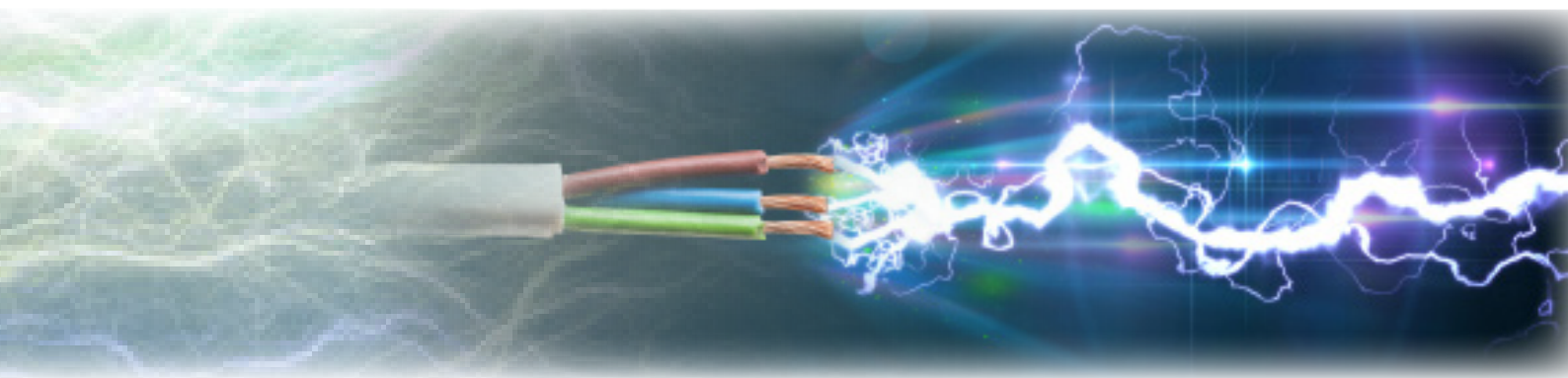


# ***Raycap***

Surge Protection for  
Low Voltage Power Systems













2016  
CATALOG

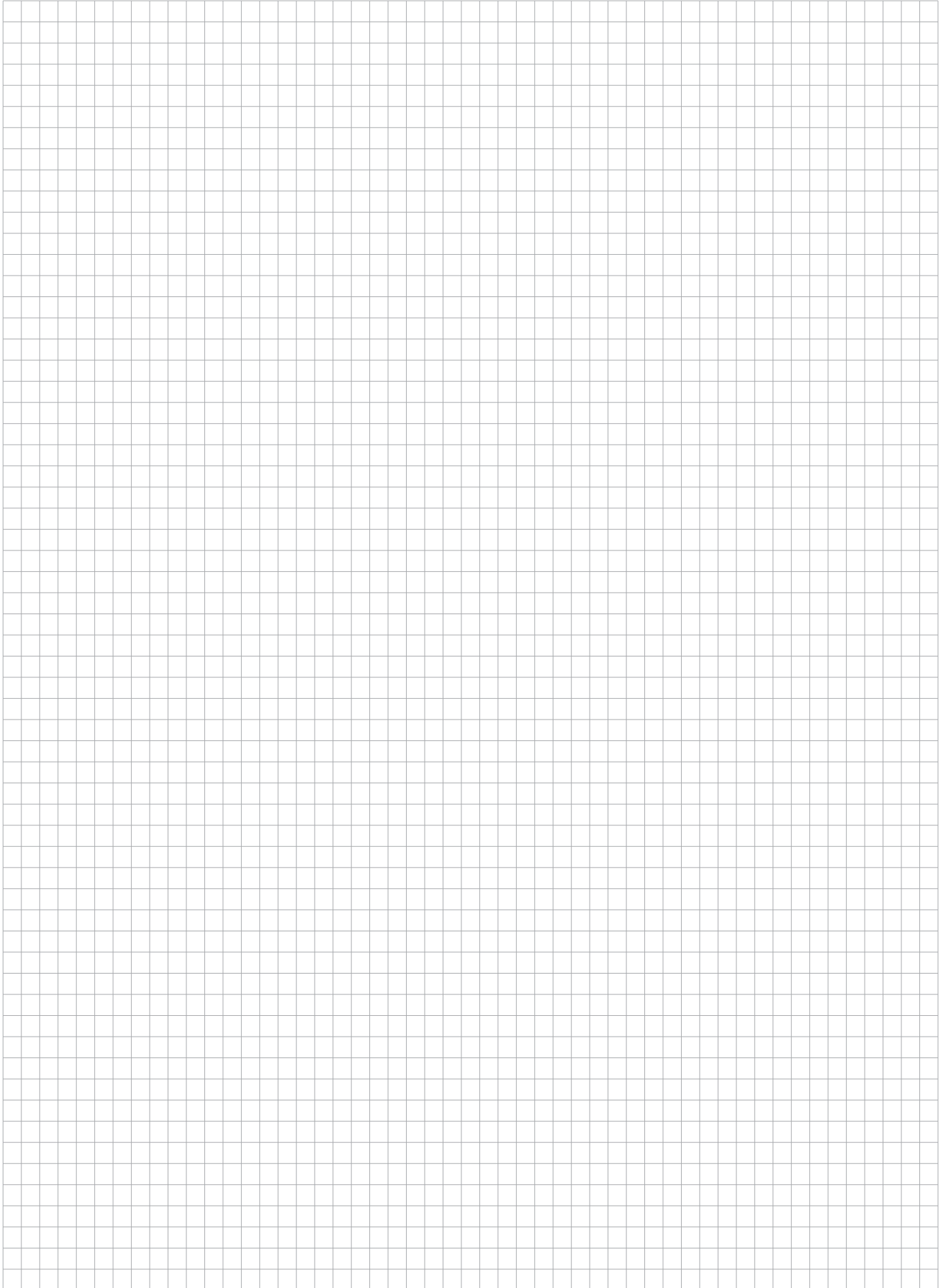
## About Raycap

Raycap was founded in 1987 with a vision of creating and providing solutions that protect the world's infrastructures. From telecommunications to new and traditional energy networks, and from transportation systems to industrial applications of all types, Raycap is there with solutions to ensure equipment uptime in spite of harsh electrical environments. The company strives to keep its customers' sophisticated, mission-critical equipment running seamlessly and continuously, and is driven to make ongoing advancements in its surge protection technologies and product offerings.

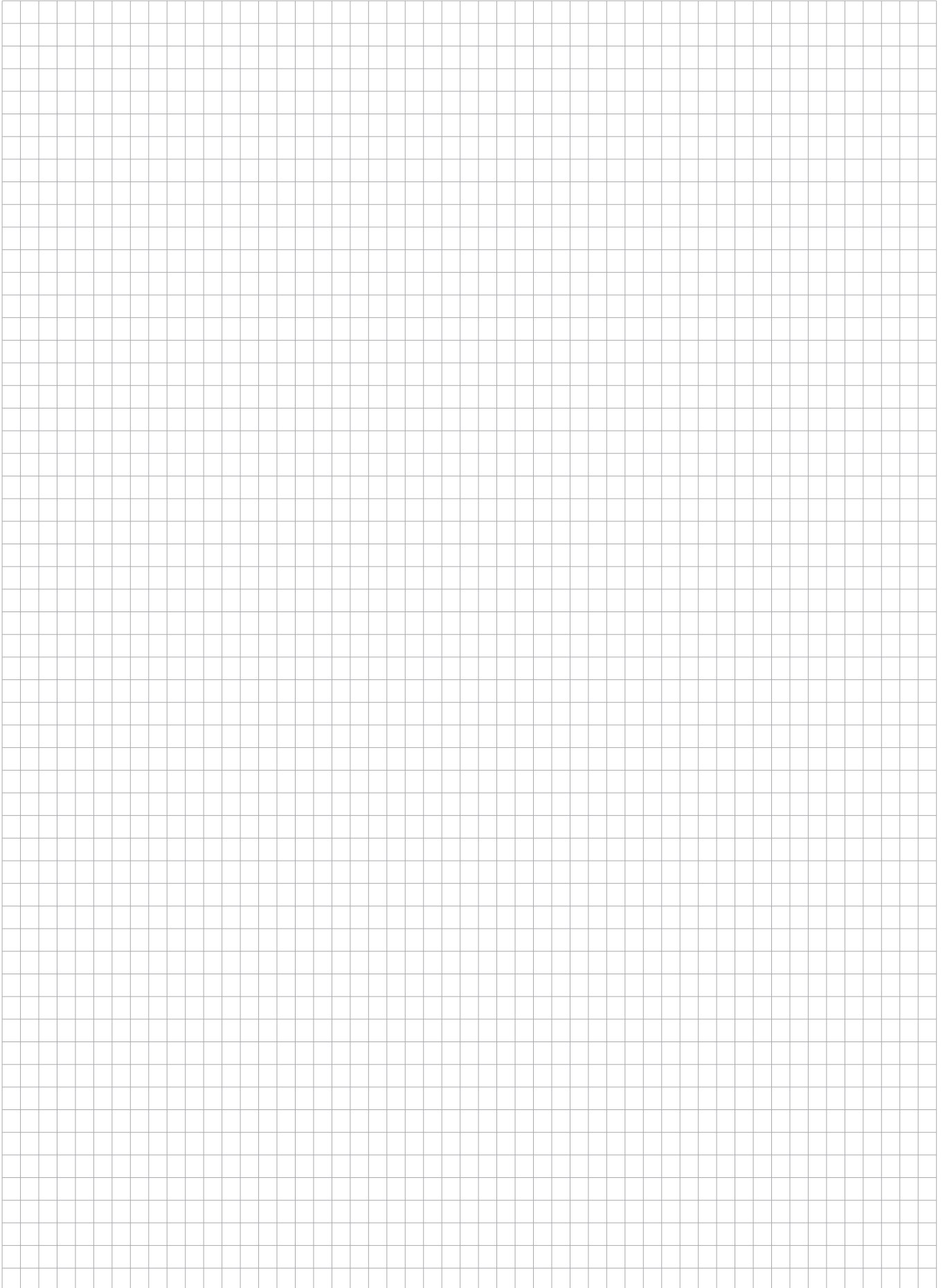
In October 2015 Raycap acquired surge protection manufacturer and innovator Iskra Zaščite in Ljubljana Slovenia. Iskra Zaščite is a company with a long history of serving customers worldwide with best in class DIN rail surge protection solutions. Pairing Iskra Zaščite's wide product line with Raycap's innovative Strikesorb technology and unmatched customer support culture offers Raycap customers worldwide more complete solutions across applications in the industrial, telecommunications, transportation, and energy sectors.



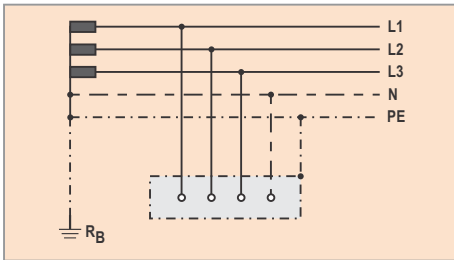
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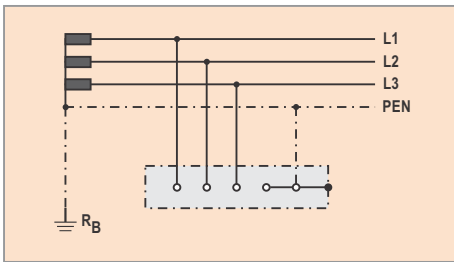
<p><b>Class III Modular and Compact Single and Multi-pole SPD</b>            PROTEC D(R), DM(R), DMG(R), MPE-MINI, MPE-MINI LED, ZE 200-PS, PROFILT D, PROLED 275 16A Series</p> 	119
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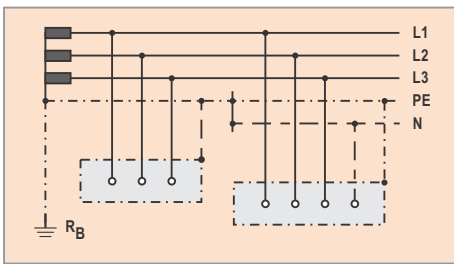
## TN-S system



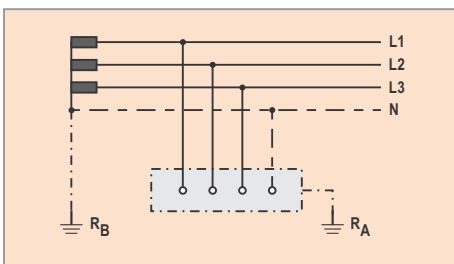
## TN-C system



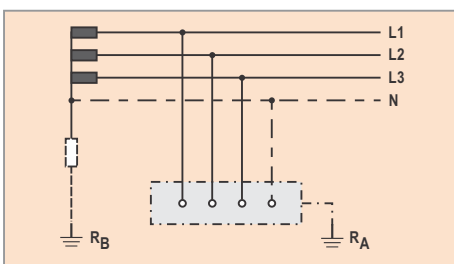
## TN-C-S system



## TT system



## IT system



IEC 364-4-41 (1992) designates low voltage distribution systems (networks) using two letters. The first letter describes the grounding method used at the source (i.e. the secondary side of the power distribution transformer). The second letter describes 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 the 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 the eventual existing grounded feeding point
- N** exposed conductive parts are directly connected to the ground 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 sub-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
- Surge Protective Devices (SPDs)

It is important to ensure that an SPD is correctly selected and co-ordinated with the type of power system used 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
- Voltage fault detector

### IT System

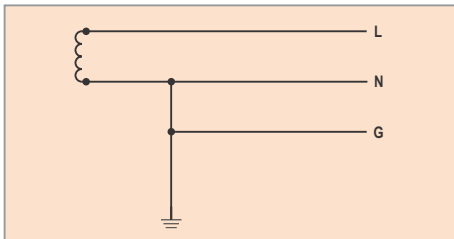
- Over-current protective device;
- Residual current protective device
- Insulation monitoring device
- Fault-voltage-operated protective device
- Voltage fault detector

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

## Source Configuration

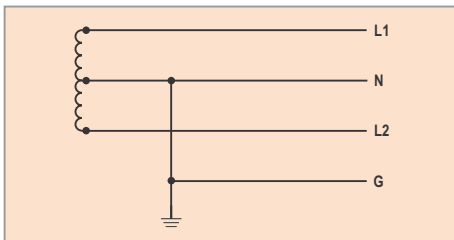
## Description

## Typical Supply Voltages



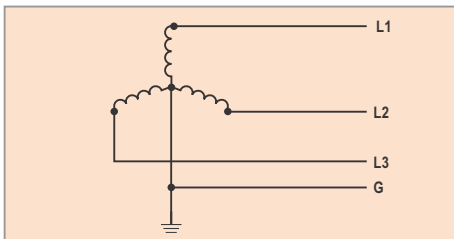
**Single-phase**  
**1Ph, 2W+G**

110V, 120V, 220V, 240V  
(L-N)



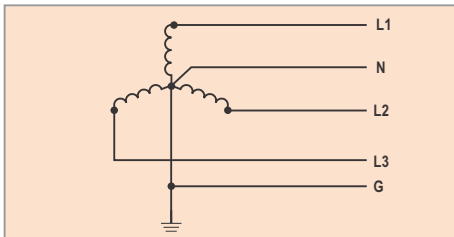
**Single-phase**  
**1Ph, W+G**  
Also known as Split phase or Edison system

120/240V  
(L-N / L-L)



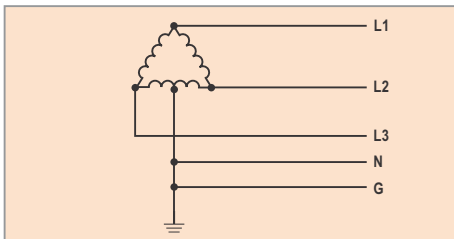
**3-phase WYE without neutral**  
**3Ph Y, 4W+G**

480V  
(L-L)



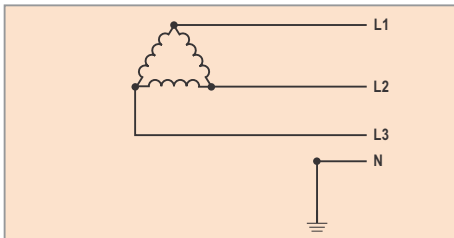
**3-phase WYE with neutral**  
**3Ph Y, 4W+G**

120/208V, 220/380V  
230/400V, 240/415V  
277/480V, 347/600V  
(L-N / L-L)



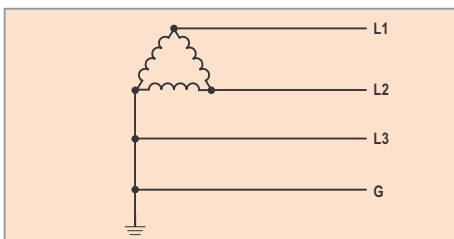
**Delta High Leg**  
**3Ph, 4W+G**

120/240V  
(L-N / L-L)



**Delta Ungrounded**  
**3Ph, 3W+G**

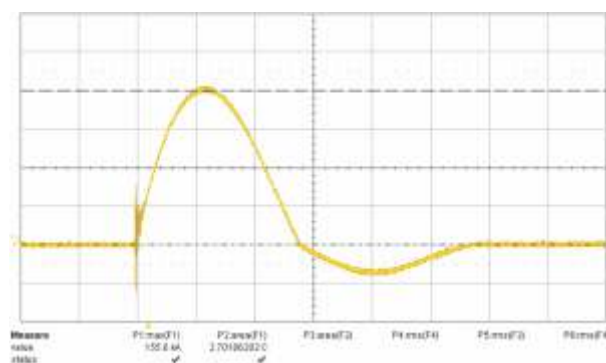
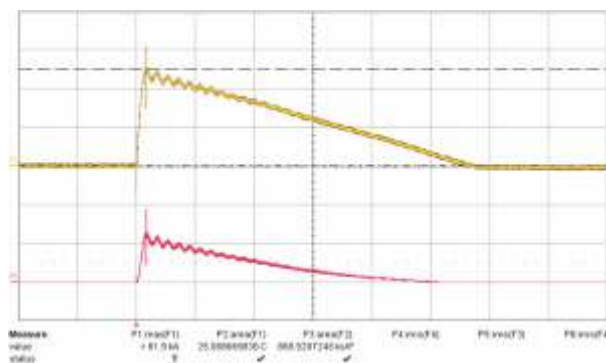
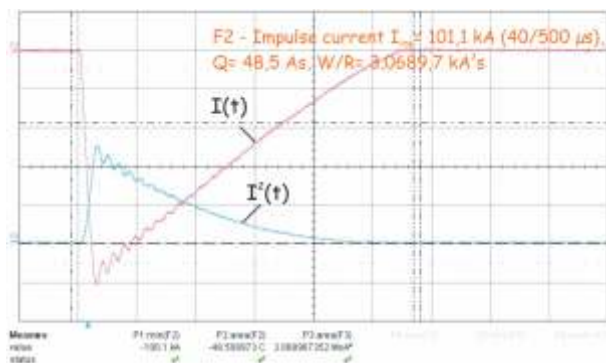
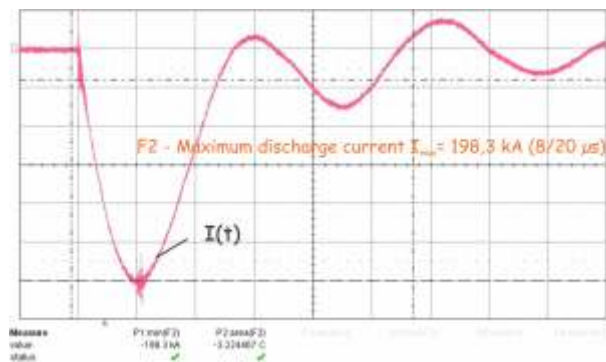
240V, 480V  
(L-L)



**Delta Grounded Corner**  
**3Ph, 3W+G**

240V, 480V  
(L-L)





## 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.

### 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.

### Impulse discharge current for class I test $I_{imp}$ (10/350 current impulse)

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

### 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  $U_{OC}$ .

### TOV Characteristics

Is a behavior of a surge device which is exposed to a temporary overvoltage for a certain time duration. The time can be between 5 seconds and a few weeks.

### Combined Arresters

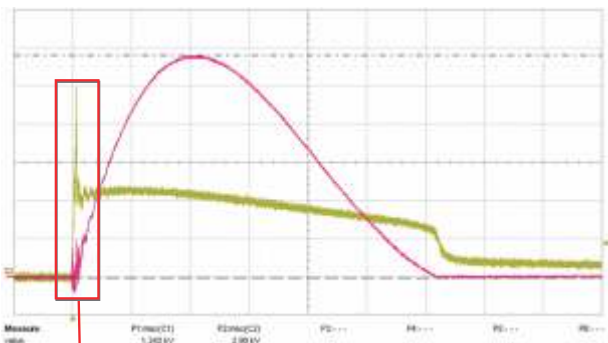
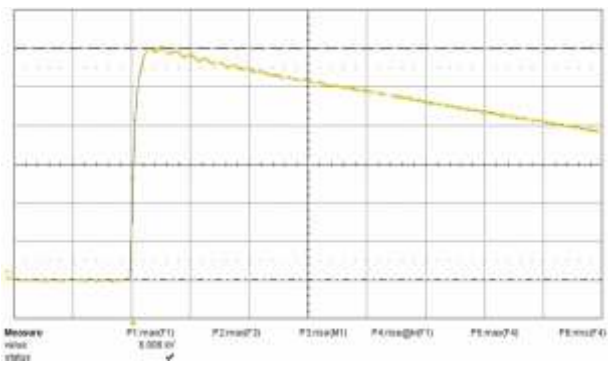
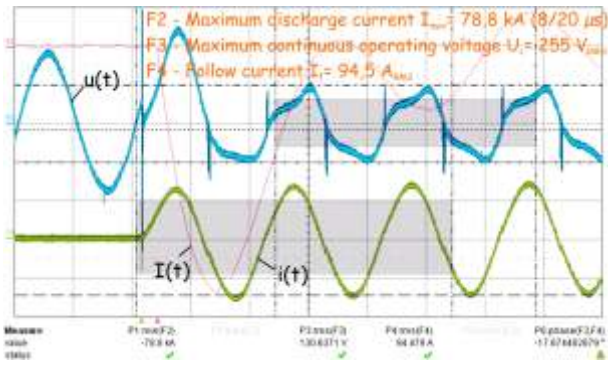
Overvoltage protection device consisting of lightning current arresters and surge arresters.

### 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  $I_n$ .

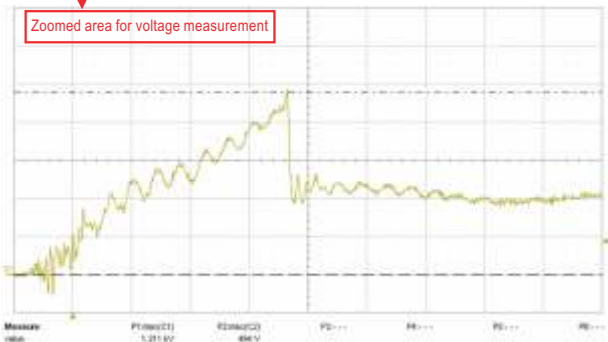
### 1.2/50 voltage impulse

Voltage impulse with a virtual front time of 1.2 $\mu$ s and a time to half-value of 50 $\mu$ s.



C1: voltage 250V/div  
 C2: current 500A/div  
 Timebase: 5μs/div

Zoomed area for voltage measurement



C1: voltage 250V/div  
 Timebase: 100ns/div

**8/20 current impulse**

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

**Environmental 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 a SPD from the power system.

**Follow current interrupt rating I<sub>fi</sub>**

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<sub>c</sub>.

**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.

**Varistor (MOV)**

A varistor is a bipolar, non-linear resistor with a symmetrical voltage-current characteristic, where the resistance decreases with an increasing characteristic curve.

**Mode of protection of an SPD**

An intended current path, between terminals that contains protective components, e.g. line-to-line, line-to-earth, line-to-neutral, neutral-to-earth.

**Multipole SPD**

Type of SPD with more than one mode of protection, or a combination of electrically interconnected SPDs offered as a unit

**U<sub>0</sub> nominal Ac voltage**

In TN and TT - systems: nominal a.c. r.m.s. line voltage to earth; in IT - systems: nominal a.c. voltage between line conductor and neutral conductor or midpoint conductor.

**I<sub>SCCR</sub> short-circuit current rating**

Maximum prospective short-circuit current from the power system for which the SPD, in conjunction with the disconnector specified, is rated

**I<sub>Total</sub> total discharge current**

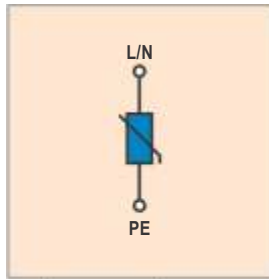
Current which flows through the PE or PEN conductor of a multipole SPD during the total discharge current test.

**SCCR short circuit current rating**

The suitability of an SPD for use on an AC power circuit that is capable of delivering not more than a declared rms symmetrical current at a declared voltage during a short circuit condition.

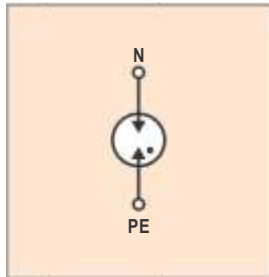
# Regulations

1. IEC 61643-11:2011 EN 61643-11:2012 IEC 61643-1:2005 EN 61643-11:2005	Surge protective devices connected to low voltage power distribution systems - Requirements and test methods;
2. IEC 61643-12:2008 (VDE 0675-6-12)	Surge protective devices connected to low voltage power distribution systems - Selection and application principles;
3. IEC 60364-5-53:2001 (VDE 0100-534)	Electrical installation of buildings - Part 5-53: Selection and erection of electrical equipment - isolation, switching and control;
4. IEC PAS 60099-7:2004	Surge arresters - Part 7: Glossary of terms and definitions from IEC publications 60099-1, 60099-4, 60099-6, 61643-11, 61643-12, 61643-21, 61643-311, 61643-321, 61643-331 and 61643-341;
5. IEC 61000-4-5:2005 (VDE 0847-4-5)	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test;
6. IEC 62305-1:2010 (VDE 0185-305-1)	Protection against lightning - Part 1: General principles;
7. IEC 62305-2:2010 (VDE 0185-305-2)	Protection against lightning - Part 2: Risk management;
8. IEC 62305-3:2010 (VDE 0185-305-3)	Protection against lightning - Part 3: Physical damage to structures and life hazard;
9. IEC 62305-4:2010 (VDE 0185-305-4)	Protection against lightning - Part 4: Electrical and electronic systems within structures;
10. ITU-T K.20:2008	Protection against interferences: Resistibility of telecommunication switching equipment to overvoltages and overcurrent;
11. ITU-T K.21:2008	Protection against interferences: Resistibility of subscriber's terminal to overvoltages and overcurrent;
12. ITU-T K.44:2011	Protection against interferences: Resistibility test for telecommunication equipment exposed to overvoltages and overcurrent - Basic Recommendation;
13. IEC 61643-21:2012 (VDE 0845-3-1)	Low voltage surge protective devices - Part 21: Surge protective devices connected to telecommunications and signaling networks - Performance requirements and testing methods;
14. IEC 61643-22:2004	Low-Voltage Surge Protective Devices - Part 22: Surge protection devices connected to telecommunications and signaling networks - Selection and application principles;
15. IEC 60099-1:1999 (VDE 0675-1)	Surge arresters - Part 1: Non-linear resistor type gapped surge arresters for a.c. systems
16. IEC 60099-4:2009 (VDE 0675-4)	Surge arresters - Part 4: Metal-oxide surge arresters without gaps for a.c. systems
17. IEC 60099-5:2000 (VDE 0675-5)	Surge arresters - Part 5: Selection and application recommendations;
18. IEC 60038:2009 (VDE 0175-1)	IEC standard voltages
19. UL 1449 4rd Edition	Standard for Surge Protective Devices
20. IEC 62497-2:2010	Railway applications - Insulation coordination - Part 2: Overvoltages and related protection
21. EN 50526-1:2012	Railway applications - Fixed installations - D.C. surge arresters and voltage limiting devices - Part 1: Surge arresters
22. EN 50123-5:2003	Railway applications - Fixed installations - D.C. switchgear - Part 5: Surge arresters and low-voltage limiters for specific use in d.c. systems
23. EN 50122-1:1998	Railway applications - Fixed installations - Part 1: Protective provisions relating to electrical safety and earthing
24. IEC 60364-7-712:2002	Electrical installations of buildings - Part 7-712 : Requirements for special installations or locations - Solar photovoltaic (PV) power supply systems
25. HD 60364-7-712:2005	Electrical installations of buildings - Part 7-712: Requirements for special installations or locations - Solar photovoltaic (PV) power supply systems
26. EN 61173:2001	Overvoltage protection for photovoltaic (PV) power generating systems - guide32. SIST EN 61400-1:2006 /A1:2011 Wind turbines - Part 1: Design requirements (IEC 61400-1:2005/A1:2010)
27. IEC TR 61400-24:2010	Wind turbine generator systems - part 24: Lightning protection
28. CLC/TS 50539-12:2012	Low-voltage surge protective devices - Surge protective devices for specific application including d.c. - Part 12: Selection and application principles - SPDs connected to photovoltaic installations
29. EN 50539-11:2012	Low-voltage surge protective devices - Surge protective devices for specific application including d.c. - Part 11: Requirements and tests for SPDs in photovoltaic applications
30. IEC 61643-311	"Components for low-voltage surge protective devices Part 311: Performance requirements and test circuits for gas discharge tubes (GDT)", Edition 2.0, 2013-04.
31. HD 60364-4-443:2006	Electrical installations of buildings - Part 4-44: Protection for safety - Protection against voltage disturbances and electromagnetic disturbances - Clause 443: Protection against overvoltages of atmospheric origin or due to switching.
32. EN 62561-3:2012	Lightning protection system components (LPSC) - Part 3: Requirements for isolating spark gaps (ISG)
33. IEC/EN 62561-6:2011	Lightning protection system components (LPSC) - Part 6: Requirements for lightning strike counters (LSC)
34. IEC/EN 61326-1:2013	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements



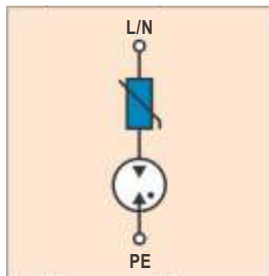
### SPD comprising MOV:

- no problems with follow current  $I_{fi}$
- quick response time  $t_A (\leq 25ns)$  means low residual voltage
- responds well to low overvoltages
- high surge capacity, up to 50kA 10/350 $\mu$ s



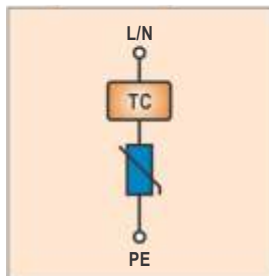
### SPD comprising GDT:

- high surge capacity 100kA 10/350 $\mu$ s
- no exhausting of ionised gases
- used in TT systems as galvanic separation between N-PE conductors



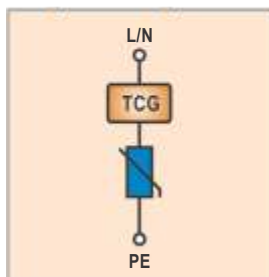
### Hybrid SPD comprising both MOV and GDT:

- no follow current  $I_{fi}$
- quick response time  $t_A (\leq 25ns)$  means low residual voltage
- responds well to low overvoltages
- high surge capacity, up to 25kA 10/350 $\mu$ s



### Hybrid SPD TC:

- no follow current  $I_{fi}$
- quick response time  $t_A (\leq 25ns)$  means low residual voltage
- responds well to low overvoltages
- high surge capacity, up to 25kA 10/350 $\mu$ s
- TC - Thermal Control Function



### Hybrid SPD TCG:

- no follow current  $I_{fi}$
- quick response time  $t_A (\leq 25ns)$  means low residual voltage
- responds well to low overvoltages
- high surge capacity, up to 25kA 10/350 $\mu$ s
- TCG - Thermal Control Function without leakage current

---

## Class I, II Compact Single and Multi-pole SPD 12.5kA per pole



---

Category IEC / EN:	Class I, II / Type 1, 2
Location of use:	Main distribution boards
Protection modes:	L/N-PE, L-PEN, L-N, N-PE
Protective elements:	High energy MOV and GDT
Surge discharge rating:	$I_{imp} = 12.5kA$
Safety:	TOV withstand
Internal protection:	Separate thermal disconnecter for each MOV
Complies with:	IEC 61643-11:2011, EN 61643-11:2012



---

### The SAFETEC B(R) TCG\* and SAFEBLOC B(R) TCG\* series of SPDs:

- Have no impact on the network in normal operation due to no leakage current design
- Are highly reliable - controlled disconnection, arc-quenching
- Patented current limiting circuit
- Have longer life - protection against aging
- Have up to 5 years warranty

---

SAFETECB(R) TCG Series:  
**SAFETECB(R) 12.5/xxx TCG**  
**SAFETUBE B 50**

SAFEBLOCB(R) TCG Series:  
**SAFEBLOCB(R) 25/xxx (2+0) TCG**  
**SAFEBLOCB(R) 37.5/xxx (3+0) TCG**  
**SAFEBLOCB(R) 50/xxx (4+0) TCG**  
**SAFEBLOCB(R) 25/xxx (1+1) TCG**  
**SAFEBLOCB(R) 50/xxx (3+1) TCG**

The SAFETEC B(R) TCG and SAFEBLOC B(R) TCG series of overvoltage surge protective devices have been developed to protect against partial direct and indirect lightning discharges and are intended to provide protection in zones 0<sub>A</sub>-2 per IEC 62305.

All in one protection from overvoltages, surges and transients in accordance to IEC/EN 61643-11.

SAFETEC B(R) TCG and SAFEBLOC B(R) TCG series consists of separate, high performance varistors and **TCG circuit**, each with a separate disconnection device.

The compact SAFETEC B(R) TCG and SAFEBLOC B(R) TCG series is suitable for all types of connection. Patented TCG technology prevents catastrophic failures in the case of TOVs (temporary overvoltages).

\*TCG - Thermal control function without leakage current

**SAFETEC B(R) 12.5 TCG**



- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Main distribution boards
- **Network systems:** TN-S, TN- C, IT, TT (only L-N)
- **Protection modes:** L/N-PE, L-PEN, L-N
- **Protective elements:** High energy MOV and GDT
- **Surge discharge rating:**  $I_{imp} = 12.5kA$
- **Safety:** TOV withstand
- **Leakage current:** NO leakage current (TCG)
- **Housing:** Compact design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



**Technical data**

Type	SAFETEC B(R) 12.5/xxx TCG		
	150	275	440

● **Electrical characteristics**

Nominal AC voltage	$U_o$	120V 50/60Hz	230V 50/60Hz	400V 50/60Hz
Max. continuous operating voltage (AC/DC)	$U_c$	150/200V	275/350V	440/580V
Nominal discharge current (8/20)	$I_n$		12.5kA	
Max. discharge current (8/20)	$I_{max}$		50kA	
Impulse current (10/350)	$I_{imp}$		12.5kA	
Total discharge current (10/350)	$I_{total}$		12.5kA	
Specific energy	W/R		39kJ/Ω	
Charge	Q		6.25As	
Protection level	$U_p$	< 0.65kV	< 1.1kV	< 1.6kV
Residual voltage at 5kA (8/20)	$U_{res}$	< 0.55kV	< 0.8kV	< 1.4kV
Follow current	$I_{fi}$		NO	
Response time	$t_A$		< 25ns	
Thermal protection			YES	
Back-up fuse (if mains > 160A)			160A gG/gL	
Short-circuit current rating	$I_{scCR}$		25kA/50Hz	
TOV withstand 5s	$U_T$	174V	335V	580V
TOV withstand 120min	$U_T$	228V	438V	765V
Number of ports			1	

● **Mechanical characteristics**

Temperature range	$T_a$	- 40°C .... + 70°C		
Permissible humidity	RH	5%...95%		
Terminal screw torque	$M_{max}$	3.0Nm		
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)		
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)		
Mounting		35mm DIN rail, EN 60715		
Degree of protection		IP 20		
Housing material		thermoplastic; extinguishing degree UL 94 V-0		
Indication of thermal disconnecter operation		red flag		
Remote contacts (RC)		YES		
Contact ratings		AC: 250V/0.5A; 125V/3A		
Terminal cross section		max. 1.5mm <sup>2</sup>		
Remote terminal torque		0.25Nm		

**Ordering information**

$U_c$	150	275	440
Ordering code SAFETEC B 12.5/xxx TCG	54.0146	54.0148	54.0150
Ordering code SAFETEC BR 12.5/xxx TCG (with remote contacts)	54.0147	54.0149	54.0151

**SAFETUBE B 50**



- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Main distribution boards
- **Network system:** TT
- **Protection modes:** N - PE
- **Protective element:** High energy GDT
- **Surge discharge rating:**  $I_{imp} = 50kA$
- **Housing:** Compact design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



**Technical data**

<b>Type</b>	<b>SAFETUBE B 50</b>
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● **Electrical characteristics**

Nominal AC voltage	$U_o$	230V 50/60Hz
Max. continuous operating voltage (AC/DC)	$U_c$	255V
Nominal discharge current (8/20)	$I_n$	50kA
Max. discharge current (8/20)	$I_{max}$	100kA
Impulse current (10/350)	$I_{imp}$	50kA
Total discharge current (10/350)	$I_{total}$	50kA
Specific energy	W/R	625kJ/Ω
Charge	Q	25As
Protection level	$U_p$	< 1.5kV
Follow current	$I_{fi}$	100A <sub>RMS</sub>
Response time	$t_A$	< 100ns
TOV withstand 200ms	$U_T$	1200V/300A
Number of ports		1

● **Mechanical characteristics**

Temperature range	$T_a$	- 40°C ..... + 70°C
Permissible humidity	RH	5%...95%
Terminal screw torque	$M_{max}$	3.0Nm
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)
Mounting		35mm DIN rail, EN 60715
Degree of protection		IP 20
Housing material		thermoplastic; extinguishing degree UL 94 V-0

**Ordering information**

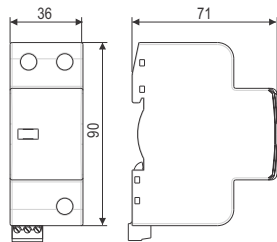
$I_{imp}$	50
Ordering code SAFETUBE B 50	54.0006

Dimensions, Internal configuration, Weight and Packaging

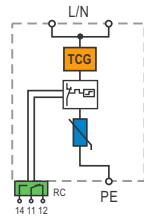


**SAFETEC B(R) 12.5/xxx TCG**

**Dimensions**



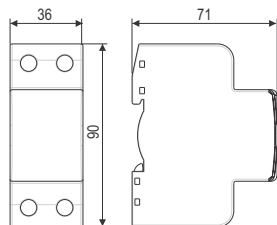
**Internal configuration**



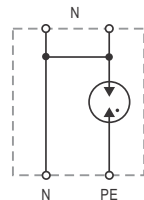
<b>SAFETEC B 12.5/xxx TCG</b>	<b>150</b>	<b>275</b>	<b>440</b>
Dimensions DIN 43880		2TE	
Weight per unit	175g	205g	255g
<b>SAFETEC BR 12.5/xxx TCG</b>	<b>150</b>	<b>275</b>	<b>440</b>
Dimensions DIN 43880		2TE	
Weight per unit	180g	210g	260g
Packaging dimensions (single unit)	109 x 76.5 x 41.5mm		
Min. packaging quantity	7 pcs.		

**SAFETUBE B 50**

**Dimensions**



**Internal configuration**



<b>SAFETUBE B 50</b>			
Dimensions DIN 43880		2TE	
Weight per unit		180g	
Packaging dimensions (single unit)	109 x 76.5 x 41.5mm		
Min. packaging quantity	7 pcs.		



## SAFEBLOC B(R) 25 (2+0) TCG



- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Main distribution boards
- **Network systems:** TN-S
- **Protection modes:** L/N - PE, L- PEN
- **Protective elements:** High energy MOV and GDT
- **Surge discharge rating:**  $I_{imp} = 12.5kA$
- **Safety:** TOV withstand
- **Leakage current:** NO leakage current (TCG)
- **Housing:** Compact design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



### Technical data

Type	SAFEBLOC B(R) 25/xxx (2+0) TCG			
	150	275	440	
<b>● Electrical characteristics</b>				
Nominal AC voltage	$U_o$	120V 50/60Hz	230V 50/60Hz	400V 50/60Hz
Max. continuous operating voltage (AC/DC)	$U_c$	150/200V	275/350V	440/580V
Nominal discharge current (8/20)	$I_n$	12.5kA per pole		
Max. discharge current (8/20)	$I_{max}$	50kA per pole		
Impulse current (10/350)	$I_{imp}$	12.5kA per pole		
Total discharge current (10/350)	$I_{total}$	25kA		
Specific energy	W/R	39kJ/Ω		
Charge	Q	6.25As		
Protection level	$U_p$	< 0.65kV	< 1.1kV	< 1.6kV
Residual voltage at 5kA (8/20)	$U_{res}$	< 0.55kV	< 0.8kV	< 1.4kV
Follow current	$I_{fi}$	NO		
Response time	$t_A$	< 25ns		
Thermal protection		YES		
Back-up fuse (if mains > 160A)		160A gG/gL		
Short-circuit current rating	$I_{scCR}$	25kA/50Hz		
TOV withstand 5s	$U_T$	174V	335V	580V
TOV withstand 120min	$U_T$	228V	438V	765V
Number of ports		1		
<b>● Mechanical characteristics</b>				
Temperature range	$T_a$	- 40°C .... + 70°C		
Permissible humidity	RH	5%...95%		
Terminal screw torque	$M_{max}$	3.0Nm		
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)		
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)		
Mounting		35mm DIN rail, EN 60715		
Degree of protection		IP 20		
Housing material		thermoplastic; extinguishing degree UL 94 V-0		
Indication of thermal disconnecter operation		red flag		
Remote contacts (RC)		YES		
Contact ratings		AC: 250V/0.5A; 125V/3A		
Terminal cross section		max. 1.5mm <sup>2</sup>		
Remote terminal torque		0.25Nm		

### Ordering information

$U_c$	150	275	440
Ordering code SAFEBLOC B 25/xxx (2+0) TCG	54.0152	54.0154	54.0156
Ordering code SAFEBLOC BR 25/xxx (2+0) TCG (with remote contacts)	54.0153	54.0155	54.0157

## SAFEBLOC B(R) 37.5 (3+0) TCG



- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Main distribution boards
- **Network systems:** TN-C
- **Protection modes:** L/N - PE, L- PEN
- **Protective elements:** High energy MOV and GDT
- **Surge discharge rating:**  $I_{imp} = 12.5kA$
- **Safety:** TOV withstand
- **Leakage current:** NO leakage current (TCG)
- **Housing:** Compact design
- **Complies with:** IEC 61643-11:2011,  
EN 61643-11:2012;



### Technical data

Type	SAFEBLOC B(R) 37.5/xxx (3+0) TCG		
	150	275	440

#### ● Electrical characteristics

Nominal AC voltage	$U_o$	120V 50/60Hz	230V 50/60Hz	400V 50/60Hz
Max. continuous operating voltage (AC/DC)	$U_c$	150/200V	275/350V	440/580V
Nominal discharge current (8/20)	$I_n$		12.5kA per pole	
Max. discharge current (8/20)	$I_{max}$		50kA per pole	
Impulse current (10/350)	$I_{imp}$		12.5kA per pole	
Total discharge current (10/350)	$I_{total}$		37.5kA	
Specific energy	W/R		39kJ/Ω	
Charge	Q		6.25As	
Protection level	$U_p$	< 0.65kV	< 1.1kV	< 1.6kV
Residual voltage at 5kA (8/20)	$U_{res}$	< 0.55kV	< 0.8kV	< 1.4kV
Follow current	$I_{fi}$		NO	
Response time	tA		< 25ns	
Thermal protection			YES	
Back-up fuse (if mains > 160A)			160A gG/gL	
Short-circuit current rating	$I_{scCR}$		25kA/50Hz	
TOV withstand 5s	$U_T$	174V	335V	580V
TOV withstand 120min	$U_T$	228V	438V	765V
Number of ports			1	

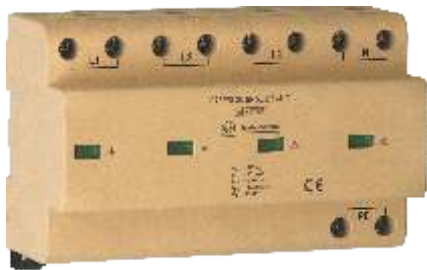
#### ● Mechanical characteristics

Temperature range	Ta	- 40°C .... + 70°C		
Permissible humidity	RH	5%...95%		
Terminal screw torque	$M_{max}$	3.0Nm		
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)		
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)		
Mounting		35mm DIN rail, EN 60715		
Degree of protection		IP 20		
Housing material		thermoplastic; extinguishing degree UL 94 V-0		
Indication of thermal disconnecter operation		red flag		
Remote contacts (RC)		YES		
Contact ratings		AC: 250V/0.5A; 125V/3A		
Terminal cross section		max. 1.5mm <sup>2</sup>		
Remote terminal torque		0.25Nm		

### Ordering information

$U_c$	150	275	440
Ordering code SAFEBLOC B 37.5/xxx (3+0) TCG	54.0164	54.0166	54.0168
Ordering code SAFEBLOC BR 37.5/xxx (3+0) TCG (with remote contacts)	54.0165	54.0167	54.0169

## SAFEBLOC B(R) 50 (4+0) TCG



- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Main distribution boards
- **Network systems:** TN-S, IT
- **Protection modes:** L/N - PE, L- PEN
- **Protective elements:** High energy MOV and GDT
- **Surge discharge rating:**  $I_{imp} = 12.5kA$
- **Safety:** TOV withstand
- **Leakage current:** NO leakage current (TCG)
- **Housing:** Compact design
- **Complies with:** IEC 61643-11:2011,  
EN 61643-11:2012:



### Technical data

Type	SAFEBLOC B(R) 50/xxx (4+0) TCG			
	150	275	440	
<b>● Electrical characteristics</b>				
Nominal AC voltage	$U_o$	120V 50/60Hz	230V 50/60Hz	400V 50/60Hz
Max. continuous operating voltage (AC/DC)	$U_c$	150/200V	275/350V	440/580V
Nominal discharge current (8/20)	$I_n$	12.5kA per pole		
Max. discharge current (8/20)	$I_{max}$	50kA per pole		
Impulse current (10/350)	$I_{imp}$	12.5kA per pole		
Total discharge current (10/350)	$I_{total}$	50kA		
Specific energy	W/R	39kJ/Ω		
Charge	Q	6.25As		
Protection level	$U_p$	< 0.65kV	< 1.1kV	< 1.6kV
Residual voltage at 5kA (8/20)	$U_{res}$	< 0.55kV	< 0.8kV	< 1.4kV
Follow current	$I_{fi}$	NO		
Response time	$t_A$	< 25ns		
Thermal protection		YES		
Back-up fuse (if mains > 160A)		160A gG/gL		
Short-circuit current rating	$I_{scCR}$	25kA/50Hz		
TOV withstand 5s	$U_T$	174V	335V	580V
TOV withstand 120min	$U_T$	228V	438V	765V
Number of ports		1		
<b>● Mechanical characteristics</b>				
Temperature range	$T_a$	- 40°C .... + 70°C		
Permissible humidity	RH	5% - 95%		
Terminal screw torque	$M_{max}$	3.0Nm		
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)		
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)		
Mounting		35mm DIN rail, EN 60715		
Degree of protection		IP 20		
Housing material		thermoplastic; extinguishing degree UL 94 V-0		
Indication of thermal disconnecter operation		red flag		
Remote contacts (RC)		YES		
Contact ratings		AC: 250V/0.5A; 125V/3A		
Terminal cross section		max. 1.5mm <sup>2</sup>		
Remote terminal torque		0.25Nm		

### Ordering information

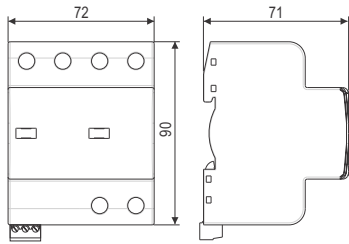
$U_c$	150	275	440
Ordering code SAFEBLOC B 50/xxx (4+0) TCG	54.0170	54.0172	54.0174
Ordering code SAFEBLOC BR 50/xxx (4+0) TCG (with remote contacts)	54.0171	54.0173	54.0175

Dimensions, Internal configuration, Weight and Packaging

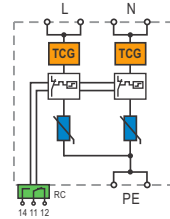


**SAFEBLOC B(R) 25/xxx (2+0) TCG**

Dimensions



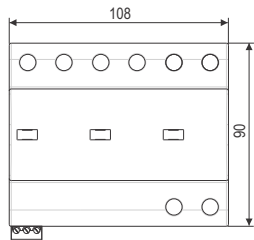
Internal configuration



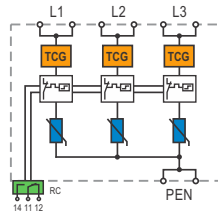
<b>SAFEBLOC B 25/xxx (2+0) TCG</b>	<b>150</b>	<b>275</b>	<b>440</b>
Dimensions DIN 43880		4TE	
Weight per unit	320g	420g	540g
<b>SAFEBLOC BR 25/xxx (2+0) TCG</b>	<b>150</b>	<b>275</b>	<b>440</b>
Dimensions DIN 43880		4TE	
Weight per unit	330g	430g	550g
Packaging dimensions (single unit)	109 x 76.5 x 80mm		
Min. packaging quantity	3 pcs.		

**SAFEBLOC B(R) 37.5/xxx (3+0) TCG**

Dimensions



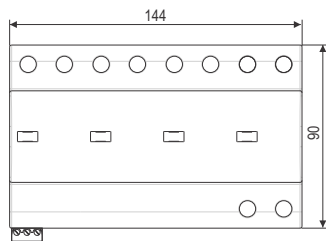
Internal configuration



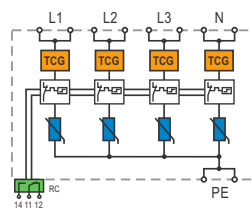
<b>SAFEBLOC B 37.5/xxx (3+0) TCG</b>	<b>150</b>	<b>275</b>	<b>440</b>
Dimensions DIN 43880		6TE	
Weight per unit	430g	530g	740g
<b>SAFEBLOC BR 37.5/xxx (3+0) TCG</b>	<b>150</b>	<b>275</b>	<b>440</b>
Dimensions DIN 43880		6TE	
Weight per unit	435g	535g	745g
Packaging dimensions (single unit)	109 x 76.5 x 114mm		
Min. packaging quantity	2 pcs.		

**SAFEBLOC B(R) 50/xxx (4+0) TCG**

Dimensions



Internal configuration



<b>SAFEBLOC B 50/xxx (4+0) TCG</b>	<b>150</b>	<b>275</b>	<b>440</b>
Dimensions DIN 43880		8TE	
Weight per unit	800g	1000g	1160g
<b>SAFEBLOC BR 50/xxx (4+0) TCG</b>	<b>150</b>	<b>275</b>	<b>440</b>
Dimensions DIN 43880		8TE	
Weight per unit	820g	1020g	1180g
Packaging dimensions (single unit)	109 x 76.5 x 148mm		
Min. packaging quantity	2 pcs.		

**SAFEBLOC B(R) 25 (1+1) TCG**


● <b>Category IEC / EN:</b>	Class I, II / Type 1, 2
● <b>Location of use:</b>	Main distribution boards
● <b>Network system:</b>	TT, TN-S
● <b>Protection modes:</b>	L-N, N-PE
● <b>Protective elements:</b>	High energy MOV and GDT
● <b>Surge discharge rating:</b>	$I_{imp}$ (L-N/N-PE) = 12.5kA/50kA
● <b>Safety:</b>	TOV withstand
● <b>Leakage current:</b>	NO leakage current (TCG)
● <b>Housing:</b>	Compact design
● <b>Complies with:</b>	IEC 61643-11:2011, EN 61643-11:2012;


**Technical data**

Type	SAFEBLOC B(R) 25/xxx (1+1) TCG		
	150	275	440

**Electrical characteristics**

Nominal AC voltage	$U_o$ (L-N)	120V 50/60Hz	230V 50/60Hz	400V 50/60Hz
	$U_o$ (N-PE)		230V 50/60Hz	
Max. continuous operating voltage (AC/DC)	$U_c$ (L-N)	150/200V	275/350V	440/580V
	$U_c$ (N-PE)		255V	
Nominal discharge current (8/20)	$I_n$ (L-N/N-PE)		12.5kA/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	
Total discharge current (10/350)	$I_{total}$		12.5kA	
Specific energy	$W/R$ (L-N/N-PE)		39kJ/Ω/625kJ/Ω	
Charge	$Q$ (L-N/N-PE)		6.25As/25As	
Protection level	$U_p$ (L-N)	< 0.65kV	< 1.1kV	< 1.6kV
	$U_p$ (N-PE)		< 1.5kV	
Residual voltage at 5kA (8/20)	$U_{res}$ (L-N)	< 0.55kV	< 0.8kV	< 1.4kV
Follow current	$I_{fi}$ (L-N/N-PE)		100A <sub>RMS</sub>	
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)		160A gG/gL	
Short-circuit current rating	$I_{sccr}$		25kA/50Hz	
TOV withstand 5s	$U_T$	174V	335V	580V
TOV withstand 120min	$U_T$ (L-N)	228V	438V	765V
TOV withstand 200ms	$U_T$ (N-PE)		1200V/300A	
Number of ports			1	

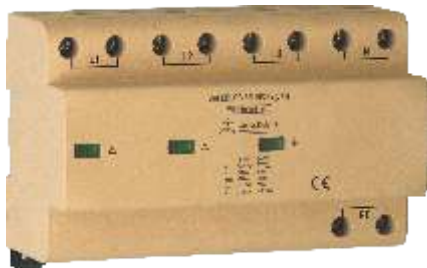
**Mechanical characteristics**

Temperature range	$T_a$	- 40°C .... + 70°C		
Permissible humidity	RH	5% - 95%		
Terminal screw torque	$M_{max}$	3.0Nm		
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)		
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)		
Mounting		35mm DIN rail, EN 60715		
Degree of protection		IP 20		
Housing material		thermoplastic; extinguishing degree UL 94 V-0		
Indication of thermal disconnect operation		red flag		
Remote contacts (RC)		YES		
Contact ratings		AC: 250V/0.5A; 125V/3A		
Terminal cross section		max. 1.5mm <sup>2</sup>		
Remote terminal torque		0.25Nm		

**Ordering information**

$U_c$	150	275	440
Ordering code SAFEBLOC B 25/xxx (1+1) TCG	54.0158	54.0160	54.0162
Ordering code SAFEBLOC BR 25/xxx (1+1) TCG (with remote contacts)	54.0159	54.0161	54.0163

## SAFEBLOC B(R) 50 (3+1) TCG



- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Main distribution boards
- **Network system:** TT, TN-S
- **Protection modes:** L-N, N-PE
- **Protective elements:** High energy MOV and GDT
- **Surge discharge rating:**  $I_{imp}$  (L-N/N-PE) = 12.5kA/50kA
- **Safety:** TOV withstand
- **Leakage current:** NO leakage current (TCG)
- **Housing:** Compact design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



### Technical data

Type	SAFEBLOC B(R) 50/xxx (3+1) TCG			
	150	275	440	
<b>● Electrical characteristics</b>				
Nominal AC voltage	$U_o$ (L-N)	120V 50/60Hz	230V 50/60Hz	400V 50/60Hz
	$U_o$ (N-PE)		230V 50/60Hz	
Max. continuous operating voltage (AC/DC)	$U_c$ (L-N)	150/200V	275/350V	440/580V
	$U_c$ (N-PE)		255V	
Nominal discharge current (8/20)	$I_n$ (L-N/N-PE)		12.5kA/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	
Total discharge current (10/350)	$I_{total}$		50kA	
Specific energy	W/R (L-N/N-PE)		39kJ/Ω/625kJ/Ω	
Charge	Q (L-N/N-PE)		6.25As/25As	
Protection level	$U_p$ (L-N)	< 0.65kV	< 1.1kV	< 1.6kV
	$U_p$ (N-PE)		< 1.5kV	
Residual voltage at 5kA (8/20)	$U_{res}$ (L-N)	< 0.55kV	< 0.8kV	< 1.4kV
Follow current	$I_{fi}$ (L-N/N-PE)		100A <sub>RMS</sub>	
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)		160A gG/gL	
Short-circuit current rating	$I_{sccr}$		25kA/50Hz	
TOV withstand 5s	$U_T$ (L-N)	174V	335V	580V
TOV withstand 120min	$U_T$ (L-N)	228V	438V	765V
TOV withstand 200ms	$U_T$ (N-PE)		1200V/300A	
Number of ports			1	
<b>● Mechanical characteristics</b>				
Temperature range	$T_a$		- 40°C .... + 70°C	
Permissible humidity	RH		5% - 95%	
Terminal screw torque	$M_{max}$		max. 3.0Nm	
Conductor cross section			35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)	
AWG conductor cross section			2 AWG (solid) / 3 AWG (stranded)	
Mounting			35mm DIN rail, EN 60715	
Degree of protection			IP 20	
Housing material			thermoplastic; extinguishing degree UL 94 V-0	
Indication of thermal disconnecter operation			red flag	
Remote contacts (RC)			YES	
Contact ratings			AC: 250V/0.5A; 125V/3A	
Terminal cross section			max. 1.5mm <sup>2</sup>	
Remote terminal torque			0.25Nm	

### Ordering information

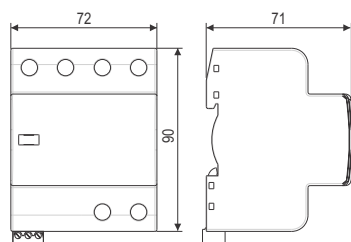
$U_c$	150	275	440
Ordering code SAFEBLOC B 50/xxx (3+1) TCG	54.0176	54.0178	54.0180
Ordering code SAFEBLOC BR 50/xxx (3+1) TCG (with remote contacts)	54.0177	54.0179	54.0181

Dimensions, Internal configuration, Weight and Packaging

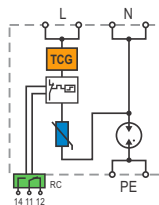


**SAFEBLOC B(R) 25/xxx (1+1) TCG**

Dimensions



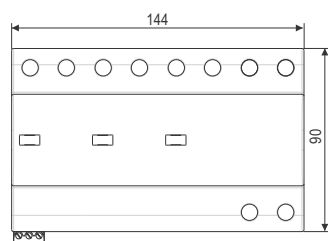
Internal configuration



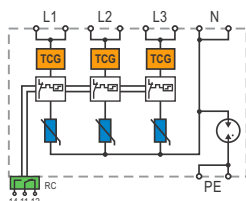
<b>SAFEBLOC B 25/xxx (1+1) TCG</b>	<b>150</b>	<b>275</b>	<b>440</b>
Dimensions DIN 43880		4TE	
Weight per unit	280g	315g	340g
<b>SAFEBLOC BR 25/xxx (1+1) TCG</b>	<b>150</b>	<b>275</b>	<b>440</b>
Dimensions DIN 43880		4TE	
Weight per unit	285g	320g	345g
Packaging dimensions (single unit)	109 x 76.5 x 80mm		
Min. packaging quantity	3 pcs.		

**SAFEBLOC B(R) 50/xxx (3+1) TCG**

Dimensions



Internal configuration



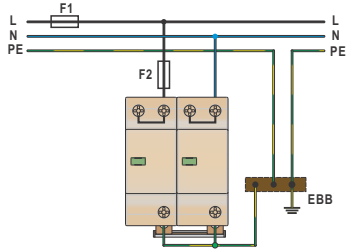
<b>SAFEBLOC B 50/xxx (3+1) TCG</b>	<b>150</b>	<b>275</b>	<b>440</b>
Dimensions DIN 43880		8TE	
Weight per unit	785g	900g	1020g
<b>SAFEBLOC BR 50/xxx (3+1) TCG</b>	<b>150</b>	<b>275</b>	<b>440</b>
Dimensions DIN 43880		8TE	
Weight per unit	800g	915g	1035g
Packaging dimensions (single unit)	109 x 76.5 x 148mm		
Min. packaging quantity	2 pcs.		

SAFETEC B(R) TCG and SAFETUBE B

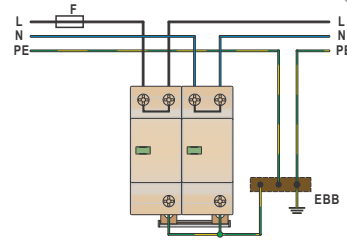
Network connections



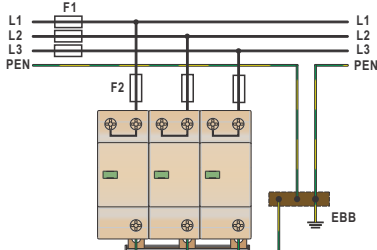
TN-S Network - Single-phase (T-connection)



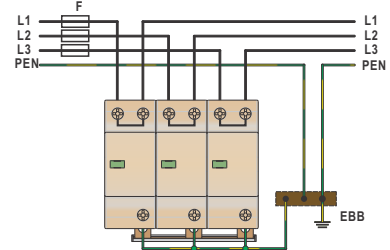
TN-S Network - Single-phase (V-connection)



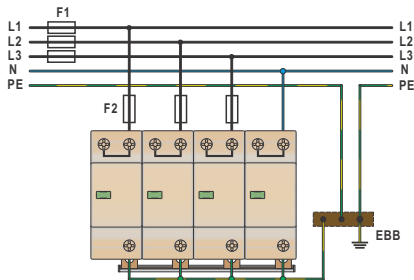
TN-C Network - Three-phase (T-connection)



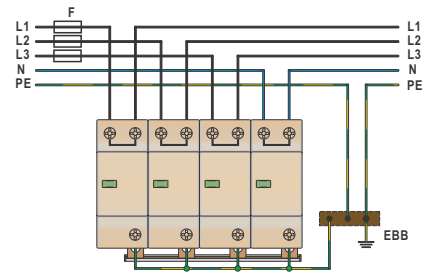
TN-C Network - Three-phase (V-connection)



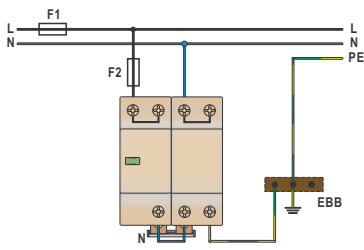
TN-S Network - Three-phase (T-connection)



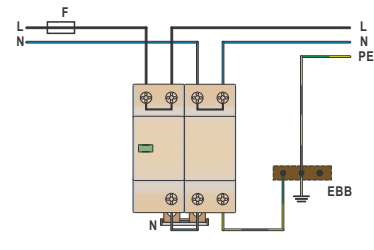
TN-S Network - Three-phase (V-connection)



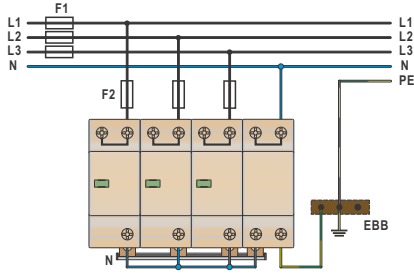
TT Network - Single-phase (T-connection)



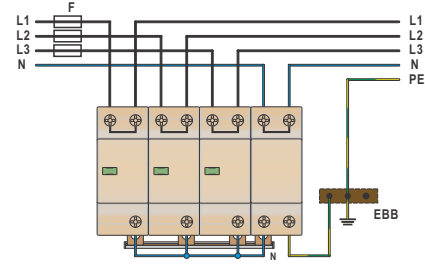
TT Network - Single-phase (V-connection)



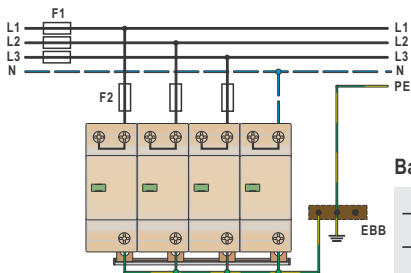
TT Network - Three-phase (T-connection)



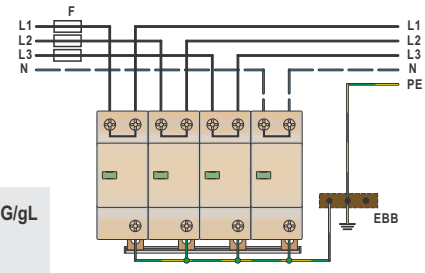
TT Network - Three-phase (V-connection)



IT Network - Three-phase (T-connection)



IT Network - Three-phase (V-connection)



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

Back-up fuse

- $F1 > 160A \text{ gG/gL} \rightarrow$   $F2 = 160A \text{ gG/gL}$
- $F1 \leq 160A \text{ gG/gL} \rightarrow$   $F2 = 100A \text{ gG/gL}$

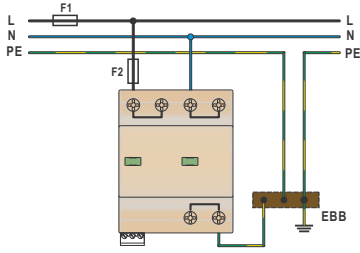


SAFEBLOC B(R) TCG Series

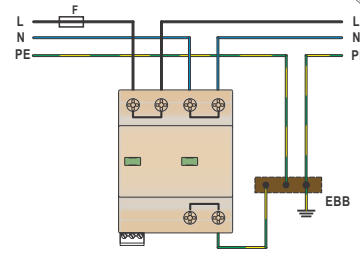
Network connections



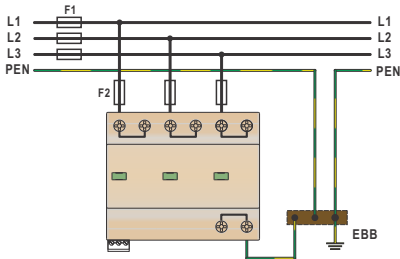
TN-S Network - Single-phase (T-connection)



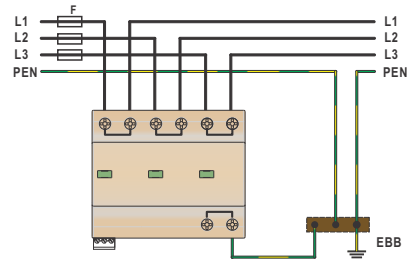
TN-S Network - Single-phase (V-connection)



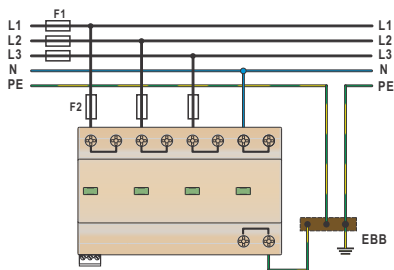
TN-C Network - Three-phase (T-connection)



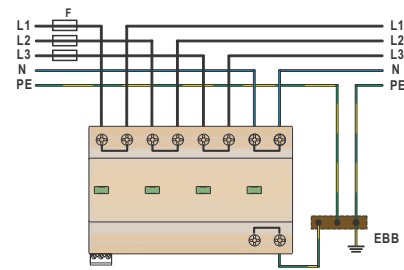
TN-C Network - Three-phase (V-connection)



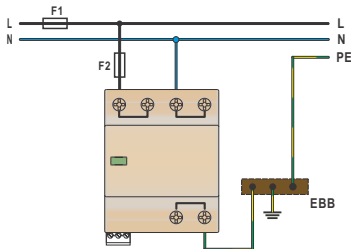
TN-S Network - Three-phase (T-connection)



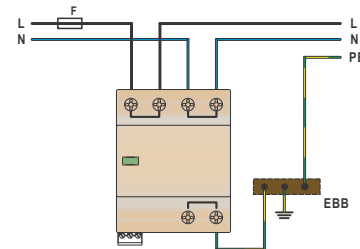
TN-S Network - Three-phase (V-connection)



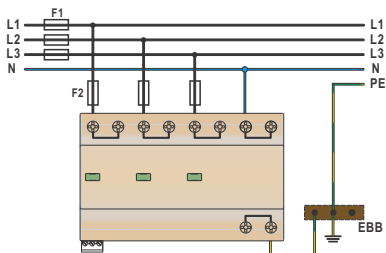
TT Network - Single-phase (T-connection)



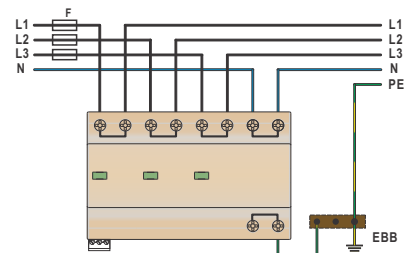
TT Network - Single-phase (V-connection)



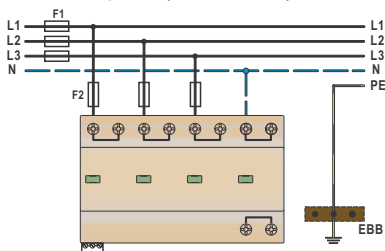
TT Network - Three-phase (T-connection)



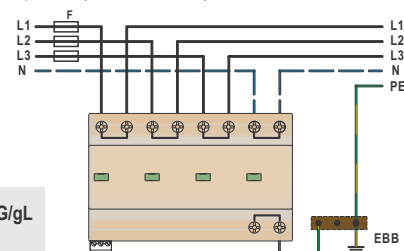
TT Network - Three-phase (V-connection)



IT Network - Three-phase (T-connection)



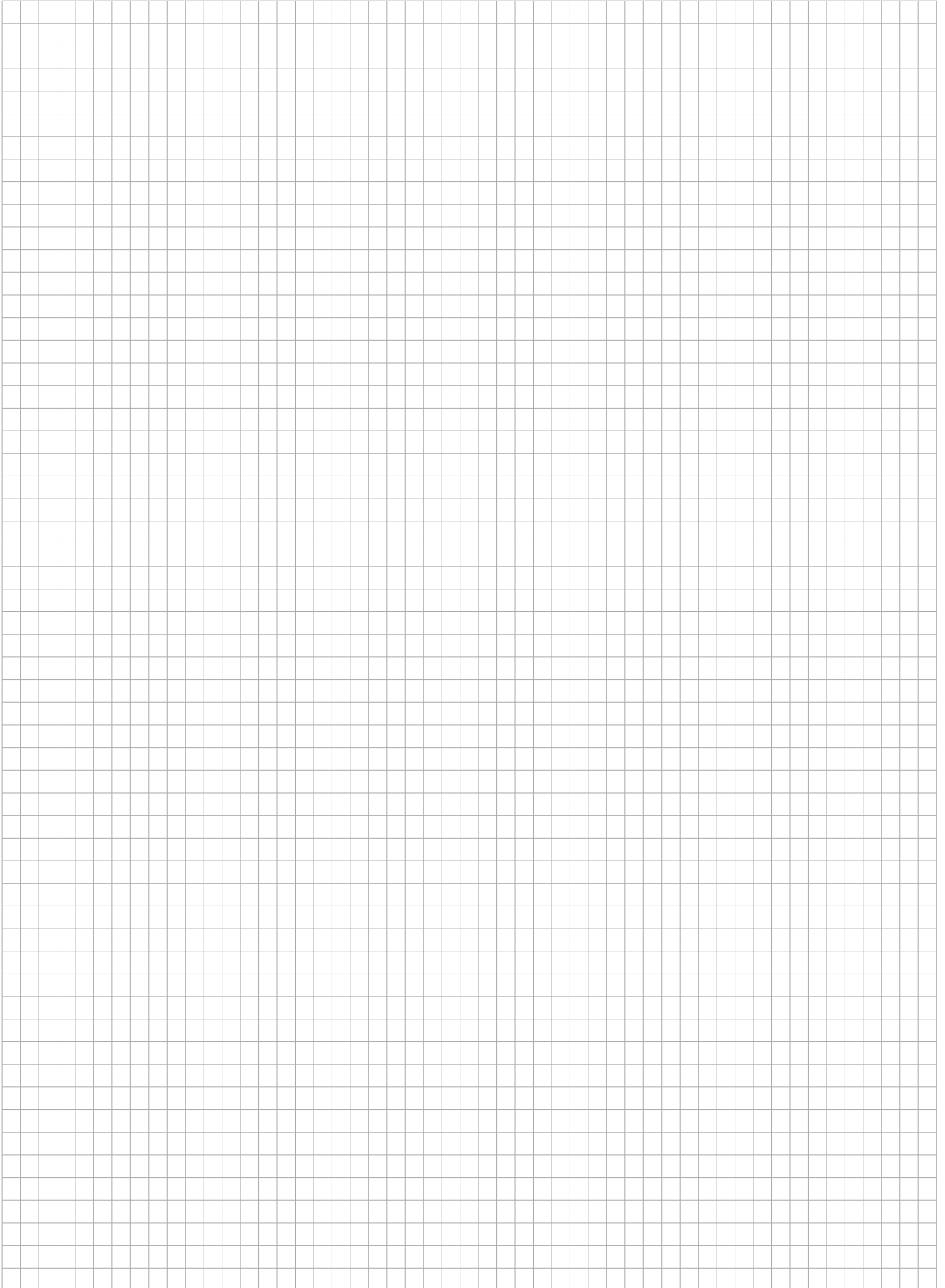
IT Network - Three-phase (V-connection)



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

Back-up fuse

- F1 > 160A gG/gL → F2 = 160A gG/gL
- F1 ≤ 160A gG/gL → F2
- F ≤ 100A gG/gL



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# Class I, II

## Compact Single and Multi-pole SPD

### 12.5kA per pole

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Category IEC / EN:	Class I, II / Type 1, 2
Location of use:	Main distribution boards
Protection modes:	L/N-PE, L-PEN, L-N, N-PE
Protective elements:	High energy MOV and GDT
Surge discharge rating:	$I_{imp} = 12.5kA$
Internal protection and safety:	Separate thermal disconnecter for each MOV
Complies with:	IEC 61643-11:2011, EN 61643-11:2012;



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#### PROTEC B(R) Series:

**PROTEC B(R) 12.5/xxx**  
**PROTUBE B 50**

The PROTEC B(R) 12.5 and PROBLOC B(R) 12.5 kA per pole series of overvoltage surge protective devices has been developed to protect against partial direct and indirect lightning discharges. They are suited for power supply installations and intended to provide protection in zones 0<sub>A</sub>-2 per IEC 62305.

