3	57
	PROTEC B2S 50/385 (3+1)	506 070				72			3	57

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PROTEC B2S(R) Iimp= 12.5kA per pole - Class I, II, III: MULTI-pole, MODULAR HOUSING										
	PROTEC B2S 50/440 (3+1)	506 071				72			3	57
	PROTEC B2SR 50/150 (3+1)	506 072				72			3	57
	PROTEC B2SR 50/275 (3+1)	506 073				72			3	57
	PROTEC B2SR 50/320 (3+1)	506 074				72			3	57
	PROTEC B2SR 50/385 (3+1)	506 075				72			3	57
	PROTEC B2SR 50/440 (3+1)	506 076				72			3	57
Module PROTEC B2S(R) Iimp= 12.5kA; Module PROTUBE B2S Iimp= 50kA (N-PE) - Class I, II, III										
	Module PROTEC B2S(R) 12.5/150	506 001	17.5						12	52, 53, 54, 55, 56, 57
	Module PROTEC B2S(R) 12.5/275	506 002	17.5						12	52, 53, 54, 55, 56, 57
	Module PROTEC B2S(R) 12.5/320	506 003	17.5						12	52, 53, 54, 55, 56, 57
	Module PROTEC B2S(R) 12.5/385	506 004	17.5						12	52, 53, 54, 55, 56, 57
	Module PROTEC B2S(R) 12.5/440	506 005	17.5						12	52, 53, 54, 55, 56, 57
	Module PROTUBE B2S 50/255	506 006	17.5						12	54, 57
SAFETEC C(R) Imax= 40kA - Class II: SINGLE-pole, MODULAR HOUSING										
	SAFETEC C 40/150	516 001	18						12	60
	SAFETEC C 40/275	516 003	18						12	60
	SAFETEC C 40/440	516 005	18						12	60
	SAFETEC CR 40/150	516 002	18						12	60
	SAFETEC CR 40/275	516 004	18						12	60
	SAFETEC CR 40/440	516 006	18						12	60
SAFETEC C(R) Imax= 40kA per pole - Class II: MULTI-pole, MODULAR HOUSING										
	SAFETEC C 80/150 (2+0)	516 007		36					7	61
	SAFETEC C 80/275 (2+0)	516 009		36					7	61
	SAFETEC C 80/440 (2+0)	516 011		36					7	61
	SAFETEC CR 80/150 (2+0)	516 008		36					7	61
	SAFETEC CR 80/275 (2+0)	516 010		36					7	61
	SAFETEC CR 80/440 (2+0)	516 012		36					7	61
	SAFETEC C 80/150 (1+1)	516 013		36					7	62
	SAFETEC C 80/275 (1+1)	516 015		36					7	62
	SAFETEC C 80/440 (1+1)	516 017		36					7	62
	SAFETEC CR 80/150 (1+1)	516 014		36					7	62
	SAFETEC CR 80/275 (1+1)	516 016		36					7	62
	SAFETEC CR 80/440 (1+1)	516 018		36					7	62
	SAFETEC C 120/150 (3+0)	516 019			54				5	63
	SAFETEC C 120/275 (3+0)	516 021			54				5	63
	SAFETEC C 120/440 (3+0)	516 023			54				5	63
	SAFETEC CR 120/150 (3+0)	516 020			54				5	63
	SAFETEC CR 120/275 (3+0)	516 022			54				5	63
	SAFETEC CR 120/440 (3+0)	516 024			54				5	63
	SAFETEC C 160/150 (4+0)	516 025				72			3	64
	SAFETEC C 160/275 (4+0)	516 027				72			3	64
	SAFETEC C 160/440 (4+0)	516 029				72			3	64
	SAFETEC CR 160/150 (4+0)	516 026				72			3	64
	SAFETEC CR 160/275 (4+0)	516 028				72			3	64
	SAFETEC CR 160/440 (4+0)	516 030				72			3	64
	SAFETEC C 160/150 (3+1)	516 031				72			3	65
	SAFETEC C 160/275 (3+1)	516 033				72			3	65
	SAFETEC C 160/440 (3+1)	516 035				72			3	65
	SAFETEC CR 160/150 (3+1)	516 032				72			3	65
	SAFETEC CR 160/275 (3+1)	516 034				72			3	65
	SAFETEC CR 160/440 (3+1)	516 036				72			3	65
Module SAFETEC C(R) Imax= 40kA; Module SAFETUBE C Imax= 40kA (N-PE) - Class II										
	Module SAFETEC C(R) 40/150	516 037	18						12	60, 61, 62, 63, 64, 65
