Lightning/surge arresters CombiController V 25-B+C, V 25-B+C/...+NPE

Operation and fields of application

Lightning and surge arrester V 25-B+C ensures lightning protection potential equalisation in accordance with VDE 0185, Part 1 and Part 100. The device is an arrester of requirement Class B+C to DIN VDE 0675, Part 6 (Draft 11.89) A1, A2. It ensures potential equalisation for the energy supply line in lightning protection installations for buildings. The arrester can also be used in buildings that are supplied with power via an overhead line, since direct or partial lightning currents may be expected there as well.

Version V 25-B+C/3+NPE (requirement Class B+C) is a special surge arrester for TN-C-S, TN-S, TT and IT systems. This device was developed for the new requirements of DIN VDE 0100, Part 534/A1, to allow simple, safe installation of the devices.

High-performance arrester OBO V 25-B+C has a special varistor circuit made up of powerful zinc oxide varistors with a highly non-linear characteristic (a>30). This design ensures maximum protection even with powerful surges. Even at a maximum load I_{max} of 50 kA the protection level is below 1.5 kV. This enables this type of device to withstand even partial lightning currents from direct lightning strikes. In the event of an overload, the built-in isolating device isolates the faulty arrester module from the network and indicates this with a red field.

Because of the low residual voltage, OBO lightning arrester V 25-B+C can also be used as a combined arrester B and C.
Service location in accordance with VDS 2031.

Mounting

The OBO V 25-B+C can easily be installed in any distribution box or switchgear cabinet by snap-fitting to any commercial 35 mm top-hat rail. The NPE arrester element type C 25-B+C/NPE and the matching base are designed so that they cannot be plugged in the wrong way round (coding). This ensures correct installation of the upper parts of the arresters.

Test marks

Other marks

Ordering data

Type	Description	Order no.
V 25-B+C/1	1-pole, complete[1]; 280 V	**5097 04 5**
V 25-B+C/2	2-pole, complete[1]; 280 V	**5097 01 0**
V 25-B+C/3	3-pole, complete[1]; 280 V TN-C	**5097 00 2**
V 25-B+C/4	4-pole, complete[1]; 280 V TN-S	**5097 03 7**
V 25-B+C/3+NPE	3+1-pole, complete[1] 280 V TT + IT	**5097 40 1**
V 25-B+C/2-385	2-pole, complete[1]; 385 V	**5097 09 6**
V 25-B+C/4-385	4-pole, complete[1]; 385 V	**5097 10 0**
V 25-B+C/3+NPE-385	3+1-pole, complete[1] 385 V TT + IT	**5097 10 3**
V 25-B+C/0-150	Upper part; 150 V version	**5097 08 8**
V 25-B+C/0-280	Upper part; 280 V version	**5097 05 3**
V 25-B+C/0-385	Upper part; 385 V version	**5097 06 1**
C 25-B+C/NPE	Upper part NPE spark gap	**5095 60 3**
V 25-B+C/4-G	4-pole V 25-B+C in insulating material housing (IP 65); 280 V	**5097 25 8**

[1] Complete = upper part and base

The V 25-B+C/... is also available on request in a 150 V and a 385 V version.

Suitable bases for V 25-B+C, see page 35

Features at a glance V 25-B+C	Advantages in use
Simple installation via the marked terminals	Arresters still work after frequent operation
Combined arresters B and C for compact applications	One arrester in main distribution board is sufficient
Plug-in upper part	A faulty arrester module can be changed with the mains voltage on
Pre-wired arrester blocks, 1-4-pole blocks	Easy to install
Thermal isolating device with optical indication	Permanent check of arrester serviceability
Arrester with NPE spark gap in one module	Certainty in TN-S, TT and IT systems that no voltage can reach the protective earth (PE) conductor
C 25-B+C/NPE with protection against reversed insertion (coding)	Simple, professional installation of the arrester modules

