

The selection matrix makes it easy to select suitable surge protection for the desired application.

The first column (Network type) divides the selection according to the number of phases of the power supply system, and the second column (Description) contains the corresponding power supply system. Subsequent columns provide information about the properties of the surge protective devices. The corresponding order numbers are then listed. Product-specific information can be found on the corresponding pages.

Special solutions for the IT power supply system can be found on page 47 onwards.

	Network type	Description
3-phase power supply	TN-S/TT  L1 L2 L3 N PE	3-phase power supply unit Separate N and PE
	TN-C  L1 L2 L3 PEN	3-phase power supply unit Common PEN
2-phase power supply	TN-S/TT  L1 L2 N PE	2-phase power supply unit Separate N and PE
	TN-C  L1 L2 PEN	2-phase power supply unit Common PEN
Single-phase power supply	TN-S/TT  L1 N PE	Single-phase power supply unit Separate N and PE
	TN-C  L1 PEN	Single-phase power supply unit Common N and PE
Termination device power supply	TN-S/TT  L1 L2 L3 N PE	3-phase power supply unit on the termination device Separate N and PE
	TN-S/TT  L1 N PE	Single-phase power supply unit on the termination device



Note
Products bearing this stamp (connector elements) can be tested with the CHECKMASTER.

	Type 1 lightning arrester	Type 2 surge arrester	Type 3 device protection	12 mm design width per channel	17.5 mm design width per channel	Can be plugged in and tested	Status indicator + remote indication contact	DIN-rail mountable	Adapter	Multi-position socket strip	Socket installation	Surge protective device	Order No.	Page
	✓											FLT-CP-PLUS-3S-350	2882640	16
	✓	✓				✓	✓	✓				FLT-CP-3S-350	2859712	28
		✓		✓								VAL-CP-3S-350	2859521	32
				✓								VAL-MS-320/3+1-FM	2859181	36
	✓											FLT-CP-PLUS-3C-350	2882653	16
	✓	✓				✓	✓	✓				FLT-CP-3C-350	2859725	28
		✓		✓								VAL-CP-3C-350	2859547	32
				✓								VAL-MS-320/3+0-FM	2920243	37
	✓											FLT-CP-PLUS-2S-350	2882666	17
	✓	✓				✓	✓	✓				FLT-CP-2S-350	2859767	29
		✓		✓								VAL-CP-2S-350	2859505	33
	✓											FLT-CP-PLUS-2C-350	2882679	17
	✓	✓				✓	✓	✓				FLT-CP-2C-350	2859770	29
		✓		✓								VAL-CP-2C-350	2859589	33
	✓											FLT-CP-PLUS-1S-350	2882682	17
	✓	✓				✓	✓	✓				FLT-CP-1S-350	2859738	29
		✓		✓								VAL-CP-1S-350	2859563	33
	✓											FLT-CP-PLUS-1C-350	2882695	18
	✓	✓				✓	✓	✓				FLT-CP-1C-350	2859741	30
			✓			✓	✓	✓				PT 4-PE/S-230AC	2882459	52
			✓		✓	✓	✓	✓				PT 2-PE/S-230AC	2858357	52
			✓						✓			MNT-1D ¹⁾	2882200	57
			✓							✓		CBT-SCHUKO ¹⁾	2857280	57
			✓								✓	BT-SKT-230AC BT-1S-230AC/A	2859343 2803409	55 55

¹⁾ Protection for power supply units is available in corresponding country-specific versions. Surge protective devices are also available with signal interface protection.

Surge protection for the IEC/EN power supply unit

Type 1 lightning arrester

FLASHTRAB compact PLUS

- Seamless pluggability (even for N/PE spark gap)
- Thermal disconnect device for each individual connector
- Optical, mechanical status indication for the individual arresters
- With floating remote indication contact
- Connectors can be checked with CHECKMASTER
- High continuous voltage of 350 V AC for 230/400 V AC networks with high voltage fluctuations

Notes:
Dimensional drawings starting on page 240
Approvals starting on page 252



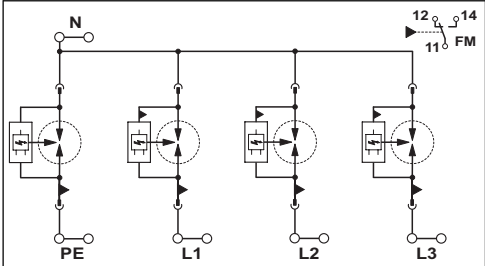
5-conductor system; L1, L2, L3, N, PE



4-conductor system; L1, L2, L3, PEN

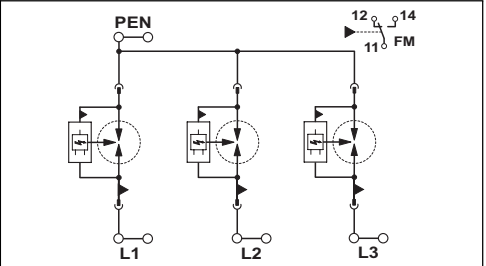
Electrical data	
IEC category / EN type	
Nominal voltage U_N	
Maximum continuous operating voltage U_C	
Lightning test curr. I_{imp} (10/350) μ s	L-N / N-PE / L-PEN
	Peak value
	Charge
	Specific energy
Nominal discharge surge current I_n (8/20) μ s	L-N / N-PE / L-PEN
Follow current quenching capacity I_{fl}	L-N / N-PE / L-PEN
Protection level U_p	L-N / N-PE / L-PEN
Response time t_A	L-N / N-PE / L-PEN
Max. backup fuse according to IEC	
Immunity to short-circuiting (with max. backup fuse) I_p	
General data	
Connection data solid / stranded / AWG	
Temperature range	
Inflammability class according to UL 94	
Test standards	
Remote indication contact	
Connection data solid / stranded / AWG	
Max. operating voltage	
Max. operating current	

Total width 142.8 mm



Technical data	
I / T1	
240 V AC (230/400 V AC ... 240/415 V AC)	
L-N / N-PE / L-PEN	350 V AC / 350 V AC / -
Peak value	100 kA
Charge	50 As
Specific energy	2.50 MJ/Ω
L-N / N-PE / L-PEN	25 kA / 100 kA / -
L-N / N-PE / L-PEN	50 kA (264 V AC) / 100 A / -
L-N / N-PE / L-PEN	≤ 1.5 kV / ≤ 1.5 kV / -
L-N / N-PE / L-PEN	≤ 100 ns / ≤ 100 ns / -
	315 A (gL/gG)
	50 kA

Total width 106.9 mm



Technical data	
I / T1	
240 V AC (230/400 V AC ... 240/415 V AC)	
- / - / 350 V AC	
75 kA	
37.5 As	
1.40 MJ/Ω	
- / - / 75 kA (3L-PEN)	
- / - / 50 kA (264 V AC)	
- / - / ≤ 1.5 kV	
- / - / ≤ 100 ns	
	315 A (gL/gG)
	50 kA

Ordering data	
Description	
FLASHTRAB compact PLUS	
Replacement connector	
L-N / L-PEN	
N-PE	
Labeling material	

Ordering data		
Type	Order No.	Pcs. / Pkt.
FLT-CP-PLUS-3S-350	2882640	1
Accessories		
FLT-CP-PLUS-350-ST	2859913	10
FLT-CP-N/PE-350-ST	2859686	10
ZBN 18 ..., see page 59		

Ordering data		
Type	Order No.	Pcs. / Pkt.
FLT-CP-PLUS-3C-350	2882653	1
Accessories		
FLT-CP-PLUS-350-ST	2859913	10
ZBN 18 ..., see page 59		



4-conductor system; L1, L2, N, PE

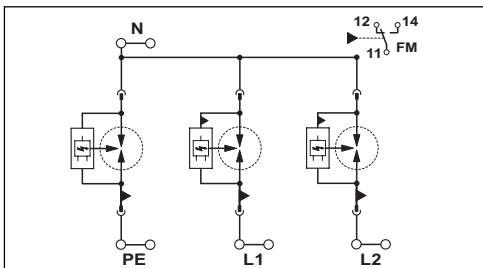


3-conductor system; L1, L2, PEN



3-conductor system; L, N, PE

Total width 106.9 mm



Technical data

I / T1
240 V AC (230/400 V AC ... 240/415 V AC)

350 V AC / 350 V AC / -

75 kA
37.5 As
1.40 MJ/Ω

25 kA / 100 kA / -

50 kA (264 V AC) / 100 A / -

≤ 1.5 kV / ≤ 1.5 kV / -

≤ 100 ns / ≤ 100 ns / -
315 A (gL/gG)
50 kA

2.5 ... 35 mm² / 2.5 ... 25 mm² / 13 - 2

-40°C ... 80°C

V0

IEC 61643-1 / EN 61643-11 / UL 1449 /

EN 61643-11/A11

PDT contact

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16

250 V AC / 125 V DC

1 A AC / 200 mA DC

Ordering data

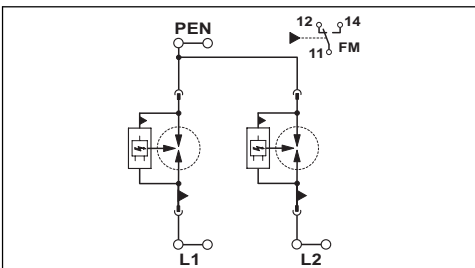
Type	Order No.	Pcs. / Pkt.
FLT-CP-PLUS-2S-350	2882666	1

Accessories

FLT-CP-PLUS-350-ST	2859913	10
FLT-CP-N/PE-350-ST	2859686	10

ZBN 18 ..., see page 59

Total width 71.6 mm



Technical data

I / T1
240 V AC (230/400 V AC ... 240/415 V AC)

- / - / 350 V AC

50 kA
25 As
625.00 kJ/Ω

- / - / 25 kA

- / - / 50 kA (264 V AC)

- / - / ≤ 1.5 kV

- / - / ≤ 100 ns
315 A (gL/gG)
50 kA

2.5 ... 35 mm² / 2.5 ... 25 mm² / 13 - 2

-40°C ... 80°C

V0

IEC 61643-1 / EN 61643-11 / UL 1449 /

EN 61643-11/A11

PDT contact

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16

250 V AC / 125 V DC

1 A AC / 200 mA DC

Ordering data

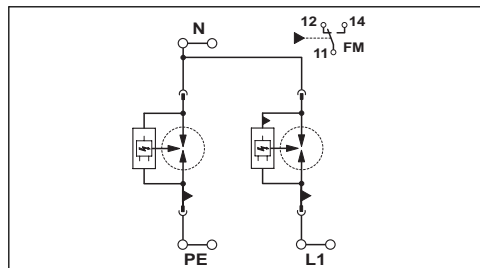
Type	Order No.	Pcs. / Pkt.
FLT-CP-PLUS-2C-350	2882679	1

Accessories

FLT-CP-PLUS-350-ST	2859913	10
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ZBN 18 ..., see page 59

Total width 71.6 mm



Technical data

I / T1
240 V AC (230/400 V AC ... 240/415 V AC)

350 V AC / 350 V AC / -

50 kA
25 As
625.00 kJ/Ω

25 kA / 100 kA / -

50 kA (264 V AC) / 100 A / -

≤ 1.5 kV / ≤ 1.5 kV / -

≤ 100 ns / ≤ 100 ns / -
315 A (gL/gG)
50 kA

2.5 ... 35 mm² / 2.5 ... 25 mm² / 13 - 2

-40°C ... 80°C

V0

IEC 61643-1 / EN 61643-11 / UL 1449 /

EN 61643-11/A11

PDT contact

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16

250 V AC / 125 V DC

1 A AC / 200 mA DC

Ordering data

Type	Order No.	Pcs. / Pkt.
FLT-CP-PLUS-1S-350	2882682	1

Accessories

FLT-CP-PLUS-350-ST	2859913	10
FLT-CP-N/PE-350-ST	2859686	10

ZBN 18 ..., see page 59

Surge protection for the IEC/EN power supply unit

Type 1 lightning arrester

FLASHTRAB compact PLUS

- Seamless pluggability (even for N/PE spark gap)
- Thermal disconnect device for each individual connector
- Optical, mechanical status indication for the individual arresters
- With floating remote indication contact
- Connectors can be checked with CHECKMASTER
- High continuous voltage of 350 V AC for 230/400 V AC networks with high voltage fluctuations



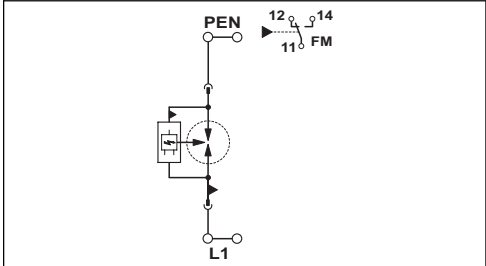
2-conductor system; L, PEN



N-PE spark gap,
for Lightning Protection Level 1

Notes:
Dimensional drawings starting on page 240
Approvals starting on page 252

Total width 35.8 mm



Technical data

Electrical data	
IEC category / EN type	I / T1
Nominal voltage U_N	240 V AC (230/400 V AC ... 240/415 V AC)
Maximum continuous operating voltage U_C	L-N / N-PE / L-PEN 350 V AC / - / 350 V AC
Lightning test curr. I_{imp} (10/350) μ s	Peak value 25 kA
	Charge 12.5 As
	Specific energy 160.00 kJ/JQ
Nominal discharge surge current I_n (8/20) μ s	L-N / N-PE / L-PEN 25 kA / - / 25 kA
Follow current quenching capacity I_{fl}	L-N / N-PE / L-PEN 50 kA (264 V AC) / - / 50 kA (264 V AC)
Protection level U_p	L-N / N-PE / L-PEN ≤ 1.5 kV / - / ≤ 1.5 kV
Response time t_A	L-N / N-PE / L-PEN - / - / ≤ 100 ns
Max. backup fuse according to IEC	315 A (gL/gG)
Immunity to short-circuiting (with max. backup fuse) I_p	50 kA

General data	
Connection data solid / stranded / AWG	2.5 ... 35 mm ² / 2.5 ... 25 mm ² / 13 - 2
Temperature range	-40°C ... 80°C
Inflammability class according to UL 94	V0
Test standards	IEC 61643-1 / EN 61643-11 / UL 1449

Remote indication contact	PDT contact
Connection data solid / stranded / AWG	0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16
Max. operating voltage	250 V AC / 125 V DC
Max. operating current	1 A AC / 200 mA DC

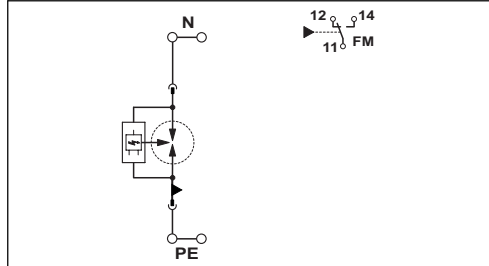
Ordering data

Description	Type	Order No.	Pcs. / Pkt.
FLASHTRAB compact PLUS	FLT-CP-PLUS-1C-350	2882695	1
FLASHTRAB compact			

Accessories

Replacement connector	L-N / L-PEN N-PE	FLT-CP-PLUS-350-ST	2859913	10
Labeling material	ZBN 18 ..., see page 59			

Total width 35.8 mm



Technical data

IEC category / EN type	I / T1
Nominal voltage U_N	240 V AC (N-PE)
Maximum continuous operating voltage U_C	- / 350 V AC / -
Lightning test curr. I_{imp} (10/350) μ s	Peak value 100 kA
	Charge 50 As
	Specific energy 2.50 MJ/JQ
Nominal discharge surge current I_n (8/20) μ s	- / 100 kA / -
Follow current quenching capacity I_{fl}	- / 100 A / -
Protection level U_p	- / ≤ 1.5 kV / -
Response time t_A	- / ≤ 100 ns / -
Max. backup fuse according to IEC	-
Immunity to short-circuiting (with max. backup fuse) I_p	25 kA

General data	
Connection data solid / stranded / AWG	2.5 ... 35 mm ² / 2.5 ... 25 mm ² / 13 - 2
Temperature range	-40°C ... 80°C
Inflammability class according to UL 94	V0
Test standards	IEC 61643-1 / EN 61643-11 / EN 61643-11/A11 / UL 1449

Remote indication contact	PDT contact
Connection data solid / stranded / AWG	0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16
Max. operating voltage	250 V AC / 125 V DC
Max. operating current	1 A AC / 200 mA DC

Ordering data

Type	Order No.	Pcs. / Pkt.
FLT-CP-N/PE-350	2859754	1

Accessories

Replacement connector	L-N / L-PEN N-PE	FLT-CP-N/PE-350-ST	2859686	10
Labeling material	ZBN 18 ..., see page 59			

FLASHTRAB PLUS CTRL

- Single-channel
- Triggered
- High discharge capacity
- Good follow current quenching capacity with higher rated voltage
- Direct parallel connection with type 2 arresters supported

Notes:
Dimensional drawings starting on page 240
Approvals starting on page 252

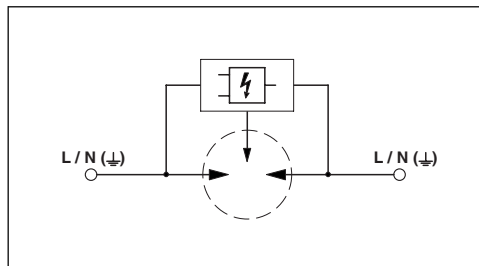


1.5 kV protection level



2.5 kV/3 kV protection level

Total width 35.5 mm



Technical data

Electrical data

IEC category / EN type	I / T1
Nominal voltage U_N	230 V AC (400 V AC)
Maximum continuous operating voltage U_c	L-N / N-PE / L-PEN 350 V AC / - / 350 V AC
Lightning test curr. I_{imp} (10/350) μ s	Peak value 50 kA
	Charge 25 As
	Specific energy 625.00 kJ/ Ω
Nominal discharge surge current I_n (8/20) μ s	L-N / N-PE / L-PEN 50 kA / - / 50 kA
Protection level U_p	L-N / N-PE / L-PEN ≤ 1.5 kV / - / ≤ 1.5 kV
Response time t_A	L-N / N-PE / L-PEN ≤ 100 ns / - / ≤ 100 ns
Max. backup fuse according to IEC	500 A (gL)
Immunity to short-circuiting (with max. backup fuse) I_p	50 kA

General data

Connection data solid / stranded / AWG	10 ... 50 mm ² / 16 ... 35 mm ² / 6 - 1
Temperature range	-40°C ... 85°C
Inflammability class according to UL 94	V0
Test standards	IEC 61643-1 / DIN EN 61643-11 / DIN EN 61643-11/A11