#### PROBLOC B(R) Series:

**PROBLOC B(R) 25/xxx (2+0)**  
**PROBLOC B(R) 37.5/xxx (3+0)**  
**PROBLOC B(R) 50/xxx (4+0)**  
**PROBLOC B(R) 25/xxx (1+1)**  
**PROBLOC B(R) 50/xxx (3+1)**

PROTEC B(R) is a compact, single pole housing design and consists of high performance varistors, each equipped with separate disconnection mechanism.

PROBLOC B(R) is a compact, multi-pole housing design and consists of high performance varistors with thermal disconnection mechanism.

PROTEC B(R) and PROBLOC B(R) 12.5 kA per pole series is in compliance with the IEC/EN 61643-11 standard and are applicable to the following connections: TN-S, TN-C, IT and TT.

**PROTEC B(R) 12.5**


- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Main distribution boards
- **Network systems:** TN-S, TN-C, IT
- **Protection modes:** L/N - PE, L- PEN
- **Protective element:** High energy MOV
- **Surge discharge rating:**  $I_{imp} = 12.5kA$
- **Housing:** Compact design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;


**Technical data**

Type	PROTEC B(R) 12.5/xxx				
	150	275	320	385	440
<b>● Electrical characteristics</b>					
Max. continuous operating voltage (AC)	$U_c$				
Nominal discharge current (8/20)	$I_n$				
Max. discharge current (8/20)	$I_{max}$				
Impulse current (10/350)	$I_{imp}$				
Specific energy	W/R				
Charge	Q				
Protection level	$U_p$				
Residual voltage at 5kA (8/20)	$U_{res}$				
Follow current	$I_{fi}$				
Response time	$t_A$				
Thermal protection					
Back-up fuse (if mains > 160A)					
Short-circuit current rating	$I_{scCR}$				
TOV withstand 5s	$U_T$				
TOV disconnection 120min	$U_T$				
Number of ports					
<b>● Mechanical characteristics</b>					
Temperature range	$T_a$				
Permissible humidity	RH				
Terminal screw torque	$M_{max}$				
Conductor cross section					
AWG conductor cross section					
Mounting					
Degree of protection					
Housing material					
Indication of disconnector operation					
Remote contacts (RC)					
Contact ratings					
Terminal cross section					
Remote terminal torque					
<b>Ordering information</b>					
$U_c$	150	275	320	385	440
Ordering code <b>PROTEC B 12.5/xxx</b>	56.0001	56.0003	56.0005	56.0007	56.0009
Ordering code <b>PROTEC BR 12.5/xxx</b> (with remote contacts)	56.0002	56.0004	56.0006	56.0008	56.0010

**PROTUBE B**



- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Main distribution boards
- **Network system:** TT
- **Protection modes:** N - PE
- **Protective element:** High energy GDT
- **Surge discharge rating:**  $I_{imp} = 50kA$
- **Housing:** Compact design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



**Technical data**

<b>Type</b>	<b>PROTUBE B 50</b>
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● **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	W/R	625kJ/Ω
Charge	Q	25As
Protection level	$U_p$	< 1.3kV
Residual voltage at 5kA (8/20)	$U_{res}$	< 0.2kV
Follow current	$I_{fi}$	100ARMS
Response time	$t_A$	< 100ns
TOV withstand 200ms	$U_T$	1200V/300A
Number of ports		1

● **Mechanical characteristics**

Temperature range	$T_a$	- 40°C ....+ 70°C
Permissible humidity	RH	5%...95%
Terminal screw torque	$M_{max}$	max. 3.0Nm
Conductor cross section		35mm <sup>2</sup> (solid)/25mm <sup>2</sup> (stranded)
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)
Mounting		35mm DIN rail, EN 60715
Degree of protection		IP 20
Housing material		Thermoplastic; extinguishing degree UL 94 V-0

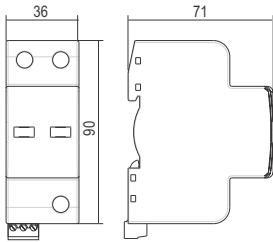
**Ordering information**

<b><math>I_{imp}</math></b>	<b>50</b>
Ordering code PROTUBE B xxx	56.0011

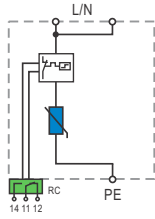
Dimensions, Internal configuration, Weight and Packaging

**PROTEC B(R) 12.5/xxx**

Dimensions



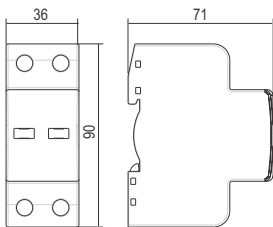
Internal configuration



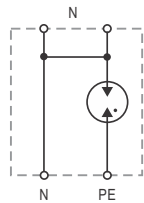
<b>PROTEC B 12.5/xxx</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	2TE				
Weight per unit	150g	200g	200g	260g	300g
<b>PROTEC BR 12.5/xxx</b>	<b>150</b>	<b>320</b>	<b>440</b>		
Dimensions DIN 43880	2TE				
Weight per unit	155g	205g	205g	265g	305g
Packaging dimensions (single unit)	109 x 76.5 x 41.5mm				
Min. packaging quantity	7 pcs.				

**PROTUBE B 50**

Dimensions



Internal configuration

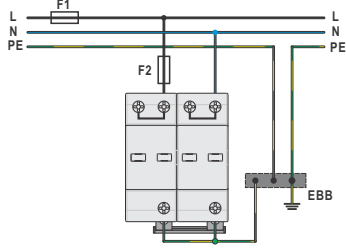


<b>PROTUBE B 50</b>					
Dimensions DIN 43880	2TE				
Weight per unit	180g				
Packaging dimensions (single unit)	109 x 76.5 x 41.5mm				
Min. packaging quantity	7 pcs.				

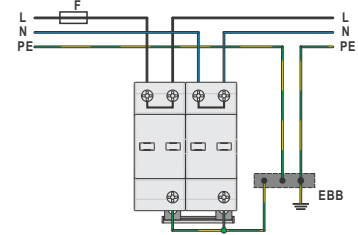
PROTEC B and PROTUBE B

Network connections

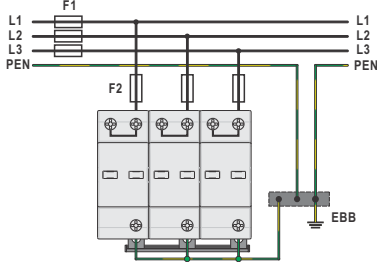
TN-S Network - Single-phase (T-connection)



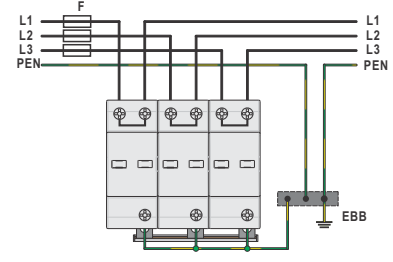
TN-S Network - Single-phase (V-connection)



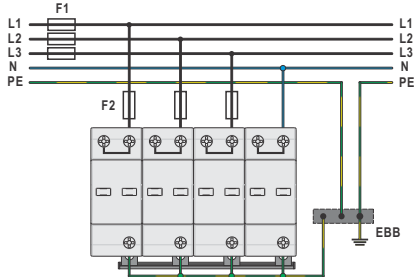
TN-C Network - Three-phase (T-connection)



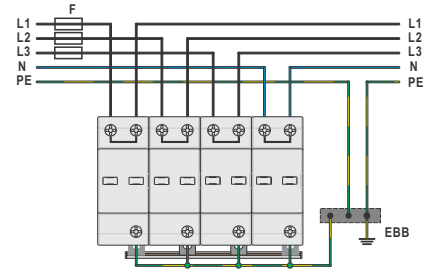
TN-C Network - Three-phase (V-connection)



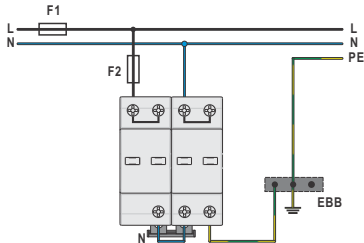
TN-S Network - Three-phase (T-connection)



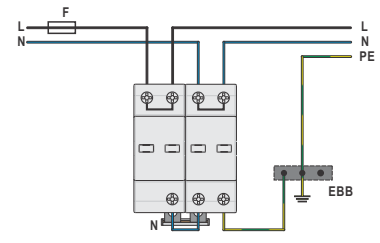
TN-S Network - Three-phase (V-connection)



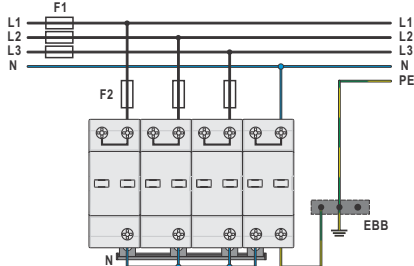
TT Network - Single-phase (T-connection)



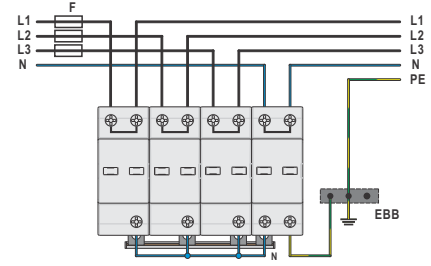
TT Network - Single-phase (V-connection)



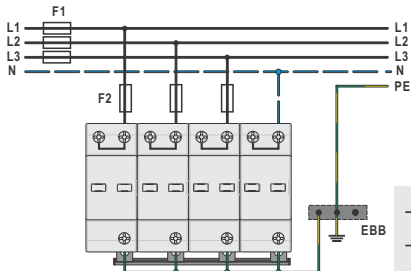
TT Network - Three-phase (T-connection)



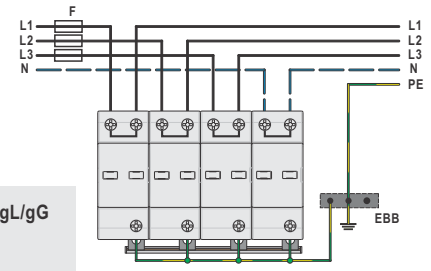
TT Network - Three-phase (V-connection)



IT Network - Three-phase (T-connection)



IT Network - Three-phase (V-connection)



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

- F1 > 160 A gL/gG → F2 = 160 A gL/gG
- F1 ≤ 160 A gL/gG → F2
- F ≤ 100A gL/gG

## PROBLOC B(R) 12.5kA per pole



- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Main distribution boards
- **Network system:** TN-S, TN-C, IT
- **Protection modes:** L/N - PE, L- PEN
- **Protective element:** High energy MOV
- **Surge discharge rating:**  $I_{imp} = 12.5kA$
- **Housing:** Compact design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



### Technical data

Type	150	275	320	385	440
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Electrical characteristics		150	275	320	385	440
Max. continuous operating voltage (AC)	$U_C$	150	275	320	385	440
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				
Specific energy	W/R	39kJ/Ω				
Charge	Q	6.25As				
Protection level	$U_p$	< 0.7kV	< 1.3kV	< 1.3kV	< 1.7kV	< 2.0kV
Residual voltage at 5kA (8/20)	$U_{res}$	< 0.5kV	< 1.0kV	< 1.0kV	< 1.1kV	< 1.2kV
Follow current	$I_{fi}$	NO				
Response time	$t_A$	< 25ns				
Thermal protection		YES				
Back-up fuse (if mains > 250A)		250A gL/gG				
Short-circuit current rating	$I_{scCR}$	25kA/50Hz				
TOV withstand 5s	$U_T$	174V		335V		580V
TOV disconnection 120min	$U_T$	228V		438V		765V
Number of ports		1				

Mechanical characteristics						
Temperature range	$T_a$	- 40°C .... + 70°C				
Permissible humidity	RH	5%...95%				
Terminal screw torque	$M_{max}$	max. 3.0Nm				
Conductor cross section		35mm <sup>2</sup> (solid)/25mm <sup>2</sup> (stranded)				
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)				
Mounting		35mm DIN rail, EN 60715				
Degree of protection		IP 20				
Housing material		Thermoplastic; extinguishing degree UL 94 V-0				
Indication of disconnecter operation		red flag				
Remote contacts (RC)		YES				
Contact ratings		AC: 250V/0.5A; 125V/3A				
Terminal cross section		max. 1.5mm <sup>2</sup>				
Remote terminal torque		0.25Nm				

### Ordering information

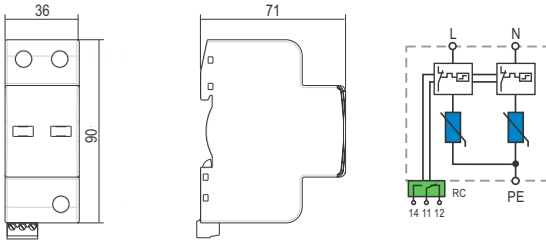
$U_C$	150	275	320	385	440
Ordering code <b>PROBLOC B 25/xxx (2+0)</b>	56.0013	56.0023	56.0033	56.0043	56.0053
Ordering code <b>PROBLOC BR 25/xxx (2+0) (with remote contacts)</b>	56.0014	56.0024	56.0034	56.0044	56.0054
Ordering code <b>PROBLOC B 37.5/xxx (3+0)</b>	56.0015	56.0025	56.0035	56.0045	56.0055
Ordering code <b>PROBLOC BR 37.5/xxx (3+0) (with remote contacts)</b>	56.0016	56.0026	56.0036	56.0046	56.0056
Ordering code <b>PROBLOC B 50/xxx (4+0)</b>	56.0017	56.0027	56.0037	56.0047	56.0057
Ordering code <b>PROBLOC BR 50/xxx (4+0) (with remote contacts)</b>	56.0018	56.0028	56.0038	56.0048	56.0058



Dimensions, Internal configuration, Weight and Packaging

**PROBLOC B(R) 25/xxx (2+0)**

Dimensions

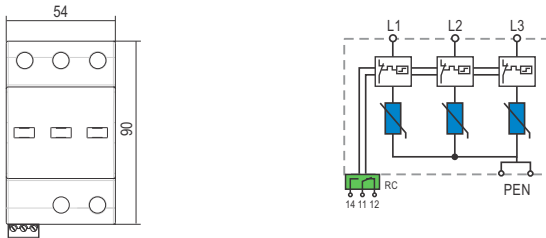


<b>PROBLOC B 25/xxx (2+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	2TE				
Weight per unit	185g	225g	225g	285g	375g
<b>PROBLOC BR 25/xxx (2+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	2TE				
Weight per unit	190g	230g	230g	290g	380g
Packaging dimensions (single unit)	109 x 76.5 x 41.5mm				
Min. packaging quantity	7 pcs.				

**PROBLOC B(R) 37.5/xxx (3+0)**

Dimensions

Internal configuration

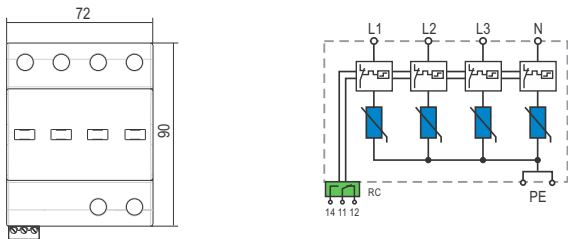


<b>PROBLOC B 37.5/xxx (3+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	3TE				
Weight per unit	290g	330g	330g	390g	480g
<b>PROBLOC BR 37.5/xxx (3+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	3TE				
Weight per unit	300g	330g	330g	400g	490g
Packaging dimensions (single unit)	109 x 76.5 x 60mm				
Min. packaging quantity	5 pcs.				

**PROBLOC B(R) 50/xxx (4+0)**

Dimensions

Internal configuration



<b>PROBLOC B 50/xxx (4+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	4TE				
Weight per unit	550g	590g	590g	650g	740g
<b>PROBLOC BR 50/xxx (4+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	4TE				
Weight per unit	560g	560g	600g	660g	750g
Packaging dimensions (single unit)	109 x 76.5 x 78mm				
Min. packaging quantity	3 pcs.				

**PROBLOC B(R) 12.5kA per pole**


- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Main distribution boards
- **Network system:** TT, TN-S
- **Protection modes:** L-N, N-PE
- **Protective element:** High energy MOV and GDT
- **Surge discharge rating:**  $I_{imp} = 12.5kA/50kA (L-N/N-PE)$
- **Housing:** Compact design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;


**Technical data**

Type	150	275	320	385	440
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**Electrical characteristics**

Max. continuous operating voltage (AC)	$U_c$ (L-N)	150	275	320	385	440
	$U_c$ (N-PE)			255V		
Nominal discharge current (8/20)	$I_n$ (L-N/N-PE)			12.5kA/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		
Specific energy	W/R (L-N/N-PE)			39kJ/Ω/625kJΩ		
Charge	Q (L-N/N-PE)			6.25As/25As		
Protection level	$U_p$ (L-N)	< 0.7kV	< 1.3kV	< 1.3kV	< 1.7kV	< 2.0kV
	$U_p$ (N-PE)			< 1.3kV		
Residual voltage at 5kA (8/20)	$U_{res}$ (L-N)	< 0.5kV	< 1.0kV	< 1.0kV	< 1.1kV	< 1.2kV
Follow current	$I_{fi}$ (N-PE)			100ARMS		
Response time	$t_A$ (L-N/N-PE)			< 25ns/100ns		
Thermal protection	(L-N)			YES		
Back-up fuse (if mains > 160A)	(L-N)			160A gL/gG		
Short-circuit current rating	$I_{sccr}$			25kA/50Hz		
TOV withstand 5s	$U_T$ (L-N)		174V	335V	580V	
TOV disconnection 120min	$U_T$ (L-N)		228V	438V	765V	
TOV disconnection 200ms	$U_T$ (N-PE)			1200V/300A		
Number of ports				1		

**Mechanical characteristics**

Temperature range	$T_a$			-40°C ... +70°C		
Permissible humidity	RH			5%...95%		
Terminal screw torque	$M_{max}$			max. 3.0Nm		
Conductor cross section				35mm <sup>2</sup> (solid)/25mm <sup>2</sup> (stranded)		
AWG conductor cross section				2 AWG (solid) / 3 AWG (stranded)		
Mounting				35mm DIN rail, EN 60715		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Indication of disconnecter operation				red flag		
Remote contacts (RC)				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm <sup>2</sup>		
Remote terminal torque				0.25Nm		

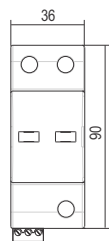
**Ordering information**

$U_c$	150	275	320	385	440
Ordering code <b>PROBLOC B 25/xxx (1+1)</b>	56.0019	56.0029	56.0039	56.0049	56.0059
Ordering code <b>PROBLOC BR 25/xxx (1+1)</b> (with remote contacts)	56.0020	56.0030	56.0040	56.0050	56.0060
Ordering code <b>PROBLOC B 50/xxx (3+1)</b>	56.0021	56.0031	56.0041	56.0051	56.0061
Ordering code <b>PROBLOC BR 50/xxx (3+1)</b> (with remote contacts)	56.0022	56.0032	56.0042	56.0052	56.0062

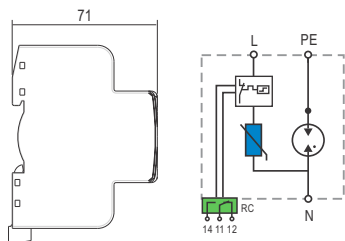
Dimensions, Internal configuration, Weight and Packaging

**PROBLOC B(R) 25/xxx (1+1)**

Dimensions



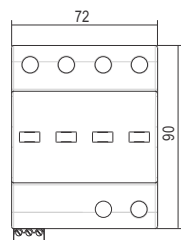
Internal configuration



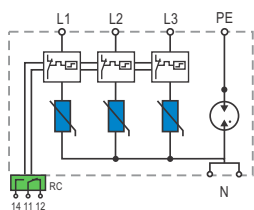
<b>PROBLOC B 25/xxx (1+1)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	2TE				
Weight per unit	110g	150g	150g	210g	300g
<b>PROBLOC BR 25/xxx (1+1)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	2TE				
Weight per unit	115g	155g	155g	215g	305g
Packaging dimensions (single unit)	109 x 76.5 x 41.5mm				
Min. packaging quantity	7 pcs.				

**PROBLOC B(R) 50/xxx (3+1)**

Dimensions



Internal configuration

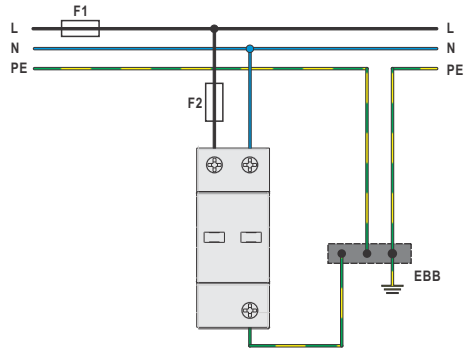


<b>PROBLOC B 50/xxx (3+1)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	4TE				
Weight per unit	555g	595g	595g	655g	745g
<b>PROBLOC BR 50/xxx (3+1)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	4TE				
Weight per unit	560g	600g	600g	660g	750g
Packaging dimensions (single unit)	109 x 76.5 x 78mm				
Min. packaging quantity	3 pcs.				

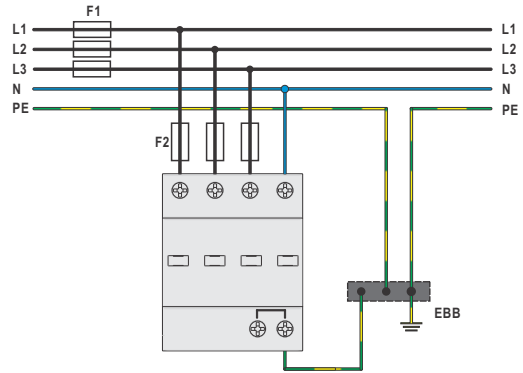
PROBLOC B(R) Series

Network connections

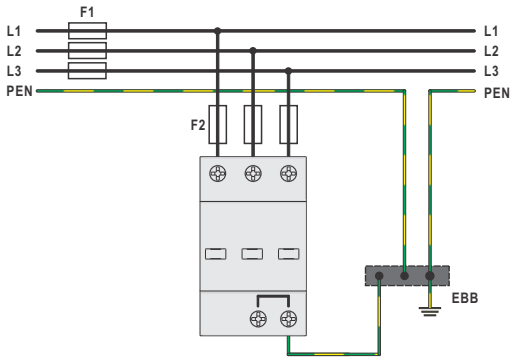
TN-S Network - Single-phase



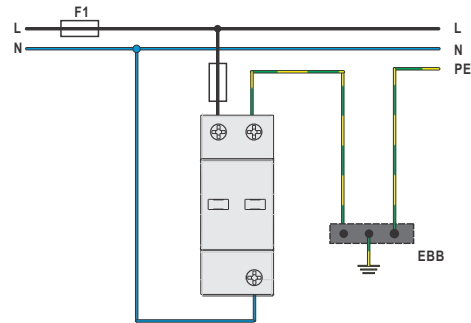
TN-S Network - Three-phase



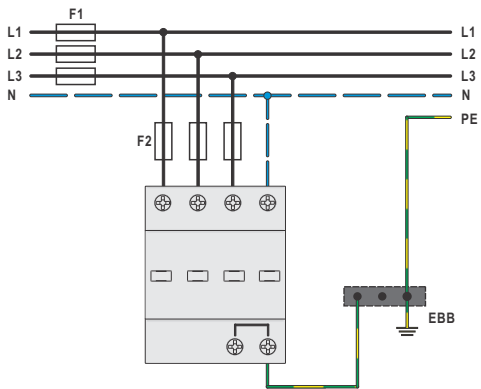
TN-C Network - Three-phase



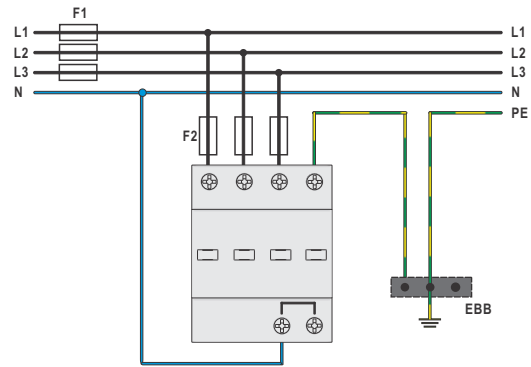
TT Network - Single-phase



IT Network - Three-phase



TT Network - Three-phase



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

- $F1 > 160 \text{ A gL/gG}$  →  $F2 = 160 \text{ A gL/gG}$
- $F1 \leq 160 \text{ A gL/gG}$  →  $F2$
- $F \leq 100 \text{ A gL/gG}$

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# Class I, II Compact Single and Multi-pole SPD 25kA per pole

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Category IEC / EN:	Class I, II / Type 1, 2
Location of use:	Main distribution boards
Protection modes:	L/N-PE, L-PEN, L-N, N-PE
Protective elements:	High energy MOV and GDT
Surge discharge ratings:	$I_{imp} = 25kA$
Internal protection and safety:	Separate thermal disconnecter for each MOV
Complies with:	IEC 61643-11:2011, EN 61643-11:2012;



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## PROTEC B(R) Series: **PROTEC B(R) 25/xxx** **PROTUBE B 50, 100**

The PROTEC B(R) 25 kA and PROBLOC B(R) 25 kA per pole series of overvoltage surge protective devices have been developed to protect against partial direct and indirect lightning discharges. They are suited for power supply installations and intended to provide protection in zones 0<sub>A</sub> - 2 per IEC 62305.

PROTEC B(R) is a compact, single pole housing design and consists of a high performance paired varistors, each equipped with separate disconnection mechanism.

## PROBLOC B(R) Series: **PROBLOC B(R) 50/xxx (2+0)** **PROBLOC B(R) 75/xxx (3+0)** **PROBLOC B(R) 100/xxx (4+0)** **PROBLOC B(R) 50/xxx (1+1)** **PROBLOC B(R) 100/xxx (3+1)**

PROBLOC B(R) is a compact, multi-pole housing design and consists of a high performance paired varistors combination, each equipped with separate disconnection mechanism.

PROTUBE B is a compact, single pole housing design and consists of a high energy encapsulated gas discharge tube. It is utilized for galvanic separation between the N and PE conductors in a 1+1 or 3+1 power distribution networks.

PROTEC B(R) 25 kA and PROBLOC B(R) 25 kA per pole series are in compliance with the IEC/EN 61643-11 standard and are applicable to the following connections: TN-S, TN-C, IT and TT.

**PROTEC B(R) 25kA per pole**



- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Main distribution boards
- **Network systems:** TN-S, TN-C, IT
- **Protection modes:** L/N - PE, L- PEN
- **Protective element:** High energy MOV
- **Surge discharge rating:**  $I_{imp} = 25kA$
- **Housing:** Compact design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



**Technical data**

Type	PROTEC B(R) 25/xxx					
	150	275	320	385	440	
<b>● Electrical characteristics</b>						
Max. continuous operating voltage (AC)	$U_c$	150	275	320	385	440
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	W/R	156kJ/Ω				
Charge	Q	12.5As				
Protection level	$U_p$	< 0.7kV	< 1.4kV	< 1.4kV	< 1.7kV	< 2.0kV
Residual voltage at 5kA (8/20)	$U_{res}$	< 0.5kV	< 1.0kV	< 1.0kV	< 1.1kV	< 1.2kV
Follow current	$I_{fi}$	NO				
Response time	$t_A$	< 25ns				
Thermal protection		YES				
Back-up fuse (if mains > 250A)		250A gL/gG				
Short-circuit current rating	$I_{scCR}$	25kA/50Hz				
TOV withstand 5s	$U_T$	174V		335V		580V
TOV disconnection 120min	$U_T$	228V		438V		765V
Number of ports		1				
<b>● Mechanical characteristics</b>						
Temperature range	$T_a$	- 40°C ... + 70°C				
Permissible humidity	RH	5%...95%				
Terminal screw torque	$M_{max}$	max. 3.0Nm				
Conductor cross section		35mm <sup>2</sup> (solid)/25mm <sup>2</sup> (stranded)				
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)				
Mounting		35mm DIN rail, EN 60715				
Degree of protection		IP 20				
Housing material		Thermoplastic; extinguishing degree UL 94 V-0				
Indication of disconnector operation		red flag				
Remote contacts (RC)		YES				
Contact ratings		AC: 250V/0.5A; 125V/3A				
Terminal cross section		max. 1.5mm <sup>2</sup>				
Remote terminal torque		0.25Nm				

**Ordering information**

$U_c$	150	275	320	385	440
Ordering code <b>PROTEC B 25/xxx</b>	<b>56.0063</b>	<b>56.0065</b>	<b>56.0067</b>	<b>56.0069</b>	<b>56.0071</b>
Ordering code <b>PROTEC BR 25/xxx</b> (with remote contacts)	<b>56.0064</b>	<b>56.0066</b>	<b>56.0068</b>	<b>56.0070</b>	<b>56.0072</b>

**PROTUBE B**


- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Main distribution boards
- **Network system:** TT
- **Protection modes:** N - PE
- **Protective element:** High energy GDT
- **Surge discharge rating:**  $I_{imp}$  up to 100kA
- **Housing:** Compact design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;


**Technical data**

Type	PROTUBE B yyy		
	50	100	
<b>● Electrical characteristics</b>			
Max. continuous operating voltage (AC)	<b>U<sub>c</sub></b>	255V	
Nominal discharge current (8/20)	<b>I<sub>n</sub></b>	50kA	100kA
Max. discharge current (8/20)	<b>I<sub>max</sub></b>	100kA	
Impulse current (10/350)	<b>I<sub>imp</sub></b>	50kA	100kA
Specific energy	<b>W/R</b>	625kJ/Ω	2.5MJ/Ω
Charge	<b>Q</b>	25As	50As
Protection level	<b>U<sub>p</sub></b>	< 1.3kV	< 1.5kV
Residual voltage at 5kA (8/20)	<b>U<sub>res</sub></b>	< 0.2kV	< 0.2kV
Follow current	<b>I<sub>fi</sub></b>	100A <sub>RMS</sub>	
Response time	<b>t<sub>A</sub></b>	< 100ns	
TOV withstand 200ms	<b>U<sub>T</sub></b>	1200V/300A	
Number of ports		1	
<b>● Mechanical characteristics</b>			
Temperature range	<b>T<sub>a</sub></b>	- 40°C .....+ 70°C	
Permissible humidity	<b>RH</b>	5%...95%	
Terminal screw torque	<b>M<sub>max</sub></b>	max. 3.0Nm	
Conductor cross section		35mm <sup>2</sup> (solid)/25mm <sup>2</sup> (stranded)	
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)	
Mounting		35mm DIN rail, EN 60715	
Degree of protection		IP 20	
Housing material		Thermoplastic; extinguishing degree UL 94 V-0	

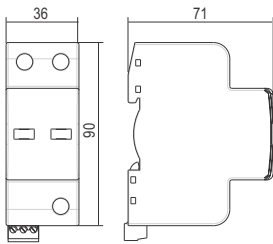
**Ordering information**

$I_{imp}$	50	100
Ordering code <b>PROTUBE B</b>	56.0011	56.0012

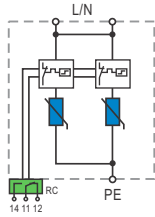
Dimensions, Internal configuration, Weight and Packaging

**PROTEC B(R) 25/xxx**

**Dimensions**



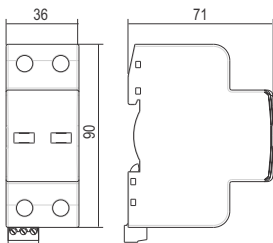
**Internal configuration**



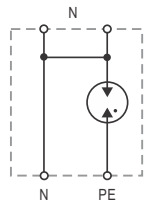
PROTEC B 25/xxx	150	275	320	385	440
Dimensions DIN 43880	2TE				
Weight per unit	245g	295g	295g	320g	345g
PROTEC BR 25/xxx	150	275	320	385	440
Dimensions DIN 43880	2TE				
Weight per unit	250g	300g	300g	325g	350g
Packaging dimensions (single unit)	109 x 76.5 x 41.5mm				
Min. packaging quantity	7 pcs.				

**PROTUBE B yyy**

**Dimensions**



**Internal configuration**



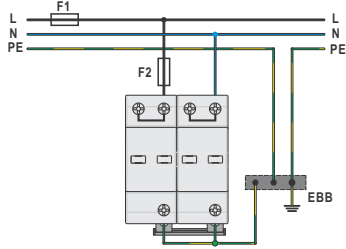
PROTUBE B yyy	50	100
Dimensions DIN 43880	2TE	
Weight per unit	180g	240g
Packaging dimensions (single unit)	109 x 76.5 x 41.5mm	
Min. packaging quantity	7 pcs.	



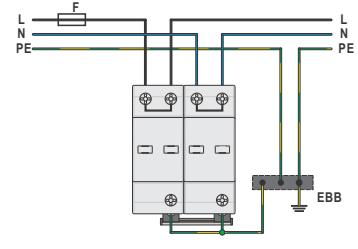
PROTEC B(R) and PROTUBE B

Network connections

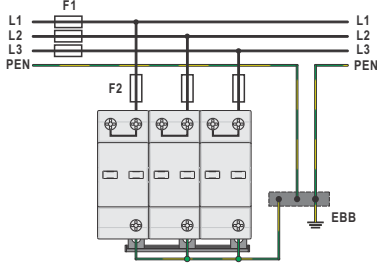
TN-S Network - Single-phase (T-connection)



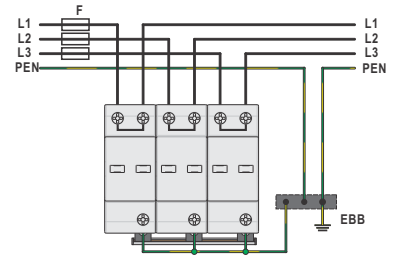
TN-S Network - Single-phase (V-connection)



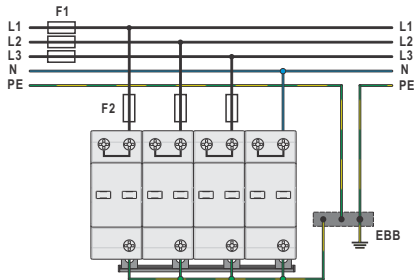
TN-C Network - Three-phase (T-connection)



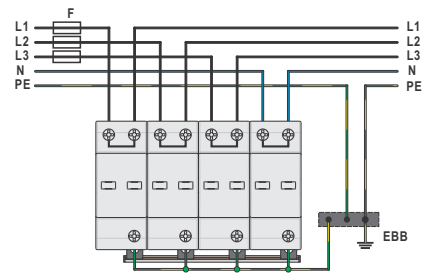
TN-C Network - Three-phase (V-connection)



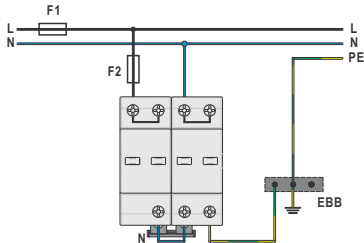
TN-S Network - Three-phase (T-connection)



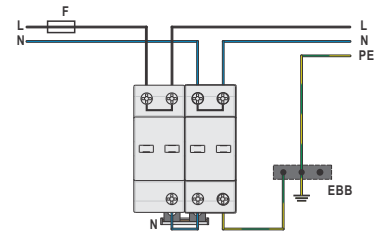
TN-S Network - Three-phase (V-connection)



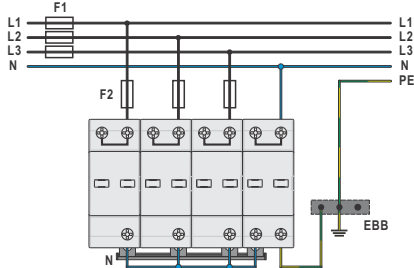
TT Network - Single-phase (T-connection)



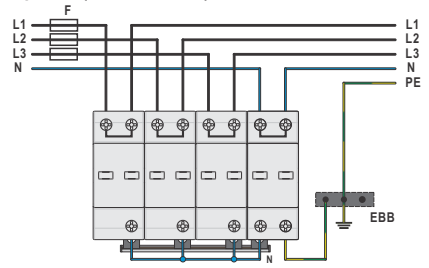
TT Network - Single-phase (V-connection)



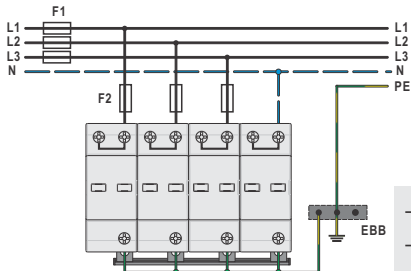
TT Network - Three-phase (T-connection)



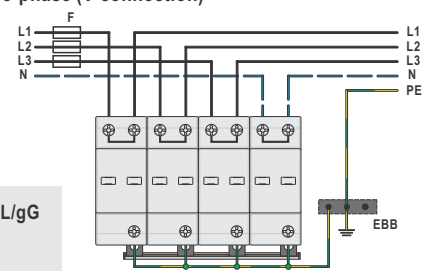
TT Network - Three-phase (V-connection)



IT Network - Three-phase (T-connection)



IT Network - Three-phase (V-connection)



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

- $F1 > 250 \text{ A gL/gG}$  →  $F2 = 250 \text{ A gL/gG}$
- $F1 \leq 250 \text{ A gL/gG}$  →  $F2$
- $F \leq 100 \text{ A gL/gG}$

## PROBLOC B(R) 25kA per pole



- Category IEC / EN: Class I, II / Type 1, 2
- Location of use: Main distribution boards
- Network system: TN-S
- Protection modes: L/N - PE
- Protective element: High energy MOV
- Surge discharge rating:  $I_{imp} = 25kA$
- Housing: Compact design
- Complies with: IEC 61643-11:2011, EN 61643-11:2012;



### Technical data

Type	150	275	320	385	440
------	-----	-----	-----	-----	-----

#### ● Electrical characteristics

Max. continuous operating voltage (AC)	$U_c$	150	275	320	385	440
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				
Specific energy	W/R	156kJ/Ω				
Charge	Q	12.5As				
Protection level	$U_p$	< 0.7kV	< 1.4kV	< 1.4kV	< 1.8kV	< 2.1kV
Residual voltage at 5kA (8/20)	$U_{res}$	< 0.5kV	< 1.0kV	< 1.0kV	< 1.1kV	< 1.2kV
Follow current	$I_{fi}$	NO				
Response time	$t_A$	< 25ns				
Thermal protection		YES				
Back-up fuse (if mains > 250A)		250A gL/gG				
Short-circuit current rating	$I_{scCR}$	25kA/50Hz				
TOV withstand 5s	$U_T$	174V		335V		580V
TOV disconnection 120min	$U_T$	228V		438V		765V
Number of ports		1				

#### ● Mechanical characteristics

Temperature range	$T_a$	- 40°C ... + 70°C				
Permissible humidity	RH	5%...95%				
Terminal screw torque	$M_{max}$	max. 3.0Nm				
Conductor cross section		35mm <sup>2</sup> (solid)/25mm <sup>2</sup> (stranded)				
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)				
Mounting		35mm DIN rail, EN 60715				
Degree of protection		IP 20				
Housing material		Thermoplastic; extinguishing degree UL 94 V-0				
Indication of disconnector operation		red flag				
Remote contacts (RC)		YES				
Contact ratings		AC: 250V/0.5A; 125V/3A				
Terminal cross section		max. 1.5mm <sup>2</sup>				
Remote terminal torque		0.25Nm				

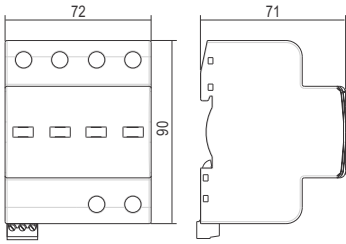
### Ordering information

$U_c$	150	275	320	385	440
Ordering code PROBLOC B 50/xxx (2+0)	56.0073	56.0083	56.0093	56.0103	56.0113
Ordering code PROBLOC BR 50/xxx (2+0) (with remote contacts)	56.0074	56.0084	56.0094	56.0104	56.0114
Ordering code PROBLOC B 75/xxx (3+0)	56.0075	56.0085	56.0095	56.0105	56.0115
Ordering code PROBLOC BR 75/xxx (3+0) (with remote contacts)	56.0076	56.0086	56.0096	56.0106	56.0116
Ordering code PROBLOC B 100/xxx (4+0)	56.0077	56.0087	56.0097	56.0107	56.0117
Ordering code PROBLOC BR 75/xxx (4+0) (with remote contacts)	56.0078	56.0088	56.0098	56.0108	56.0118

Dimensions, Internal configuration, Weight and Packaging

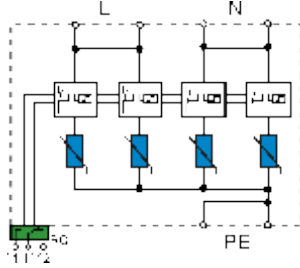
**PROBLOC B(R) 50/xxx (2+0)**

Dimensions



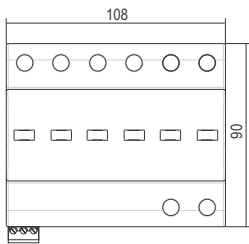
<b>PROBLOC B 50/xxx (2+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	4TE				
Weight per unit	460g	560g	560g	620g	680g
<b>PROBLOC BR 50/xxx (2+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	4TE				
Weight per unit	470g	570g	570g	630g	690g
Packaging dimensions (single unit)	109 x 76.5 x 80mm				
Min. packaging quantity	3 pcs.				

Internal configuration



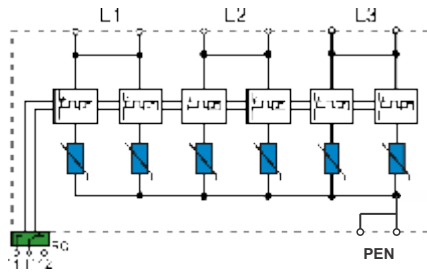
**PROBLOC B(R) 75/xxx (3+0)**

Dimensions



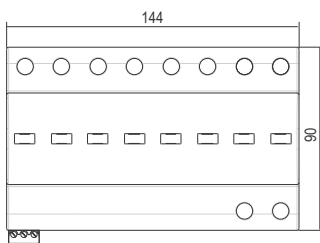
<b>PROBLOC B 75/xxx (3+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	6TE				
Weight per unit	690g	840g	840g	900g	1005g
<b>PROBLOC BR 75/xxx (3+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	6TE				
Weight per unit	705g	855g	855g	915g	1020g
Packaging dimensions (single unit)	109 x 76.5 x 114mm				
Min. packaging quantity	3 pcs.				

Internal configuration



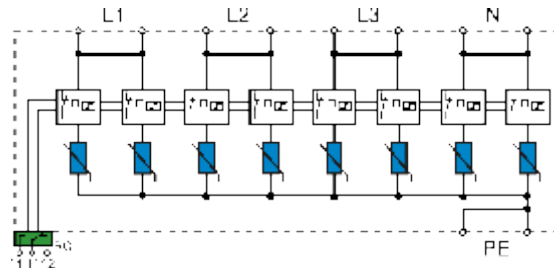
**PROBLOC B(R) 100/xxx (4+0)**

Dimensions



<b>PROBLOC B 100/xxx (4+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	8TE				
Weight per unit	920g	1120g	1120g	1180g	1345g
<b>PROBLOC BR 100/xxx (4+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	8TE				
Weight per unit	940g	1140g	1140g	1180g	1360g
Packaging dimensions (single unit)	109 x 76.5 x 148mm				
Min. packaging quantity	2 pcs.				

Internal configuration



## PROBLOC B(R) (1+1)



- Category IEC / EN: Class I, II / Type 1, 2
- Location of use: Main distribution boards
- Network system: TT, TN-S
- Protection modes: L-N, N-PE
- Protective element: High energy MOV and GDT
- Surge discharge rating:  $I_{imp} = 25kA/50kA (L-N/N-PE)$
- Housing: Compact design
- Complies with: IEC 61643-11:2011, EN 61643-11:2012;



### Technical data

Type	PROBLOC B(R) 50/xxx (1+1)				
	150	275	320	385	440

#### ● Electrical characteristics

Max. continuous operating voltage (AC)	$U_c$ (L-N)	150	275	320	385	440
	$U_c$ (N-PE)	255V				
Nominal discharge current (8/20)	$I_n$ (L-N/N-PE)	25kA/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				
Specific energy	W/R (L-N/N-PE)	156kJ/Ω/625kJ/Ω				
Charge	Q (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)	< 1.3kV				
Residual voltage at 5kA (8/20)	$U_{res}$	< 0.6kV	< 1.0kV	< 1.0kV	< 1.1kV	< 1.2kV
Follow current	$I_{fi}$ (N-PE)	100ARMS				
Response time	$t_A$ (L-N/N-PE)	< 25ns/100ns				
Thermal protection	(L-N)	YES				
Back-up fuse (if mains > 250A)	(L-N)	250A gL/gG				
Short-circuit current rating	$I_{sccr}$	25kA/50Hz				
TOV withstand 5s	$U_T$ (L-N)		174V	335V	580V	
TOV disconnection 120min	$U_T$ (L-N)		228V	438V	765V	
TOV disconnection 200ms	$U_T$ (N-PE)			1200V/300A		
Number of ports		1				

#### ● Mechanical characteristics

Temperature range	$T_a$	- 40°C .... + 70°C				
Permissible humidity	RH	5%...95%				
Terminal screw torque	$M_{max}$	max. 3.0Nm				
Conductor cross section		35mm <sup>2</sup> (solid)/25mm <sup>2</sup> (stranded)				
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)				
Mounting		35mm DIN rail, EN 60715				
Degree of protection		IP 20				
Housing material		Thermoplastic; extinguishing degree UL 94 V-0				
Indication of disconnecter operation		red flag				
Remote contacts (RC)		YES				
Contact ratings		AC: 250V/0.5A; 125V/3A				
Terminal cross section		max. 1.5mm <sup>2</sup>				
Remote terminal torque		0.25Nm				

### Ordering information

$U_c$	150	275	320	385	440
Ordering code PROBLOC B 50/xxx (1+1)	56.0079	56.0089	56.0099	56.0109	56.0119
Ordering code PROBLOC BR 50/xxx (1+1) (with remote contacts)	56.0080	56.0090	56.0100	56.0110	56.0120

## PROBLOC B(R) (3+1)



- Category IEC / EN: Class I, II / Type 1, 2
- Location of use: Main distribution boards
- Network system: TT, TN-S
- Protection modes: L-N, N-PE
- Protective element: High energy MOV and GDT
- Surge discharge rating:  $I_{imp} = 25kA/50kA (L-N/N-PE)$
- Housing: Compact design
- Complies with: IEC 61643-11:2011, EN 61643-11:2012;



### Technical data

Type	PROBLOC B(R) 100/xxx (3+1)				
	150	275	320	385	440

#### ● Electrical characteristics

Max. continuous operating voltage (AC)	$U_C$ (L-N)	150	275	320	385	440
	$U_C$ (N-PE)			255V		
Nominal discharge current (8/20)	$I_n$ (L-N/N-PE)			25kA/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		
Specific energy	W/R (L-N/N-PE)			156kJ/Ω/625kJ/Ω		
Charge	Q (L-N/N-PE)			12.5As/25As		
Protection level	$U_p$ (L-N)	< 0.9kV	< 1.4kV	< 1.4kV	< 1.9kV	< 2.2kV
	$U_p$ (N-PE)			< 1.5kV		
Residual voltage at 5kA (8/20)	$U_{res}$	< 0.5kV	< 1.0kV	< 1.0kV	< 1.1kV	< 1.2kV
Follow current	$I_{fi}$ (N-PE)			100ARMS		
Response time	$t_A$ (L-N/N-PE)			< 25ns/100ns		
Thermal protection	(L-N)			YES		
Back-up fuse (if mains > 250A)	(L-N)			250A gL/gG		
Short-circuit current rating	$I_{scCR}$			25kA/50Hz		
TOV withstand 5s	$U_T$ (L-N)		174V	335V	580V	
TOV disconnection 120min	$U_T$ (L-N)		228V	438V	765V	
TOV disconnection 200ms	$U_T$ (N-PE)			1200V/300A		
Number of ports				1		

#### ● Mechanical characteristics

Temperature range	Ta			-40°C ... +70°C		
Permissible humidity	RH			5%...95%		
Terminal screw torque	$M_{max}$			max. 3.0Nm		
Conductor cross section				35mm <sup>2</sup> (solid)/25mm <sup>2</sup> (stranded)		
AWG conductor cross section				2 AWG (solid) / 3 AWG (stranded)		
Mounting				35mm DIN rail, EN 60715		
Degree of protection				IP 20		
Housing material				Thermoplastic; extinguishing degree UL 94 V-0		
Indication of disconnecter operation				red flag		
Remote contacts (RC)				YES		
Contact ratings				AC: 250V/0.5A; 125V/3A		
Terminal cross section				max. 1.5mm <sup>2</sup>		
Remote terminal torque				0.25Nm		

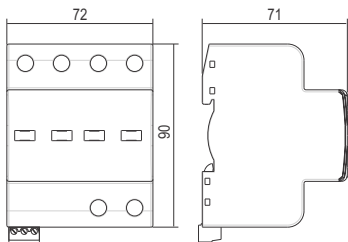
### Ordering information

$U_C$	150	275	320	385	440
Ordering code PROBLOC B 100/xxx (3+1)	56.0081	56.0091	56.0101	56.0111	56.0121
Ordering code PROBLOC BR 100/xxx (3+1) (with remote contacts)	56.0082	56.0092	56.0102	56.0112	56.0122

Dimensions, Internal configuration, Weight and Packaging

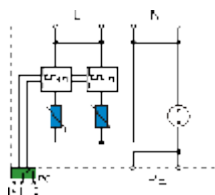
**PROBLOC B(R) 50/xxx (1+1)**

Dimensions



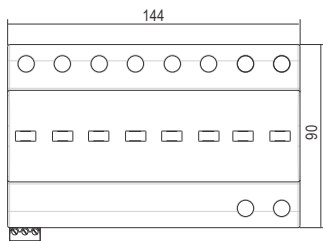
<b>PROBLOC B 50/xxx (1+1)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880					4TE
Weight per unit	445g	485g	485g	545g	895g
<b>PROBLOC BR 50/xxx (1+1)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880					4TE
Weight per unit	450g	490g	490g	550g	910g
Packaging dimensions (single unit)	109 x 76.5 x 80mm				
Min. packaging quantity	3 pcs.				

Internal configuration



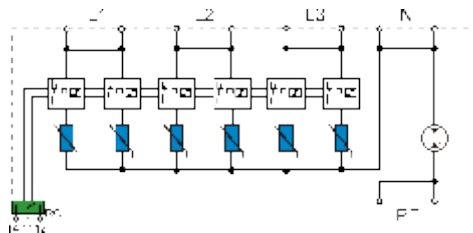
**PROBLOC B(R) 100/xxx (3+1)**

Dimensions



<b>PROBLOC B 100/xxx (3+1) TCG</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880					8TE
Weight per unit	985g	1135g	1135g	1285g	1285g
<b>PROBLOC BR 100/xxx (3+1) TCG</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880					8TE
Weight per unit	1000g	1150g	1150g	1300g	1300g
Packaging dimensions (single unit)	109 x 76.5 x 148mm				
Min. packaging quantity	2 pcs.				

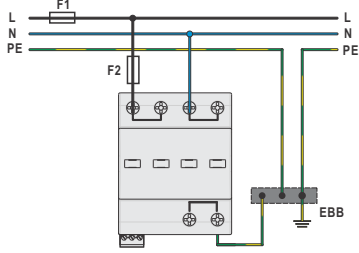
Internal configuration



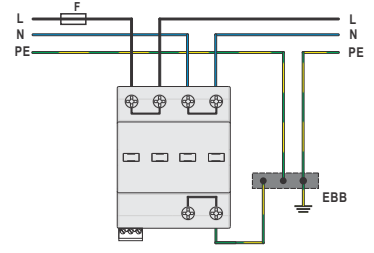
PROBLOC B(R) Series

Network connections

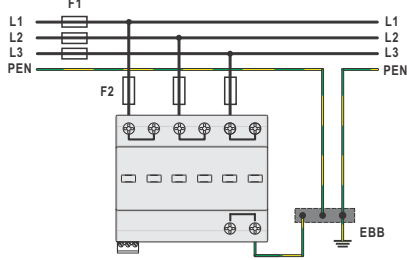
TN-S Network - Single-phase (T-connection)



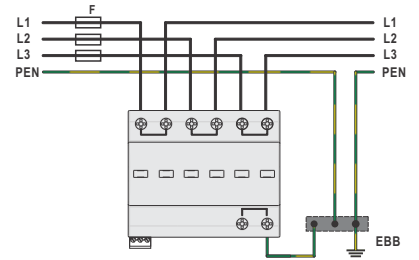
TN-S Network - Single-phase (V-connection)



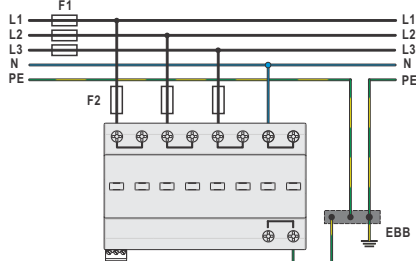
TN-C Network - Three-phase (T-connection)



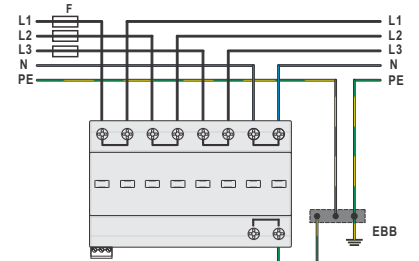
TN-C Network - Three-phase (V-connection)



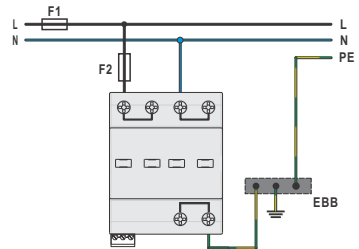
TN-S Network - Three-phase (T-connection)



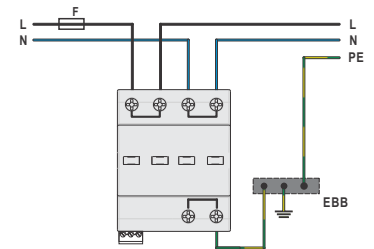
TN-S Network - Three-phase (V-connection)



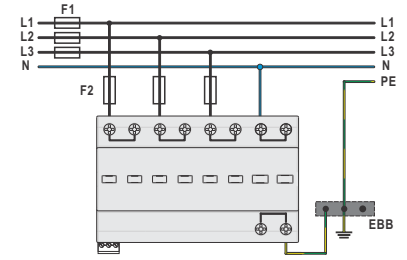
TT Network - Single-phase (T-connection)



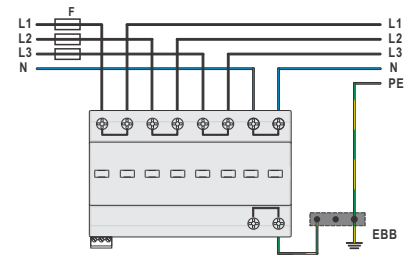
TT Network - Single-phase (V-connection)



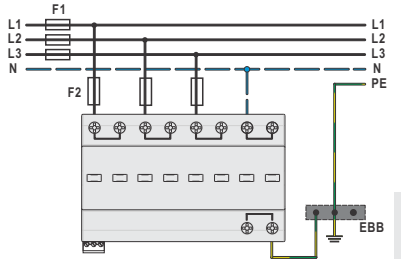
TT Network - Three-phase (T-connection)



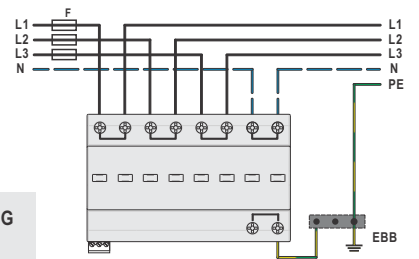
TT Network - Three-phase (V-connection)



IT Network - Three-phase (T-connection)

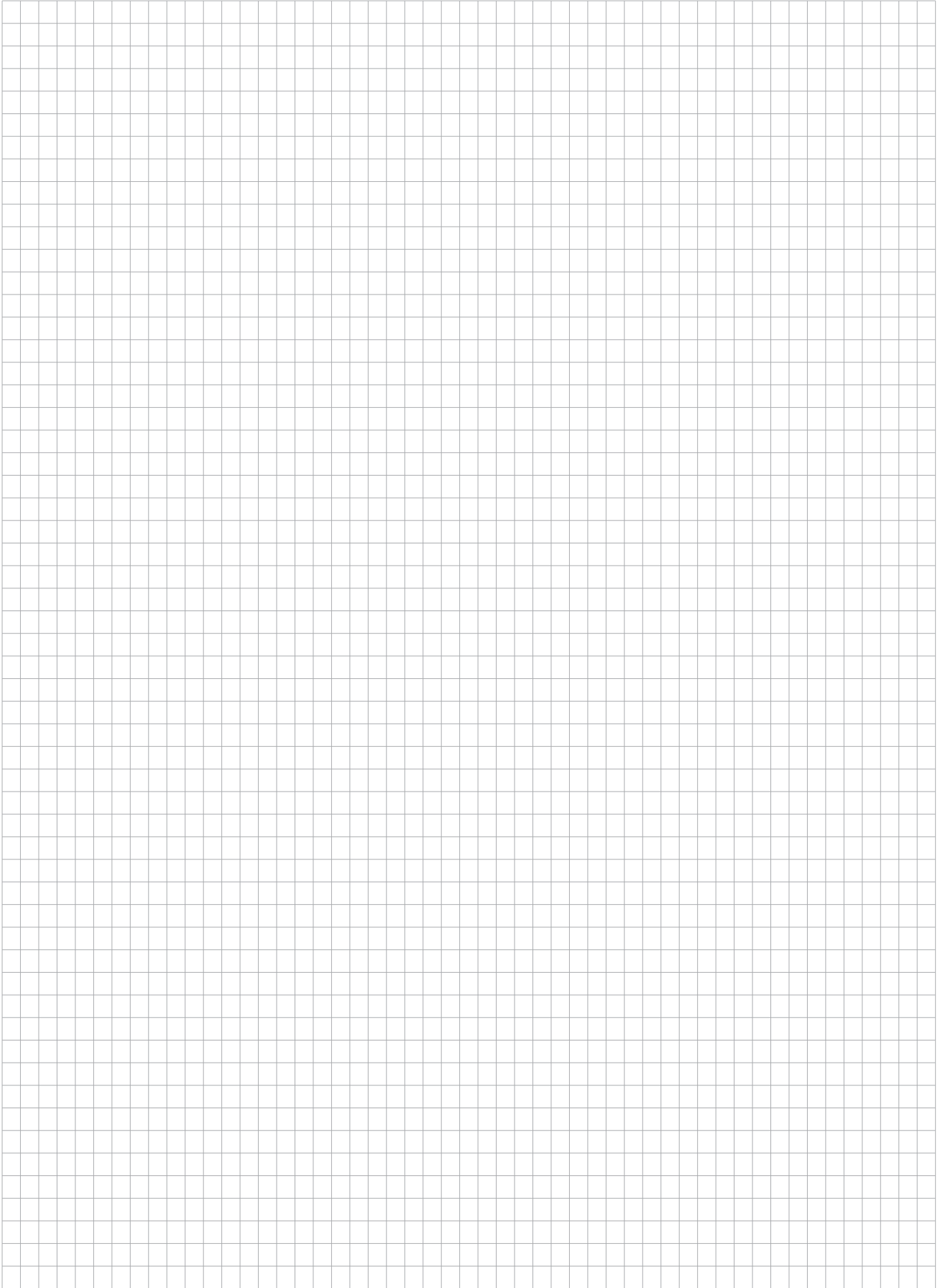


IT Network - Three-phase (V-connection)



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

- $F1 > 250 \text{ A gL/gG}$  →  $F2 = 250 \text{ A gL/gG}$
- $F1 \leq 250 \text{ A gL/gG}$  →  $F2$
- $F \leq 100 \text{ A gL/gG}$





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## Class I, II

### Compact Single and Multi-pole SPD

### 12.5kA per pole

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Category IEC / EN:	Class I, II / Type 1, 2
Location of use:	Main distribution boards
Protection modes:	L/N-PE, L-PEN, L-N, N-PE
Protective elements:	High energy MOV and GDT
Surge discharge rating:	$I_{imp} = 12.5kA$
Internal protection and safety:	Separate thermal disconnecter for each MOV
Complies with:	IEC 61643-1:2005, EN 61643-11:2005 ;



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#### PROTEC B2N(R) Series:

#### **PROTEC B2N(R) 12.5/xxx**

#### **PROTUBE B2N 50**

The PROTEC B2N(R) 12.5 kA per pole series of overvoltage surge protective devices have been developed to protect against partial direct and indirect lightning discharges. They are suited for power supply installations and intended to provide protection in zones 0<sub>A</sub> - 2 per IEC 62305.

PROTEC B2N(R) is a compact, single pole housing design and consists of a high performance varistor with thermal disconnection mechanism.

PROTUBE B2N is a compact, single pole housing design and consists of a high energy encapsulated gas discharge tube. It is utilized for galvanic separation between the N and PE conductors in a 1+1 or 3+1 power distribution networks.