Technical data

CombiController lightning arrester		V 25-B+C		
Description		150	280	385
Maximum continuous operating voltage (max. permitted operating voltage)	$U_{c\ AC}$ $U_{c\ DC}$	150 V~ 200 V -	280 V~ 350 V -	385 V~ 505 V -
LPZ		0 → 2		
Requirement class to DIN VDE 0675, Part 6 (Draft 11.89) A1, A2 to IEC 61643-1		B + C class I-class II		
Tested to		IEC 61643-1, prEN 61643-1, E DIN VDE 0675-6:1989-11 and Part 6/A1		
Test currents to DIN VDE 0675, Part 6, A1 + A2 Nominal discharge current	I_n (8/20)	30 kA		
Max. discharge current per block CombiController V 25-B+C/1... CombiController V 25-B+C/2... CombiController V 25-B+C/3... CombiController V 25-B+C/4...	I_{max} (8/20)	 50 kA 100 kA 150 kA 200 kA		
Maximum discharge current (8/80) in accordance with VdS 2031 for CombiController V 25-B+C/4...	I_{max}	100 kA		
Surge voltage test (10/350) with the lightning current parameters set out in IEC 61312-1 (02.95) Impulse current Charge Specific energy	 I_{imp} Q W/R	 8 kA 4 As 16 kJ/Ω	 7 kA 3.5 As 12 kJ/Ω	 7 kA 3.5 As 12 kJ/Ω
Voltage protection level at 1 kA (8/20) at 5 kA (8/20) at I_n	U_p U_p U_p	≤ 450 V ≤ 500 V ≤ 600 V	≤ 650 V ≤ 700 V ≤ 900 V	≤ 1.0 kV ≤ 1.2 kV ≤ 1.5 kV
Response time	t_A	< 25 ns		
Short-circuit withstand strength 25 kA with max. upstream fuse		160 A gl/gG		
Connection cross-section		2.5-25 mm² (fine-stranded with core end sleeves) 2.5-35 mm² (single and multi-stranded)		
Mounting on		35 mm top-hat rail to EN 50022		
IP Code		IP 20		
Temperature range	ϑ	-40 °C to +80 °C		

Spark gap CombiController NPE		C 25-B+C/NPE
Maximum continuous operating voltage	U_c	255 V / 50-60 Hz
Insulation resistance at 100 V	R_{ins}	>10 GΩ
Surge voltage test (10/350) with the lightning current parameters set out in IEC 61312-1 (02.95) Impulse current Charge Specific energy	 I_{imp} Q W/R	 25 kA 12.5 As 160 kJ/Ω
Nominal discharge current	I_n (8/20)	50 kA
Voltage protection level	U_p	≤ 1.2 kV
Response time	t_A	≤ 100 ns
Follow current at U_c	I_f	100 A_{rms}
Temperature range	ϑ	-40 °C to +80 °C
		Subject to technical alterations

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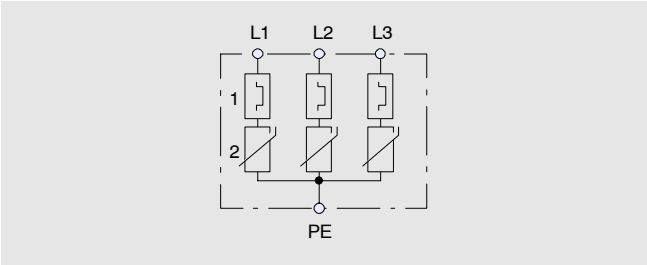
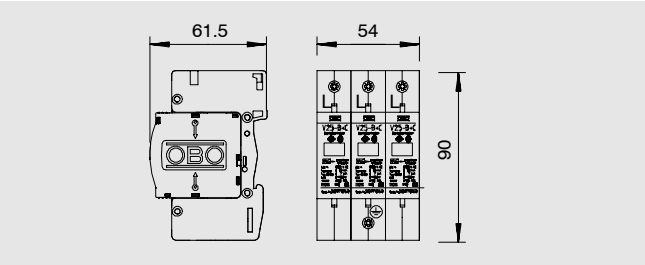
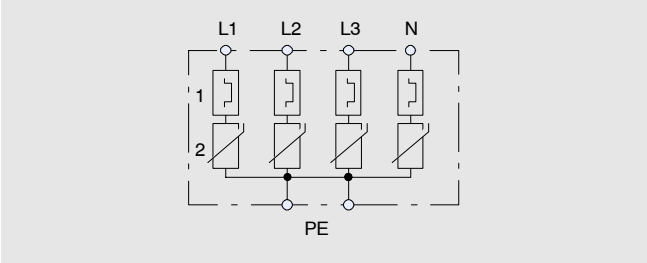