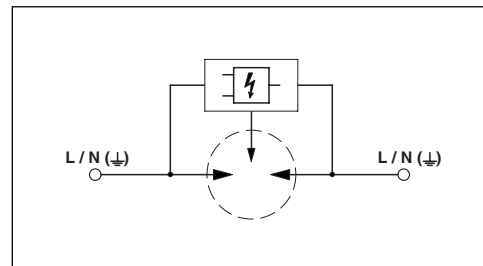
Ordering data

Description	Type	Order No.	Pcs. / Pkt.
FLASHTRAB PLUS CTRL Without status indicator	FLT-PLUS CTRL-1.5	2800119	1
FLASHTRAB PLUS CTRL With status indicator	FLT-PLUS CTRL-1.5/I	2800120	1

Accessories

Labeling material	ZBN 18 ..., see page 59
Wiring bridge	MPB ..., see page 58

Total width 35.5 mm



Technical data

I / T1	I / T1
230 V AC (400 V AC)	230 V AC (400 V AC)
440 V AC / - / 440 V AC	440 V AC / - / 440 V AC
50 kA	-
25 As	-
625.00 kJ/ Ω	-
50 kA / - / 50 kA	50 kA / - / -
≤ 2.5 kV / - / ≤ 2.5 kV	≤ 3 kV / - / ≤ 3 kV
≤ 100 ns / - / ≤ 100 ns	≤ 100 ns / - / ≤ 100 ns
	500 A (NH-gL)
	25 kA (440 V AC)

10 ... 50 mm ² / 16 ... 35 mm ² / 6 - 1
-40°C ... 85°C
V0
IEC 61643-1 / DIN EN 61643-11 / DIN EN 61643-11/A11

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
FLASHTRAB PLUS CTRL Without status indicator	FLT-PLUS CTRL-2.5 FLT-PLUS CTRL-3.0	2800121 2800168	1 1
FLASHTRAB PLUS CTRL With status indicator	FLT-PLUS CTRL-2.5/I FLT-PLUS CTRL-3.0/I	2800122 2800170	1 1

Accessories

Labeling material	ZBN 18 ..., see page 59
Wiring bridge	MPB ..., see page 58

Surge protection for the IEC/EN power supply unit

Type 1 lightning arrester

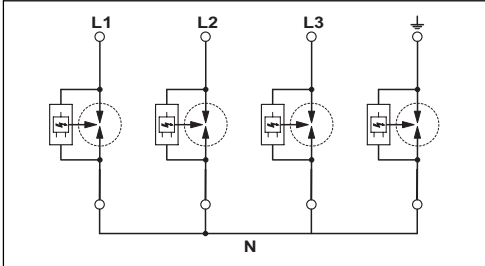
FLASHTRAB

- Encapsulated and triggered
- With ignition electronics
- Direct parallel connection with type 2 arresters supported

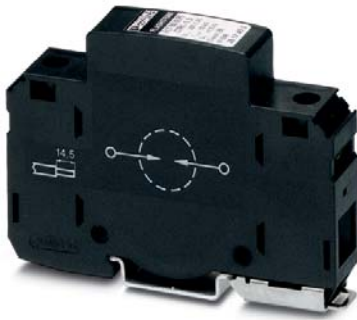


5-conductor system; L1, L2, L3, N, PE, pre-assembled installation block

Total width 70.4 mm



Electrical data		
IEC category / EN type		I / T1
Nominal voltage U_N		230 V AC (400 V AC)
Maximum continuous operating voltage U_C	L-N / N-PE	260 V AC / 260 V AC
Lightning test curr. I_{imp} (10/350) μ s	Peak value	35 kA (L-N)
	Charge	17.5 As
	Specific energy	306.00 kJ/ Ω (L-N)
Nominal discharge surge current I_n (8/20) μ s	L-N / N-PE	35 kA / 50 kA
Follow current quenching capacity I_{fi}	L-N / N-PE	3 kA / 100 A
Protection level U_p	L-N / N-PE	≤ 2 kV / ≤ 2 kV
Response time t_A	L-N / N-PE	≤ 100 ns / ≤ 100 ns
Max. backup fuse according to IEC		400 A (NH-gL)
Immunity to short-circuiting (with max. backup fuse) I_p		25 kA
General data		
Connection data solid / stranded / AWG		0.5 ... 35 mm ² / 0.5 ... 25 mm ² / 20 - 2
Temperature range		-40°C ... 85°C
Inflammability class according to UL 94		V0
Test standards		IEC 61643-1 / DIN EN 61643-11 / DIN EN 61643-11/A11
Ordering data		
Description	Type	Order No. Pcs. / Pkt.
FLASHTRAB installation block	FLT 35/3+1 CTRL-2.0/I	2800125 1
With status indicator		
FLASHTRAB		
I_{imp} : 50 kA (10/350) μ s		
Accessories		
Labeling material	ZBN 18 ..., see page 59	
Wiring bridge	MPB ..., see page 58	

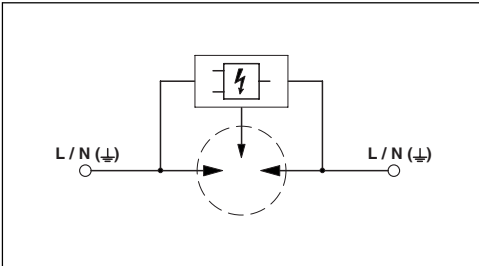


N-PE spark gap, single-channel



N-PE spark gap, single-channel, plug-in

Total width 17.6 mm



Technical data

I / T1
230 V AC (400 V AC)

- / 260 V AC

50 kA
25 As
625.00 kJ/Ω (N-PE)

- / 50 kA

- / 100 A

- / ≤ 2 kV

- / ≤ 100 ns

-

0.5 ... 35 mm² / 0.5 ... 25 mm² / 20 - 2

-40°C ... 85°C

V0

IEC 61643-1 / DIN EN 61643-11 / DIN EN 61643-11/A11

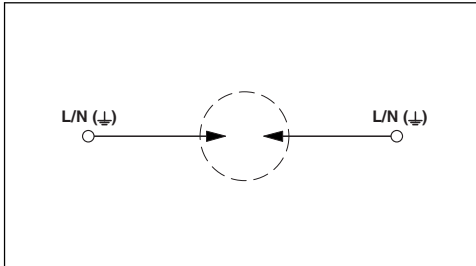
Ordering data

Type	Order No.	Pcs. / Pkt.
FLT 50 N/PE CTRL-2.0	2800109	1

Accessories

ZBN 18 ..., see page 59
MPB ..., see page 58

Total width 35.8 mm



Technical data

I / T1
230 V AC (N-PE)

- / 260 V AC

100 kA
50 As
2.50 MJ/Ω (N-PE)

- / 100 kA

- / 100 A

- / ≤ 1.5 kV

- / ≤ 100 ns

-

2.5 ... 35 mm² / 2.5 ... 25 mm² / 13 - 2

-40°C ... 80°C

V0

IEC 61643-1 / EN 61643-11 / EN 61643-11/A11

Ordering data

Type	Order No.	Pcs. / Pkt.
FLT 100 N/PE-1.5	2800303	1

Accessories

ZBN 18 ..., see page 59
MPB ..., see page 58

Surge protection for the IEC/EN power supply unit

Type 1 lightning arrester

FLASHTRAB

- Single-channel
- High discharge capacity

Notes:
Dimensional drawings starting on page 240
Approvals starting on page 252

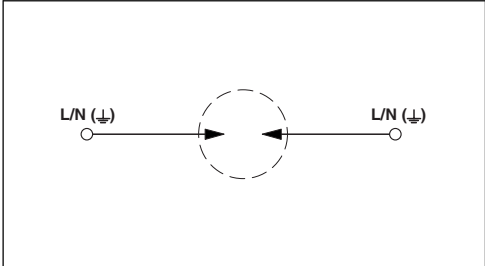


Encapsulated, 35 kA lightning test current

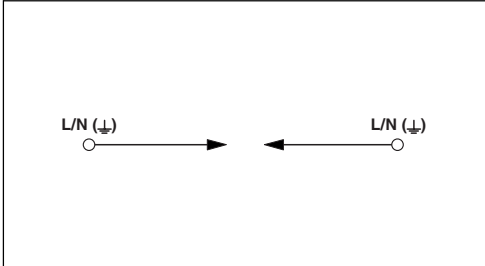


25 kA lightning test current

Total width 17.6 mm



Total width 17.6 mm



Technical data		Technical data	
Electrical data		Electrical data	
IEC category / EN type		I / T1	
Nominal voltage U_N		230 V AC (400 V AC)	
Maximum continuous operating voltage U_C		440 V AC / - / 440 V AC	
Lightning test curr. I_{imp} (10/350) μ s	L-N / N-PE / L-PEN	350 V AC / - / 350 V AC	
	Peak value	35 kA	25 kA
	Charge	17.5 As	12.5 As
	Specific energy	306.00 kJ/ Ω	156.00 kJ/ Ω
Nominal discharge surge current I_n (8/20) μ s		35 kA / - / 35 kA	
Follow current quenching capacity I_{fl}		25 kA / - / 25 kA	
Protection level U_p		2.5 kA / - / 2.5 kA	
Response time t_A		≤ 5 kV / - / ≤ 5 kV	
Max. backup fuse according to IEC		≤ 100 ns / - / ≤ 100 ns	
Immunity to short-circuiting (with max. backup fuse) I_p		250 A (gL)	
General data		25 kA	
Connection data solid / stranded / AWG		0.5 ... 35 mm ² / 0.5 ... 25 mm ² / 20 - 2	
Temperature range		-40°C ... 85°C	
Inflammability class according to UL 94		V0	
Test standards		IEC 61643-1 / EN 61643-11/A11	
IEC 61643-1 / EN 61643-11/A11		IEC 61643-1 / EN 61643-11/A11	
Ordering data		Ordering data	
Description	Type	Order No.	Pcs. / Pkt.
	FLASHTRAB		
FLT 35-260		2800110	10
FLT 25-400		2800106	1
Accessories		Accessories	
Labeling material		ZBN 18 ..., see page 59	
Wiring bridge		MPB ..., see page 58	



60 kA lightning test current

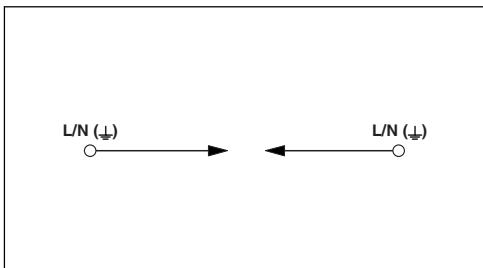


50 kA lightning test current



Single-channel, encapsulated, N-PE spark gap, 100 kA lightning test current, for Lightning Protection Level 1

Total width 35.5 mm



Technical data

I / T1
230 V AC (400 V AC)

400 V / - / 400 V

60 kA
30 As
900.00 kJ/Ω

60 kA / - / 60 kA

2.5 kA / - / 2.5 kA

≤ 5 kV / - / ≤ 5 kV

≤ 100 ns / - / ≤ 100 ns
500 A (NH-gL)
25 kA10 ... 50 mm² / 16 ... 35 mm² / 6 - 1

-40°C ... 85°C

V0

IEC 61643-1 / EN 61643-11/A11

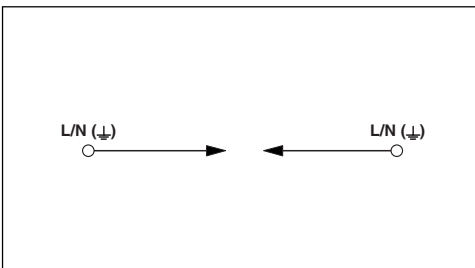
Ordering data

Type	Order No.	Pcs. / Pkt.
FLT 60-400	2800107	1

Accessories

ZBN 18 ..., see page 59
MPB ..., see page 58

Total width 35.5 mm



Technical data

I / T1
230 V AC (400 V AC)

440 V AC / - / 440 V AC

50 kA
25 As
625.00 kJ/Ω

50 kA / - / 50 kA

25 kA / - / 25 kA

≤ 5 kV / - / ≤ 5 kV

≤ 100 ns / - / ≤ 100 ns
500 A (NH-gL)
25 kA (440 V AC)10 ... 50 mm² / 16 ... 35 mm² / 6 - 1

-40°C ... 85°C

V0

IEC 61643-1 / EN 61643-11/A11

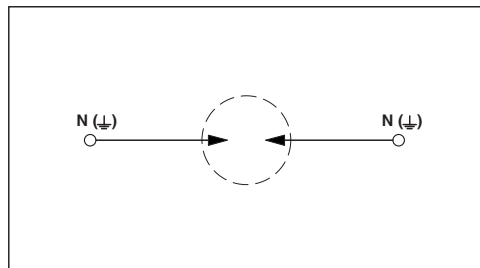
Ordering data

Type	Order No.	Pcs. / Pkt.
FLT-PLUS	2800116	1

Accessories

ZBN 18 ..., see page 59
MPB ..., see page 58

Total width 35.8 mm



Technical data

I / T1
230 V AC (400 V AC)

- / 260 V AC / -

100 kA
50 As
2.50 MJ/Ω

- / 100 kA / -

- / 100 A / -

- / ≤ 4 kV / -

- / ≤ 100 ns / -
-
-10 ... 50 mm² / 16 ... 35 mm² / 6 - 1

-40°C ... 85°C

V0

IEC 61643-1 / EN 61643-11/A11

Ordering data

Type	Order No.	Pcs. / Pkt.
FLT 100-260	2838160	1

Accessories

ZBN 18 ..., see page 59
MPB ..., see page 58

Surge protection for the IEC/EN power supply unit

Type 1 lightning arrester

POWERTRAB

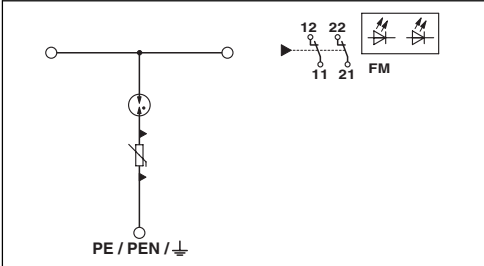
- Type 1 arrester based on a varistor
- Meets Lightning Protection Level I
- Universal solution for various network types:
 - 500 ... 690 V AC IT systems
 - 554/960 V AC TN-C systems
 - 400/690 V AC TN-C systems
- Multi-stage status monitoring via remote indication contact
- Local optical status indication
- Encapsulated, non-extinguishing
- Free of leakage current/no line follow current
- Very high TOV resistance
- Meets installation requirements according to CLC/TS 50539-22
- Use in harsh industrial environments

Notes:
Dimensional drawings starting on page 240
Approvals starting on page 252



Single-channel

Total width 56 mm



Technical data

Electrical data	
IEC category	I, II / T1, T2
Nominal voltage U_N	690 V AC
Maximum continuous operating voltage U_C	800 V AC
TOV behavior at U_T	1500 V AC (5 sec.)
Nominal load current I_L	150 A (serial through wiring with 50 mm ²)
Nominal discharge surge current I_n (8/20) μ s	35 kA
Max. discharge surge current I_{max} (8/20) μ s	100 kA
Lightning test current (10/350) μ s	
Protection level U_p	Peak value I_{mp} 35 kA
Max. required backup fuse with branch wiring	≤ 4.5 kV
	400 A (gL/gG; 2 x 50 mm ²)
Max. required backup fuse with V-type through wiring	125 A (gL/gG; ≥ 35 mm ²)
Short-circuit resistance I_p with max. backup fuse (effective)	50 kA (400 A gL/gG)
General data	
Ambient temperature (operation)	-40°C ... 80°C
Degree of protection according to IEC 60529/EN 60529	IP20
Housing material	PA/PC
Inflammability class according to UL 94	V2
Test standards	IEC 61643-1 2005 / IEC 61643-11 Ed.1 FDIS 2010 / EN 61643-11/A11 2007
Conductor	
Connection name	Double terminal point
Connection method	Screw connection
Screw thread	M6
Connection data solid / stranded / AWG	16 ... 50 mm ² / 16 ... 50 mm ² / 6 - 0
Protective conductor connection	
Connection name	PE conductor connection
Connection method	Ring cable lug
Screw thread	M10
Connection data solid / stranded / AWG	16 ... 95 mm ² / 16 ... 95 mm ² / 6 - 0
Remote indication contact	Single-pos. N/C contact
Connection data solid / stranded / AWG	0.2 ... 2.5 mm ² / 0.2 ... 2.5 mm ² / 24 - 12
Max. operating voltage	30 V AC / 30 V DC
Max. operating current	1.5 A AC / 1.5 A DC

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
POWERTRAB	PWT 35-800AC-FM	2800419	1
Mounting set, comprising: 1 x PE aluminum rail (147.5 x 30 x 3 mm), 3 x M10x20 hexagon head screw, 3 x M10 hexagonal nut, 3 x M10 washer, 3 x M10 spring washer, 1 x Installation instructions			

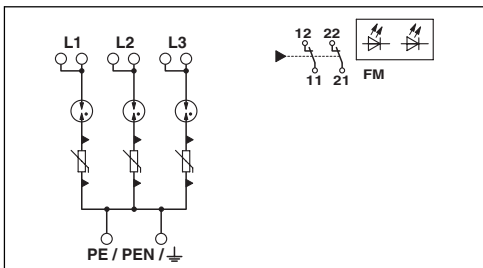


4-conductor system; L1, L2, L3, PE/PEN



Mounting set

Total width 176 mm



Technical data

I, II / T1, T2
 690 V AC
 800 V AC
 1500 V AC (5 sec.)
 150 A (serial through wiring with 50 mm²)
 35 kA (per position)
 100 kA

35 kA (per position)
 ≤ 4.5 kV
 400 A (gL/gG; 2 x 50 mm²)
 125 A (gL/gG; ≥ 35 mm²)
 50 kA (400 A gL/gG)

-40°C ... 80°C
 IP20
 PA/PC
 V2
 IEC 61643-1 2005 / IEC 61643-11 Ed.1 FDIS 2010 /
 EN 61643-11/A11 2007

Double terminal point
 Screw connection
 M6
 16 ... 50 mm² / 16 ... 50 mm² / 6 - 0

PE conductor connection
 Ring cable lug
 M10
 16 ... 95 mm² / 16 ... 95 mm² / 6 - 0

Single-pos. N/C contact
 0.2 ... 2.5 mm² / 0.2 ... 2.5 mm² / 24 - 12
 30 V AC / 30 V DC
 1.5 A AC / 1.5 A DC

Ordering data

Type	Order No.	Pcs. / Pkt.
PWT 100-800AC-FM	2800531	1

Ordering data

Type	Order No.	Pcs. / Pkt.
PWT CCT-SET	2800532	1

Surge protection for the IEC/EN power supply unit

Type 1 lightning arrester

VAL-MS-T1/T2.../12.5...