## PROTEC B2N(R) 12.5



- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Main distribution boards
- **Network systems:** TN-S, TN-C, IT, TT (only L-N)
- **Protection modes:** L/N - PE, L- PEN
- **Protective element:** High energy MOV
- **Surge discharge rating:**  $I_{imp} = 12.5kA$
- **MOV max. withstand capability 1 x 8/20:** 80kA
- **Housing:** Compact design
- **Complies with:** IEC 61643-1:2005, EN 61643-11:2005;



### Technical data

Type	PROTEC B2N(R) 12.5/xxx		
	150	275	320
<b>● Electrical characteristics</b>			
Nominal AC voltage	$U_0$		120V 50/60Hz
Max. continuous operating voltage (AC/DC)	$U_c$		230V 50/60Hz
Nominal discharge current (8/20)	$I_n$		150/200V
Max. discharge current (8/20)	$I_{max}$		275/350V
Impulse current (10/350)	$I_{imp}$		320/420V
Total discharge current (10/350)	$I_{total}$		20kA
Specific energy	$W/R$		50kA
Charge	$Q$		12.5kA
Protection level	$U_p$		12.5kA
Residual voltage at $I_{imp}$	$U_{res}$		39kJ/Ω
Residual voltage at 5kA (8/20)	$U_{res}$		6.25As
Follow current	$I_{fj}$		< 0.8kV
Response time	$t_A$		< 1.5kV
Thermal protection			< 0.7kV
Back-up fuse (if mains > 160A)			< 0.6kV
Short-circuit current rating	$I_{scCR}$		NO
TOV withstand 5s	$U_T$		< 25ns
Number of ports			YES
			160A gG/gL
			25kA/50Hz
			174V
			335V
			1
<b>● Mechanical characteristics</b>			
Temperature range	$T_a$		-40°C .... +70°C
Permissible humidity	$RH$		5%...95%
Terminal screw torque	$M_{max}$		3.0Nm
Conductor cross section			35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)
AWG conductor cross section			2 AWG (solid) / 3 AWG (stranded)
Mounting			35mm DIN rail, EN 60715
Degree of protection			IP 20
Housing material			thermoplastic; extinguishing degree UL 94 V-0
Indication of thermal disconnecter operation			red flag
Remote contacts (RC)			YES
Contact ratings			AC: 250V/0.5A; 125V/3A
Terminal cross section			max. 1.5mm <sup>2</sup>
Remote terminal torque			0.25Nm

### Ordering information

$U_c$	150	275	320	385	440
Ordering code PROTEC B2N 12.5/xxx	507.501	507.503	507.505	507.535	507.507
Ordering code PROTEC B2NR 12.5/xxx (with remote contacts)	507.509	507.511	507.513	507.537	507.515

## PROTUBE B2N 50



● Category IEC / EN:	Class I, II / Type 1, 2
● Location of use:	Main distribution boards
● Network system:	TT
● Protection modes:	N - PE
● Protective element:	High energy GDT
● Surge discharge rating:	$I_{imp} = 50kA$
● GDT max. withstand capability 1 x 8/20:	150kA
● Housing:	Compact design
● Complies with:	IEC 61643-1:2005, EN 61643-1:2005;



### Technical data

Type

PROTUBE B2N 50

#### ● Electrical characteristics

Nominal AC voltage	$U_0$	230V 50/60Hz
Max. continuous operating voltage (AC/DC)	$U_c$	255V
Nominal discharge current (8/20)	$I_n$	50kA
Max. discharge current (8/20)	$I_{max}$	100kA
Impulse current (10/350)	$I_{imp}$	50kA
Total discharge current (10/350)	$I_{total}$	50kA
Specific energy	W/R	625kJ/Ω
Charge	Q	25As
Protection level	$U_p$	< 1.5kV
Residual voltage at 5kA (8/20)	$U_{res}$	< 0.2kV
Follow current	$I_{fj}$	100A <sub>RMS</sub>
Response time	$t_A$	100ns
Number of ports		1

#### ● Mechanical characteristics

Temperature range	$T_a$	-40°C .... +70°C
Permissible humidity	RH	5%...95%
Terminal screw torque	$M_{max}$	3.0Nm
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)
Mounting		35mm DIN rail, EN 60715
Degree of protection		IP 20
Housing material		thermoplastic; extinguishing degree UL 94 V-0

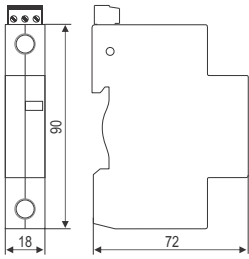
### Ordering information

$I_{imp}$	50
Ordering code PROTUBE B2N 50	507.572

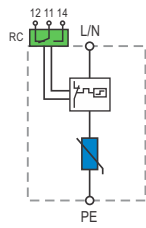
Dimensions, Internal configuration, Weight and Packaging

**PROTEC B2N(R) 12.5**

**Dimensions**



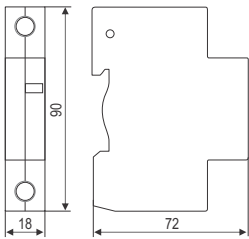
**Internal configuration**



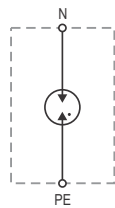
PROTEC B2N 12.5/xxx	150	275	320	385	440
Dimensions DIN 43880	1TE				
Weight per unit	124g	150g	150g	143g	146g
PROTEC B2NR 12.5/xxx	150	275	320	385	440
Dimensions DIN 43880	1TE				
Weight per unit	129g	155g	155g	148g	151g
Packaging dimensions (single unit)	110 x 76.5 x 23.5mm				
Min. packaging quantity	12 pcs.				

**PROTUBE B2N 50**

**Dimensions**



**Internal configuration**

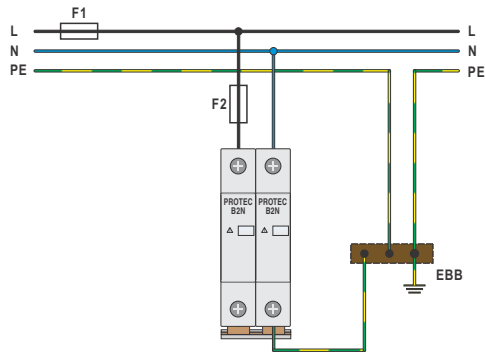


PROTUBE B2N 50	
Dimensions DIN 43880	1TE
Weight per unit	238g
Packaging dimensions (single unit)	110 x 76.5 x 23.5mm
Min. packaging quantity	7 pcs.

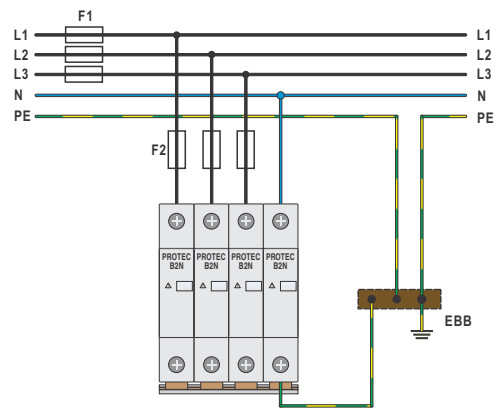
PROTEC B2N(R) and PROTUBE B2N

Network connections

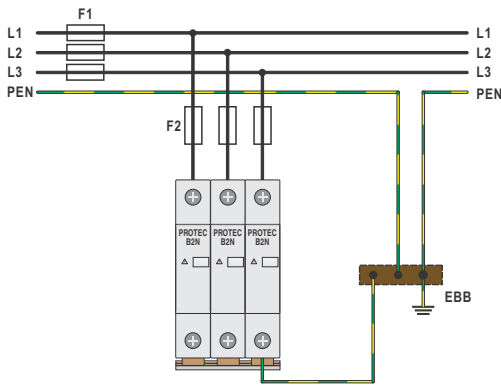
TN-S Network - Single-phase



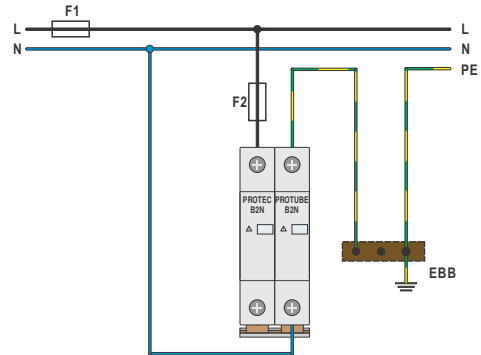
TN-S Network - Three-phase



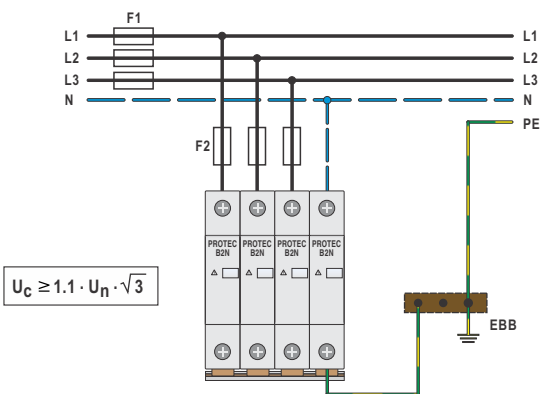
TN-C Network - Three-phase



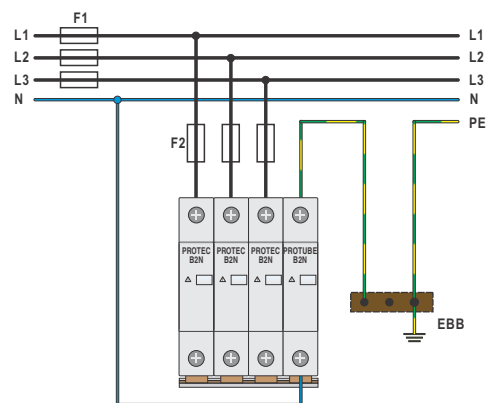
TT Network - Single-phase



IT Network - Three-phase

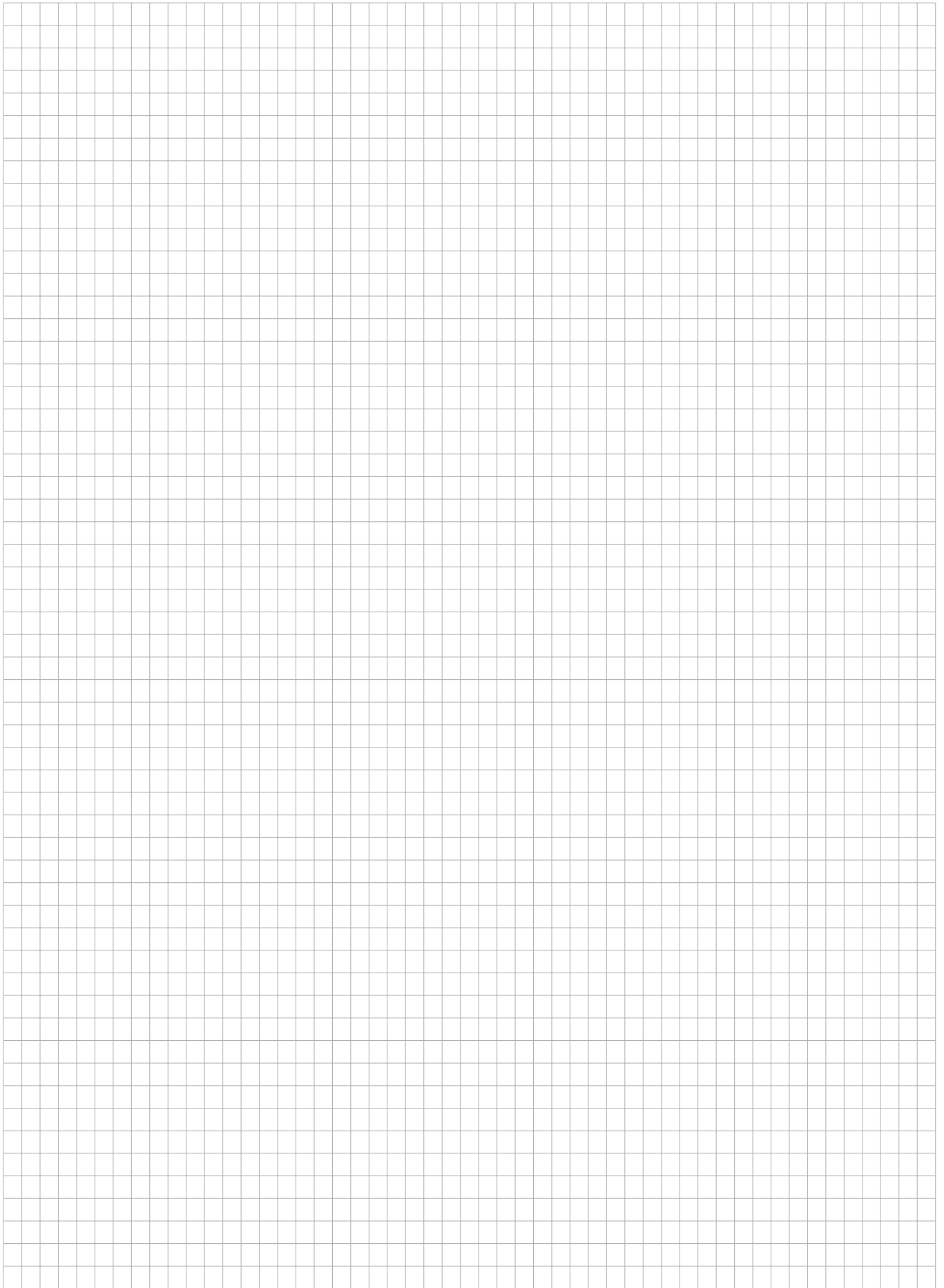


TT Network - Three-phase



Back-up fuse

- F1 > 160A gG/gL → — F2 = 160A gG/gL
- F1 ≤ 160A gG/gL → ~~— F2~~



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# Class I, II

## Compact Single and Multi-pole SPD

### 12.5kA per pole

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Category IEC / EN:	Class I, II / Type 1, 2
Location of use:	Main distribution boards
Protection modes:	L/N-PE, L-PEN, L-N, N-PE
Protective elements:	High energy MOV and GDT
Surge discharge ratings:	$I_{imp} = 12.5kA$
Internal protection and safety:	Thermal disconnecter for each MOV
Complies with:	IEC 61643-11:2011, EN 61643-11:2012;



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PROTEC B2S(R) Series:  
**PROTEC B2S(R) 12.5/xxx**  
**PROTEC B2S(R) 25/xxx (2+0)**  
**PROTEC B2S(R) 37.5/xxx (3+0)**  
**PROTEC B2S(R) 50/xxx (4+0)**  
**PROTEC B2S(R) 25/xxx (1+1)**  
**PROTEC B2S(R) 50/xxx (3+1)**

The PROTEC B2S(R) 12.5 kA per pole series of overvoltage surge protection devices has been developed to protect against partial and indirect lightning discharges. It is suited for power supply installations and intended to provide protection in zones 0<sub>A</sub> - 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 B2S(R) series consists of a high performance paired varistors combination for each pole, equipped with a thermal disconnection mechanism.

PROTEC B2S(R) series complies with the IEC/EN 61643-11 standard and is applicable to the following connections: TN-S, TN-C, IT and TT.

**PROTEC B2S(R)**


- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Main distribution boards
- **Network systems:** TN-S, TN-C, IT, TT (only L-N)
- **Protection modes:** L/N - PE, L- PEN, L-N
- **Protective element:** High energy MOV
- **Surge discharge rating:**  $I_{imp} = 12.5\text{kA}$
- **MOV max. withstand capability 1 x 8/20:** 100kA
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;


**Technical data**

Type	PROTEC B2S(R) 12.5/xxx				
	150	275	320	385	440
<b>● Electrical characteristics</b>					
Nominal AC voltage	$U_o$		120V 50/60Hz	230V 50/60Hz	400V 50/60Hz
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		
Impulse current (10/350)	$I_{imp}$		12.5kA		
Total discharge current (10/350)	$I_{total}$		12.5kA		
Specific energy	$W/R$		39kJ/Ω		
Charge	$Q$		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
Residual voltage at 5kA (8/20)	$U_{res}$		< 0.6kV	< 0.9kV	< 1.0kV < 1.3kV < 1.4kV
Follow current	$I_{fi}$		NO		
Response time	$t_A$		< 25ns		
Thermal protection			YES		
Back-up fuse (if mains > 160A)			160A gG/gL		
Short-circuit current rating	$I_{scCR}$		25kA/50Hz		
TOV withstand 5s	$U_T$		174V	335V	580V
TOV disconnection 120min	$U_T$		228V	438V	765V
Number of ports			1		
<b>● Mechanical characteristics</b>					
Temperature range	$T_a$		- 40°C ..... + 70°C		
Permissible humidity	$RH$		5%...95%		
Terminal screw torque	$M_{max}$		3.0Nm		
Conductor cross section			35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)		
AWG conductor cross section			2 AWG (solid) / 3 AWG (stranded)		
Mounting			35mm DIN rail, EN 60715		
Degree of protection			IP 20		
Housing material			thermoplastic; extinguishing degree UL 94 V-0		
Indication of thermal disconnecter operation			red flag		
Remote contacts (RC)			YES		
Contact ratings			AC: 250V/0.5A; 125V/3A		
Terminal cross section			max. 1.5mm <sup>2</sup>		
Remote terminal torque			0.25Nm		

**Ordering information**

$U_c$	150	275	320	385	440
Ordering code <b>PROTEC B2S 12.5/xxx</b>	506.017	506.018	506.019	506.020	506.021
Ordering code <b>PROTEC B2SR 12.5/xxx</b> (with remote contacts)	506.022	506.023	506.024	506.025	506.026
Ordering code <b>Module PROTEC B2S(R) 12.5/xxx</b> (with remote contacts)	506.001	506.002	506.003	506.004	506.005



## PROTEC B2S(R) 25 (2+0)



- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Main distribution boards
- **Network systems:** TN-S
- **Protection modes:** L/N - PE, L-PEN
- **Protective element:** High energy MOV
- **Surge discharge rating:**  $I_{imp} = 12.5kA$
- **MOV max. withstand capability 1 x 8/20:** 100kA per pole
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



### Technical data

Type	PROTEC B2S(R) 25/xxx (2+0)				
	150	275	320	385	440
<b>● Electrical characteristics</b>					
Nominal AC voltage	<b>U<sub>o</sub></b>		120V 50/60Hz	230V 50/60Hz	400V 50/60Hz
Max. continuous operating voltage (AC/DC)	<b>U<sub>c</sub></b>		150/200V	275/350V	320/420V 385/500V 440/580V
Nominal discharge current (8/20)	<b>I<sub>n</sub></b>		25kA per pole		
Max. discharge current (8/20)	<b>I<sub>max</sub></b>		60kA per pole		
Impulse current (10/350)	<b>I<sub>imp</sub></b>		12.5kA per pole		
Total discharge current (10/350)	<b>I<sub>total</sub></b>		25kA		
Specific energy	<b>W/R</b>		39kJ/Ω		
Charge	<b>Q</b>		6.25As		
Protection level	<b>U<sub>p</sub></b>		< 1.0kV	< 1.4kV	< 1.5kV < 1.7kV < 2.0kV
Residual voltage at $I_{imp}$	<b>U<sub>res</sub></b>		< 0.7kV	< 1.0kV	< 1.1kV < 1.4kV < 1.5kV
Residual voltage at 5kA (8/20)	<b>U<sub>res</sub></b>		< 0.6kV	< 0.9kV	< 1.0kV < 1.3kV < 1.4kV
Follow current	<b>I<sub>fi</sub></b>		NO		
Response time	<b>t<sub>A</sub></b>		< 25ns		
Thermal protection			YES		
Back-up fuse (if mains > 160A)			160A gG/gL		
Short-circuit current rating	<b>I<sub>scCR</sub></b>		25kA/50Hz		
TOV withstand 5s	<b>U<sub>T</sub></b>		174V	335V	580V
TOV disconnection 120min	<b>U<sub>T</sub></b>		228V	438V	765V
Number of ports			1		
<b>● Mechanical characteristics</b>					
Temperature range	<b>T<sub>a</sub></b>		- 40°C ..... + 70°C		
Permissible humidity	<b>RH</b>		5%...95%		
Terminal screw torque	<b>M<sub>max</sub></b>		3.0Nm		
Conductor cross section			35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)		
AWG conductor cross section			2 AWG (solid) / 3 AWG (stranded)		
Mounting			35mm DIN rail, EN 60715		
Degree of protection			IP 20		
Housing material			thermoplastic; extinguishing degree UL 94 V-0		
Indication of thermal disconnecter operation			red flag		
Remote contacts (RC)			YES		
Contact ratings			AC: 250V/0.5A; 125V/3A		
Terminal cross section			max. 1.5mm <sup>2</sup>		
Remote terminal torque			0.25Nm		

### Ordering information

U <sub>c</sub>	150	275	320	385	440
Ordering code <b>PROTEC B2S 25/xxx (2+0)</b>	506.027	506.028	506.029	506.030	506.031
Ordering code <b>PROTEC B2SR 25/xxx (2+0) (with remote contacts)</b>	506.032	506.033	506.034	506.035	506.036
Ordering code <b>Module PROTEC B2S(R) 12.5/xxx</b>	506.001	506.002	506.003	506.004	506.005

**PROTEC B2S(R) 37.5 (3+0)**



- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Main distribution boards
- **Network systems:** TN-C
- **Protection modes:** L/N - PE, L-PEN
- **Protective element:** High energy MOV
- **Surge discharge rating:**  $I_{imp} = 12.5kA$
- **MOV max. withstand capability 1 x 8/20:** 100kA per pole
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



**Technical data**

Type	PROTEC B2S(R) 37.5/xxx (3+0)				
	150	275	320	385	440
<b>● Electrical characteristics</b>					
Nominal AC voltage	$U_o$		120V 50/60Hz	230V 50/60Hz	400V 50/60Hz
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		
Impulse current (10/350)	$I_{imp}$		12.5kA per pole		
Total discharge current (10/350)	$I_{total}$		37.5kA		
Specific energy	$W/R$		39kJ/Ω		
Charge	$Q$		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
Residual voltage at 5kA (8/20)	$U_{res}$		< 0.6kV	< 0.9kV	< 1.0kV < 1.3kV < 1.4kV
Follow current	$I_{fj}$		NO		
Response time	$t_A$		< 25ns		
Thermal protection			YES		
Back-up fuse (if mains > 160A)			160A gG/gL		
Short-circuit current rating	$I_{scCR}$		25kA/50Hz		
TOV withstand 5s	$U_T$		174V	335V	580V
TOV disconnection 120min	$U_T$		228V	438V	765V
Number of ports			1		
<b>● Mechanical characteristics</b>					
Temperature range	$T_a$		- 40°C ..... + 70°C		
Permissible humidity	$RH$		5%...95%		
Terminal screw torque	$M_{max}$		3.0Nm		
Conductor cross section			35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)		
AWG conductor cross section			2 AWG (solid) / 3 AWG (stranded)		
Mounting			35mm DIN rail, EN 60715		
Degree of protection			IP 20		
Housing material			thermoplastic; extinguishing degree UL 94 V-0		
Indication of thermal disconnecter operation			red flag		
Remote contacts (RC)			YES		
Contact ratings			AC: 250V/0.5A; 125V/3A		
Terminal cross section			max. 1.5mm <sup>2</sup>		
Remote terminal torque			0.25Nm		

**Ordering information**

$U_c$	150	275	320	385	440
Ordering code <b>PROTEC B2S 37.5/xxx (3+0)</b>	506.047	506.048	506.049	506.050	506.051
Ordering code <b>PROTEC B2SR 37.5/xxx (3+0) (with remote contacts)</b>	506.052	506.053	506.054	506.055	506.056
Ordering code <b>Module PROTEC B2S(R) 12.5/xxx</b>	506.001	506.002	506.003	506.004	506.005

**PROTEC B2S(R) 50 (4+0)**


- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Main distribution boards
- **Network systems:** TN-S, IT
- **Protection modes:** L/N - PE, L-PEN
- **Protective element:** High energy MOV
- **Surge discharge rating:**  $I_{imp} = 12.5kA$
- **MOV max. withstand capability 1 x 8/20:** 100kA per pole
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;


**Technical data**

Type	PROTEC B2S(R) 50/xxx (4+0)				
	150	275	320	385	440
<b>● Electrical characteristics</b>					
Nominal AC voltage	$U_o$		120V 50/60Hz	230V 50/60Hz	400V 50/60Hz
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		
Impulse current (10/350)	$I_{imp}$		12.5kA per pole		
Total discharge current (10/350)	$I_{total}$		50kA		
Specific energy	$W/R$		39kJ/Ω		
Charge	$Q$		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
Residual voltage at 5kA (8/20)	$U_{res}$		< 0.6kV	< 0.9kV	< 1.0kV < 1.3kV < 1.4kV
Follow current	$I_{fj}$		NO		
Response time	$t_A$		< 25ns		
Thermal protection			YES		
Back-up fuse (if mains > 160A)			160A gG/gL		
Short-circuit current rating	$I_{scCR}$		25kA/50Hz		
TOV withstand 5s	$U_T$		174V	335V	580V
TOV disconnection 120min	$U_T$		228V	438V	765V
Number of ports			1		
<b>● Mechanical characteristics</b>					
Temperature range	$T_a$		- 40°C ..... + 70°C		
Permissible humidity	$RH$		5%...95%		
Terminal screw torque	$M_{max}$		3.0Nm		
Conductor cross section			35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)		
AWG conductor cross section			2 AWG (solid) / 3 AWG (stranded)		
Mounting			35mm DIN rail, EN 60715		
Degree of protection			IP 20		
Housing material			thermoplastic; extinguishing degree UL 94 V-0		
Indication of thermal disconnecter operation			red flag		
Remote contacts (RC)			YES		
Contact ratings			AC: 250V/0.5A; 125V/3A		
Terminal cross section			max. 1.5mm <sup>2</sup>		
Remote terminal torque			0.25Nm		

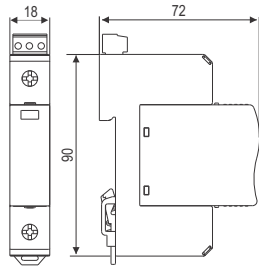
**Ordering information**

$U_c$	150	275	320	385	440
Ordering code <b>PROTEC B2S 50/xxx (4+0)</b>	506.057	506.058	506.059	506.060	506.061
Ordering code <b>PROTEC B2SR 50/xxx (4+0)</b> (with remote contacts)	506.062	506.063	506.064	506.065	506.066
Ordering code <b>Module PROTEC B2S(R) 12.5/xxx</b>	506.001	506.002	506.003	506.004	506.005

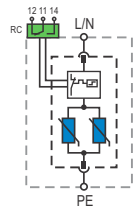
Dimensions, Internal configuration, Weight and Packaging

**PROTEC B2S(R) 12.5**

**Dimensions**



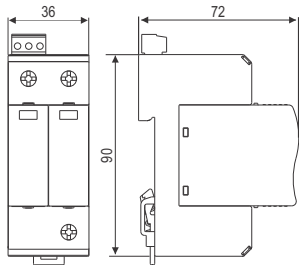
**Internal configuration**



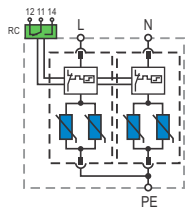
<b>PROTEC B2S 12.5/xxx</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	1TE				
Weight per unit	124g	150g	150g	143g	146g
<b>PROTEC B2SR 12.5/xxx</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	1TE				
Weight per unit	129g	155g	155g	148g	151g
Packaging dimensions (single unit)	110 x 76.5 x 23.5mm				
Min. packaging quantity	12 pcs.				

**PROTEC B2S(R) 25/xxx (2+0)**

**Dimensions**



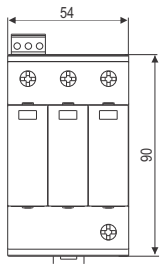
**Internal configuration**



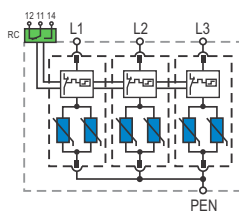
<b>PROTEC B2S 25/xxx (2+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	2TE				
Weight per unit	198g	251g	251g	267g	283g
<b>PROTEC B2SR 25/xxx (2+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	2TE				
Weight per unit	203g	256g	256g	272g	288g
Packaging dimensions (single unit)	109 x 76.5 x 41.5mm				
Min. packaging quantity	7 pcs.				

**PROTEC B2S(R) 37.5/xxx (3+0)**

**Dimensions**



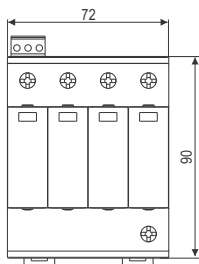
**Internal configuration**



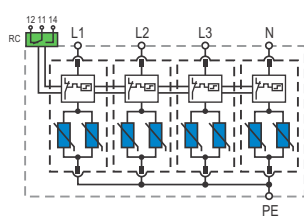
<b>PROTEC B2S 37.5/xxx (3+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	3TE				
Weight per unit	300g	382g	382g	394g	432g
<b>PROTEC B2SR 37.5/xxx (3+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	3TE				
Weight per unit	305g	387g	387g	399g	437g
Packaging dimensions (single unit)	109 x 76.5 x 61.5mm				
Min. packaging quantity	5 pcs.				

**PROTEC B2S(R) 50/xxx (4+0)**

**Dimensions**



**Internal configuration**



<b>PROTEC B2S 50/xxx (4+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	4TE				
Weight per unit	366g	462g	462g	494g	526g
<b>PROTEC B2SR 50/xxx (4+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	4TE				
Weight per unit	371g	467g	467g	499g	531g
Packaging dimensions (single unit)	109 x 76.5 x 80mm				
Min. packaging quantity	3 pcs.				

**PROTEC B2S(R) 25 (1+1)**


- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Main distribution boards
- **Network system:** TT, TN-S
- **Protection modes:** L-N, N-PE
- **Protective element:** High energy MOV and GDT
- **Surge discharge rating:**  $I_{imp} = 12.5kA/50kA (L-N/N-PE)$
- **MOV max. withstand capability 1 x 8/20:** 100kA per pole
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;


**Technical data**

Type	PROTEC B2S(R) 25/xxx (1+1)						
	150	275	320	385	440		
<b>● Electrical characteristics</b>							
Nominal AC voltage	<b>U<sub>o</sub></b> (L-N)		120V 50/60Hz		230V 50/60Hz	400V 50/60Hz	
	<b>U<sub>o</sub></b> (N-PE)				230V 50/60Hz		
Max. continuous operating voltage (AC/DC)	<b>U<sub>c</sub></b> (L-N)		150/200V	275/350V	320/420V	385/500V	440/580V
	<b>U<sub>c</sub></b> (N-PE)				255V		
Nominal discharge current (8/20)	<b>I<sub>n</sub></b> (L-N/N-PE)				25kA/30kA		
Max. discharge current (8/20)	<b>I<sub>max</sub></b> (L-N/N-PE)				60kA/50kA		
Impulse current (10/350)	<b>I<sub>imp</sub></b> (L-N/N-PE)				12.5kA/50kA		
Total discharge current (10/350)	<b>I<sub>total</sub></b>				25kA		
Specific energy	<b>W/R</b> (L-N/N-PE)				39kJ/Ω/2.5MJ/Ω		
Charge	<b>Q</b> (L-N/N-PE)				6.25As/50As		
Protection level	<b>U<sub>p</sub></b> (L-N)		< 1.0kV	< 1.4kV	< 1.5kV	< 1.7kV	< 2.0kV
	<b>U<sub>p</sub></b> (N-PE)				< 1.7kV		
Residual voltage at $I_{imp}$	<b>U<sub>res</sub></b> (L-N)		< 0.7kV	< 1.0kV	< 1.1kV	< 1.4kV	< 1.5kV
Residual voltage at 5kA (8/20)	<b>U<sub>res</sub></b> (L-N)		< 0.6kV	< 0.9kV	< 1.0kV	< 1.3kV	< 1.4kV
Follow current	<b>I<sub>fi</sub></b> (L-N/N-PE)				100ARMS		
Response time	<b>t<sub>A</sub></b> (L-N/N-PE)				< 25ns/100ns		
Thermal protection	(L-N)				YES		
Back-up fuse (if mains > 160A)	(L-N)				160A gG/gL		
Short-circuit current rating	<b>I<sub>scCR</sub></b>				25kA/50Hz		
TOV withstand 5s	<b>U<sub>T</sub></b> (L-N)		174V		335V	580V	
TOV disconnection 120min	<b>U<sub>T</sub></b> (L-N)		228V		438V	765V	
TOV withstand 200ms	<b>U<sub>T</sub></b> (N-PE)				1200V/300A		
Number of ports					1		
<b>● Mechanical characteristics</b>							
Temperature range	<b>T<sub>a</sub></b>				-40°C ... +70°C		
Permissible humidity	<b>RH</b>				5%...95%		
Terminal screw torque	<b>M<sub>max</sub></b>				3.0Nm		
Conductor cross section					35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)		
AWG conductor cross section					2 AWG (solid) / 3 AWG (stranded)		
Mounting					35mm DIN rail, EN 60715		
Degree of protection					IP 20		
Housing material					thermoplastic; extinguishing degree UL 94 V-0		
Indication of thermal disconnecter operation					red flag		
Remote contacts (RC)					YES		
Contact ratings					AC: 250V/0.5A; 125V/3A		
Terminal cross section					max. 1.5mm <sup>2</sup>		
Remote terminal torque					0.25Nm		
<b>Ordering information</b>							
<b>U<sub>c</sub></b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>		
Ordering code <b>PROTEC B2S 25/xxx (1+1)</b>	506.037	506.038	506.039	506.040	506.041		
Ordering code <b>PROTEC B2SR 25/xxx (1+1)</b> (with remote contacts)	506.042	506.043	506.044	506.045	506.046		
Ordering code <b>Module PROTEC B2S(R) 12.5/xxx</b>	506.001	506.002	506.003	506.004	506.005		
Ordering code <b>Module PROTUBE B2S 50/255</b>			506.006				

**PROTEC B2S(R) 50 (3+1)**



- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Main distribution boards
- **Network system:** TT, TN-S
- **Protection modes:** L-N, N-PE
- **Protective element:** High energy MOV and GDT
- **Surge discharge rating:**  $I_{imp}$  = 12.5kA/50kA (L-N/N-PE)
- **MOV max. withstand capability 1 x 8/20:** 100kA per pole
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



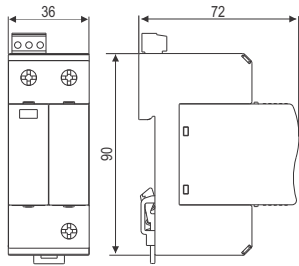
**Technical data**

Type	PROTEC B2S(R) 50/xxx (3+1)				
	150	275	320	385	440
<b>● Electrical characteristics</b>					
Nominal AC voltage	$U_o$ (L-N)		120V 50/60Hz	230V 50/60Hz	400V 50/60Hz
	$U_o$ (N-PE)			230V 50/60Hz	
Max. continuous operating voltage (AC/DC)	$U_c$ (L-N)		150/200V	275/350V	320/420V
	$U_c$ (N-PE)			255V	385/500V
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	
Impulse current (10/350)	$I_{imp}$ (L-N/N-PE)			12.5kA/50kA	
Total discharge current (10/350)	$I_{total}$			50kA	
Specific energy	$W/R$ (L-N/N-PE)			39kJ/Ω/2.5MJ/Ω	
Charge	$Q$ (L-N/N-PE)			6.25As/50As	
Protection level	$U_p$ (L-N)		< 1.0kV	< 1.4kV	< 1.5kV
	$U_p$ (N-PE)			< 1.7kV	< 2.0kV
Residual voltage at $I_{imp}$	$U_{res}$ (L-N)		< 0.7kV	< 1.0kV	< 1.1kV
Residual voltage at 5kA (8/20)	$U_{res}$ (L-N)		< 0.6kV	< 0.9kV	< 1.0kV
Follow current	$I_{fi}$ (L-N/N-PE)			100ARMS	
Response time	$t_A$ (L-N/N-PE)			< 25ns/100ns	
Thermal protection	(L-N)			YES	
Back-up fuse (if mains > 160A)	(L-N)			160A gG/gL	
Short-circuit current rating	$I_{sccr}$			25kA/50Hz	
TOV withstand 5s	$U_T$ (L-N)		174V	335V	580V
TOV disconnection 120min	$U_T$ (L-N)		228V	438V	765V
TOV withstand 200ms	$U_T$ (N-PE)			1200V/300A	
Number of ports				1	
<b>● Mechanical characteristics</b>					
Temperature range	$T_a$			-40°C .... +70°C	
Permissible humidity	RH			5%...95%	
Terminal screw torque	$M_{max}$			3.0Nm	
Conductor cross section				35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)	
AWG conductor cross section				2 AWG (solid) / 3 AWG (stranded)	
Mounting				35mm DIN rail, EN 60715	
Degree of protection				IP 20	
Housing material				thermoplastic; extinguishing degree UL 94 V-0	
Indication of thermal disconnecter operation				red flag	
Remote contacts (RC)				YES	
Contact ratings				AC: 250V/0.5A; 125V/3A	
Terminal cross section				max. 1.5mm <sup>2</sup>	
Remote terminal torque				0.25Nm	
<b>Ordering information</b>					
$U_c$	150	275	320	385	440
Ordering code <b>PROTEC B2S 50/xxx (3+1)</b>	506.067	506.068	506.069	506.070	506.071
Ordering code <b>PROTEC B2SR 50/xxx (3+1)</b> (with remote contacts)	506.072	506.073	506.074	506.075	506.076
Ordering code <b>Module PROTEC B2S(R) 12.5/xxx</b>	506.001	506.002	506.003	506.004	506.005
Ordering code <b>Module PROTUBE B2S 50/255</b>			506.006		

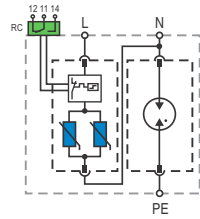
Dimensions, Connection diagrams, Weight and Packaging

**PROTEC B2S 25/xxx (1+1)**

Dimensions



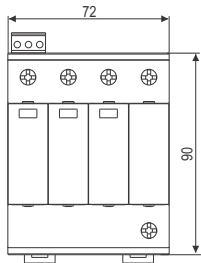
Internal configuration



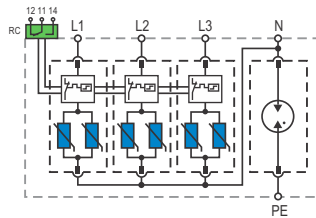
<b>PROTEC B2S 25/xxx (1+1)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	2TE				
Weight per unit	270g	310g	342g	366g	370g
<b>PROTEC B2SR 25/xxx (1+1)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	2TE				
Weight per unit	275g	315g	347g	371g	375g
Packaging dimensions (single unit)	109 x 76.5 x 41.5mm				
Min. packaging quantity	7 pcs.				

**PROTEC B2S(R) 50/xxx (3+1)**

Dimensions



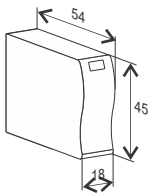
Internal configuration



<b>PROTEC B2S 50/xxx (3+1)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	4TE				
Weight per unit	498g	578g	642g	690g	698g
<b>PROTEC B2SR 50/xxx (3+1)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	4TE				
Weight per unit	503g	583g	647g	695g	703g
Packaging dimensions (single unit)	109 x 76.5 x 80mm				
Min. packaging quantity	3 pcs.				

**Module PROTEC B2S(R) 12.5/xxx**

Dimensions



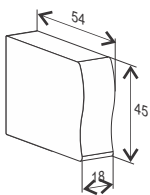
Internal configuration



<b>Module PROTEC B2S(R) 12.5/xxx</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Weight per unit	78g	88g	102g	116g	128g
Packaging dimensions	221 x 64.5 x 48.5mm				
Min. packaging quantity	12 pcs.				

**Module PROTUBE B2S 50**

Dimensions



Internal configuration

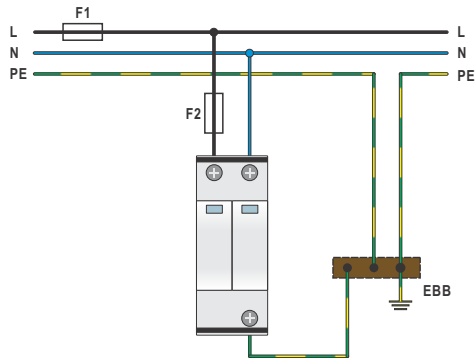


<b>Module PROTUBE B2S 50</b>	<b>255</b>
Weight per unit	70g
Packaging dimensions	221 x 64.5 x 48.5mm
Min. packaging quantity	12 pcs.

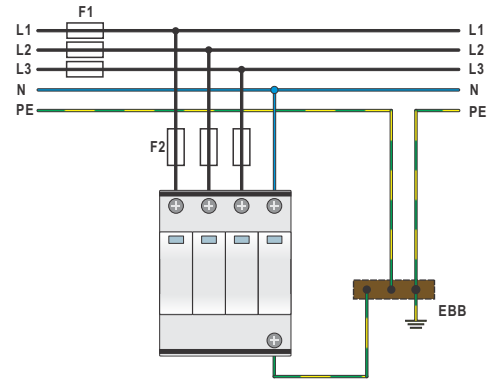
PROTEC B2S(R) Series

Network connections

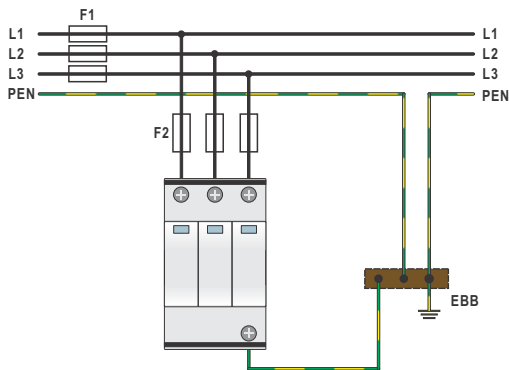
TN-S Network (Single-phase)



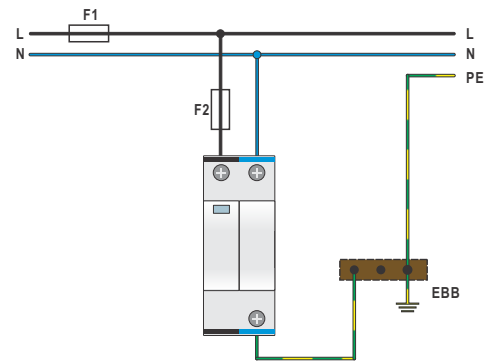
TN-S Network (Three-phase)



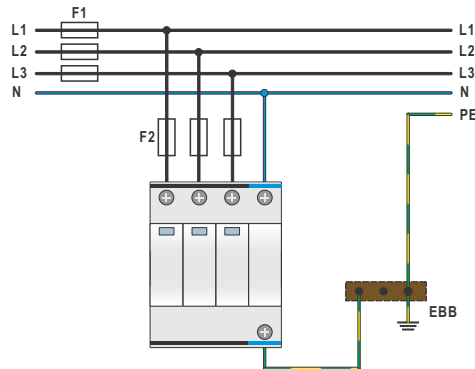
TN-C Network (Three-phase)



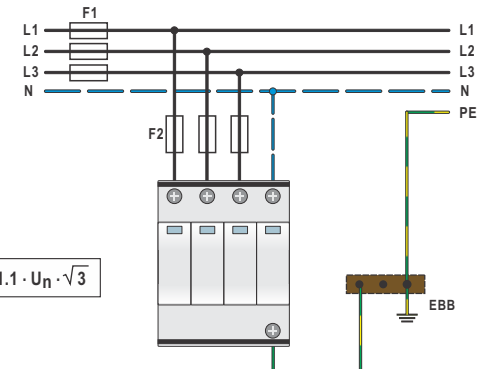
TT Network (Single-phase)



TT Network (Three-phase)



IT Network (Three-phase)



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

Back-up fuse

- $F1 > 160A \text{ gG/gL} \rightarrow$   $F2 = 160A \text{ gG/gL}$
- $F1 \leq 160A \text{ gG/gL} \rightarrow$   $F2$



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## Class II Modular Single and Multi-pole SPD 40kA per pole

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Category IEC / EN:	Class II / Type 2
Location of use:	Sub-distribution boards
Protection modes:	L/N-PE, L-PEN, L-N, N-PE
Protective elements:	MOV and GDT
Surge discharge ratings:	$I_{max}$ up to 40kA
Safety:	TOV withstand
Internal protection:	Separate thermal disconnecter for each MOV
Complies with:	IEC 61643-11:2011, EN 61643-11:2012;



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### The SAFETEC series of SPDs:

- Are highly reliable - controlled disconnection, arc-quenching
- Patented current limiting circuit
- Have longer life - protection against aging
- Have up to 5 years warranty

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### SAFETEC C(R) Series:

**SAFETEC C(R) 40**

**SAFETUBE C 40**

**SAFETEC C(R) 80/xxx (2+0)**

**SAFETEC C(R) 120/xxx (3+0)**

**SAFETEC C(R) 160/xxx (4+0)**

**SAFETEC C(R) 80/xxx (1+1)**

**SAFETEC C(R)/xxx 160 (3+1)**

The modular SAFETEC C(R) series is suitable for all type of connections.

Patented TC\* technology prevents catastrophic failures in case of TOVs (temporary overvoltages).

All in one technology is a protection from overvoltages surges and transients. It has been developed to protect against partial direct and indirect lightning discharges and are intended to provide protection in zones OB - 2 per IEC 62305.

\*TC - Thermal control function

## SAFETEC C(R)



- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Sub-distribution boards
- **Network systems:** TN-S, TN-C, IT, TT (only L-N)
- **Protection modes:** L/N - PE, L- PEN, L-N
- **Protective element:** MOV and GDT
- **Surge discharge rating:**  $I_{max}$  up to 40kA
- **Safety:** TOV withstand
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



### Technical data

Type	SAFETEC C(R) yy/xxx								
	75	150	275	385	440	750	880		
<b>● Electrical characteristics</b>									
Nominal AC voltage	$U_o$		48V 50/60Hz	120V 50/60Hz	230V 50/60Hz	690V 50/60Hz			
Max. continuous operating voltage (AC/DC)	$U_c$		75/100V	150/200V	275/350V	385/500V	440/580V	750/1000V	880/1100V
Nominal discharge current (8/20)	$I_n$		10kA		20kA		12.5kA		
Max. discharge current (8/20)	$I_{max}$		20kA		40kA		25kA		
Protection level	$U_p$		< 0.8kV	< 1.1kV	< 1.5kV	< 2.2kV	< 2.3kV	< 2.8kV	< 3.0kV
Residual voltage at 5kA (8/20)	$U_{res}$		< 0.4kV	< 0.7kV	< 1.1kV	< 1.5kV	< 1.7kV	< 2.4kV	< 2.6kV
Follow current	$I_{fi}$		NO						
Response time	$t_A$		< 25ns						
Thermal protection	YES								
Back-up fuse (if mains > 125A)	125A gG/gL								
Short-circuit current rating	$I_{scCR}$		25kA/50Hz						
TOV withstand 5s	$U_T$		70V	174V	335V		1000V		
TOV withstand 120min	$U_T$		92V	228V	438V		1320V		
Number of ports	1								
<b>● Mechanical characteristics</b>									
Temperature range	$T_a$		- 40°C .... + 70°C						
Permissible humidity	RH		5%...95%						
Terminal screw torque	$M_{max}$		3.0Nm						
Conductor cross section	35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)								
AWG conductor cross section	2 AWG (solid) / 3 AWG (stranded)								
Mounting	35mm DIN rail, EN 60715								
Degree of protection	IP 20								
Housing material	thermoplastic; extinguishing degree UL 94 V-0								
Indication of thermal disconnecter operation	red flag								
Remote contacts (RC)	YES								
Contact ratings	AC: 250V/0.5A; 125V/3A								
Terminal cross section	max. 1.5mm <sup>2</sup>								
Remote terminal torque	0.25Nm								

### Ordering information

$U_c$	75	150	275	385	440	750	880
Ordering code <b>SAFETEC C 20/75</b>	<b>516.612</b>						
Ordering code <b>SAFETEC CR 20/75</b> (with remote contacts)	<b>516.613</b>						
Ordering code <b>SAFETEC C 40/xxx</b>		<b>516.001</b>	<b>516.003</b>	<b>516.614</b>	<b>516.005</b>		
Ordering code <b>SAFETEC CR 40/xxx</b> (with remote contacts)		<b>516.002</b>	<b>516.004</b>	<b>516.615</b>	<b>516.006</b>		
Ordering code <b>SAFETEC C 25/xxx</b>						<b>516.616</b>	<b>516.755</b>
Ordering code <b>SAFETEC CR 25/xxx</b> (with remote contacts)						<b>516.617</b>	<b>516.756</b>
Ordering code <b>Module SAFETEC C(R) 20/75</b>	<b>516.648</b>						
Ordering code <b>Module SAFETEC C(R) 40/xxx</b>		<b>516.037</b>	<b>516.038</b>	<b>516.649</b>	<b>516.039</b>		
Ordering code <b>Module SAFETEC C(R) 25/xxx</b>						<b>516.650</b>	<b>516.754</b>

## SAFETUBE C 40



- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Sub-distribution boards
- **Network system:** TT
- **Protection modes:** N - PE
- **Protective element:** GDT
- **Surge discharge rating:**  $I_{max} = 40kA$
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011,  
EN 61643-11:2012;



### Technical data

Type	SAFETUBE C 40/255
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#### ● Electrical characteristics

Nominal AC voltage	$U_o$	230V 50/60Hz
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	$U_p$	< 1.5kV
Follow current	$I_{fi}$	100A <sub>RMS</sub>
Response time	$t_A$	25ns
TOV withstand 200ms	$U_T$	1200V/300A
Number of ports		1

#### ● Mechanical characteristics

Temperature range	$T_a$	- 40°C .... + 70°C
Permissible humidity	RH	5%...95%
Terminal screw torque	$M_{max}$	3.0Nm
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)
Mounting		35mm DIN rail, EN 60715
Degree of protection		IP 20
Housing material		thermoplastic; extinguishing degree UL 94 V-0

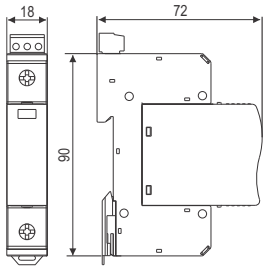
### Ordering information

<b><math>I_{max}</math></b>	<b>40</b>
Ordering code <b>SAFETUBE C 40/255</b>	<b>516.417</b>
Ordering code <b>Module SAFETUBE C 40/255</b>	<b>516.115</b>

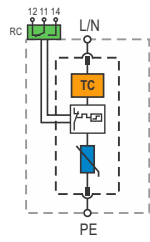
Dimensions, Internal configuration, Weight and Packaging

**SAFETEC C(R)**

**Dimensions**



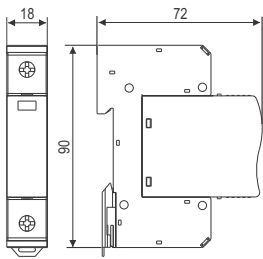
**Internal configuration**



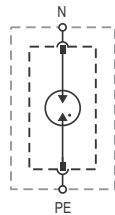
<b>SAFETEC C 20/75</b>	<b>75</b>			
Weight per unit	125g			
<b>SAFETEC C 40/xxx</b>	<b>150</b>	<b>275</b>	<b>385</b>	<b>440</b>
Weight per unit	140g	140g	148g	150g
<b>SAFETEC C 25/xxx</b>				<b>750 880</b>
Weight per unit				156g 156g
<b>SAFETEC CR 20/75</b>	<b>75</b>			
Weight per unit	130g			
<b>SAFETEC CR 40/xxx</b>	<b>150</b>	<b>275</b>	<b>385</b>	<b>440</b>
Weight per unit	148g	148g	156g	158g
<b>SAFETEC CR 25/xxx</b>				<b>750 880</b>
Weight per unit				164g 164g
Dimensions DIN 43880	1TE			
Packaging dimensions (single unit)	110 x 76.5 x 23.5mm			
Min. packaging quantity	12 pcs.			

**SAFETUBE C 40/255**

**Dimensions**



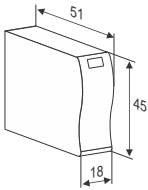
**Internal configuration**



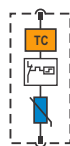
<b>SAFETUBE C 40/255</b>	<b>255</b>
Dimensions DIN 43880	1TE
Weight per unit	118g
Packaging dimensions (single unit)	110 x 76.5 x 23.5mm
Min. packaging quantity	12 pcs.

**Module SAFETEC C(R)**

**Dimensions**



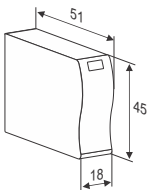
**Internal configuration**



<b>Module SAFETEC C(R) 20/75</b>	<b>75</b>			
Weight per unit	58g			
<b>Module SAFETEC C(R) 40/xxx</b>	<b>150</b>	<b>275</b>	<b>385</b>	<b>440</b>
Weight per unit	62g	66g	72g	74g
<b>Module SAFETEC C(R) 25/xxx</b>				<b>750 880</b>
Weight per unit				78g 78g
Packaging dimensions	221 x 64.5 x 48.5mm			
Min. packaging quantity	12 pcs.			

**Module SAFETUBE C 40/255**

**Dimensions**



**Internal configuration**



<b>Module SAFETUBE C 40/255</b>	<b>255</b>
Weight per unit	34g
Packaging dimensions	221 x 64.5 x 48.5mm
Min. packaging quantity	12 pcs.

**SAFETEC C(R) (2+0)**



- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Sub-distribution boards
- **Network systems:** TN-S
- **Protection modes:** L/N - PE, L- PEN
- **Protective element:** MOV and GDT
- **Surge discharge rating:**  $I_{max}$  up to 40kA
- **Safety:** TOV withstand
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



**Technical data**

Type	SAFETEC C(R) yyy/xxx (2+0)						
	75	150	275	385	440	750	880

● **Electrical characteristics**

Nominal AC voltage	$U_o$	48V 50/60Hz 120V 50/60Hz		230V 50/60Hz		690V 50/60Hz	
Max. continuous operating voltage (AC/DC)	$U_c$	75/100V	150/200V	275/350V	385/500V	440/580V	750/1000V 880/1100V
Nominal discharge current (8/20)	$I_n$	10kA per pole		20kA per pole		12.5kA per pole	
Max. discharge current (8/20)	$I_{max}$	20kA per pole		40kA per pole		25kA per pole	
Protection level	$U_p$	< 0.8kV	< 1.1kV	< 1.5kV	< 2.2kV	< 2.3kV	< 2.8kV < 3.0kV
Residual voltage at 5kA (8/20)	$U_{res}$	< 0.6kV	< 0.7kV	< 1.1kV	< 1.3kV	< 1.6kV	< 2.2kV < 2.6kV
Follow current	$I_{fi}$	NO					
Response time	$t_A$	< 25ns					
Thermal protection		YES					
Back-up fuse (if mains > 125A)		125A gG/gL					
Short-circuit current rating	$I_{scCR}$	25kA/50Hz					
TOV withstand 5s	$U_T$	70V	174V	335V		1000V	
TOV withstand 120min	$U_T$	92V	228V	438V		1320V	
Number of ports		1					

● **Mechanical characteristics**

Temperature range	$T_a$	- 40°C .... + 70°C					
Permissible humidity	RH	5%...95%					
Terminal screw torque	$M_{max}$	3.0Nm					
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)					
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)					
Mounting		35mm DIN rail, EN 60715					
Degree of protection		IP 20					
Housing material		thermoplastic; extinguishing degree UL 94 V-0					
Indication of thermal disconnecter operation		red flag					
Remote contacts (RC)		YES					
Contact ratings		AC: 250V/0.5A; 125V/3A					
Terminal cross section		max. 1.5mm <sup>2</sup>					
Remote terminal torque		0.25Nm					

**Ordering information**

$U_c$	75	150	275	385	440	750	880
Ordering code <b>SAFETEC C 40/75 (2+0)</b>	516.618						
Ordering code <b>SAFETEC CR 40/75 (2+0) (with remote contacts)</b>	516.619						
Ordering code <b>SAFETEC C 80/xxx (2+0)</b>		516.007	516.009	516.620	516.011		
Ordering code <b>SAFETEC CR 80/xxx (2+0) (with remote contacts)</b>		516.008	516.010	516.621	516.012		
Ordering code <b>SAFETEC C 50/xxx (2+0)</b>						516.622	516.757
Ordering code <b>SAFETEC CR 50/xxx (2+0) (with remote contacts)</b>						516.623	516.758
Ordering code <b>Module SAFETEC C(R) 20/75</b>	516.648						
Ordering code <b>Module SAFETEC C(R) 40/xxx</b>		516.037	516.038	516.649	516.039		
Ordering code <b>Module SAFETEC C(R) 25/xxx</b>						516.650	516.754

**SAFETEC C(R) (3+0)**



- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Sub-distribution boards
- **Network systems:** TN-C
- **Protection modes:** L/N - PE, L- PEN
- **Protective element:** MOV and GDT
- **Surge discharge rating:**  $I_{max}$  up to 40kA
- **Safety:** TOV withstand
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



**Technical data**

Type	75	150	SAFETEC C(R) yyy/xxx (3+0)			750	880
			275	385	440		

● **Electrical characteristics**

Nominal AC voltage	$U_o$	48V 50/60Hz 120V 50/60Hz		230V 50/60Hz		690V 50/60Hz	
Max. continuous operating voltage (AC/DC)	$U_c$	75/100V	150/200V	275/350V	385/500V	440/580V	750/1000V 880/1100V
Nominal discharge current (8/20)	$I_n$	10kA per pole		20kA per pole		12.5kA per pole	
Max. discharge current (8/20)	$I_{max}$	20kA per pole		40kA per pole		25kA per pole	
Protection level	$U_p$	< 0.8kV	< 1.1kV	< 1.5kV	< 2.2kV	< 2.3kV	< 2.8kV < 3.0kV
Residual voltage at 5kA (8/20)	$U_{res}$	< 0.4kV	< 0.7kV	< 1.1kV	< 1.5kV	< 1.7kV	< 2.4kV < 2.6kV
Follow current	$I_{fi}$	NO					
Response time	$t_A$	< 25ns					
Thermal protection		YES					
Back-up fuse (if mains > 125A)		125A gG/gL					
Short-circuit current rating	$I_{scCR}$	25kA/50Hz					
TOV withstand 5s	$U_T$	70V	174V	335V		1000V	
TOV withstand 120min	$U_T$	92V	228V	438V		1320V	
Number of ports		1					

● **Mechanical characteristics**

Temperature range	$T_a$	- 40°C ..... + 70°C					
Permissible humidity	RH	5%...95%					
Terminal screw torque	$M_{max}$	3.0Nm					
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)					
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)					
Mounting		35mm DIN rail, EN 60715					
Degree of protection		IP 20					
Housing material		thermoplastic; extinguishing degree UL 94 V-0					
Indication of thermal disconnecter operation		red flag					
Remote contacts (RC)		YES					
Contact ratings		AC: 250V/0.5A; 125V/3A					
Terminal cross section		max. 1.5mm <sup>2</sup>					
Remote terminal torque		0.25Nm					

**Ordering information**

$U_c$	75	150	275	385	440	750	880
Ordering code <b>SAFETEC C 60/75 (3+0)</b>	516.630						
Ordering code <b>SAFETEC CR 60/75 (3+0) (with remote contacts)</b>	516.631						
Ordering code <b>SAFETEC C 120/xxx (3+0)</b>		516.019	516.021	516.632	516.023		
Ordering code <b>SAFETEC CR 120/xxx (3+0) (with remote contacts)</b>		516.020	516.022	516.633	516.024		
Ordering code <b>SAFETEC C 75/xxx (3+0)</b>						516.634	516.759
Ordering code <b>SAFETEC CR 75/xxx (3+0) (with remote contacts)</b>						516.635	516.760
Ordering code <b>Module SAFETEC C(R) 20/75</b>	516.648						
Ordering code <b>Module SAFETEC C(R) 40/xxx</b>		516.037	516.038	516.649	516.039		
Ordering code <b>Module SAFETEC C(R) 25/xxx</b>						516.650	516.754

## SAFETEC C(R) (4+0)



- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Sub-distribution boards
- **Network systems:** TN-S, IT
- **Protection modes:** L/N - PE, L- PEN
- **Protective element:** MOV and GDT
- **Surge discharge rating:**  $I_{max}$  up to 40kA
- **Safety:** TOV withstand
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



### Technical data

Type	75	150	SAFETEC C(R) yyy/xxx (4+0)			750	880		
			275	385	440				
<b>● Electrical characteristics</b>									
Nominal AC voltage	$U_o$		48V 50/60Hz 120V 50/60Hz		230V 50/60Hz		690V 50/60Hz		
Max. continuous operating voltage (AC/DC)	$U_c$		75/100V	150/200V	275/350V	385/500V	440/580V	750/1000V	880/1100V
Nominal discharge current (8/20)	$I_n$		10kA per pole		20kA per pole		12.5kA per pole		
Max. discharge current (8/20)	$I_{max}$		20kA per pole		40kA per pole		25kA per pole		
Protection level	$U_p$		< 0.8kV	< 1.1kV	< 1.5kV	< 2.2kV	< 2.3kV	< 2.8kV	< 3.0kV
Residual voltage at 5kA (8/20)	$U_{res}$		< 0.4kV	< 0.7kV	< 1.1kV	< 1.5kV	< 1.7kV	< 2.4kV	< 2.6kV
Follow current	$I_{fi}$		NO						
Response time	$t_A$		< 25ns						
Thermal protection	YES								
Back-up fuse (if mains > 125A)	125A gG/gL								
Short-circuit current rating	$I_{scCR}$		25kA/50Hz						
TOV withstand 5s	$U_T$		70V	174V	335V		1000V		
TOV withstand 120min	$U_T$		92V	228V	438V		1320V		
Number of ports	1								
<b>● Mechanical characteristics</b>									
Temperature range	$T_a$		- 40°C ..... + 70°C						
Permissible humidity	$RH$		5%...95%						
Terminal screw torque	$M_{max}$		3.0Nm						
Conductor cross section	35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)								
AWG conductor cross section	2 AWG (solid) / 3 AWG (stranded)								
Mounting	35mm DIN rail, EN 60715								
Degree of protection	IP 20								
Housing material	thermoplastic; extinguishing degree UL 94 V-0								
Indication of disconnector operation	red flag								
Remote contacts (RC)	YES								
Contact ratings	AC: 250V/0.5A; 125V/3A								
Terminal cross section	max. 1.5mm <sup>2</sup>								
Remote terminal torque	0.25Nm								

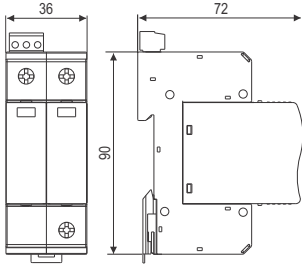
### Ordering information

$U_c$	75	150	275	385	440	750	880
Ordering code SAFETEC C 80/75 (4+0)	516.636						
Ordering code SAFETEC CR 80/75 (4+0) (with remote contacts)	516.637						
Ordering code SAFETEC C 160/xxx (4+0)		516.025	516.027	516.638	516.029		
Ordering code SAFETEC CR 160/xxx (4+0) (with remote contacts)		516.026	516.028	516.639	516.030		
Ordering code SAFETEC C 100/xxx (4+0)						516.640	516.761
Ordering code SAFETEC CR 100/xxx (4+0) (with remote contacts)						516.641	516.762
Ordering code Module SAFETEC C(R) 20/75	516.648						
Ordering code Module SAFETEC C(R) 40/xxx		516.037	516.038	516.649	516.039		
Ordering code Module SAFETEC C(R) 25/xxx						516.650	516.754

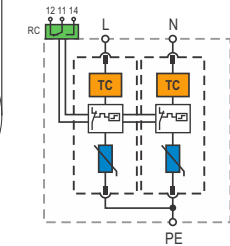
Dimensions, Internal configuration, Weight and Packaging

**SAFETEC C(R) (2+0)**

**Dimensions**



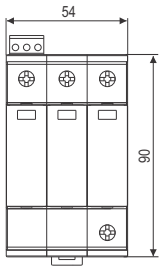
**Internal configuration**



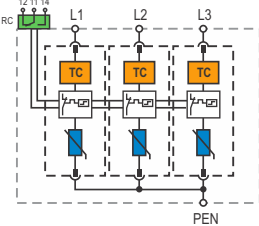
<b>SAFETEC C 40/75 (2+0)</b>	<b>75</b>			
Weight per unit	250g			
<b>SAFETEC C 80/xxx (2+0)</b>	<b>150</b>	<b>275</b>	<b>385</b>	<b>440</b>
Weight per unit	280g	281g	284g	286g
<b>SAFETEC C 50/xxx (2+0)</b>				<b>750 880</b>
Weight per unit				288g 288g
<b>SAFETEC CR 40/75 (2+0)</b>	<b>75</b>			
Weight per unit	260g			
<b>SAFETEC CR 80/xxx (2+0)</b>	<b>150</b>	<b>275</b>	<b>385</b>	<b>440</b>
Weight per unit	288g	289g	292g	294g
<b>SAFETEC CR 50/xxx (2+0)</b>				<b>750 880</b>
Weight per unit				296g 296g
Dimensions DIN 43880	2TE			
Packaging dimensions (single unit)	109 x 76.5 x 41.5mm			
Min. packaging quantity	7 pcs.			

**SAFETEC C(R) (3+0)**

**Dimensions**



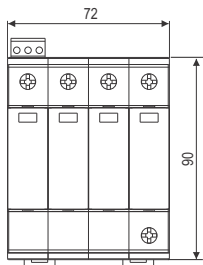
**Internal configuration**



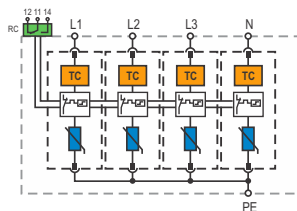
<b>SAFETEC C 60/75 (3+0)</b>	<b>75</b>			
Weight per unit	375g			
<b>SAFETEC C 120/xxx (3+0)</b>	<b>150</b>	<b>275</b>	<b>385</b>	<b>440</b>
Weight per unit	420g	422g	448g	450g
<b>SAFETEC C 75/xxx (3+0)</b>				<b>750 880</b>
Weight per unit				468g 468g
<b>SAFETEC CR 60/75 (3+0)</b>	<b>75</b>			
Weight per unit	390g			
<b>SAFETEC CR 120/xxx (3+0)</b>	<b>150</b>	<b>275</b>	<b>385</b>	<b>440</b>
Weight per unit	428g	430g	456g	458g
<b>SAFETEC CR 75/xxx (3+0)</b>				<b>750 880</b>
Weight per unit				476g 476g
Dimensions DIN 43880	3TE			
Packaging dimensions (single unit)	109 x 76.5 x 61.5mm			
Min. packaging quantity	5 pcs.			

**SAFETEC C(R) (4+0)**

**Dimensions**



**Internal configuration**



<b>SAFETEC C 80/75 (4+0)</b>	<b>75</b>			
Weight per unit	500g			
<b>SAFETEC C 160/xxx (4+0)</b>	<b>150</b>	<b>275</b>	<b>385</b>	<b>440</b>
Weight per unit	560g	562g	595g	598g
<b>SAFETEC C 100/xxx (4+0)</b>				<b>750 880</b>
Weight per unit				602g 602g
<b>SAFETEC CR 80/75 (4+0)</b>	<b>75</b>			
Weight per unit	520g			
<b>SAFETEC CR 160/xxx (4+0)</b>	<b>150</b>	<b>275</b>	<b>385</b>	<b>440</b>
Weight per unit	568g	570g	603g	606g
<b>SAFETEC CR 100/xxx (4+0)</b>				<b>750 880</b>
Weight per unit				610g 610g
Dimensions DIN 43880	4TE			
Packaging dimensions (single unit)	109 x 76.5 x 80mm			
Min. packaging quantity	3 pcs.			