	Module SAFETEC C(R) 40/275	516 038	18						12	60, 61, 62, 63, 64, 65
	Module SAFETEC C(R) 40/440	516 039	18						12	60, 61, 62, 63, 64, 65
	Module SAFETUBE C 40/255	516 115	18						12	62, 65

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PROTEC C(R) Imax= 40kA; PROTUBE C 40/255 Imax= 40kA (N-PE) - Class II: SINGLE-pole, MODULAR HOUSING										
	PROTEC C 40/150	500 003	18						12	68
	PROTEC C 40/275	500 005	18						12	68
	PROTEC C 40/320	500 007	18						12	68
	PROTEC C 40/385	500 171	18						12	68
	PROTEC C 40/440	500 009	18						12	68
	PROTEC CR 40/150	500 013	18						12	68
	PROTEC CR 40/275	500 015	18						12	68
	PROTEC CR 40/320	500 017	18						12	68
	PROTEC CR 40/385	500 175	18						12	68
	PROTEC CR 40/440	500 019	18						12	68
	PROTUBE C 40/255	503 005	18						12	69
PROTEC C(R) Imax= 40kA per pole - Class II: MULTI-pole, MODULAR HOUSING										
	PROTEC C 80/150 (2+0)	500 073		36					7	70
	PROTEC C 80/275 (2+0)	500 075		36					7	70
	PROTEC C 80/320 (2+0)	500 077		36					7	70
	PROTEC C 80/385 (2+0)	500 179		36					7	70
	PROTEC C 80/440 (2+0)	500 079		36					7	70
	PROTEC CR 80/150 (2+0)	500 081		36					7	70
	PROTEC CR 80/275 (2+0)	500 083		36					7	70
	PROTEC CR 80/320 (2+0)	500 085		36					7	70
	PROTEC CR 80/385 (2+0)	500 183		36					7	70
	PROTEC CR 80/440 (2+0)	500 087		36					7	70
	PROTEC C 80/150 (1+1)	500 089		36					7	71
	PROTEC C 80/275 (1+1)	500 091		36					7	71
	PROTEC C 80/320 (1+1)	500 093		36					7	71
	PROTEC C 80/385 (1+1)	500 187		36					7	71
	PROTEC C 80/440 (1+1)	500 095		36					7	71
	PROTEC CR 80/150 (1+1)	500 097		36					7	71
	PROTEC CR 80/275 (1+1)	500 099		36					7	71
	PROTEC CR 80/320 (1+1)	500 101		36					7	71
	PROTEC CR 80/385 (1+1)	500 191		36					7	71
	PROTEC CR 80/440 (1+1)	500 103		36					7	71
	PROTEC C 120/150 (3+0)	500 105			54				5	72
	PROTEC C 120/275 (3+0)	500 107			54				5	72
	PROTEC C 120/320 (3+0)	500 109			54				5	72
	PROTEC C 120/385 (3+0)	500 195			54				5	72
	PROTEC C 120/440 (3+0)	500 111			54				5	72
	PROTEC CR 120/150 (3+0)	500 113			54				5	72
	PROTEC CR 120/275 (3+0)	500 115			54				5	72
	PROTEC CR 120/320 (3+0)	500 117			54				5	72
	PROTEC CR 120/385 (3+0)	500 199			54				5	72
	PROTEC CR 120/440 (3+0)	500 119			54				5	72
	PROTEC C 160/150 (4+0)	500 121				72			3	73
	PROTEC C 160/275 (4+0)	500 123				72			3	73
	PROTEC C 160/320 (4+0)	500 125				72			3	73
	PROTEC C 160/385 (4+0)	500 203				72			3	73
	PROTEC C 160/440 (4+0)	500 127				72			3	73
	PROTEC CR 160/150 (4+0)	500 129				72			3	73
	PROTEC CR 160/275 (4+0)	500 131				72			3	73
	PROTEC CR 160/320 (4+0)	500 133				72			3	73
	PROTEC CR 160/385 (4+0)	500 207				72			3	73
	PROTEC CR 160/440 (4+0)	500 135				72			3	73
	PROTEC C 160/150 (3+1)	500 137				72			3	74
	PROTEC C 160/275 (3+1)	500 139				72			3	74
	PROTEC C 160/320 (3+1)	500 141				72			3	74

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PROTEC C(R) Imax= 40kA per pole - Class II: MULTI-pole, MODULAR HOUSING										