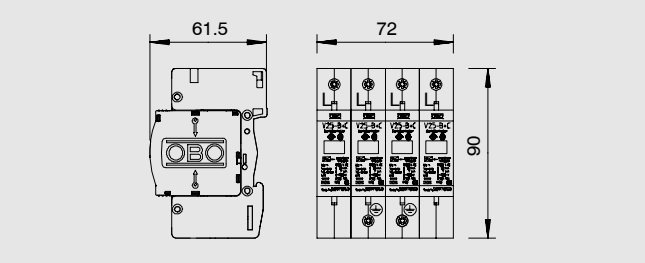
Block diagram of V 25-B+C/3



Dimension drawing



Block diagram of V 25-B+C/4



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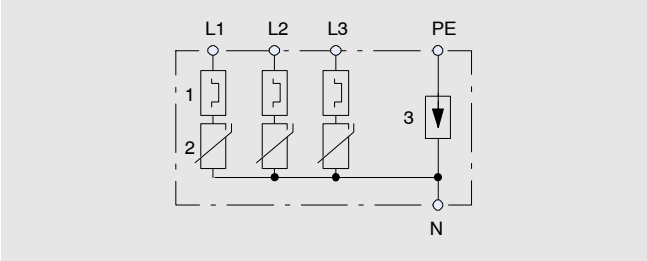
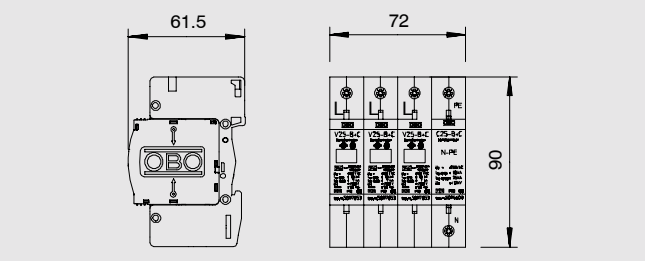


Block diagram of V 25-B+C/3+NPE



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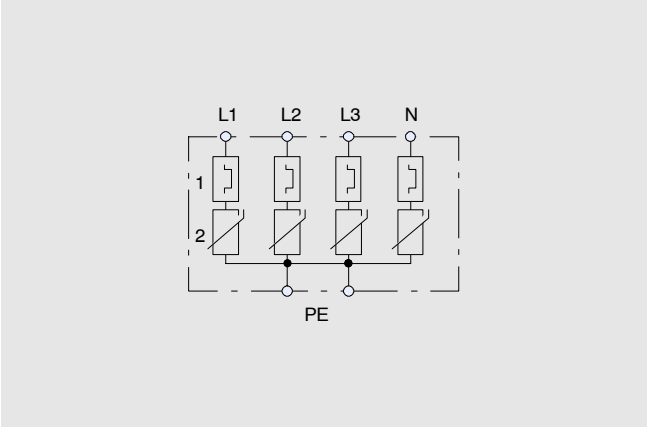
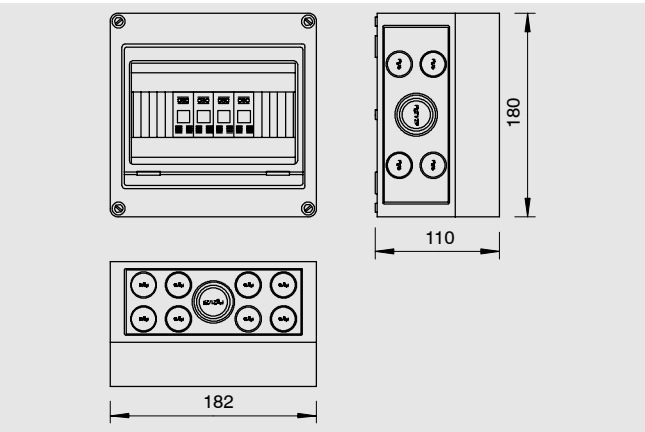


Block diagram of V25-B+C/4-G



Dimension drawing

Key
1) Thermal isolating device
2) Metal-oxide varistor
3) NPE sum current spark gap