## SAFETEC C(R) (1+1)



- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Sub-distribution boards
- **Network system:** TT, TN-S
- **Protection modes:** L-N, N-PE
- **Protective element:** MOV and GDT
- **Surge discharge rating:**  $I_{max}$  up to 40kA
- **Safety:** TOV withstand
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



## Technical data

Type	SAFETEC C(R) yyy/xxx (1+1)							
	75	150	275	385	440	750	880	
<b>● Electrical characteristics</b>								
Nominal AC voltage	$U_o$ (L-N)		48V 50/60Hz 120V 50/60Hz		230V 50/60Hz		690V 50/60Hz	
	$U_o$ (N-PE)		230V 50/60Hz					
Max. continuous operating voltage (AC/DC)	$U_c$ (L-N)		75/100V	150/200V	275/350V	385/500V	440/580V	750/1000V 880/1100V
	$U_c$ (N-PE)		255V					
Nominal discharge current (8/20)	$I_n$ (L-N/N-PE)		10kA/20kA		20kA/20kA		12.5kA/20kA	
Max. discharge current (8/20)	$I_{max}$ (L-N/N-PE)		20kA/40kA		40kA/40kA		25kA/40kA	
Protection level	$U_p$ (L-N)		< 0.8kV	< 1.1kV	< 1.5kV	< 2.2kV	< 2.3kV	< 2.8kV < 3.0kV
	$U_p$ (N-PE)		< 1.5kV					
Residual voltage at 5kA (8/20)	$U_{res}$ (L-N)		< 0.4kV	< 0.7kV	< 1.1kV	< 1.5kV	< 1.7kV	< 2.4kV < 2.6kV
Follow current	$I_{fi}$ (N-PE)		100A <sub>RMS</sub>					
Response time	$t_A$ (L-N/N-PE)		< 25ns					
Thermal protection	YES							
Back-up fuse (if mains > 125A)	125A gG/gL							
Short-circuit current rating	$I_{scCR}$		25kA/50Hz					
TOV withstand 5s	$U_T$ (L-N)		70V	174V	335V		1000V	
TOV withstand 120min	$U_T$ (L-N)		92V	228V	438V		1320V	
TOV withstand 200ms	$U_T$ (N-PE)		1200V/300A					
Number of ports	1							
<b>● Mechanical characteristics</b>								
Temperature range	$T_a$		- 40°C .... + 70°C					
Permissible humidity	$RH$		5%...95%					
Terminal screw torque	$M_{max}$		3.0Nm					
Conductor cross section	35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)							
AWG conductor cross section	2 AWG (solid) / 3 AWG (stranded)							
Mounting	35mm DIN rail, EN 60715							
Degree of protection	IP 20							
Housing material	thermoplastic; extinguishing degree UL 94 V-0							
Indication of thermal disconnecter operation	red flag							
Remote contacts (RC)	YES							
Contact ratings	AC: 250V/0.5A; 125V/3A							
Terminal cross section	max. 1.5mm <sup>2</sup>							
Remote terminal torque	0.25Nm							
<b>Ordering information</b>								
$U_c$	75	150	275	385	440	750	880	
Ordering code SAFETEC C 40/75 (1+1)	516.624							
Ordering code SAFETEC CR 40/75 (1+1) (with remote contacts)	516.625							
Ordering code SAFETEC C 80/xxx (1+1)		516.013	516.015	516.626	516.017			
Ordering code SAFETEC CR 80/xxx (1+1) (with remote contacts)		516.014	516.016	516.627	516.018			
Ordering code SAFETEC C 50/xxx (1+1)						516.628	516.766	
Ordering code SAFETEC CR 50/xxx (1+1) (with remote contacts)						516.629	516.767	
Ordering code Module SAFETEC C(R) 20/75	516.648							
Ordering code Module SAFETEC C(R) 40/xxx		516.037	516.038	516.649	516.039			
Ordering code Module SAFETEC C(R) 25/xxx						516.650	516.754	
Ordering code Module SAFETUBE C 40/255	516.115							

**SAFETEC C(R) (3+1)**


- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Sub-distribution boards
- **Network system:** TT, TN-S
- **Protection modes:** L-N, N-PE
- **Protective element:** MOV and GDT
- **Surge discharge rating:**  $I_{max}$  up to 40kA
- **Safety:** TOV withstand
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;

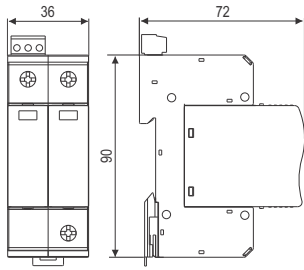

**Technical data**

Type	SAFETEC C(R) yyy/xxx (3+1)								
	75	150	275	385	440	750	880		
<b>● Electrical characteristics</b>									
Nominal AC voltage	$U_o$ (L-N)		48V 50/60Hz	120V 50/60Hz	230V 50/60Hz	690V 50/60Hz			
	$U_o$ (N-PE)		230V 50/60Hz						
Max. continuous operating voltage (AC/DC)	$U_c$ (L-N)		75/100V	150/200V	275/350V	385/500V	440/580V	750/1000V	880/1100V
	$U_c$ (N-PE)		255V						
Nominal discharge current (8/20)	$I_n$ (L-N/N-PE)		10kA/20kA	20kA/20kA		12.5kA/20kA			
Max. discharge current (8/20)	$I_{max}$ (L-N/N-PE)		20kA/40kA	40kA/40kA		25kA/40kA			
Protection level	$U_p$ (L-N)		< 0.8kV	< 1.1kV	< 1.5kV	< 2.2kV	< 2.3kV	< 2.8kV	< 3.0kV
	$U_p$ (N-PE)		< 1.5kV						
Residual voltage at 5kA (8/20)	$U_{res}$ (L-N)		< 0.4kV	< 0.7kV	< 1.1kV	< 1.5kV	< 1.7kV	< 2.4kV	< 2.6kV
Follow current	$I_{fi}$ (N-PE)		100A <sub>RMS</sub>						
Response time	$t_A$ (L-N/N-PE)		< 25ns						
Thermal protection	YES								
Back-up fuse (if mains > 125A)	125A gG/gL								
Short-circuit current rating	$I_{sccr}$		25kA/50Hz						
TOV withstand 5s	$U_T$ (L-N)		70V	174V	335V		1000V		
TOV withstand 120min	$U_T$ (L-N)		92V	228V	438V		1320V		
TOV withstand 200ms	$U_t$ (N-PE)		1200V/300A						
Number of ports	1								
<b>● Mechanical characteristics</b>									
Temperature range	$T_a$		- 40°C .... + 70°C						
Permissible humidity	$RH$		5%...95%						
Terminal screw torque	$M_{max}$		3.0Nm						
Conductor cross section	35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)								
AWG conductor cross section	2 AWG (solid) / 3 AWG (stranded)								
Mounting	35mm DIN rail, EN 60715								
Degree of protection	IP 20								
Housing material	thermoplastic; extinguishing degree UL 94 V-0								
Indication of thermal disconnecter operation	red flag								
Remote contacts (RC)	YES								
Contact ratings	AC: 250V/0.5A; 125V/3A								
Terminal cross section	max. 1.5mm <sup>2</sup>								
Remote terminal torque	0.25Nm								
<b>Ordering information</b>									
$U_c$	75	150	275	385	440	750	880		
Ordering code SAFETEC C 80/75 (3+1)	516.642								
Ordering code SAFETEC CR 80/75 (3+1) (with remote contacts)	516.643								
Ordering code SAFETEC C 160/xxx (3+1)		516.031	516.033	516.644	516.035				
Ordering code SAFETEC CR 160/xxx (3+1) (with remote contacts)		516.032	516.034	516.645	516.036				
Ordering code SAFETEC C 100/xxx (3+1)						516.646	516.768		
Ordering code SAFETEC CR 100/xxx (3+1) (with remote contacts)						516.647	516.769		
Ordering code Module SAFETEC C(R) 20/75	516.648								
Ordering code Module SAFETEC C(R) 40/xxx		516.037	516.038	516.649	516.039				
Ordering code Module SAFETEC C(R) 25/xxx						516.650	516.754		
Ordering code Module SAFETUBE C 40/255	516.115								

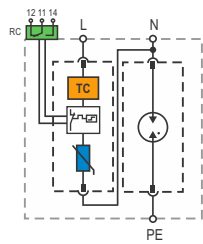
Dimensions, Internal configuration, Weight and Packaging

**SAFETEC C(R) (1+1)**

Dimensions



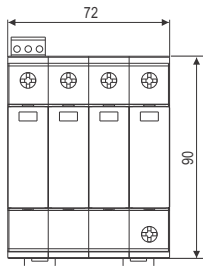
Internal configuration



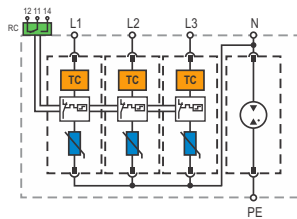
<b>SAFETEC C 40/75 (1+1)</b>	<b>75</b>			
Weight per unit	253g			
<b>SAFETEC C 80/xxx (1+1)</b>	<b>150</b>	<b>275</b>	<b>385</b>	<b>440</b>
Weight per unit	258g	258g	265g	268g
<b>SAFETEC C 50/xxx (1+1)</b>				<b>750 880</b>
Weight per unit				271g 271g
<b>SAFETEC CR 40/75 (1+1)</b>	<b>75</b>			
Weight per unit	261g			
<b>SAFETEC CR 80/xxx (1+1)</b>	<b>150</b>	<b>275</b>	<b>385</b>	<b>440</b>
Weight per unit	266g	266g	274g	276g
<b>SAFETEC CR 50/xxx (1+1)</b>				<b>750 880</b>
Weight per unit				279g 279g
Dimensions DIN 43880	2TE			
Packaging dimensions (single unit)	109 x 76,5 x 41,5mm			
Min. packaging quantity	7 pcs.			

**SAFETEC C(R) (3+1)**

Dimensions



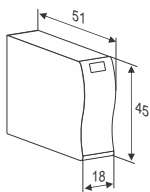
Internal configuration



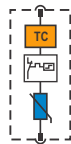
<b>SAFETEC C 80/75 (3+1)</b>	<b>75</b>			
Weight per unit	533g			
<b>SAFETEC C 160/xxx (3+1)</b>	<b>150</b>	<b>275</b>	<b>385</b>	<b>440</b>
Weight per unit	538g	540g	565g	568g
<b>SAFETEC C 160/xxx (3+1)</b>				<b>750 880</b>
Weight per unit				571g 571g
<b>SAFETEC CR 80/75 (3+1)</b>	<b>75</b>			
Weight per unit	541g			
<b>SAFETEC CR 160/xxx (3+1)</b>	<b>150</b>	<b>275</b>	<b>385</b>	<b>440</b>
Weight per unit	546g	548g	574g	576g
<b>SAFETEC CR 160/xxx (3+1)</b>				<b>750 880</b>
Weight per unit				579g 579g
Dimensions DIN 43880	4TE			
Packaging dimensions (single unit)	109 x 76,5 x 80mm			
Min. packaging quantity	3 pcs.			

**Module SAFETEC C(R)**

Dimensions



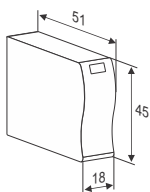
Internal configuration



<b>Module SAFETEC C(R) 20/75</b>	<b>75</b>			
Weight per unit	58g			
<b>Module SAFETEC C(R) 40/xxx</b>	<b>150</b>	<b>275</b>	<b>385</b>	<b>440</b>
Weight per unit	62g	66g	72g	74g
<b>Module SAFETEC C(R) 25/xxx</b>				<b>750 880</b>
Weight per unit				78g 78g
Packaging dimensions	221 x 64,5 x 48,5mm			
Min. packaging quantity	12 pcs.			

**Module SAFETUBE C 40/255**

Dimensions



Internal configuration

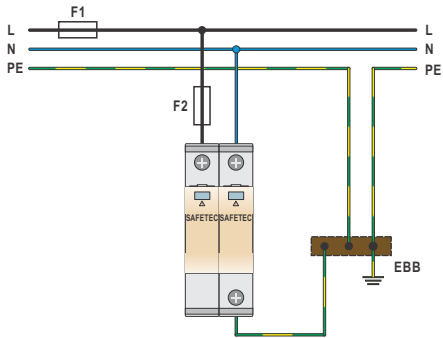


<b>Module SAFETUBE C 40/255</b>	<b>255</b>			
Weight per unit	34g			
Packaging dimensions	221 x 64,5 x 48,5mm			
Min. packaging quantity	12 pcs.			

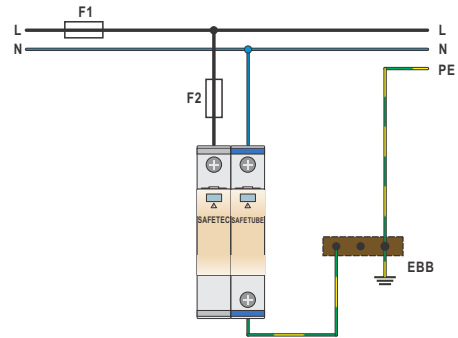
SAFETEC C(R) Series

Network connections

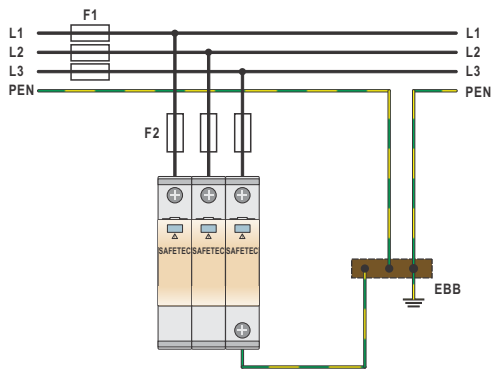
TN-S Network (Single-phase)



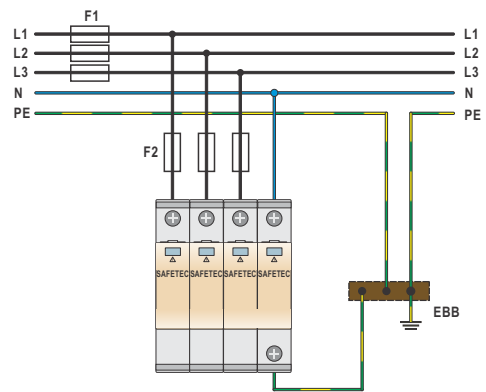
TT Network (Single-phase)



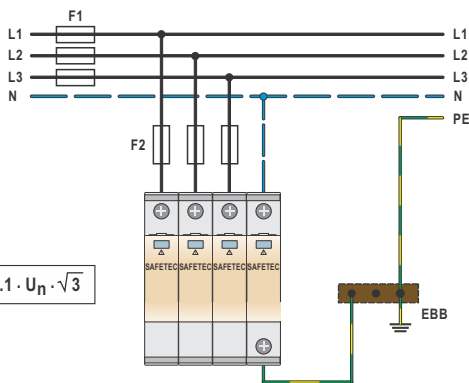
TN-C Network (Three-phase)



TN-S Network (Three-phase)

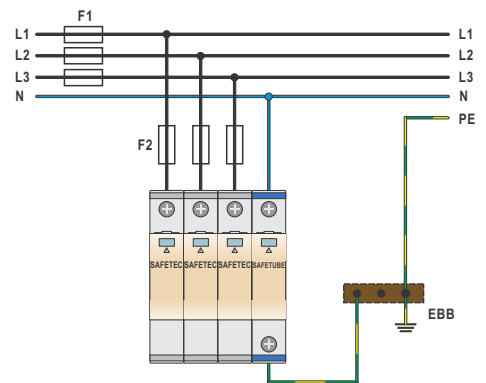


IT Network (Three-phase)



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

TT Network (Three-phase)



Back-up fuse

- $F1 > 125A \text{ gG/gL}$   $\rightarrow$   $F2 = 125A \text{ gG/gL}$
- $F1 \leq 125A \text{ gG/gL}$   $\rightarrow$   $F2$

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## Type 2 Modular Single and Multi-pole SPD up to 50kA per pole



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<b>Classification UL 1449 4th ed.:</b>	<b>Type 1, 2 / CA (Component Assembly)</b>
<b>Location of use:</b>	<b>Sub-distribution boards</b>
<b>Protection modes:</b>	<b>L - G (PE), L - N, N - G (PE) or L - L</b>
<b>Protective elements:</b>	<b>MOV and GDT</b>
<b>Surge discharge ratings:</b>	<b>I<sub>max</sub> up to 50kA</b>
<b>Housing:</b>	<b>Modular design</b>
<b>Complies with:</b>	<b>UL 1449 4th Ed.;</b>



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### The SAFETEC series of SPDs :

- Are highly reliable - controlled disconnection, arc-quenching
- Patented current limiting circuit
- Have longer life - protection against aging
- Have up to 5 years warranty

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SAFETEC C(R) UL Series:  
**SAFETEC C(R) UL**  
**SAFETEC C(R) (2+0) UL**  
**SAFETEC C(R) (3+0) UL**  
**SAFETEC C(R) (4+0) UL**

The modular SAFETEC C(R) series is suitable for all type of connections.

Patented TC\* technology prevents catastrophic failures in case of TOVs (temporary overvoltages).

All in one technology is a protection from overvoltages surges and transients. It has been developed to protect against partial direct and indirect lightning discharges and are intended to provide protection in zones O<sub>B</sub> - 2 per IEC 62305.

\*TC - Thermal control function



**SAFETEC C(R) UL**



- **Classification UL 1449 4th Ed.:** Type 1, 2 CA
- **Location of use:** Sub-distribution boards
- **Protection modes:** L - G (PE), L - N, N - G (PE) or L - L
- **Protective element:** MOV and GDT
- **Surge discharge rating:** I<sub>max</sub> up to 50kA
- **Safety:** TOV withstand
- **Housing:** Modular design
- **Complies with:** UL 1449 4th Ed.



**Technical data**

Type	SAFETEC C(R)								
	150	277	385	440	550	750	880		
<b>● Electrical characteristics</b>									
Max. continuous operating voltage (AC)	<b>MCOV</b>		150V	300V	385V	440V	550V	750V	880V
Nominal discharge current (8/20) per mode of protection	<b>I<sub>n</sub></b>		20kA	20kA	20kA	20kA	20kA	10kA	10kA
Max. discharge current (8/20) per mode of protection	<b>I<sub>max</sub></b>		50kA	50kA	50kA	50kA	50kA	20kA	20kA
Voltage protection rating	<b>VPR</b>		1.2kV	1.6kV	1.8kV	2.0kV	2.5kV	2.5kV	3.0kV
Short-circuit current rating	<b>SCCR</b>								200kA
Follow current	<b>I<sub>fi</sub></b>								NO
Response time	<b>t<sub>A</sub></b>								< 25ns
Thermal protection									YES
Back-up fuse									No back-up fuse needed
Number of ports									1
<b>● Mechanical characteristics</b>									
Temperature range	<b>T<sub>a</sub></b>								- 40°C .... + 85°C
Permissible humidity	<b>RH</b>								5%...95%
Terminal screw torque	<b>M<sub>max</sub></b>								3.0Nm
Conductor cross section									35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)
AWG conductor cross section									2 AWG (solid) / 3 AWG (stranded)
Mounting									35mm DIN rail, EN 60715
Degree of protection									IP 20
Housing material									thermoplastic; extinguishing degree UL 94 V-0
Indication of thermal disconnecter operation									red flag
Remote contacts (RC)									YES
Contact ratings									AC: 250V/0.5A; 125V/3A
Terminal cross section									max. 1.5mm <sup>2</sup>
Remote terminal torque									0.25Nm
<b>Ordering information</b>									
<b>MCOV</b>	<b>150</b>	<b>277</b>	<b>385</b>	<b>440</b>	<b>550</b>	<b>750</b>	<b>880</b>		
Ordering code <b>SAFETEC C 50/xxx</b>	<b>516.058</b>	<b>516.060</b>	<b>516.062</b>	<b>516.064</b>	<b>516.066</b>				
Ordering code <b>SAFETEC CR 50/xxx</b> (with remote contacts)	<b>516.059</b>	<b>516.061</b>	<b>516.063</b>	<b>516.065</b>	<b>516.067</b>				
Ordering code <b>SAFETEC C 25/xxx</b>						<b>516.068</b>	<b>516.586</b>		
Ordering code <b>SAFETEC CR 25/xxx</b> (with remote contacts)						<b>516.069</b>	<b>516.587</b>		
Ordering code <b>Module SAFETEC C(R) 50/xxx</b>	<b>516.201</b>	<b>516.202</b>	<b>516.203</b>	<b>516.204</b>	<b>516.205</b>				
Ordering code <b>Module SAFETEC C(R) 25/xxx</b>						<b>516.206</b>	<b>516.585</b>		



**SAFETEC C(R) (3+0) UL**



- **Classification UL 1449 4th Ed.:** Type 1, 2 CA
- **Location of use:** Sub-distribution boards
- **Protection modes:** L - G (PE), L - N, N - G (PE) or L - L
- **Protective element:** MOV and GDT
- **Surge discharge rating:**  $I_{max}$  up to 50kA
- **Safety:** TOV withstand
- **Housing:** Modular design
- **Complies with:** UL 1449 4th Ed.



**Technical data**

Type	150	277	SAFETEC C(R) (3+0) UL				750	880
			385	440	550			

● **Electrical characteristics**

	Parameter	150	277	385	440	550	750	880
Max. continuous operating voltage (AC)	<b>MCOV</b>	150V	300V	385V	440V	550V	750V	880V
Nominal discharge current (8/20) per mode of protection	<b><math>I_n</math></b>	20kA	20kA	20kA	20kA	20kA	10kA	10kA
Max. discharge current (8/20) per mode of protection	<b><math>I_{max}</math></b>	50kA	50kA	50kA	50kA	50kA	20kA	20kA
Voltage protection rating	<b>VPR</b>	1.2kV	1.6kV	1.8kV	2.0kV	2.5kV	2.5kV	3.0kV
Short-circuit current rating	<b>SCCR</b>				200kA			
Follow current	<b><math>I_{fi}</math></b>				NO			
Response time	<b><math>t_A</math></b>				< 25ns			
Thermal protection					YES			
Back-up fuse					No back-up fuse needed			
Number of ports					1			

● **Mechanical characteristics**

Temperature range	<b><math>T_a</math></b>	- 40°C .... + 85°C						
Permissible humidity	<b>RH</b>	5%...95%						
Terminal screw torque	<b><math>M_{max}</math></b>	3.0Nm						
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)						
AWG conductor cross section		2 (solid) / 3 (stranded)						
Mounting		35mm DIN rail, EN 60715						
Degree of protection		IP 20						
Housing material		thermoplastic; extinguishing degree UL 94 V-0						
Indication of thermal disconnecter operation		red flag						
Remote contacts (RC)		YES						
Contact ratings		AC: 250V/0.5A; 125V/3A						
Terminal cross section		max. 1.5mm <sup>2</sup>						
Remote terminal torque		0.25Nm						

**Ordering information**

MCOV	150	277	385	440	550	750	880
Ordering code <b>SAFETEC C 150/xxx (3+0)</b>	516.082	516.084	516.086	516.088	516.090		
Ordering code <b>SAFETEC CR 150/xxx (3+0) (with remote contacts)</b>	516.083	516.085	516.087	516.089	516.130		
Ordering code <b>SAFETEC C 75/xxx (3+0)</b>						516.091	516.590
Ordering code <b>SAFETEC CR 75/xxx (3+0) (with remote contacts)</b>						516.092	516.591
Ordering code <b>Module SAFETEC C(R) 50/xxx</b>	516.201	516.202	516.203	516.204	516.205		
Ordering code <b>Module SAFETEC C(R) 25/xxx</b>						516.206	516.585



**SAFETEC C(R) (2+0) UL**



- **Classification UL 1449 4th Ed.:** Type 1, 2 CA
- **Location of use:** Sub-distribution boards
- **Protection modes:** L - G (PE), L - N, N - G (PE) or L - L
- **Protective element:** MOV and GDT
- **Surge discharge rating:**  $I_{max}$  up to 50kA
- **Safety:** TOV withstand
- **Housing:** Modular design
- **Complies with:** UL 1449 4th Ed.

**Technical data**



Type	SAFETEC C(R) (2+0) UL					
	150	277	385	440	750	880

● **Electrical characteristics**

Parameter	Symbol	150	277	385	440	750	880
Max. continuous operating voltage (AC)	<b>MCOV</b>	150V	300V	385V	440V	750V	880V
Nominal discharge current (8/20) per mode of protection	<b>I<sub>n</sub></b>	20kA	20kA	20kA	20kA	10kA	10kA
Max. discharge current (8/20) per mode of protection	<b>I<sub>max</sub></b>	50kA	50kA	50kA	50kA	20kA	20kA
Voltage protection rating	<b>VPR</b>	1.2kV	1.6kV	1.8kV	2.0kV	2.5kV	3.0kV
Short-circuit current rating	<b>SCCR</b>	200kA					
Follow current	<b>I<sub>fi</sub></b>	NO					
Response time	<b>t<sub>A</sub></b>	< 25ns					
Thermal protection		YES					
Back-up fuse		No back-up fuse needed					
Number of ports		1					

● **Mechanical characteristics**

Parameter	Symbol	150	277	385	440	750	880
Temperature range	<b>T<sub>a</sub></b>	- 40°C .... + 85°C					
Permissible humidity	<b>RH</b>	5%...95%					
Terminal screw torque	<b>M<sub>max</sub></b>	3.0Nm					
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)					
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)					
Mounting		35mm DIN rail, EN 60715					
Degree of protection		IP 20					
Housing material		thermoplastic; extinguishing degree UL 94 V-0					
Indication of thermal disconnecter operation		red flag					
Remote contacts (RC)		YES					
Contact ratings		AC: 250V/0.5A; 125V/3A					
Terminal cross section		max. 1.5mm <sup>2</sup>					
Remote terminal torque		0.25Nm					

**Ordering information**

MCOV	150	277	385	440	750	880
Ordering code <b>SAFETEC C 100/xxx (2+0)</b>	516.070	516.072	516.074	516.076		
Ordering code <b>SAFETEC CR 100/xxx (2+0)</b> (with remote contacts)	516.071	516.073	516.075	516.077		
Ordering code <b>SAFETEC C 50/xxx (2+0)</b>					516.080	516.588
Ordering code <b>SAFETEC CR 50/xxx (2+0)</b> (with remote contacts)					516.081	516.589
Ordering code <b>Module SAFETEC C(R) 50/xxx</b>	516.201	516.202	516.203	516.204		
Ordering code <b>Module SAFETEC C(R) 25/xxx</b>					516.206	516.585





**SAFETEC C(R) (4+0) UL**



- **Classification UL 1449 4th Ed.:** Type 1, 2 CA
- **Location of use:** Sub-distribution boards
- **Protection modes:** L - G (PE), L - N, N - G (PE) or L - L
- **Protective element:** MOV and GDT
- **Surge discharge rating:**  $I_{max}$  up to 50kA
- **Safety:** TOV withstand
- **Housing:** Modular design
- **Complies with:** UL 1449 4th Ed.

**Technical data**



Type	SAFETEC C(R) (4+0) UL					
	150	277	385	440	750	880

● **Electrical characteristics**

Max. continuous operating voltage (AC)	<b>MCOV</b>	150V	300V	385V	440V	750V	880V
Nominal discharge current (8/20) per mode of protection	<b><math>I_n</math></b>	20kA	20kA	20kA	20kA	10kA	10kA
Max. discharge current (8/20) per mode of protection	<b><math>I_{max}</math></b>	50kA	50kA	50kA	50kA	20kA	20kA
Voltage protection rating	<b>VPR</b>	1.2kV	1.6kV	1.8kV	2.0kV	2.5kV	3.0kV
Short-circuit current rating	<b>SCCR</b>	200kA					
Follow current	<b><math>I_{fi}</math></b>	NO					
Response time	<b><math>t_A</math></b>	< 25ns					
Thermal protection		YES					
Back-up fuse		No back-up fuse needed					
Number of ports		1					

● **Mechanical characteristics**

Temperature range	<b><math>T_a</math></b>	- 40°C .... + 85°C					
Permissible humidity	<b>RH</b>	5%...95%					
Terminal screw torque	<b><math>M_{max}</math></b>	3.0Nm					
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)					
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)					
Mounting		35mm DIN rail, EN 60715					
Degree of protection		IP 20					
Housing material		thermoplastic; extinguishing degree UL 94 V-0					
Indication of thermal disconnecter operation		red flag					
Remote contacts (RC)		YES					
Contact ratings		AC: 250V/0.5A; 125V/3A					
Terminal cross section		max. 1.5mm <sup>2</sup>					
Remote terminal torque		0.25Nm					

**Ordering information**

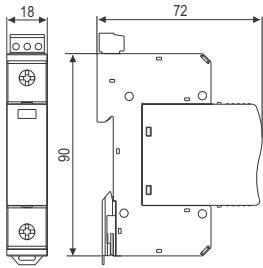
MCOV	150	277	385	440	750	880
Ordering code <b>SAFETEC C 200/xxx (4+0)</b>	516.093	516.095	516.097	516.099		
Ordering code <b>SAFETEC CR 200/xxx (4+0)</b> (with remote contacts)	516.094	516.096	516.098	516.100		
Ordering code <b>SAFETEC C 100/xxx (4+0)</b>					516.103	516.592
Ordering code <b>SAFETEC CR 100/xxx (4+0)</b> (with remote contacts)					516.104	516.593
Ordering code <b>Module SAFETEC C(R) 50/xxx</b>	516.201	516.202	516.203	516.204		
Ordering code <b>Module SAFETEC C(R) 25/xxx</b>					516.206	516.585



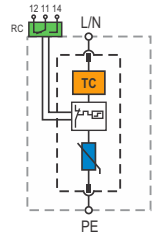
Dimensions, Internal configuration, Weight and Packaging

SAFETEC C(R) UL

Dimensions



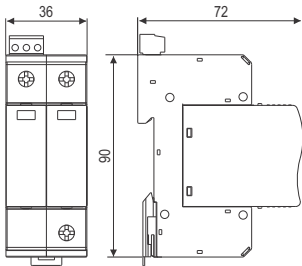
Internal configuration



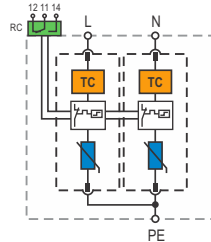
<b>SAFETEC C 50/xxx</b>	<b>150</b>	<b>277</b>	<b>385</b>	<b>440</b>	<b>550</b>
Dimensions DIN 43880	1TE				
Weight per unit	140g	140g	145g	150g	153g
<b>SAFETEC CR 50/xxx</b>	<b>150</b>	<b>277</b>	<b>385</b>	<b>440</b>	<b>550</b>
Weight per unit	148g	148g	153g	158g	161g
<b>SAFETEC C 25/xxx</b>	<b>750 880</b>				
Weight per unit	156g 156g				
<b>SAFETEC CR 25/xxx</b>	<b>750 880</b>				
Weight per unit	164g 164g				
Packaging dimensions (single unit)	110 x 76.5 x 23.5mm				
Min. packaging quantity	12 pcs.				

SAFETEC C(R) (2+0) UL

Dimensions



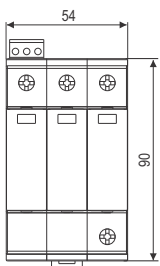
Internal configuration



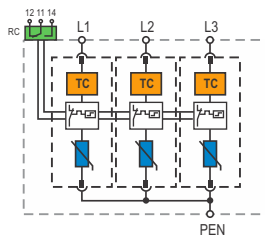
<b>SAFETEC C 100/xxx (2+0)</b>	<b>150</b>	<b>277</b>	<b>385</b>	<b>440</b>	
Dimensions DIN 43880	2TE				
Weight per unit	280g	281g	290g	299g	
<b>SAFETEC CR 100/xxx (2+0)</b>	<b>150</b>	<b>277</b>	<b>385</b>	<b>440</b>	
Weight per unit	288g	289g	298g	307g	
<b>SAFETEC CR 50/xxx (2+0)</b>	<b>750 880</b>				
Weight per unit	312g 312g				
<b>SAFETEC CR 50/xxx (2+0)</b>	<b>750 880</b>				
Weight per unit	320g 320g				
Packaging dimensions (single unit)	109 x 76.5 x 41.5mm				
Min. packaging quantity	7 pcs.				

SAFETEC C(R) (3+0) UL

Dimensions



Internal configuration



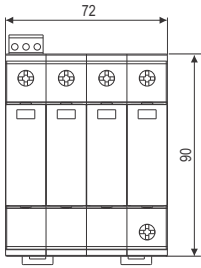
<b>SAFETEC C 150/xxx (3+0)</b>	<b>150</b>	<b>277</b>	<b>385</b>	<b>440</b>	<b>550</b>
Dimensions DIN 43880	3TE				
Weight per unit	420g	422g	435g	450g	459g
<b>SAFETEC CR 150/xxx(3+0)</b>	<b>150</b>	<b>277</b>	<b>385</b>	<b>440</b>	<b>550</b>
Weight per unit	428g	430g	443g	458g	467g
<b>SAFETEC C 75/xxx (3+0)</b>	<b>750 880</b>				
Weight per unit	468g 468g				
<b>SAFETEC CR 75/xxx (3+0)</b>	<b>750 880</b>				
Weight per unit	476g 476g				
Packaging dimensions (single unit)	109 x 76.5 x 61.5mm				
Min. packaging quantity	5 pcs.				



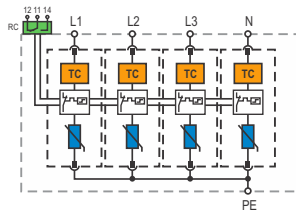
**Dimensions, Internal configuration, Weight and Packaging**

**SAFETEC C(R) (4+0) UL**

**Dimensions**



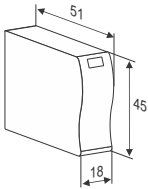
**Internal configuration**



<b>SAFETEC C 200/xxx (4+0)</b>	<b>150</b>	<b>277</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	4TE			
Weight per unit	560g	562g	580g	598g
<b>SAFETEC CR 200/xxx (4+0)</b>	<b>150</b>	<b>277</b>	<b>385</b>	<b>440</b>
Weight per unit	568g	570g	588g	606g
<b>SAFETEC CR 100/xxx (4+0)</b>				<b>750 880</b>
Weight per unit				624g 624g
<b>SAFETEC CR 100/xxx (4+0)</b>				<b>750 880</b>
Weight per unit				632g 632g
Packaging dimensions (single unit)	109 x 76.5 x 80mm			
Min. packaging quantity	3 pcs.			

**Module SAFETEC C(R) UL**

**Dimensions**



**Internal configuration**

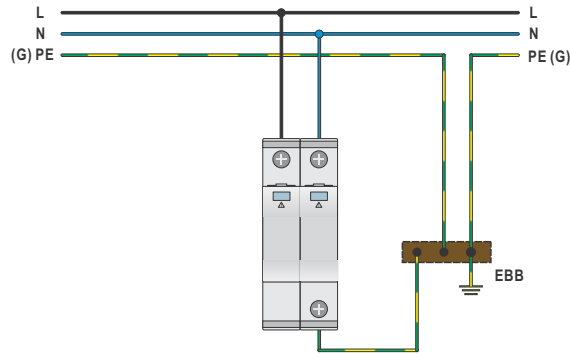


<b>Module SAFETEC C(R) 50/xxx</b>	<b>150</b>	<b>277</b>	<b>385</b>	<b>440</b>	<b>550</b>
Weight per unit	62g	66g	72g	74g	76g
<b>Module SAFETEC C(R) 25/xxx</b>					<b>750 880</b>
Weight per unit					78g 78g
Packaging dimensions	221 x 64.5 x 48.5mm				
Min. packaging quantity	12 pcs.				

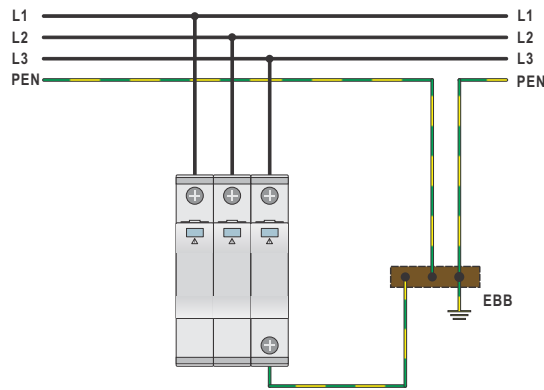
**SAFETEC C(R) UL Series**

**Network connections**

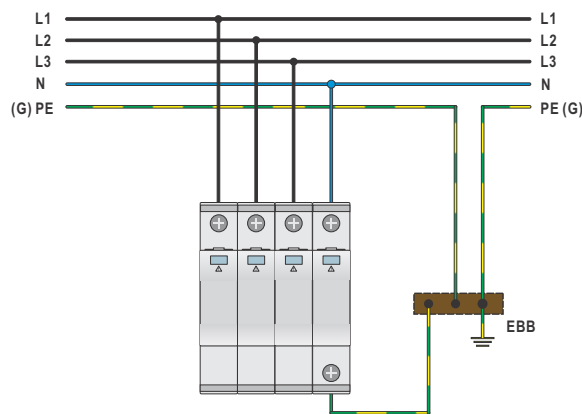
- TN-S Network (Single-phase);
- Single-phase



- TN-C Network (3-phase),
- Split phase System,
- 3-phase WYE without neutral,
- Delta Ungrounded



- TN-S Network (3-phase),
- 3-phase WYE with neutral,
- Delta Grounded Corner



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## Class II Modular Single and Multi-pole SPD 40kA per pole

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<b>Category IEC / EN:</b>	<b>Class II / Type 2</b>
<b>Location of use:</b>	<b>Sub-distribution boards</b>
<b>Protection modes:</b>	<b>L/N-PE, L-PEN, L-N, N-PE</b>
<b>Protective elements:</b>	<b>MOV and GDT</b>
<b>Surge discharge ratings:</b>	<b>I<sub>max</sub> up to 40kA</b>
<b>Internal protection and safety:</b>	<b>Separate thermal disconnector for each MOV</b>
<b>Complies with:</b>	<b>IEC 61643-11:2011, EN 61643-11:2012;</b>



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PROTEC C(R) Series:  
**PROTEC C(R) 40/xxx**  
**PROTEC C(R) 20/xxx**  
**PROTUBE C 40**  
**PROTEC C(R) 80/xxx (2+0)**  
**PROTEC C(R) 120/xxx (3+0)**  
**PROTEC C(R) 160/xxx (4+0)**  
**PROTEC C(R) 80/xxx (1+1)**  
**PROTEC C(R) 160/xxx (3+1)**

The PROTEC C(R) series of overvoltage surge protective devices has been developed to protect low-voltage consumer installation against surges and effects of indirect lightning discharges and induced voltages. They are to be installed within lightning protection zones 0<sub>B</sub>-2 as per IEC 62305.

PROTEC C(R) series consists of a high performance varistor with thermal disconnection mechanism. The plug-in module / base facilitates replacement of a failed module *in situ* without the need to remove system wiring.

PROTUBE C is a modular, single pole housing design and consists of a high energy encapsulated gas discharge tube. It is utilized for galvanic separation between the N and PE conductors in a 1+1 or 3+1 power distribution networks.

PROTEC C(R) series complies with the IEC/EN 61643-11 standards and is applicable to the following network systems: TN-S, TN-C, IT and TT.

## PROTEC C(R) 40



- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Sub-distribution boards
- **Network systems:** TN-S, TN-C, IT, TT (only L-N)
- **Protection modes:** L/N - PE, L- PEN, L-N
- **Protective element:** MOV
- **Surge discharge rating:**  $I_{max} = 40kA$
- **MOV max. withstand capability 1 x 8/20:** 60kA
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



## Technical data

Type		75	150	PROTEC C(R) 40/xxx		385	440
				275	320		
<b>● Electrical characteristics</b>							
Nominal AC voltage	$U_o$	60V 50/60Hz 120V 50/60Hz		230V 50/60Hz			
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	$U_p$	< 0.7kV	< 1.0kV	< 1.5kV	< 1.5kV	< 1.9kV	< 2.0kV
Residual voltage at 5kA (8/20)	$U_{res}$	< 0.4kV	< 0.6kV	< 1.1kV	< 1.1kV	< 1.4kV	< 1.6kV
Follow current	$I_{fi}$	NO					
Response time	$t_A$	< 25ns					
Thermal protection		YES					
Back-up fuse (if mains > 125A)		125A gG/gL					
Short-circuit current rating	$I_{scCR}$	25kA/50Hz					
TOV withstand 5s	$U_T$	90V	174V			334V	
TOV disconnection 120min	$U_T$	115V	229V			438V	
Number of ports		1					
<b>● Mechanical characteristics</b>							
Temperature range	$T_a$	-40°C ..... +70°C					
Permissible humidity	$RH$	5%...95%					
Terminal screw torque	$M_{max}$	3.0Nm					
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)					
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)					
Mounting		35mm DIN rail, EN 60715					
Degree of protection		IP 20					
Housing material		thermoplastic; extinguishing degree UL 94 V-0					
Indication of thermal disconnecter operation		red flag					
Remote contacts (RC)		YES					
Contact ratings		AC: 250V/0.5A; 125V/3A					
Terminal cross section		max. 1.5mm <sup>2</sup>					
Remote terminal torque		0.25Nm					

## Ordering information

$U_c$	75	150	275	320	385	440
Ordering code <b>PROTEC C 40/xxx</b>	50.0001	50.0003	50.0005	50.0007	50.0171	50.0009
Ordering code <b>PROTEC CR 40/xxx</b> (with remote contacts)	50.0011	50.0013	50.0015	50.0017	50.0175	50.0019
Ordering code <b>Module PROTEC C(R) 40/xxx</b>	50.0216	50.0217	50.0219	50.0220	50.0221	50.0222

## PROTEC C(R) 20



- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Sub-distribution boards
- **Network systems:** TN-S, TN-C, IT, TT (only L-N)
- **Protection modes:** L/N - PE, L- PEN, L-N
- **Protective element:** MOV
- **Surge discharge rating:**  $I_{max} = 20kA$
- **MOV max. withstand capability 1 x 8/20:** 40kA
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



### Technical data

Type	PROTEC C(R) 20/xxx				
	150	275	320	385	440
<b>● Electrical characteristics</b>					
Nominal AC voltage	$U_o$		120V 50/60Hz	230V 50/60Hz	
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
Residual voltage at 5kA (8/20)	$U_{res}$		< 0.6kV	< 1.1kV	< 1.1kV < 1.4kV < 1.6kV
Follow current	$I_{fi}$		NO		
Response time	$t_A$		< 25ns		
Thermal protection	YES				
Back-up fuse (if mains > 125A)	125A gG/gL				
Short-circuit current rating	$I_{scCR}$		25kA/50Hz		
TOV withstand 5s	$U_T$		174V	334V	
TOV disconnection 120min	$U_T$		229V	438V	
Number of ports	1				
<b>● Mechanical characteristics</b>					
Temperature range	$T_a$		-40°C ..... +70°C		
Permissible humidity	$RH$		5%...95%		
Terminal screw torque	$M_{max}$		3.0Nm		
Conductor cross section	35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)				
AWG conductor cross section	2 AWG (solid) / 3 AWG (stranded)				
Mounting	35mm DIN rail, EN 60715				
Degree of protection	IP 20				
Housing material	thermoplastic; extinguishing degree UL 94 V-0				
Indication of thermal disconnecter operation	red flag				
Remote contacts (RC)	YES				
Contact ratings	AC: 250V/0.5A; 125V/3A				
Terminal cross section	max. 1.5mm <sup>2</sup>				
Remote terminal torque	0.25Nm				

### Ordering information

$U_c$	150	275	320	385	440
Ordering code <b>PROTEC C 20/xxx</b>	50.0037	50.0039	50.0041	50.0315	50.0043
Ordering code <b>PROTEC CR 20/xxx</b> (with remote contacts)	50.0045	50.0047	50.0049	50.0317	50.0051
Ordering code <b>Module PROTEC C(R) 20/xxx</b>	50.0479	50.0480	50.0481	50.0482	50.0483

## PROTUBE C 40



- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Sub-distribution boards
- **Network system:** TT
- **Protection modes:** N - PE
- **Protective element:** GDT
- **Surge discharge rating:**  $I_{max} = 40kA$
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



### Technical data

Type

PROTUBE C 40/255

#### ● Electrical characteristics

Nominal AC voltage	$U_o$	230V 50/60Hz
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	$U_p$	< 1.5kV
Follow current	$I_{fi}$	100ARMS
Response time	$t_A$	100ns
TOV withstand 200ms	$U_T$	1200V/300A
Number of ports		1

#### ● Mechanical characteristics

Temperature range	$T_a$	-40°C .... +70°C
Permissible humidity	RH	5%...95%
Terminal screw torque	$M_{max}$	3.0Nm
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)
Mounting		35mm DIN rail, EN 60715
Degree of protection		IP 20
Housing material		thermoplastic; extinguishing degree UL 94 V-0

### Ordering information

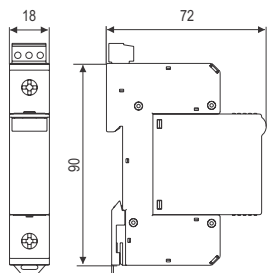
$I_{max}$	40
Ordering code PROTUBE C 40/255	50.3005
Ordering code Module PROTUBE C 40/255	50.0234



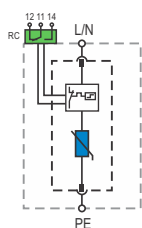
Dimensions, Internal configuration, Weight and Packaging

PROTEC C(R) 40/xxx

Dimensions



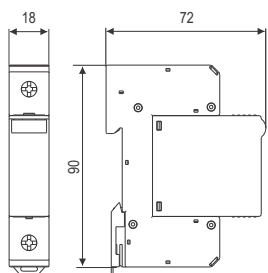
Internal configuration



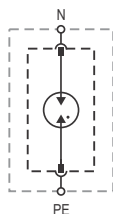
PROTEC C 40/xxx	75	150	275	320	385	440
Dimensions DIN 43880	1TE					
Weight per unit	112g	122g	128g	128g	129g	130g
PROTEC CR 40/xxx	75	150	275	320	385	440
Dimensions DIN 43880	1TE					
Weight per unit	117g	127g	133g	133g	134g	135g
Packaging dimensions (single unit)	110 x 76.5 x 23.5mm					
Min. packaging quantity	12 pcs.					

PROTUBE C 40/255

Dimensions



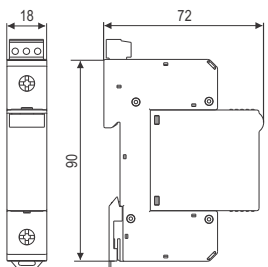
Internal configuration



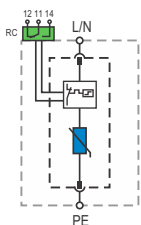
PROTUBE C 40/255	255
Dimensions DIN 43880	1TE
Weight per unit	118g
Packaging dimensions (single unit)	110 x 76.5 x 23.5mm
Min. packaging quantity	12 pcs.

PROTEC C(R) 20/xxx

Dimensions



Internal configuration

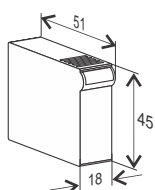


PROTEC C 20/xxx	150	275	320	385	440
Dimensions DIN 43880	1TE				
Weight per unit	119g	125g	125g	126g	127g
PROTEC CR 20/xxx	150	275	320	385	440
Dimensions DIN 43880	1TE				
Weight per unit	124g	130g	130g	131g	132g
Packaging dimensions (single unit)	110 x 76.5 x 23.5mm				
Min. packaging quantity	12 pcs.				

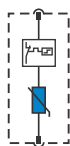
Dimensions, Internal configuration, Weight and Packaging

Module PROTEC C(R) 40/xxx

Dimensions



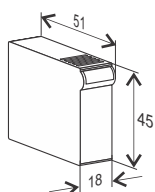
Internal configuration



Module PROTEC C(R) 40/xxx	75	150	275	320	385	440
Weight per unit	44g	48g	52g	56g	58g	60g
Packaging dimensions	221 x 64.5 x 48.5mm					
Min. packaging quantity	12 pcs.					

Module PROTUBE C 40/255

Dimensions



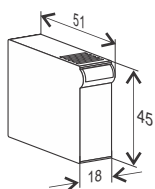
Internal configuration



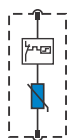
Module PROTUBE C 40/255	255
Weight per unit	36g
Packaging dimensions	221 x 64.5 x 48.5mm
Min. packaging quantity	12 pcs.

Module PROTEC C(R) 20/xxx

Dimensions



Internal configuration



Module PROTEC C(R) 20/xxx	150	275	320	385	440
Weight per unit	48g	56g	56g	60g	58g
Packaging dimensions	221 x 64.5 x 48.5mm				
Min. packaging quantity	12 pcs.				

## PROTEC C(R) 80 (2+0)



- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Sub-distribution boards
- **Network systems:** TN-S
- **Protection modes:** L/N - PE, L- PEN
- **Protective element:** MOV
- **Surge discharge rating:**  $I_{max} = 40kA$
- **MOV max. withstand capability 1 x 8/20:** 60kA per pole
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



### Technical data

Type	PROTEC C(R) 80/xxx (2+0)					
	150	275	320	385	440	
<b>● Electrical characteristics</b>						
Nominal AC voltage	$U_o$		120V 50/60Hz	230V 50/60Hz		
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	< 1.8kV	< 2.2kV
Residual voltage at 5kA (8/20)	$U_{res}$	< 0.6kV	< 1.1kV	< 1.1kV	< 1.4kV	< 1.6kV
Follow current	$I_{fi}$	NO				
Response time	$t_A$	< 25ns				
Thermal protection		YES				
Back-up fuse (if mains > 125A)		125A gG/gL				
Short-circuit current rating	$I_{scCR}$	25kA/50Hz				
TOV withstand 5s	$U_T$	174V		334V		
TOV disconnection 120min	$U_T$	229V		438V		
Number of ports		1				
<b>● Mechanical characteristics</b>						
Temperature range	$T_a$	- 40°C ..... + 70°C				
Permissible humidity	$RH$	5%...95%				
Terminal screw torque	$M_{max}$	3.0Nm				
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)				
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)				
Mounting		35mm DIN rail, EN 60715				
Degree of protection		IP 20				
Housing material		thermoplastic; extinguishing degree UL 94 V-0				
Indication of thermal disconnect operation		red flag				
Remote contacts (RC)		YES				
Contact ratings		AC: 250V/0.5A; 125V/3A				
Terminal cross section		max. 1.5mm <sup>2</sup>				
Remote terminal torque		0.25Nm				

### Ordering information

$U_c$	150	275	320	385	440
Ordering code <b>PROTEC C 80/xxx (2+0)</b>	50.0073	50.0075	50.0077	50.0179	50.0079
Ordering code <b>PROTEC CR 80/xxx (2+0)</b> (with remote contacts)	50.0081	50.0083	50.0085	50.0183	50.0087
Ordering code <b>Module PROTEC C(R) 40/xxx</b>	50.0217	50.0219	50.0220	50.0221	50.0222

## PROTEC C(R) 120 (3+0)



- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Sub-distribution boards
- **Network systems:** TN-C
- **Protection modes:** L/N - PE, L- PEN
- **Protective element:** MOV
- **Surge discharge rating:**  $I_{max} = 40kA$
- **MOV max. withstand capability 1 x 8/20:** 60kA per pole
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



### Technical data

Type	PROTEC C(R) 120/xxx (3+0)				
	150	275	320	385	440
<b>● Electrical characteristics</b>					
Nominal AC voltage	$U_o$		120V 50/60Hz	230V 50/60Hz	
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
Residual voltage at 5kA (8/20)	$U_{res}$		< 0.6kV	< 1.1kV	< 1.1kV < 1.4kV < 1.6kV
Follow current	$I_{fi}$		NO		
Response time	$t_A$		< 25ns		
Thermal protection	YES				
Back-up fuse (if mains > 125A)	125A gG/gL				
Short-circuit current rating	$I_{scCR}$		25kA/50Hz		
TOV withstand 5s	$U_T$		174V	334V	
TOV disconnection 120min	$U_T$		229V	438V	
Number of ports	1				
<b>● Mechanical characteristics</b>					
Temperature range	$T_a$		-40°C ..... +70°C		
Permissible humidity	$RH$		5%...95%		
Terminal screw torque	$M_{max}$		3.0Nm		
Conductor cross section	35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)				
AWG conductor cross section	2 AWG (solid) / 3 AWG (stranded)				
Mounting	35mm DIN rail, EN 60715				
Degree of protection	IP 20				
Housing material	thermoplastic; extinguishing degree UL 94 V-0				
Indication of thermal disconnecter operation	red flag				
Remote contacts (RC)	YES				
Contact ratings	AC: 250V/0.5A; 125V/3A				
Terminal cross section	max. 1.5mm <sup>2</sup>				
Remote terminal torque	0.25Nm				

### Ordering information

$U_c$	150	275	320	385	440
Ordering code <b>PROTEC C 120/xxx (3+0)</b>	50.0105	50.0107	50.0109	50.0195	50.0111
Ordering code <b>PROTEC CR 120/xxx (3+0)</b> (with remote contacts)	50.0113	50.0115	50.0117	50.0199	50.0119
Ordering code <b>Module PROTEC C(R) 40/xxx</b>	50.0217	50.0219	50.0220	50.0221	50.0222

## PROTEC C(R) 160 (4+0)



- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Sub-distribution boards
- **Network systems:** TN-S
- **Protection modes:** L/N - PE, L- PEN
- **Protective element:** MOV
- **Surge discharge rating:**  $I_{max} = 40kA$
- **MOV max. withstand capability 1 x 8/20:** 60kA per pole
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



### Technical data

Type	PROTEC C(R) 160/xxx (4+0)						
	150	275	320	385	440		
<b>● Electrical characteristics</b>							
Nominal AC voltage	$U_o$		120V 50/60Hz	230V 50/60Hz			
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
Residual voltage at 5kA (8/20)	$U_{res}$		< 0.6kV	< 1.1kV	< 1.1kV	< 1.4kV	< 1.6kV
Follow current	$I_{fi}$		NO				
Response time	$t_A$		< 25ns				
Thermal protection	YES						
Back-up fuse (if mains > 125A)	125A gG/gL						
Short-circuit current rating	$I_{scCR}$		25kA/50Hz				
TOV withstand 5s	$U_T$		174V	334V			
TOV disconnection 120min	$U_T$		229V	438V			
Number of ports	1						
<b>● Mechanical characteristics</b>							
Temperature range	$T_a$		-40°C .... +70°C				
Permissible humidity	$RH$		5%...95%				
Terminal screw torque	$M_{max}$		3.0Nm				
Conductor cross section	35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)						
AWG conductor cross section	2 AWG (solid) / 3 AWG (stranded)						
Mounting	35mm DIN rail, EN 60715						
Degree of protection	IP 20						
Housing material	thermoplastic; extinguishing degree UL 94 V-0						
Indication of thermal disconnecter operation	red flag						
Remote contacts (RC)	YES						
Contact ratings	AC: 250V/0.5A; 125V/3A						
Terminal cross section	max. 1.5mm <sup>2</sup>						
Remote terminal torque	0.25Nm						

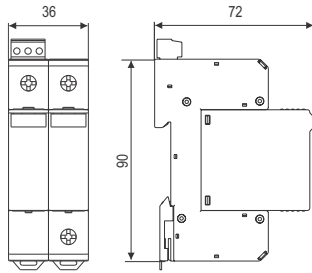
### Ordering information

$U_c$	150	275	320	385	440
Ordering code <b>PROTEC C 160/xxx (4+0)</b>	50.0121	50.0123	50.0125	50.0203	50.0127
Ordering code <b>PROTEC CR 160/xxx (4+0)</b> (with remote contacts)	50.0129	50.0131	50.0133	50.0207	50.0135
Ordering code <b>Module PROTEC C(R) 40/xxx</b>	50.0217	50.0219	50.0220	50.0221	50.0222

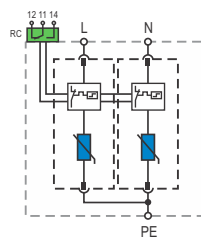
Dimensions, Internal configuration, Weight and Packaging

**PROTEC C(R) 80/xxx (2+0)**

Dimensions



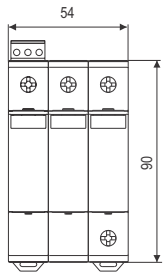
Internal configuration



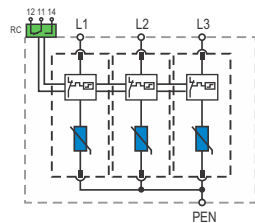
<b>PROTEC C 80/xxx (2+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	2TE				
Weight per unit	234g	244g	244g	245g	247g
<b>PROTEC CR 80/xxx (2+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	2TE				
Weight per unit	239g	249g	249g	250g	252g
Packaging dimensions (single unit)	109 x 76.5 x 41.5mm				
Min. packaging quantity	7 pcs.				

**PROTEC C(R) 120/xxx (3+0)**

Dimensions



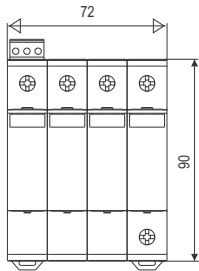
Internal configuration



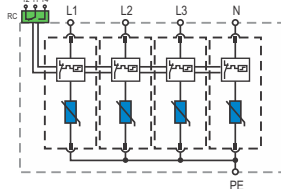
<b>PROTEC C 120/xxx (3+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	3TE				
Weight per unit	330g	352g	352g	354g	356g
<b>PROTEC CR 120/xxx (3+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	3TE				
Weight per unit	335g	357g	357g	359g	361g
Packaging dimensions (single unit)	109 x 76.5 x 61.5mm				
Min. packaging quantity	5 pcs.				

**PROTEC C(R) 160/xxx (4+0)**

Dimensions



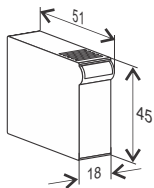
Internal configuration



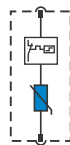
<b>PROTEC C 160/xxx (4+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	4TE				
Weight per unit	432g	456g	456g	460g	466g
<b>PROTEC CR 160/xxx (4+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	4TE				
Weight per unit	437g	461g	461g	465g	471g
Packaging dimensions (single unit)	109 x 76.5 x 80mm				
Min. packaging quantity	3 pcs.				

**Module PROTEC C(R) 40/xxx**

Dimensions



Internal configuration



<b>Module PROTEC C(R) 40/xxx</b>	<b>75</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Weight per unit	44g	48g	52g	56g	58g	60g
Packaging dimensions	221 x 64.5 x 48.5mm					
Min. packaging quantity	12 pcs.					

## PROTEC C(R) 80 (1+1)



- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Sub-distribution boards
- **Network system:** TT, TN-S
- **Protection modes:** L-N, N-PE
- **Protective element:** MOV and GDT
- **Surge discharge rating:**  $I_{max} = 40kA$
- **MOV max. withstand capability 1 x 8/20:** 60kA per pole
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



### Technical data

Type	PROTEC C(R) 80/xxx (1+1)					
	150	275	320	385	440	
● <b>Electrical characteristics</b>	120V 50/60Hz		230V 50/60Hz			
	Nominal AC voltage	$U_o$ (L-N)	$U_o$ (N-PE)			
		150/200V	275/350V	320/420V	385/500V	440/580V
Max. continuous operating voltage (AC/DC)	$U_c$ (L-N)	255V				
	$U_c$ (N-PE)	20kA/20kA				
Nominal discharge current (8/20)	$I_n$ (L-N/N-PE)	40kA/40kA				
Max. discharge current (8/20)	$I_{max}$ (L-N/N-PE)	< 0.9kV	< 1.5kV	< 1.5kV	< 1.8kV	< 2.2kV
Protection level	$U_p$ (L-N)	< 1.5kV				
	$U_p$ (N-PE)	< 0.6kV	< 1.1kV	< 1.1kV	< 1.4kV	< 1.6kV
Residual voltage at 5kA (8/20)	$U_{res}$ (L-N)	100A <sub>RMS</sub>				
Follow current	$I_{fi}$ (N-PE)	< 25ns/100ns				
Response time	$t_A$ (L-N/N-PE)	YES				
Thermal protection		125A gG/gL				
Back-up fuse (if mains > 125A)		25kA/50Hz				
Short-circuit current rating	$I_{sCCR}$	174V	334V			
TOV withstand 5s	$U_T$ (L-N)	229V	438V			
TOV disconnection 120min	$U_T$ (L-N)	1200V/300A				
TOV withstand 200ms	$U_T$ (N-PE)	1				
Number of ports						
● <b>Mechanical characteristics</b>	Temperature range	$T_a$	- 40°C .... + 70°C			
	Permissible humidity	RH	5%...95%			
	Terminal screw torque	$M_{max}$	3.0Nm			
	Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)			
	AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)			
	Mounting		35mm DIN rail, EN 60715			
	Degree of protection		IP 20			
	Housing material		thermoplastic; extinguishing degree UL 94 V-0			
	Indication of thermal disconnector operation		red flag			
	Remote contacts (RC)		YES			
	Contact ratings		AC: 250V/0.5A; 125V/3A			
	Terminal cross section		max. 1.5mm <sup>2</sup>			
	Remote terminal torque		0.25Nm			

### Ordering information

$U_c$	150	275	320	385	440
Ordering code <b>PROTEC C 80/xxx (1+1)</b>	50.0089	50.0091	50.0093	50.0187	50.0095
Ordering code <b>PROTEC CR 80/xxx (1+1)</b> (with remote contacts)	50.0097	50.0099	50.0101	50.0191	50.0103
Ordering code <b>Module PROTEC C(R) 40/xxx</b>	50.0217	50.0219	50.0220	50.0221	50.0222
Ordering code <b>Module PROTUBE C 40/255</b>			50.0234		

## PROTEC C(R) 160 (3+1)



- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Sub-distribution boards
- **Network system:** TT, TN-S
- **Protection modes:** L-N, N-PE
- **Protective element:** MOV and GDT
- **Surge discharge rating:**  $I_{max} = 40kA$
- **MOV max. withstand capability 1 x 8/20:** 60kA per pole
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



### Technical data

Type	PROTEC C(R) 160/xxx (3+1)					
	150	275	320	385	440	
		120V 50/60Hz		230V 50/60Hz		
● <b>Electrical characteristics</b>	Nominal AC voltage	<b>U<sub>o</sub></b> (L-N)	230V 50/60Hz			
		<b>U<sub>o</sub></b> (N-PE)	150/200V	275/350V	320/420V	385/500V
Max. continuous operating voltage (AC/DC)	<b>U<sub>c</sub></b> (L-N)	255V				
	<b>U<sub>c</sub></b> (N-PE)	20kA/20kA				
Nominal discharge current (8/20)	<b>I<sub>n</sub></b> (L-N/N-PE)	40kA/40kA				
Max. discharge current (8/20)	<b>I<sub>max</sub></b> (L-N/N-PE)	< 0.9kV	< 1.5kV	< 1.5kV	< 1.9kV	< 2.2kV
Protection level	<b>U<sub>p</sub></b> (L-N)	< 1.5kV				
	<b>U<sub>p</sub></b> (N-PE)	< 0.6kV	< 1.1kV	< 1.1kV	< 1.4kV	< 1.6kV
Residual voltage at 5kA (8/20)	<b>U<sub>res</sub></b> (L-N)	100A <sub>RMS</sub>				
Follow current	<b>I<sub>fi</sub></b> (N-PE)	< 25ns/100ns				
Response time	<b>t<sub>A</sub></b> (L-N/N-PE)	YES				
Thermal protection		125A gG/gL				
Back-up fuse (if mains > 125A)		25kA/50Hz				
Short-circuit current rating	<b>I<sub>sccr</sub></b>	174V	334V			
TOV withstand 5s	<b>U<sub>T</sub></b> (L-N)	229V	438V			
TOV disconnection 120min	<b>U<sub>T</sub></b> (L-N)	1200V/300A				
TOV withstand 200ms	<b>U<sub>T</sub></b> (N-PE)	1				
Number of ports						
● <b>Mechanical characteristics</b>						
Temperature range	<b>T<sub>a</sub></b>	- 40°C .... + 70°C				
Permissible humidity	<b>RH</b>	5%...95%				
Terminal screw torque	<b>M<sub>max</sub></b>	3.0Nm				
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)				
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)				
Mounting		35mm DIN rail, EN 60715				
Degree of protection		IP 20				
Housing material		thermoplastic; extinguishing degree UL 94 V-0				
Indication of thermal disconnector operation		red flag				
Remote contacts (RC)		YES				
Contact ratings		AC: 250V/0.5A; 125V/3A				
Terminal cross section		max. 1.5mm <sup>2</sup>				
Remote terminal torque		0.25Nm				

### Ordering information

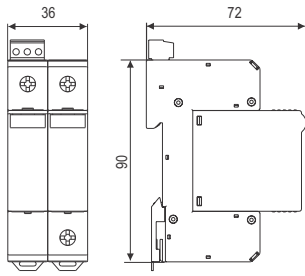
U <sub>c</sub>	150	275	320	385	440
Ordering code <b>PROTEC C 160/xxx (3+1)</b>	50.0137	50.0139	50.0141	50.0211	50.0143
Ordering code <b>PROTEC CR 160/xxx (3+1) (with remote contacts)</b>	50.0145	50.0147	50.0149	50.0215	50.0151
Ordering code <b>Module PROTEC C(R) 40/xxx</b>	50.0217	50.0219	50.0220	50.0221	50.0222
Ordering code <b>Module PROTUBE C 40/255</b>			50.0234		



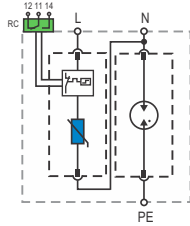
Dimensions, Connection diagrams, Weight and Packaging

**PROTEC C(R) 80/xxx (1+1)**

**Dimensions**



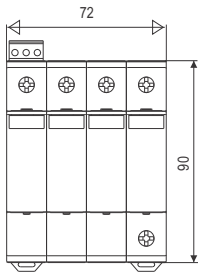
**Internal configuration**



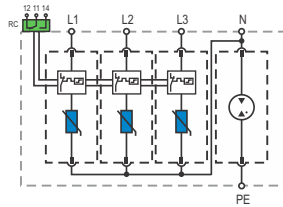
<b>PROTEC C 80/xxx (1+1)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	2TE				
Weight per unit	221g	225g	225g	226g	227g
<b>PROTEC CR 80/xxx (1+1)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	2TE				
Weight per unit	226g	230g	230g	231g	232g
Packaging dimensions (single unit)	109 x 76.5 x 41.5mm				
Min. packaging quantity	7 pcs.				

**PROTEC C(R) 160/xxx (3+1)**

**Dimensions**



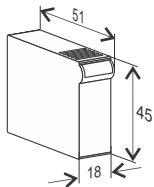
**Internal configuration**



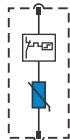
<b>PROTEC C 160/xxx (3+1)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	4TE				
Weight per unit	423g	441g	441g	445g	447g
<b>PROTEC CR 160/xxx (3+1)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	4TE				
Weight per unit	428g	446g	446g	450g	452g
Packaging dimensions (single unit)	109 x 76.5 x 80mm				
Min. packaging quantity	3 pcs.				

**Module PROTEC C(R) 40/xxx**

**Dimensions**



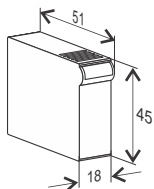
**Internal configuration**



<b>Module PROTEC C(R) 40/xxx</b>	<b>75</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Weight per unit	44g	48g	52g	56g	58g	60g
Packaging dimensions	221 x 64.5 x 48.5mm					
Min. packaging quantity	12 pcs.					

**Module PROTUBE C 40/255**

**Dimensions**



**Internal configuration**

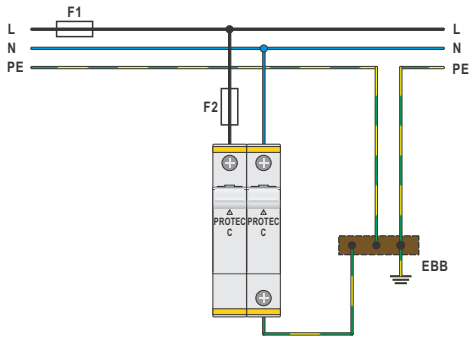


<b>Module PROTUBE C 40/255</b>	<b>255</b>
Weight per unit	36g
Packaging dimensions	221 x 64.5 x 48.5mm
Min. packaging quantity	12 pcs.

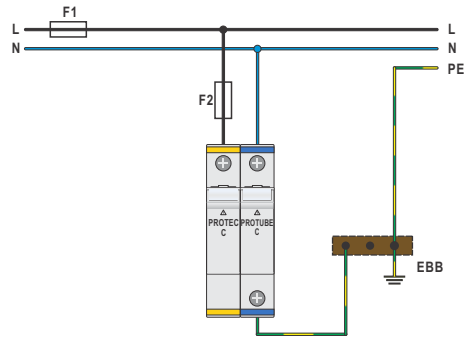
PROTEC C(R) Series

Network connections

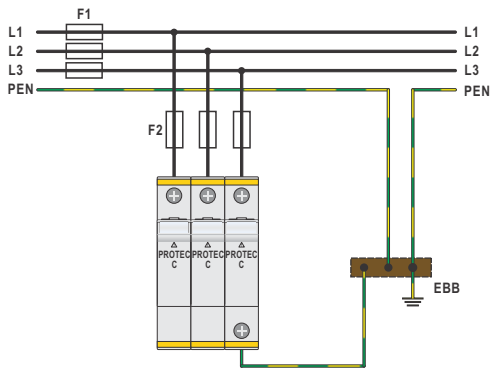
TN-S Network (Single-phase)



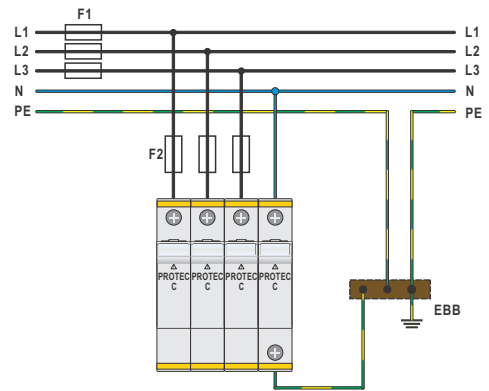
TT Network (Single-phase)



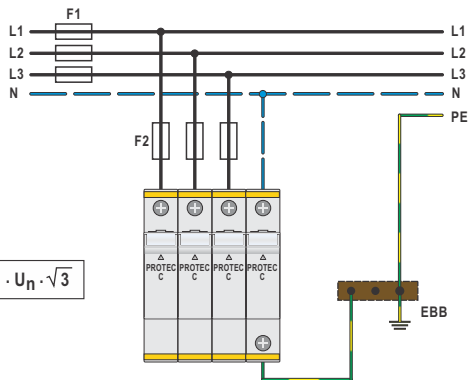
TN-C Network (Three-phase)



TN-S Network (Three-phase)

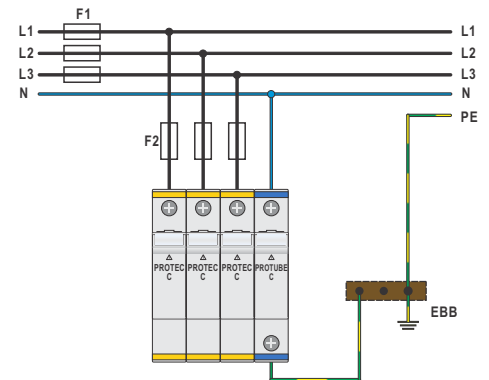


IT Network (Three-phase)

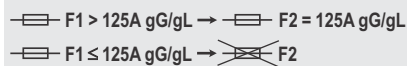


$$U_c \geq 1.1 \cdot U_n \cdot \sqrt{3}$$

TT Network (Three-phase)



Back-up fuse



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## Class II Modular Multi-pole SPD up to 40kA per pole



Category IEC / EN:	Class II / Type 2
Location of use:	Sub-distribution boards
Protection modes:	L/N-PE, L-PEN, L-N, N-PE
Protective elements:	MOV and GDT
Surge discharge ratings:	$I_{max}$ up to 40kA
Internal protection and safety:	Separate thermal disconnecter for each MOV
Complies with:	IEC 61643-1:2005, EN 61643-11:2005;

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### PROTEC CMG(R) 40/xxx (2+0)

PROTEC CM(R) Series:

**PROTEC CM(R) 80/xxx (2+0)**

**PROTEC CM(R) 80/xxx (1+1)**

**PROTEC CM(R) 80A/xxx (1+1)**

The PROTEC CM(R) and PROTEC CMG(R) series of overvoltage surge protective devices have been developed to protect low-voltage consumer installation against surges and effects of indirect lightning discharges and induced voltages. They are to be installed within lightning protection zones 0<sub>B</sub>-2 as per IEC 62305.