	PROTEC C 160/385 (3+1)	500 211				72			3	74
	PROTEC C 160/440 (3+1)	500 143				72			3	74
	PROTEC CR 160/150 (3+1)	500 145				72			3	74
	PROTEC CR 160/275 (3+1)	500 147				72			3	74
	PROTEC CR 160/320 (3+1)	500 149				72			3	74
	PROTEC CR 160/385 (3+1)	500 215				72			3	74
	PROTEC CR 160/440 (3+1)	500 151				72			3	74
Module PROTEC C(R) Imax= 40kA; Module PROTUBE C Imax= 40kA (N-PE) - Class II										
	Module PROTEC C 40/150	500 217	18						12	68, 70, 71, 72, 73, 74
	Module PROTEC C 40/275	500 219	18						12	68, 70, 71, 72, 73, 74
	Module PROTEC C 40/320	500 220	18						12	68, 70, 71, 72, 73, 74
	Module PROTEC C 40/385	500 221	18						12	68, 70, 71, 72, 73, 74
	Module PROTEC C 40/440	500 222	18						12	68, 70, 71, 72, 73, 74
	Module PROTUBE C 40/255	500 234	18						12	69
PROTEC C(R) Imax= 20kA - Class II: SINGLE-pole, MODULAR HOUSING										
	PROTEC C 20/150	500 037	18						12	76
	PROTEC C 20/275	500 039	18						12	76
	PROTEC C 20/320	500 041	18						12	76
	PROTEC C 20/385	500 315	18						12	76
	PROTEC C 20/440	500 043	18						12	76
	PROTEC CR 20/150	500 045	18						12	76
	PROTEC CR 20/275	500 047	18						12	76
	PROTEC CR 20/320	500 049	18						12	76
	PROTEC CR 20/385	500 317	18						12	76
	PROTEC CR 20/440	500 051	18						12	76
Module PROTEC C(R) Imax= 20kA - Class II										
	Module PROTEC C 20/150	500 479	18						12	76
	Module PROTEC C 20/275	500 480	18						12	76
	Module PROTEC C 20/320	500 481	18						12	76
	Module PROTEC C 20/385	500 482	18						12	76
	Module PROTEC C 20/440	500 483	18						12	76
PROTEC CN(R) Imax= 40kA; Imax= 20kA; PROTUBE CN 40 - Class II: SINGLE-pole, COMPACT HOUSING										
	PROTEC CN 40/75	507 001	18						12	77
	PROTEC CN 40/150	507 003	18						12	77
	PROTEC CN 40/275	507 005	18						12	77
	PROTEC CN 40/320	507 007	18						12	77
	PROTEC CN 40/385	507 021	18						12	77
	PROTEC CN 40/440	507 009	18						12	77
	PROTEC CNR 40/75	507 011	18						12	77
	PROTEC CNR 40/150	507 013	18						12	77
	PROTEC CNR 40/275	507 015	18						12	77
	PROTEC CNR 40/320	507 017	18						12	77
	PROTEC CNR 40/385	507 023	18						12	77
	PROTEC CNR 40/440	507 019	18						12	77
	PROTEC CN 20/150	507 253	18						12	78
	PROTEC CN 20/275	507 254	18						12	78
	PROTEC CN 20/320	507 255	18						12	78
	PROTEC CN 20/385	507 256	18						12	78
	PROTEC CN 20/440	507 257	18						12	78
	PROTEC CNR 20/150	507 258	18						12	78
	PROTEC CNR 20/275	507 259	18						12	78
	PROTEC CNR 20/320	507 260	18						12	78
	PROTEC CNR 20/385	507 261	18						12	78
	PROTEC CNR 20/440	507 262	18						12	78
	PROTUBE CN 40	507 574	18						12	79

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PROTEC CM(R) Imax= 40kA per pole - Class II: MULTI-pole, MODULAR HOUSING										
	PROTEC CM 80/150 (2+0)	508 001	17.5						12	82
	PROTEC CM 80/275 (2+0)	508 003	17.5						12	82
	PROTEC CM 80/320 (2+0)	508 005	17.5						12	82
	PROTEC CM 80/385 (2+0)	508 109	17.5						12	82
	PROTEC CM 80/440 (2+0)	508 007	17.5						12	82