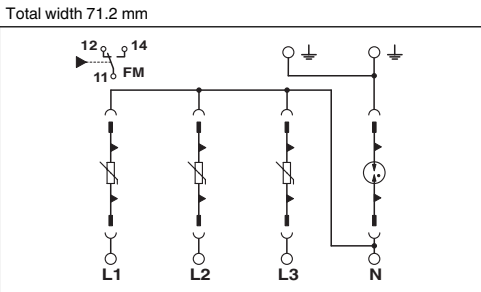
- Seamless pluggability (even for N/PE spark gap)
- Secure hold of connectors in the event of high lightning current loads and strong vibration thanks to new latching
- Thermal disconnect device for each individual connector
- Optical, mechanical status indication for the individual arresters
- With or without floating remote indication contact
- Mechanical keying of all slots
- Connectors can be checked with CHECKMASTER

Notes:
Dimensional drawings starting on page 240
Approvals starting on page 252



N

5-conductor system; L1, L2, L3, N, PE
(3+1 circuit)



Electrical data	
IEC category / EN type	
Nominal voltage U_N	
Maximum continuous operating voltage U_C	
Lightning test curr. I_{imp} (10/350) μ s	
Follow current quenching capacity I_{fi}	
Nominal discharge surge current I_n (8/20) μ s	
Max. discharge surge current I_{max} (8/20) μ s	
Protection level U_p	
Max. backup fuse according to IEC	
General data	
Connection data solid / stranded / AWG	
Temperature range	
Inflammability class according to UL 94	
Test standards	
Remote indication contact	
Connection data solid / stranded / AWG	
Max. operating voltage	
Max. operating current	

Technical data	
...335	...175
I, II / T1, T2	I, II / T1, T2
240 V AC (230/400 V AC ...)	120 V AC
240/415 V AC)	
L-N / L-PE / N-PE / L-PEN	L-N / L-PE / N-PE / L-PEN
335 V AC / - / 264 V AC / -	175 V AC / - / 264 V AC / -
50 kA	50 kA
25 As	25 As
625.00 kJ/ Ω	625.00 kJ/ Ω
L-N / L-PE / N-PE / L-PEN	L-N / L-PE / N-PE / L-PEN
- / - / 100 A (264 V AC) / -	- / - / 100 A (264 V AC) / -
12.5 kA / - / 50 kA / -	12.5 kA / - / 50 kA / -
50 kA / - / 50 kA / -	50 kA / - / 50 kA / -
L-N / L-PE / N-PE / L-PEN	L-N / L-PE / N-PE / L-PEN
≤ 1.2 kV / ≤ 2 kV / ≤ 1.7 kV / -	≤ 0.8 kV / ≤ 2 kV / ≤ 1.7 kV / -
160 A (gL/gG)	160 A (gL/gG)
1.5 ... 35 mm ² / 1.5 ... 25 mm ² / 15 - 2	
-40°C ... 80°C	
V0	
IEC 61643-1 / EN 61643-11/A11	
Single-pos. PDT	
0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16	
250 V AC	
1.5 A AC (250 V AC) / 1.5 A DC (30 V DC)	

Description	U_C
VALVETRAB-MS, varistor-based lightning arrester	
With remote indication contact	335 V AC
Without remote indication contact	335 V AC
VALVETRAB-MS, varistor-based lightning arrester	
With remote indication contact	175 V AC
Without remote indication contact	175 V AC

Replacement connector	
L-N / L-PEN	
L-N / L-PEN	
N-PE	
Labeling material	

Ordering data		
Type	Order No.	Pcs. / Pkt.
VAL-MS-T1/T2 335/12.5/3+1-FM	2800183	1
VAL-MS-T1/T2 335/12.5/3+1	2800184	1
VAL-MS-T1/T2 175/12.5/3+1-FM	2800670	1
VAL-MS-T1/T2 175/12.5/3+1	2800671	1

Accessories		
VAL-MS-T1/T2 335/12.5 ST	2800190	10
VAL-MS-T1/T2 175/12.5 ST	2800676	10
F-MS-T1/T2 50 ST	2800191	10
ZBN 18 ..., see page 59		



5-conductor system; L1, L2, L3, N, PE
(4+0 circuit)

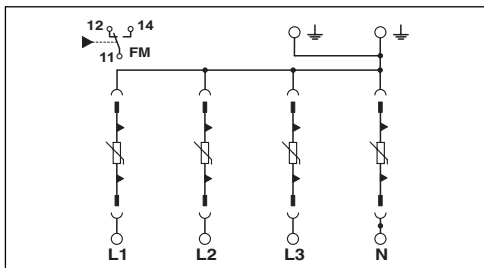


4-conductor system; L1, L2, L3, PEN



3-conductor system; L, N, PE

Total width 71.2 mm



Technical data

I, II / T1, T2
240 V AC (230/400 V AC ... 240/415 V AC)

- / 335 V AC / 335 V AC / -

50 kA
25 As
625.00 kJ/Ω

- / - / - / -

- / 37.5 kA (3 x L) / 12.5 kA / -

- / 150 kA (3 x L) / 50 kA / -

- / ≤ 1.2 kV / ≤ 1.2 kV / -
160 A (gL/gG)

1.5 ... 35 mm² / 1.5 ... 25 mm² / 15 - 2
-40°C ... 80°C
V0

IEC 61643-1 / EN 61643-11/A11

Single-pos. PDT

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16
250 V AC
1.5 A AC (250 V AC) / 1.5 A DC (30 V DC)

Ordering data

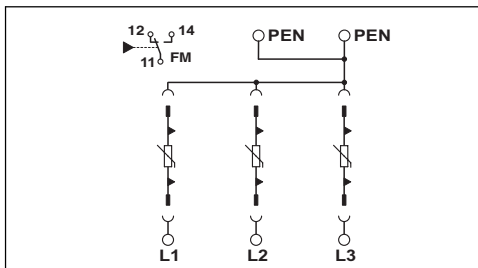
Type	Order No.	Pcs. / Pkt.
VAL-MS-T1/T2 335/12.5/4+0-FM	2800644	1
VAL-MS-T1/T2 335/12.5/4+0	2800645	1

Accessories

VAL-MS-T1/T2 335/12.5 ST	2800190	10
--------------------------	---------	----

ZBN 18 ..., see page 59

Total width 53.4 mm



Technical data

...335 ...175
I, II / T1, T2 I, II / T1, T2
240 V AC 120 V AC
(230/400 V AC ... 240/415 V AC)

- / - / - / 335 V AC

- / - / - / 175 V AC

37.5 kA
18.75 As
352.00 kJ/Ω

37.5 kA
18.75 As
352.00 kJ/Ω

- / - / - / -

- / - / - / -

- / - / - / 37.5 kA (3 x L)

- / - / - / 37.5 kA (3 x L)

- / - / - / 150 kA (3 x L)

- / - / - / 150 kA (3 x L)

- / - / - / ≤ 1.2 kV
160 A (gL/gG)

- / - / - / ≤ 0.7 kV
160 A (gL/gG)

1.5 ... 35 mm² / 1.5 ... 25 mm² / 15 - 2
-40°C ... 80°C
V0

IEC 61643-1 / EN 61643-11/A11

Single-pos. PDT

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16
250 V AC
1.5 A AC (250 V AC) / 1.5 A DC (30 V DC)

Ordering data

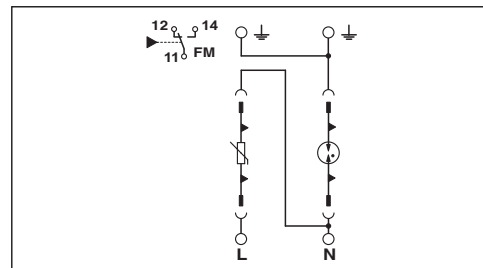
Type	Order No.	Pcs. / Pkt.
VAL-MS-T1/T2 335/12.5/3+0-FM	2800188	1
VAL-MS-T1/T2 335/12.5/3+0	2800189	1
VAL-MS-T1/T2 175/12.5/3+0-FM	2800672	1
VAL-MS-T1/T2 175/12.5/3+0	2800673	1

Accessories

VAL-MS-T1/T2 335/12.5 ST	2800190	10
VAL-MS-T1/T2 175/12.5 ST	2800676	10

ZBN 18 ..., see page 59

Total width 35.6 mm



Technical data

...335 ...175
I, II / T1, T2 I, II / T1, T2
240 V AC 120 V AC
(230 V AC ... 240 V AC)

335 V AC / - / 264 V AC / -

175 V AC / - / 264 V AC / -

25 kA
12.5 As
160.00 kJ/Ω

25 kA
12.5 As
160.00 kJ/Ω

- / - / 100 A (264 V AC) / -

- / - / 100 A (264 V AC) / -

12.5 kA / - / 50 kA / -

12.5 kA / - / 50 kA / -

50 kA / - / 50 kA / -

50 kA / - / 50 kA / -

≤ 1.2 kV / ≤ 2 kV / ≤ 1.7 kV / -
160 A (gL/gG)

≤ 0.8 kV / ≤ 2 kV / ≤ 1.7 kV / -
160 A (gL/gG)

1.5 ... 35 mm² / 1.5 ... 25 mm² / 15 - 2
-40°C ... 80°C
V0

IEC 61643-1 / EN 61643-11/A11

Single-pos. PDT

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16
250 V AC
1.5 A AC (250 V AC) / 1.5 A DC (30 V DC)

Ordering data

Type	Order No.	Pcs. / Pkt.
VAL-MS-T1/T2 335/12.5/1+1-FM	2800186	1
VAL-MS-T1/T2 335/12.5/1+1	2800187	1
VAL-MS-T1/T2 175/12.5/1+1-FM	2800674	1
VAL-MS-T1/T2 175/12.5/1+1	2800675	1

Accessories

VAL-MS-T1/T2 335/12.5 ST	2800190	10
VAL-MS-T1/T2 175/12.5 ST	2800676	10
F-MS-T1/T2 50 ST	2800191	10

ZBN 18 ..., see page 59

Surge protection for the IEC/EN power supply unit

Type 1 + 2 lightning/surge arrester combinations

FLASHTRAB compact

- Seamless pluggability (even for N/PE spark gap)
- Thermal disconnect device for each individual connector
- Optical, mechanical status indication for the individual arresters
- With floating remote indication contact
- Connectors can be checked with CHECKMASTER
- High continuous voltage of 350 V AC for 230/400 V AC networks with high voltage fluctuations

Notes:
Dimensional drawings starting on page 240
Approvals starting on page 252



5-conductor system; L1, L2, L3, N, PE

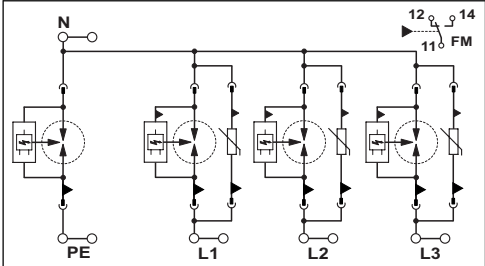


4-conductor system; L1, L2, L3, PEN

Electrical data	
IEC category / EN type	I + II / T1 + T2
Nominal voltage U_N	240 V AC (230/400 V AC ... 240/415 V AC)
Maximum continuous operating voltage U_C	L-N / N-PE / L-PEN 350 V AC / 350 V AC / -
Lightning test curr. I_{imp} (10/350) μ s	Peak value 100 kA
	Charge 50 As
	Specific energy 2.50 MJ/ Ω
Nominal discharge surge current I_n (8/20) μ s	L-N / N-PE / L-PEN 25 kA / 100 kA / -
Follow current quenching capacity I_{fl}	L-N / N-PE / L-PEN 25 kA (264 V AC) / 100 A / -
Protection level U_p	L-N / N-PE / L-PEN ≤ 1.5 kV / ≤ 1.5 kV / -
Response time t_A	L-N / N-PE / L-PEN ≤ 25 ns / ≤ 100 ns / -
Max. backup fuse according to IEC	315 A (gL/gG)
Immunity to short-circuiting (with max. backup fuse) I_p	25 kA
General data	
Connection data solid / stranded / AWG	2.5 ... 35 mm ² / 2.5 ... 25 mm ² / 13 - 2
Temperature range	-40°C ... 80°C
Inflammability class according to UL 94	V0
Test standards	IEC 61643-1 / EN 61643-11 / UL 1449
Remote indication contact	PDT contact
Connection data solid / stranded / AWG	0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16
Max. operating voltage	250 V AC / 125 V DC
Max. operating current	1 A AC / 200 mA DC

Description
FLASHTRAB compact
Replacement connector
L-N / L-PEN
N-PE
L-N / L-PEN
Labeling material

Total width 142.8 mm



Technical data		
I + II / T1 + T2	240 V AC (230/400 V AC ... 240/415 V AC)	
L-N / N-PE / L-PEN	350 V AC / 350 V AC / -	
Peak value	100 kA	
Charge	50 As	
Specific energy	2.50 MJ/ Ω	
L-N / N-PE / L-PEN	25 kA / 100 kA / -	
L-N / N-PE / L-PEN	25 kA (264 V AC) / 100 A / -	
L-N / N-PE / L-PEN	≤ 1.5 kV / ≤ 1.5 kV / -	
L-N / N-PE / L-PEN	≤ 25 ns / ≤ 100 ns / -	
	315 A (gL/gG)	
	25 kA	

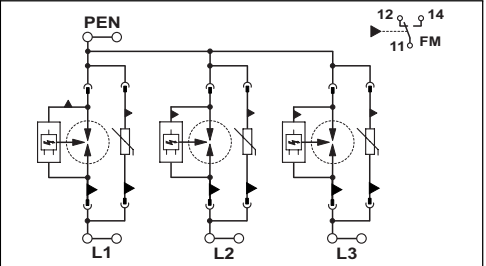
2.5 ... 35 mm ² / 2.5 ... 25 mm ² / 13 - 2
-40°C ... 80°C
V0
IEC 61643-1 / EN 61643-11 / UL 1449
PDT contact
0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16
250 V AC / 125 V DC
1 A AC / 200 mA DC

Ordering data		
Type	Order No.	Pcs. / Pkt.
FLT-CP-3S-350	2859712	1

Accessories		
FLT-CP-350-ST	2881887	10
FLT-CP-N/PE-350-ST	2859686	10
VAL-CP-350-ST	2859602	10

ZBN 18 ..., see page 59

Total width 106.9 mm



Technical data		
I + II / T1 + T2	240 V AC (230/400 V AC ... 240/415 V AC)	
- / - / 350 V AC		
75 kA (3-pos.)		
37.5 As		
1.40 MJ/ Ω		
- / - / 75 kA (all channels)		
- / - / 25 kA (264 V AC)		
- / - / ≤ 1.5 kV		
- / - / ≤ 25 ns		
315 A (gL / gG)		
25 kA		

2.5 ... 35 mm ² / 2.5 ... 25 mm ² / 13 - 2
-40°C ... 80°C
V0
IEC 61643-1 / EN 61643-11 / UL 1449
PDT contact
0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16
250 V AC / 125 V DC
1 A AC / 200 mA DC

Ordering data		
Type	Order No.	Pcs. / Pkt.
FLT-CP-3C-350	2859725	1

Accessories		
FLT-CP-350-ST	2881887	10
VAL-CP-350-ST	2859602	10

ZBN 18 ..., see page 59



4-conductor system; L1, L2, N, PE

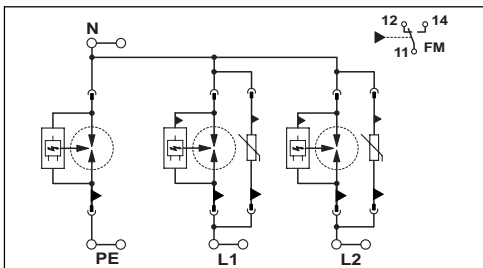


3-conductor system; L1, L2, PEN



3-conductor system; L, N, PE

Total width 106.9 mm



Technical data

I + II / T1 + T2
240 V AC (230/400 V AC ... 240/415 V AC)

350 V AC / 350 V AC / -

75 kA
37.5 As
1.40 MJ/Ω

25 kA / 100 kA / -

25 kA (264 V AC) / 100 A / -

≤ 1.5 kV / ≤ 1.5 kV / -

≤ 25 ns / ≤ 100 ns / -
315 A (gL/gG)
25 kA

2.5 ... 35 mm² / 2.5 ... 25 mm² / 13 - 2

-40°C ... 80°C

V0

IEC 61643-1 / EN 61643-11 / UL 1449

PDT contact

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16

250 V AC / 125 V DC

1 A AC / 200 mA DC

Ordering data

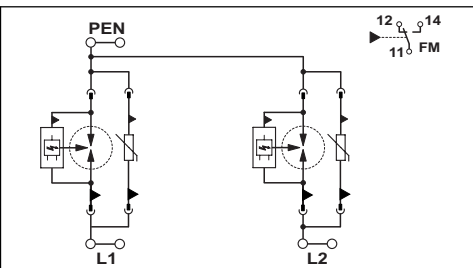
Type	Order No.	Pcs. / Pkt.
FLT-CP-2S-350	2859767	1

Accessories

FLT-CP-350-ST	2881887	10
FLT-CP-N/PE-350-ST	2859686	10
VAL-CP-350-ST	2859602	10

ZBN 18 ..., see page 59

Total width 71.6 mm



Technical data

I + II / T1 + T2
240 V AC (230/400 V AC ... 240/415 V AC)

- / - / 350 V AC

50 kA (2-pos.)
25 As
625.00 kJ/Ω

- / - / 50 kA (all channels)

- / - / 25 kA (264 V AC)

- / - / ≤ 1.5 kV

- / - / ≤ 25 ns
315 A (gL / gG)
25 kA

2.5 ... 35 mm² / 2.5 ... 25 mm² / 13 - 2

-40°C ... 80°C

V0

IEC 61643-1 / EN 61643-11 / UL 1449

PDT contact

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16

250 V AC / 125 V DC

1 A AC / 200 mA DC

Ordering data

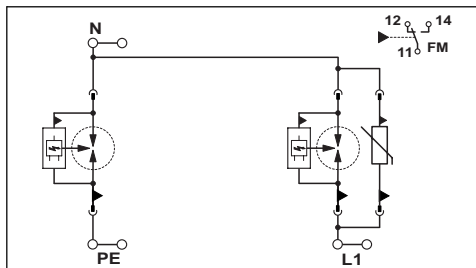
Type	Order No.	Pcs. / Pkt.
FLT-CP-2C-350	2859770	1

Accessories

FLT-CP-350-ST	2881887	10
VAL-CP-350-ST	2859602	10

ZBN 18 ..., see page 59

Total width 71.6 mm



Technical data

I + II / T1 + T2
240 V AC (230 V AC ... 240 V AC)