PROTEC CM(R) is available in two configurations: 1+1 or 2+0. 1+1 version consists of high performance varistor with thermal disconnection mechanism and an encapsulated gas discharge tube. 2+0 version consists of two high performance varistors with thermal disconnection mechanism. Plug-in module / base facilitates replacement of a failed module *in situ* without the need to remove system wiring.

PROTEC CMG(R) consists of two high performance varistors with thermal disconnection mechanism in series with an encapsulated gas discharge tube to limit leakage current. Plug-in module / base facilitates replacement of a failed module *in situ* without the need to remove system wiring.

PROTEC CM(R) and PROTEC CMG(R) series comply with the IEC/EN 61643-1 standards and are applicable to the following network systems: TN-S, IT and TT.

**PROTEC CMG(R) 40 (2+0)**



- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Sub-distribution boards
- **Network system:** TN-S
- **Protection modes:** L/N - PE, L - N
- **Protective element:** MOV and GDT
- **Surge discharge rating:**  $I_{max} = 20kA$
- **Housing:** Modular design
- **Complies with:** IEC 61643-1:2005  
EN 61643-11:2005;



**Technical data**

Type	<b>PROTEC CMG(R) 40/xxx (2+0)</b>	
	150	275

● **Electrical characteristics**

Nominal AC voltage	$U_o$	120V 50/60Hz	230V 50/60Hz
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	$I_{fi}$	NO	
Response time	$t_A$ (L/N-PE, L-N)	< 100ns/< 25ns	
Thermal protection		YES	
Back-up fuse (if mains > 100A)		100A gG/gL	
Short-circuit current rating	$I_{scCR}$	25kA/50Hz	
TOV withstand 5s	$U_T$	174V	334V
Number of ports		2	

● **Mechanical characteristics**

Temperature range	$T_a$	- 40°C ..... + 70°C	
Permissible humidity	$RH$	5%...95%	
Terminal screw torque	$M_{max}$ upper	2.0Nm	
	$M_{max}$ lower	3.0Nm	
Conductor cross section	upper	6mm <sup>2</sup> (solid) / 4mm <sup>2</sup> (stranded)	
	lower	35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)	
AWG conductor cross section	upper	11 AWG (solid) / 13 AWG (stranded)	
	lower	2 AWG (solid) / 3 AWG (stranded)	
Mounting		35mm DIN rail, EN 60715	
Degree of protection		IP 20	
Housing material		Thermoplastic; extinguishing degree UL 94 V-0	
Indication of thermal disconnecter operation		red flag	
Remote contacts (RC)		YES	
Contact ratings		AC: 250V/0.5A; 125V/3A	
Terminal cross section		max. 1.5mm <sup>2</sup>	
Remote terminal torque		0.25Nm	

**Ordering information**

$U_c$	150	275
Ordering code <b>PROTEC CMG 40/xxx (2+0)</b>	508.197	508.198
Ordering code <b>PROTEC CMGR 40/xxx (2+0)</b> (with remote contacts)	508.199	508.200
Ordering code <b>Module PROTEC CMG(R) 40/xxx</b>	508.201	508.202

## PROTEC CM(R) 80 (2+0)



● Category IEC / EN:	Class II / Type 2
● Location of use:	Sub-distribution boards
● Network system:	TN-S
● Protection modes:	L/N - PE
● Protective element:	MOV
● Surge discharge rating:	$I_{max} = 40kA$
● Housing:	Modular design
● Complies with:	IEC 61643-1:2005 EN 61643-11:2005



### Technical data

Type	PROTEC CM(R) 80/xxx (2+0)				
	150	275	320	385	440
<b>● Electrical characteristics</b>					
Nominal AC voltage	$U_o$		120V 50/60Hz	230V 50/60Hz	440V 50/60Hz
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	$U_p$ (L/N-PE)		< 0.8kV	< 1.4kV	< 1.4kV < 1.8kV < 2.0kV
Residual voltage at 3kA (8/20)	$U_{res}$ (L/N-PE)		< 0.6kV	< 1.1kV	< 1.1kV < 1.6kV < 1.8kV
Follow current	$I_{fi}$		NO		
Response time	$t_A$		< 25ns		
Thermal protection	YES				
Back-up fuse (if mains > 100A)	100A gG/gL				
Short-circuit current rating	$I_{scCR}$		25kA/50Hz		
TOV withstand 5s	$U_T$		174V	334V	580V
Number of ports	1				
<b>● Mechanical characteristics</b>					
Temperature range	$T_a$		- 40°C ..... + 70°C		
Permissible humidity	$RH$		5%...95%		
Terminal screw torque	$M_{max}$ upper		2.0Nm		
	$M_{max}$ lower		3.0Nm		
Conductor cross section	upper		6mm <sup>2</sup> (solid) / 4mm <sup>2</sup> (stranded)		
	lower		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)		
AWG conductor cross section	upper		11 AWG (solid) / 13 AWG (stranded)		
	lower		2 AWG (solid) / 3 AWG (stranded)		
Altitude	4.000m	3.000m	3.000m	2.000m	2.000m
Mounting	35mm DIN rail, EN 60715				
Degree of protection	IP 20				
Housing material	Thermoplastic; extinguishing degree UL 94 V-0				
Indication of thermal disconnecter operation	red flag				
Remote contacts (RC)	YES				
Contact ratings	AC: 250V/0.5A; 125V/3A				
Terminal cross section	max. 1.5mm <sup>2</sup>				
Remote terminal torque	0.25Nm				

### Ordering information

$U_c$	150	275	320	385	440
Ordering code PROTEC CM 80/xxx (2+0)	508.001	508.003	508.005	508.109	508.007
Ordering code PROTEC CMR 80/xxx (2+0) (with remote contacts)	508.009	508.011	508.013	508.111	508.015
Ordering code Module PROTEC CM(R) 80/xxx	508.174	508.164	508.175	508.146	508.147

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



● Category IEC / EN:	Class II / Type 2
● Location of use:	Sub-distribution boards
● Network system:	TT, TN-S
● Protection modes:	L-N, N-PE
● Protective element:	MOV and GDT
● Surge discharge rating:	$I_{max} = 40kA/40kA$ (MOV/GDT)
● Housing:	Modular design
● Complies with:	IEC 61643-1:2005 EN 61643-11:2005



### Technical data

Type	PROTEC CM(R) 80/xxx (1+1)						
	150	275	320	385	440		
<b>● Electrical characteristics</b>							
Nominal AC voltage	$U_o$ (L-N)		120V 50/60Hz	230V 50/60Hz	440V 50/60Hz		
	$U_o$ (N-PE)			230V 50/60Hz			
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			
Residual voltage at 3kA (8/20)	$U_{res}$ (L-N)		< 0.6kV	< 1.1kV	< 1.1kV	< 1.6kV	< 1.8kV
Follow current	$I_{fi}$ (N-PE)			100A <sub>RMS</sub>			
Response time	$t_A$ (L-N/N-PE)			< 25ns/< 100ns			
Thermal protection	YES						
Back-up fuse (if mains > 100A)	100A gG/gL						
Short-circuit current rating	$I_{SCCR}$			25kA/50Hz			
TOV withstand 5s	$U_T$ (L-N)		174V	334V		580V	
TOV withstand 200ms	$U_T$ (N-PE)			1200V/300A			
Number of ports	1						
<b>● Mechanical characteristics</b>							
Temperature range	$T_a$		- 40°C .... + 70°C				
Permissible humidity	$RH$		5%...95%				
Terminal screw torque	$M_{max}$ upper		2.0Nm				
	$M_{max}$ lower		3.0Nm				
Conductor cross section	upper		6mm <sup>2</sup> (solid) / 4mm <sup>2</sup> (stranded)				
	lower		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)				
AWG conductor cross section	upper		11 AWG (solid) / 13 AWG (stranded)				
	lower		2 AWG (solid) / 3 AWG (stranded)				
Mounting	35mm DIN rail, EN 60715						
Degree of protection	IP 20						
Housing material	Thermoplastic; extinguishing degree UL 94 V-0						
Indication of thermal disconnecter operation	red flag						
Remote contacts (RC)	YES						
Contact ratings	AC: 250V/0.5A; 125V/3A						
Terminal cross section	max. 1.5mm <sup>2</sup>						
Remote terminal torque	0.25Nm						

### Ordering information

$U_c$	150	275	320	385	440
Ordering code <b>PROTEC CM 80/xxx (1+1)</b>	508.045	508.047	508.049	508.117	508.051
Ordering code <b>PROTEC CMR 80/xxx (1+1)</b> (with remote contacts)	508.053	508.055	508.057	508.119	508.059
Ordering code <b>Module PROTEC CM(R) 80/xxx</b>	508.186	508.187	508.188	508.189	508.190

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



● Category IEC / EN:	Class II / Type 2
● Location of use:	Sub-distribution boards
● Network system:	TT, TN-S
● Protection modes:	L-N, N-PE
● Protective element:	MOV and GDT
● Surge discharge rating:	$I_{max} = 40kA/40kA$ (MOV/GDT)
● Housing:	Modular design
● Complies with:	IEC 61643-1:2005 EN 61643-11:2005



### Technical data

Type	PROTEC CM(R) 80A/xxx (1+1)				
	150	275	320	385	440
<b>● Electrical characteristics</b>					
Nominal AC voltage	$U_o$ (L-N)		120V 50/60Hz	230V 50/60Hz	440V 50/60Hz
	$U_o$ (N-PE)			230V 50/60Hz	
Max. continuous operating voltage (AC/DC)	$U_c$		150/200V	275/350V	320/420V
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
	$U_p$ (N-PE)			< 1.5kV	< 1.8kV
Residual voltage at 3kA (8/20)	$U_{res}$ (L-N)		< 0.6kV	< 1.1kV	< 1.1kV
Follow current	$I_{fi}$ (N-PE)			100A <sub>RMS</sub>	
Response time	$t_A$ (L-N/N-PE)			< 25ns/< 100ns	
Thermal protection				YES	
Back-up fuse (if mains > 100A)				100A gG/gL	
Short-circuit current rating	$I_{SCCR}$			25kA/50Hz	
TOV withstand 5s	$U_T$ (L-N)		174V	334V	580V
TOV withstand 200ms	$U_T$ (N-PE)			1200V/300A	
Number of ports				1	
<b>● Mechanical characteristics</b>					
Temperature range	$T_a$		- 40°C .... + 70°C		
Permissible humidity	$RH$		5%...95%		
Terminal screw torque	$M_{max}$ upper		max. 2.0Nm		
	$M_{max}$ lower		max. 3.0Nm		
Conductor cross section	upper		6mm <sup>2</sup> (solid) / 4mm <sup>2</sup> (stranded)		
	lower		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)		
AWG conductor cross section	upper		11 AWG (solid) / 13 AWG (stranded)		
	lower		2 AWG (solid) / 3 AWG (stranded)		
Altitude	4.000m		3.000m		2.000m
Mounting	35mm DIN rail, EN 60715				
Degree of protection	IP 20				
Housing material	Thermoplastic; extinguishing degree UL 94 V-0				
Indication of thermal disconnecter operation	red flag				
Remote contacts (RC)	YES				
Contact ratings	AC: 250V/0.5A; 125V/3A				
Terminal cross section	max. 1.5mm <sup>2</sup>				
Remote terminal torque	0.25Nm				

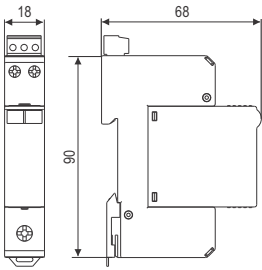
### Ordering information

$U_c$	150	275	320	385	440
Ordering code PROTEC CM 80A/xxx (1+1)	508.120	508.122	508.124	508.126	508.128
Ordering code PROTEC CMR 80A/xxx (1+1) (with remote contacts)	508.130	508.132	508.134	508.136	508.138
Ordering code Module PROTEC CM(R) 80A/xxx	508.176	508.143	508.177	508.144	508.145

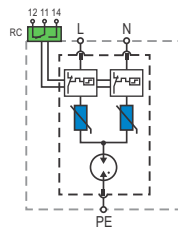
Dimensions, Internal configuration, Weight and Packaging

**PROTEC CMG(R) 40/xxx (2+0)**

Dimensions



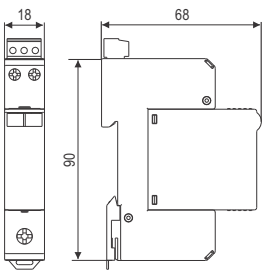
Internal configuration



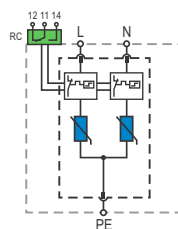
<b>PROTEC CMG 40/xxx (2+0)</b>	<b>150</b>	<b>275</b>
Dimensions DIN 43880	1TE	
Weight per unit	130g	146g
<b>PROTEC CMGR 40/xxx (2+0)</b>	<b>150</b>	<b>275</b>
Dimensions DIN 43880	1TE	
Weight per unit	135g	151g
Packaging dimensions (single unit)	110 x 76.5 x 23.5mm	
Min. packaging quantity	12 pcs.	

**PROTEC CM(R) 80/xxx (2+0)**

Dimensions



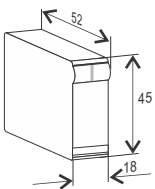
Internal configuration



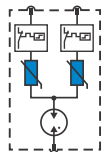
<b>PROTEC CM 80/xxx (2+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	1TE				
Weight per unit	134g	144g	144g	150g	152g
<b>PROTEC CMR 80/xxx (2+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Dimensions DIN 43880	1TE				
Weight per unit	139g	149g	149g	155g	157g
Packaging dimensions (single unit)	110 x 76.5 x 23.5mm				
Min. packaging quantity	12 pcs.				

**Module PROTEC CMG(R) 40/xxx (2+0)**

Dimensions



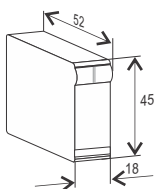
Internal configuration



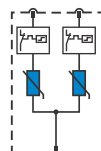
<b>Module PROTEC CMG(R) 40/xxx (2+0)</b>	<b>150</b>	<b>275</b>
Weight per unit	63g	79g
Packaging dimensions	221 x 64.5 x 48.5mm	
Min. packaging quantity	12 pcs.	

**Module PROTEC CM(R) 80/xxx (2+0)**

Dimensions



Internal configuration



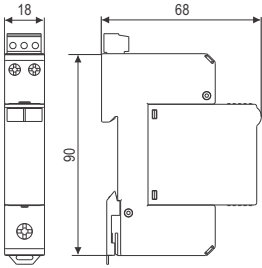
<b>Module PROTEC CM(R) 80/xxx (2+0)</b>	<b>150</b>	<b>275</b>	<b>320</b>	<b>385</b>	<b>440</b>
Weight per unit	67g	78g	78g	83g	85g
Packaging dimensions	221 x 64.5 x 48.5mm				
Min. packaging quantity	12 pcs.				



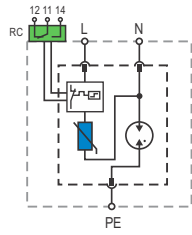
Dimensions, Internal configuration, Weight and Packaging

**PROTEC CM(R) 80/xxx (1+1)**

Dimensions



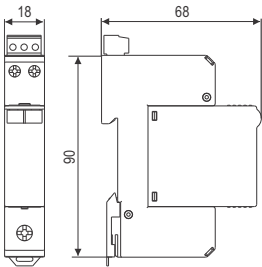
Internal configuration



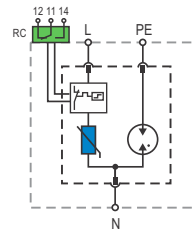
PROTEC CM 80/xxx (1+1)	150	275	320	385	440
Dimensions DIN 43880	1TE				
Weight per unit	124g	126g	126g	129g	130g
PROTEC CMR 80/xxx (1+1)	150	275	320	385	440
Dimensions DIN 43880	1TE				
Weight per unit	129g	131g	131g	134g	135g
Packaging dimensions (single unit)	110 x 76.5 x 23.5mm				
Min. packaging quantity	12 pcs.				

**PROTEC CM(R) 80A/xxx (1+1)**

Dimensions



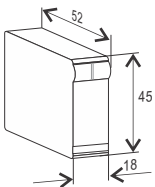
Internal configuration



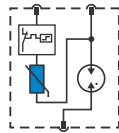
PROTEC CM 80A/xxx (1+1)	150	275	320	385	440
Dimensions DIN 43880	1TE				
Weight per unit	124g	126g	126g	129g	130g
PROTEC CMR 80A/xxx (1+1)	150	275	320	385	440
Dimensions DIN 43880	1TE				
Weight per unit	129g	131g	131g	134g	135g
Packaging dimensions (single unit)	110 x 76.5 x 23.5mm				
Min. packaging quantity	12 pcs.				

**Module PROTEC CM(R) 80/xxx (1+1)**

Dimensions



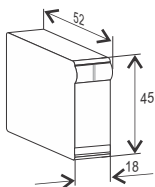
Internal configuration



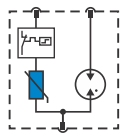
Module PROTEC CM(R) 80/xxx (1+1)	150	275	320	385	440
Weight per unit	57g	59g	59g	62g	63g
Packaging dimensions	221 x 64.5 x 48.5mm				
Min. packaging quantity	12 pcs.				

**Module PROTEC CM(R) 80A/xxx (1+1)**

Dimensions



Internal configuration



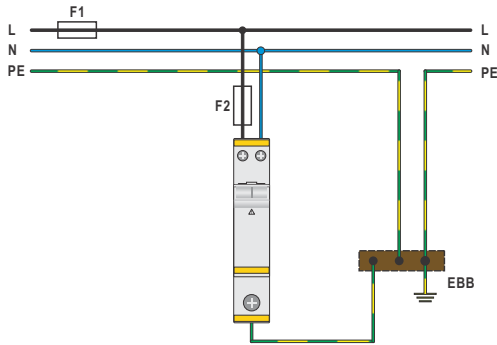
Module PROTEC CM(R) 80A/xxx (1+1)	150	275	320	385	440
Weight per unit	57g	59g	59g	62g	63g
Packaging dimensions	221 x 64.5 x 48.5mm				
Min. packaging quantity	12 pcs.				

**PROTEC CMG(R) Series**  
**PROTEC CM(R) Series**

**Network connections**

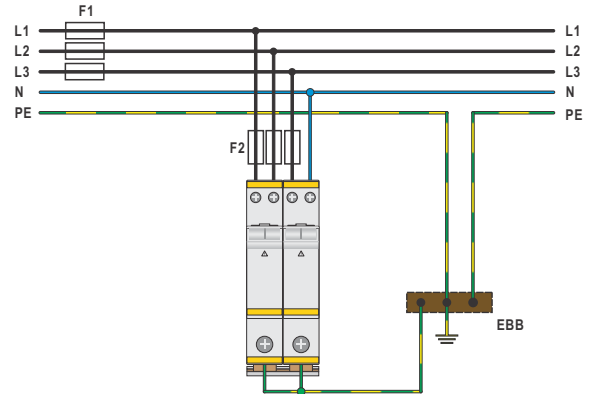
**TN-S Network (Single-phase)**

PROTEC CMG(R) 40 (2+0)  
PROTEC CM(R) 80 (2+0)



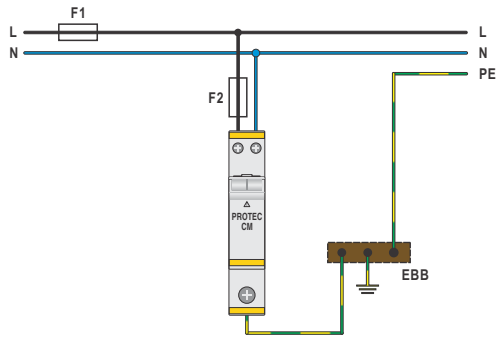
**TN-S Network (Three-phase)**

2x PROTEC CMG(R) 40 (2+0)  
2x PROTEC CM(R) 80 (2+0)



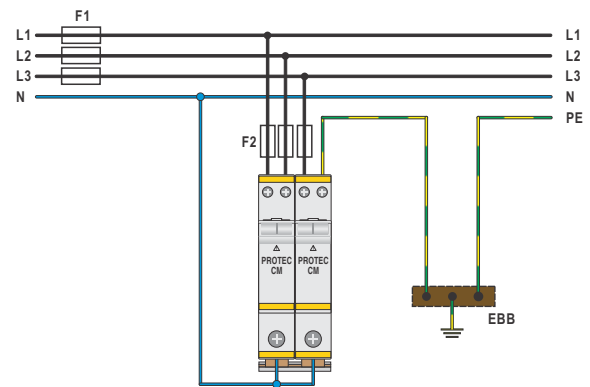
**TT Network (Single-phase)**

PROTEC CM(R) 80 (1+1)

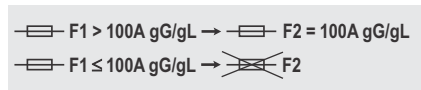


**TT Network (Three-phase)**

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



**Back-up fuse**



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## Class III

### Modular and Compact

### Single and Multi-pole SPD



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<b>Category IEC / EN:</b>	<b>Class III / Type 3</b>
<b>Location of use:</b>	<b>Sub-distribution boards, cable ducts, power outlets</b>
<b>Protection modes:</b>	<b>L/N-PE</b>
<b>Protective elements:</b>	<b>MOV, GDT or EMI filter</b>
<b>Surge discharge ratings:</b>	<b>U<sub>oc</sub> up to 10kV</b>
<b>Internal protection and safety:</b>	<b>Separate thermal disconnecter for each MOV</b>
<b>Complies with:</b>	<b>IEC 61643-11:2011, EN 61643-11:2012 IEC 61643-1:2005, EN 61643-11:2005;</b>

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**PROTEC D(R) 10/xxx**  
**PROTEC DM(R) 20/xxx (2+0)**  
**PROTEC DMG(R) 20/xxx (2+0)**

SPDs Class I and Class II are not enough to protect sensitive electronic elements. Overvoltage waves are slowly increasing and, at a greater distance, reoccurring and threatening devices. Incidence of low value surges, which are still too high for electronic elements, is still common in the object itself. They are caused by activation/switching of major appliances, inductive devices and motors, industrial systems operation. They intended to provide protection in zones 2-3 as per IEC 62305.

**PROLED 275 16A Series**

The PROTEC D series of overvoltage surge protective devices has been developed to protect against indirect lightning discharges and induced voltages. The plug-in module/base design facilitate replacement of a failed module without the need to remove system wiring etc.

**MPE-MINI**  
**MPE-MINI LED**

**ZE 200-PS**

PROLED series is designed for advanced 3-phase devices, equipment and systems up to 16A/230VAC per phase.

**PROFILT D xxx**

MPE series is designed for installation into electrical installation systems, cable ducts and wiring sockets.

ZE 200-PS is designed for plug in to the power outlet.

PROFILT D series contains surge arresters and filter, which are connected in serial.

## PROTEC D(R) 10



- **Category IEC / EN:** Class III / Type 3
- **Location of use:** Sub-distribution boards
- **Network systems:** TN-S, TN-C, TT (only L-N), IT
- **Protection modes:** L/N - PE, L-PEN, L-N
- **Protective element:** MOV
- **Surge discharge rating:**  $U_{oc} = 10kV$
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



### Technical data

Type	PROTEC D(R) 10/xxx						
	150	275	320	385	440		
<b>● Electrical characteristics</b>							
Nominal AC voltage	$U_o$		120V 50/60Hz	230V 50/60Hz	400V 50/60Hz		
Max. continuous operating voltage (AC/DC)	$U_c$		150/200V	275/350V	320/420V	385/500V	440/580V
Open circuit voltage of the combination wave generator	$U_{oc}$		10kV				
Max. discharge current (8/20)	$I_{max}$		10kA				
Nominal discharge current (8/20)	$I_n$		5kA				
Protection level	$U_p$		< 0.8kV	< 1.2kV	< 1.2kV	< 1.6kV	< 2.0kV
Follow current	$I_{fi}$		NO				
Response time	$t_A$		< 25ns				
Thermal protection	YES						
Back-up fuse (if mains > 63A)	63A gG/gL						
Short-circuit current rating	$I_{scCR}$		25kA/50Hz				
TOV withstand 5s	$U_T$		174V	334V	438V	580V	
TOV disconnection 120min	$U_T$		229V	438V	765V		
Number of ports	1						
<b>● Mechanical characteristics</b>							
Temperature range	$T_a$		-40°C ..... +70°C				
Permissible humidity	$RH$		5%...95%				
Terminal screw torque	$M_{max}$		3.0Nm				
Conductor cross section	35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)						
AWG conductor cross section	2 AWG (solid) / 3 AWG (stranded)						
Mounting	35mm DIN rail, EN 60715						
Degree of protection	IP 20						
Housing material	thermoplastic; extinguishing degree UL 94 V-0						
Indication of thermal disconnect operation	red flag						
Remote contacts (RC)	YES						
Contact ratings	AC: 250V/0.5A; 125V/3A						
Terminal cross section	max. 1.5mm <sup>2</sup>						
Remote terminal torque	0.25Nm						

### Ordering information

$U_c$	150	275	320	385	440
Ordering code <b>PROTEC D 10/xxx</b>	508.601	508.603	508.605	508.617	508.607
Ordering code <b>PROTEC DR 10/xxx</b> (with remote contacts)	508.609	508.611	508.613	508.619	508.615
Ordering code <b>Module PROTEC D(R) 10/xxx</b>	508.620	508.621	508.622	508.623	508.624

## PROTEC DM(R) 20 (2+0)



● Category IEC / EN:	Class III / Type 3
● Location of use:	Sub-distribution boards
● Network systems:	TN-S
● Protection modes:	L/N - PE
● Protective element:	MOV
● Surge discharge rating:	$U_{OC} = 10kV$
● Housing:	Modular design
● Complies with:	IEC 61643-1:2005, EN 61643-11:2005;



### Technical data

Type	PROTEC DM(R) 20/xxx (2+0)						
	150	275	320	385	440		
<b>● Electrical characteristics</b>							
Nominal AC voltage	$U_o$		120V 50/60Hz	230V 50/60Hz	400V 50/60Hz		
Max. continuous operating voltage (AC/DC)	$U_c$		150/200V	275/350V	320/420V	385/500V	440/580V
Open circuit voltage of the combination wave generator	$U_{oc}$		10kV				
Max. discharge current (8/20)	$I_{max}$		10kA per pole				
Protection level	$U_p$ (L/N-PE)		< 0.8kV	< 1.2kV	< 1.2kV	< 1.6kV	< 2.0kV
Follow current	$I_{fi}$		NO				
Response time	$t_A$		< 25ns				
Thermal protection	YES						
Back-up fuse (if mains > 63A)	63A gG/gL						
Short-circuit current rating	$I_{scCR}$		10kA/50Hz				
TOV withstand 5s	$U_T$		174V	334V	580V		
Number of ports	1						
<b>● Mechanical characteristics</b>							
Temperature range	$T_a$		- 40°C ..... + 70°C				
Permissible humidity	RH		5%...95%				
Terminal screw torque	$M_{max}$ upper		2.0Nm				
	$M_{max}$ lower		3.0Nm				
Conductor cross section	upper		6mm <sup>2</sup> (solid) / 4mm <sup>2</sup> (stranded)				
	lower		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)				
AWG conductor cross section	upper		11 AWG (solid) / 13 AWG (stranded)				
	lower		2 AWG (solid) / 3 AWG (stranded)				
Mounting	35mm DIN rail, EN 60715						
Degree of protection	IP 20						
Housing material	Thermoplastic; extinguishing degree UL 94 V-0						
Indication of thermal disconnecter operation	red flag						
Remote contacts (RC)	YES						
Contact ratings	AC: 250V/0.5A; 125V/3A						
Terminal cross section	max. 1.5mm <sup>2</sup>						
Remote terminal torque	0.25Nm						

### Ordering information

$U_c$	150	275	320	385	440
Ordering code PROTEC DM 20/xxx (2+0)	508.029	508.031	508.033	508.113	508.035
Ordering code PROTEC DMR 20/xxx (2+0) (with remote contacts)	508.037	508.039	508.041	508.115	508.043
Ordering code Module PROTEC DM(R) 20/xxx	508.191	508.192	508.193	508.194	508.195

## PROTEC DMG(R) 20 (2+0)



● Category IEC / EN:	Class III / Type 3
● Location of use:	Sub-distribution boards
● Network systems:	TN-S
● Protection modes:	L/N - PE
● Protective elements:	MOV and GDT
● Surge discharge rating:	$U_{OC} = 10kV$
● Housing:	Modular design
● Complies with:	IEC 61643-1:2005, EN 61643-11:2005



### Technical data

Type

PROTEC DMG(R) 20/320 (2+0)

#### ● Electrical characteristics

Nominal AC voltage	$U_o$	230V 50/60Hz
Max. continuous operating voltage (AC/DC)	$U_c$	320/420V
Open circuit voltage of the combination wave generator	$U_{oc}$	10kV
Max. discharge current (8/20)	$I_{max}$	10kA per pole
Max. discharge current (8/20)	$I_n$	5kA
Protection level	$U_p$ (L/N-PE)	< 1.6kV
Follow current	$I_{fi}$	NO
Response time	$t_A$	< 100ns
Thermal protection		YES
Back-up fuse (if mains > 63A)		63A gG/gL
Short-circuit current rating	$I_{SCCR}$	10kA/50Hz
TOV withstand 5s	$U_T$	334V
Number of ports		1

#### ● Mechanical characteristics

Temperature range	$T_a$	- 40°C ..... + 70°C
Permissible humidity	$RH$	5%...95%
Terminal screw torque	$M_{max}$ upper	2.0Nm
	$M_{max}$ lower	3.0Nm
Conductor cross section	upper	6mm <sup>2</sup> (solid) / 4mm <sup>2</sup> (stranded)
	lower	35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)
AWG conductor cross section	upper	11 AWG (solid) / 13 AWG (stranded)
	lower	2 AWG (solid) / 3 AWG (stranded)
Mounting		35mm DIN rail, EN 60715
Degree of protection		IP 20
Housing material		Thermoplastic; extinguishing degree UL 94 V-0
Indication of thermal disconnecter operation		red flag
Remote contacts (RC)		YES
Contact ratings		AC: 250V/0.5A; 125V/3A
Terminal cross section		max. 1.5mm <sup>2</sup>
Remote terminal torque		0.25Nm

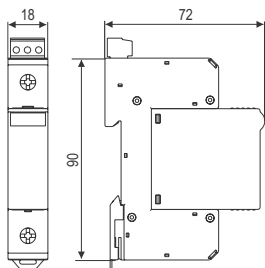
### Ordering information

$U_c$	<b>320</b>
Ordering code PROTEC DMG 20/xxx (2+0)	<b>508.021</b>
Ordering code PROTEC DMGR 20/xxx (2+0) (with remote contacts)	<b>508.027</b>
Ordering code Module PROTEC DMG(R) 20/xxx	<b>508.196</b>

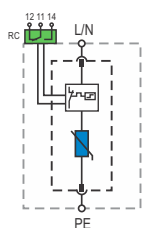
Dimensions, Internal configuration, Weight and Packaging

**PROTEC D(R) 10/xxx**

Dimensions



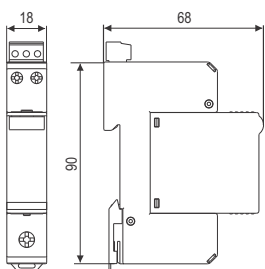
Internal configuration



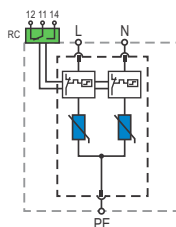
PROTEC D 10/xxx	150	275	320	385	440
Dimensions DIN 43880	1TE				
Weight per unit	124g	130g	130g	131g	132g
PROTEC DR 10/xxx	150	275	320	385	440
Dimensions DIN 43880	1TE				
Weight per unit	129g	135g	135g	136g	137g
Packaging dimensions (single unit)	110 x 76.5 x 23.5mm				
Min. packaging quantity	12 pcs.				

**PROTEC DM(R) 20/xxx (2+0)**

Dimensions



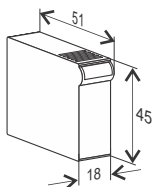
Internal configuration



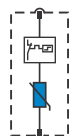
PROTEC DM 20/xxx (2+0)	150	275	320	385	440
Dimensions DIN 43880	1TE				
Weight per unit	136g	140g	150g	153g	155g
PROTEC DMR 20/xxx (2+0)	150	275	320	385	440
Dimensions DIN 43880	1TE				
Weight per unit	141g	145g	155g	158g	160g
Packaging dimensions (single unit)	110 x 76.5 x 23.5mm				
Min. packaging quantity	12 pcs.				

**Module PROTEC D(R) 10/xxx**

Dimensions



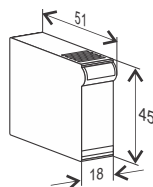
Internal configuration



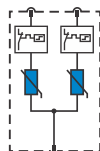
Module PROTEC D(R) 10/xxx	150	275	320	385	440
Weight per unit	52g	58g	58g	59g	60g
Packaging dimensions	221 x 64.5 x 48.5mm				
Min. packaging quantity	12 pcs.				

**Module PROTEC DM(R) 20/xxx (2+0)**

Dimensions



Internal configuration

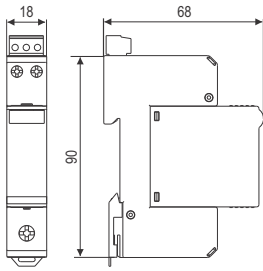


Module PROTEC DM(R) 20/xxx (2+0)	150	275	320	385	440
Weight per unit	69g	73g	83g	86g	88g
Packaging dimensions	221 x 64.5 x 48.5mm				
Min. packaging quantity	12 pcs.				

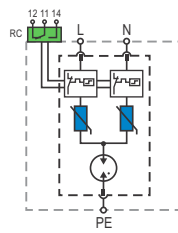
Dimensions, Internal configuration, Weight and Packaging

PROTEC DMG(R) 20/320 (2+0)

Dimensions



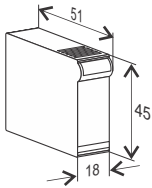
Internal configuration



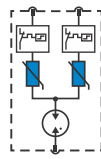
<b>PROTEC DMG 20/320 (2+0)</b>	
Dimensions DIN 43880	1TE
Weight per unit	118g
<b>PROTEC DMGR 20/320 (2+0)</b>	
Dimensions DIN 43880	1TE
Weight per unit	123g
Packaging dimensions (single unit)	110 x 76.5 x 23.5mm
Min. packaging quantity	12 pcs.

Module PROTEC DMG(R) 20/320 (2+0)

Dimensions



Internal configuration



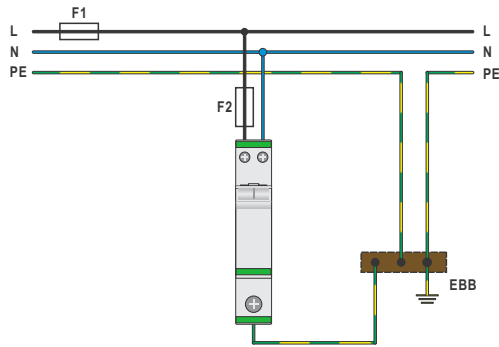
<b>Module PROTEC DMG(R) 20/320 (2+0)</b>	
Weight per unit	51g
Packaging dimensions	221 x 64.5 x 48.5mm
Min. packaging quantity	12 pcs.

PROTEC DM(R) Series  
PROTEC DMG(R) Series

Network connections

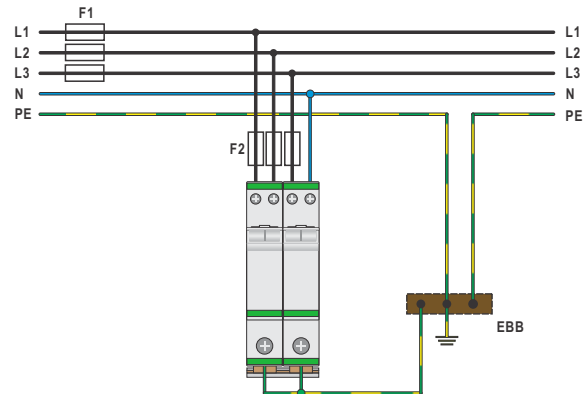
TN-S Network (Single-phase)

PROTEC DM(R) 20 (2+0)  
PROTEC DMG(R) 20 (2+0)

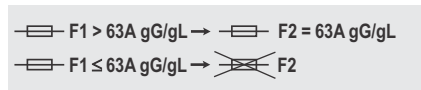


TN-S Network (Three-phase)

2x PROTEC DM(R) 20 (2+0)  
2x PROTEC DMG(R) 20 (2+0)



Back-up fuse





## PROLED 275 16A Series



- **Category IEC/EN:** Class III / Type 3
- **Location of use:** Sub distribution board
- **Network systems:** TN-S, TT
- **Max. load current:** 16A AC
- **Protection modes:** L/N-PE
- **Protective elements:** MOV, GDT
- **Indication:** Red and green LED
- **No. of ports:** Two ports SPD
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



### Technical data

Type	275 (3+1) 16A	PROLED	275 (4+0) 16A
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#### ● Electrical characteristics

Nominal AC voltage	$U_o$	230V 50/60Hz	
Max. continuous operating voltage (AC/DC) at 50/60Hz	$U_c$	275V	
Max. rated load current	$I_L$	16A	
Open circuit voltage of the combination wave generator	$U_{oc}$	6kV	
Nominal discharge current	$I_n$	3kA	
Protection level at $U_{oc}$	$U_p$ (L-N)	850V	/
	$U_p$ (L-PE)	/	850V
Thermal protection		YES	
Remote contacts		10A/230VAC	
Back-up fuse (if mains > 16A)		16A gG/gL	
TOV withstand 5s	$U_T$	334V	
TOV disconnection 120min	$U_T$	438V	
Number of ports		2	

#### ● Mechanical characteristics

Temperature range	$T_a$	- 40°C ..... + 70°C	
Permissible humidity	$RH$	5%...95%	
Conductor cross section		4mm <sup>2</sup> (stranded)	
AWG conductor cross section		11 AWG (stranded)	
Mounting		35mm DIN rail, EN 60715	
Degree of protection		IP 20	
Housing material		Thermoplastic; extinguishing degree UL 94 V-0	
Indication of thermal disconnector operation		Red and green LED	

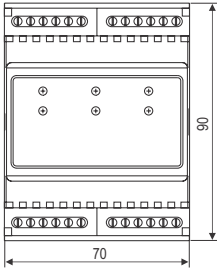
### Ordering information

$U_c$	275 (3+1) 16A	275 (4+0) 16A
Ordering code PROLED	130 302	130 301

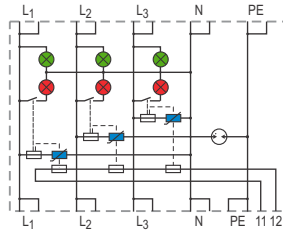
Dimensions, Internal configuration, Weight and Packaging

PROLED 275 (3+1) 16A

Dimensions



Internal configuration



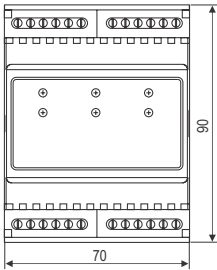
PROLED 275 (3+1) 16A

Dimensions, weight and packaging

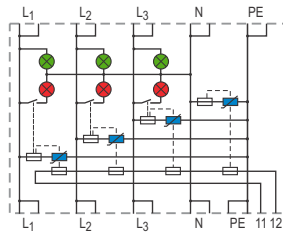
PROLED	275 (3+1) 16A	275 (4+0) 16A
Dimensions DIN 43890		4TE
Weight per unit		164g
Packaging dimensions (single unit)		109 x 76.5 x 80mm
Min. packaging quantity		3 pcs.

PROLED 275 (4+0) 16A

Dimensions



Internal configuration

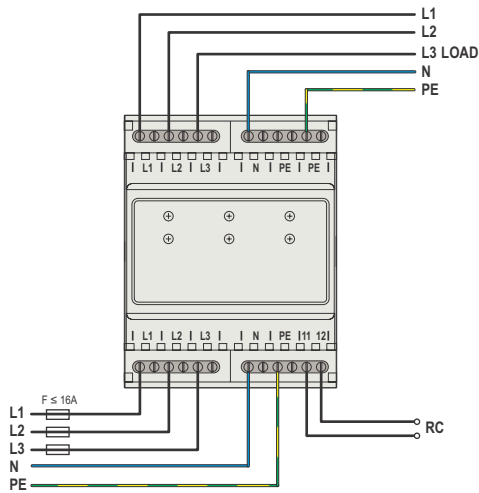


PROLED 275 (4+0) 16A

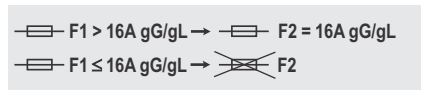
Network connections

TN-S, TT Network

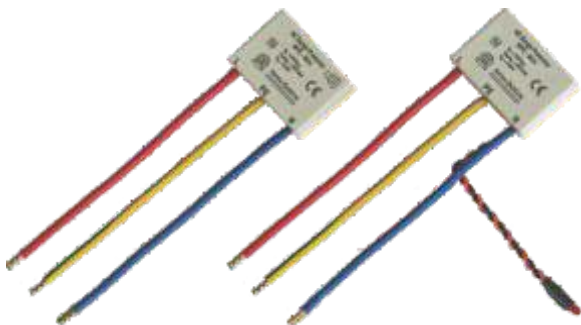
PROLED 275 16A



Back-up fuse



## MPE-MINI



- Category IEC/EN: Class III/Type 3
- Location of use: Cable ducts, wiring outlets
- Network systems: TN-S
- Protection modes: L/N, L/N-PE
- Protective elements: MOV and GDT
- Surge discharge rating:  $U_{OC} = 6kV$
- Fault indication: Buzzer; LED
- Complies with: IEC 61643-11:2011, EN 61643-11:2012;



### Technical data

Type	MPE-MINI	MPE-MINI LED
<b>Electrical characteristics</b>		
Max. continuous operating voltage (AC/DC) at 50/60Hz	$U_c$	275V
Nominal AC voltage	$U_o$	230V 50/60Hz
Open circuit voltage of the combination wave generator	$U_{cw}$	1.5kV 6kV/3kA 1.4kV
Protection level	$U_p$ (L-N) $U_p$ (L/N-PE)	1.7kV 0.9kV
Thermal protection		YES
Back-up fuse (if mains > 16A)		MCB/B 16 A
TOV withstand 5s	$U_T$	335V
TOV disconnection 120min	$U_T$	438V
Short circuit current rating	$I_{SCCR}$	1kA
Number of ports		1
<b>Mechanical characteristics</b>		
Temperature range	$T_a$	- 40°C ..... + 70°C
Conductor cross section		1.5mm <sup>2</sup> (stranded)
AWG conductor cross section		15 AWG (stranded)
Permissible humidity	$RH$	5%...95%
Mounting		Cable ducts
Degree of protection		IP 20
Housing material		Thermoplastic; extinguishing degree UL 94 V-0
Indication of thermal disconnector operation		Buzzer LED

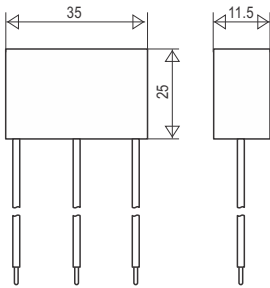
### Ordering information

$U_c$	275
Ordering code MPE-MINI	121 501
Ordering code MPE-MINI LED	130 331

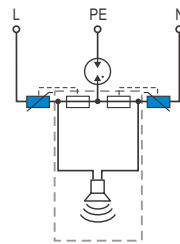
Dimensions, Internal configuration, Weight and Packaging

**MPE-MINI**

**Dimensions**



**Internal configuration**



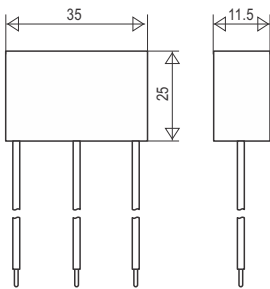
**Dimensions, weight and packaging**

**MPE-MINI**

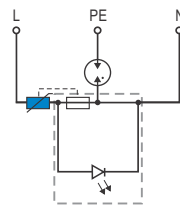
Dimensions	35 x 25 x 12mm
Weight per unit	52g
Packaging dimensions	305 x 116 x 83mm
Min. packaging quantity	30 pcs.

**MPE-MINI LED**

**Dimensions**



**Internal configuration**



**Dimensions, weight and packaging**

**MPE-MINI LED**

Dimensions DIN 43880	35 x 25 x 12mm
Weight per unit	52g
Packaging dimensions	305 x 116 x 83mm
Min. packaging quantity	30 pcs.

## ZE 200-PS



- **Category IEC / EN:** Class III / Type 3
- **Location of use:** Power outlet
- **Network systems:** TN-S, TT
- **Protection modes:** L(N) - PE, L-N
- **Protective elements:** MOV and GDT
- **Surge discharge rating:**  $U_{OC} = 6kV$
- **Indication:** Green and red light
- **Housing:** Compact design
- **Complies with:** IEC 61643-1:2005, EN 61643-11:2005



### Technical data

Type	ZE 200-PS
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#### ● Electrical characteristics

Nominal AC voltage	$U_o$	230V 50/60Hz
Max. continuous operating voltage (AC/DC) at 50/60Hz	$U_c$	275V
Open circuit voltage of the combination wave generator	$U_{oc}$	6kV
Protection level at $U_{oc}$	$U_p$ (L-N)	< 1000V
	$U_p$ (L/N-PE)	< 1500V
Response time	$t_A$ (L-N)	< 25ns
	$t_A$ (L/N-PE)	< 100ns
Thermal protection		YES
Back-up fuse (if mains > 16A)		MCB/B16A
TOV withstand 5s	$U_T$	334V
Number of ports		1

#### ● Mechanical characteristics

Temperature range	$T_a$	- 40°C ..... + 70°C
Permissible humidity	$RH$	5%...95%
Connection		DIN 49 440-CE(7)III; DIN 49 441-C EE(7)IV; Grounding contact
Degree of protection		IP 20
Housing material		Thermoplastic; extinguishing degree UL 94 V-0
Indication of thermal disconnecter operation		Green and red light

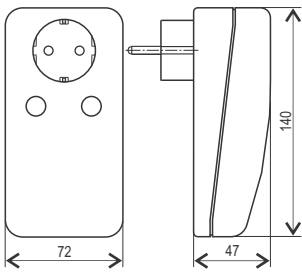
### Ordering information

$U_c$	275
Ordering code ZE 200-PS	121 532

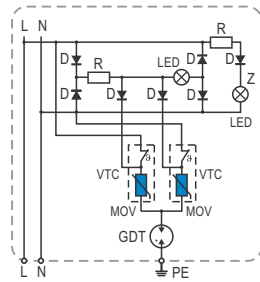
Dimensions, Internal configuration, Weight and Packaging

**ZE-200 PS**

**Dimensions**



**Internal configuration**



**Dimensions, weight and packaging**

<b>ZE 200-PS</b>	
Dimensions	140 x 47 x 72mm
Weight per unit	182g
Packaging dimensions (single unit)	151.5 x 96 x 79.5mm
Min. packaging quantity	1 pc.

## PROFILT D 8A



- **Category IEC/EN:** Class III / Type 3
- **Location of use:** Sub distribution boards
- **Network systems:** TN-S, TT
- **Max. load current:** 8A
- **Protection modes:** L/N PE
- **Protective elements:** MOV, GDT, EMI Filter
- **Fault indication:** Red light
- **No. of ports:** Two port
- **Complies with:** IEC 61643-1:2005, EN 61643-11:2005;



### Technical data

Type

PROFILT D 8A

#### ● Electrical characteristics

Nominal AC voltage	$U_o$	230V 50/60Hz
Max. continuous operating voltage (AC/DC) at 50/60Hz	$U_c$	275V
Max. load current	$I_L$	8A
Open circuit voltage of the combination wave generator	$U_{oc}$	6kV
Protection level at $U_{oc}$	$U_p (L-N)$	< 1.0kV
Thermal protection		YES
Filtering		< 90dB@5MHz
Back-up fuse (if mains > 8A)		8A gG/gL
TOV withstand 5s	$U_T$	334V
Number of ports		2

#### ● Mechanical characteristics

Temperature range	$T_a$	- 40°C .... + 80°C
Permissible humidity	$RH$	5%...95%
Terminal screw torque	$M_{max}$	0.51Nm
Conductor cross section		13mm <sup>2</sup> (stranded)
AWG conductor cross section		2.5 AWG (stranded)
Mounting		35mm DIN rail, EN 60715
Degree of protection		IP 20
Housing material		Thermoplastic; extinguishing degree UL 94 V-0
Indication of thermal disconnecter operation		Red light

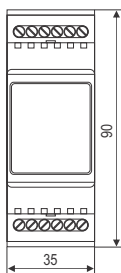
### Ordering information

$I_L$	8A
Ordering code PROFILT 8A	130 061

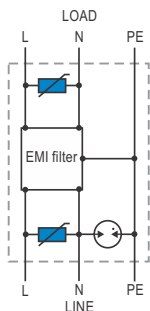
Dimensions, Internal configuration, Weight and Packaging

PROFIL D 8A

Dimensions



Internal configuration



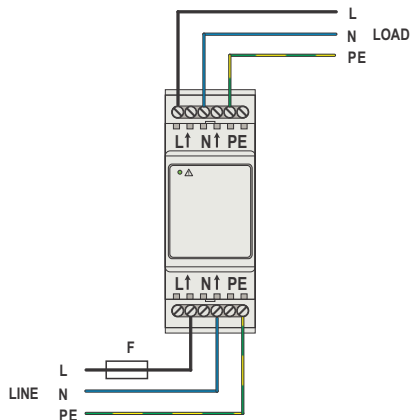
Dimensions, weight and packaging

PROFIL D 8A	
Dimensions DIN 43880	2TE
Weight per unit	94g
Packaging dimensions (single unit)	109 x 76.5 x 41.5mm
Min. packaging quantity	7 pcs.

Network connections

TN-S, TT Network

PROFIL D 8A





## PROFILT D



- **Category IEC/EN:** Class III / Type 3
- **Location of use:** Sub distribution boards
- **Network systems:** TN-S, TT
- **Max. load current:** 30A
- **Protection modes:** L/N-PE
- **Protective elements:** MOV, GDT, EMI Filter
- **Fault indication:** Red light
- **No. of ports:** Two port
- **Complies with:** IEC 61643-1:2005, EN 61643-11:2005;



### Technical data

Type	PROFILT D yy			
	10A	16A	25A	30A
<b>● Electrical characteristics</b>				
Nominal AC voltage	$U_o$ 230V 50/60Hz			
Max. continuous operating voltage (AC/DC) at 50/60Hz	$U_c$ 275V			
Max. load current	$I_L$ 10A	16A	25A	30A
Open circuit voltage of the combination wave generator	$U_{oc}$ 6kV			
Protection level at $U_{oc}$	$U_p$ (L-N) < 1.0kV			
Thermal protection	YES			
Filtering	< 70dB@1MHz			
Back-up fuse	10A gG/gL	16A gG/gL	25A gG/gL	30A gG/gL
TOV withstand 5s	$U_T$ 334V			
Number of ports	2			
<b>● Mechanical characteristics</b>				
Temperature range	$T_a$ - 40°C .... + 70°C			
Permissible humidity	RH 5% - 95%			
Terminal screw torque	$M_{max}$ 3.0Nm			
Conductor cross section	25mm <sup>2</sup> (stranded)			
AWG conductor cross section	3 AWG (stranded)			
Mounting	35mm DIN rail, EN 60715			
Degree of protection	IP 20			
Housing material	Thermoplastic; extinguishing degree UL 94 V-0			
Indication of thermal disconnecter operation	Red light			

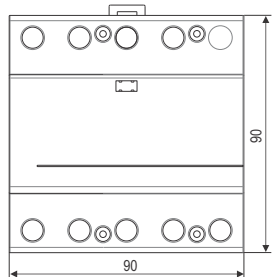
### Ordering information

$I_L$	10A	16A	25A	30A
Ordering code PROFILT D xxx	130 051	130 052	130 053	130 050

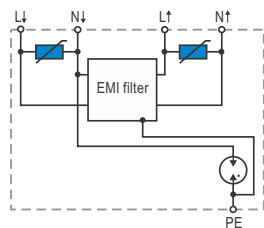
Dimensions, Internal configuration, Weight and Packaging

PROFILT D

Dimensions



Internal configuration



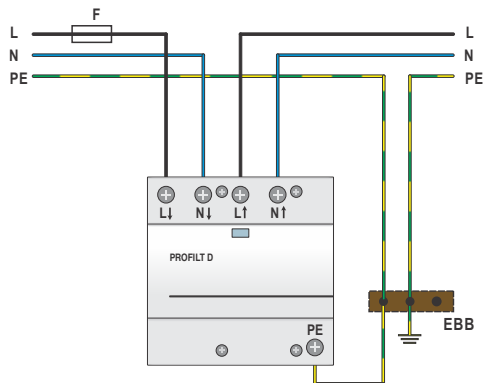
Dimensions, weight and packaging

PROFILT D yy	10A	16A	25A	30A
Dimensions DIN 43880	5TE			
Weight per unit	420g			
Packaging dimensions (single unit)	112 x 76.5 x 100mm			
Min. packaging quantity	3 pcs.			

Network connections

TN-S, TT Network

PROFILT D



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## Modular and Compact SPD for DC Power Systems



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Category IEC/EN:	Class I, II, III / Type 1, 2, 3
Category IEC/EN:	D1/C1/C2/C3 (IEC/EN 61643-21)
Location of use:	Distribution boards, DC Power Systems
Protective elements:	MOV, GDT, diodes
Surge discharge ratings:	$I_{max}$ up to 60kA, $I_{imp}$ up to 10kA
Complies with:	IEC 61643-1:2005, EN 61643-11:2005;

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DC PROTEC B(R) 10/xx  
DC PROTEC C(R) 40/xx  
PROTEC C(R) 40/75  
PROTEC DMDR 20/xxx

SPDs for DC Power Systems have been designed to meet the unique requirements of protection of DC Power Systems used for telecommunication and railway applications. Internal thermal disconnectors are used to eliminate the hazard of thermal runaway fault conditions.

## DC PROTEC B(R) 10



- **Category IEC / EN:** Class I / Type 1
- **Location of use:** Main-distribution boards
- **Protection modes:** (+) → PE, (-) → PE, (+) → (-)
- **Protective element:** MOV
- **Surge discharge rating:**  $I_{imp} = 10kA$
- **Housing:** Compact design
- **Complies with:** IEC 61643-1:2005, EN 61643-11:2005;



### Technical data

Type	DC PROTEC B(R) 10/xx		
	24	48	
<b>● Electrical characteristics</b>			
Nominal operating voltage	$U_n$	24V	48V
Max. continuous operating voltage (DC)	$U_c$	30V	60V
Nominal discharge current (8/20)	$I_n$		20kA
Max. discharge current (8/20)	$I_{max}$		60kA
Impulse current (10/350)	$I_{imp}$		10kA
Protection level	$U_p$		< 0.6kV
Residual voltage at $I_{imp}$	$U_{res}$		< 0.3kV
Response time	$t_A$		< 25ns
Thermal protection			YES
Number of ports			1
<b>● Mechanical characteristics</b>			
Temperature range	$T_a$	- 40°C ..... + 70°C	
Permissible humidity	RH	5%...95%	
Terminal screw torque	$M_{max}$	3.0Nm	
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)	
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)	
Mounting		35mm DIN rail, EN 60715	
Degree of protection		IP 20	
Housing material		Thermoplastic; extinguishing degree UL 94 V-0	
Indication of thermal disconnecter operation		red flag	
Remote contacts (RC)		YES	
Contact ratings		AC: 250V/0.5A; 125V/3A	
Terminal cross section		max. 1.5mm <sup>2</sup>	
Remote terminal torque		0.25Nm	

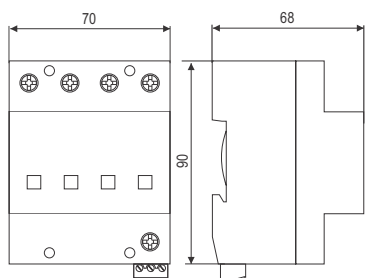
### Ordering information

$U_n$	24	48
Ordering code DC PROTEC B 10/xx	510 598	510 600
Ordering code DC PROTEC BR 10/xx (with remote contacts)	510 599	510 601

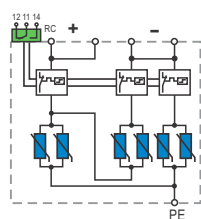
Dimensions, Internal configurations, Weight and Packaging

DC PROTEC B(R) 10/xx

Dimensions



Internal configuration



<b>DC PROTEC B 10</b>	<b>24</b>	<b>48</b>
Dimensions DIN 43880	4TE	
Weight per unit	327g	327g
<b>DC PROTEC BR 10</b>	<b>24</b>	<b>48</b>
Dimensions DIN 43880	4TE	
Weight per unit	332g	332g
Packaging dimensions (single unit)	109 x 76.5 x 80mm	
Min. packaging quantity	3 pcs.	

## DC PROTEC C(R) 40



- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Sub-distribution boards
- **Protection modes:** (+) → PE, (-) → PE, (+) → (-)
- **Protective element:** MOV
- **Surge discharge rating:**  $I_{max} = 40kA$
- **Housing:** Compact design
- **Complies with:** IEC 61643-1:2005, EN 61643-11:2005;



## Technical data

Type	DC PROTEC C(R) 40/xx		
	24	48	
<b>● Electrical characteristics</b>			
Nominal operating voltage	$U_n$	24V	48V
Max. continuous operating voltage (DC)	$U_c$	30V	60V
Nominal discharge current (8/20)	$I_n$		20kA
Max. discharge current (8/20)	$I_{max}$		40kA
Protection level	$U_p$ (+) → (-) (+), (-) → PE		< 0.6kV
			< 1.5kV
Response time	$t_A$		< 25ns
Thermal protection			YES
Number of ports			1
<b>● Mechanical characteristics</b>			
Temperature range	$T_a$	- 40°C .... + 70°C	
Permissible humidity	$RH$	5%...95%	
Terminal screw torque	$M_{max}$	3.0Nm	
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)	
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)	
Mounting		35mm DIN rail, EN 60715	
Degree of protection		IP 20	
Housing material		Thermoplastic; extinguishing degree UL 94 V-0	
Indication of thermal disconnecter operation		red flag	
Remote contacts (RC)		YES	
Contact ratings		AC: 250V/0.5A; 125V/3A	
Terminal cross section		max. 1.5mm <sup>2</sup>	
Remote terminal torque		0.25Nm	

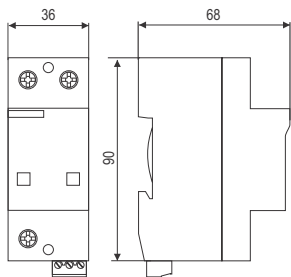
## Ordering information

$U_n$	24	48
Ordering code DC PROTEC C 40/xx	510 564	510 566
Ordering code DC PROTEC CR 40/xx (with remote contacts)	510 565	510 567

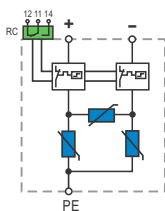
Dimensions, Internal configurations, Weight and Packaging

DC PROTEC C(R) 40/xx

Dimensions



Internal configuration



<b>DC PROTEC C 40</b>	<b>24</b>	<b>48</b>
Dimensions DIN 43880	2TE	
Weight per unit	204g	204g
<b>DC PROTEC CR 40</b>	<b>24</b>	<b>48</b>
Dimensions DIN 43880	2TE	
Weight per unit	208g	208g
Packaging dimensions (single unit)	109 x 76.5 x 41.5mm	
Min. packaging quantity	7 pcs.	

## PROTEC C(R) 40



- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Sub-distribution boards
- **Protection modes:** L/N- PE, L-PEN
- **Protective element:** MOV
- **Surge discharge rating:**  $I_{max} = 40kA$
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



## Technical data

Type	PROTEC C(R) 40/75
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 ● **Electrical characteristics**

Nominal AC voltage	<b>U<sub>o</sub></b>	60V 50/60Hz
Max. continuous operating voltage (AC/DC)	<b>U<sub>c</sub></b>	75/100V
Nominal discharge current (8/20)	<b>I<sub>n</sub></b>	20kA
Max. discharge current (8/20)	<b>I<sub>max</sub></b>	40kA
Protection level	<b>U<sub>p</sub></b>	< 0.7kV
Residual voltage at 5kA (8/20)	<b>U<sub>res</sub></b>	< 0.4kV
Follow current	<b>I<sub>fi</sub></b>	NO
Response time	<b>t<sub>A</sub></b>	< 25ns
Thermal protection		YES
Back-up fuse (if mains > 125A)		125A gG/gL
Short-circuit current rating	<b>I<sub>scCR</sub></b>	25kA/50Hz
TOV withstand 5s	<b>U<sub>T</sub></b>	90V
TOV disconnection 120min	<b>U<sub>T</sub></b>	115V
Number of ports		1

 ● **Mechanical characteristics**

Temperature range	<b>T<sub>a</sub></b>	- 40°C .... + 70°C
Permissible humidity	<b>RH</b>	5%...95%
Terminal screw torque	<b>M<sub>max</sub></b>	3.0Nm
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)
Mounting		35mm DIN rail, EN 60715
Degree of protection		IP 20
Housing material		thermoplastic; extinguishing degree UL 94 V-0
Indication of thermal disconnector operation		red flag
Remote contacts (RC)		YES
Contact ratings		AC: 250V/0.5A; 125V/3A
Terminal cross section		max. 1.5mm <sup>2</sup>
Remote terminal torque		0.25Nm

## Ordering information

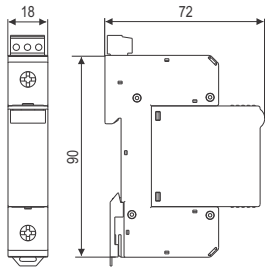
<b>U<sub>c</sub></b>	<b>75</b>
Ordering code <b>PROTEC C 40/75</b>	<b>50.0001</b>
Ordering code <b>PROTEC CR 40/75</b> (with remote contacts)	<b>50.0011</b>
Ordering code <b>Module PROTEC C(R) 40/75</b>	<b>50.0216</b>



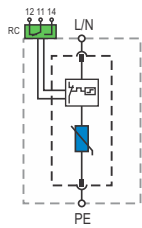
Dimensions, Internal configurations, Weight and Packaging

**PROTEC C(R) 40/75**

**Dimensions**



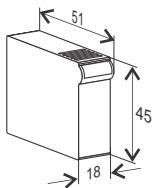
**Internal configuration**



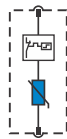
<b>PROTEC C 40</b>	<b>75</b>
Dimensions DIN 43880	1TE
Weight per unit	112g
<b>PROTEC CR 40</b>	<b>75</b>
Dimensions DIN 43880	1TE
Weight per unit	117g
Packaging dimensions (single unit)	110 x 76.5 x 23.5mm
Min. packaging quantity	12 pcs.

**Module PROTEC C(R) 40/75**

**Dimensions**



**Internal configuration**



<b>Module PROTEC C(R) 40</b>	<b>75</b>
Weight per unit	44g
Packaging dimensions	221 x 76.5 x 48.5mm
Min. packaging quantity	12 pcs.

PROTEC DMDR 20



- **Category IEC / EN:** Class III / Type 3
- **Location of use:** Sub- distribution boards
- **Protection modes:** L/N - PE
- **Protective element:** MOV + GDT
- **Surge discharge ratings:** I<sub>max</sub> up to 10kA
- **Housing:** Modular design
- **Complies with:** IEC 61643-1:2005, EN 61643-11:2005;



Technical data

Type		24	48	60	120
<b>Electrical characteristics</b>					
Nominal operating voltage (AC)	<b>U<sub>n</sub></b>	24V	48V	60V	120V
Max. continuous operating voltage (AC/DC)	<b>U<sub>c</sub></b>	34V/44V	60V	75V	150V
Open circuit voltage of the combination wave generator	<b>U<sub>oc</sub></b>	4kV	4kV	6kV	6kV
Nominal discharge current (8/20µs)	<b>I<sub>n</sub></b>	1.2kA	2.5kA	2.5kA	4kA
Max. discharge current (8/20µs)	<b>I<sub>max</sub></b>	3kA	6kA	6kA	10kA
Protection level	<b>U<sub>p</sub></b> (L-N)	< 180V	< 370V	< 400V	< 600V
	(L-PE/N-PE)	< 550V	< 650V	< 700V	< 850V
Response time of overvoltage protection	<b>t<sub>A</sub></b> (L-N)			< 25ns	
	(L-PE/N-PE)			< 100ns	
Thermal protection				YES	
Number of ports				1	
<b>Mechanical characteristics</b>					
Temperature range	<b>T<sub>a</sub></b>		-40°C ... +70°C		
Permissible humidity	<b>RH</b>		5%...95%		
Terminal screw torque	<b>M<sub>max</sub></b>		2Nm		
Conductor cross section			Multi-strand to 6 mm <sup>2</sup>		
AWG conductor cross section			9 AWG (stranded)		
Degree of protection			IP 20		
Housing material			Thermoplastic; gray, extinguishing degree UL 94 V-0		
Mounting			35mm DIN rail, EN 60715		

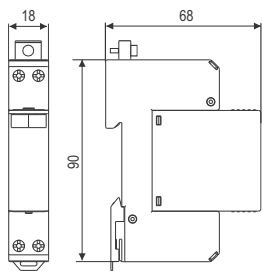
Ordering information

U <sub>n</sub>	24	48	60	120
Ordering code <b>PROTEC DMDR 20/xxx</b>	515 051	515 053	515 054	515 055
Ordering code <b>Module PROTEC DMDR 20/xxx</b>	515 086	515 087	515 088	515 089

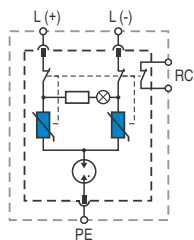
Dimensions, Internal configurations, Weight and Packaging

PROTEC DMDR 20/xxx

Dimensions



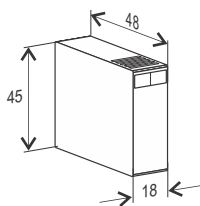
Internal configuration



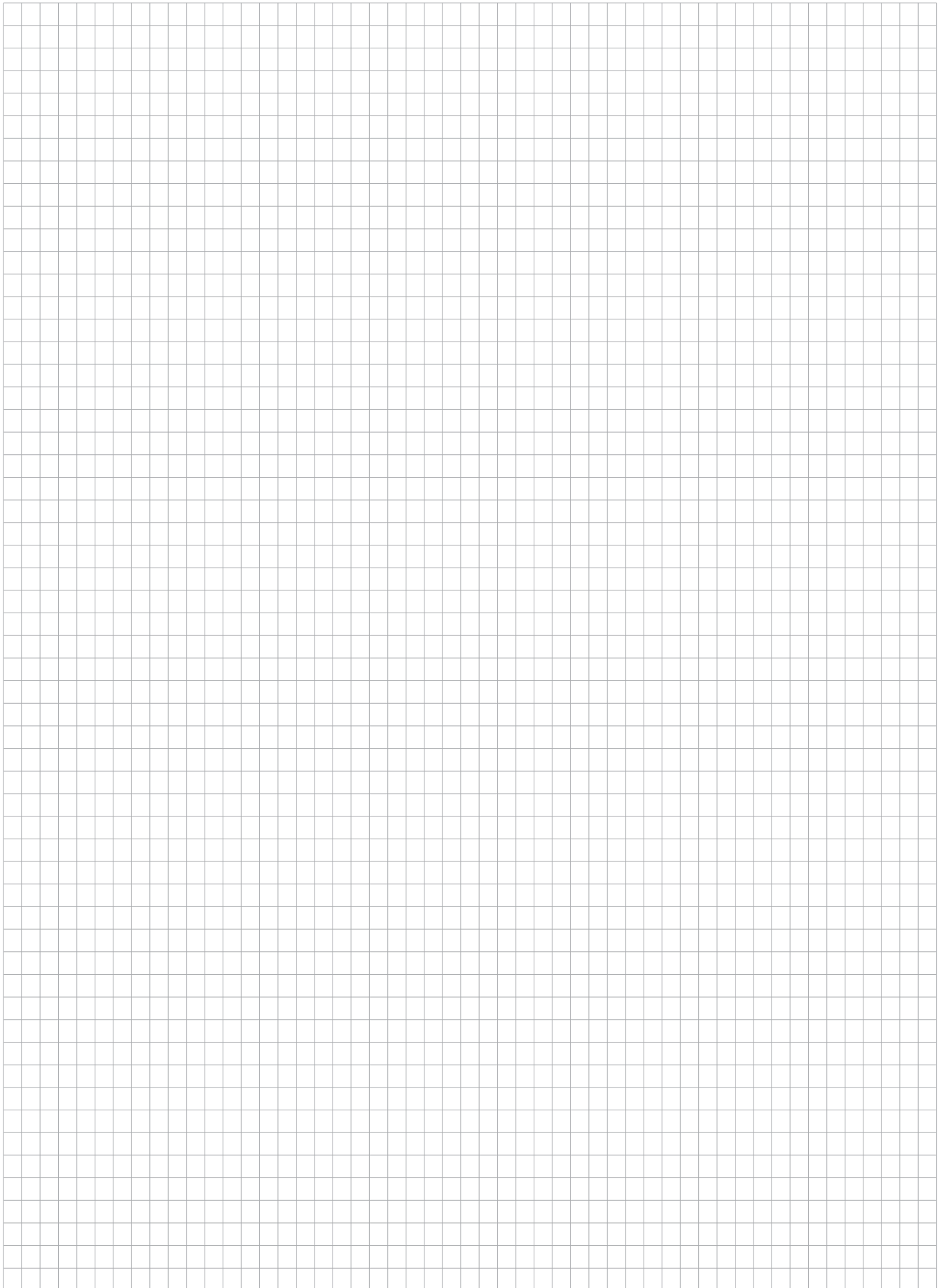
PROTEC DMDR 20/xxx	24	48	60	120
Dimensions DIN 43880	1TE			
Weight per unit	96g	96g	96g	96g
Packaging dimensions (single unit)	110 x 76.5 x 23.5mm			
Min. packaging quantity	12 pcs.			