	PROTEC CMR 80/150 (2+0)	508 009	17.5						12	82
	PROTEC CMR 80/275 (2+0)	508 011	17.5						12	82
	PROTEC CMR 80/320 (2+0)	508 013	17.5						12	82
	PROTEC CMR 80/385 (2+0)	508 111	17.5						12	82
	PROTEC CMR 80/440 (2+0)	508 015	17.5						12	82
Module PROTEC CM(R) Imax= 40kA per pole - Class II										
	Module PROTEC CM 80/150 (2+0)	508 174	17.5						12	82
	Module PROTEC CM 80/275 (2+0)	508 164	17.5						12	82
	Module PROTEC CM 80/320 (2+0)	508 175	17.5						12	82
	Module PROTEC CM 80/385 (2+0)	508 146	17.5						12	28
	Module PROTEC CM 80/440 (2+0)	508 147	17.5						12	82
PROTEC CM(R) Imax= 40kA/40kA (L-N/N-PE) - Class II: MULTI-pole, MODULAR HOUSING										
	PROTEC CM 80/150 (1+1)	508 045	17.5						12	83
	PROTEC CM 80/275 (1+1)	508 047	17.5						12	83
	PROTEC CM 80/320 (1+1)	508 049	17.5						12	83
	PROTEC CM 80/385 (1+1)	508 117	17.5						12	83
	PROTEC CM 80/440 (1+1)	508 051	17.5						12	83
	PROTEC CMR 80/150 (1+1)	508 053	17.5						12	83
	PROTEC CMR 80/275 (1+1)	508 055	17.5						12	83
	PROTEC CMR 80/320 (1+1)	508 057	17.5						12	83
	PROTEC CMR 80/385 (1+1)	508 119	17.5						12	83
	PROTEC CMR 80/440 (1+1)	508 059	17.5						12	83
Module PROTEC CM(R) Imax= 40kA/40kA (L-N/N-PE) - Class II										
	Module PROTEC CM 80/150 (1+1)	508 186	17.5						12	83
	Module PROTEC CM 80/275 (1+1)	508 187	17.5						12	83
	Module PROTEC CM 80/320 (1+1)	508 188	17.5						12	83
	Module PROTEC CM 80/385 (1+1)	508 189	17.5						12	83
	Module PROTEC CM 80/440 (1+1)	508 190	17.5						12	83
PROTEC CM(R) A - Imax= 40kA/40kA (L-N/N-PE) - Class II: MULTI-pole, MODULAR HOUSING										
	PROTEC CM 80A/150 (1+1)	508 120	17.5						12	84
	PROTEC CM 80A/275 (1+1)	508 122	17.5						12	84
	PROTEC CM 80A/320 (1+1)	508 124	17.5						12	84
	PROTEC CM 80A/385 (1+1)	508 126	17.5						12	84
	PROTEC CM 80A/440 (1+1)	508 128	17.5						12	84
	PROTEC CMR 80A/150 (1+1)	508 130	17.5						12	84
	PROTEC CMR 80A/275 (1+1)	508 132	17.5						12	84
	PROTEC CMR 80A/320 (1+1)	508 134	17.5						12	84
	PROTEC CMR 80A/385 (1+1)	508 136	17.5						12	84
	PROTEC CMR 80A/440 (1+1)	508 138	17.5						12	84
Module PROTEC CM(R) A - Imax= 40kA/40kA (L-N/N-PE) - Class II										
	Module PROTEC CM 80A/150 (1+1)	508 176	17.5						12	84
	Module PROTEC CM 80A/275 (1+1)	508 143	17.5						12	84
	Module PROTEC CM 80A/320 (1+1)	508 177	17.5						12	84
	Module PROTEC CM 80A/385 (1+1)	508 144	17.5						12	84
	Module PROTEC CM 80A/440 (1+1)	508 145	17.5						12	84
PROTEC CG(R) - Imax= 40kA Class II: SINGLE-pole, MODULAR HOUSING, NO LEAKAGE CURRENT										
	PROTEC CG 40/150	500 323	18						12	88
	PROTEC CG 40/275	500 325	18						12	88
	PROTEC CG 40/385	500 327	18						12	88
	PROTEC CGR 40/150	500 329	18						12	88

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PROTEC CG(R) Imax= 40kA - Class II: SINGLE-pole, MODULAR HOUSING, NO LEAKAGE CURRENT										
	PROTEC CGR 40/275	500 331	18						12	88
	PROTEC CGR 40/385	500 333	18						12	88
Module PROTEC CG(R) Imax= 40kA - Class II										