350 V AC / 350 V AC / -

50 kA
25 As
625.00 kJ/Ω

25 kA / 100 kA / -

25 kA (264 V AC) / 100 A / -

≤ 1.5 kV / ≤ 1.5 kV / -

≤ 25 ns / ≤ 100 ns / -
315 A (gL/gG)
25 kA

2.5 ... 35 mm² / 2.5 ... 25 mm² / 13 - 2

-40°C ... 80°C

V0

IEC 61643-1 / EN 61643-11 / UL 1449

PDT contact

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16

250 V AC / 125 V DC

1 A AC / 200 mA DC

Ordering data

Type	Order No.	Pcs. / Pkt.
FLT-CP-1S-350	2859738	1

Accessories

FLT-CP-350-ST	2881887	10
FLT-CP-N/PE-350-ST	2859686	10
VAL-CP-350-ST	2859602	10

ZBN 18 ..., see page 59

Surge protection for the IEC/EN power supply unit

Type 1 + 2 lightning/surge arrester combinations

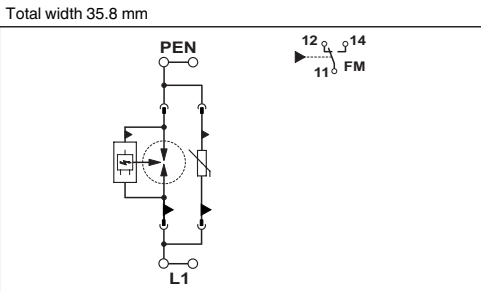
FLASHTRAB compact

- Seamless pluggability (even for N/PE spark gap)
- Thermal disconnect device for each individual connector
- Optical, mechanical status indication for the individual arresters
- With floating remote indication contact
- Connectors can be checked with CHECKMASTER
- High continuous voltage of 350 V AC for 230/400 V AC networks with high voltage fluctuations

Notes:
Dimensional drawings starting on page 240
Approvals starting on page 252



2-conductor system; L, PEN

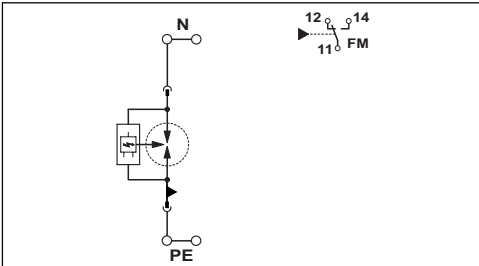


Electrical data				
IEC category / EN type		I + II / T1 + T2		
Nominal voltage U_N		240 V AC (230 V AC ... 240 V AC)		
Maximum continuous operating voltage U_C		L-N / N-PE / L-PEN	350 V AC / - / 350 V AC	
Lightning test curr. I_{imp} (10/350) μ s		Peak value	25 kA	
		Charge	12.5 As	
		Specific energy	160.00 kJ/ Ω	
Nominal discharge surge current I_n (8/20) μ s		L-N / N-PE / L-PEN	25 kA / - / 25 kA	
Follow current quenching capacity I_{fi}		L-N / N-PE / L-PEN	25 kA (264 V AC) / - / 25 kA (264 V AC)	
Protection level U_p		L-N / N-PE / L-PEN	≤ 1.5 kV / - / ≤ 1.5 kV	
Response time t_A		L-N / N-PE / L-PEN	≤ 25 ns / - / ≤ 25 ns	
Max. backup fuse according to IEC		315 A (gL / gG)		
Immunity to short-circuiting (with max. backup fuse) I_p		25 kA		
General data				
Connection data solid / stranded / AWG		2.5 ... 35 mm ² / 2.5 ... 25 mm ² / 13 - 2		
Temperature range		-40°C ... 80°C		
Inflammability class according to UL 94		V0		
Test standards		IEC 61643-1 / EN 61643-11 / UL 1449		
Remote indication contact				
Connection data solid / stranded / AWG		0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16		
Max. operating voltage		250 V AC / 125 V DC		
Max. operating current		1 A AC / 200 mA DC		
Ordering data				
Description		Type	Order No.	Pcs. / Pkt.
FLASHTRAB compact				
Single-pos.		FLT-CP-1C-350	2859741	1
Accessories				
Replacement connector		FLT-CP-350-ST	2881887	10
		VAL-CP-350-ST	2859602	10
Labeling material		ZBN 18 ..., see page 59		



**N-PE spark gap,
for Lightning Protection Level 1**

Total width 35.8 mm



Technical data

I / T1
240 V AC (N-PE)

- / 350 V AC / -

100 kA
50 As
2.50 MJ/Ω

- / 100 kA / -

- / 100 A / -

- / ≤ 1.5 kV / -

- / ≤ 100 ns / -

-

25 kA

2.5 ... 35 mm² / 2.5 ... 25 mm² / 13 - 2

-40°C ... 80°C

V0

IEC 61643-1 / EN 61643-11 / EN 61643-11/A11 /

UL 1449

PDT contact

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16

250 V AC / 125 V DC

1 A AC / 200 mA DC

Ordering data

Type	Order No.	Pcs. / Pkt.
FLT-CP-N/PE-350	2859754	1

Accessories

FLT-CP-N/PE-350-ST	2859686	10
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ZBN 18 ..., see page 59

Surge protection for the IEC/EN power supply unit

Type 2 surge arrester

VALVETRAB compact

- Type 2 seamless plug-in surge arrester
- Disconnect device on each individual connector
- Optical, mechanical status indication for the individual arresters
- With or without floating remote indication contact
- Mechanical keying of all slots
- Modular arrester blocks with ultra-slim design
- Use of varistors that are free of leakage current
- Connectors can be checked with CHECKMASTER
- High continuous voltage of 350 V AC for 230/400 V AC networks with high voltage fluctuations

Notes:
Dimensional drawings starting on page 240
Approvals starting on page 252

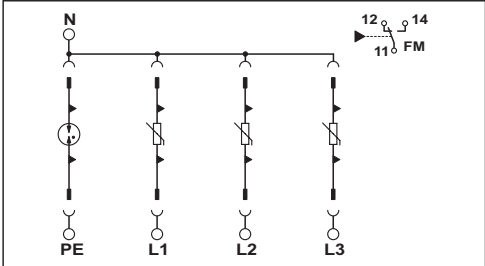


5-conductor system; L1, L2, L3, N, PE

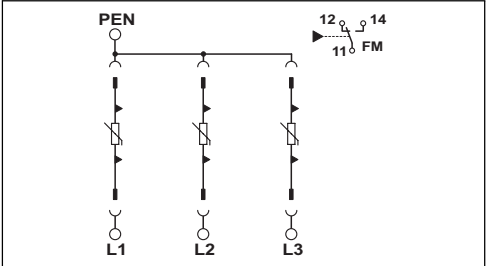


4-conductor system; L1, L2, L3, PEN

Total width 49.2 mm



Total width 37.25 mm



Electrical data	
IEC category / EN type	II / T2
Nominal voltage U_N	240 V AC (230/400 V AC ... 240/415 V AC)
Maximum continuous operating voltage U_c	L-N / N-PE / L-PEN 350 V AC / 264 V AC / -
Nominal discharge surge current I_n (8/20) μ s	L-N / N-PE / L-PEN 60 kA (all channels) / 20 kA / -
Max. discharge surge current I_{max} (8/20) μ s	L-N / N-PE / L-PEN 120 kA (all channels) / 40 kA / -
Residual voltage at 5 kA	L-N / N-PE / L-PEN ≤ 1.1 kV / ≤ 0.25 kV / -
Protection level U_p	L-N / N-PE / L-PEN ≤ 1.4 kV / ≤ 1.5 kV / -
Response time t_A	L-N / N-PE / L-PEN ≤ 25 ns / ≤ 100 ns / -
Max. backup fuse according to IEC	125 A (gL/gG)
General data	
Connection data solid / stranded / AWG	2.5 ... 25 mm ² / 2.5 ... 16 mm ² / 12 - 4
Temperature range	-40°C ... 80°C
Inflammability class according to UL 94	V0
Test standards	IEC 61643-1 / EN 61643-11 / UL 1449 / IEEE C62.1 / IEEE C62.45 / IEEE C62.34
Remote indication contact	PDT contact
Connection data solid / stranded / AWG	0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16
Max. operating voltage	250 V AC / 125 V DC
Max. operating current	1 A AC (ohmic) / 200 mA DC (ohmic)

Description
VALVETRAB compact
With remote indication contact
Without remote indication contact
With remote indication contact
Bridge set, for bridging VALVETRAB compact to the r.c.c.b.

Replacement connector	L-N / L-PEN
	N-PE
	L-N / L-PEN
Labeling material	ZBFM 5 ..., see page 59

Technical data	
... 350	... 175
II / T2	II / T2
240 V AC (230/400 V AC ... 240/415 V AC)	120 V AC
L-N / N-PE / L-PEN	L-N / N-PE / L-PEN
350 V AC / 264 V AC / -	175 V AC / 150 V AC / -
60 kA (all channels) / 20 kA / -	60 kA (all channels) / 20 kA / -
120 kA (all channels) / 40 kA / -	120 kA (all channels) / 40 kA / -
≤ 1.1 kV / ≤ 0.25 kV / -	≤ 600 V / ≤ 200 V / -
≤ 1.4 kV / ≤ 1.5 kV / -	≤ 850 V / ≤ 950 V / -
≤ 25 ns / ≤ 100 ns / -	≤ 25 ns / ≤ 100 ns / -
125 A (gL/gG)	125 A (gL/gG)
2.5 ... 25 mm ² / 2.5 ... 16 mm ² / 12 - 4	2.5 ... 25 mm ² / 2.5 ... 16 mm ² / 12 - 4
-40°C ... 80°C	-40°C ... 80°C
V0	V0
IEC 61643-1 / EN 61643-11 / UL 1449 / IEEE C62.1 / IEEE C62.45 / IEEE C62.34	IEC 61643-1 / EN 61643-11 / UL 1449 / IEEE C62.1 / IEEE C62.45 / IEEE C62.34
PDT contact	PDT contact
0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16	0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16
250 V AC / 125 V DC	250 V AC / 125 V DC
1 A AC (ohmic) / 200 mA DC (ohmic)	1 A AC (ohmic) / 200 mA DC (ohmic)

Ordering data		
Type	Order No.	Pcs. / Pkt.
VAL-CP-3S-350	2859521	1
VAL-CP-3S-350/O	2881010	1
VAL-CP-3S-175	2859453	1
MPB SET VAL-CP-3S	2880684	1

Accessories		
VAL-CP-350-ST	2859602	10
VAL-CP-N/PE-350-ST	2859699	10
VAL-CP-175-ST	2859628	10
ZBFM 5 ..., see page 59		

Technical data	
... 350	... 175
II / T2	II / T2
240 V AC (230/400 V AC ... 240/415 V AC)	120 V AC (3P/PEN)
L-N / N-PE / L-PEN	L-N / N-PE / L-PEN
350 V AC	175 V AC
60 kA (all channels)	60 kA (all channels)
120 kA (all channels)	120 kA (all channels)
≤ 1.1 kV	≤ 600 V
≤ 1.4 kV	≤ 850 V (at I_n)
≤ 25 ns	≤ 25 ns
125 A (gL/gG)	125 A (gL/gG)
2.5 ... 25 mm ² / 2.5 ... 16 mm ² / 12 - 4	2.5 ... 25 mm ² / 2.5 ... 16 mm ² / 12 - 4
-40°C ... 80°C	-40°C ... 80°C
V0	V0
IEC 61643-1 / EN 61643-11 / UL 1449 / IEEE C62.1 / IEEE C62.45 / IEEE C62.34	IEC 61643-1 / EN 61643-11 / UL 1449 / IEEE C62.1 / IEEE C62.45 / IEEE C62.34
PDT contact	PDT contact
0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16	0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16
250 V AC / 125 V DC	250 V AC / 125 V DC
1 A AC (ohmic) / 200 mA DC (ohmic)	1 A AC (ohmic) / 200 mA DC (ohmic)

Ordering data		
Type	Order No.	Pcs. / Pkt.
VAL-CP-3C-350	2859547	1
VAL-CP-3C-350/O	2881023	1
VAL-CP-3C-175	2859466	1

Accessories		
VAL-CP-350-ST	2859602	10
VAL-CP-175-ST	2859628	10
ZBFM 5 ..., see page 59		



4-conductor system; L1, L2, N, PE

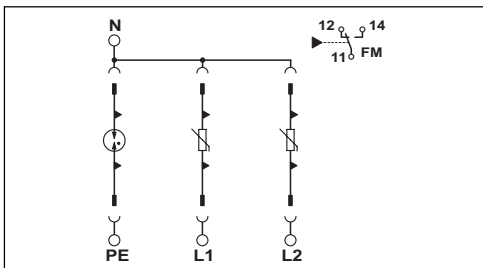


3-conductor system; L1, L2, PEN

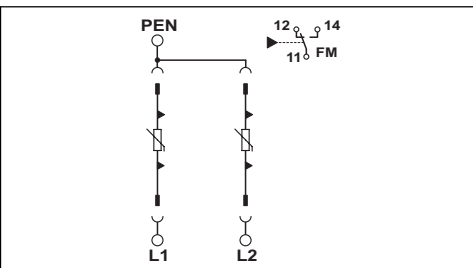


3-conductor system; L, N, PE

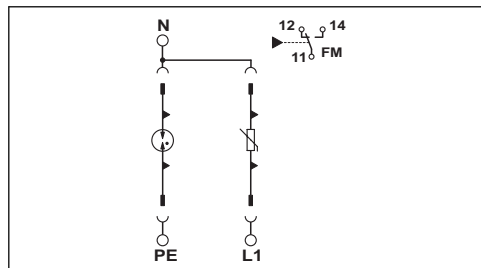
Total width 37.25 mm



Total width 25.3 mm



Total width 25.3 mm



Technical data

... 350	... 175
II / T2	II / T2
240 V AC (230/400 V AC ... 240/415 V AC)	120 V AC
350 V AC / 264 V AC / -	175 V AC / 150 V AC / -
40 kA (all channels) / 20 kA / -	40 kA (all channels) / 20 kA / -
80 kA (all channels) / 40 kA / -	80 kA (all channels) / 40 kA / -
≤ 1.1 kV / ≤ 0.25 kV / -	≤ 600 V / ≤ 200 V / -
≤ 1.4 kV / ≤ 1.5 kV / -	≤ 850 V / ≤ 950 V / -
≤ 25 ns / ≤ 100 ns / -	≤ 25 ns / ≤ 100 ns / -
125 A (gL/gG)	125 A (gL/gG)

2.5 ... 25 mm² / 2.5 ... 16 mm² / 12 - 4
-40°C ... 80°C
V0

IEC 61643-1 / EN 61643-11 / UL 1449 /
IEEE C62.1 / IEEE C62.45 / IEEE C62.34

PDT contact

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16
250 V AC / 125 V DC
1 A AC (ohmic) / 200 mA DC (ohmic)

Ordering data

Type	Order No.	Pcs. / Pkt.
VAL-CP-2S-350	2859505	1
VAL-CP-2S-350/O	2881049	1
VAL-CP-2S-175	2859495	1

Accessories

VAL-CP-350-ST	2859602	10
VAL-CP-N/PE-350-ST	2859699	10
VAL-CP-175-ST	2859628	10

ZBFM 5 ..., see page 59

Technical data

... 350	... 175
II / T2	II / T2
240 V AC (230/400 V AC ... 240/415 V AC)	120 V AC (2P/PEN)
- / - / 350 V AC	- / - / 175 V AC
- / - / 40 kA (all channels)	- / - / 40 kA (all channels)
- / - / 80 kA (all channels)	- / - / 80 kA (all channels)
- / - / ≤ 1.1 kV	- / - / ≤ 600 V
- / - / ≤ 1.4 kV	- / - / ≤ 850 V (at In)
- / - / ≤ 25 ns	- / - / ≤ 25 ns
125 A (gL/gG)	125 A (gL/gG)

2.5 ... 25 mm² / 2.5 ... 16 mm² / 12 - 4
-40°C ... 80°C
V0

IEC 61643-1 / EN 61643-11 / UL 1449 /
IEEE C62.1 / IEEE C62.34 / IEEE C62.45

PDT contact

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16
250 V AC / 125 V DC
1 A AC (ohmic) / 200 mA DC (ohmic)

Ordering data

Type	Order No.	Pcs. / Pkt.
VAL-CP-2C-350	2859589	1
VAL-CP-2C-350/O	2881052	1
VAL-CP-2C-175	2859482	1

Accessories

VAL-CP-350-ST	2859602	10
VAL-CP-175-ST	2859628	10

ZBFM 5 ..., see page 59

Technical data

... 350	... 175
II / T2	II / T2
240 V AC (230/400 V AC ... 240/415 V AC)	120 V AC
350 V AC / 264 V AC / -	175 V AC / 150 V AC / -
20 kA / 20 kA / -	20 kA / 20 kA / -
40 kA / 40 kA / -	40 kA / 40 kA / -
≤ 1.1 kV / ≤ 0.25 kV / -	≤ 600 V / ≤ 200 V / -
≤ 1.4 kV / ≤ 1.5 kV / -	≤ 850 V / ≤ 950 V / -
≤ 25 ns / ≤ 100 ns / -	≤ 25 ns / ≤ 100 ns / -
125 A (gL/gG)	125 A (gL/gG)

2.5 ... 25 mm² / 2.5 ... 16 mm² / 12 - 4
-40°C ... 80°C
V0

IEC 61643-1 / EN 61643-11 / UL 1449 /
IEEE C62.1 / IEEE C62.45 / IEEE C62.34

PDT contact

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16
250 V AC / 125 V DC
1 A AC (ohmic) / 200 mA DC (ohmic)

Ordering data

Type	Order No.	Pcs. / Pkt.
VAL-CP-1S-350	2859563	1
VAL-CP-1S-350/O	2881036	1
VAL-CP-1S-175	2859479	1

Accessories

VAL-CP-350-ST	2859602	10
VAL-CP-N/PE-350-ST	2859699	10
VAL-CP-175-ST	2859628	10

ZBFM 5 ..., see page 59

Surge protection for the IEC/EN power supply unit

Type 2 surge arrester

VALVETRAB compact, free of leakage current

- Type 2 seamless plug-in surge arrester
- Versions free of leakage current through series connection of varistor and surge arrester
- Disconnect device on each individual connector
- Optical, mechanical status indication for the individual arresters
- With floating remote indication contact
- Mechanical keying of all slots
- Modular arrester blocks with ultra-slim design
- High continuous voltage of 350 V AC for 230/400 V AC networks with high voltage fluctuations

Further versions on request.