Module PROTEC DMDR 20/xxx

Dimensions



Module PROTEC DMDR 20/xxx	24	48	60	120
Weight per unit	32g	32g	32g	32g
Packaging dimensions	221 x 64.5 x 48.5mm			
Min. packaging quantity	12 pcs.			



## Class I, II SPD for Photovoltaic Systems



<b>Category IEC / EN:</b>	<b>Class I, II / Type 1, 2</b>
<b>Location of use:</b>	<b>Photovoltaic systems - PV module side</b>
<b>Protection modes:</b>	<b>(+) → PE, (-) → PE, (+) → (-)</b>
<b>Protective element:</b>	<b>High energy MOV and GDT</b>
<b>Surge discharge rating:</b>	<b><math>I_{imp} = 12.5kA</math>; <math>I_{max}</math> up to 40kA</b>
<b>Safety:</b>	<b>Ground fault withstand</b>
<b>Internal protection:</b>	<b>Separate thermal disconnecter for each MOV</b>
<b>Complies with:</b>	<b>EN 50539-11:2013, UL 1449 3rd Ed.;</b>

The SAFETEC PV TCG\* series of surge protective devices (SPDs):

- Are highly reliable - controlled disconnection, arc-quenching
- Have no risk of fire in PV system - arc prevention function using rotating disc
- Patented current limiting circuit
- Have longer life - protection against aging
- Have up to 5 years warranty

SAFETEC B(R) PV TCG Series:  
SAFETEC B(R) 12.5/xxxx PV TCG  
SAFETEC B(R) 12.5/xxxx Y PV TCG

SAFETEC C(R) PV Series:  
SAFETEC C(R) xxxx PV  
SAFETEC C(R) xxxx Y PV

SAFETEC C(R) xxxx PV UL

PV PROTEC C(R) 40/xxxx

SAFETEC B(R) PV TCG series provides common and differential protection mode.

Patented TC(G) technology provides high level of reliability and safety in solar PV systems.

A unique indicator monitors all disconnectors and brings up a common status flag if any of current branches fails.

TC(G) technology enables high immunity in the case of ground faults in solar PV systems.

TC(G) technology means no leakage current.

Combination of GDT + MOV prevents intensive aging of components, thereby prolonging the SPDs life-span.

\*TCG - Thermal control function without leakage current  
TC - Thermal control function

**SAFETEC B(R) 12.5 PV TCG**


- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Photovoltaic systems - PV module side
- **Protection modes:** (+) → PE, (-) → PE, (+) → (-)
- **Protective elements:** High energy MOV and GDT
- **Surge discharge rating:**  $I_{imp} = 12.5kA$
- **Safety:** Patented current limiting function
- **Leakage current:** NO leakage current (TCG)
- **Housing:** Compact design
- **Complies with:** EN 50539-11:2013


**Technical data**

Type	SAFETEC B(R) 12.5/xxxx PV TCG			
	300	600	1000	
<b>● Electrical characteristics</b>				
Max. continuous operating voltage (DC)	<b>U<sub>CPV</sub></b>	300V	600V	1000V
Nominal discharge current (8/20)	<b>I<sub>n</sub></b> (+)→PE/(-)→PE		12.5kA	
Max. discharge current (8/20)	<b>I<sub>max</sub></b> (+)→PE/(-)→PE		40kA	
Impulse current (10/350)	<b>I<sub>imp</sub></b> (+)→PE/(-)→PE		12.5kA	
Total discharge current (10/350)	<b>I<sub>total</sub></b>		25kA	
Specific energy	<b>W/R</b>		39kJ/Ω	
Charge	<b>Q</b>		6.25As	
Short circuit current rating	<b>I<sub>SCPV</sub></b>		1000A	
Protection level	<b>U<sub>p</sub></b>	< 1.1kV	< 1.6kV	< 2.4kV
Residual voltage at 5kA (8/20)	<b>U<sub>res</sub></b>	< 0.8kV	< 1.4kV	< 2.1kV
Residual current	<b>I<sub>PE</sub></b>		NO	
Response time	<b>t<sub>A</sub></b>		< 25ns	
Thermal protection			YES	
Number of ports			1	
<b>● Mechanical characteristics</b>				
Temperature range	<b>T<sub>a</sub></b>	- 40°C .... + 70°C		
Permissible humidity	<b>RH</b>	5%...95%		
Terminal screw torque	<b>M<sub>max</sub></b>	3.0Nm		
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)		
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)		
Mounting		35mm DIN rail, EN 60715		
Degree of protection		IP 20		
Housing material		thermoplastic; extinguishing degree UL 94 V-0		
Indication of thermal disconnect operation		red flag		
Remote contacts (RC)		YES		
Contact ratings		AC: 250V/0.5A; 125V/3A		
Terminal cross section		max. 1.5mm <sup>2</sup>		
Remote terminal torque		0.25Nm		

**Ordering information**

U <sub>CPV</sub>	300	600	1000
Ordering code <b>SAFETEC B 12.5/xxxx PV TCG</b>	54.0096	54.0098	54.0102
Ordering code <b>SAFETEC BR 12.5/xxxx PV TCG (with remote contacts)</b>	54.0097	54.0099	54.0103

**SAFETEC B(R) 12.5 Y PV TCG**


- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Photovoltaic systems - PV module side
- **Protection modes:** (+) → PE, (-) → PE, (+) → (-)
- **Protective elements:** High energy MOV and GDT
- **Surge discharge rating:**  $I_{imp} = 12.5\text{kA}$
- **Safety:** Patented current limiting function
- **Leakage current:** NO leakage current (TCG)
- **Housing:** Compact design
- **Complies with:** EN 50539-11:2013


**Technical data**

Type		SAFETEC B(R) 12.5/xxxx Y PV TCG			
		600	1000	1200	1500
<b>● Electrical characteristics</b>		600V	1000V	1200V	1500V
Max. continuous operating voltage (DC)	<b><math>U_{CPV}</math></b>			12.5kA	
Nominal discharge current (8/20)	<b><math>I_n</math> (+)→PE/(-)→PE/(+)→(-)</b>			40kA	
Max. discharge current (8/20)	<b><math>I_{max}</math> (+)→PE/(-)→PE/(+)→(-)</b>			12.5kA	
Total discharge current (10/350)	<b><math>I_{total}</math></b>			25kA	
Specific energy	<b>W/R</b>			39kJ/Ω	
Charge	<b>Q</b>			6.25As	
Short circuit current rating	<b>ISCPV</b>			1000A	
Protection level	<b>Up</b>	< 1.8kV	< 3.0kV	< 3.6kV	< 4.2kV
Residual voltage at 5kA (8/20)	<b>Ures</b>	< 1.5kV	< 2.6kV	< 3.2kV	< 3.8kV
Residual current	<b>IPE</b>			NO	
Response time	<b>tA</b>			< 25ns	
Thermal protection				YES	
Number of ports				1	
<b>● Mechanical characteristics</b>					
Temperature range	<b>Ta</b>		- 40°C .... + 70°C		
Permissible humidity	<b>RH</b>		5%...95%		
Terminal screw torque	<b>Mmax</b>		3.0Nm		
Conductor cross section			35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)		
AWG conductor cross section			2 AWG (solid) / 3 AWG (stranded)		
Mounting			35mm DIN rail, EN 60715		
Degree of protection			IP 20		
Housing material			thermoplastic; extinguishing degree UL 94 V-0		
Indication of thermal disconnecter operation			red flag		
Remote contacts (RC)			YES		
Contact ratings			AC: 250V/0.5A; 125V/3A		
Terminal cross section			max. 1.5mm <sup>2</sup>		
Remote terminal torque			0.25Nm		

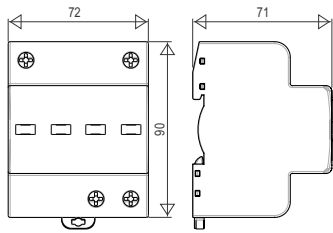
**Ordering information**

<b><math>U_{CPV}</math></b>	<b>600</b>	<b>1000</b>	<b>1200</b>	<b>1500</b>
Ordering code <b>SAFETEC B 12.5/xxxx Y PV TCG</b>	54.0100	54.0104	54.0106	54.0108
Ordering code <b>SAFETEC BR 12.5/xxxx Y PV TCG (with remote contacts)</b>	54.0101	54.0105	54.0107	54.0109

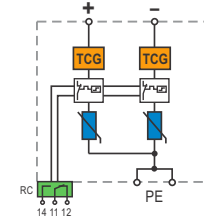
Dimensions, Internal configuration, Weight, Packaging, Connections

SAFETEC B(R) 12.5/xxxx PV TCG

Dimensions



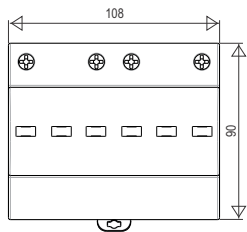
Internal configuration



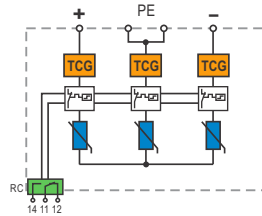
<b>SAFETEC B 12.5/xxxx PV TCG</b>	<b>300</b>	<b>600</b>	<b>1000</b>
Dimensions DIN 43880		4TE	
Weight per unit	440g	460g	800g
<b>SAFETEC BR 12.5/xxxx PV TCG</b>	<b>300</b>	<b>600</b>	<b>1000</b>
Dimensions DIN 43880		4TE	
Weight per unit	445g	465g	805g
Packaging dimensions (single unit)	109 x 76.5 x 80mm		
Min. Packaging quantity	3 pcs.		

SAFETEC B(R) 12.5/xxxx Y PV TCG

Dimensions

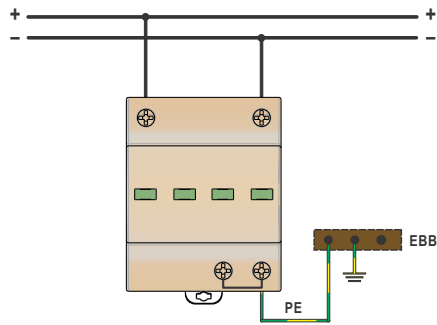


Internal configuration

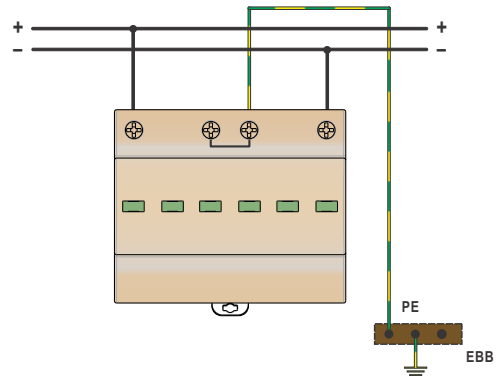


<b>SAFETEC B 12.5/xxxx Y PV TCG</b>	<b>600</b>	<b>1000</b>	<b>1200</b>	<b>1500</b>
Dimensions DIN 43880		6TE		
Weight per unit	590g	630g	1100g	1160g
<b>SAFETEC BR 12.5/xxxx Y PV TCG</b>	<b>600</b>	<b>1000</b>	<b>1200</b>	<b>1500</b>
Dimensions DIN 43880		6TE		
Weight per unit	600g	640g	1110g	1170g
Packaging dimensions (single unit)	109 x 76.5 x 114mm			
Min. Packaging quantity	2 pcs.			

SAFETEC B(R) 12.5/xxxx PV TCG



SAFETEC B(R) 12.5/xxxx Y PV TCG





**SAFETEC C(R) PV**


- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Photovoltaic systems - PV module side
- **Protection modes:** (+) → PE, (-) → PE, (+) → (-)
- **Protective elements:** MOV and GDT
- **Surge discharge rating:**  $I_{max}$  up to 40kA
- **Safety:** Patented current limiting function
- **Housing:** Modular design
- **Complies with:** EN 50539-11:2013


**Technical data**

Type		75	SAFETEC C(R) xxxx PV		1000
			300	600	
<b>● Electrical characteristics</b>					
Max. continuous operating voltage (DC)	$U_{CPV}$ (+) @ PE/(-) @ PE	75V	300V	600V	1000V
Nominal discharge current (8/20)	$I_n$ (+) @ PE/(-) @ PE	10kA	20kA	20kA	12.5kA
Max. discharge current (8/20)	$I_{max}$ (+) @ PE/(-) @ PE	20kA	40kA	40kA	25kA
Short-circuit current rating	$I_{SCP}$			1000A	
Protection level	$U_p$ (+) @ PE/(-) @ PE	< 0.8kV	< 1.5kV	< 2.3kV	< 2.8kV
Residual voltage at 5kA (8/20)	$U_{res}$	< 0.6kV	< 1.1kV	< 1.6kV	< 2.2kV
Response time	$t_A$			< 25ns	
Thermal protection				YES	
Number of ports				1	
<b>● Mechanical characteristics</b>					
Temperature range	$T_a$		- 40°C .... + 70°C		
Permissible humidity	RH		5%...95%		
Terminal screw torque	$M_{max}$		3.0Nm		
Conductor cross section			35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)		
AWG conductor cross section			2 AWG (solid) / 3 AWG (stranded)		
Mounting			35mm DIN rail, EN 60715		
Degree of protection			IP 20		
Housing material			thermoplastic; extinguishing degree UL 94 V-0		
Indication of thermal disconnecter operation			red flag		
Remote contacts (RC)			YES		
Contact ratings			AC: 250V/0.5A; 125V/3A		
Terminal cross section			max. 1.5mm <sup>2</sup>		
Remote terminal torque			0.25Nm		

**Ordering information**

$U_{CPV}$	75	300	600	1000
Ordering code <b>SAFETEC C xxxx PV</b>	516.040	516.042	516.044	516.046
Ordering code <b>SAFETEC CR xxxx PV (with remote contacts)</b>	516.041	516.043	516.045	516.047
Ordering code <b>Module SAFETEC C(R) xxxx PV</b>	516.050	516.051	516.052	516.053

**SAFETEC C(R) Y PV**


- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Photovoltaic systems - PV module side
- **Protection modes:** (+) → PE, (-) → PE, (+) → (-)
- **Protective elements:** MOV and GDT
- **Surge discharge rating:**  $I_{max}$  up to 40kA
- **Safety:** Patented current limiting function
- **Housing:** Modular design
- **Complies with:** EN 50539-11:2013


**Technical data**

Type	SAFETEC C(R) xxxxY PV			
	1000	1200	1500	
<b>● Electrical characteristics</b>				
Max. continuous operating voltage (DC)	$U_{CPV}^*$ (+)→PE/(-)→PE	1000V	1200V	1500V
	$U_{CPV}$ per module	500V	600V	750V
Nominal discharge current (8/20)	$I_n$ (+)→PE/(-)→PE/(+)→(-)	20kA	20kA	12.5kA
Max. discharge current (8/20)	$I_{max}$ (+)→PE/(-)→PE/(+)→(-)	40kA	40kA	25kA
Short-circuit current rating	$I_{SCP}$	1000A		
Protection level	$U_p$ (+)→PE/(-)→PE/(+)→(-)	< 4.2kV	< 4.6kV	< 5.0kV
Residual voltage at 5kA (8/20)	$U_{res}$	< 3.2kV	< 3.6kV	< 4.0kV
Response time	$t_A$	< 25ns		
Thermal protection		YES		
Number of ports		1		
<b>● Mechanical characteristics</b>				
Temperature range	$T_a$	- 40°C .... + 70°C		
Permissible humidity	RH	5%...95%		
Terminal screw torque	$M_{max}$	3.0Nm		
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)		
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)		
Mounting		35mm DIN rail, EN 60715		
Degree of protection		IP 20		
Housing material		thermoplastic; extinguishing degree UL 94 V-0		
Indication of disconnecter operation		red flag		
Remote contacts (RC)		YES		
Contact ratings		AC: 250V/0.5A; 125V/3A		
Terminal cross section		max. 1.5mm <sup>2</sup>		
Remote terminal torque		0.25Nm		

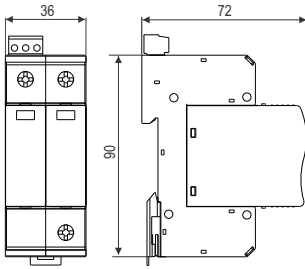
**Ordering information**

$U_{CPV}$	1000	1200	1500
Ordering code <b>SAFETEC C xxxx Y PV</b>	516.242	516.048	516.271
Ordering code <b>SAFETEC CR xxxx Y PV</b> (with remote contacts)	516.243	516.049	516.272
Ordering code <b>Module SAFETEC C(R) xxxx Y PV</b>	516.244	516.054	516.273

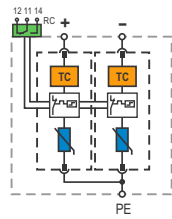
Dimensions, Internal configuration, Weight and Packaging

**SAFETEC C(R) xxxx PV**

**Dimensions**



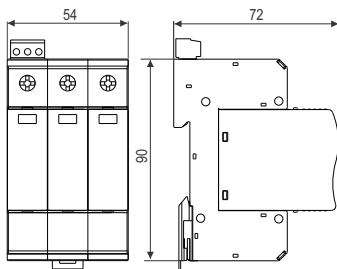
**Internal configuration**



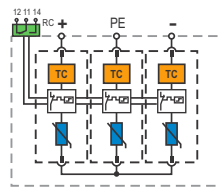
SAFETEC C xxxx PV	75	300	600	1000
Dimensions DIN 43880	2TE			
Weight per unit	246g	280g	290g	299g
SAFETEC CR xxxx PV	75	300	600	1000
Dimensions DIN 43880	2TE			
Weight per unit	251g	288g	298g	307g
Packaging dimensions (single unit)	109 x 76.5 x 41.5mm			
Min. packaging quantity	7 pcs.			

**SAFETEC C(R) xxxx Y PV**

**Dimensions**



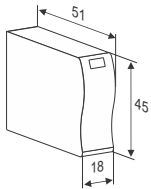
**Internal configuration**



SAFETEC C xxxx Y PV	1000	1200	1500
Dimensions DIN 43880	3TE		
Weight per unit	396g	390g	400g
SAFETEC CR xxxx Y PV	1000	1200	1500
Dimensions DIN 43880	3TE		
Weight per unit	402g	396g	406g
Packaging dimensions (single unit)	109 x 76.5 x 61.5mm		
Min. packaging quantity	5 pcs.		

**Module SAFETEC C(R) xxxx PV**

**Dimensions**



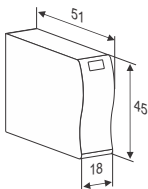
**Internal configuration**



Module SAFETEC C(R) xxxx PV	75	300	600	1000
Weight per unit	45g	68g	74g	78g
Packaging dimensions	221 x 64.5 x 48.5mm			
Min. packaging quantity	12 pcs.			

**Module SAFETEC C(R) xxxx Y PV**

**Dimensions**



**Internal configuration**

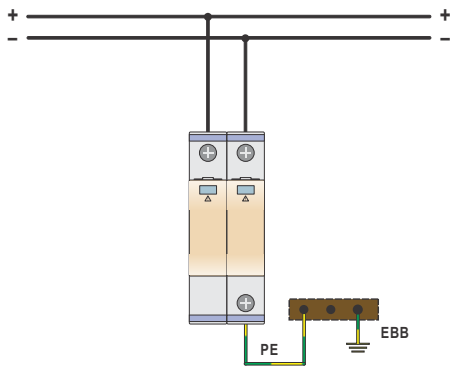


Module SAFETEC C(R) xxxx Y PV	1000	1200	1500
Weight per unit	74g	74g	76g
Packaging dimensions	221 x 64.5 x 48.5mm		
Min. packaging quantity	12 pcs.		

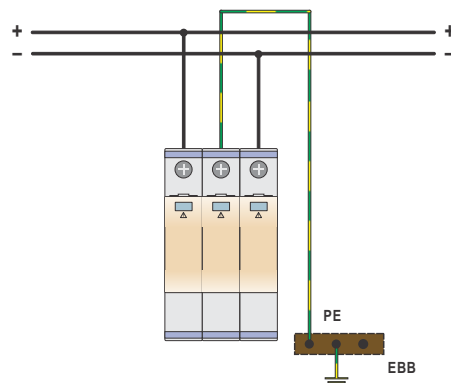
SAFETEC C(R) PV Series

Network Connections

SAFETEC C(R) xxxx PV



SAFETEC C(R) xxxx Y PV



SAFETEC C(R) PV (2+0) UL



- Classification UL 1449 3rd ed.: Type 4 / For use in SPD Type 2
- Location of use: Photovoltaic systems - PV module side
- Protection modes: (+) → PE (G), (-) → PE (G), (+) → (-)
- Protective elements: MOV and GDT
- Surge discharge rating:  $I_{max}$  up to 50kA
- Safety: Patented current limiting function
- Housing: Modular design
- Complies with: UL 1449 3rd Ed.

Technical data



Type	SAFETEC C(R) xxxx PV (2+0) UL		
	300	600	1000

● Electrical characteristics

Max. continuous operating voltage (DC)	<b>MCOV</b>	300V	600V	1000V
Nominal discharge current (8/20) per mode of protection	<b>In</b>	20kA	20kA	10kA
Max. discharge current (8/20) per mode of protection	<b>I<sub>max</sub></b>	50kA	50kA	20kA
Voltage protection rating per UL 1449 3rd ed.	<b>VPR</b>	1.5kV	2.0kV	4.0kV
Short circuit current rating	<b>SCCR</b>		200kA	
Response time	<b>tA</b>		< 25ns	
Thermal protection			YES	
Number of ports			1	

● Mechanical characteristics

Temperature range	<b>Ta</b>	- 40°C .... + 85°C		
Permissible humidity	<b>RH</b>	5%...95%		
Terminal screw torque	<b>M<sub>max</sub></b>	3.0Nm		
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)		
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)		
Mounting		35mm DIN rail, EN 60715		
Degree of protection		IP 20		
Housing material		thermoplastic; extinguishing degree UL 94 V-0		
Indication of thermal disconnecter operation		red flag		
Remote contacts (RC)		YES		
Contact ratings		AC: 250V/0.5A; 125V/3A		
Terminal cross section		max. 1.5mm <sup>2</sup>		
Remote terminal torque		0.25Nm		

Ordering information

MCOV	300	600	1000
Ordering code SAFETEC C xxxx PV (2+0) UL	516.105	516.107	516.199
Ordering code SAFETEC CR xxxx PV (2+0) UL (with remote contacts)	516.106	516.108	516.200
Ordering code Module SAFETEC C(R) xxxx PV UL	516.207	516.208	516.209

SAFETEC C(R) PV (3+0) UL



- Classification UL 1449 3rd ed.: Type 4 / For use in SPD Type 2
- Location of use: Photovoltaic systems - PV module side
- Protection modes: (+) → PE (G), (-) → PE (G), (+) → (-)
- Protective elements: MOV and GDT
- Surge discharge rating:  $I_{max}$  up to 50kA
- Safety: Ground fault withstand
- Housing: Modular design
- Complies with: UL 1449 3rd Ed.

Technical data



Type	SAFETEC C(R) xxxx PV (3+0) UL	
	1000	1200

● Electrical characteristics

		1000V	1200V
Max. continuous operating voltage (DC)	MCOV		
Nominal discharge current (8/20) per mode of protection	$I_n$		20kA
Max. discharge current (8/20) per mode of protection	$I_{max}$		50kA
Voltage protection rating per UL 1449 3rd ed.	VPR		4.0kV
Short circuit current rating	SCCR		200kA
Response time	tA		< 25ns
Thermal protection			YES
Number of ports			1

● Mechanical characteristics

Temperature range	Ta	- 40°C .... + 85°C	
Permissible humidity	RH	5%...95%	
Terminal screw torque	Mmax	3.0Nm	
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)	
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)	
Mounting		35mm DIN rail, EN 60715	
Degree of protection		IP 20	
Housing material		thermoplastic; extinguishing degree UL 94 V-0	
Indication of thermal disconnecter operation		red flag	
Remote contacts (RC)		YES	
Contact ratings		AC: 250V/0.5A; 125V/3A	
Terminal cross section		max. 1.5mm <sup>2</sup>	
Remote terminal torque		0.25Nm	

Ordering information

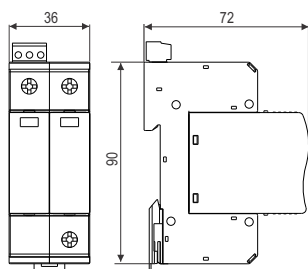
MCOV	1000	1200
Ordering code SAFETEC C xxxx PV (3+0) UL	516.600	516.109
Ordering code SAFETEC CR xxxx PV (3+0) UL (with remote contacts)	516.596	516.110
Ordering code Module SAFETEC C(R) xxxx PV UL	516.604	516.210



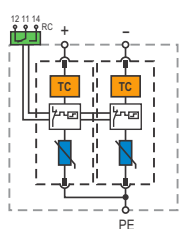
Dimensions, Internal configuration, Weight and Packaging

SAFETEC C(R) xxxx PV (2+0) UL

Dimensions



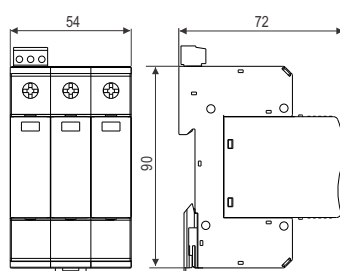
Internal configuration



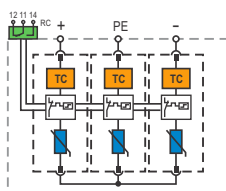
<b>SAFETEC C xxxx PV (2+0) UL</b>	<b>300</b>	<b>600</b>	<b>1000</b>
Dimensions DIN 43880	2TE		
Weight per unit	280g	290g	299g
<b>SAFETEC CR xxxx PV (2+0) UL</b>	<b>300</b>	<b>600</b>	<b>1000</b>
Dimensions DIN 43880	2TE		
Weight per unit	288g	298g	307g
Packaging dimensions (single unit)	109 x 76.5 x 41.5mm		
Min. packaging quantity	7 pcs.		

SAFETEC C(R) xxxx PV (3+0) UL

Dimensions



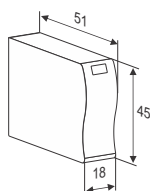
Internal configuration



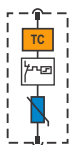
<b>SAFETEC C xxxx PV (3+0) UL</b>	<b>1000</b>	<b>1200</b>
Dimensions DIN 43880	3TE	
Weight per unit	396g	390g
<b>SAFETEC CR xxxx PV (3+0) UL</b>	<b>1000</b>	<b>1200</b>
Dimensions DIN 43880	3TE	
Weight per unit	402g	392g
Packaging dimensions (single unit)	109 x 76.5 x 61.5mm	
Min. packaging quantity	5 pcs.	

Module SAFETEC C(R) xxxx PV UL

Dimensions



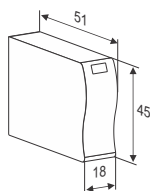
Internal configuration



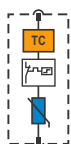
<b>Module SAFETEC C(R) xxxx PV UL</b>	<b>1000</b>	<b>1200</b>
Weight per unit	74g	74g
Packaging dimensions	221 x 64.5 x 48.5mm	
Min. packaging quantity	12 pcs.	

Module SAFETEC C(R) xxxx PV UL

Dimensions



Internal configuration

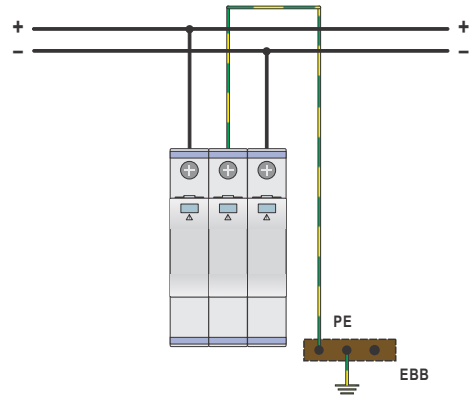
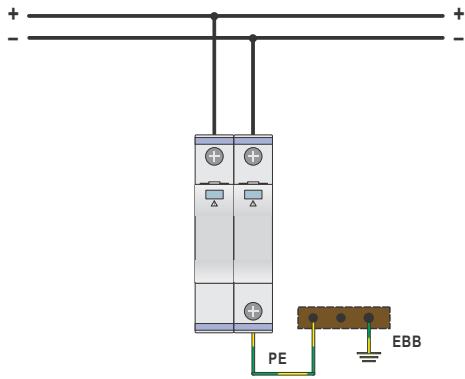


<b>Module SAFETEC C(R) xxxx PV UL</b>	<b>300</b>	<b>600</b>	<b>1000</b>
Weight per unit	68g	74g	78g
Packaging dimensions	221 x 64,5 x 48.5mm		
Min. packaging quantity	12 pcs.		



SAFETEC C(R) 300 - 1000 PV (2+0) UL

SAFETEC C(R) 1000 - 1200 PV (3+0) UL





**PV PROTEC C(R) 40**


- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Photovoltaic systems - PV module side
- **Protection modes:** (+) → PE, (-) → PE, (+) → (-)
- **Protective element:** MOV
- **Surge discharge rating:**  $I_{max} = 40kA$
- **Housing:** Modular design
- **Complies with:** EN 50539-11:2013


**Technical data**

Type	PV PROTEC C(R) 40/xxxx	
	100	550

**● Electrical characteristics**

Max. continuous operating voltage (DC)	$U_{CPV}$ (+)→PE/(-)→PE	100V	550V
	$U_{CPV}$ per module	100V	550V
Nominal discharge current (8/20)	$I_n$	20kA per pole	
Max. discharge current (8/20)	$I_{max}$	40kA per pole	
Short-circuit current rating	$I_{SCP}$	<100A	
Protection level	$U_p$	< 0.7kV	< 1.9kV
Residual voltage at 5kA (8/20)	$U_{res}$	< 0.4kV	< 1.6kV
Response time	$t_A$	< 25ns	
Thermal protection		YES	
Number of ports		1	

**● Mechanical characteristics**

Temperature range	$T_a$	- 40°C .... + 70°C	
Permissible humidity	$RH$	5% - 95%	
Terminal screw torque	$M_{max}$	3.0Nm	
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)	
AWG conductor cross section		2 (solid) / 3 (stranded)	
Mounting		35mm DIN rail, EN 60715	
Degree of protection		IP 20	
Housing material		thermoplastic; extinguishing degree UL 94 V-0	
Indication of thermal disconnecter operation		red flag	
Remote contacts (RC)		YES	
Contact ratings		AC: 250V/0.5A; 125V/3A	
Terminal cross section		max. 1.5mm <sup>2</sup>	
Remote terminal torque		0.25Nm	

**Ordering information**

$U_{CPV}$	100	550
Ordering code PV PROTEC C 40/xxxx	501.521	501.527
Ordering code PV PROTEC CR 40/xxxx (with remote contacts)	501.531	501.537
Ordering code Module PV PROTEC C(R) 40/xxxx	50.0496	50.0497

**PV PROTEC C(R) 40**


- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Photovoltaic systems - PV module side
- **Protection modes:** (+) → PE, (-) → PE, (+) → (-)
- **Protective element:** MOV
- **Surge discharge rating:**  $I_{max} = 40kA$
- **Housing:** Modular design
- **Complies with:** EN 50539-11:2013


**Technical data**

Type	PV PROTEC C(R) 40/xxxx	
	600	1000

**Electrical characteristics**

Max. continuous operating voltage (DC)	$U_{CPV}$ (+)→PE/(-)→PE	600V	1000V
	$U_{CPV}$ per module	300V	500V
Nominal discharge current (8/20)	$I_n$	20kA per pole	
Max. discharge current (8/20)	$I_{max}$	40kA per pole	
Protection level	$U_p$	< 3.0kV	< 3.6kV
Residual voltage at 5kA (8/20)	$I_{SCPV}$	< 2.2kV	< 3.0kV
Short-circuit current rating	$U_{res}$	100A	
Response time	$t_A$	< 25ns	
Thermal protection		YES	
Number of ports		1	

**Mechanical characteristics**

Temperature range	$T_a$	- 40°C .... + 70°C	
Permissible humidity	RH	5%...95%	
Terminal screw torque	$M_{max}$	max. 3.0Nm	
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)	
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)	
Altitude		2.000m	
Mounting		35mm DIN rail, EN 60715	
Degree of protection		IP 20	
Housing material		thermoplastic; extinguishing degree UL 94 V-0	
Indication of disconnecter operation		red flag	
Remote contacts (RC)		YES	
Contact ratings		AC: 250V/0.5A; 125V/3A	
Terminal cross section		max. 1.5mm <sup>2</sup>	
Remote terminal torque		0.25Nm	

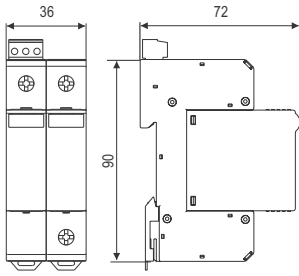
**Ordering information**

$U_{CPV}$	600	1000
Ordering code PV PROTEC C 40/xxxx	501.709	501.543
Ordering code PV PROTEC CR 40/xxxx (with remote contacts)	501.710	501.547
Ordering code Module PV PROTEC C(R) 40/xxxx	501.711	50.0498

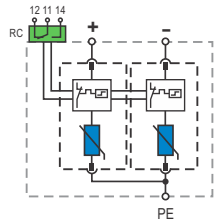
Dimensions, Internal configuration, Weight, Packaging

PV PROTEC C(R) 40/xxxx

Dimensions

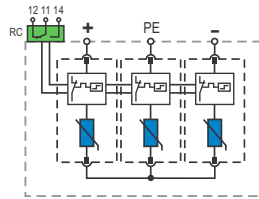
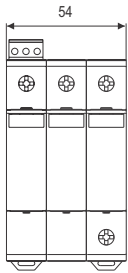


Internal configuration



Dimensions, weight and packaging

<b>PV PROTEC C 40/xxx</b>	<b>100</b>	<b>550</b>
Dimensions DIN 43880	2TE	
Weight per unit	274g	302g
<b>PV PROTEC CR 40/xxx</b>	<b>100</b>	<b>550</b>
Dimensions DIN 43880	2TE	
Weight per unit	279g	307g
Packaging dimensions (single unit)	109 x 76.5 x 41.5mm	
Min. packaging quantity	7 pcs.	

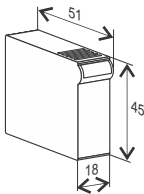


Dimensions, weight and packaging

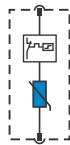
<b>PV PROTEC C 40/xxxx</b>	<b>600</b>	<b>1000</b>
Dimensions DIN 43880	3TE	
Weight per unit	329g	398g
<b>PV PROTEC CR 40/xxxx</b>	<b>600</b>	<b>1000</b>
Dimensions DIN 43880	3TE	
Weight per unit	334g	403g
Packaging dimensions (single unit)	109 x 76.5 x 61.5mm	
Min. packaging quantity	5 pcs.	

Module PV PROTEC C(R) 40/xxxx

Dimensions



Internal configuration

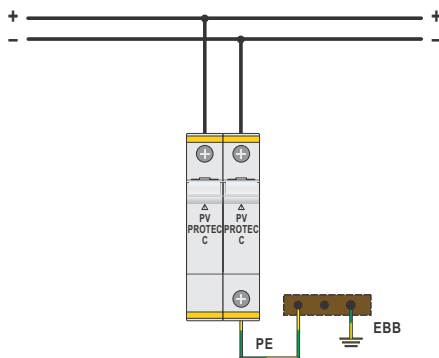


Dimensions, weight and packaging

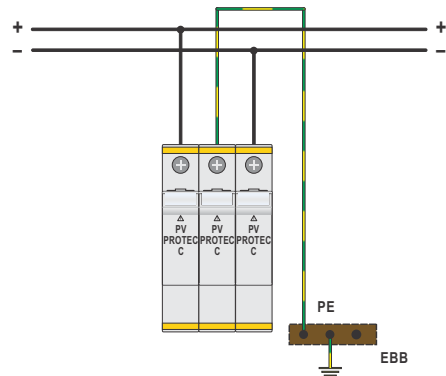
<b>Module PV PROTEC C(R) 40/xxxx</b>	<b>100</b>	<b>550</b>	<b>600</b>	<b>1000</b>
Weight per unit	46g	58g	52g	58g
Packaging dimensions	221 x 64.5 x 48.5mm			
Min. packaging quantity	12 pcs.			

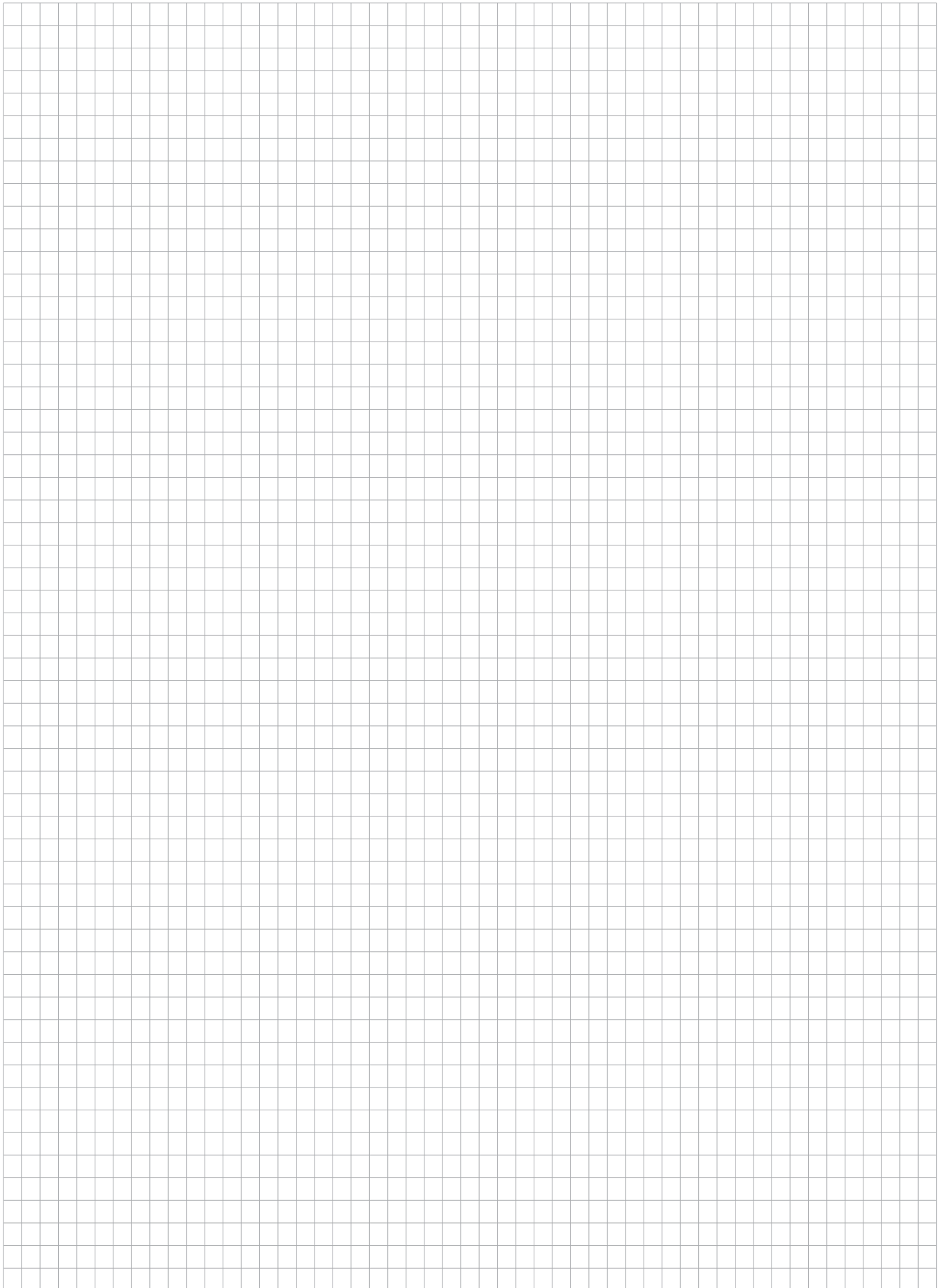
Network connections

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



PV PROTEC C(R) 40/600, 40/1000





## Class I, II SPD for Wind Systems



Category IEC / EN:	Class I, II / Type 1, 2
Location of use:	Main distribution boards
Protection modes:	L/N-PE, L-PEN
Protective elements:	High energy MOV and GDT
Surge discharge ratings:	I <sub>imp</sub> up to 25kA
Safety:	TOV withstand for unlimited time
Internal protection:	Separate thermal disconnecter for each MOV
Complies with:	IEC 61643-11:2011, EN 61643-11:2012, UL 1449 4th Ed.;

The SAFETEC B(R) WT TCG\* of surge protective devices (SPDs):

- Are highly reliable - controlled disconnection, arc-quenching
- Patented current limiting circuit
- Have longer life - protection against aging
- Have up to 5 years warranty

SAFETEC B(R) WT TCG Series:  
SAFETEC B(R) 12.5/xxx WT TCG  
SAFETEC B(R) 25/xxx WT TCG

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

SAFETEC C(R) xxx (3+0) WT UL

SAFETEC B(R) WT TCG series provides common and differential protection mode.

Patented TC(G) technology provides high level of reliability and safety in Wind Systems.

A unique indicator monitors all disconnectors and brings up a common status flag if any of current branches fails.

TC(G) technology means no leakage current.

Combination of GDT + MOV prevents intensive aging of components thereby prolonging the SPDs life-span.

\*TCG - Thermal control function without leakage current  
TC - Thermal control function

**SAFETEC B(R) 12.5 WT TCG**



- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Main distribution boards
- **Network systems:** TN-S, TN-C, IT, TT (only L-N)
- **Protection modes:** L/N - PE, L- PEN, L-N
- **Protective elements:** High energy MOV and GDT
- **Surge discharge rating:**  $I_{imp} = 12.5kA$
- **Safety:** TOV withstand
- **Leakage current:** NO leakage current (TCG)
- **Housing:** Compact design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



**Technical data**

Type	SAFETEC B(R) 12.5/xxx WT TCG	
	440	750

● **Electrical characteristics**

Nominal AC voltage	$U_o$	400V 50/60Hz	690V 50/60Hz
Max. continuous operating voltage (AC/DC)	$U_c$	440/580V	750/1000V
Nominal discharge current (8/20)	$I_n$		12.5kA
Max. discharge current (8/20)	$I_{max}$		40kA
Impulse current (10/350)	$I_{imp}$		12.5kA
Total discharge current (10/350)	$I_{total}$		12.5kA
Specific energy	$W/R$		39kJ/Ω
Charge	$Q$		6.25As
Protection level	$U_p$	< 1.6kV	< 2.4kV
Residual voltage at 5kA (8/20)	$U_{res}$	< 1.4kV	< 2.1kV
Follow current	$I_{fj}$		NO
Response time	$t_A$		< 25ns
Thermal protection			YES
Back-up fuse (if mains > 160A)			160A gG/gL
Short-circuit current rating	$I_{SCCR}$		25kA/50Hz
TOV withstand 5s	$U_T$	580V	1000V
TOV withstand 120min	$U_T$	765V	1320V
Number of ports			1

● **Mechanical characteristics**

Temperature range	$T_a$	- 40°C .... + 70°C	
Permissible humidity	$RH$	5%...95%	
Terminal screw torque	$M_{max}$	3.0Nm	
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)	
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)	
Mounting		35mm DIN rail, EN 60715	
Degree of protection		IP 20	
Housing material		thermoplastic; extinguishing degree UL 94 V-0	
Indication of thermal disconnecter operation		red flag	
Remote contacts (RC)		YES	
Contact ratings		AC: 250V/0.5A; 125V/3A	
Terminal cross section		max. 1.5mm <sup>2</sup>	
Remote terminal torque		0.25Nm	

**Ordering information**

$U_c$	440	750
Ordering code SAFETEC B 12.5/xxx WT TCG	54.0320	54.0078
Ordering code SAFETEC BR 12.5/xxx WT TCG (with remote contacts)	54.0321	54.0079

TC solution available on request

**SAFETEC B(R) 25 WT TCG**



- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** Main distribution boards
- **Network systems:** TN-S, TN-C, IT, TT (only L-N)
- **Protection modes:** L/N - PE, L- PEN, L-N
- **Protective elements:** High energy MOV and GDT
- **Surge discharge rating:**  $I_{imp} = 25kA$
- **Safety:** TOV withstand
- **Leakage current:** NO leakage current (TCG)
- **Housing:** Compact design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



**Technical data**

Type	SAFETEC B(R) 25/xxx WT TCG	
	440	750

● **Electrical characteristics**

Nominal AC voltage	<b>U<sub>o</sub></b>	400V 50/60Hz	690V 50/60Hz
Max. continuous operating voltage (AC/DC)	<b>U<sub>c</sub></b>	440/580V	750/1000V
Nominal discharge current (8/20)	<b>I<sub>n</sub></b>		25kA
Max. discharge current (8/20)	<b>I<sub>max</sub></b>		80kA
Impulse current (10/350)	<b>I<sub>imp</sub></b>		25kA
Total discharge current (10/350)	<b>I<sub>total</sub></b>		25kA
Specific energy	<b>W/R</b>		156kJ/Ω
Charge	<b>Q</b>		12.5As
Protection level	<b>U<sub>p</sub></b>	< 1.9kV	< 2.5kV
Residual voltage at 5kA (8/20)	<b>U<sub>res</sub></b>	< 1.4kV	< 2.1kV
Follow current	<b>I<sub>fi</sub></b>		NO
Response time	<b>t<sub>A</sub></b>		< 25ns
Thermal protection			YES
Back-up fuse (if mains > 250A)			250A gG/gL
Short-circuit current rating	<b>I<sub>scCR</sub></b>		25kA/50Hz
TOV withstand 5s	<b>U<sub>T</sub></b>	580V	1000V
TOV withstand 120min	<b>U<sub>T</sub></b>	765V	1320V
Number of ports			1

● **Mechanical characteristics**

Temperature range	<b>T<sub>a</sub></b>	- 40°C .... + 70°C	
Permissible humidity	<b>RH</b>	5%...95%	
Terminal screw torque	<b>M<sub>max</sub></b>	3.0Nm	
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)	
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)	
Mounting		35mm DIN rail, EN 60715	
Degree of protection		IP 20	
Housing material		thermoplastic; extinguishing degree UL 94 V-0	
Indication of thermal disconnecter operation		red flag	
Remote contacts (RC)		YES	
Contact ratings		AC: 250V/0.5A; 125V/3A	
Terminal cross section		max. 1.5mm <sup>2</sup>	
Remote terminal torque		0.25Nm	

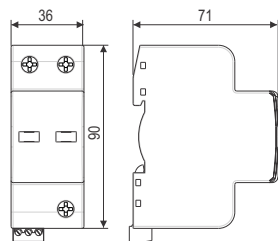
**Ordering information**

<b>U<sub>c</sub></b>	<b>440</b>	<b>750</b>
Ordering code <b>SAFETEC B 25/xxx WT TCG</b>	<b>54.0322</b>	<b>54.0080</b>
Ordering code <b>SAFETEC BR 25/xxx WT TCG (with remote contacts)</b>	<b>54.0323</b>	<b>54.0081</b>

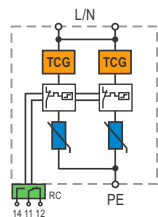
Dimensions, Internal configuration, Weight, Packaging

SAFETEC B(R) 12.5/xxx WT TCG

Dimensions



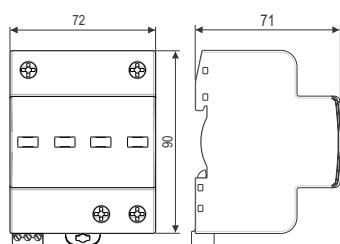
Internal configuration



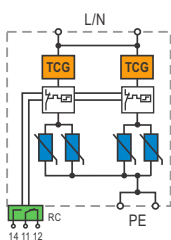
<b>SAFETEC B 12.5/xxx WT TCG</b>	<b>440</b>	<b>750</b>
Dimensions DIN 43880	2TE	
Weight per unit	371g	400g
<b>SAFETEC BR 12.5/xxx WT TCG</b>	<b>440</b>	<b>750</b>
Dimensions DIN 43880	2TE	
Weight per unit	376g	405g
Packaging dimensions (single unit)	109 x 76.5 x 41.5mm	
Min. packaging quantity	7 pcs.	

SAFETEC B(R) 25/xxx WT TCG

Dimensions



Internal configuration

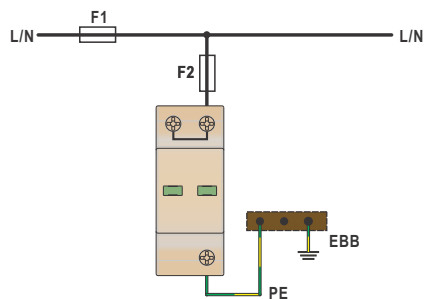


<b>SAFETEC B 25/xxx WT TCG</b>	<b>440</b>	<b>750</b>
Dimensions DIN 43880	4TE	
Weight per unit	692g	800g
<b>SAFETEC BR 25/xxx WT TCG</b>	<b>440</b>	<b>750</b>
Dimensions DIN 43880	4TE	
Weight per unit	697g	805g
Packaging dimensions (single unit)	109 x 76.5 x 80mm	
Min. packaging quantity	3 pcs.	

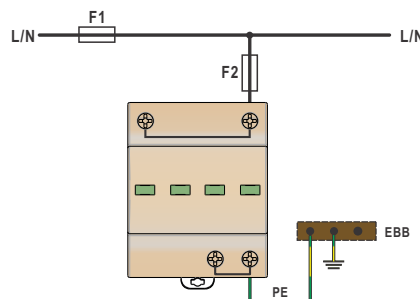
Network connections

T connection

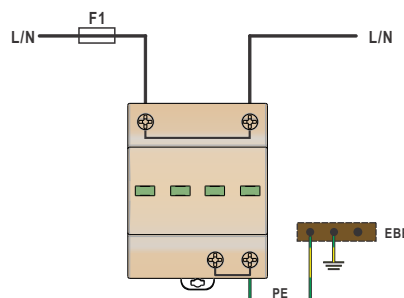
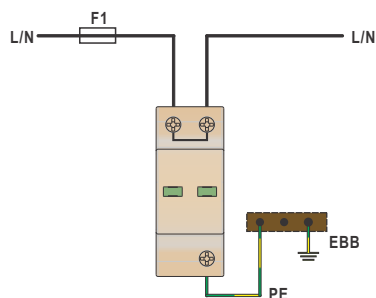
SAFETEC B(R) 12.5 WT TCG



SAFETEC B(R) 25 WT TCG



V connection

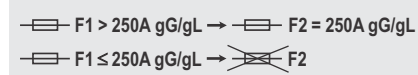


Back-up fuse

SAFETEC B(R) 12.5 WT TCG



SAFETEC B(R) 25 WT TCG





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



- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Sub-distribution boards
- **Network system:** TN-C
- **Protection modes:** L - PEN
- **Protective elements:** MOV and GDT
- **Surge discharge rating:**  $I_{max}$  up to 40kA
- **Safety:** TOV withstand
- **Housing:** Modular design
- **Complies with:** IEC 61643-11:2011  
EN 61643-11:2012;



**Technical data**

Type	SAFETEC C(R) xxx (3+0) WT			
	440	750	880	
<b>● Electrical characteristics</b>				
Nominal AC voltage	$U_o$	400V 50/60Hz	690V 50/60Hz	
Max. continuous operating voltage (AC/DC)	$U_c$	440/580V	750/1000V	880/1170V
Nominal discharge current (8/20)	$I_n$ (L-PEN)	20kA per pole	12.5kA per pole	
Max. discharge current (8/20)	$I_{max}$ (L-PEN)	40kA per pole	25kA per pole	
Protection level	$U_p$	< 2.3kV	< 2.8kV	< 3.0kV
Residual voltage at 5kA (8/20)	$U_{res}$	< 1.6kV	< 2.2kV	< 2.6kV
Follow current	$I_{fj}$	NO		
Response time	$t_A$	< 25ns		
Thermal protection		YES		
Back-up fuse (if mains > 125A)		125A gG/gL		
Short-circuit current rating	$I_{SCCR}$	25kA/50Hz		
TOV withstand 5s	$U_T$	580V	700V	1000V
TOV withstand 120min	$U_T$	765V	915V	1320V
Number of ports		1		
<b>● Mechanical characteristics</b>				
Temperature range	$T_a$	- 40°C .... + 70°C		
Permissible humidity	$RH$	5%...95%		
Terminal screw torque	$M_{max}$	3.0Nm		
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)		
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)		
Mounting		35mm DIN rail, EN 60715		
Degree of protection		IP 20		
Housing material		thermoplastic; extinguishing degree UL 94 V-0		
Indication of thermal disconnecter operation		red flag		
Remote contacts (RC)		YES		
Contact ratings		AC: 250V/0.5A; 125V/3A		
Terminal cross section		max. 1.5mm <sup>2</sup>		
Remote terminal torque		0.25Nm		

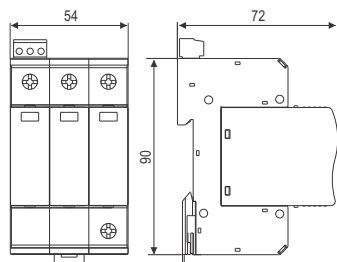
**Ordering information**

$U_c$	440	750	880
Ordering code <b>SAFETEC C xxx (3+0) WT</b>	516.652	516.055	516.369
Ordering code <b>SAFETEC CR xxx (3+0) WT (with remote contacts)</b>	516.653	516.056	516.370
Ordering code <b>Module SAFETEC C(R) xxx WT</b>	516.654	516.057	516.371

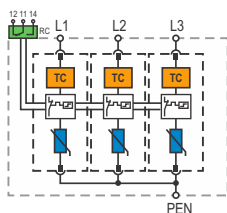
Dimensions, Internal configuration, Weight, Packaging

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

Dimensions



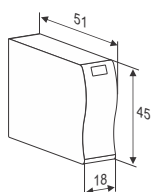
Internal configuration



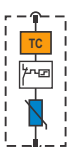
SAFETEC C xxx (3+0) WT	440	750	880
Dimensions DIN 43880		3TE	
Weight per unit	397g	364g	364g
SAFETEC CR xxx (3+0) WT	440	750	880
Dimensions DIN 43880		3TE	
Weight per unit	402g	369g	369g
Packaging dimensions (single unit)	109 x 76.5 x 61.5mm		
Min. packaging quantity	5 pcs.		

Module SAFETEC C(R) xxx WT

Dimensions



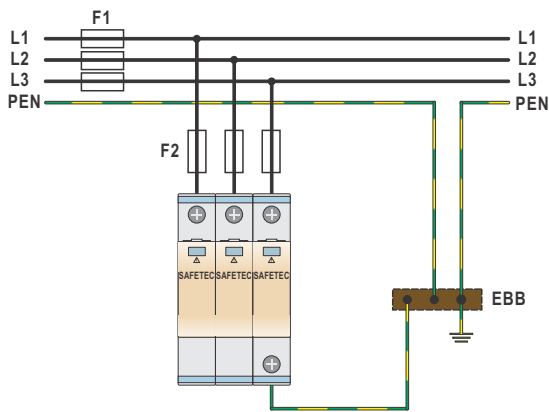
Internal configuration



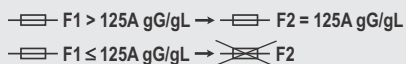
Module SAFETEC C(R) xxx WT	440	750	880
Weight per unit	74g	78g	78g
Packaging dimensions	221 x 64.5 x 48.5mm		
Min. packaging quantity	12 pcs.		

Network connections

SAFETEC C(R) (3+0) WT



Back-up fuse  
SAFETEC C(R) (3+0) WT





## SAFETEC C(R) WT UL



- **Classification UL 1449 4th Ed.:** Type 2 Surge Protective Device
- **Location of use:** Sub-distribution boards
- **Protection modes:** L - PEN (G)
- **Protective elements:** MOV and GDT
- **Surge discharge rating:**  $I_{max}$  up to 50kA
- **Safety:** TOV withstand
- **Housing:** Modular design
- **Complies with:** UL 1449 4th Ed.

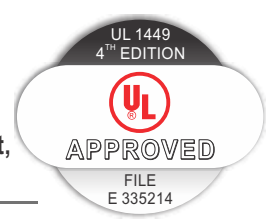


### Technical data

Type	SAFETEC C(R) xxx WT UL				
	440	690	750	880	
<b>Electrical characteristics</b>					
Max. continuous operating voltage (AC)	<b>MCOV</b>	440V	690V	750V	880V
Nominal discharge current (8/20)	<b><math>I_n</math></b>	20kA per pole	10kA per pole	10kA per pole	10kA per pole
Max. discharge current (8/20)	<b><math>I_{max}</math></b>	50kA per pole	20kA per pole	20kA per pole	20kA per pole
Voltage protection rating per UL 1449 3rd ed.	<b>VPR</b>	< 2.0kV	< 2.5kV	< 2.5kV	< 3.0kV
Short-circuit withstand current	<b>SCCR</b>	200kA			
Follow current	<b><math>I_{fj}</math></b>	NO			
Response time	<b><math>t_A</math></b>	< 25ns			
Thermal protection		YES			
Back-up fuse		No back-up fuse needed			
Number of ports		1			
<b>Mechanical characteristics</b>					
Temperature range	<b><math>T_a</math></b>	- 40°C .... + 85°C			
Permissible humidity	<b>RH</b>	5% ...95%			
Terminal screw torque	<b>Mmax</b>	3.0Nm			
Conductor cross section		35mm <sup>2</sup> (solid) / 25mm <sup>2</sup> (stranded)			
AWG conductor cross section		2 AWG (solid) / 3 AWG (stranded)			
Mounting		35mm DIN rail, EN 60715			
Degree of protection		IP 20			
Housing material		thermoplastic; extinguishing degree UL 94 V-0			
Indication of thermal disconnecter operation		red flag			
Remote contacts (RC)		YES			
Contact ratings		AC: 250V/0.5A; 125V/3A			
Terminal cross section		max. 1.5mm <sup>2</sup>			
Remote terminal torque		0.25Nm			

### Ordering information

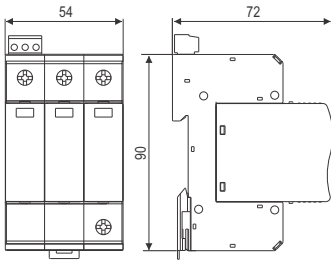
MCOV	440	690	750	880
Ordering code <b>SAFETEC C xxx WT UL</b>	516.225	516.227	516.229	516.582
Ordering code <b>SAFETEC CR xxx WT UL</b> (with remote contacts)	516.226	516.228	516.230	516.583
Ordering code <b>Module SAFETEC C(R) xxx WT UL</b>	516.262	516.263	516.264	516.584



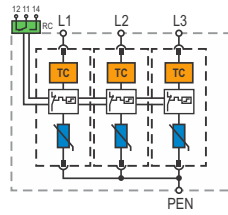
Dimensions, Internal configuration, Weight, Packaging

SAFETEC C(R) xxx WT UL

Dimensions



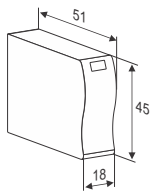
Internal configuration



SAFETEC C xxx WT UL	440	690	750
Dimensions DIN 43880		3TE	
Weight per unit	397g	364g	364g
SAFETEC CR xxx WT UL	440	690	750
Dimensions DIN 43880		3TE	
Weight per unit	402g	369g	369g
Packaging dimensions (single unit)	109 x 76.5 x 61.5mm		
Min. packaging quantity	5 pcs.		

Module SAFETEC C(R) xxx WT UL

Dimensions



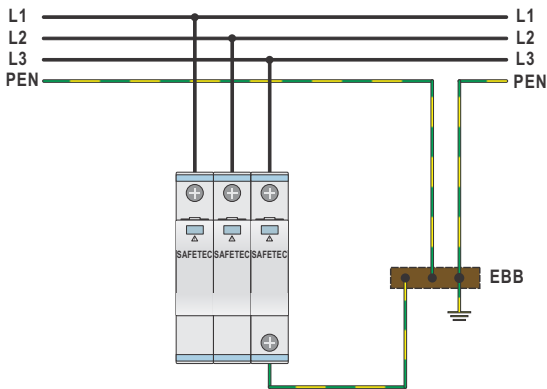
Internal configuration



Module SAFETEC C(R) xxx WT UL	440	690	750
Weight per unit	74g	78g	78g
Packaging dimensions	221 x 64.5 x 48.5mm		
Min. packaging quantity	12 pcs.		

Network connections

SAFETEC C(R) WT UL





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## PV Combiner Boxes for Photovoltaic Systems



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<b>Category IEC / EN:</b>	<b>Class I, II / Type 1, 2</b>
<b>Location of use:</b>	<b>Photovoltaic power plants</b>
<b>Protection modes:</b>	<b>(+) → PE, (-) → PE, (+) → (-)</b>
<b>Protective elements:</b>	<b>SPD, fuse, switch, steering diode</b>
<b>Safety:</b>	<b>Ground fault withstand</b>
<b>Housing:</b>	<b>Waterproof enclosure (IP 65)</b>
<b>Complies with:</b>	<b>EN 50539-11:2013, CLC/TS 50539-12:2012;</b>

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### Features of PV Combiner Boxes:

- Waterproof housing IP 65 RAL 7035 with transparent front cover
- Safe and easy installation Up to 1500VDC
- Up to 6 strings
- Leakage free version - optional
- String current up to 8A
- Customised designs

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### PVCB I Series PVCB II Series

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Iskra Zaščite manufactures a range of PV Combiner Boxes for the use in Photovoltaic Systems. Various models are available including surge protection, DC fuses, DC isolation switches or steering diodes and are compliant with the relevant standards such as EN 50539-11.