	Module PROTEC CG 40/150	500 484	18						12	88
	Module PROTEC CG 40/275	500 485	18						12	88
	Module PROTEC CG 40/385	500 486	18						12	88
PROTEC CG(R) Imax= 40kA - Class II: SINGLE-pole, MODULAR HOUSING, NO LEAKAGE CURRENT										
	PROTEC CG 20/150	500 239	18						12	89
	PROTEC CG 20/275	500 241	18						12	89
	PROTEC CG 20/385	500 243	18						12	89
	PROTEC CGR 20/150	500 245	18						12	89
	PROTEC CGR 20/275	500 247	18						12	89
	PROTEC CGR 20/385	500 249	18						12	89
Module PROTEC CG(R) Imax= 20kA - Class II										
	Module PROTEC CG 20/150	500 487	18						12	89
	Module PROTEC CG 20/275	500 488	18						12	89
	Module PROTEC CG 20/385	500 489	18						12	89
PROTEC CMG(R) (2+0) Imax= 20kA per pole (L-N/PE) - Class II: MULTI-pole, MODULAR HOUSING										
	PROTEC CMG 40/150 (2+0)	508 197	17.5						12	91
	PROTEC CMG 40/275 (2+0)	508 198	17.5						12	91
	PROTEC CMGR 40/150 (2+0)	508 199	17.5						12	91
	PROTEC CMGR 40/275 (2+0)	508 200	17.5						12	91
Module PROTEC CMG(R) (2+0) Imax= 20kA per pole - Class II										
	Module PROTEC CMG 40/150 (2+0)	508 201	17.5						12	91
	Module PROTEC CMG 40/275 (2+0)	508 202	17.5						12	91
PROTEC D(R) - Uoc/Isc= 10kV/5kA - Class III: SINGLE-pole, MODULAR HOUSING										
	PROTEC D 10/150	508 601	18						12	94
	PROTEC D 10/275	508 603	18						12	94
	PROTEC D 10/320	508 605	18						12	94
	PROTEC D 10/385	508 617	18						12	94
	PROTEC D 10/440	508 607	18						12	94
	PROTEC DR 10/150	508 609	18						12	94
	PROTEC DR 10/275	508 611	18						12	94
	PROTEC DR 10/320	508 613	18						12	94
	PROTEC DR 10/385	508 619	18						12	94
	PROTEC DR 10/440	508 615	18						12	94
Module PROTEC D(R) - Uoc/Isc= 10kV/5kA - Class III										
	Module PROTEC D 10/150	508 620	18						12	94
	Module PROTEC D 10/275	508 621	18						12	94
	Module PROTEC D 10/320	508 622	18						12	94
	Module PROTEC D 10/385	508 623	18						12	94
	Module PROTEC D 10/440	508 624	18						12	94
PROTEC DM(R) - Uoc/Isc= 10kV/5kA per pole - Class III: MULTI-pole, MODULAR HOUSING										
	PROTEC DM 20/150 (2+0)	508 029	17.5						12	95
	PROTEC DM 20/275 (2+0)	508 031	17.5						12	95
	PROTEC DM 20/320 (2+0)	508 033	17.5						12	95
	PROTEC DM 20/385 (2+0)	508 113	17.5						12	95
	PROTEC DM 20/440 (2+0)	508 035	17.5						12	95
	PROTEC DMR 20/150 (2+0)	508 037	17.5						12	95
	PROTEC DMR 20/275 (2+0)	508 039	17.5						12	95
	PROTEC DMR 20/320 (2+0)	508 041	17.5						12	95
	PROTEC DMR 20/385 (2+0)	508 115	17.5						12	95
	PROTEC DMR 20/440 (2+0)	508 043	17.5						12	95
Module PROTEC DM(R) - Uoc/Isc per pole= 10kV/5kA - Class III										
	Module PROTEC DM 20/150 (2+0)	508 191	17.5						12	95

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Module PROTEC DM(R) - Uoc/Isc= 10kV/5kA - Class III										
	Module PROTEC DM 20/275 (2+0)	508 192	17.5						12	95
	Module PROTEC DM 20/320 (2+0)	508 193	17.5						12	95
	Module PROTEC DM 20/385 (2+0)	508 194	17.5						12	95
	Module PROTEC DM 20/440 (2+0)	508 195	17.5						12	95