Notes:
Dimensional drawings starting on page 240
Approvals starting on page 252

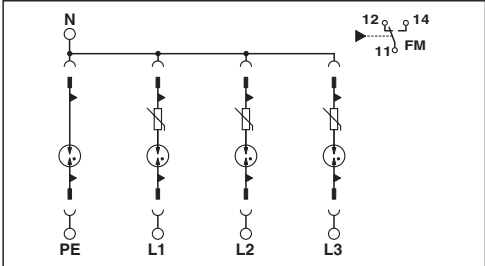


5-conductor system; L1, L2, L3, N, PE

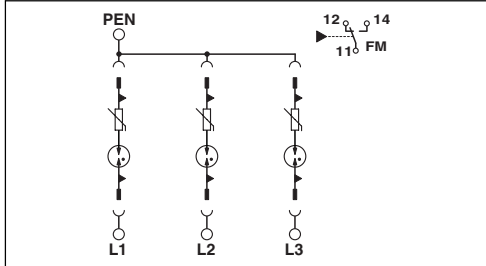


4-conductor system; L1, L2, L3, PEN

Total width 49.2 mm



Total width 37.25 mm



Electrical data
IEC category / EN type
Nominal voltage U_N
Maximum continuous operating voltage U_C
Nominal discharge surge current I_n (8/20) μ s
Max. discharge surge current I_{max} (8/20) μ s
Residual voltage at 5 kA
Protection level U_p
Response time t_A
Max. backup fuse according to IEC
General data
Connection data solid / stranded / AWG
Temperature range
Inflammability class according to UL 94
Test standards
Remote indication contact
Connection data solid / stranded / AWG
Max. operating voltage
Max. operating current

Technical data		
II / T2	240 V AC (230/400 V AC ... 240/415 V AC)	
L-N / N-PE / L-PEN	350 V AC / 264 V AC / -	
L-N / N-PE / L-PEN	30 kA (all channels) / 20 kA / -	
L-N / N-PE / L-PEN	60 kA (all channels) / 40 kA / -	
L-N / N-PE / L-PEN	≤ 1 kV / ≤ 0.25 kV / -	
L-N / N-PE / L-PEN	≤ 1.5 kV / ≤ 1.5 kV / -	
L-N / N-PE / L-PEN	≤ 100 ns / ≤ 100 ns / -	
L-N / N-PE / L-PEN	125 A (gL/gG)	
2.5 ... 25 mm ² / 2.5 ... 16 mm ² / 12 - 4		
-40°C ... 80°C		
V0		
IEC 61643-1 / EN 61643-11 / UL 1449 / IEEE C62.1 / IEEE C62.34 / IEEE C62.45		
PDT contact		
0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16		
250 V AC / 125 V DC		
1 A AC (ohmic) / 200 mA DC (ohmic)		

Technical data		
II / T2	240 V AC (230/400 V AC ... 240/415 V AC)	
- / - / 350 V AC		
- / - / 30 kA (all channels)		
- / - / 60 kA (all channels)		
- / - / ≤ 1 kV		
- / - / ≤ 1.5 kV		
- / - / ≤ 100 ns		
125 A (gL/gG)		
2.5 ... 25 mm ² / 2.5 ... 16 mm ² / 12 - 4		
-40°C ... 80°C		
V0		
IEC 61643-1 / EN 61643-11 / UL 1449 / IEEE C62.1 / IEEE C62.34 / IEEE C62.45		
PDT contact		
0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16		
250 V AC / 125 V DC		
1 A AC (ohmic) / 200 mA DC (ohmic)		

Ordering data	
Description	
VALVETRAB compact	
Replacement connector	L-N / L-PEN N-PE
Labeling material	

Ordering data		
Type	Order No.	Pcs. / Pkt.
VAL-CP-3S-350VF	2859518	1
Accessories		
VAL-CP-350 VF-ST	2859615	10
VAL-CP-N/PE-350-ST	2859699	10
ZBFM 5 ..., see page 59		

Ordering data		
Type	Order No.	Pcs. / Pkt.
VAL-CP-3C-350 VF	2859534	1
Accessories		
VAL-CP-350 VF-ST	2859615	10
ZBFM 5 ..., see page 59		



4-conductor system; L1, L2, N, PE

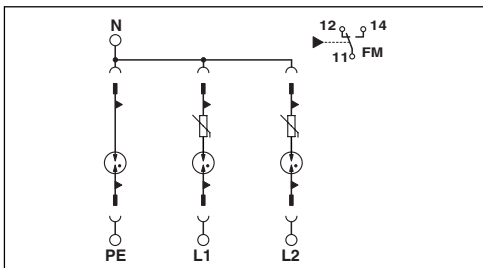


3-conductor system; L1, L2, PEN



3-conductor system; L, N, PE

Total width 37.25 mm



Technical data

II / T2
240 V AC (230/400 V AC ... 240/415 V AC)

350 V AC / 264 V AC / -

20 kA (all channels) / 20 kA / -

40 kA (all channels) / 40 kA / -
≤ 1 kV / ≤ 0.25 kV / -

≤ 1.5 kV / ≤ 1.5 kV / -

≤ 100 ns / ≤ 100 ns / -
125 A (gL/gG)

2.5 ... 25 mm² / 2.5 ... 16 mm² / 12 - 4

-40°C ... 80°C

V0

IEC 61643-1 / EN 61643-11 / UL 1449 /
IEEE C62.1 / IEEE C62.34 / IEEE C62.45

PDT contact

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16
250 V AC / 125 V DC

1 A AC (ohmic) / 200 mA DC (ohmic)

Ordering data

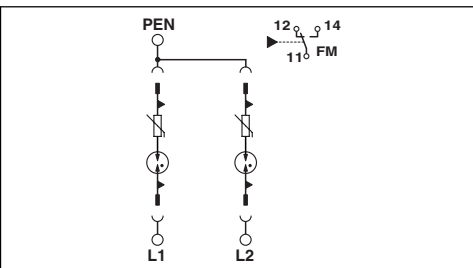
Type	Order No.	Pcs. / Pkt.
VAL-CP-2S-350 VF	2859592	1

Accessories

VAL-CP-350 VF-ST	2859615	10
VAL-CP-N/PE-350-ST	2859699	10

ZBFM 5 ..., see page 59

Total width 25.3 mm



Technical data

II / T2
240 V AC (230/400 V AC ... 240/415 V AC)

- / - / 350 V AC

- / - / 10 kA (1 channel)

- / - / 40 kA (all channels)
- / - / ≤ 1 kV

- / - / ≤ 1.5 kV

- / - / ≤ 100 ns
125 A (gL/gG)

2.5 ... 25 mm² / 2.5 ... 16 mm² / 12 - 4

-40°C ... 80°C

V0

IEC 61643-1 / EN 61643-11 / UL 1449 /
IEEE C62.1 / IEEE C62.34 / IEEE C62.45

PDT contact

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16
250 V AC / 125 V DC

1 A AC (ohmic) / 200 mA DC (ohmic)

Ordering data

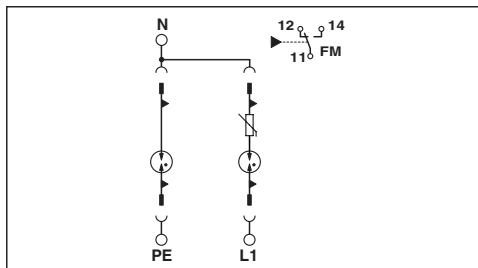
Type	Order No.	Pcs. / Pkt.
VAL-CP-2C-350 VF	2859576	1

Accessories

VAL-CP-350 VF-ST	2859615	10
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ZBFM 5 ..., see page 59

Total width 25.3 mm



Technical data

II / T2
240 V AC (230/400 V AC ... 240/415 V AC)

350 V AC / 264 V AC / -

10 kA / 20 kA / -

20 kA / 40 kA / -
≤ 1 kV / ≤ 0.25 kV / -

≤ 1.5 kV / ≤ 1.5 kV / -

≤ 100 ns / ≤ 100 ns / -
125 A (gL/gG)

2.5 ... 25 mm² / 2.5 ... 16 mm² / 12 - 4

-40°C ... 80°C

V0

IEC 61643-1 / EN 61643-11 / UL 1449 /
IEEE C62.1 / IEEE C62.34 / IEEE C62.45

PDT contact

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16
250 V AC / 125 V DC

1 A AC (ohmic) / 200 mA DC (ohmic)

Ordering data

Type	Order No.	Pcs. / Pkt.
VAL-CP-1S-350 VF	2859550	1

Accessories

VAL-CP-350 VF-ST	2859615	10
VAL-CP-N/PE-350-ST	2859699	10

ZBFM 5 ..., see page 59

Surge protection for the IEC/EN power supply unit

Type 2 surge arrester

VALVETRAB MS
30/40 kA performance class

- Multi-channel type 2 arrester
- Type 2 seamless plug-in surge arrester
- Disconnect device on each individual connector
- Optical, mechanical status indication for the individual arresters
- With or without floating remote indication contact
- Mechanical keying of all slots

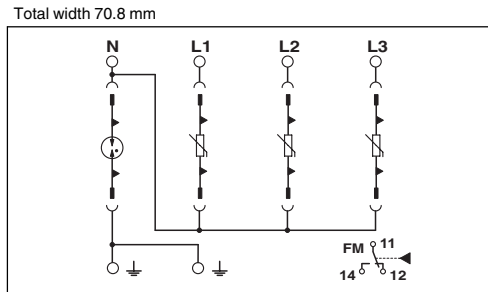
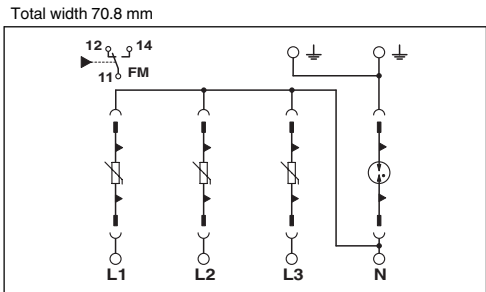
Notes:
Dimensional drawings starting on page 240
Approvals starting on page 252



5-conductor system; L1, L2, L3, N, PE,
supply line supply from below



5-conductor system; L1, L2, L3, N, PE,
supply line supply from above



			Technical data		Technical data	
Electrical data			VAL-MS 230	VAL-MS 320	VAL-MS 120	VAL-MS 320
IEC category / EN type			II / T2	II / T2	II / T2	II / T2
Nominal voltage U _N			230 V AC (400 V AC)	230 V AC (400 V AC)	120 V AC (208 V AC)	230 V AC (400 V AC)
Maximum continuous operating voltage U _C						
L-N / N-PE / L-PEN			275 V AC / 260 V AC / -	335 V AC / 260 V AC / -	150 V AC / 260 V AC / -	335 V AC / 260 V AC / -
Nominal discharge surge current I _n (8/20) μs						
L-N / N-PE / L-PEN			20 kA / 20 kA / -	20 kA / 20 kA / -	20 kA / 20 kA / -	20 kA / 20 kA / -
Max. discharge surge current I _{max} (8/20) μs						
L-N / N-PE / L-PEN			40 kA / 40 kA / -	40 kA / 40 kA / -	40 kA / 40 kA / -	40 kA / 40 kA / -
Residual voltage at 5 kA			L-N / N-PE / L-PEN ≤ 1.1 kV / ≤ 0.15 kV / -	≤ 1.25 kV / ≤ 0.15 kV / -	≤ 0.7 kV / ≤ 0.15 kV / -	≤ 1.25 kV / ≤ 0.15 kV / -
Protection level U _p						
L-N / N-PE / L-PEN			≤ 1.35 kV / ≤ 1.5 kV / -	≤ 1.6 kV / ≤ 1.5 kV / -	≤ 0.85 kV / ≤ 1.5 kV / -	≤ 1.6 kV / ≤ 1.5 kV / -
Response time t _A						
L-N / N-PE / L-PEN			≤ 25 ns / ≤ 100 ns / -	≤ 25 ns / ≤ 100 ns / -	≤ 25 ns / ≤ 100 ns / -	≤ 25 ns / ≤ 100 ns / -
Max. backup fuse according to IEC				125 A (gL)		125 A (gL)
Immunity to short-circuiting (with max. backup fuse) I _p				25 kA		25 kA
General data						
Connection data solid / stranded / AWG			0.5 ... 35 mm ² / 0.5 ... 25 mm ² / 20 - 2		0.5 ... 35 mm ² / 0.5 ... 25 mm ² / 20 - 2	
Temperature range			-40°C ... 80°C		-40°C ... 80°C	
Inflammability class according to UL 94			V0		V0	
Test standards			IEC 61643-1 / EN 61643-11/A11		IEC 61643-1 / EN 61643-11/A11	
Remote indication contact			PDT contact		PDT contact	
Connection data solid / stranded / AWG			0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16		0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16	
Max. operating voltage			250 V AC / 30 V DC		250 V AC / 30 V DC	
Max. operating current			0.75 A AC (250 V AC) / 3 A AC (125 V AC)		0.75 A AC (250 V AC) / 3 A AC (125 V AC)	



4-conductor system; L1, L2, L3, PEN

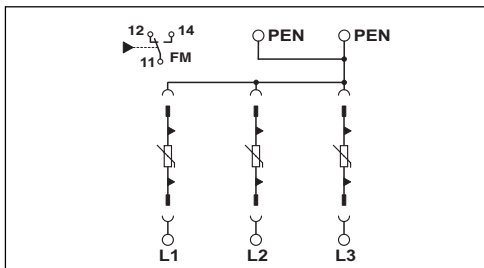


3-conductor system; L, N, PE



3-conductor system; L1, L2, PEN

Total width 53.4 mm



Technical data

VAL-MS 320	VAL-MS 580
II / T2	II / T2
230 V AC (max. 240/415 V AC)	400 V AC (400/690 V AC TN-C)
- / - / 335 V AC	- / - / 580 V AC
- / - / 60 kA (all channels)	- / - / 45 kA (all channels)
- / - / 120 kA (all channels)	- / - / 90 kA (all channels)
- / - / ≤ 1.2 kV	- / - / ≤ 2.1 kV
- / - / ≤ 1.5 kV	- / - / ≤ 2.5 kV
- / - / ≤ 25 ns	- / - / ≤ 25 ns
	125 A (gL / gG)
	25 kA

1.5 ... 35 mm² / 1.5 ... 25 mm² / 15 - 2
-40°C ... 80°C
V0

IEC 61643-1 / EN 61643-11

PDT contact

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16

250 V AC / 30 V DC

1.5 A AC (250 V AC) / 1.5 A DC (30 V DC)

Ordering data

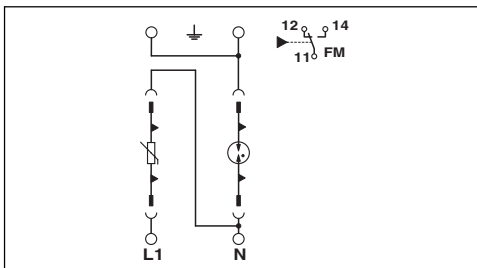
Type	Order No.	Pcs. / Pkt.
VAL-MS 320/3+0	2920230	1
VAL-MS 320/3+0-FM	2920243	1
VAL-MS 580/3+0	2920450	1
VAL-MS 580/3+0-FM	2920447	1

Accessories

VAL-MS 320 ST	2838843	10
VAL-MS 580-ST	2920434	10

ZBN 18 ..., see page 59

Total width 35.6 mm



Technical data

VAL-MS 230	VAL-MS 320
II / T2	II / T2
230 V AC	230 V AC
275 V AC / 260 V AC / -	335 V AC / 260 V AC / -
20 kA / 20 kA / -	20 kA / 20 kA / -
40 kA / 40 kA / -	40 kA / 40 kA / -
≤ 1.1 kV / ≤ 150 V / -	- 1.2 kV / ≤ 150 V / -
≤ 1.35 kV / ≤ 1.5 kV / -	≤ 1.5 kV / ≤ 1.5 kV / -
≤ 25 ns / ≤ 100 ns / -	≤ 25 ns / ≤ 100 ns / -
	125 A (gL/gG)
	25 kA

1.5 ... 35 mm² / 1.5 ... 25 mm² / 15 - 2
-40°C ... 80°C
V0

IEC 61643-1 / EN 61643-11/A11

Single-pos. PDT

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16

250 V AC / 30 V DC

1.5 A AC (250 V AC) / 1.5 A DC (30 V DC)

Ordering data

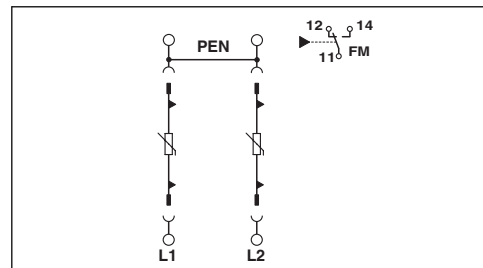
Type	Order No.	Pcs. / Pkt.
VAL-MS 230/1+1	2804429	1
VAL-MS 230/1+1-FM	2804432	1
VAL-MS 320/1+1	2804380	1
VAL-MS 320/1+1-FM	2804393	1

Accessories

VAL-MS 230 ST	2798844	10
VAL-MS 320 ST	2838843	10
F-MS 12 ST	2817990	10

ZBN 18 ..., see page 59

Total width 35.6 mm



Technical data

II / T2
230 V AC (400 V AC)
- / - / 275 V AC
- / - / 40 kA (all channels)
- / - / 80 kA (all channels)
- / - / ≤ 1.1 kV
- / - / ≤ 1.35 kV
- / - / ≤ 25 ns
125 A (gL/gG)
25 kA

1.5 ... 35 mm² / 1.5 ... 25 mm² / 15 - 2
-40°C ... 80°C
V0

IEC 61643-1 / EN 61643-11/A11

Single-pos. PDT

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16

250 V AC / 30 V DC

1.5 A AC (250 V AC) / 1.5 A DC (30 V DC)

Ordering data

Type	Order No.	Pcs. / Pkt.
VAL-MS 230/2+0	2800103	1
VAL-MS 230/2+0-FM	2800102	1

Accessories

VAL-MS 230 ST	2798844	10
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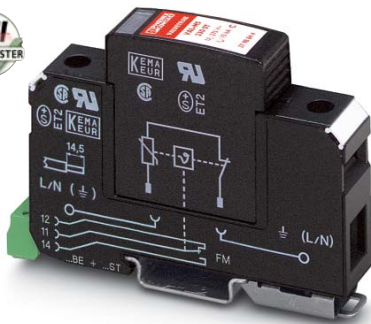
ZBN 18 ..., see page 59