PVCB I Series



- **Category IEC/EN:** Class I, II / Type 1, 2
- **Location of use:** Photovoltaic power plants
- **Surge Protections modes:** (+) → PE, (-) → PE, (+) → (-)
- **Options:** DC fuses, isolation switch, steering diodes
- **Housing:** IP 65 enclosures
- **Complies with:** EN 50539-11, CLC/TS 50539-12:2012;



**Technical data**

● **Electrical characteristic**

Max. strings input	2	4	6	2	4	6
Max. current per string (DC fuse per + string)	< 8A					
U <sub>C</sub> (DC)	600V	600V	600V	1000V	1000V	1000V
I <sub>max</sub> (8/20)	40kA					
I <sub>imp</sub> (10/350)	12.5kA					

● **Mechanical characteristics**

Degree of protection	IP65					
Terminal cross section	string		inverter			
		6 mm <sup>2</sup>	6 mm <sup>2</sup>	6 mm <sup>2</sup>	6 mm <sup>2</sup>	6 mm <sup>2</sup>
	6 mm <sup>2</sup>	10 mm <sup>2</sup>	16 mm <sup>2</sup>	6 mm <sup>2</sup>	10 mm <sup>2</sup>	16 mm <sup>2</sup>
Housing material	Technical polymer - transparent front RAL 7035					

**Ordering information**

● **Type**

- Fuse only on + side	PVCB I	PVCB I	PVCB I	PVCB I	PVCB I	PVCB I
	2-0.6	4-0.6	6-0.6	2-1	4-1	6-1
Ordering code	130 130	130 131	130 132	130 133	130 134	130 135

● **Type**

- Fuse on + and - side	PVCB I	PVCB I	PVCB I	PVCB I	PVCB I	PVCB I
	2-0.6-F	4-0.6-F	6-0.6-F	2-1-F	4-1-F	6-1-F
Ordering code	130 136	130 137	130 138	130 139	130 140	130 141

● **Type**

- Main isolation switch	PVCB I	PVCB I	PVCB I	PVCB I	PVCB I	PVCB I
- DC fuse on + and - side	2-0.6-MS-F	4-0.6-MS-F	6-0.6-MS-F	2-1-MS-F	4-1-MS-F	6-1-MS-F
Max. rated current (DC isolation switch)	32A	63A	63A	32A	63A	63A
Ordering code	130 142	130 143	130 144	130 145	130 146	130 147

● **Type**

- Main isolation switch	PVCB I	PVCB I	PVCB I	PVCB I	PVCB I	PVCB I
- Steering diode on - side	2-0.6-MS-D	4-0.6-MS-D	6-0.6-MS-D	2-1-MS-D	4-1-MS-D	6-1-MS-D
Ordering code	130 148	130 149	130 150	130 151	130 152	130 153

Various PV combiner boxes available on request

PVCB II Series



- **Category IEC/EN:** Class II / Type 2
- **Location of use:** Photovoltaic power plants
- **Surge Protections modes:** (+) → PE, (-) → PE, (+) → (-)
- **Options:** DC fuses, isolation switch, steering diodes
- **Housing:** IP 65 enclosures
- **Complies with:** EN 50539-11, CLC/TS 50539-12:2012;



Technical data

● **Electrical characteristic**

Max. strings input	2	4	6	2	4	6
Max. current per string (DC fuse per + string)	< 8A					
U <sub>C</sub> (DC)	600V	600V	600V	1000V	1000V	1000V
I <sub>max</sub> (8/20) (+) → PE/(-) → PE	40kA					
I <sub>n</sub> (8/20) (+) → PE/(-) → PE	20kA					

● **Mechanical characteristics**

Degree of protection	IP65					
Terminal cross section	string	6 mm <sup>2</sup>			6 mm <sup>2</sup>	
	inverter	6 mm <sup>2</sup>	10 mm <sup>2</sup>	16 mm <sup>2</sup>	6 mm <sup>2</sup>	10 mm <sup>2</sup> 16 mm <sup>2</sup>
Housing material	Technical polymer - transparent front RAL 7035					

Ordering information

● **Type**

- Fuse only on + side	PVCB II	PVCB II	PVCB II	PVCB II	PVCB II	PVCB II
	2-0.6	4-0.6	6-0.6	2-1	4-1	6-1
Ordering code	130 154	130 155	130 156	130 157	130 158	130 159

● **Type**

- Fuse on + and - side	PVCB II	PVCB II	PVCB II	PVCB II	PVCB II	PVCB II
	2-0.6-F	4-0.6-F	6-0.6-F	2-1-F	4-1-F	6-1-F
Ordering code	130 160	130 161	130 162	130 163	130 164	130 165

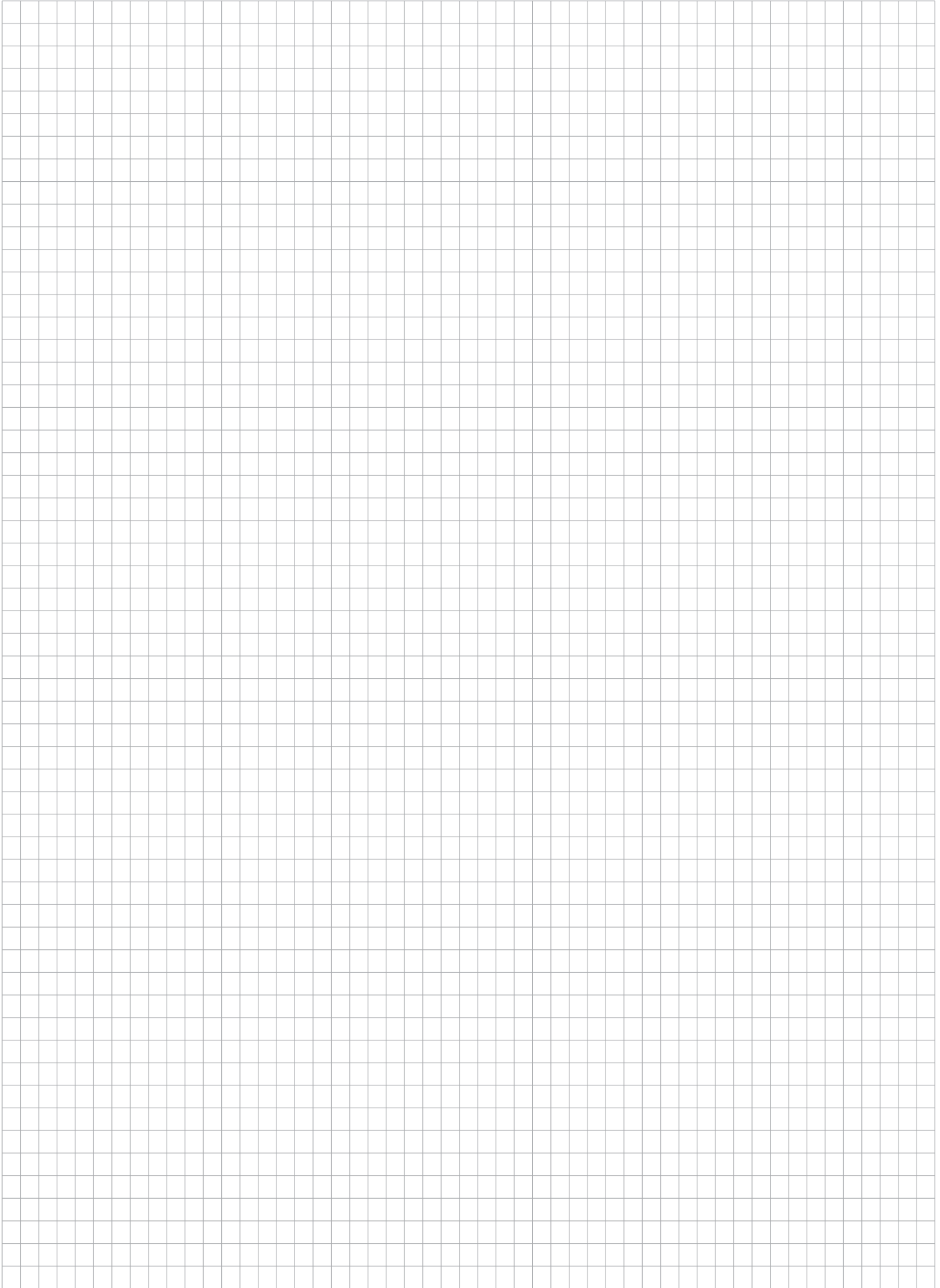
● **Type**

- Main isolation switch	PVCB II	PVCB II	PVCB II	PVCB II	PVCB II	PVCB II
- DC fuse on + and - side	2-0.6-MS-F	4-0.6-MS-F	6-0.6-MS-F	2-1-MS-F	4-1-MS-F	6-1-MS-F
Max. rated current (DC isolation switch)	32A	63A	63A	32A	63A	63A
Ordering code	130 166	130 167	130 168	130 169	130 170	130 171

● **Type**

- Main isolation switch	PVCB II	PVCB II	PVCB II	PVCB II	PVCB II	PVCB II
- Steering diode on - side	2-0.6-MS-D	4-0.6-MS-D	6-0.6-MS-D	2-1-MS-D	4-1-MS-D	6-1-MS-D
Ordering code	130 172	130 173	130 174	130 175	130 176	130 177

Various PV combiner boxes available on request







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## AC Boxes



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<b>Location of use:</b>	<b>Indoor and outdoor As close as possible to the equipment to be protected</b>
<b>Protection modes:</b>	<b>L-N, N-PE</b>
<b>Protective elements:</b>	<b>SPD, surge filter, fuse, MCB</b>
<b>Housing:</b>	<b>Waterproof enclosure (IP 65)</b>
<b>Complies with:</b>	<b>IEC / EN 61643-11</b>

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### PB Series

#### PROFILT PSF Series

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The PB series is intended to provide protection for electric appliances and equipment with sensitive electronic components and are installed directly before the protected equipment.

Moisture and water resistant enclosures (IP65) are used.

The Profilt PSF series combines Class I and Class II SPDs, a special low-pass filter and overcurrent protection. The low-pass filter plays an important role in reducing the fast rate of rise (du/dt) associated with the lightning discharges and surge transients. This helps to reduce the stress on the sensitive electronic components.

PB Series



- **Category IEC / EN:** Class II, III / Type 2, 3
- **Location of use:** As close as possible to the equipment to be protected
- **Max. rated current:** 16A
- **Protection modes:** L/N-PE
- **Protection elements:** MOV, GDT, MCB
- **Housing :** Waterproof enclosure (IP 65)
- **Complies with:** IEC / EN 61643-11



Technical data

● **Electrical characteristic**

Category IEC	Class II	Class II	Class III
Network system	TN	TT	TN
Max. continuous operating voltage (AC/DC) at 50/60Hz	Uc		320V/420V
Nominal discharge current (8/20)	I <sub>n</sub>	20kA per pole	20kA/20kA
Max. discharge current (8/20)	I <sub>max</sub>	40kA per pole	40kA/20kA
Open circuit voltage of the combination wave generator	Uoc	/	10kV
Protection level	Up	1.5kV	1.2kV

● **Mechanical characteristics**

Operating temperature	- 40°C...+ 80°C		
Degree of protection	IP 65		
Housing material	technical polymer		

● **Type**

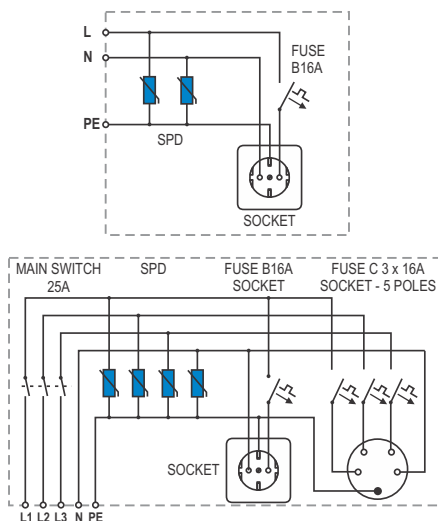
1 phase	PBS-C80 (2+0)-F16	PBS-C80 (1+1)-F16	PBS-D10 (2+0)-F16
Socket 230V	1		
Miniature circuit breaker (MCB)	16A		
Housing dimensions (W x H x D)	9.8 x 24.8 x 11.4 cm		
Ordering code	130 021	130 022	130 023

● **Type**

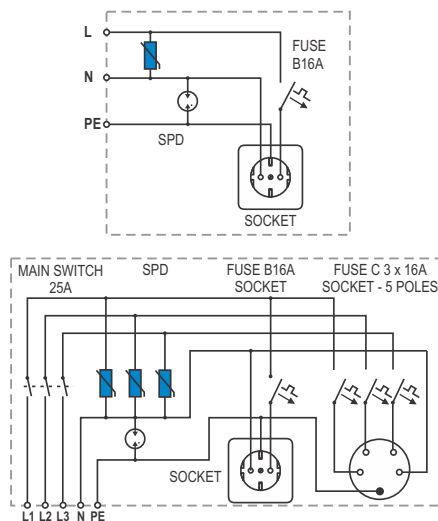
3 phase	PBL-C160 (4+0)-F16	PBL-C160 (3+1)-F16	PBL-D40 (4+0)-F16
Socket 230V , socket 5 poles, main switch	1		
Miniature circuit breaker (MCB)	4 x 16A		
Housing dimensions (W x H x D)	34 x 33.5 x 17.5 cm		
Ordering code	130 024	130 025	130 026

Internal configuration

TN Network



TT Network



PROFILT PSF Series



- **Category IEC / EN:** Class I, II / Type 1, 2
- **Location of use:** As close as possible to equipment to be protected
- **Max. rated current:** 40A, 63A
- **Protection modes:** L/N-PE
- **Protection elements:** MOV, GDT, surge filter
- **Housing:** Waterproof metal enclosure (IP 65)
- **Complies with:** IEC / EN 61643-11



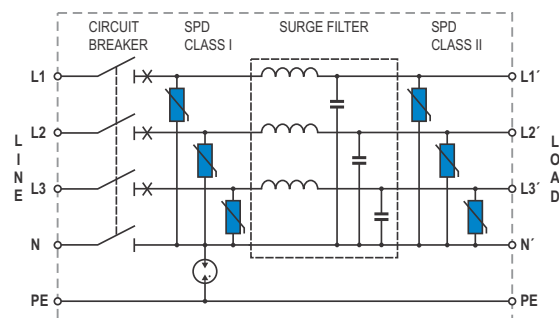
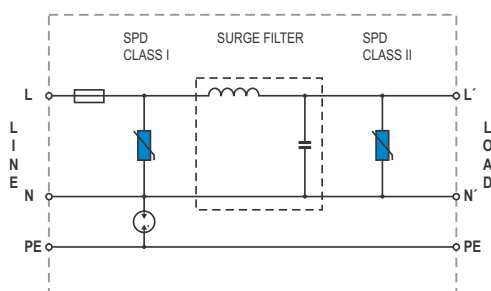
Technical data

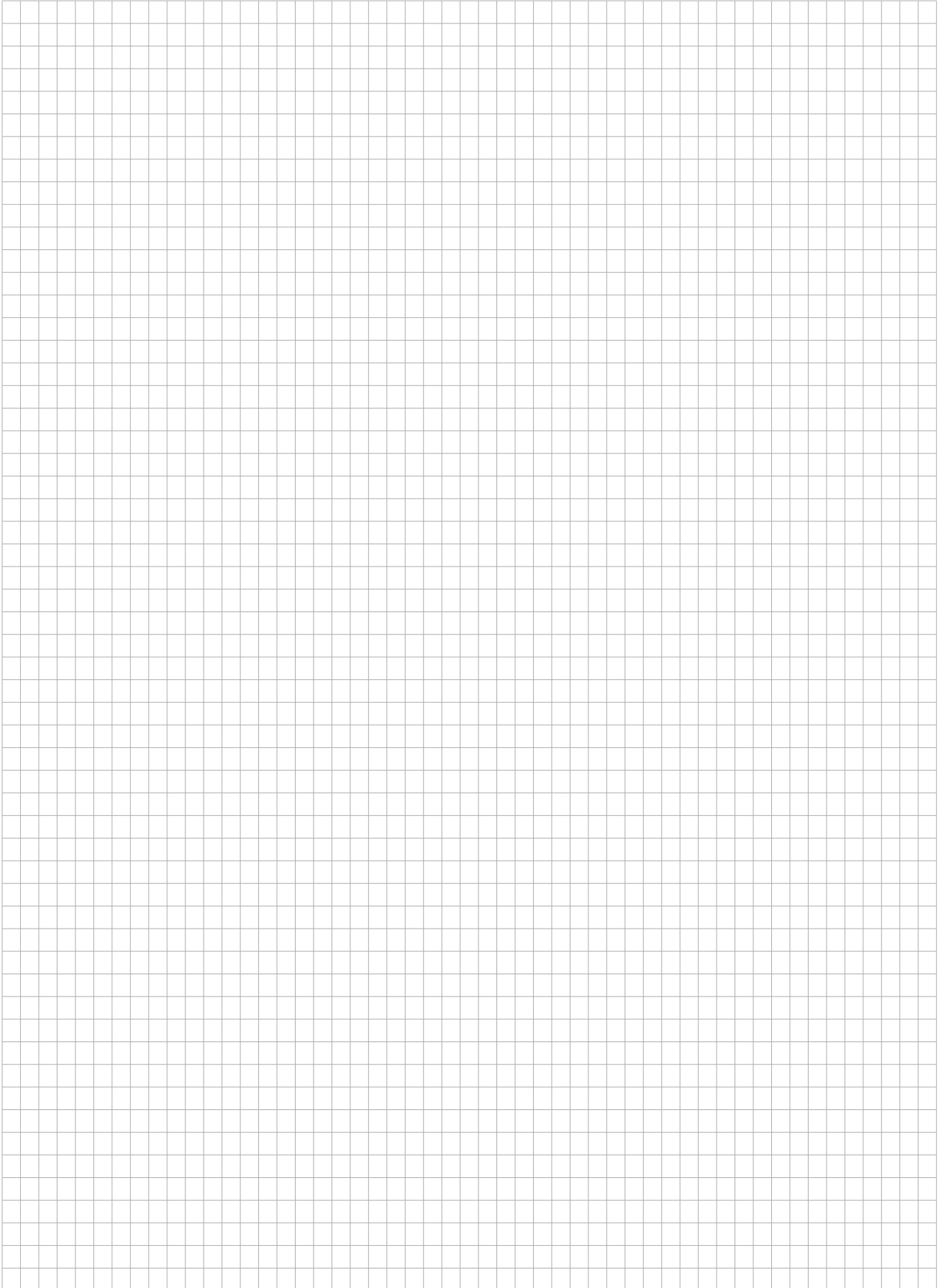
Type	PROFILT PSF yy			
	40A		63A	
● <b>Electrical characteristic</b>				
Network system	TT, TN-S		TT, TN-S	
Max. continuous operating voltage(AC/DC) at 50/60Hz	Uc		320V/420V	
Max. Load current	I <sub>L</sub>		40A / 63A	
Max. discharge current (8/20)	I <sub>max</sub> (L-N)		100kA	150kA
Impulse current (10/350)	I <sub>imp</sub> (L-N)		25kA	50kA
Voltage protection level 20kA (8/20)	Up		< 670V	< 570V
Voltage protection level 25kA (8/20)	Up		< 780V	< 680V
Max. voltage drop	ΔU		< 1%	
● <b>Mechanical characteristics</b>				
Operating temperature	-20°C...+40°C			
Terminal cross section	16mm <sup>2</sup>		35mm <sup>2</sup>	
Housing material	metal			
● <b>Type</b>				
	PROFILT PSF (1 phase)		PROFILT PSF (1 phase)	
	1/40/320/TT-25kA	1/40/320/TT-50kA	1/63/320/TT-25kA	1/63/320/TT-50kA
Distribution systems	L1, N, PE			
Mounting	Wall mount			
Dimensions (w x h x d)	30 x 40 x 16cm			
Weight	9kg	9.5kg	9kg	9.5kg
Ordering code	130 086	130 046	130 079	130 070
● <b>Type</b>				
	PROFILT PSF (3 phase)		PROFILT PSF (3 phase)	
	3/40/320/TT-25kA	3/40/320/TT-50kA	3/63/320/TT-25kA	3/63/320/TT-50kA
Distribution systems	L1, L2, L3, N, PE			
Mounting	Wall mount			
Dimensions (w x h x d)	40 x 50 x 21cm			
Weight	17kg	18kg	17kg	18kg
Ordering code	130 083	130 048	130 044	130 056

Other solutions available on request

Internal configuration

TT, TN-S Network







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## Class II SPD for Overhead Power Lines



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<b>Category IEC / EN:</b>	<b>Class II / Type 2</b>
<b>Location of use:</b>	<b>Overhead Power lines</b>
<b>Protection modes:</b>	<b>L/N-PE</b>
<b>Protective element:</b>	<b>MOV</b>
<b>Surge discharge ratings:</b>	<b>I<sub>max</sub> up to 40kA</b>
<b>Internal protection and safety:</b>	<b>Thermal disconnecter</b>
<b>Complies with:</b>	<b>IEC 61643-11:2011, EN 61643-11:2012;</b>

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**PROTEC AQ 25/xxx**  
**PROTEC AQ 40/xxx**  
**PROTEC AQS 40/xxx**

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The PROTEC AQ 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 with disconnection device which protects against short circuit conditions.

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

**PROTEC AQ 25**



- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Overhead Power lines
- **Network systems:** TN-C, TN-S
- **Protection modes:** L/N - PE
- **Protective element:** MOV
- **Surge discharge rating:**  $I_{max} = 25kA$
- **Housing:** Compact design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



**Technical data**

Type	PROTEC AQ 25/xxx			
	150	275	320	440

● **Electrical characteristics**

Nominal AC voltage	$U_o$	120V 50/60Hz	230V 50/60Hz	440V 50/60Hz
Max. continuous operating voltage (AC/DC)	$U_c$	150/200V	275/350V	320/420V
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
Residual voltage at 5kA (8/20)	$U_{res}$	< 0.7kV	< 1.0kV	< 1.0kV
Follow current	$I_{fj}$	NO		
Response time	$t_A$	< 25ns		
Thermal protection		YES		
Back-up fuse		NO		
TOV withstand 5s	$U_T$	174V	335V	580V
TOV withstand disconnection 120min	$U_T$	228V	438V	765V
Number of ports		1		

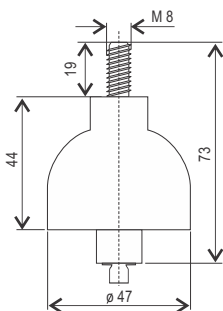
● **Mechanical characteristics**

Temperature range	$T_a$	- 40°C ..... + 70°C		
Permissible humidity	$RH$	5% - 95%		
Terminal screw torque	$M_{max}$	3.5Nm		
Conductor cross section	L/N	M8		
	PE	6mm <sup>2</sup> (stranded)		
AWG conductor cross section		9 AWG (stranded)		
Mounting		outdoors		
Degree of protection		IP 20		
Housing material		Thermoplastic; extinguishing degree UL 94 V-0		
Indication of thermal disconnecter operation		disconnected cable		

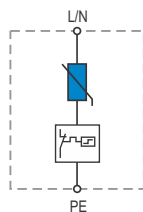
**Ordering information**

$U_c$	150	275	320	440
Ordering code <b>PROTEC AQ 25/xxx</b>	509.017	509.019	509.021	509.023

**Dimensions**



**Internal configuration**



**Dimensions, weight and packaging**

PROTEC AQ 25/xxx	150	275	320	440
Weight per unit	104g	106g	108g	112g
Packaging dimensions	390 x 380 x 280mm			
Packaging quantity	100 pcs.			

**PROTEC AQ 40**



- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Overhead Power lines
- **Network systems:** TN-C, TN-S
- **Protection modes:** L/N - PE
- **Protective element:** MOV
- **Surge discharge rating:**  $I_{max} = 40kA$
- **Housing:** Compact design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



**Technical data**

Type	PROTEC AQ 40/xxx			
	150	275	320	440

● **Electrical characteristics**

Nominal AC voltage	<b>U<sub>o</sub></b>	120V 50/60Hz	230V 50/60Hz	440V 50/60Hz
Max. continuous operating voltage (AC/DC)	<b>U<sub>c</sub></b>	150/200V	275/350V	320/420V
Nominal discharge current (8/20)	<b>I<sub>n</sub></b>	20kA		
Max. discharge current (8/20)	<b>I<sub>max</sub></b>	40kA		
Protection level	<b>U<sub>p</sub></b>	< 1.2kV	< 1.7kV	< 1.8kV
Residual voltage at 5kA (8/20)	<b>U<sub>res</sub></b>	< 0.7kV	< 1.0kV	< 1.0kV
Follow current	<b>I<sub>fi</sub></b>	NO		
Response time	<b>t<sub>A</sub></b>	< 25ns		
Thermal protection		YES		
Back-up fuse		NO		
TOV withstand 5s	<b>U<sub>T</sub></b>	174V	335V	580V
TOV withstand disconnection 120min	<b>U<sub>T</sub></b>	228V	438V	765V
Number of ports		1		

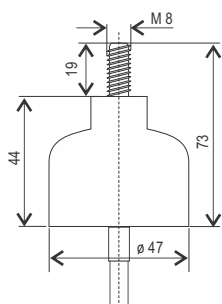
● **Mechanical characteristics**

Temperature range	<b>T<sub>a</sub></b>	- 40°C .... + 70°C		
Permissible humidity	<b>RH</b>	5% - 95%		
Terminal screw torque	<b>M<sub>max</sub></b>	3.5Nm		
Conductor cross section	L/N	M8		
	PE	6mm <sup>2</sup> (stranded)		
AWG conductor cross section		9 AWG (stranded)		
Mounting		outdoors		
Degree of protection		IP 20		
Housing material		Thermoplastic; extinguishing degree UL 94 V-0		
Indication of thermal disconnecter operation		disconnected cable		

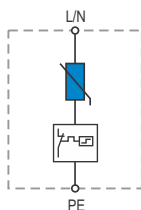
**Ordering information**

<b>U<sub>c</sub></b>	150	275	320	440
Ordering code <b>PROTEC AQ 40/xxx</b>	509.029	509.031	509.033	509.035

**Dimensions**



**Internal configuration**



**Dimensions, weight and packaging**

PROTEC AQ 40/xxx	150	275	320	440
Weight per unit	144g	146g	149g	157g
Packaging dimensions	390 x 380 x 280mm			
Packaging quantity	100 pcs.			

**PROTEC AQS 40**



- **Category IEC / EN:** Class II / Type 2
- **Location of use:** Overhead Power lines
- **Network systems:** TN-C, TN-S
- **Protection modes:** L/N - PE
- **Protective element:** MOV
- **Surge discharge rating:**  $I_{max} = 40kA$
- **Housing:** Compact design
- **Complies with:** IEC 61643-11:2011, EN 61643-11:2012;



**Technical data**

Type	PROTEC AQS 40/xxx			
	150	275	320	440

● **Electrical characteristics**

Nominal AC voltage	<b>U<sub>o</sub></b>	120V 50/60Hz	230V 50/60Hz	440V 50/60Hz
Max. continuous operating voltage (AC/DC)	<b>U<sub>c</sub></b>	150/200V	275/350V	320/420V
Nominal discharge current (8/20)	<b>I<sub>n</sub></b>	20kA		
Max. discharge current (8/20)	<b>I<sub>max</sub></b>	40kA		
Protection level	<b>U<sub>p</sub></b>	< 0.9kV	< 1.4kV	< 2.0kV
Residual voltage at 5kA (8/20)	<b>U<sub>res</sub></b>	< 0.7kV	< 1.0kV	< 1.5kV
Follow current	<b>I<sub>fi</sub></b>	NO		
Response time	<b>t<sub>A</sub></b>	< 25ns		
Thermal protection		YES		
Back-up fuse		NO		
TOV withstand 5s	<b>U<sub>T</sub></b>	174V	335V	580V
TOV withstand disconnection 120min	<b>U<sub>T</sub></b>	228V	438V	765V
Number of ports		1		

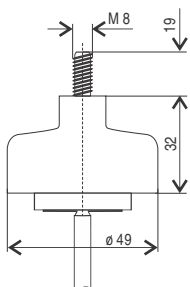
● **Mechanical characteristics**

Temperature range	<b>T<sub>a</sub></b>	- 40°C ..... + 70°C		
Permissible humidity	<b>RH</b>	5% - 95%		
Terminal screw torque	<b>M<sub>max</sub></b>	3.5Nm		
Conductor cross section	L/N	M8		
	PE	6mm <sup>2</sup> (stranded)		
AWG conductor cross section		9 AWG (stranded)		
Mounting		outdoors		
Degree of protection		IP 20		
Housing material		Thermoplastic; extinguishing degree UL 94 V-0		
Indication of thermal disconnecter operation		disconnected cable		

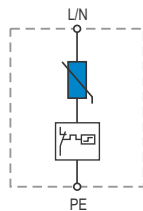
**Ordering information**

<b>U<sub>c</sub></b>	150	275	320	440
Ordering code <b>PROTEC AQS 40/xxx</b>	509 049	509 051	509 053	509 055

**Dimensions**



**Internal configuration**



**Dimensions, weight and packaging**

PROTEC AQS 40/xxx	150	275	320	440
Weight per unit	122g	126g	130g	134g
Packaging dimensions	390 x 380 x 280mm			
Packaging quantity	100 pcs.			



## Isolating Spark Gaps (ISG) for Equipotential Bonding



<b>Location of use:</b>	<b>Exposed environments or direct burial</b>
<b>Protective element:</b>	<b>GDT</b>
<b>High surge discharge rating:</b>	<b>I<sub>max</sub> = 100kA</b>
<b>Housing:</b>	<b>Corrosion resistant enclosure with hermetic environmental seal and flying leads for ease of connection</b>
<b>Complies with:</b>	<b>EN 62561-3:2012;</b>

**EPZ 100/xxx**  
**EPZ 100/xxx 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 the lightning discharges. This is achieved by an internal voltage switching component which operates to establish equipotential 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 the 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 the use in hazardous locations (zone 2, gases).

These devices have been developed to meet the requirements EN 62561-3 Ed. 1.0 - Requirements for Lightning Protection Components (LPC) - Part 3: Requirements for isolating spark gaps.

Surge protective devices for Signaling Networks with Ex certificate are also available. Data sheets are available in the catalog “Surge Protective Devices for Signalling Networks”.

## EPZ 100/xxx



- **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:** EN 62561-3:2012



### Technical data

Type	EPZ 100/xxx 350
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#### ● Electrical Characteristics

Rated DC withstand voltage	$U_{WDC}$	350V
Rated impulse sparkover voltage	$U_{r imp}$	1000V
Max. discharge current (8/20 $\mu$ s)	$I_{max}$	100kA
Impulse discharge current	$I_{imp}$	25kA
Class (lighting current carrying capability)		1L
Capacitance at 1MHz	C	< 10pf
Insulation resistance at 100V <sub>DC</sub>	R	> 1G $\Omega$

#### ● Dimensions

Nominal outer diameter	28mm
Nominal length	140mm
Length with cables	1m approx.

#### ● Cable

Cross sectional area	16mm <sup>2</sup>
Length	450mm approx.
Number of conductors	$\geq 462/0.21$
Insulation	Double insulated
Environmental protection	UV stabilised, flame retardant
Resistant	Acids, solvents and oils
Connection	Suitable for screw or lug termination

#### ● Physicals

Degree of protection	IP 67
Housing	Plastic sheath
Location	Indoor/Outdoor
Weight	0.5kg approx.
Temperature range	$T_a$ - 30°C ... + 70°C

#### ● The specific conditions of use

Local heating by pipelines and other hot surfaces in vicinity of the installation of the product must be considered by the installer to ensure that specified maximum ambient temperature is not exceeded.

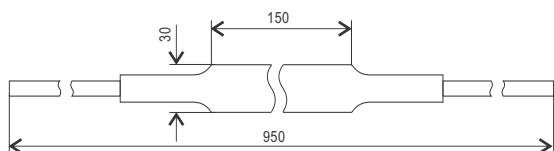
Connection of the integral cables must be in accordance with the applicable requirements of IEC 60079-0 and IEC 60079-15 for field wiring connections.

The Type EPZ Equipotential clamp has an external non-metallic heat shrink sleeve which may provide a potential electrostatic charging hazard. See the instructions for further information.

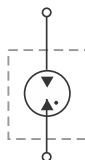
### Ordering information

Ordering code EPZ 100/xxx	350 509 509
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### Dimensions



### Internal configuration



### Dimensions, weight and packaging

EPZ 100/xxx	350
Weight per unit	500g
Packaging dimensions (single unit)	350 x 125 x 55 mm
Min. packaging quantity	27 pcs.



EPZ 100/xxx Ex



- **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
- **ATEX approvals:** Ex marking according to EN 60079-0 and 60079-15; Baseefa 15ATEX0102X; Ex II 3G
- **IECEX approvals:** Ex marking according to EN 60079-0 and 60079-15; IECEX BAS 15.0069X; Ex n C II C T5 Gc
- **Complies with:** EN 62561-3:2012



Technical data

Type	EPZ 100/xxx Ex 350
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● **Electrical Characteristics**

Rated DC withstand voltage	$U_{WDC}$	350V
Rated impulse sparkover voltage	$U_{r imp}$	1000V
Max. discharge current (8/20)	$I_{max}$	100kA
Impulse discharge current	$I_{imp}$	25kA
Class (lighting current carrying capability)		1L
Capacitance at 1MHz	C	< 10pf
Insulation resistance at 100VDC	R	> 1GΩ

● **Dimensions**

Nominal outer diameter	28mm
Nominal length	140mm
Length with cables	1m approx.

● **Cable**

Cross sectional area	16mm <sup>2</sup>
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**

Degree of protection	IP 67
Housing	Plastic sheath
Location	Indoor/Outdoor
Weight	0.5kg approx.
Temperature range	$T_a$ -30°C ... +70°C

● **The specific conditions of use**

Local heating by pipelines and other hot surfaces in vicinity of the installation of the product must be considered by the installer to ensure that specified maximum ambient temperature is not exceeded.

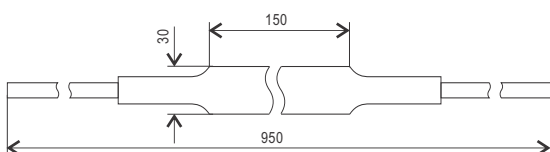
Connection of the integral cables must be in accordance with the applicable requirements of IEC 60079-0 and IEC 60079-15 for field wiring connections.

The Type EPZ Equipotential clamp has an external non-metallic heat shrink sleeve which may provide a potential electrostatic charging hazard. See the instructions for further information.

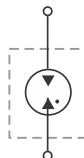
Ordering information

Ordering code EPZ 100/xxx Ex	350 322 973
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Dimensions

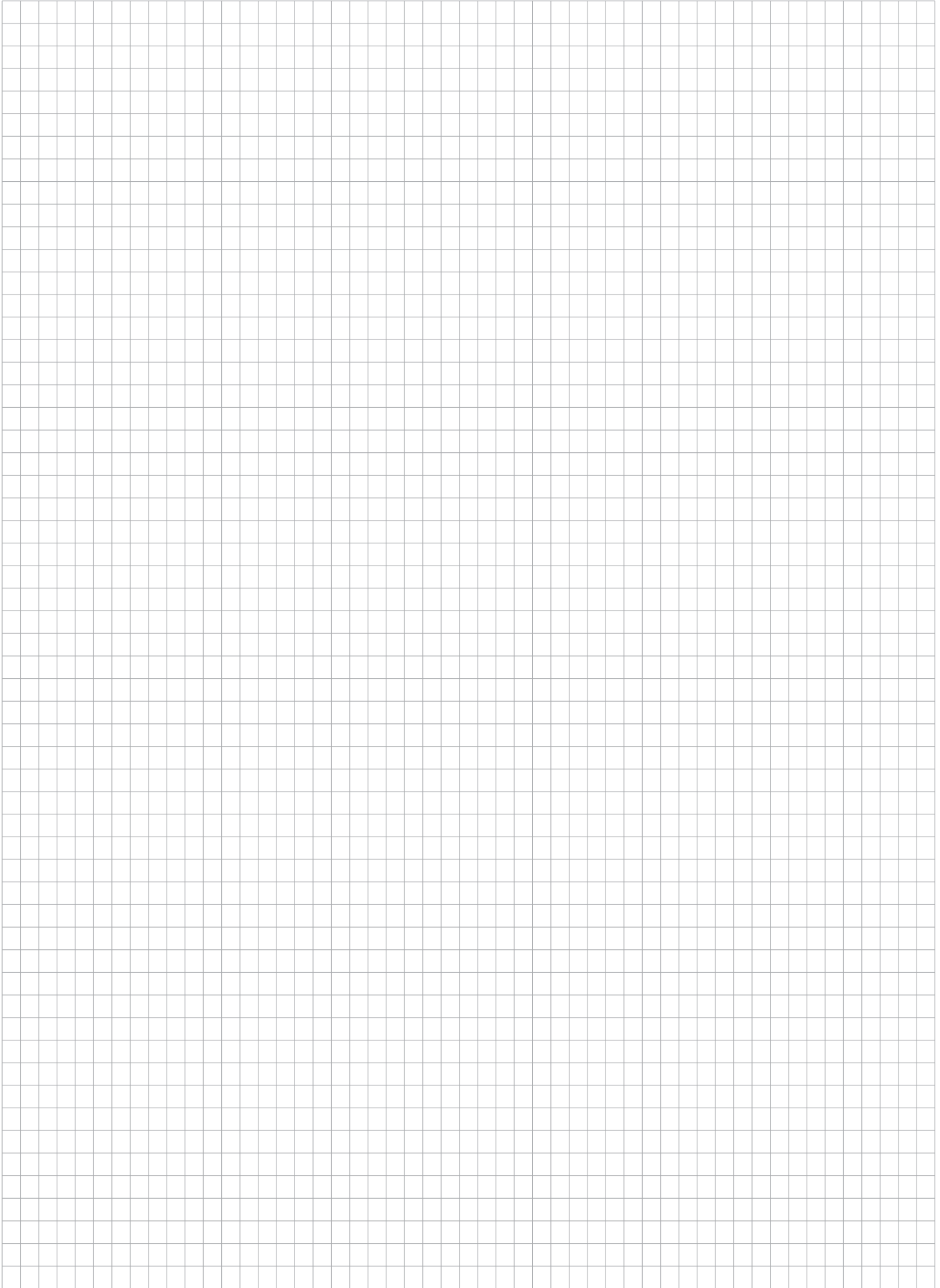


Internal configuration



Dimensions, weight and packaging

EPZ 100/xxx Ex	350
Weight per unit	500g
Packaging dimensions (single unit)	350 x 125 x 55 mm
Min. packaging quantity	27 pcs.



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## Connection Accessories

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### PROBAR Series

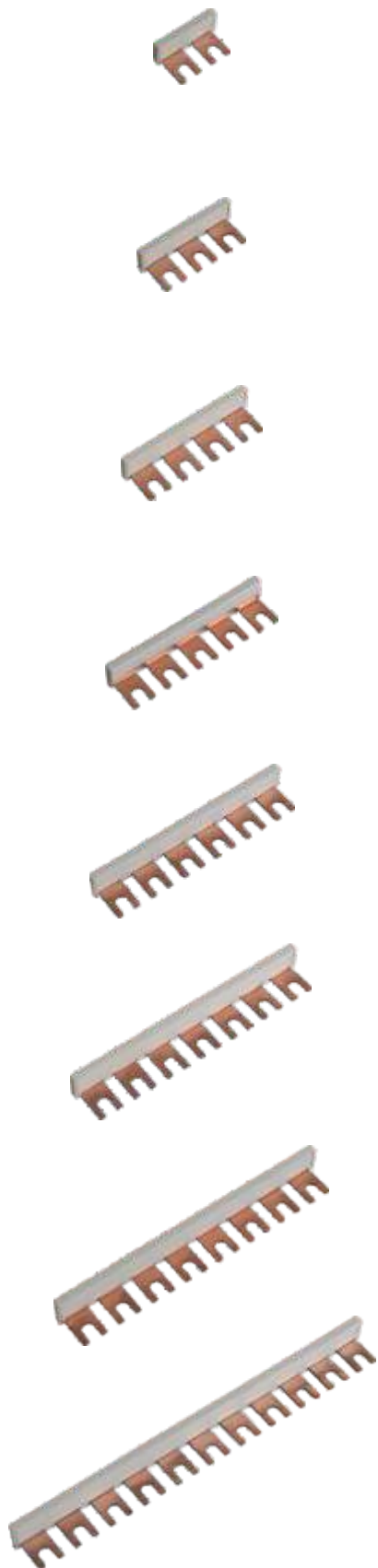
- Fixing cable
- Fixing hook
- PSN
- PSI

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PROBAR series of insulated busbar interconnects for use with DIN rail products. Fixing cable and fixing hook are used as fastening devices for PROTEC AQ overhead power lines.



Single-phase busbars



Ordering information

Type

<b>PROBAR</b>	<b>1-2</b>
No. of poles	2
Busbar cross-section	16mm <sup>2</sup>
Ordering code	<b>501 301</b>

Type

<b>PROBAR</b>	<b>1-3</b>
No. of poles	3
Busbar cross-section	16mm <sup>2</sup>
Ordering code	<b>501 303</b>

Type

<b>PROBAR</b>	<b>1-4</b>
No. of poles	4
Busbar cross-section	16mm <sup>2</sup>
Ordering code	<b>501 305</b>

Type

<b>PROBAR</b>	<b>1-5</b>
No. of poles	5
Busbar cross-section	16mm <sup>2</sup>
Ordering code	<b>501 307</b>

Type

<b>PROBAR</b>	<b>1-6</b>
No. of poles	6
Busbar cross-section	16mm <sup>2</sup>
Ordering code	<b>501 309</b>

Type

<b>PROBAR</b>	<b>1-7</b>
No. of poles	7
Busbar cross-section	16mm <sup>2</sup>
Ordering code	<b>501 311</b>

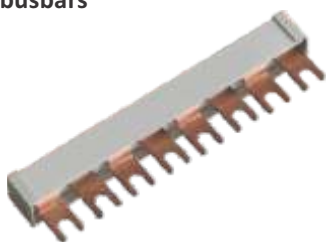
Type

<b>PROBAR</b>	<b>1-8</b>
No. of poles	8
Busbar cross-section	16mm <sup>2</sup>
Ordering code	<b>501 313</b>

Type

<b>PROBAR</b>	<b>1-11</b>
No. of poles	11
Busbar cross-section	16mm <sup>2</sup>
Ordering code	<b>501 315</b>

Two-phase busbars

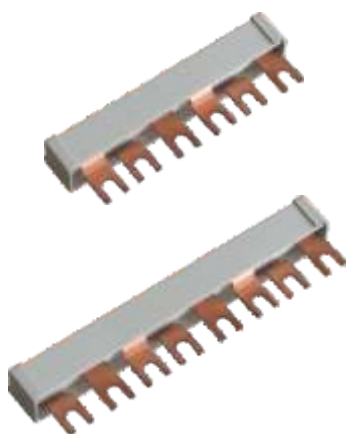


Ordering information

Type

<b>PROBAR</b>	<b>2-8</b>
No. of poles	8
Busbar cross-section	16mm <sup>2</sup>
Ordering code	<b>501 317</b>

Three-phase busbars



Ordering information

Type

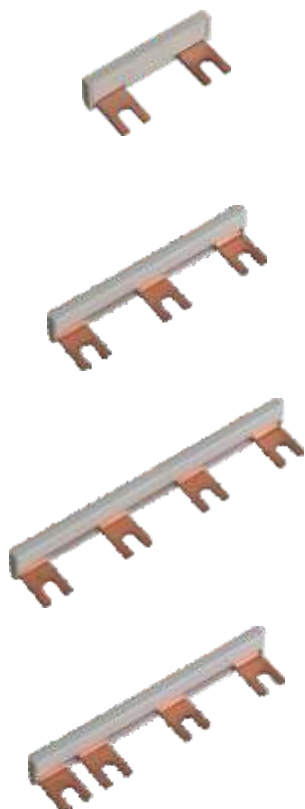
<b>PROBAR</b>	<b>3-6</b>
No. of poles	6
Busbar cross-section	16mm <sup>2</sup>
Ordering code	<b>501 319</b>

Type

<b>PROBAR</b>	<b>3-8</b>
No. of poles	8
Busbar cross-section	16mm <sup>2</sup>
Ordering code	<b>501 321</b>

Single-phase busbars

PROTEC B(R) - 2TE, SAFETEC B(R) - 2TE



Ordering information

Type

<b>PB</b>	<b>1-(2+0)</b>
No. of poles	2
Busbar cross-section	16mm <sup>2</sup>
Ordering code	<b>501 331</b>

Type

<b>PB</b>	<b>1-(3+0)</b>
No. of poles	3
Busbar cross-section	16mm <sup>2</sup>
Ordering code	<b>501 332</b>

Type

<b>PB</b>	<b>1-(4+0)</b>
No. of poles	4
Busbar cross-section	16mm <sup>2</sup>
Ordering code	<b>501 335</b>

Type

<b>PB</b>	<b>1-(3+1)</b>
No. of poles	4
Busbar cross-section	16mm <sup>2</sup>
Ordering code	<b>501 334</b>

Connection parts for PROTEC AQ and AQS Series

Ordering information



<b>Type</b>	<b>Fixing cable</b>
Ordering code	509 507



<b>Type</b>	<b>Fixing hook</b>
Ordering code	509 501









<b>Type</b>	<b>PSN</b> (Connection clamp for the non insulated conductor)
Ordering code	509 503











<b>Type</b>	<b>PSI</b> (Connection clamp for the insulated conductor)
Ordering code	509 505



## Product Index

Product name	Ordering code	Dimensions DIN 43880	Packaging dimensions (single unit)	Minimum packaging quantity	Weight	Page	
<b>Class I, II Compact Single and Multi-pole SPD 12.5kA per pole</b>							
	SAFETEC B 12.5/150 TCG	54.0146	2TE	109 x 76.5 x 41.5mm	7 pcs.	175g	12
	SAFETEC BR 12.5/150 TCG	54.0147	2TE	109 x 76.5 x 41.5mm	7 pcs.	180g	12
	SAFETEC B 12.5/275 TCG	54.0148	2TE	109 x 76.5 x 41.5mm	7 pcs.	205g	12
	SAFETEC BR 12.5/275 TCG	54.0149	2TE	109 x 76.5 x 41.5mm	7 pcs.	210g	12
	SAFETEC B 12.5/440 TCG	54.0150	2TE	109 x 76.5 x 41.5mm	7 pcs.	255g	12
	SAFETEC BR 12.5/440 TCG	54.0151	2TE	109 x 76.5 x 41.5mm	7 pcs.	260g	12
	SAFETUBE B 50	54.0006	2TE	109 x 76.5 x 41.5mm	7 pcs.	180g	13
	SAFELOC B 25/150 (2+0) TCG	54.0152	4TE	109 x 76.5 x 80mm	3 pcs.	320g	15
	SAFELOC BR 25/150 (2+0) TCG	54.0153	4TE	109 x 76.5 x 80mm	3 pcs.	330g	15
	SAFELOC B 25/275 (2+0) TCG	54.0154	4TE	109 x 76.5 x 80mm	3 pcs.	420g	15
	SAFELOC BR 25/275 (2+0) TCG	54.0155	4TE	109 x 76.5 x 80mm	3 pcs.	430g	15
	SAFELOC B 25/440 (2+0) TCG	54.0156	4TE	109 x 76.5 x 80mm	3 pcs.	540g	15
	SAFELOC BR 25/440 (2+0) TCG	54.0157	4TE	109 x 76.5 x 80mm	3 pcs.	550g	15
	SAFELOC B 37.5/150 (3+0) TCG	54.0164	6TE	109 x 76.5 x 114mm	2 pcs.	430g	16
	SAFELOC BR 37.5/150 (3+0) TCG	54.0165	6TE	109 x 76.5 x 114mm	2 pcs.	435g	16
	SAFELOC B 37.5/275 (3+0) TCG	54.0166	6TE	109 x 76.5 x 114mm	2 pcs.	530g	16
	SAFELOC BR 37.5/275 (3+0) TCG	54.0167	6TE	109 x 76.5 x 114mm	2 pcs.	535g	16
	SAFELOC B 37.5/440 (3+0) TCG	54.0168	6TE	109 x 76.5 x 114mm	2 pcs.	740g	16
	SAFELOC BR 37.5/440 (3+0) TCG	54.0169	6TE	109 x 76.5 x 114mm	2 pcs.	745g	16
	SAFELOC B 50/150 (4+0) TCG	54.0170	8TE	109 x 76.5 x 148mm	2 pcs.	800g	17
	SAFELOC BR 50/150 (4+0) TCG	54.0171	8TE	109 x 76.5 x 148mm	2 pcs.	820g	17
	SAFELOC B 50/275 (4+0) TCG	54.0172	8TE	109 x 76.5 x 148mm	2 pcs.	1000g	17
	SAFELOC BR 50/275 (4+0) TCG	54.0173	8TE	109 x 76.5 x 148mm	2 pcs.	1020g	17
	SAFELOC B 50/440 (4+0) TCG	54.0174	8TE	109 x 76.5 x 148mm	2 pcs.	1160g	17
	SAFELOC BR 50/440 (4+0) TCG	54.0175	8TE	109 x 76.5 x 148mm	2 pcs.	1080g	17
	SAFELOC B 25/150 (1+1) TCG	54.0158	4TE	109 x 76.5 x 80mm	3 pcs.	280g	19
	SAFELOC BR 25/150 (1+1) TCG	54.0159	4TE	109 x 76.5 x 80mm	3 pcs.	285g	19
	SAFELOC B 25/275 (1+1) TCG	54.0160	4TE	109 x 76.5 x 80mm	3 pcs.	315g	19
	SAFELOC BR 25/275 (1+1) TCG	54.0161	4TE	109 x 76.5 x 80mm	3 pcs.	320g	19
	SAFELOC B 25/440 (1+1) TCG	54.0162	4TE	109 x 76.5 x 80mm	3 pcs.	340g	19
	SAFELOC BR 25/440 (1+1) TCG	54.0163	4TE	109 x 76.5 x 80mm	3 pcs.	345g	19
	SAFELOC B 50/150 (3+1) TCG	54.0176	8TE	109 x 76.5 x 148mm	2 pcs.	785g	20
	SAFELOC BR 50/150 (3+1) TCG	54.0177	8TE	109 x 76.5 x 148mm	2 pcs.	800g	20
	SAFELOC B 50/275 (3+1) TCG	54.0178	8TE	109 x 76.5 x 148mm	2 pcs.	900g	20
	SAFELOC BR 50/275 (3+1) TCG	54.0179	8TE	109 x 76.5 x 148mm	2 pcs.	915g	20
	SAFELOC B 50/440 (3+1) TCG	54.0180	8TE	109 x 76.5 x 148mm	2 pcs.	1020g	20
	SAFELOC BR 50/440 (3+1) TCG	54.0181	8TE	109 x 76.5 x 148mm	2 pcs.	1035g	20
<b>Class I, II Compact Single and Multi-pole SPD 25kA per pole</b>							
	SAFETEC B 25/150 TCG	54.0038	2TE	109 x 76.5 x 41.5mm	7 pcs.	275g	26
	SAFETEC BR 25/150 TCG	54.0039	2TE	109 x 76.5 x 41.5mm	7 pcs.	280g	26
	SAFETEC B 25/275 TCG	54.0040	2TE	109 x 76.5 x 41.5mm	7 pcs.	325g	26
	SAFETEC BR 25/275 TCG	54.0041	2TE	109 x 76.5 x 41.5mm	7 pcs.	330g	26
	SAFETEC B 25/440 TCG	54.0042	2TE	109 x 76.5 x 41.5mm	7 pcs.	375g	26
	SAFETEC BR 25/440 TCG	54.0043	2TE	109 x 76.5 x 41.5mm	7 pcs.	380g	26
	SAFETUBE B 50	54.0006	2TE	109 x 76.5 x 41.5mm	7 pcs.	180g	27
	SAFETUBE B 100	54.0007	2TE	109 x 76.5 x 41.5mm	7 pcs.	240g	27
	SAFELOC B 50/150 (2+0) TCG	54.0044	4TE	109 x 76.5 x 80mm	3 pcs.	520g	29
	SAFELOC BR 50/150 (2+0) TCG	54.0045	4TE	109 x 76.5 x 80mm	3 pcs.	530g	29
	SAFELOC B 50/275 (2+0) TCG	54.0046	4TE	109 x 76.5 x 80mm	3 pcs.	620g	29
	SAFELOC BR 50/275 (2+0) TCG	54.0047	4TE	109 x 76.5 x 80mm	3 pcs.	630g	29
	SAFELOC B 50/440 (2+0) TCG	54.0048	4TE	109 x 76.5 x 80mm	3 pcs.	740g	29
	SAFELOC BR 50/440 (2+0) TCG	54.0049	4TE	109 x 76.5 x 80mm	3 pcs.	750g	29
	SAFELOC B 75/150 (3+0) TCG	54.0056	6TE	109 x 76.5 x 114mm	2 pcs.	780g	30
	SAFELOC BR 75/150 (3+0) TCG	54.0057	6TE	109 x 76.5 x 114mm	2 pcs.	795g	30
	SAFELOC B 75/275 (3+0) TCG	54.0058	6TE	109 x 76.5 x 114mm	2 pcs.	930g	30
	SAFELOC BR 75/275 (3+0) TCG	54.0059	6TE	109 x 76.5 x 114mm	2 pcs.	945g	30
	SAFELOC B 75/440 (3+0) TCG	54.0060	6TE	109 x 76.5 x 114mm	2 pcs.	1095g	30
	SAFELOC BR 75/440 (3+0) TCG	54.0061	6TE	109 x 76.5 x 114mm	2 pcs.	1110g	30
	SAFELOC B 100/150 (4+0) TCG	54.0062	8TE	109 x 76.5 x 148mm	2 pcs.	1040g	31
	SAFELOC BR 100/150 (4+0) TCG	54.0063	8TE	109 x 76.5 x 148mm	2 pcs.	1060g	31
	SAFELOC B 100/275 (4+0) TCG	54.0064	8TE	109 x 76.5 x 148mm	2 pcs.	1240g	31
	SAFELOC BR 100/275 (4+0) TCG	54.0065	8TE	109 x 76.5 x 148mm	2 pcs.	1260g	31
	SAFELOC B 100/440 (4+0) TCG	54.0066	8TE	109 x 76.5 x 148mm	2 pcs.	1460g	31
	SAFELOC BR 100/440 (4+0) TCG	54.0067	8TE	109 x 76.5 x 148mm	2 pcs.	1480g	31
	SAFELOC B 50/150 (1+1) TCG	54.0050	4TE	109 x 76.5 x 80mm	3 pcs.	475g	33
	SAFELOC BR 50/150 (1+1) TCG	54.0051	4TE	109 x 76.5 x 80mm	3 pcs.	480g	33





















# Product Index

Product name	Ordering code	Dimensions DIN 43880	Packaging dimensions (single unit)	Minimum packaging quantity	Weight	Page		
	SAFELOC B 50/275 (1+1) TCG	54.0052	4TE	109 x 76.5 x 80mm	3 pcs.	515g	33	
	SAFELOC BR 50/275 (1+1) TCG	54.0053	4TE	109 x 76.5 x 80mm	3 pcs.	520g	33	
	SAFELOC B 50/440 (1+1) TCG	54.0054	4TE	109 x 76.5 x 80mm	3 pcs.	565g	33	
	SAFELOC BR 50/440 (1+1) TCG	54.0055	4TE	109 x 76.5 x 80mm	3 pcs.	570g	33	
	SAFELOC B 100/150 (3+1) TCG	54.0068	8TE	109 x 76.5 x 148mm	2 pcs.	985g	34	
	SAFELOC BR 100/150 (3+1) TCG	54.0069	8TE	109 x 76.5 x 148mm	2 pcs.	1000g	34	
	SAFELOC B 100/275 (3+1) TCG	54.0070	8TE	109 x 76.5 x 148mm	2 pcs.	1135g	34	
	SAFELOC BR 100/275 (3+1) TCG	54.0071	8TE	109 x 76.5 x 148mm	2 pcs.	1150g	34	
	SAFELOC B 100/440 (3+1) TCG	54.0072	8TE	109 x 76.5 x 148mm	2 pcs.	1285g	34	
	SAFELOC BR 100/440 (3+1) TCG	54.0073	8TE	109 x 76.5 x 148mm	2 pcs.	1300g	34	
Class I, II Compact Single and Multi-pole SPD 12.5kA per pole								
	PROTEC B 12.5/150 (1+0)	56.0001	2TE	109×76.5×41.5mm	7 pcs.	150	40	
	PROTEC BR 12.5/150 (1+0)	56.0002	2TE	109×76.5×41.5mm	7 pcs.	155	40	
	PROTEC B 12.5/275 (1+0)	56.0003	2TE	109×76.5×41.5mm	7 pcs.	200	40	
	PROTEC BR 12.5/275 (1+0)	56.0004	2TE	109×76.5×41.5mm	7 pcs.	205	40	
	PROTEC B 12.5/320 (1+0)	56.0005	2TE	109×76.5×41.5mm	7 pcs.	200	40	
	PROTEC BR 12.5/320 (1+0)	56.0006	2TE	109×76.5×41.5mm	7 pcs.	205	40	
	PROTEC B 12.5/385 (1+0)	56.0007	2TE	109×76.5×41.5mm	7 pcs.	260	40	
	PROTEC BR 12.5/385 (1+0)	56.0008	2TE	109×76.5×41.5mm	7 pcs.	265	40	
	PROTEC B 12.5/440 (1+0)	56.0009	2TE	109×76.5×41.5mm	7 pcs.	300	40	
	PROTEC BR 12.5/440 (1+0)	56.0010	2TE	109×76.5×41.5mm	7 pcs.	305	40	
	PROTUBE 50	56.0011	2TE	109×76.5×41.5mm	7 pcs.	180	42	
		PROBLOC B 25/150 (2+0)	56.0013	2TE	109×76.5×41.5mm	7 pcs.	185	44
		PROBLOC BR 25/150 (2+0)	56.0014	2TE	109×76.5×41.5mm	7 pcs.	190	44
PROBLOC B 25/275 (2+0)		56.0023	2TE	109×76.5×41.5mm	7 pcs.	225	44	
PROBLOC BR 25/275 (2+0)		56.0024	2TE	109×76.5×41.5mm	7 pcs.	230	44	
PROBLOC B 25/320 (2+0)		56.0033	2TE	109×76.5×41.5mm	7 pcs.	225	44	
PROBLOC BR 25/320 (2+0)		56.0034	2TE	109×76.5×41.5mm	7 pcs.	230	44	
PROBLOC B 25/385 (2+0)		56.0043	2TE	109×76.5×41.5mm	7 pcs.	285	44	
PROBLOC BR 25/385 (2+0)		56.0044	2TE	109×76.5×41.5mm	7 pcs.	290	44	
PROBLOC B 25/440 (2+0)		56.0053	2TE	109×76.5×41.5mm	7 pcs.	375	44	
PROBLOC BR 25/440 (2+0)		56.0054	2TE	109×76.5×41.5mm	7 pcs.	380	44	
	PROBLOC B 37.5/150 (3+0)	56.0015	3TE	109×76.5×60mm	5 pcs.	290	44	
	PROBLOC BR 37.5/150 (3+0)	56.0016	3TE	109×76.5×60mm	5 pcs.	300	44	
	PROBLOC B 37.5/275 (3+0)	56.0025	3TE	109×76.5×60mm	5 pcs.	330	44	
	PROBLOC BR 37.5/275 (3+0)	56.0026	3TE	109×76.5×60mm	5 pcs.	340	44	
	PROBLOC B 37.5/320 (3+0)	56.0035	3TE	109×76.5×60mm	5 pcs.	330	44	
	PROBLOC BR 37.5/320 (3+0)	56.0036	3TE	109×76.5×60mm	5 pcs.	340	44	
	PROBLOC B 37.5/385 (3+0)	56.0045	3TE	109×76.5×60mm	5 pcs.	390	44	
	PROBLOC BR 37.5/385 (3+0)	56.0046	3TE	109×76.5×60mm	5 pcs.	400	44	
	PROBLOC B 37.5/440 (3+0)	56.0055	3TE	109×76.5×60mm	5 pcs.	480	44	
	PROBLOC BR 37.5/440 (3+0)	56.0056	3TE	109×76.5×60mm	5 pcs.	490	44	
	PROBLOC B 50/150 (4+0)	56.0017	4TE	109×76.5×78mm	3 pcs.	550	44	
	PROBLOC BR 50/150 (4+0)	56.0018	4TE	109×76.5×78mm	3 pcs.	560	44	
	PROBLOC B 50/275 (4+0)	56.0027	4TE	109×76.5×78mm	3 pcs.	590	44	
	PROBLOC BR 50/275 (4+0)	56.0028	4TE	109×76.5×78mm	3 pcs.	600	44	
	PROBLOC B 50/320 (4+0)	56.0037	4TE	109×76.5×78mm	3 pcs.	590	44	
	PROBLOC BR 50/320 (4+0)	56.0038	4TE	109×76.5×78mm	3 pcs.	600	44	
	PROBLOC B 50/385 (4+0)	56.0047	4TE	109×76.5×78mm	3 pcs.	650	44	
	PROBLOC BR 50/385 (4+0)	56.0048	4TE	109×76.5×78mm	3 pcs.	660	44	
	PROBLOC B 50/440 (4+0)	56.0057	4TE	109×76.5×78mm	3 pcs.	740	44	
	PROBLOC BR 50/440 (4+0)	56.0058	4TE	109×76.5×78mm	3 pcs.	750	44	
	PROBLOC B 25/150 (1+1)	56.0019	2TE	109×76.5×41.5mm	7 pcs.	110	46	
	PROBLOC BR 25/150 (1+1)	56.0020	2TE	109×76.5×41.5mm	7 pcs.	115	46	
	PROBLOC B 25/275 (1+1)	56.0029	2TE	109×76.5×41.5mm	7 pcs.	150	46	
	PROBLOC BR 25/275 (1+1)	56.0030	2TE	109×76.5×41.5mm	7 pcs.	155	46	
	PROBLOC B 25/320 (1+1)	56.0039	2TE	109×76.5×41.5mm	7 pcs.	150	46	
	PROBLOC BR 25/320 (1+1)	56.0040	2TE	109×76.5×41.5mm	7 pcs.	155	46	
	PROBLOC B 25/385 (1+1)	56.0049	2TE	109×76.5×41.5mm	7 pcs.	210	46	
	PROBLOC BR 25/385 (1+1)	56.0050	2TE	109×76.5×41.5mm	7 pcs.	215	46	
	PROBLOC B 25/440 (1+1)	56.0059	2TE	109×76.5×41.5mm	7 pcs.	300	46	
	PROBLOC BR 25/440 (1+1)	56.0060	2TE	109×76.5×41.5mm	7 pcs.	305	46	
	PROBLOC B 50/150 (3+1)	56.0021	4TE	109×76.5×78mm	3 pcs.	555	46	
	PROBLOC BR 50/150 (3+1)	56.0022	4TE	109×76.5×78mm	3 pcs.	560	46	
	PROBLOC B 50/275 (3+1)	56.0031	4TE	109×76.5×78mm	3 pcs.	595	46	
	PROBLOC BR 50/275 (3+1)	56.0032	4TE	109×76.5×78mm	3 pcs.	600	46	
	PROBLOC B 50/320 (3+1)	56.0041	4TE	109×76.5×78mm	3 pcs.	595	46	
	PROBLOC BR 50/320 (3+1)	56.0042	4TE	109×76.5×78mm	3 pcs.	600	46	
	PROBLOC B 50/385 (3+1)	56.0051	4TE	109×76.5×78mm	3 pcs.	655	46	
	PROBLOC BR 50/385 (3+1)	56.0052	4TE	109×76.5×78mm	3 pcs.	660	46	
	PROBLOC B 50/440 (3+1)	56.0061	4TE	109×76.5×78mm	3 pcs.	745	46	
	PROBLOC BR 50/440 (3+1)	56.0062	4TE	109×76.5×78mm	3 pcs.	750	46	





# Product Index

Product name	Ordering code	Dimensions DIN 43880	Packaging dimensions (single unit)	Minimum packaging quantity	Weight	Page
<b>Class I, II Compact Single and Multi-pole SPD 25kA per pole</b>						
	PROTEC B 25/150 (1+0)	56.0063	2TE	109×76.5×41.5mm	7 pcs.	245 50
	PROTEC BR 25/150 (1+0)	56.0064	2TE	109×76.5×41.5mm	7 pcs.	250 50
	PROTEC B 25/275 (1+0)	56.0065	2TE	109×76.5×41.5mm	7 pcs.	295 50
	PROTEC BR 25/275 (1+0)	56.0066	2TE	109×76.5×41.5mm	7 pcs.	300 50
	PROTEC B 25/320 (1+0)	56.0067	2TE	109×76.5×41.5mm	7 pcs.	295 50
	PROTEC BR 25/320 (1+0)	56.0068	2TE	109×76.5×41.5mm	7 pcs.	300 50
	PROTEC B 25/385 (1+0)	56.0069	2TE	109×76.5×41.5mm	7 pcs.	320 50
	PROTEC BR 25/385 (1+0)	56.0070	2TE	109×76.5×41.5mm	7 pcs.	325 50
	PROTEC B 25/440 (1+0)	56.0071	2TE	109×76.5×41.5mm	7 pcs.	345 50
	PROTEC BR 25/440 (1+0)	56.0072	2TE	109×76.5×41.5mm	7 pcs.	350 50
	PROTUBE 50	56.0011	2TE	109×76.5×41.5mm	7 pcs.	180 51
	PROTUBE 100	56.0012	2TE	109×76.5×41.5mm	7 pcs.	240 51
	PROBLOC B 50/150 (2+0)	56.0073	4TE	109×76.5×78mm	3 pcs.	460 54
	PROBLOC BR 50/150 (2+0)	56.0074	4TE	109×76.5×78mm	3 pcs.	470 54
	PROBLOC B 50/275 (2+0)	56.0083	4TE	109×76.5×78mm	3 pcs.	560 54
	PROBLOC BR 50/275 (2+0)	56.0084	4TE	109×76.5×78mm	3 pcs.	570 54
	PROBLOC B 50/320 (2+0)	56.0093	4TE	109×76.5×78mm	3 pcs.	560 54
	PROBLOC BR 50/320 (2+0)	56.0094	4TE	109×76.5×78mm	3 pcs.	570 54
	PROBLOC B 50/385 (2+0)	56.0103	4TE	109×76.5×78mm	3 pcs.	620 54
	PROBLOC BR 50/385 (2+0)	56.0104	4TE	109×76.5×78mm	3 pcs.	630 54
	PROBLOC B 50/440 (2+0)	56.0113	4TE	109×76.5×78mm	3 pcs.	680 54
	PROBLOC BR 50/440 (2+0)	56.0114	4TE	109×76.5×78mm	3 pcs.	690 54
	PROBLOC B 75/150 (3+0)	56.0075	6TE	109×76.5×115mm	3 pcs.	690 54
	PROBLOC BR 75/150 (3+0)	56.0076	6TE	109×76.5×115mm	3 pcs.	705 54
	PROBLOC B 75/275 (3+0)	56.0085	6TE	109×76.5×115mm	3 pcs.	840 54
	PROBLOC BR 75/275 (3+0)	56.0086	6TE	109×76.5×115mm	3 pcs.	855 54
	PROBLOC B 75/320 (3+0)	56.0095	6TE	109×76.5×115mm	3 pcs.	840 54
	PROBLOC BR 75/320 (3+0)	56.0096	6TE	109×76.5×115mm	3 pcs.	855 54
	PROBLOC B 75/385 (3+0)	56.0105	6TE	109×76.5×115mm	3 pcs.	900 54
	PROBLOC BR 75/385 (3+0)	56.0106	6TE	109×76.5×115mm	3 pcs.	915 54
	PROBLOC B 75/440 (3+0)	56.0115	6TE	109×76.5×115mm	3 pcs.	1005 54
	PROBLOC BR 75/440 (3+0)	56.0116	6TE	109×76.5×115mm	3 pcs.	1020 54
	PROBLOC B 100/150 (4+0)	56.0077	8TE	109×76.5×148mm	2 pcs.	920 54
	PROBLOC BR 100/150 (4+0)	56.0078	8TE	109×76.5×148mm	2 pcs.	940 54
	PROBLOC B 100/275 (4+0)	56.0087	8TE	109×76.5×148mm	2 pcs.	1120 54
	PROBLOC BR 100/275 (4+0)	56.0088	8TE	109×76.5×148mm	2 pcs.	1140 54
	PROBLOC B 100/320 (4+0)	56.0097	8TE	109×76.5×148mm	2 pcs.	1120 54
	PROBLOC BR 100/320 (4+0)	56.0098	8TE	109×76.5×148mm	2 pcs.	1140 54
	PROBLOC B 100/385 (4+0)	56.0107	8TE	109×76.5×148mm	2 pcs.	1180 54
	PROBLOC BR 100/385 (4+0)	56.0108	8TE	109×76.5×148mm	2 pcs.	1200 54
	PROBLOC B 100/440 (4+0)	56.0117	8TE	109×76.5×148mm	2 pcs.	1345 54
	PROBLOC BR 100/440 (4+0)	56.0118	8TE	109×76.5×148mm	2 pcs.	1360 54
	PROBLOC B 50/150 (1+1)	56.0079	4TE	109×76.5×78mm	3 pcs.	445 56
	PROBLOC BR 50/150 (1+1)	56.0080	4TE	109×76.5×78mm	3 pcs.	450 56
	PROBLOC B 50/275 (1+1)	56.0089	4TE	109×76.5×78mm	3 pcs.	485 56
	PROBLOC BR 50/275 (1+1)	56.0090	4TE	109×76.5×78mm	3 pcs.	490 56
	PROBLOC B 50/320 (1+1)	56.0099	4TE	109×76.5×78mm	3 pcs.	485 56
	PROBLOC BR 50/320 (1+1)	56.0100	4TE	109×76.5×78mm	3 pcs.	490 56
	PROBLOC B 50/385 (1+1)	56.0109	4TE	109×76.5×78mm	3 pcs.	545 56
	PROBLOC BR 50/385 (1+1)	56.0110	4TE	109×76.5×78mm	3 pcs.	550 56
	PROBLOC B 50/440 (1+1)	56.0119	4TE	109×76.5×78mm	3 pcs.	535 56
	PROBLOC BR 50/440 (1+1)	56.0120	4TE	109×76.5×78mm	3 pcs.	540 56
	PROBLOC B 100/150 (3+1)	56.0081	8TE	109×76.5×148mm	2 pcs.	895 57
	PROBLOC BR 100/150 (3+1)	56.0082	8TE	109×76.5×148mm	2 pcs.	910 57
	PROBLOC B 100/275 (3+1)	56.0091	8TE	109×76.5×148mm	2 pcs.	1045 57
	PROBLOC BR 100/275 (3+1)	56.0092	8TE	109×76.5×148mm	2 pcs.	1060 57
	PROBLOC B 100/320 (3+1)	56.0101	8TE	109×76.5×148mm	2 pcs.	1045 57
	PROBLOC BR 100/320 (3+1)	56.0102	8TE	109×76.5×148mm	2 pcs.	1060 57
	PROBLOC B 100/385 (3+1)	56.0111	8TE	109×76.5×148mm	2 pcs.	1105 57
	PROBLOC BR 100/385 (3+1)	56.0112	8TE	109×76.5×148mm	2 pcs.	1120 57
	PROBLOC B 100/440 (3+1)	56.0121	8TE	109×76.5×148mm	2 pcs.	1195 57
	PROBLOC BR 100/440 (3+1)	56.0122	8TE	109×76.5×148mm	2 pcs.	1210 57
<b>Class I, II Compact Single pole SPD 12.5kA</b>						
	PROTEC B2N 12.5/150	507.501	1TE	110 x 76.5 x 23.5mm	12 pcs.	124g 62
	PROTEC B2N 12.5/275	507.503	1TE	110 x 76.5 x 23.5mm	12 pcs.	150g 62
	PROTEC B2N 12.5/320	507.505	1TE	110 x 76.5 x 23.5mm	12 pcs.	150g 62
	PROTEC B2N 12.5/385	507.535	1TE	110 x 76.5 x 23.5mm	12 pcs.	143g 62
	PROTEC B2N 12.5/440	507.507	1TE	110 x 76.5 x 23.5mm	12 pcs.	146g 62
	PROTEC B2NR 12.5/150	507.509	1TE	110 x 76.5 x 23.5mm	12 pcs.	129g 62
	PROTEC B2NR 12.5/275	507.511	1TE	110 x 76.5 x 23.5mm	12 pcs.	155g 62
	PROTEC B2NR 12.5/320	507.513	1TE	110 x 76.5 x 23.5mm	12 pcs.	155g 62
	PROTEC B2NR 12.5/385	507.537	1TE	110 x 76.5 x 23.5mm	12 pcs.	148g 62
	PROTEC B2NR 12.5/440	507.515	1TE	110 x 76.5 x 23.5mm	12 pcs.	151g 62
	PROTUBE B2N 50	507.572	1TE	110 x 76.5 x 23.5mm	7 pcs.	238g 63


