PROTEC DMG(R) - Uoc/Isc= 10kV/5kA per pole - Class III: MULTI-pole, MODULAR HOUSING										
	PROTEC DMG 20 (2+0)	508 021	17.5						12	96
	PROTEC DMGR 20 (2+0)	508 027	17.5						12	96
Module PROTEC DMG(R) (2+0) - Uoc/Isc= 10kV/5kA per pole - Class III										
	Module PROTEC DMG 20 (2+0)	508 196	17.5						12	96
MPE-ZE 50 - Uoc/Isc= 5kV/2.5kA per pole - Class III: MULTI-pole, COMPACT HOUSING for cable duct										
	MPE-ZE50	121 207								97
MPE-MINI - Uoc/Isc= 6kV/3kA per pole - Class III: MULTI-pole, COMPACT HOUSING for cable duct, wiring socket										
	MPE-MINI	121 501								98
ZE 200 PS - Uoc/Isc= 6kV/3kA per pole - Class III: MULTI-pole, COMPACT HOUSING for power socket										
	ZE 200 PS	121 532								99
VTC - Uoc/Isc= 6kV/3kA per pole - Class III: SINGLE-pole, for PCB										
	VTC 10/150	122 646								100
	VTC 10/275	122 636								100
	VTC 10/320	509 313								100
	VTC 10/440	122 808								100
PROFILT D - Uoc/Isc= 6kV/3kA per pole - Class III: MULTI-pole, COMPACT HOUSING										
	PROFILT D 10A	130 051					90		3	101
	PROFILT D 16A	130 052					90		3	101
	PROFILT D 25A	130 053					90		3	101
	PROFILT D 30A	130 050					90		3	101
PROTEC A - Imax= up to 40kA - Class II: SINGLE-pole, COMPACT HOUSING										
	PROTEC AQ 40/150	509 029							60	104
	PROTEC AQ 40/275	509 031							60	104
	PROTEC AQ 40/320	509 033							60	104
	PROTEC AQ 40/385	509 047							60	104
	PROTEC AQ 40/440	509 035							60	104
	PROTEC AQS 40/150	509 049							100	105
	PROTEC AQS 40/275	509 051							100	105
	PROTEC AQS 40/320	509 053							100	105
	PROTEC AQS 40/440	509 055							100	105
	PROTEC A 30/150	509 009							50	106
	PROTEC A 30/275	509 011							50	106
	PROTEC A 30/320	509 013							50	106
	PROTEC A 30/385	509 043							50	106
	PROTEC A 30/440	509 015							50	106
	PROTEC AQ 25/150	509 017							60	107
	PROTEC AQ 25/275	509 019							60	107
	PROTEC AQ 25/320	509 021							60	107
	PROTEC AQ 25/385	509 045							60	107
	PROTEC AQ 25/440	509 023							60	107
EPZ - ISG Equipotential Bonding										
	EPZ-100/350	509 509							20	110
	EPZ-100/500	509 511							20	110
	EPZ-100/350 Ex	322 973							20	111
	EPZ-100/500 Ex	322 975							20	111
PV PROTEC BS(R) Iimp= 12.5kA per pole - Class I, II: COMPACT HOUSING for PHOTOVOLTAIC SYSTEMS										
	PV PROTEC BS 12.5/550	501 507				72			3	114
	PV PROTEC BS 12.5/1000	501 541				72			3	114
	PV PROTEC BSR 12.5/550	501 517				72			3	114
	PV PROTEC BSR 12.5/1000	501 545				72			3	114

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SAFETEC C(R) PV - Imax= 40kA - Class II: MULTI-pole, MODULAR HOUSING for PHOTOVOLTAIC SYSTEMS										
	SAFETEC C 40/75 PV	516 040		36					7	115
	SAFETEC C 40/300 PV	516 042		36					7	115
	SAFETEC C 40/600 PV	516 044		36					7	115
	SAFETEC C 40/1000 PV	516 046		36					7	115
	SAFETEC C 40/1200 PV	516 048			54				5	115
	SAFETEC CR 40/75 PV	516 041		36					7	115
	SAFETEC CR 40/300 PV	516 043		36					7	115