Surge protection for the IEC/EN power supply unit

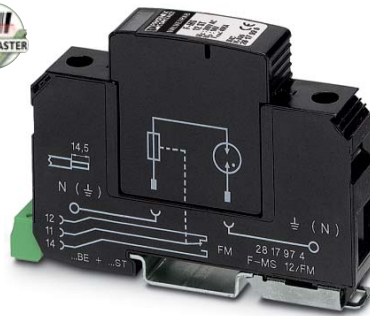
Type 2 surge arrester

VALVETRAB MS

- Single-channel, DIN-rail mountable protective devices
- Comprising base element and connector
- Base element with/without floating remote indication contact
- Disconnect device on each individual connector
- Optical, mechanical status indication for the individual arresters
- Mechanical keying of all slots

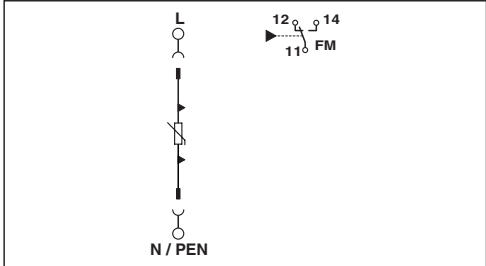


2-conductor system; L, N/PEN

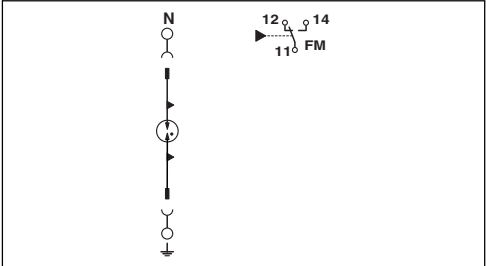


Spark gap, N-PE

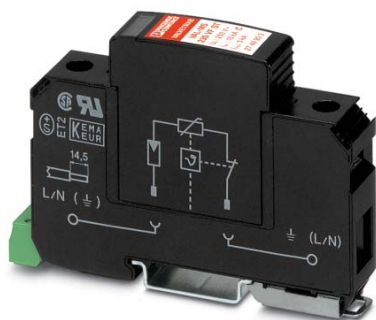
Total width 17.7 mm



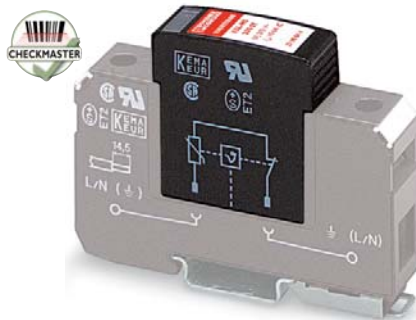
Total width 17.7 mm



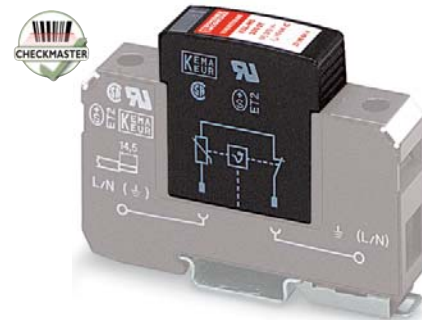
		Technical data		Technical data		
Electrical data		... 60AC	... 230AC			
IEC category / EN type		II / T2	II / T2	II / T2		
Nominal voltage U _N		60 V AC/DC	230 V AC	230 V AC		
Maximum continuous operating voltage U _C	L-N / N-PE / L-PEN	75 V AC / - / 75 V AC	275 V AC / - / 275 V AC	- / 260 V AC / -		
Nominal discharge surge current I _n (8/20) μs	L-N / N-PE / L-PEN	15 kA / - / -	20 kA / - / 20 kA	- / 20 kA / -		
Max. discharge surge current I _{max} (8/20) μs	L-N / N-PE / L-PEN	40 kA / - / 40 kA	40 kA / - / 40 kA	- / 40 kA / -		
Residual voltage at 5 kA	L-N / N-PE / L-PEN	≤ 325 V / - / ≤ 325 V	≤ 1 kV / - / ≤ 1 kV	- / ≤ 150 V / -		
Protection level U _p	L-N / N-PE / L-PEN	≤ 500 V / - / ≤ 500 V	≤ 1.35 kV / - / ≤ 1.35 kV	- / ≤ 1.5 kV / -		
Response time t _A	L-N / N-PE / L-PEN	≤ 25 ns / - / ≤ 25 ns	≤ 25 ns / - / ≤ 25 ns	- / ≤ 100 ns / -		
Max. backup fuse according to IEC		0.125 A AC (gL/gG)				
General data						
Connection data solid / stranded / AWG		1.5 ... 35 mm² / 1.5 ... 25 mm² / 15 - 2		0.5 ... 35 mm² / 0.5 ... 25 mm² / 20 - 2		
Temperature range		-40°C ... 80°C		-40°C ... 80°C		
Inflammability class according to UL 94		V0		V0		
Test standards		IEC 61643-1 / EN 61643-11/A11		IEC 61643-1 / EN 61643-11/A11		
Remote indication contact		Single-pos. PDT		PDT contact		
Connection data solid / stranded / AWG		0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16		0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16		
Max. operating voltage		250 V AC / 125 V DC		250 V AC / 125 V DC		
Max. operating current		1 A AC / 200 mA DC		1 A AC / 200 mA DC		
		Ordering data		Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
VALVETRAB MS						
With remote indication contact	VAL-MS 60/FM	2868033	1	F-MS 12/FM	2817974	1
Without remote indication contact	VAL-MS 60	2868020	1	F-MS 12	2817987	1
With remote indication contact	VAL-MS 230/FM	2839130	1			
Without remote indication contact	VAL-MS 230	2839127	1			
VALVETRAB surge protection plug						
120 V AC						
230 V AC IT						
230 V AC						
400 V AC						
500 V AC						
400 V AC						
554 V AC						
		Accessories		Accessories		
Replacement connector						
60 V AC	1L-N/PE	VAL-MS 60 ST	2807573	F-MS 12 ST	2817990	10
230 V AC	1L-N/PE	VAL-MS 230 ST	2798844			
Labeling material	ZBN 18 ..., see page 59		ZBN 18 ..., see page 59			



2-conductor system; L, N/PEN

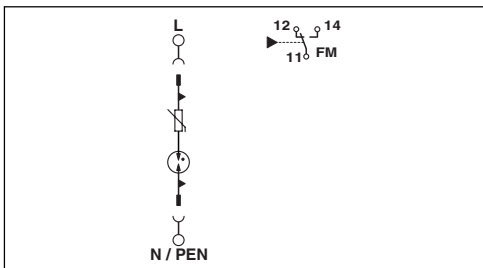


Connector for VAL-MS base element

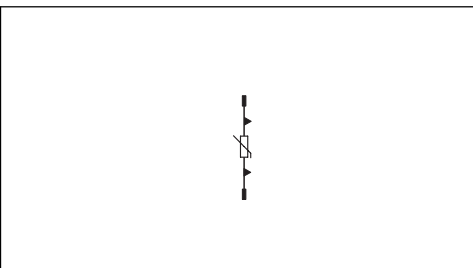


Connector for VAL-MS base element

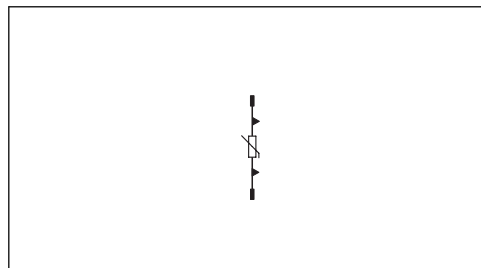
Total width 17.7 mm



Total width 17.7 mm



Total width 17.7 mm



Technical data

II / T2
230 V AC

350 V AC / - / 350 V AC

10 kA / - / 10 kA

20 kA / - / 20 kA

≤ 1 kV / - / ≤ 1 kV

≤ 1.5 kV / - / ≤ 1.5 kV

≤ 100 ns / - / ≤ 100 ns

125 A (gL)

0.5 ... 35 mm² / 0.5 ... 25 mm² / 20 - 2

-40°C ... 80°C

IEC 61643-1 / EN 61643-11/A11 / NF C61-740 / UL 1449

PDT contact

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16

250 V AC / 125 V DC

1 A AC / 200 mA DC

Ordering data

Type	Order No.	Pcs. / Pkt.
VAL-MS 350 VF/FM	2856579	1
VAL-MS 350VF	2856582	1
VAL-MS 120 ST	2807586	10
VAL-MS 230 IT ST	2807599	10
VAL-MS 320 ST	2838843	10

Accessories

VAL-MS 350 VF ST	2856595	10
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Technical data

... 120 ST ... 230 IT ST ... 320 ST

II / T2 II / T2 II / T2

120 V AC 230 V AC 230 V AC

150 V AC / 200 V DC 385 V AC / 500 V DC 335 V AC / 420 V DC

20 kA 20 kA 20 kA

40 kA 40 kA 40 kA

≤ 550 V ≤ 1.35 kV ≤ 1.2 kV

≤ 800 V ≤ 1.8 kV ≤ 1.5 kV

≤ 25 ns ≤ 25 ns ≤ 25 ns

125 A (gL)

-

-40°C ... 80°C

V0

IEC 61643-1 / EN 61643-11/A11 / UL 1449 / IEEE C62.1 / C62.34 / C62.45

Ordering data

Type	Order No.	Pcs. / Pkt.
VAL-MS 120 ST	2807586	10
VAL-MS 230 IT ST	2807599	10
VAL-MS 320 ST	2838843	10

Accessories

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Technical data

... 400 ST ... 500 ST ... 580 ST ... 750/30 ST

II / T2 II / T2 II / T2 II / T2

400 V AC 500 V AC 400 V AC 554 V AC

440 V AC / 585 V DC 600 V AC / 600 V DC 580 V AC / - 750 V AC / -

20 kA 15 kA 15 kA 15 kA

40 kA 30 kA 30 kA 30 kA

≤ 1.5 kV ≤ 2.3 kV ≤ 2.1 kV ≤ 2.4 kV

≤ 2.2 kV ≤ 2.7 kV ≤ 2.5 kV ≤ 2.7 kV

≤ 25 ns ≤ 25 ns ≤ 25 ns ≤ 25 ns

125 A (gL)

-

-40°C ... 80°C

V0

IEC 61643-1 / EN 61643-11/A11 / UL 1449 / IEEE C62.1 / C62.34 / C62.45

Ordering data

Type	Order No.	Pcs. / Pkt.
VAL-MS 400 ST	2816399	10
VAL-MS 500 ST	2807609	10
VAL-MS 580-ST	2920434	10
VAL-MS 750/30-ST	2920256	10

Accessories

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Type 2 surge arrester

VALVETRAB MS
10/20 kA performance class

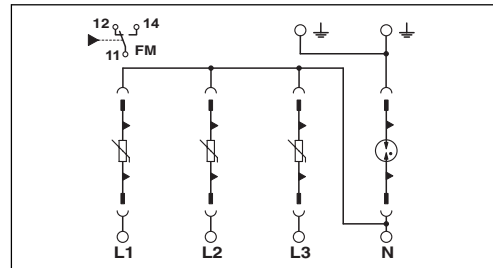
- Multi-channel type 2 arrester
- Type 2 seamless plug-in surge arrester
- Disconnect device on each individual connector
- Optical, mechanical status indication for the individual arresters
- With or without floating remote indication contact
- Mechanical keying of all slots
- Solutions for the low performance class

Notes:
Dimensional drawings starting on page 240
Approvals starting on page 252



5-conductor system; L1, L2, L3, N, PE

Total width 71.2 mm



Electrical data		
IEC category / EN type	L-N / N-PE / L-PEN	
Nominal voltage U_N		
Maximum continuous operating voltage U_C		
Nominal discharge surge current I_n (8/20) μ s	L-N / N-PE / L-PEN	
Max. discharge surge current I_{max} (8/20) μ s	L-N / N-PE / L-PEN	
Residual voltage at 5 kA	L-N / N-PE / L-PEN	
Protection level U_p	L-N / N-PE / L-PEN	
Response time t_A	L-N / N-PE / L-PEN	
Max. backup fuse according to IEC		
Immunity to short-circuiting (with max. backup fuse) I_p		
General data		
Connection data solid / stranded / AWG		
Temperature range		
Inflammability class according to UL 94		
Test standards		
Remote indication contact		
Connection data solid / stranded / AWG		
Max. operating voltage		
Max. operating current		
Min. operating current		

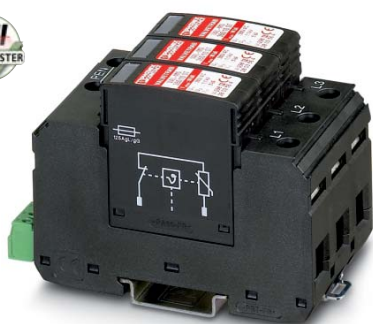
Technical data	
... 350/10	... 350/20
II / T2	II / T2
230 V AC (400 V AC)	230 V AC (400 V AC)
350 V AC / 260 V AC / -	350 V AC / 260 V AC / -
15 kA (all channels) / 20 kA / -	30 kA (all channels) / 20 kA / -
30 kA (all channels) / 30 kA / -	60 kA (all channels) / 30 kA / -
≤ 1.2 kV / ≤ 150 V / -	≤ 1.2 kV / ≤ 150 V / -
≤ 1.2 kV / ≤ 1.5 kV / -	≤ 1.4 kV / ≤ 1.5 kV / -
≤ 25 ns / ≤ 100 ns / -	≤ 25 ns / ≤ 100 ns / -
125 A (gL/gG)	25 kA
1.5 ... 35 mm ² / 1.5 ... 25 mm ² / 15 - 2	
-40°C ... 80°C	
V0	
IEC 61643-1 / EN 61643-11/A11	
Single-pos. PDT	
0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16	
250 V AC	
0.75 A AC (250 V AC) / 3 A (125 V AC)	
5 mA (5 V)	

Description	I_{max}	U_C
VALVETRAB MS		
Without remote indication contact	10 kA	350 V AC
With remote indication contact	10 kA	350 V AC
VALVETRAB MS		
Without remote indication contact	20 kA	350 V AC
With remote indication contact	20 kA	350 V AC

Replacement connector	
350 V AC	1L-N/PE
350 V AC	1L-N/PE
260 V AC	N-PE
Base element, for individual assembly with protective connectors	
Without remote indication contact	
With remote indication contact	
Labeling material	

Ordering data		
Type	Order No.	Pcs. / Pkt.
VAL-MS 350/10/3+1	2803593	1
VAL-MS 350/10/3+1-FM	2803603	1
VAL-MS 350/20/3+1	2803548	1
VAL-MS 350/20/3+1-FM	2803551	1

Accessories		
VAL-MS 350/10 ST	2803564	1
VAL-MS 350/20 ST	2803506	1
F-MS 30 ST	2803519	1
VAL-MS/3+1-BE	2838885	1
VAL-MS/3+1-BE/FM	2838898	1
ZBN 18 ..., see page 59		

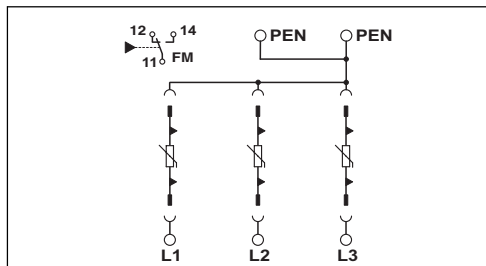


4-conductor system; L1, L2, L3, PEN

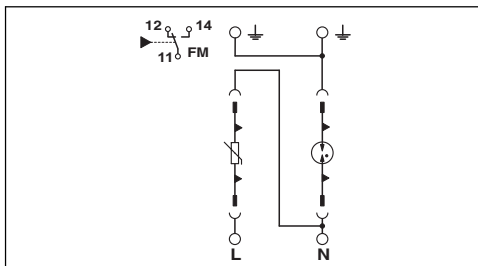


3-conductor system; L, N, PE

Total width 53.4 mm



Total width 35.6 mm



Technical data

... 350/10	... 350/20
II / T2	II / T2
230 V AC (400 V AC)	230 V AC (400 V AC)
- / - / 350 V AC	- / - / 350 V AC
- / - / 15 kA (all channels)	- / - / 30 kA (all channels)
- / - / 30 kA (all channels)	- / - / 60 kA (all channels)
- / - / ≤ 1.2 kV	- / - / ≤ 1.2 kV
- / - / ≤ 1.2 kV	- / - / ≤ 1.4 kV
- / - / ≤ 25 ns	- / - / ≤ 25 ns
	125 A (gL/gG)
	25 kA

1.5 ... 35 mm² / 1.5 ... 25 mm² / 15 - 2
-40°C ... 80°C
V0

IEC 61643-1 / EN 61643-11/A11

Single-pos. PDT

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16
250 V AC
1.5 A AC (250 V AC) / 1.5 A DC (30 V DC)
5 mA (5 V)

Technical data

... 350/10	... 350/20
II / T2	II / T2
230 V AC (400 V AC)	230 V AC (400 V AC)
350 V AC / 260 V AC / -	350 V AC / 260 V AC / -
5 kA / 20 kA / -	10 kA / 20 kA / -
10 kA / 30 kA / -	20 kA / 30 kA / -
≤ 1.2 kV / ≤ 150 V / -	≤ 1.2 kV / ≤ 150 V / -
≤ 1.2 kV / ≤ 1.5 kV / -	≤ 1.4 kV / ≤ 1.5 kV / -
≤ 25 ns / ≤ 100 ns / -	≤ 25 ns / ≤ 100 ns / -
	125 A (gL/gG)
	25 kA

1.5 ... 35 mm² / 1.5 ... 25 mm² / 15 - 2
-40°C ... 80°C
V0

IEC 61643-1 / EN 61643-11/A11

Single-pos. PDT

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16
250 V AC
1.5 A AC (250 V AC) / 1.5 A DC (30 V DC)
5 mA (5 V)

Ordering data

Type	Order No.	Pcs. / Pkt.
VAL-MS 350/10/3+0	2803577	1
VAL-MS 350/10/3+0-FM	2803580	1
VAL-MS 350/20/3+0	2803522	1
VAL-MS 350/20/3+0-FM	2803535	1

Accessories

VAL-MS 350/10 ST	2803564	1
VAL-MS 350/20 ST	2803506	1
VAL-MS/3+0-BE	2881816	1
VAL-MS/3+0-BE/FM	2881803	1

ZBN 18 ..., see page 59

Ordering data

Type	Order No.	Pcs. / Pkt.
VAL-MS 350/10/1+1	2803632	1
VAL-MS 350/10/1+1-FM	2803645	1
VAL-MS 350/20/1+1	2803616	1
VAL-MS 350/20/1+1-FM	2803629	1