## Product Index

Product name	Ordering code	Dimensions DIN 43880	Packaging dimensions (single unit)	Minimum packaging quantity	Weight	Page
<b>Class I, II Modular Single and Multi-pole SPD 12.5kA per pole</b>						
	PROTEC B2S 12.5/150	506.017	1TE	110 x 76.5 x 23.5mm	12 pcs.	124g
	PROTEC B2S 12.5/275	506.018	1TE	110 x 76.5 x 23.5mm	12 pcs.	150g
	PROTEC B2S 12.5/320	506.019	1TE	110 x 76.5 x 23.5mm	12 pcs.	150g
	PROTEC B2S 12.5/385	506.020	1TE	110 x 76.5 x 23.5mm	12 pcs.	143g
	PROTEC B2S 12.5/440	506.021	1TE	110 x 76.5 x 23.5mm	12 pcs.	146g
	PROTEC B2SR 12.5/150	506.022	1TE	110 x 76.5 x 23.5mm	12 pcs.	129g
	PROTEC B2SR 12.5/275	506.023	1TE	110 x 76.5 x 23.5mm	12 pcs.	155g
	PROTEC B2SR 12.5/320	506.024	1TE	110 x 76.5 x 23.5mm	12 pcs.	155g
	PROTEC B2SR 12.5/385	506.025	1TE	110 x 76.5 x 23.5mm	12 pcs.	148g
	PROTEC B2SR 12.5/440	506.026	1TE	110 x 76.5 x 23.5mm	12 pcs.	151g
	PROTEC B2S 25/150 (2+0)	506.027	2TE	109 x 76.5 x 41.5mm	7 pcs.	198g
	PROTEC B2S 25/275 (2+0)	506.028	2TE	109 x 76.5 x 41.5mm	7 pcs.	251g
	PROTEC B2S 25/320 (2+0)	506.029	2TE	109 x 76.5 x 41.5mm	7 pcs.	251g
	PROTEC B2S 25/385 (2+0)	506.030	2TE	109 x 76.5 x 41.5mm	7 pcs.	267g
	PROTEC B2S 25/440 (2+0)	506.031	2TE	109 x 76.5 x 41.5mm	7 pcs.	283g
	PROTEC B2SR 25/150 (2+0)	506.032	2TE	109 x 76.5 x 41.5mm	7 pcs.	203g
	PROTEC B2SR 25/275 (2+0)	506.033	2TE	109 x 76.5 x 41.5mm	7 pcs.	256g
	PROTEC B2SR 25/320 (2+0)	506.034	2TE	109 x 76.5 x 41.5mm	7 pcs.	256g
	PROTEC B2SR 25/385 (2+0)	506.035	2TE	109 x 76.5 x 41.5mm	7 pcs.	272g
	PROTEC B2SR 25/440 (2+0)	506.036	2TE	109 x 76.5 x 41.5mm	7 pcs.	288g
	PROTEC B2S 37.5/150 (3+0)	506.047	3TE	109 x 76.5 x 61.5mm	5 pcs.	300g
	PROTEC B2S 37.5/275 (3+0)	506.048	3TE	109 x 76.5 x 61.5mm	5 pcs.	382g
	PROTEC B2S 37.5/320 (3+0)	506.049	3TE	109 x 76.5 x 61.5mm	5 pcs.	382g
	PROTEC B2S 37.5/385 (3+0)	506.050	3TE	109 x 76.5 x 61.5mm	5 pcs.	394g
	PROTEC B2S 37.5/440 (3+0)	506.051	3TE	109 x 76.5 x 61.5mm	5 pcs.	432g
	PROTEC B2SR 37.5/150 (3+0)	506.052	3TE	109 x 76.5 x 61.5mm	5 pcs.	305g
	PROTEC B2SR 37.5/275 (3+0)	506.053	3TE	109 x 76.5 x 61.5mm	5 pcs.	387g
	PROTEC B2SR 37.5/320 (3+0)	506.054	3TE	109 x 76.5 x 61.5mm	5 pcs.	387g
	PROTEC B2SR 37.5/385 (3+0)	506.055	3TE	109 x 76.5 x 61.5mm	5 pcs.	399g
	PROTEC B2SR 37.5/440 (3+0)	506.056	3TE	109 x 76.5 x 61.5mm	5 pcs.	437g
	PROTEC B2S 50/150 (4+0)	506.057	4TE	109 x 76.5 x 80mm	3 pcs.	366g
	PROTEC B2S 50/275 (4+0)	506.058	4TE	109 x 76.5 x 80mm	3 pcs.	462g
	PROTEC B2S 50/320 (4+0)	506.059	4TE	109 x 76.5 x 80mm	3 pcs.	462g
	PROTEC B2S 50/385 (4+0)	506.060	4TE	109 x 76.5 x 80mm	3 pcs.	494g
	PROTEC B2S 50/440 (4+0)	506.061	4TE	109 x 76.5 x 80mm	3 pcs.	526g
	PROTEC B2SR 50/150 (4+0)	506.062	4TE	109 x 76.5 x 80mm	3 pcs.	371g
	PROTEC B2SR 50/275 (4+0)	506.063	4TE	109 x 76.5 x 80mm	3 pcs.	467g
	PROTEC B2SR 50/320 (4+0)	506.064	4TE	109 x 76.5 x 80mm	3 pcs.	467g
	PROTEC B2SR 50/385 (4+0)	506.065	4TE	109 x 76.5 x 80mm	3 pcs.	499g
	PROTEC B2SR 50/440 (4+0)	506.066	4TE	109 x 76.5 x 80mm	3 pcs.	531g
	PROTEC B2S 25/150 (1+1)	506.037	2TE	109 x 76.5 x 41.5mm	7 pcs.	270g
	PROTEC B2S 25/275 (1+1)	506.038	2TE	109 x 76.5 x 41.5mm	7 pcs.	310g
	PROTEC B2S 25/320 (1+1)	506.039	2TE	109 x 76.5 x 41.5mm	7 pcs.	342g
	PROTEC B2S 25/385 (1+1)	506.040	2TE	109 x 76.5 x 41.5mm	7 pcs.	366g
	PROTEC B2S 25/440 (1+1)	506.041	2TE	109 x 76.5 x 41.5mm	7 pcs.	370g
	PROTEC B2SR 25/150 (1+1)	506.042	2TE	109 x 76.5 x 41.5mm	7 pcs.	275g
	PROTEC B2SR 25/275 (1+1)	506.043	2TE	109 x 76.5 x 41.5mm	7 pcs.	315g
	PROTEC B2SR 25/320 (1+1)	506.044	2TE	109 x 76.5 x 41.5mm	7 pcs.	347g
	PROTEC B2SR 25/385 (1+1)	506.045	2TE	109 x 76.5 x 41.5mm	7 pcs.	371g
	PROTEC B2SR 25/440 (1+1)	506.046	2TE	109 x 76.5 x 41.5mm	7 pcs.	375g
	PROTEC B2S 50/150 (3+1)	506.067	4TE	109 x 76.5 x 80mm	3 pcs.	498g
	PROTEC B2S 50/275 (3+1)	506.068	4TE	109 x 76.5 x 80mm	3 pcs.	578g
	PROTEC B2S 50/320 (3+1)	506.069	4TE	109 x 76.5 x 80mm	3 pcs.	642g
	PROTEC B2S 50/385 (3+1)	506.070	4TE	109 x 76.5 x 80mm	3 pcs.	690g
	PROTEC B2S 50/440 (3+1)	506.071	4TE	109 x 76.5 x 80mm	3 pcs.	698g
	PROTEC B2SR 50/150 (3+1)	506.072	4TE	109 x 76.5 x 80mm	3 pcs.	503g
	PROTEC B2SR 50/275 (3+1)	506.073	4TE	109 x 76.5 x 80mm	3 pcs.	583g
	PROTEC B2SR 50/320 (3+1)	506.074	4TE	109 x 76.5 x 80mm	3 pcs.	647g
	PROTEC B2SR 50/385 (3+1)	506.075	4TE	109 x 76.5 x 80mm	3 pcs.	695g
	PROTEC B2SR 50/440 (3+1)	506.076	4TE	109 x 76.5 x 80mm	3 pcs.	703g
	Module PROTEC B2S 12.5/150	506.001		221 x 64.5 x 48.5mm	12 pcs.	78g
	Module PROTEC B2S 12.5/275	506.002		221 x 64.5 x 48.5mm	12 pcs.	88g
	Module PROTEC B2S 12.5/320	506.003		221 x 64.5 x 48.5mm	12 pcs.	102g
	Module PROTEC B2S 12.5/385	506.004		221 x 64.5 x 48.5mm	12 pcs.	116g
	Module PROTEC B2S 12.5/440	506.005		221 x 64.5 x 48.5mm	12 pcs.	128g
	Module PROTUBE B2S 50/255	506.006		221 x 64.5 x 48.5mm	12 pcs.	70g
<b>Class II Modular Single and Multi-pole SPD up to 40kA per pole</b>						
	SAFETEC C 20/75	516.612	1TE	110 x 76.5 x 23.5mm	12 pcs.	125g
	SAFETEC C 40/150	516.001	1TE	110 x 76.5 x 23.5mm	12 pcs.	140g
	SAFETEC C 40/275	516.003	1TE	110 x 76.5 x 23.5mm	12 pcs.	140g
	SAFETEC C 40/385	516.614	1TE	110 x 76.5 x 23.5mm	12 pcs.	148g








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	Product name	Ordering code	Dimensions DIN 43880	Packaging dimensions (single unit)	Minimum packaging quantity	Weight	Page
	SAFETEC C 40/440	516.005	1TE	110 x 76.5 x 23.5mm	12 pcs.	150g	78
	SAFETEC C 25/750	516.616	1TE	110 x 76.5 x 23.5mm	12 pcs.	156g	78
	SAFETEC CR 20/75	516.613	1TE	110 x 76.5 x 23.5mm	12 pcs.	130g	78
	SAFETEC CR 40/150	516.002	1TE	110 x 76.5 x 23.5mm	12 pcs.	148g	78
	SAFETEC CR 40/275	516.004	1TE	110 x 76.5 x 23.5mm	12 pcs.	148g	78
	SAFETEC CR 40/385	516.615	1TE	110 x 76.5 x 23.5mm	12 pcs.	156g	78
	SAFETEC CR 40/440	516.006	1TE	110 x 76.5 x 23.5mm	12 pcs.	158g	78
	SAFETEC CR 25/750	516.617	1TE	110 x 76.5 x 23.5mm	12 pcs.	164g	78
	Module SAFETEC C(R) 20/75	516.648		221 x 64.5 x 48.5mm	12 pcs.	58g	78
Module SAFETEC C(R) 40/150	516.037		221 x 64.5 x 48.5mm	12 pcs.	62g	78	
Module SAFETEC C(R) 40/275	516.038		221 x 64.5 x 48.5mm	12 pcs.	66g	78	
Module SAFETEC C(R) 40/385	516.649		221 x 64.5 x 48.5mm	12 pcs.	72g	78	
Module SAFETEC C(R) 40/440	516.039		221 x 64.5 x 48.5mm	12 pcs.	74g	78	
Module SAFETEC C(R) 25/750	516.650		221 x 64.5 x 48.5mm	12 pcs.	78g	78	
SAFETUBE C 40/255	516.417	1TE	110 x 76.5 x 23.5mm	12 pcs.	118g	79	
Module SAFETUBE C 40/255	516.115		221 x 64.5 x 48.5mm	12 pcs.	34g	79	
	SAFETEC C 40/75 (2+0)	516.618	2TE	109 x 76.5 x 41.5mm	7 pcs.	250g	81
	SAFETEC C 80/150 (2+0)	516.007	2TE	109 x 76.5 x 41.5mm	7 pcs.	280g	81
	SAFETEC C 80/275 (2+0)	516.009	2TE	109 x 76.5 x 41.5mm	7 pcs.	281g	81
	SAFETEC C 80/385 (2+0)	516.620	2TE	109 x 76.5 x 41.5mm	7 pcs.	284g	81
	SAFETEC C 80/440 (2+0)	516.011	2TE	109 x 76.5 x 41.5mm	7 pcs.	286g	81
	SAFETEC C 50/750 (2+0)	516.622	2TE	109 x 76.5 x 41.5mm	7 pcs.	288g	81
	SAFETEC CR 40/75 (2+0)	516.619	2TE	109 x 76.5 x 41.5mm	7 pcs.	260g	81
	SAFETEC CR 80/150 (2+0)	516.008	2TE	109 x 76.5 x 41.5mm	7 pcs.	288g	81
	SAFETEC CR 80/275 (2+0)	516.010	2TE	109 x 76.5 x 41.5mm	7 pcs.	289g	81
	SAFETEC CR 80/385 (2+0)	516.621	2TE	109 x 76.5 x 41.5mm	7 pcs.	292g	81
	SAFETEC CR 80/440 (2+0)	516.012	2TE	109 x 76.5 x 41.5mm	7 pcs.	294g	81
	SAFETEC CR 50/750 (2+0)	516.623	2TE	109 x 76.5 x 41.5mm	7 pcs.	296g	81
	SAFETEC C 60/75 (3+0)	516.630	3TE	109 x 76.5 x 61.5mm	5 pcs.	375g	82
	SAFETEC C 120/150 (3+0)	516.019	3TE	109 x 76.5 x 61.5mm	5 pcs.	420g	82
	SAFETEC C 120/275 (3+0)	516.021	3TE	109 x 76.5 x 61.5mm	5 pcs.	422g	82
	SAFETEC C 120/385 (3+0)	516.632	3TE	109 x 76.5 x 61.5mm	5 pcs.	448g	82
	SAFETEC C 120/440 (3+0)	516.023	3TE	109 x 76.5 x 61.5mm	5 pcs.	450g	82
	SAFETEC C 75/750 (3+0)	516.634	3TE	109 x 76.5 x 61.5mm	5 pcs.	468g	82
	SAFETEC CR 60/75 (3+0)	516.631	3TE	109 x 76.5 x 61.5mm	5 pcs.	390g	82
	SAFETEC CR 120/150 (3+0)	516.020	3TE	109 x 76.5 x 61.5mm	5 pcs.	428g	82
	SAFETEC CR 120/275 (3+0)	516.022	3TE	109 x 76.5 x 61.5mm	5 pcs.	430g	82
	SAFETEC CR 120/385 (3+0)	516.633	3TE	109 x 76.5 x 61.5mm	5 pcs.	456g	82
	SAFETEC CR 120/440 (3+0)	516.024	3TE	109 x 76.5 x 61.5mm	5 pcs.	458g	82
	SAFETEC CR 75/750 (3+0)	516.635	3TE	109 x 76.5 x 61.5mm	5 pcs.	476g	82
	SAFETEC C 80/75 (4+0)	516.636	4TE	109 x 76.5 x 80mm	3 pcs.	500g	83
	SAFETEC C 160/150 (4+0)	516.025	4TE	109 x 76.5 x 80mm	3 pcs.	560g	83
	SAFETEC C 160/275 (4+0)	516.027	4TE	109 x 76.5 x 80mm	3 pcs.	562g	83
SAFETEC C 160/385 (4+0)	516.638	4TE	109 x 76.5 x 80mm	3 pcs.	595g	83	
SAFETEC C 160/440 (4+0)	516.029	4TE	109 x 76.5 x 80mm	3 pcs.	598g	83	
SAFETEC C 100/750 (4+0)	516.640	4TE	109 x 76.5 x 80mm	3 pcs.	602g	83	
SAFETEC CR 80/75 (4+0)	516.637	4TE	109 x 76.5 x 80mm	3 pcs.	520g	83	
SAFETEC CR 160/150 (4+0)	516.026	4TE	109 x 76.5 x 80mm	3 pcs.	568g	83	
SAFETEC CR 160/275 (4+0)	516.028	4TE	109 x 76.5 x 80mm	3 pcs.	570g	83	
SAFETEC CR 160/385 (4+0)	516.639	4TE	109 x 76.5 x 80mm	3 pcs.	603g	83	
SAFETEC CR 160/440 (4+0)	516.030	4TE	109 x 76.5 x 80mm	3 pcs.	606g	83	
SAFETEC CR 100/750 (4+0)	516.641	4TE	109 x 76.5 x 80mm	3 pcs.	610g	83	
	SAFETEC C 40/75 (1+1)	516.624	2TE	109 x 76.5 x 41.5mm	7 pcs.	253g	85
	SAFETEC C 80/150 (1+1)	516.013	2TE	109 x 76.5 x 41.5mm	7 pcs.	258g	85
	SAFETEC C 80/275 (1+1)	516.015	2TE	109 x 76.5 x 41.5mm	7 pcs.	258g	85
	SAFETEC C 80/385 (1+1)	516.626	2TE	109 x 76.5 x 41.5mm	7 pcs.	265g	85
	SAFETEC C 80/440 (1+1)	516.017	2TE	109 x 76.5 x 41.5mm	7 pcs.	268g	85
	SAFETEC C 50/750 (1+1)	516.628	2TE	109 x 76.5 x 41.5mm	7 pcs.	271g	85
	SAFETEC CR 40/75 (1+1)	516.625	2TE	109 x 76.5 x 41.5mm	7 pcs.	261g	85
	SAFETEC CR 80/150 (1+1)	516.014	2TE	109 x 76.5 x 41.5mm	7 pcs.	266g	85
	SAFETEC CR 80/275 (1+1)	516.016	2TE	109 x 76.5 x 41.5mm	7 pcs.	266g	85
	SAFETEC CR 80/385 (1+1)	516.627	2TE	109 x 76.5 x 41.5mm	7 pcs.	274g	85
	SAFETEC CR 80/440 (1+1)	516.018	2TE	109 x 76.5 x 41.5mm	7 pcs.	276g	85
	SAFETEC CR 50/750 (1+1)	516.629	2TE	109 x 76.5 x 41.5mm	7 pcs.	279g	85
	SAFETEC C 80/75 (3+1)	516.642	4TE	109 x 76.5 x 80mm	3 pcs.	533g	86
SAFETEC C 160/150 (3+1)	516.031	4TE	109 x 76.5 x 80mm	3 pcs.	538g	86	
SAFETEC C 160/275 (3+1)	516.033	4TE	109 x 76.5 x 80mm	3 pcs.	540g	86	
SAFETEC C 160/385 (3+1)	516.644	4TE	109 x 76.5 x 80mm	3 pcs.	565g	86	
SAFETEC C 160/440 (3+1)	516.035	4TE	109 x 76.5 x 80mm	3 pcs.	568g	86	
SAFETEC C 100/750 (3+1)	516.646	4TE	109 x 76.5 x 80mm	3 pcs.	571g	86	
SAFETEC CR 80/75 (3+1)	516.643	4TE	109 x 76.5 x 80mm	3 pcs.	541g	86	
SAFETEC CR 160/150 (3+1)	516.032	4TE	109 x 76.5 x 80mm	3 pcs.	546g	86	
SAFETEC CR 160/275 (3+1)	516.034	4TE	109 x 76.5 x 80mm	3 pcs.	548g	86	

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Product name	Ordering code	Dimensions DIN 43880	Packaging dimensions (single unit)	Minimum packaging quantity	Weight	Page
SAFETEC CR 160/385 (3+1)	516.645	4TE	109 x 76.5 x 80mm	3 pcs.	574g	86
SAFETEC CR 160/440 (3+1)	516.036	4TE	109 x 76.5 x 80mm	3 pcs.	576g	86
SAFETEC CR 100/750 (3+1)	516.647	4TE	109 x 76.5 x 80mm	3 pcs.	579g	86
Module SAFETEC C(R) 20/75	516.648		221 x 64.5 x 48.5mm	12 pcs.	58g	86
Module SAFETEC C(R) 40/150	516.037		221 x 64.5 x 48.5mm	12 pcs.	62g	86
Module SAFETEC C(R) 40/275	516.038		221 x 64.5 x 48.5mm	12 pcs.	66g	86
Module SAFETEC C(R) 40/385	516.649		221 x 64.5 x 48.5mm	12 pcs.	72g	86
Module SAFETEC C(R) 40/440	516.039		221 x 64.5 x 48.5mm	12 pcs.	74g	86
Module SAFETEC C(R) 25/750	516.650		221 x 64.5 x 48.5mm	12 pcs.	78g	86
Module SAFETUBE C 40/255	516.115		221 x 64.5 x 48.5mm	12 pcs.	34g	86
<b>Type 2 Modular Single and Multi-pole SPD</b>						
 SAFETEC C 50/150 UL	516.058	1TE	110 x 76.5 x 23.5mm	12 pcs.	62g	90
 SAFETEC C 50/277 UL	516.060	1TE	110 x 76.5 x 23.5mm	12 pcs.	66g	90
 SAFETEC C 50/385 UL	516.062	1TE	110 x 76.5 x 23.5mm	12 pcs.	72g	90
 SAFETEC C 50/440 UL	516.064	1TE	110 x 76.5 x 23.5mm	12 pcs.	74g	90
 SAFETEC CR 50/550 UL	516.066	1TE	110 x 76.5 x 23.5mm	12 pcs.	76g	90
 SAFETEC C 20/750 UL	516.068	1TE	110 x 76.5 x 23.5mm	12 pcs.	78g	90
 SAFETEC C 20/880 UL	516.586	1TE	110 x 76.5 x 23.5mm	12 pcs.	78g	90
 SAFETEC CR 50/150 UL	516.059	1TE	110 x 76.5 x 23.5mm	12 pcs.	62g	90
 SAFETEC CR 50/277 UL	516.061	1TE	110 x 76.5 x 23.5mm	12 pcs.	66g	90
 SAFETEC CR 50/385 UL	516.063	1TE	110 x 76.5 x 23.5mm	12 pcs.	72g	90
 SAFETEC CR 50/440 UL	516.065	1TE	110 x 76.5 x 23.5mm	12 pcs.	74g	90
 SAFETEC CR 50/550 UL	516.067	1TE	110 x 76.5 x 23.5mm	12 pcs.	76g	90
 SAFETEC CR 25/750 UL	516.069	1TE	110 x 76.5 x 23.5mm	12 pcs.	78g	90
 SAFETEC CR 25/880 UL	516.587	1TE	110 x 76.5 x 23.5mm	12 pcs.	78g	90
 SAFETEC C 150/150 (3+0) UL	516.082	3TE	109 x 76.5 x 61.5mm	5 pcs.	420g	91
 SAFETEC C 150/277 (3+0) UL	516.084	3TE	109 x 76.5 x 61.5mm	5 pcs.	422g	91
 SAFETEC C 150/385 (3+0) UL	516.086	3TE	109 x 76.5 x 61.5mm	5 pcs.	435g	91
 SAFETEC C 150/440 (3+0) UL	516.088	3TE	109 x 76.5 x 61.5mm	5 pcs.	450g	91
 SAFETEC C 150/550 (3+0) UL	516.090	3TE	109 x 76.5 x 61.5mm	5 pcs.	459g	91
 SAFETEC C 60/750 (3+0) UL	516.091	3TE	109 x 76.5 x 61.5mm	5 pcs.	468g	91
 SAFETEC C 60/880 (3+0) UL	516.590	3TE	109 x 76.5 x 61.5mm	5 pcs.	468g	91
 SAFETEC CR 150/150 (3+0) UL	516.083	3TE	109 x 76.5 x 61.5mm	5 pcs.	428g	91
 SAFETEC CR 150/277 (3+0) UL	516.085	3TE	109 x 76.5 x 61.5mm	5 pcs.	430g	91
 SAFETEC CR 150/385 (3+0) UL	516.087	3TE	109 x 76.5 x 61.5mm	5 pcs.	443g	91
 SAFETEC CR 150/440 (3+0) UL	516.089	3TE	109 x 76.5 x 61.5mm	5 pcs.	458g	91
SAFETEC CR 150/550 (3+0) UL	516.130	3TE	109 x 76.5 x 61.5mm	5 pcs.	467g	91
SAFETEC CR 60/750 (3+0) UL	516.092	3TE	109 x 76.5 x 61.5mm	5 pcs.	476g	91
SAFETEC CR 60/880 (3+0) UL	516.591	3TE	109 x 76.5 x 61.5mm	5 pcs.	476g	91
SAFETEC C 100/150 (2+0) UL	516.070	2TE	109 x 76.5 x 41.5mm	7 pcs.	280g	92
SAFETEC C 100/277 (2+0) UL	516.072	2TE	109 x 76.5 x 41.5mm	7 pcs.	281g	92
SAFETEC C 100/385 (2+0) UL	516.074	2TE	109 x 76.5 x 41.5mm	7 pcs.	290g	92
SAFETEC C 100/440 (2+0) UL	516.076	2TE	109 x 76.5 x 41.5mm	7 pcs.	299g	92
SAFETEC C 40/750 (2+0) UL	516.080	2TE	109 x 76.5 x 41.5mm	7 pcs.	312g	92
SAFETEC C 40/880 (2+0) UL	516.588	2TE	109 x 76.5 x 41.5mm	7 pcs.	312g	92
SAFETEC CR 100/150 (2+0) UL	516.071	2TE	109 x 76.5 x 41.5mm	7 pcs.	288g	92
SAFETEC CR 100/277 (2+0) UL	516.073	2TE	109 x 76.5 x 41.5mm	7 pcs.	289g	92
SAFETEC CR 100/385 (2+0) UL	516.075	2TE	109 x 76.5 x 41.5mm	7 pcs.	298g	92
SAFETEC CR 100/440 (2+0) UL	516.077	2TE	109 x 76.5 x 41.5mm	7 pcs.	307g	92
SAFETEC CR 40/750 (2+0) UL	516.081	2TE	109 x 76.5 x 41.5mm	7 pcs.	320g	92
SAFETEC CR 40/880 (2+0) UL	516.589	2TE	109 x 76.5 x 41.5mm	7 pcs.	320g	92
SAFETEC C 200/150 (4+0) UL	516.093	4TE	109 x 76.5 x 80mm	3 pcs.	560g	93
SAFETEC C 200/277 (4+0) UL	516.095	4TE	109 x 76.5 x 80mm	3 pcs.	562g	93
SAFETEC C 200/385 (4+0) UL	516.097	4TE	109 x 76.5 x 80mm	3 pcs.	580g	93
SAFETEC C 200/440 (4+0) UL	516.099	4TE	109 x 76.5 x 80mm	3 pcs.	598g	93
SAFETEC C 80/750 (4+0) UL	516.103	4TE	109 x 76.5 x 80mm	3 pcs.	624g	93
SAFETEC C 80/880 (4+0) UL	516.592	4TE	109 x 76.5 x 80mm	3 pcs.	624g	93
SAFETEC CR 200/150 (4+0) UL	516.094	4TE	109 x 76.5 x 80mm	3 pcs.	568g	93
SAFETEC CR 200/277 (4+0) UL	516.096	4TE	109 x 76.5 x 80mm	3 pcs.	570g	93
SAFETEC CR 200/385 (4+0) UL	516.098	4TE	109 x 76.5 x 80mm	3 pcs.	588g	93
SAFETEC CR 200/440 (4+0) UL	516.100	4TE	109 x 76.5 x 80mm	3 pcs.	606g	93
SAFETEC CR 80/750 (4+0) UL	516.104	4TE	109 x 76.5 x 80mm	3 pcs.	632g	93
SAFETEC CR 80/880 (4+0) UL	516.593	4TE	109 x 76.5 x 80mm	3 pcs.	632g	93
Module SAFETEC C(R) 50/150 UL	516.201		221 x 64.5 x 48.5mm	12 pcs.	62g	93
Module SAFETEC C(R) 50/277 UL	516.202		221 x 64.5 x 48.5mm	12 pcs.	66g	93
Module SAFETEC C(R) 50/385 UL	516.203		221 x 64.5 x 48.5mm	12 pcs.	72g	93
Module SAFETEC C(R) 50/440 UL	516.204		221 x 64.5 x 48.5mm	12 pcs.	74g	93
Module SAFETEC C(R) 50/550 UL	516.205		221 x 64.5 x 48.5mm	12 pcs.	76g	93
Module SAFETEC C(R) 20/750 UL	516.206		221 x 64.5 x 48.5mm	12 pcs.	78g	93
Module SAFETEC C(R) 20/880 UL	516.585		221 x 64.5 x 48.5mm	12 pcs.	78g	93

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


Product name	Ordering code	Dimensions DIN 43880	Packaging dimensions (single unit)	Minimum packaging quantity	Weight	Page	
<b>Class II Modular Single and Multi-pole SPD 40kA per pole</b>							
	PROTEC C 40/75	50.0001	1TE	110 x 76.5 x 23.5mm	12 pcs.	112g	98
	PROTEC C 40/150	50.0003	1TE	110 x 76.5 x 23.5mm	12 pcs.	122g	98
	PROTEC C 40/275	50.0005	1TE	110 x 76.5 x 23.5mm	12 pcs.	128g	98
	PROTEC C 40/320	50.0007	1TE	110 x 76.5 x 23.5mm	12 pcs.	128g	98
	PROTEC C 40/385	50.0171	1TE	110 x 76.5 x 23.5mm	12 pcs.	129g	98
	PROTEC C 40/440	50.0009	1TE	110 x 76.5 x 23.5mm	12 pcs.	130g	98
	PROTEC CR 40/75	50.0011	1TE	110 x 76.5 x 23.5mm	12 pcs.	117g	98
	PROTEC CR 40/150	50.0013	1TE	110 x 76.5 x 23.5mm	12 pcs.	127g	98
	PROTEC CR 40/275	50.0015	1TE	110 x 76.5 x 23.5mm	12 pcs.	133g	98
	PROTEC CR 40/320	50.0017	1TE	110 x 76.5 x 23.5mm	12 pcs.	133g	98
	PROTEC CR 40/385	50.0175	1TE	110 x 76.5 x 23.5mm	12 pcs.	134g	98
	PROTEC CR 40/440	50.0019	1TE	110 x 76.5 x 23.5mm	12 pcs.	145g	98
	Module PROTEC C(R) 40/75	50.0216		221 x 64.5 x 48.5mm	12 pcs.	44g	98
	Module PROTEC C(R) 40/150	50.0217		221 x 64.5 x 48.5mm	12 pcs.	48g	98
	Module PROTEC C(R) 40/275	50.0219		221 x 64.5 x 48.5mm	12 pcs.	52g	98
	Module PROTEC C(R) 40/320	50.0220		221 x 64.5 x 48.5mm	12 pcs.	56g	98
Module PROTEC C(R) 40/385	50.0221		221 x 64.5 x 48.5mm	12 pcs.	58g	98	
Module PROTEC C(R) 40/440	50.0222		221 x 64.5 x 48.5mm	12 pcs.	60g	98	
<b>Class II Modular Single up to 40kA</b>							
	PROTEC C 20/150	50.0037	1TE	110 x 76.5 x 23.5mm	12 pcs.	119g	99
	PROTEC C 20/275	50.0039	1TE	110 x 76.5 x 23.5mm	12 pcs.	125g	99
	PROTEC C 20/320	50.0041	1TE	110 x 76.5 x 23.5mm	12 pcs.	125g	99
	PROTEC C 20/385	50.0315	1TE	110 x 76.5 x 23.5mm	12 pcs.	126g	99
	PROTEC C 20/440	50.0043	1TE	110 x 76.5 x 23.5mm	12 pcs.	127g	99
	PROTEC CR 20/150	50.0045	1TE	110 x 76.5 x 23.5mm	12 pcs.	124g	99
	PROTEC CR 20/275	50.0047	1TE	110 x 76.5 x 23.5mm	12 pcs.	130g	99
	PROTEC CR 20/320	50.0049	1TE	110 x 76.5 x 23.5mm	12 pcs.	140g	99
	PROTEC CR 20/385	50.0317	1TE	110 x 76.5 x 23.5mm	12 pcs.	131g	99
	PROTEC CR 20/440	50.0051	1TE	110 x 76.5 x 23.5mm	12 pcs.	132g	99
	Module PROTEC C(R) 20/150	50.0479		221 x 64.5 x 48.5mm	12 pcs.	48g	99
	Module PROTEC C(R) 20/275	50.0480		221 x 64.5 x 48.5mm	12 pcs.	56g	99
	Module PROTEC C(R) 20/320	50.0481		221 x 64.5 x 48.5mm	12 pcs.	56g	99
	Module PROTEC C(R) 20/385	50.0482		221 x 64.5 x 48.5mm	12 pcs.	60g	99
	Module PROTEC C(R) 20/440	50.0483		221 x 64.5 x 48.5mm	12 pcs.	58g	99
PROTUBE C40/255	50.3005	1TE	110 x 76.5 x 23.5mm	12 pcs.	118g	100	
Module PROTUBE C 40/255	50.0234		221 x 64.5 x 48.5mm	12 pcs.	36g	100	
	PROTEC C 80/150 (2+0)	50.0073	2TE	109 x 76.5 x 41.5mm	7 pcs.	234g	103
	PROTEC C 80/275 (2+0)	50.0075	2TE	109 x 76.5 x 41.5mm	7 pcs.	244g	103
	PROTEC C 80/320 (2+0)	50.0077	2TE	109 x 76.5 x 41.5mm	7 pcs.	244g	103
	PROTEC C 80/385 (2+0)	50.0179	2TE	109 x 76.5 x 41.5mm	7 pcs.	245g	103
	PROTEC C 80/440 (2+0)	50.0079	2TE	109 x 76.5 x 41.5mm	7 pcs.	247g	103
	PROTEC CR 80/150 (2+0)	50.0081	2TE	109 x 76.5 x 41.5mm	7 pcs.	239g	103
	PROTEC CR 80/275 (2+0)	50.0083	2TE	109 x 76.5 x 41.5mm	7 pcs.	249g	103
	PROTEC CR 80/320 (2+0)	50.0085	2TE	109 x 76.5 x 41.5mm	7 pcs.	249g	103
	PROTEC CR 80/385 (2+0)	50.0183	2TE	109 x 76.5 x 41.5mm	7 pcs.	250g	103
	PROTEC CR 80/440 (2+0)	50.0087	2TE	109 x 76.5 x 41.5mm	7 pcs.	252g	103
	PROTEC C 120/150 (3+0)	50.0105	3TE	109 x 76.5 x 61.5mm	5 pcs.	330g	104
	PROTEC C 120/275 (3+0)	50.0107	3TE	109 x 76.5 x 61.5mm	5 pcs.	352g	104
	PROTEC C 120/320 (3+0)	50.0109	3TE	109 x 76.5 x 61.5mm	5 pcs.	352g	104
	PROTEC C 120/385 (3+0)	50.0195	3TE	109 x 76.5 x 61.5mm	5 pcs.	354g	104
	PROTEC C 120/440 (3+0)	50.0111	3TE	109 x 76.5 x 61.5mm	5 pcs.	356g	104
	PROTEC CR 120/150 (3+0)	50.0113	3TE	109 x 76.5 x 61.5mm	5 pcs.	335g	104
	PROTEC CR 120/275 (3+0)	50.0115	3TE	109 x 76.5 x 61.5mm	5 pcs.	357g	104
	PROTEC CR 120/320 (3+0)	50.0117	3TE	109 x 76.5 x 61.5mm	5 pcs.	357g	104
	PROTEC CR 120/385 (3+0)	50.0199	3TE	109 x 76.5 x 61.5mm	5 pcs.	359g	104
	PROTEC CR 120/440 (3+0)	50.0119	3TE	109 x 76.5 x 61.5mm	5 pcs.	361g	104
	PROTEC C 160/150 (4+0)	50.0121	4TE	109 x 76.5 x 80mm	3 pcs.	432g	105
	PROTEC C 160/275 (4+0)	50.0123	4TE	109 x 76.5 x 80mm	3 pcs.	456g	105
	PROTEC C 160/320 (4+0)	50.0125	4TE	109 x 76.5 x 80mm	3 pcs.	456g	105
	PROTEC C 160/385 (4+0)	50.0203	4TE	109 x 76.5 x 80mm	3 pcs.	460g	105
	PROTEC C 160/440 (4+0)	50.0127	4TE	109 x 76.5 x 80mm	3 pcs.	466g	105
	PROTEC CR 160/150 (4+0)	50.0129	4TE	109 x 76.5 x 80mm	3 pcs.	437g	105
	PROTEC CR 160/275 (4+0)	50.0131	4TE	109 x 76.5 x 80mm	3 pcs.	461g	105
	PROTEC CR 160/320 (4+0)	50.0133	4TE	109 x 76.5 x 80mm	3 pcs.	461g	105
	PROTEC CR 160/385 (4+0)	50.0207	4TE	109 x 76.5 x 80mm	3 pcs.	465g	105
	PROTEC CR 160/440 (4+0)	50.0135	4TE	109 x 76.5 x 80mm	3 pcs.	471g	105
Module PROTEC C(R) 40/75	50.0216		221 x 64.5 x 48.5mm	12 pcs.	44g	105	
Module PROTEC C(R) 40/150	50.0217		221 x 64.5 x 48.5mm	12 pcs.	48g	105	
Module PROTEC C(R) 40/275	50.0219		221 x 64.5 x 48.5mm	12 pcs.	52g	105	

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Module PROTEC C(R) 40/320	50.0220		221 x 64.5 x 48.5mm	12 pcs.	56g	105
Module PROTEC C(R) 40/385	50.0221		221 x 64.5 x 48.5mm	12 pcs.	58g	105
Module PROTEC C(R) 40/440	50.0222		221 x 64.5 x 48.5mm	12 pcs.	60g	105
PROTEC C 80/150 (1+1)	50.0089	2TE	109 x 76.5 x 41.5mm	7 pcs.	221g	107
PROTEC C 80/275 (1+1)	50.0091	2TE	109 x 76.5 x 41.5mm	7 pcs.	225g	107
PROTEC C 80/320 (1+1)	50.0093	2TE	109 x 76.5 x 41.5mm	7 pcs.	225g	107
PROTEC C 80/385 (1+1)	50.0187	2TE	109 x 76.5 x 41.5mm	7 pcs.	226g	107
PROTEC C 80/440 (1+1)	50.0095	2TE	109 x 76.5 x 41.5mm	7 pcs.	227g	107
PROTEC CR 80/150 (1+1)	50.0097	2TE	109 x 76.5 x 41.5mm	7 pcs.	226g	107
PROTEC CR 80/275 (1+1)	50.0099	2TE	109 x 76.5 x 41.5mm	7 pcs.	230g	107
PROTEC CR 80/320 (1+1)	50.0101	2TE	109 x 76.5 x 41.5mm	7 pcs.	230g	107
PROTEC CR 80/385 (1+1)	50.0191	2TE	109 x 76.5 x 41.5mm	7 pcs.	231g	107
PROTEC CR 80/440 (1+1)	50.0103	2TE	109 x 76.5 x 41.5mm	7 pcs.	232g	107
PROTEC C 160/150 (3+1)	50.0137	4TE	109 x 76.5 x 80mm	3 pcs.	423g	108
PROTEC C 160/275 (3+1)	50.0139	4TE	109 x 76.5 x 80mm	3 pcs.	441g	108
PROTEC C 160/320 (3+1)	50.0141	4TE	109 x 76.5 x 80mm	3 pcs.	441g	108
PROTEC C 160/385 (3+1)	50.0211	4TE	109 x 76.5 x 80mm	3 pcs.	445g	108
PROTEC C 160/440 (3+1)	50.0143	4TE	109 x 76.5 x 80mm	3 pcs.	447g	108
PROTEC CR 160/150 (3+1)	50.0145	4TE	109 x 76.5 x 80mm	3 pcs.	428g	108
PROTEC CR 160/275 (3+1)	50.0147	4TE	109 x 76.5 x 80mm	3 pcs.	446g	108
PROTEC CR 160/320 (3+1)	50.0149	4TE	109 x 76.5 x 80mm	3 pcs.	446g	108
PROTEC CR 160/385 (3+1)	50.0215	4TE	109 x 76.5 x 80mm	3 pcs.	450g	108
PROTEC CR 160/440 (3+1)	50.0151	4TE	109 x 76.5 x 80mm	3 pcs.	452g	108
Module PROTEC C(R) 40/75	50.0216		221 x 64.5 x 48.5mm	12 pcs.	44g	105
Module PROTEC C(R) 40/150	50.0217		221 x 64.5 x 48.5mm	12 pcs.	48g	105
Module PROTEC C(R) 40/275	50.0219		221 x 64.5 x 48.5mm	12 pcs.	52g	105
Module PROTEC C(R) 40/320	50.0220		221 x 64.5 x 48.5mm	12 pcs.	56g	105
Module PROTEC C(R) 40/385	50.0221		221 x 64.5 x 48.5mm	12 pcs.	58g	105
Module PROTEC C(R) 40/440	50.0222		221 x 64.5 x 48.5mm	12 pcs.	60g	105
Module PROTUBE C 40/255	50.0234		221 x 64.5 x 48.5mm	12 pcs.	36g	108
Class II Modular and Multi-pole SPD up to 40kA per pole						
PROTEC CMG 40/150 (2+0)	508.197	1TE	110 x 76.5 x 23.5mm	12 pcs.	130g	112
PROTEC CMG 40/275 (2+0)	508.198	1TE	110 x 76.5 x 23.5mm	12 pcs.	146g	112
PROTEC CMGR 40/150 (2+0)	508.199	1TE	110 x 76.5 x 23.5mm	12 pcs.	135g	112
PROTEC CMGR 40/275 (2+0)	508.200	1TE	110 x 76.5 x 23.5mm	12 pcs.	151g	112
Module PROTEC CMG(R) 40/150 (2+0)	508.201		221 x 64.5 x 48.5mm	12 pcs.	63g	112
Module PROTEC CMG(R) 40/275 (2+0)	508.202		221 x 64.5 x 48.5mm	12 pcs.	79g	112
PROTEC CM 80/150 (2+0)	508.001	1TE	110 x 76.5 x 23.5mm	12 pcs.	134g	113
PROTEC CM 80/275 (2+0)	508.003	1TE	110 x 76.5 x 23.5mm	12 pcs.	144g	113
PROTEC CM 80/320 (2+0)	508.005	1TE	110 x 76.5 x 23.5mm	12 pcs.	144g	113
PROTEC CM 80/385 (2+0)	508.109	1TE	110 x 76.5 x 23.5mm	12 pcs.	150g	113
PROTEC CM 80/440 (2+0)	508.007	1TE	110 x 76.5 x 23.5mm	12 pcs.	152g	113
PROTEC CMR 80/150 (2+0)	508.009	1TE	110 x 76.5 x 23.5mm	12 pcs.	139g	113
PROTEC CMR 80/275 (2+0)	508.011	1TE	110 x 76.5 x 23.5mm	12 pcs.	149g	113
PROTEC CMR 80/320 (2+0)	508.013	1TE	110 x 76.5 x 23.5mm	12 pcs.	149g	113
PROTEC CMR 80/385 (2+0)	508.111	1TE	110 x 76.5 x 23.5mm	12 pcs.	155g	113
PROTEC CMR 80/440 (2+0)	508.015	1TE	110 x 76.5 x 23.5mm	12 pcs.	147g	113
Module PROTEC CM(R) 80/150 (2+0)	508.174		221 x 64.5 x 48.5mm	12 pcs.	67g	113
Module PROTEC CM(R) 80/275 (2+0)	508.164		221 x 64.5 x 48.5mm	12 pcs.	78g	113
Module PROTEC CM(R) 80/320 (2+0)	508.175		221 x 64.5 x 48.5mm	12 pcs.	78g	113
Module PROTEC CM(R) 80/385 (2+0)	508.146		221 x 64.5 x 48.5mm	12 pcs.	83g	113
Module PROTEC CM(R) 80/440 (2+0)	508.147		221 x 64.5 x 48.5mm	12 pcs.	85g	113
PROTEC CM 80/150 (1+1)	508.045	1TE	110 x 76.5 x 23.5mm	12 pcs.	124g	114
PROTEC CM 80/275 (1+1)	508.047	1TE	110 x 76.5 x 23.5mm	12 pcs.	126g	114
PROTEC CM 80/320 (1+1)	508.049	1TE	110 x 76.5 x 23.5mm	12 pcs.	126g	114
PROTEC CM 80/385 (1+1)	508.117	1TE	110 x 76.5 x 23.5mm	12 pcs.	129g	114
PROTEC CM 80/440 (1+1)	508.051	1TE	110 x 76.5 x 23.5mm	12 pcs.	130g	114
PROTEC CMR 80/150 (1+1)	508.053	1TE	110 x 76.5 x 23.5mm	12 pcs.	129g	114
PROTEC CMR 80/275 (1+1)	508.055	1TE	110 x 76.5 x 23.5mm	12 pcs.	131g	114
PROTEC CMR 80/320 (1+1)	508.057	1TE	110 x 76.5 x 23.5mm	12 pcs.	131g	114
PROTEC CMR 80/385 (1+1)	508.119	1TE	110 x 76.5 x 23.5mm	12 pcs.	134g	114
PROTEC CMR 80/440 (1+1)	508.059	1TE	110 x 76.5 x 23.5mm	12 pcs.	135g	114
Module PROTEC CM(R) 80/150 (1+1)	508.186		221 x 64.5 x 48.5mm	12 pcs.	57g	114
Module PROTEC CM(R) 80/275 (1+1)	508.187		221 x 64.5 x 48.5mm	12 pcs.	59g	114
Module PROTEC CM(R) 80/320 (1+1)	508.188		221 x 64.5 x 48.5mm	12 pcs.	59g	114
Module PROTEC CM(R) 80/385 (1+1)	508.189		221 x 64.5 x 48.5mm	12 pcs.	62g	114
Module PROTEC CM(R) 80/440 (1+1)	508.190		221 x 64.5 x 48.5mm	12 pcs.	63g	114
PROTEC CM 80A/150 (1+1)	508.120	1TE	110 x 76.5 x 23.5mm	12 pcs.	124g	115
PROTEC CM 80A/275 (1+1)	508.122	1TE	110 x 76.5 x 23.5mm	12 pcs.	126g	115





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 PROTEC CM 80A/320 (1+1)	508.124	1TE	110 x 76.5 x 23.5mm	12 pcs.	126g	115
PROTEC CM 80A/385 (1+1)	508.126	1TE	110 x 76.5 x 23.5mm	12 pcs.	129g	115
PROTEC CM 80A/440 (1+1)	508.128	1TE	110 x 76.5 x 23.5mm	12 pcs.	130g	115
PROTEC CMR 80A/150 (1+1)	508.130	1TE	110 x 76.5 x 23.5mm	12 pcs.	129g	115
PROTEC CMR 80A/275 (1+1)	508.132	1TE	110 x 76.5 x 23.5mm	12 pcs.	131g	115
PROTEC CMR 80A/320 (1+1)	508.134	1TE	110 x 76.5 x 23.5mm	12 pcs.	131g	115
PROTEC CMR 80A/385 (1+1)	508.136	1TE	110 x 76.5 x 23.5mm	12 pcs.	134g	115
PROTEC CMR 80A/440 (1+1)	508.138	1TE	110 x 76.5 x 23.5mm	12 pcs.	135g	115
Module PROTEC CM(R) 80A/150 (1+1)	508.176		221 x 64.5 x 48.5mm	12 pcs.	57g	115
Module PROTEC CM(R) 80A/275 (1+1)	508.143		221 x 64.5 x 48.5mm	12 pcs.	59g	115
Module PROTEC CM(R) 80A/320 (1+1)	508.177		221 x 64.5 x 48.5mm	12 pcs.	59g	115
Module PROTEC CM(R) 80A/385 (1+1)	508.144		221 x 64.5 x 48.5mm	12 pcs.	62g	115
Module PROTEC CM(R) 80A/440 (1+1)	508.145		221 x 64.5 x 48.5mm	12 pcs.	63g	115
<b>Class III Modular and Compact Single and Multi-pole SPD</b>						
 PROTEC D 10/150	508.601	1TE	110 x 76.5 x 23.5mm	12 pcs.	124g	120
PROTEC D 10/275	508.603	1TE	110 x 76.5 x 23.5mm	12 pcs.	130g	120
PROTEC D 10/320	508.605	1TE	110 x 76.5 x 23.5mm	12 pcs.	130g	120
PROTEC D 10/385	508.617	1TE	110 x 76.5 x 23.5mm	12 pcs.	131g	120
PROTEC D 10/440	508.607	1TE	110 x 76.5 x 23.5mm	12 pcs.	132g	120
PROTEC DR 10/150	508.609	1TE	110 x 76.5 x 23.5mm	12 pcs.	129g	120
PROTEC DR 10/275	508.611	1TE	110 x 76.5 x 23.5mm	12 pcs.	135g	120
PROTEC DR 10/320	508.613	1TE	110 x 76.5 x 23.5mm	12 pcs.	135g	120
PROTEC DR 10/385	508.619	1TE	110 x 76.5 x 23.5mm	12 pcs.	136g	120
PROTEC DR 10/440	508.615	1TE	110 x 76.5 x 23.5mm	12 pcs.	137g	120
Module PROTEC D(R) 10/150	508.620		221 x 64.5 x 48.5mm	12 pcs.	52g	120
Module PROTEC D(R) 10/275	508.621		221 x 64.5 x 48.5mm	12 pcs.	58g	120
Module PROTEC D(R) 10/320	508.622		221 x 64.5 x 48.5mm	12 pcs.	59g	120
Module PROTEC D(R) 10/385	508.623		221 x 64.5 x 48.5mm	12 pcs.	60g	120
Module PROTEC D(R) 10/440	508.624		21 x 64.5 x 48.5mm	12 pcs.	60g	120
 PROTEC DM 20/150 (2+0)	508.029	1TE	110 x 76.5 x 23.5mm	12 pcs.	136g	121
PROTEC DM 20/275 (2+0)	508.031	1TE	110 x 76.5 x 23.5mm	12 pcs.	140g	121
PROTEC DM 20/320 (2+0)	508.033	1TE	110 x 76.5 x 23.5mm	12 pcs.	150g	121
PROTEC DM 20/385 (2+0)	508.113	1TE	110 x 76.5 x 23.5mm	12 pcs.	153g	121
PROTEC DM 20/440 (2+0)	508.035	1TE	110 x 76.5 x 23.5mm	12 pcs.	155g	121
PROTEC DMR 20/150 (2+0)	508.037	1TE	110 x 76.5 x 23.5mm	12 pcs.	141g	121
PROTEC DMR 20/275 (2+0)	508.039	1TE	110 x 76.5 x 23.5mm	12 pcs.	145g	121
PROTEC DMR 20/320 (2+0)	508.041	1TE	110 x 76.5 x 23.5mm	12 pcs.	155g	121
PROTEC DMR 20/385 (2+0)	508.115	1TE	110 x 76.5 x 23.5mm	12 pcs.	158g	121
PROTEC DMR 20/440 (2+0)	508.043	1TE	110 x 76.5 x 23.5mm	12 pcs.	160g	121
Module PROTEC DM(R) 20/150 (2+0)	508.191		221 x 64.5 x 48.5mm	12 pcs.	69g	121
Module PROTEC DM(R) 20/275 (2+0)	508.192		221 x 64.5 x 48.5mm	12 pcs.	73g	121
Module PROTEC DM(R) 20/320 (2+0)	508.193		221 x 64.5 x 48.5mm	12 pcs.	83g	121
Module PROTEC DM(R) 20/385 (2+0)	508.194		221 x 64.5 x 48.5mm	12 pcs.	86g	121
Module PROTEC DM(R) 20/440 (2+0)	508.195		221 x 64.5 x 48.5mm	12 pcs.	88g	121
 PROTEC DMG 20/320 (2+0)	508.021	1TE	110 x 76.5 x 23.5mm	12 pcs.	118g	122
PROTEC DMGR 20/320 (2+0)	508.027	1TE	110 x 76.5 x 23.5mm	12 pcs.	123g	122
Module PROTEC DMG(R) 20/320 (2+0)	508.196		221 x 64.5 x 48.5mm	12 pcs.	52g	122
 PROLED 275 (3+1) 16A	130 302	4TE	109 x 76.5 x 80mm	3 pcs.	164g	125
PROLED 275 (4+0) 16A	130 301	4TE	109 x 76.5 x 80mm	3 pcs.	164g	125
 MPE-MINI	121 501		305 x 116 x 83mm	30 pcs.	52g	127
MPE-MINI LED	130 331		305 x 116 x 83mm	30 pcs.	52g	127
 ZE 200-PS	121 532		151.5 x 96 x 79.5mm	1 pc.	182g	129
 PROFILT D 8A	130 061	2TE	109 x 76.5 x 41.5mm	7 pcs.	94g	131
 PROFILT D 10A	130 051	5TE	112 x 76.5 x 100mm	3 pcs.	420g	133
PROFILT D 16A	130 052	5TE	112 x 76.5 x 100mm	3 pcs.	420g	133
PROFILT D 25A	130 053	5TE	112 x 76.5 x 100mm	3 pcs.	420g	133
PROFILT D 30A	130 050	5TE	112 x 76.5 x 100mm	3 pcs.	420g	133
<b>Modular and Compact SPD for DC Power Systems</b>						
 DC PROTEC B 10/24	510 598	4TE	109 x 76.5 x 80mm	3 pcs.	246g	136
DC PROTEC B 10/48	510 600	4TE	109 x 76.5 x 80mm	3 pcs.	280g	136
DC PROTEC BR 10/24	510 599	4TE	109 x 76.5 x 80mm	3 pcs.	251g	136
DC PROTEC BR 10/48	510 601	4TE	109 x 76.5 x 80mm	3 pcs.	288g	136
 DC PROTEC C 40/24	510 564	2TE	109 x 76.5 x 41.5mm	3 pcs.	204g	138
DC PROTEC C 40/48	510 566	2TE	109 x 76.5 x 41.5mm	3 pcs.	204g	138
DC PROTEC CR 40/24	510 565	2TE	109 x 76.5 x 41.5mm	3 pcs.	208g	138
DC PROTEC CR 40/48	510 567	2TE	109 x 76.5 x 41.5mm	3 pcs.	208g	138





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PROTEC C 40/75	50.0001	1TE	110 x 76.5 x 23.5mm	12 pcs.	112g	140
PROTEC CR 40/75	50.0011	1TE	110 x 76.5 x 23.5mm	12 pcs.	117g	140
Module PROTEC C(R) 40/75	50.0216	1TE	110 x 76.5 x 48.5mm	12 pcs.	44g	140
 PROTEC DMDR 20/24	515 051	1TE	110 x 76.5 x 23.5mm	12 pcs.	96g	142
PROTEC DMDR 20/48	515 053	1TE	110 x 76.5 x 23.5mm	12 pcs.	96g	142
PROTEC DMDR 20/60	515 054	1TE	110 x 76.5 x 23.5mm	12 pcs.	96g	142
PROTEC DMDR 20/120	515 055	1TE	110 x 76.5 x 23.5mm	12 pcs.	96g	142
Module PROTEC DMDR 20/24	515 086		61 x 49 x 21mm	24 pcs.	32g	142
Module PROTEC DMDR 20/48	515 087		61 x 49 x 21mm	24 pcs.	32g	142
Module PROTEC DMDR 20/60	515 088		61 x 49 x 21mm	24 pcs.	32g	142
Module PROTEC DMDR 20/120	515 089		61 x 49 x 21mm	24 pcs.	32g	142
Class I, II SPD for Photovoltaic Systems						
 SAFETEC B 12.5/300 PV TCG	54.0096	4TE	109 x 76.5 x 80mm	3 pcs.	440g	146
SAFETEC BR 12.5/300 PV TCG	54.0097	4TE	109 x 76.5 x 80mm	3 pcs.	445g	146
SAFETEC B 12.5/600 PV TCG	54.0098	4TE	109 x 76.5 x 80mm	3 pcs.	460g	146
SAFETEC BR 12.5/600 PV TCG	54.0099	4TE	109 x 76.5 x 80mm	3 pcs.	465g	146
SAFETEC B 12.5/1000 PV TCG	54.0102	4TE	109 x 76.5 x 80mm	3 pcs.	800g	146
SAFETEC BR 12.5/1000 PV TCG	54.0103	4TE	109 x 76.5 x 80mm	3 pcs.	805g	146
SAFETEC B 12.5/600 Y PV TCG	54.0100	6TE	109 x 76.5 x 114mm	2 pcs.	590g	147
SAFETEC BR 12.5/600 Y PV TCG	54.0101	6TE	109 x 76.5 x 114mm	2 pcs.	600g	147
 SAFETEC B 12.5/1000 Y PV TCG	54.0104	6TE	109 x 76.5 x 114mm	2 pcs.	630g	147
SAFETEC BR 12.5/1000 Y PV TCG	54.0105	6TE	109 x 76.5 x 114mm	2 pcs.	640g	147
SAFETEC B 12.5/1200 Y PV TCG	54.0106	6TE	109 x 76.5 x 114mm	2 pcs.	1100g	147
SAFETEC BR 12.5/1200 Y PV TCG	54.0107	6TE	109 x 76.5 x 114mm	2 pcs.	1110g	147
SAFETEC B 12.5/1500 Y PV TCG	54.0108	6TE	109 x 76.5 x 114mm	2 pcs.	1160g	147
SAFETEC BR 12.5/1500 Y PV TCG	54.0109	6TE	109 x 76.5 x 114mm	2 pcs.	1170g	147
SAFETEC C 75 PV	516.040	2TE	109 x 76.5 x 41.5mm	7 pcs.	246g	149
SAFETEC C 300 PV	516.042	2TE	109 x 76.5 x 41.5mm	7 pcs.	280g	149
 SAFETEC C 600 PV	516.044	2TE	109 x 76.5 x 41.5mm	7 pcs.	290g	149
SAFETEC C 1000 PV	516.046	2TE	109 x 76.5 x 41.5mm	7 pcs.	299g	149
SAFETEC CR 75 PV	516.041	2TE	109 x 76.5 x 41.5mm	7 pcs.	251g	149
SAFETEC CR 300 PV	516.043	2TE	109 x 76.5 x 41.5mm	7 pcs.	288g	149
SAFETEC CR 600 PV	516.045	2TE	109 x 76.5 x 41.5mm	7 pcs.	298g	149
SAFETEC CR 1000 PV	516.047	2TE	109 x 76.5 x 41.5mm	7 pcs.	307g	149
Module SAFETEC C(R) 75 PV	516.050		221 x 64.5 x 48.5mm	12 pcs.	45g	149
Module SAFETEC C(R) 300 PV	516.051		221 x 64.5 x 48.5mm	12 pcs.	68g	149
Module SAFETEC C(R) 600 PV	516.052		221 x 64.5 x 48.5mm	12 pcs.	74g	149
Module SAFETEC C(R) 1000 PV	516.053		221 x 64.5 x 48.5mm	12 pcs.	78g	149
SAFETEC C 1000Y PV	516.242	3TE	109 x 76.5 x 61.5mm	5 pcs.	396g	150
SAFETEC C 1200Y PV	516.048	3TE	109 x 76.5 x 61.5mm	5 pcs.	390g	150
SAFETEC C 1500Y PV	516.271	3TE	109 x 76.5 x 61.5mm	5 pcs.	400g	150
 SAFETEC CR 1000Y PV	516.243	3TE	109 x 76.5 x 61.5mm	5 pcs.	402g	150
SAFETEC CR 1200Y PV	516.049	3TE	109 x 76.5 x 61.5mm	5 pcs.	396g	150
SAFETEC CR 1500Y PV	516.272	3TE	109 x 76.5 x 61.5mm	5 pcs.	406g	150
Module SAFETEC C(R) 1000Y PV	516.244		221 x 64.5 x 48.5mm	12 pcs.	74g	150
Module SAFETEC C(R) 1200Y PV	516.054		221 x 64.5 x 48.5mm	12 pcs.	74g	150
Module SAFETEC C(R) 1500Y PV	516.273		221 x 64.5 x 48.5mm	12 pcs.	76g	150
SAFETEC C 300 PV (2+0) UL	516.105	2TE	109 x 76.5 x 41.5mm	7 pcs.	280g	153
SAFETEC C 600 PV (2+0) UL	516.107	2TE	109 x 76.5 x 41.5mm	7 pcs.	290g	153
 SAFETEC C 1000 PV (2+0) UL	516.199	2TE	109 x 76.5 x 41.5mm	7 pcs.	299g	153
SAFETEC CR 300 PV (2+0) UL	516.106	2TE	109 x 76.5 x 41.5mm	7 pcs.	288g	153
SAFETEC CR 600 PV (2+0) UL	516.108	2TE	109 x 76.5 x 41.5mm	7 pcs.	298g	153
SAFETEC CR 1000 PV (2+0) UL	516.200	2TE	109 x 76.5 x 41.5mm	7 pcs.	307g	153
Module SAFETEC C(R) 300 PV UL	516.207		221 x 64.5 x 48.5mm	12 pcs.	68g	153
Module SAFETEC C(R) 600 PV UL	516.208		221 x 64.5 x 48.5mm	12 pcs.	74g	153
Module SAFETEC C(R) 1000 PV UL	516.209		221 x 64.5 x 48.5mm	12 pcs.	78g	153
SAFETEC C 1000 PV (3+0) UL	516.600	3TE	109 x 76.5 x 61.5mm	5 pcs.	396g	154
SAFETEC C 1200 PV (3+0) UL	516.109	3TE	109 x 76.5 x 61.5mm	5 pcs.	390g	154
SAFETEC CR 1000 PV (3+0) UL	516.596	3TE	109 x 76.5 x 61.5mm	5 pcs.	402g	154
 SAFETEC CR 1200 PV (3+0) UL	516.110	3TE	109 x 76.5 x 61.5mm	5 pcs.	392g	154
Module SAFETEC C(R) 1000 PV UL	516.604		221 x 64.5 x 48.5mm	12 pcs.	62g	154
Module SAFETEC C(R) 1200 PV UL	516.210		221 x 64.5 x 48.5mm	12 pcs.	66g	154


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	PV PROTEC C 40/550	501.527	2TE	109 x 76.5 x 41.5mm	7 pcs.	302g	157
	PV PROTEC CR 40/100	501.531	3TE	109 x 76.5 x 61.5mm	5 pcs.	329g	157
	PV PROTEC CR 40/550	501.537	3TE	109 x 76.5 x 61.5mm	5 pcs.	398g	157
	PV PROTEC C 40/600	501.709	2TE	109 x 76.5 x 41.5mm	7 pcs.	279g	158
	PV PROTEC C 40/1000	501.543	2TE	109 x 76.5 x 41.5mm	7 pcs.	307g	158
	PV PROTEC CR 40/600	501.710	3TE	109 x 76.5 x 61.5mm	5 pcs.	334g	158
	PV PROTEC CR 40/1000	501.547	3TE	109 x 76.5 x 61.5mm	5 pcs.	403g	158
Module PV PROTEC C(R) 40/100	50.0496		221 x 64.5 x 48.5mm	12 pcs.	46g	157	
Module PV PROTEC C(R) 40/550	50.0497		221 x 64.5 x 48.5mm	12 pcs.	58g	157	
Module PV PROTEC C(R) 40/600	501.711		221 x 64.5 x 48.5mm	12 pcs.	52g	158	
Module PV PROTEC C(R) 40/1000	50.0498		221 x 64.5 x 48.5mm	12 pcs.	58g	158	





### Class I, II SPD for Wind Systems

	SAFETEC B 12.5/440 WT TCG	54.0320	2TE	109 x 76.5 x 41.5mm	7 pcs.	371g	162
	SAFETEC BR 12.5/440 WT TCG	54.0321	2TE	109 x 76.5 x 41.5mm	7 pcs.	376g	162
	SAFETEC B 12.5/750 WT TCG	54.0078	2TE	109 x 76.5 x 41.5mm	7 pcs.	400g	162
	SAFETEC BR 12.5/750 WT TCG	54.0079	2TE	109 x 76.5 x 41.5mm	7 pcs.	405g	162
	SAFETEC B 25/440 WT TCG	54.0322	4TE	109 x 76.5 x 80mm	3 pcs.	692g	163
	SAFETEC BR 25/440 WT TCG	54.0323	4TE	109 x 76.5 x 80mm	3 pcs.	697g	163
	SAFETEC B 25/750 WT TCG	54.0080	4TE	109 x 76.5 x 80mm	3 pcs.	800g	163
	SAFETEC BR 25/750 WT TCG	54.0081	4TE	109 x 76.5 x 80mm	3 pcs.	805g	163
	SAFETEC C 440 (3+0) WT	516.652	3TE	109 x 76.5 x 61.5mm	5 pcs.	397g	165
	SAFETEC C 750 (3+0) WT	516.055	3TE	109 x 76.5 x 61.5mm	5 pcs.	364g	165
	SAFETEC C 880 (3+0) WT	516.369	3TE	109 x 76.5 x 61.5mm	5 pcs.	364g	165
	SAFETEC CR 440 (3+0) WT	516.653	3TE	109 x 76.5 x 61.5mm	5 pcs.	402g	165
	SAFETEC CR 750 (3+0) WT	516.056	3TE	109 x 76.5 x 61.5mm	5 pcs.	369g	165
	SAFETEC CR 880 (3+0) WT	516.370	3TE	109 x 76.5 x 61.5mm	5 pcs.	369g	165
Module SAFETEC C(R) 440 WT	516.654		221 x 64.5 x 48.5mm	12 pcs.	74g	165	
Module SAFETEC C(R) 750 WT	516.057		221 x 64.5 x 48.5mm	12 pcs.	78g	165	
Module SAFETEC C(R) 880 WT	516.371		221 x 64.5 x 48.5mm	12 pcs.	78g	165	
	SAFETEC C 440 (3+0) WT UL	516.225	3TE	109 x 76.5 x 61.5mm	5 pcs.	397g	167
	SAFETEC C 690 (3+0) WT UL	516.227	3TE	109 x 76.5 x 61.5mm	5 pcs.	364g	167
	SAFETEC C 750 (3+0) WT UL	516.229	3TE	109 x 76.5 x 61.5mm	5 pcs.	364g	167
	SAFETEC CR 440 (3+0) WT UL	516.226	3TE	109 x 76.5 x 61.5mm	5 pcs.	402g	167
	SAFETEC CR 690 (3+0) WT UL	516.228	3TE	109 x 76.5 x 61.5mm	5 pcs.	369g	167
	SAFETEC CR 750 (3+0) WT UL	516.230	3TE	109 x 76.5 x 61.5mm	5 pcs.	369g	167
Module SAFETEC C(R) 440 WT UL	516.262		221 x 64.5 x 48.5mm	12 pcs.	74g	167	
Module SAFETEC C(R) 690 WT UL	516.263		221 x 64.5 x 48.5mm	12 pcs.	78g	167	
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PROTEC AQ 25/385		509.045	390 x 380 x 280mm	100 pcs.	110g	178	
PROTEC AQ 25/440		509.023	390 x 380 x 280mm	100 pcs.	112g	178	
PROTEC AQ 40/150		509.029	390 x 380 x 280mm	100 pcs.	144g	179	
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PROTEC AQ 40/320		509.033	390 x 380 x 280mm	100 pcs.	149g	179	
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PROTEC AQS 40/150		509.049	390 x 380 x 280mm	100 pcs.	122g	180	
PROTEC AQS 40/275		509.051	390 x 380 x 280mm	100 pcs.	126g	180	
PROTEC AQS 40/320		509.053	390 x 380 x 280mm	100 pcs.	130g	180	
PROTEC AQS 40/440		509.055	390 x 380 x 280mm	100 pcs.	134g	180	
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# Raycap Worldwide Locations



Parkring 11  
85748 Garching  
Munich Germany

Telou & Petroutsou 14  
15124 Maroussi Athens  
Greece

Industrial Area of Drama  
66100 Drama  
Greece

806 South Clearwater Loop  
Post Falls, ID 83854  
United States of America

Soseaua de Centura 27-28  
077040 Chiajna Ilfov  
Romania

46 Lefkosias Street  
Industrial Area of Dali  
2540 Nicosia  
Cyprus

Stegne 23 A  
1000 Ljubljana  
Slovenia

Block B, Phase II  
of New Sea Union  
No. 58 Heshun Road  
SIP, Suzhou 215122  
Jiangsu Province  
China



# Raycap

[www.raycap.com](http://www.raycap.com) • [info@raycap.com](mailto:info@raycap.com)

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