	SAFETEC CR 40/600 PV	516 045		36					7	115
	SAFETEC CR 40/1000 PV	516 047		36					7	115
	SAFETEC CR 40/1200 PV	516 049			54				5	115
Module SAFETEC C(R) PV - Imax= 40kA - Class II										
	Module SAFETEC C(R) 40/75 PV	516 050	18						12	115
	Module SAFETEC C(R) 40/300 PV	516 051	18						12	115
	Module SAFETEC C(R) 40/600 PV	516 052	18						12	115
	Module SAFETEC C(R) 40/1000 PV	516 053	18						12	115
	Module SAFETEC C(R) 40/1200 PV	516 054	18						12	115
PV PROTEC C(R) - Imax= 40kA - Class II: MULTI-pole, MODULAR HOUSING for PHOTOVOLTAIC SYSTEMS										
	PV PROTEC C 40/100	501 521		36					7	116
	PV PROTEC C 40/550	501 527		36					7	116
	PV PROTEC C 40/1000	501 543			54				5	116
	PV PROTEC CR 40/100	501 531		36					7	116
	PV PROTEC CR 40/550	501 537		36					7	116
	PV PROTEC CR 40/1000	501 547			54				5	116
Module PV PROTEC C(R) - Imax= 40kA - Class II										
	Module PV PROTEC C(R) 40/100	500 496	18						12	116
	Module PV PROTEC C(R) 40/550	500 497	18						12	116
	Module PV PROTEC C(R) 40/1000	500 498	18						12	116
WT PROTEC BS(R) - Iimp= 25kA; Iimp= 12.5kA - Class I, II: SINGLE-pole, COMPACT HOUSING for WIND GENERATION SYSTEMS										
	WT PROTEC BS 25/690	502 310				72			3	120
	WT PROTEC BSR 25/690	502 311				72			3	120
	WT PROTEC BS 12.5/690	502 312			54				5	121
	WT PROTEC BSR 12.5/690	502 313			54				5	121
SAFETEC C(R) WT - Imax= 25kA per pole - Class II: MULTI-pole, MODULAR HOUSING for WIND GENERATION SYSTEMS										
	SAFETEC C 750 (3+0) WT	516 055			54				5	122
	SAFETEC CR 750 (3+0) WT	516 056			54				5	122
Module SAFETEC C(R) WT - Imax= 25kA - Class II										
	Module SAFETEC C(R) 750 (3+0) WT	516 057	18						12	122
PROFILT PSF - Class I, II; The point of entry to the building, as close as possible to a protected device										
	PROFILT PSF 3/35TN	130 040								126
	PROFILT PSF 3/63TN	130 041								126
	PROFILT PSF 3/125TN	130 042								126
	PROFILT PSF 3/35TT	130 043								126
	PROFILT PSF 3/63TT	130 044								126
	PROFILT PSF 3/125TT	130 045								126
PBS Box - Class II, III; As close as possible to a protected device										
	PBS-C80 (2+0)-F16	130 021								128
	PBS-C80 (1+1)-F16	130 022								128
	PBS-D10)2+0)-F16	130 023								128
PBL Box - Class II, III; As close as possible to a protected device										
	PBL-C160 (4+0)-F16	130 024								129
	PBL-C160 (3+1)-F16	130 025								129
	PBL-D40 (4+0)-F16	130 026								129
PB Box - Class II, III; As close as possible to a protected device										
	PB-C160 (4+0)	130 033								130
	PB-C160 (3+1)	130 031								130
	PB-D40 (4+0)	130 032								130

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	PROSHORT	501 101	17.5						12	134
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	Fixing cable	509 507								136
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PRONET S - co-ordination beetween Class I and Class II										
	PRONET S 35	501 001		36					7	137
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