Accessories

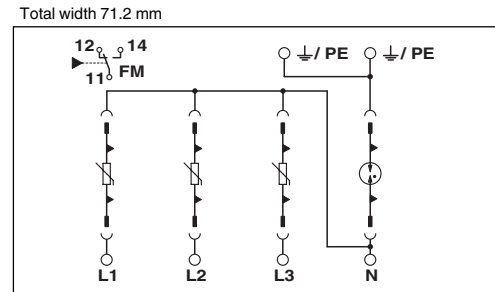
VAL-MS 350/10 ST	2803564	1
VAL-MS 350/20 ST	2803506	1
F-MS 30 ST	2803519	1
VAL-MS/1+1-BE	2920528	1
VAL-MS/1+1-BE/FM	2920531	1

ZBN 18 ..., see page 59

Type 2 surge arrester

VALVETRAB MS
65/80 kA performance class

- Multi-channel type 2 arrester
- Type 2 seamless plug-in surge arrester
- Secure hold of connectors in the event of high lightning current loads and strong vibration thanks to new latching
- Disconnect device on each individual connector
- Optical, mechanical status indication for the individual arresters
- With or without floating remote indication contact
- Mechanical keying of all slots
- Connectors can be checked with CHECKMASTER



Electrical data		
IEC category / EN type		
Nominal voltage U_N		
Maximum continuous operating voltage U_C		
Nominal discharge surge current I_n (8/20) μ s		
Max. discharge surge current I_{max} (8/20) μ s		
Residual voltage at 5 kA		
Protection level U_P		
Response time t_A		
Max. backup fuse according to IEC		
Immunity to short-circuiting (with max. backup fuse) I_p		
General data		
Connection data solid / stranded / AWG		
Temperature range		
Inflammability class according to UL 94		
Test standards		
Remote indication contact		
Connection data solid / stranded / AWG		
Max. operating voltage		
Max. operating current		
Min. operating current		

Technical data		
.. 385/65	.. 385/80	
II / T2	II / T2	
240 V AC (230/400 V AC ... 240/415 V AC)	240 V AC (230/400 V AC ... 240/415 V AC)	
L-N / N-PE / L-PEN	385 V AC / 264 V AC / -	385 V AC / 264 V AC / -
L-N / N-PE / L-PEN	30 kA / 40 kA / -	40 kA / 40 kA / -
L-N / N-PE / L-PEN	65 kA / 80 kA / -	80 kA / 80 kA / -
L-N / N-PE / L-PEN	≤ 1 kV / ≤ 0.5 kV / -	≤ 1 kV / ≤ 0.5 kV / -
L-N / N-PE / L-PEN	≤ 1.8 kV / ≤ 1.7 kV / -	≤ 1.8 kV / ≤ 1.7 kV / -
L-N / N-PE / L-PEN	≤ 25 ns / ≤ 100 ns / -	≤ 25 ns / ≤ 100 ns / -
	250 A (gL/gG)	
	25 kA	
1.5 ... 35 mm ² / 1.5 ... 25 mm ² / 15 - 2		
-40°C ... 80°C		
V0		
IEC 61643-1 / DIN EN 61643-11		
Single-pos. PDT		
0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16		
250 V AC		
1.5 A AC (250 V AC) / 1.5 A DC (30 V DC)		
5 mA (5 V)		

Description	I_{max}	U_C
VALVETRAB MS		
With remote indication contact	65 kA	385 V AC
Without remote indication contact	65 kA	385 V AC
VALVETRAB MS		
With remote indication contact	80 kA	385 V AC
Without remote indication contact	80 kA	385 V AC

Replacement connector		
For VAL-MS 385/65...	1L-N/PE	
For VAL-MS 385/80...	1L-N/PE	
	N-PE	
Base element, for individual assembly with protective connectors		
Without remote indication contact		
With remote indication contact		
Labeling material		

Ordering data		
Type	Order No.	Pcs. / Pkt.
VAL-MS 385/65/3+1-FM	2920887	1
VAL-MS 385/65/3+1	2920890	1
VAL-MS 385/80/3+1-FM	2920968	1
VAL-MS 385/80/3+1	2920971	1

Accessories		
VAL-MS 385/65 ST	2920308	10
VAL-MS 385/80 ST	2920353	10
F-MS 80 ST	2921307	10
VAL-MS/3+1-BE	2838885	1
VAL-MS/3+1-BE/FM	2838898	1
ZBN 18 ..., see page 59		

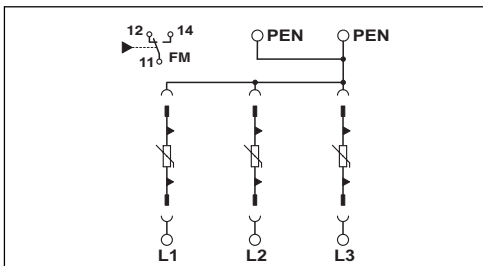


4-conductor system; L1, L2, L3, PEN

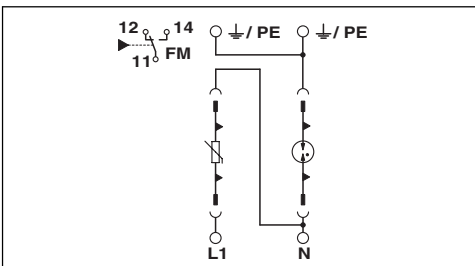


3-conductor system; L, N, PE

Total width 53.4 mm



Total width 35.6 mm



Technical data

.. 385/65	.. 385/80
II / T2	II / T2
240 V AC (230/400 V AC ... 240/415 V AC)	240 V AC (230/400 V AC ... 240/415 V AC)
- / - / 385 V AC	- / - / 385 V AC
- / - / 90 kA (all channels)	- / - / 120 kA (all channels)
- / - / 150 kA (all channels)	- / - / 200 kA (all channels)
- / - / ≤ 1 kV	- / - / ≤ 1 kV
- / - / ≤ 1.8 kV	- / - / ≤ 1.8 kV
- / - / ≤ 25 ns	- / - / ≤ 25 ns
	250 A (gL/gG)
	25 kA

1.5 ... 35 mm² / 1.5 ... 25 mm² / 15 - 2
-40°C ... 80°C

V0
IEC 61643-1 / DIN EN 61643-11

Single-pos. PDT

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16

250 V AC

1.5 A AC (250 V AC) / 1.5 A DC (30 V DC)

5 mA (5 V)

Technical data

.. 385/65	.. 385/80
II / T2	II / T2
240 V AC (230 V AC ... 240 V AC)	240 V AC (230 V AC ... 240 V AC)
385 V AC / 264 V AC / -	385 V AC / 264 V AC / -
30 kA / 40 kA / -	40 kA / 40 kA / -
65 kA / 80 kA / -	80 kA / 80 kA / -
≤ 1 kV / ≤ 0.5 kV / -	≤ 1 kV / ≤ 0.5 kV / -
≤ 1.8 kV / ≤ 1.7 kV / -	≤ 1.8 kV / ≤ 1.7 kV / -
≤ 25 ns / ≤ 100 ns / -	≤ 25 ns / ≤ 100 ns / -
	250 A (gL/gG)
	25 kA

1.5 ... 35 mm² / 1.5 ... 25 mm² / 15 - 2
-40°C ... 80°C

V0
IEC 61643-1 / DIN EN 61643-11

Single-pos. PDT

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16

250 V AC

1.5 A AC (250 V AC) / 1.5 A DC (30 V DC)

5 mA (5 V)

Ordering data

Type	Order No.	Pcs. / Pkt.
VAL-MS 385/65/3+0-FM	2921006	1
VAL-MS 385/65/3+0	2921019	1
VAL-MS 385/80/3+0-FM	2921080	1
VAL-MS 385/80/3+0	2921093	1

Accessories

VAL-MS 385/65 ST	2920308	10
VAL-MS 385/80 ST	2920353	10
VAL-MS/3+0-BE	2881816	1
VAL-MS/3+0-BE/FM	2881803	1

ZBN 18 ..., see page 59

Ordering data

Type	Order No.	Pcs. / Pkt.
VAL-MS 385/65/1+1-FM	2921242	1
VAL-MS 385/65/1+1	2921255	1
VAL-MS 385/80/1+1-FM	2921284	1
VAL-MS 385/80/1+1	2921297	1

Accessories

VAL-MS 385/65 ST	2920308	10
VAL-MS 385/80 ST	2920353	10
F-MS 80 ST	2921307	10
VAL-MS/1+1-BE	2920528	1
VAL-MS/1+1-BE/FM	2920531	1

ZBN 18 ..., see page 59

Surge protection for the IEC/EN power supply unit

Type 2 surge arrester

VALVETRAB MS base elements

- Single/multi-pos. design for accommodating protective connectors
- Versions with and without floating remote indication contact
- Keying when protective connector is inserted for the first time
- DIN rail module

Notes:
Dimensional drawings starting on page 240
Approvals starting on page 252
Not to be used with VAL-MS-T1/T2...ST, VAL-MS...65...ST, and VAL-MS...80...ST

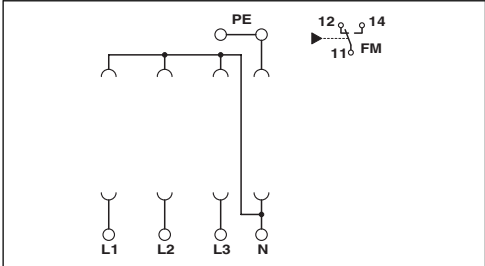


5-conductor system; L1, L2, L3, N, PE

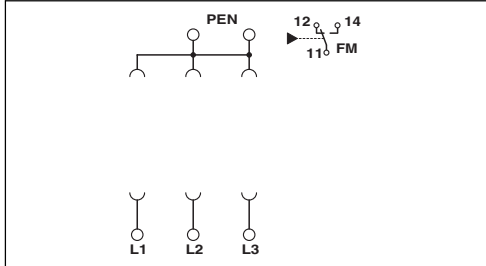


4-conductor system; L1, L2, L3, PEN

Total width 70.8 mm



Total width 53.4 mm



Electrical data
Nominal voltage U _N
Max. backup fuse according to IEC
General data
Connection data solid / stranded / AWG
Temperature range
Inflammability class according to UL 94
Test standards
Remote indication contact
Connection data solid / stranded / AWG
Max. operating voltage
Max. operating current

Technical data		
	-	
	125 A (gL / gG)	
	0.5 ... 35 mm ² / 0.5 ... 25 mm ² / 20 - 2	
	-40°C ... 80°C	
	V0	
	IEC 61643-1 / EN 61643-11/A11	
	Single-pos. PDT	
	0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16	
	250 V AC / 30 V DC	
	0.75 A AC (250 V AC) / 2 A DC (30 V DC)	

Technical data		
	400 V AC (690 V AC)	
	200 A (gL / gG)	
	1.5 ... 35 mm ² / 1.5 ... 25 mm ² / 15 - 2	
	-40°C ... 80°C	
	V0	
	IEC 61643-1 / EN 61643-11/A11	
	Single-pos. PDT	
	0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16	
	250 V AC / 30 V DC	
	1.5 A AC (250 V AC) / 1.5 A DC (30 V DC)	

Description
VALVETRAB, base element
With remote indication contact
Without remote indication contact

Ordering data		
Type	Order No.	Pcs. / Pkt.
VAL-MS/3+1-BE/FM	2838898	1
VAL-MS/3+1-BE	2838885	1

Ordering data		
Type	Order No.	Pcs. / Pkt.
VAL-MS/3+0-BE/FM	2881803	1
VAL-MS/3+0-BE	2881816	1

Labeling material

Accessories
ZBN 18 ..., see page 59

Accessories
ZBN 18 ..., see page 59



3-conductor system; L1, L2, PEN

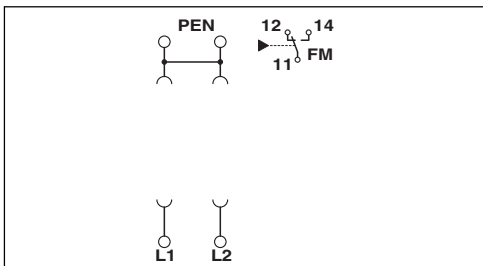


3-conductor system; L, N, PE



Single-position base element for use in single and multi-phase networks

Total width 36.2 mm



Technical data

240 V AC (415 V AC)
200 A (gL / gG)

1.5 ... 35 mm² / 1.5 ... 25 mm² / 15 - 2
-40°C ... 80°C
V0
IEC 61643-1 / EN 61643-11/A11

Single-pos. PDT

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16
250 V AC / 30 V DC
1 A AC (250 V AC) / 1.5 A DC (30 V DC)

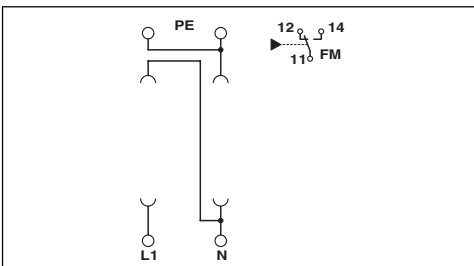
Ordering data

Type	Order No.	Pcs. / Pkt.
VAL-MS/2+0-BE/FM	2805321	1
VAL-MS/2+0-BE	2804584	1

Accessories

ZBN 18 ..., see page 59

Total width 35.6 mm



Technical data

240 V AC (1P/N/PE)
200 A (gL/gG)

1.5 ... 35 mm² / 1.5 ... 25 mm² / 15 - 2
-40°C ... 80°C
V0
IEC 61643-1 / EN 61643-11/A11

Single-pos. PDT

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16
250 V AC / 30 V DC
1.5 A AC (250 V AC) / 1.5 A DC (30 V DC)

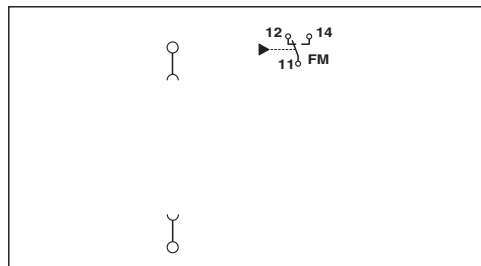
Ordering data

Type	Order No.	Pcs. / Pkt.
VAL-MS/1+1-BE/FM	2920531	1
VAL-MS/1+1-BE	2920528	1

Accessories

ZBN 18 ..., see page 59

Total width 17.7 mm



Technical data

240 V AC
125 A (gL/gG)

0.5 ... 35 mm² / 0.5 ... 25 mm² / 20 - 2
-40°C ... 80°C
V0
IEC 61643-1 / EN 61643-11/A11

PDT contact

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16
250 V AC / 125 V DC
1 A AC (ohmic) / 200 mA DC (ohmic)

Ordering data

Type	Order No.	Pcs. / Pkt.
VAL-MS BE/FM	2817738	10
VAL-MS BE	2817741	10

Accessories

ZBN 18 ..., see page 59

Special systems

Type 2 surge arrester

- Type 2 seamless plug-in surge arrester
- Also suitable for industry solutions, e.g., in the wind industry
- Disconnect device on each individual connector
- Optical, mechanical status indication for the individual arresters
- With or without floating remote indication contact
- Mechanical keying of all slots

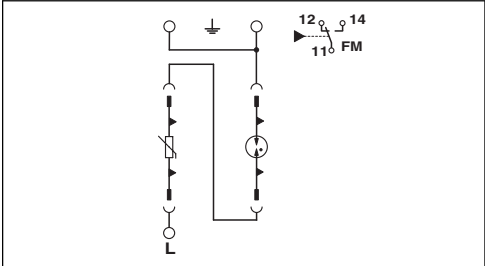


Free of leakage current, for nominal voltages up to 690 V AC, e.g., rotor protection for wind power plants

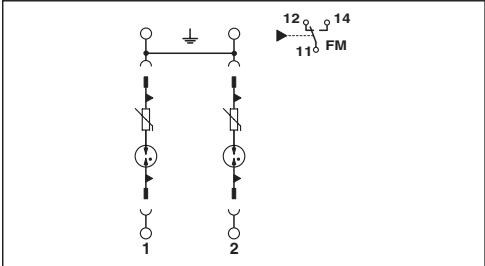


Free of leakage current, for nominal voltages up to 48 V AC

Total width 35.6 mm



Total width 35.6 mm



Electrical data	
IEC category / EN type	II / T2
Nominal voltage U_N	690 V AC
Maximum continuous operating voltage U_C	L-PE 800 V AC
Nominal discharge surge current I_n (8/20) μ s	L-PE 15 kA
Max. discharge surge current I_{max} (8/20) μ s	L-PE 30 kA
Residual voltage at 5 kA	L-PE ≤ 2.4 kV (at 5 kA)
Protection level U_p	L-PE ≤ 5 kV
Response time t_A	L-PE ≤ 100 ns
Max. backup fuse according to IEC	100 A (gL / gG)
General data	
Connection data solid / stranded / AWG	1.5 ... 35 mm ² / 1.5 ... 25 mm ² / 15 - 2
Temperature range	-40°C ... 80°C
Inflammability class according to UL 94	V0
Test standards	IEC 61643-1 / DIN EN 61643-11 / DIN EN 61643-11/A11
Remote indication contact	
Connection data solid / stranded / AWG	0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16
Max. operating voltage	250 V AC
Max. operating current	1.5 A AC (250 V AC) / 1.5 A DC (30 V DC)

Ordering data		
Type	Order No.	Pcs. / Pkt.
VAL-MS 800/30 VF/FM	2805402	1

Accessories		
Protective connector, for inserting in base element		
554 V AC 1L-N/PE	2920256	10
230 V AC N-PE	2805392	10
Base element, for individual assembly with protective connectors		
With remote indication contact	VAL-MS 1+1-BE/FM/HD/S1A	2800257 1
Labeling material	ZBN 18 ..., see page 59	

Technical data	
Base element	Plug
- / -	II / T2
240 V AC (415 V AC)	48 V AC (5 V...48 V AC)
-	75 V AC
-	10 kA
-	20 kA
-	≤ 350 V (at 5 kA)
-	≤ 1.4 kV
-	≤ 100 ns
63 A (gL / gG) 63 A (gL / gG)	63 A (gL / gG)
General data	
Connection data solid / stranded / AWG	1 ... 35 mm ² / 1 ... 25 mm ² / 18 - 2
Temperature range	-40°C ... 80°C
Inflammability class according to UL 94	V0
Test standards	IEC 61643-1 / DIN EN 61643-11 / DIN EN 61643-11/A11
Remote indication contact	
Connection data solid / stranded / AWG	0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16
Max. operating voltage	250 V
Max. operating current	1.5 A AC (250 V AC) / 1.5 A DC (30 V DC)

Ordering data		
Type	Order No.	Pcs. / Pkt.
VAL-MS 75 VF ST	2805318	10
F-MS 12 ST	2817990	10

Accessories		
VAL-MS 75 VF ST	2805318	10
F-MS 12 ST	2817990	10
VAL-MS/2+0-BE/FM/S2	2800246	1
Labeling material	ZBN 18 ..., see page 59	

Surge protection for 690 V AC and 960 V AC power supply systems

- For power supplies with higher supply voltages
- Use in powerful industrial networks and wind turbines
- Other solutions for power supplies $U_N \geq 400$ V available on request

Notes:
Dimensional drawings starting on page 240
Approvals starting on page 252



**4-conductor system; L1, L2, L3, PEN
(400/690 V TN-C system)**



**4-conductor system; L1, L2, L3, PEN
(554/960 V TN-C system)**

	Total width 142 mm		Total width 53.4 mm			
	Technical data		Technical data			
Electrical data	... T1	... T2				
IEC category / EN type	I / T1	II / T2	II / T2			
Nominal voltage U _N	400 V AC (690 V AC)	400 V AC (690 V AC)	554 V AC (554/960 V AC TN-C)			
Maximum continuous operating voltage U _C	L-PEN 440 V AC	600 V AC	750 V AC			
Lightning test curr. I _{imp} (10/350) μs	Peak value	50 kA (per channel)	-			
	Charge	25 As	-			
	Specific energy	625.00 kJ/Ω	-			
Nominal discharge surge current I _n (8/20) μs	L-PEN 150 kA (all channels)	45 kA (all channels)	45 kA (all channels)			
Follow current quenching capacity I _{fi}	L-PEN 25 kA (440 V AC)	-	-			
Protection level U _p	L-PEN ≤ 3 kV	≤ 2.7 kV	≤ 2.7 kV			
Response time t _A	L-PEN ≤ 100 ns	≤ 25 ns	≤ 25 ns			
General data						
Connection data solid / stranded / AWG	10 ... 50 mm ² / 16 ... 35 mm ² / 6- 1	0.5 ... 35 mm ² / 0.5 ... 25 mm ² / 20 - 2	1.5 ... 35 mm ² / 1.5 ... 25 mm ² / 15 - 2			
Temperature range	-40°C ... 85°C	-40°C ... 80°C	-40°C ... 80°C			
Inflammability class according to UL 94	V0	V0	V0			
Test standards	IEC 61643-1 / EN 61643-11/A11	IEC 61643-1 / DIN EN 61643-11 / DIN EN 61643-11/A11	IEC 61643-1 / DIN EN 61643-11 / DIN EN 61643-11/A11			
Remote indication contact	-	PDT contact	PDT contact			
Connection data solid / stranded / AWG	-	1.5 ... 0.14 mm ² / 1.5 ... 0.14 mm ² / 28 - 16	0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16			
Max. operating voltage	-	250 V AC	250 V AC			
Max. operating current	-	1 A AC (inductive)	1.5 A AC (250 V AC) / 1.5 A DC (30 V DC)			
Ordering data			Ordering data			
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
SYS-SET, multi-position lightning arrester combination						
Type 1	SYS-SET/3/T1/690	2800126	1			
Surge protection combination						
Type 2	SYS-SET/3/T2/690	2880341	1			
VALVETRAB MS						
With remote indication contact				VAL-MS 750/30/3+0-FM	2920272	1
Without remote indication contact				VAL-MS 750/30/3+0	2920269	1
VALVETRAB surge protection plug						
500 V AC	VAL-MS 500 ST	2807609	10			
554 V AC				VAL-MS 750/30-ST	2920256	10

Surge protection for the IEC/EN power supply unit

Type 2 surge arrester with RCD

Combi RCD
VAL-CP-RCD...

- For 5-conductor systems; L1, L2, L3, N, PE
- Combination of type 2 surge arrester and RCD residual current circuit breaker
- Personal protection and device protection in a single device
- Type 2 seamless plug-in surge arrester
- Disconnect device on each individual connector
- Optical, mechanical status indication for all protective connectors
- Residual current circuit breaker is not triggered by magnetic influences caused by discharge currents in the type 2 arrester

Notes:
Dimensional drawings starting on page 240
Approvals starting on page 252

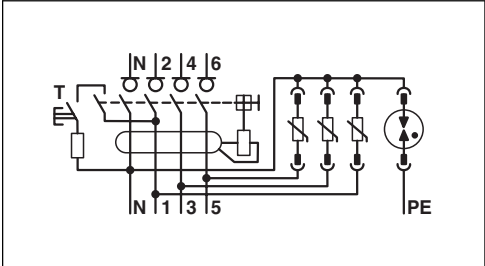


With selective RCD residual current circuit breaker, 300 mA

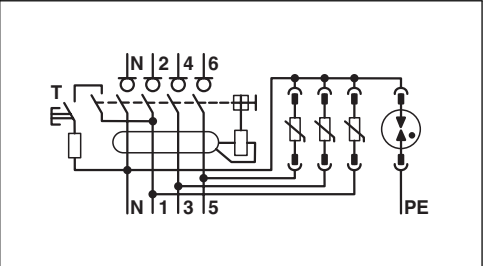


With selective RCD residual current circuit breaker, 30 mA

Total width 121 mm



Total width 121 mm



Electrical data
IEC category / EN type
Nominal voltage U_N
Maximum continuous operating voltage U_C
Nominal discharge surge current I_n (8/20) μ s
Max. discharge surge current I_{max} (8/20) μ s
Residual voltage at 5 kA
Protection level U_p
Response time t_A
General data
Connection data solid / stranded / AWG
Temperature range
Inflammability class according to UL 94
Test standards
RCD data
Class
Nominal load current I_L
Rated residual current
Rated making and breaking capacity I_m
Rated residual making and breaking capacity $I_{\Delta m}$
Surge withstand capability
Immunity to short-circuiting I_{sc}
Tripping time for $I_{\Delta n}$
Tripping time for $5xI_{\Delta n}$
Cycles, max.
Utilization category

Technical data
II / T2
240 V AC (230/400 V AC ... 240/415 V AC)
L-N / N-PE 350 V AC / 264 V AC
L-N / N-PE 60 kA (all channels) / 20 kA
L-N / N-PE 90 kA (all channels) / 30 kA
L-N / N-PE ≤ 1.2 kV / ≤ 0.3 kV
L-N / N-PE ≤ 2 kV / ≤ 2 kV
L-N / N-PE ≤ 25 ns / ≤ 100 ns
4 ... 16 mm ² / 4 ... 16 mm ² / 12 - 4
-25°C ... 40°C
V0
IEC 61643-1 / EN 61643-11 / IEC 61008-1 / IEC 61008-2-1 / IEC 60947-3
A selective
40 A
300 mA
630 A
630 A
6 kV (1.2/50 μ s)
10 kA backup fuse: 63 A
≤ 300 ms
≤ 40 ms
20000
AC 23 A

Technical data
II / T2
240 V AC (230/400 V AC ... 240/415 V AC)
L-N / N-PE 350 V AC / 264 V AC
L-N / N-PE 60 kA (all channels) / 20 kA
L-N / N-PE 90 kA (all channels) / 30 kA
L-N / N-PE ≤ 1.2 kV / ≤ 0.3 kV
L-N / N-PE ≤ 2 kV / ≤ 2 kV
L-N / N-PE ≤ 25 ns / ≤ 100 ns
4 ... 16 mm ² / 4 ... 16 mm ² / 12 - 4
-25°C ... 40°C
V0
IEC 61643-1 / EN 61643-11 / IEC 61008-1 / IEC 61008-2-1 / IEC 60947-3
A
40 A
30 mA
1.5 kA
2.5 kA
6 kV (1.2/50 μ s)
10 kA backup fuse: 63 A
≤ 300 ms
≤ 40 ms
20000
AC 23 A

Ordering data
Description
VALVETRAB compact with RCD
Replacement connector
L-N / L-PE
N-PE

Ordering data
Type
Order No.
Pcs. / Pkt.
VAL-CP-RCD-3S/40/0.3/SEL
2808001
1
Accessories
VAL-CP-350-ST-GY
2882718
10
VAL-CP-N/PE-350-ST-GY
2882734
10

Ordering data
Type
Order No.
Pcs. / Pkt.
VAL-CP-RCD-3S/40/0.03
2882802
1
Accessories
VAL-CP-350-ST-GY
2882718
10
VAL-CP-N/PE-350-ST-GY
2882734
10

Combi MCB VAL-CP-MOSO...

- Multi-channel type 2 surge arresters and integrated arrester backup fuses
- For 60 mm system technology
- Tool-free mounting on 5 and 10 mm busbars
- Signaling to monitoring systems via remote indication contact in the event of an error
- Surge-proof arrester backup fuse tailored to type 2 arresters
- Type 2 seamless plug-in surge arrester
- Disconnect device on each individual connector
- Optical, mechanical status indication for the individual arresters
- Connectors can be checked with CHECKMASTER

Notes:

Dimensional drawings starting on page 240

Approvals starting on page 252

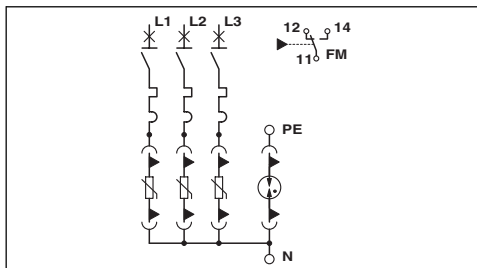


5-conductor system; L1, L2, L3, N, PE



4-conductor system; L1, L2, L3, PEN

Total width 54 mm



Technical data

Electrical data

IEC category / EN type

Nominal voltage U_N

Maximum continuous operating voltage U_c

Nominal discharge surge current I_n (8/20) μ s

Max. discharge surge current I_{max} (8/20) μ s

Residual voltage at 5 kA

Protection level U_p

Response time t_A

Max. backup fuse according to IEC

Immunity to short-circuiting (with max. backup fuse) I_p

Rated surge current resistance I_{pk}

General data

Connection data solid / stranded / AWG

Temperature range

Inflammability class according to UL 94

Test standards

Remote indication contact

Connection data solid / stranded / AWG

Max. operating voltage

Max. operating current

II / T2

240 V AC (230/400 V AC ... 240/415 V AC)

L-N / N-PE / L-PEN

350 V AC / 264 V AC / -

L-N / N-PE / L-PEN

60 kA (all channels) / 20 kA / -

L-N / N-PE / L-PEN

75 kA (all channels) / 40 kA / -

L-N / N-PE / L-PEN

≤ 1.8 kV / ≤ 0.25 kV / -

L-N / N-PE / L-PEN

≤ 2.5 kV / ≤ 1.5 kV / -

L-N / N-PE / L-PEN

≤ 25 ns / ≤ 100 ns / -

(Not required)

25 kA

52 kA

2.5 ... 25 mm² / 2.5 ... 16 mm² / 12 - 4

-25°C ... 60°C

V0

IEC 61643-1 / EN 61643-11

PDT contact

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16

250 V AC / 125 V DC

1 A AC (ohmic) / 0.2 A DC (ohmic)

Ordering data

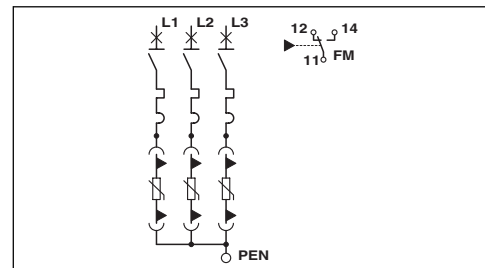
Type	Order No.	Pcs. / Pkt.
VAL-CP-MOSO 60-3S-FM	2804403	1

Accessories

VAL-CP-350-ST-GY	2882718	10
VAL-CP-N/PE-350-ST-GY	2882734	10

ZBF 12 ..., see page 59

Total width 54 mm



Technical data

II / T2

240 V AC (230/400 V AC ... 240/415 V AC)

- / - / 350 V AC

- / - / 60 kA (all channels)

- / - / 75 kA (all channels)

- / - / ≤ 1.8 kV

- / - / ≤ 2.5 kV

- / - / ≤ 25 ns

(Not required)

25 kA

52 kA

2.5 ... 25 mm² / 2.5 ... 16 mm² / 12 - 4

-25°C ... 60°C

V0

IEC 61643-1 / EN 61643-11/A11

PDT contact

0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16

250 V AC / 125 V DC

1 A AC (ohmic) / 0.2 A DC (ohmic)

Ordering data

Type	Order No.	Pcs. / Pkt.
VAL-CP-MOSO 60-3C-FM	2804416	1

Accessories

VAL-CP-350-ST-GY	2882718	10
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ZBF 12 ..., see page 59

Description

VALVETRAB compact

Replacement connector

L-N / L-PEN

N-PE

Labeling material

Surge protection for the IEC/EN power supply unit

Type 2 surge arrester with integrated backup fuse

Combi MCB
VAL-CP-MCB...

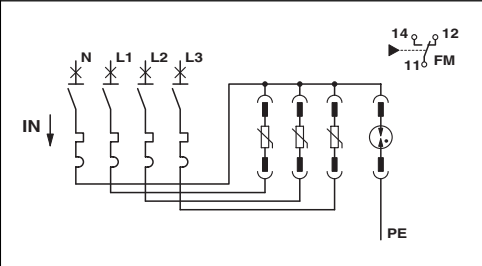
- Combinations of type 2 arresters with integrated arrester backup fuse
- Overload of the surge protection results in all-pole disconnection from the mains
- Signaling to monitoring systems via remote indication contact in the event of an error
- Type 2 seamless plug-in surge arrester
- Surge-proof arrester backup fuse
- Optical, mechanical status indication for the individual arresters
- Connectors can be checked with CHECKMASTER

Notes:
Dimensional drawings starting on page 240
Approvals starting on page 252



5-conductor system; L1, L2, L3, N, PE

Total width 131.5 mm



Electrical data		
IEC category / EN type		
Nominal voltage U_N		
Maximum continuous operating voltage U_C		
Nominal discharge surge current I_n (8/20) μ s		
Max. discharge surge current I_{max} (8/20) μ s		
Residual voltage at 5 kA		
Protection level U_p		
Response time t_A		
Max. backup fuse according to IEC		
Immunity to short-circuiting (with max. backup fuse) I_p		

Technical data		
II / T2		
240 V AC (230/400 V AC ... 240/415 V AC)		
L-N / N-PE / L-PEN		
350 V AC / 264 V AC / -		
L-N / N-PE / L-PEN		
60 kA (all channels) / 20 kA / -		
L-N / N-PE / L-PEN		
90 kA (all channels) / 30 kA / -		
L-N / N-PE / L-PEN		
≤ 1.3 kV / ≤ 0.5 kV / -		
L-N / N-PE / L-PEN		
≤ 2.5 kV / ≤ 1.7 kV / -		
L-N / N-PE / L-PEN		
≤ 25 ns / ≤ 100 ns / -		
(Not required)		
25 kA		

General data	
Connection data solid / stranded / AWG	
Temperature range	
Inflammability class according to UL 94	
Test standards	
Remote indication contact	
Connection data solid / stranded / AWG	
Max. operating voltage	
Max. operating current	

2.5 ... 25 mm ² / 2.5 ... 16 mm ² / 12 - 4	
-25°C ... 60°C	
V0	
IEC 61643-1 / EN 61643-11 / IEC 60364-4-443 /	
IEC 60364-5-534	
Single-pos. PDT	
0.14 ... 1.5 mm ² / 0.14 ... 1.5 mm ² / 28 - 16	
250 V AC / 250 V DC	
2 A AC / 50 mA DC	

Description	
VALVETRAB compact, with an arrester backup fuse	

Ordering data		
Type	Order No.	Pcs. / Pkt.
VAL-CP-MCB-3S-350/40/FM	2882750	1

Replacement connector	
L-N / L-PEN	
N-PE	

Accessories		
VAL-CP-350-ST-GY	2882718	10
VAL-CP-N/PE-350-ST-GY	2882734	10

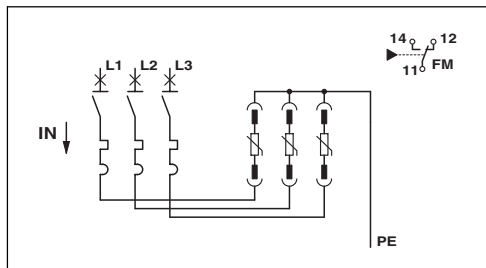


4-conductor system; L1, L2, L3, PEN



3-conductor system; L, N, PE

Total width 114 mm



Technical data

II / T2
240 V AC (230/400 V AC ... 240/415 V AC)
- / - / 350 V AC
- / - / 60 kA (all channels)
- / - / 90 kA (all channels)
- / - / ≤ 1.3 kV
- / - / ≤ 2.5 kV
- / - / ≤ 25 ns
(Not required)
25 kA

2.5 ... 25 mm² / 2.5 ... 16 mm² / 12 - 4
-25°C ... 60°C
V0
IEC 61643-1 / EN 61643-11 / IEC 60364-4-443 /
IEC 60364-5-534
Single-pos. PDT
0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16
250 V AC / 250 V DC
2 A AC / 50 mA DC

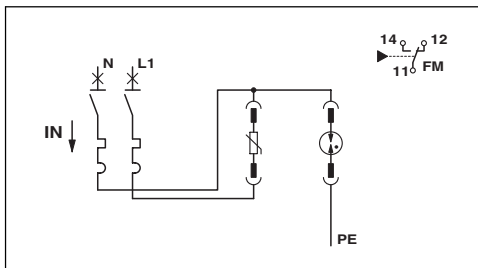
Ordering data

Type	Order No.	Pcs. / Pkt.
VAL-CP-MCB-3C-350/40/FM	2882776	1

Accessories

VAL-CP-350-ST-GY	2882718	10
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Total width 72 mm



Technical data

II / T2
240 V AC (230/400 V AC ... 240/415 V AC)
350 V AC / 264 V AC / -
20 kA / 20 kA / -
30 kA / 30 kA / -
 ≤ 1.3 kV / ≤ 0.5 kV / -
 ≤ 2.5 kV / ≤ 1.7 kV / -
 ≤ 25 ns / ≤ 100 ns / -
(Not required)
25 kA

2.5 ... 25 mm² / 2.5 ... 16 mm² / 12 - 4
-25°C ... 60°C
V0
IEC 61643-1 / EN 61643-11 / IEC 60364-4-443 /
IEC 60364-5-534
Single-pos. PDT
0.14 ... 1.5 mm² / 0.14 ... 1.5 mm² / 28 - 16
250 V AC / 250 V DC
2 A AC / 50 mA DC

Ordering data

Type	Order No.	Pcs. / Pkt.
VAL-CP-MCB-1S-350/40/FM	2882763	1

Accessories

VAL-CP-350-ST-GY	2882718	10
VAL-CP-N/PE-350-ST-GY	2882734	10