Type 1 surge protection device - VAL-US-120/65/2+1-FM - 2910358

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Surge protective device, three channel with remote indicator contact for 120/240 V split phase AC, 3-wire plus ground.

Your advantages

- UL open terminal listed SPD
- With floating remote indication contact
- Plugs can be checked with CHECKMASTER
- Secure hold of plugs in the event of high lightning current loads and strong vibrations thanks to new latching
- Mechanical coding of all slots
- Optical, mechanical status indication for the individual arresters
- Pluggable
- Thermal disconnect device for each individual plug

Key Commercial Data

Packing unit	1 pc
GTIN	4 055626 444987
GTIN	4055626444987

Technical data

Dimensions

Height	98.7 mm
Width	53.4 mm
Depth	77.5 mm
Horizontal pitch	3 Div.

Ambient conditions

Degree of protection	IP20 (only when all terminal points are used)
Ambient temperature (operation)	-40 °C ... 80 °C

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Ambient conditions

Ambient temperature (storage/transport)	-40 °C ... 80 °C
Altitude	≤ 2000 m (amsl (above mean sea level))
Permissible humidity (operation)	5 % ... 95 %
Shock (operation)	30g (Half-sine / 11 ms / 3x ±X, ±Y, ±Z)
Vibration (operation)	7.5g (10 ... 500 Hz / 2.5 h / X, Y, Z)

General

IEC test classification	I / II
	T1 / T2
EN type	T1 / T2
IEC power supply system	TN-S
	TT
Mode of protection	L-N
	L-PE
	N-PE
Mounting type	DIN rail: 35 mm
Color	jet black RAL 9005
Housing material	PA 6.6
	PBT
Degree of pollution	2
Flammability rating according to UL 94	V-0
Type	DIN rail module, two-section, divisible
Number of positions	3
Surge protection fault message	Optical, remote indicator contact

Protective circuit

Nominal voltage U_N	120/240 V AC (TN-S)
	120/240 V AC (TT)
Nominal frequency f_N	50 Hz (60 Hz)
Maximum continuous operating voltage U_C (L-N)	175 V AC
Maximum continuous voltage U_C (N-PE)	264 V AC
Rated load current I_L	80 A
Residual current I_{PE}	≤ 5 µA
Nominal discharge current I_n (8/20) µs (L-N)	12.5 kA
Nominal discharge current I_n (8/20) µs (L-PE)	12.5 kA
Nominal discharge current I_n (8/20) µs (N-PE)	50 kA
Total discharge current I_{total} (10/350) µs	37.5 kA
Follow current interrupt rating I_{fi} (N-PE)	100 A (264 V AC)
Short-circuit current rating I_{SCCR}	25 kA
Voltage protection level U_p (L-N)	≤ 0.8 kV
Voltage protection level U_p (L-PE)	≤ 2 kV

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Protective circuit

Voltage protection level U_p (N-PE)	≤ 1.7 kV
Residual voltage U_{res} (L-N)	≤ 0.8 kV (at I_n)
	≤ 0.75 kV (at 10 kA)
	≤ 0.65 kV (at 5 kA)
	≤ 0.6 kV (at 3 kA)
Residual voltage U_{res} (L-PE)	≤ 2 kV (at I_n)
	≤ 1.5 kV (at 10 kA)
	≤ 1.4 kV (at 5 kA)
	≤ 1.3 kV (at 3 kA)
Residual voltage U_{res} (N-PE)	≤ 0.6 kV (at I_n)
	≤ 0.5 kV (at 10 kA)
	≤ 0.5 kV (at 5 kA)
	≤ 0.4 kV (at 3 kA)
TOV behavior at U_T (L-N)	208 V AC (5 s / withstand mode)
	240 V AC (120 min / safe failure mode)
TOV behavior at U_T (N-PE)	1200 V AC (200 ms / withstand mode)
Response time t_A (L-N)	≤ 25 ns
Response time t_A (L-PE)	≤ 100 ns
Response time t_A (N-PE)	≤ 100 ns
Max. backup fuse with V-type through wiring	80 A (gG)
Max. backup fuse with branch wiring	160 A (gG)

Indicator/remote signaling

Switching function	PDT contact
Operating voltage	5 V AC ... 250 V AC
	30 V DC
Operating current	5 mA AC ... 1.5 A AC
	1 A DC
Connection method	Screw connection
Screw thread	M2
Tightening torque	0.25 Nm
Stripping length	7 mm
Conductor cross section flexible	0.14 mm² ... 1.5 mm²
Conductor cross section solid	0.14 mm² ... 1.5 mm²
Conductor cross section AWG	28 ... 16

Connection data

Connection method	Screw connection
Screw thread	M5
Tightening torque	4.5 Nm (1.5 mm² ... 16 mm²)
	4.5 Nm (25 mm² ... 35 mm²)

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Connection data

Stripping length	16 mm
Conductor cross section flexible	1.5 mm² ... 25 mm²
Conductor cross section solid	1.5 mm² ... 35 mm²
Conductor cross section AWG	15 ... 2

UL specifications

SPD Type	1
Maximum continuous operating voltage MCOV (L-L)	350 V AC
Maximum continuous operating voltage MCOV (L-N)	175 V AC
Maximum continuous operating voltage MCOV (L-G)	175 V AC
Maximum continuous operating voltage MCOV (N-G)	264 V AC
Nom. voltage	120/240 V AC (Split phase)
Mode of protection	L-L
	L-N
	L-G
	N-G
Power distribution system	Split phase
Nominal frequency	50/60 Hz
Voltage protection rating VPR (L-L)	1200 V
Voltage protection rating VPR (L-N)	700 V
Voltage protection rating VPR (L-G)	1500 V
Voltage protection rating VPR (N-G)	1200 V
Nominal discharge current I_n	20 kA
Maximum Surge Current per Phase	65 kA
Short-circuit current rating (SCCR)	200 kA

UL indicator/remote signaling

Operating voltage	125 V AC
Operating current	1 A AC
Tightening torque	2 lb_f-in. ... 4 lb_f-in.
Conductor cross section AWG	30 ... 14

UL connection data

Conductor cross section AWG	10 ... 2
Tightening torque	30 lb_f-in.

Standards and Regulations

Standards/regulations	IEC 61643-11 2011
	EN 61643-11 2012

Environmental Product Compliance

REACh SVHC	Lead 7439-92-1

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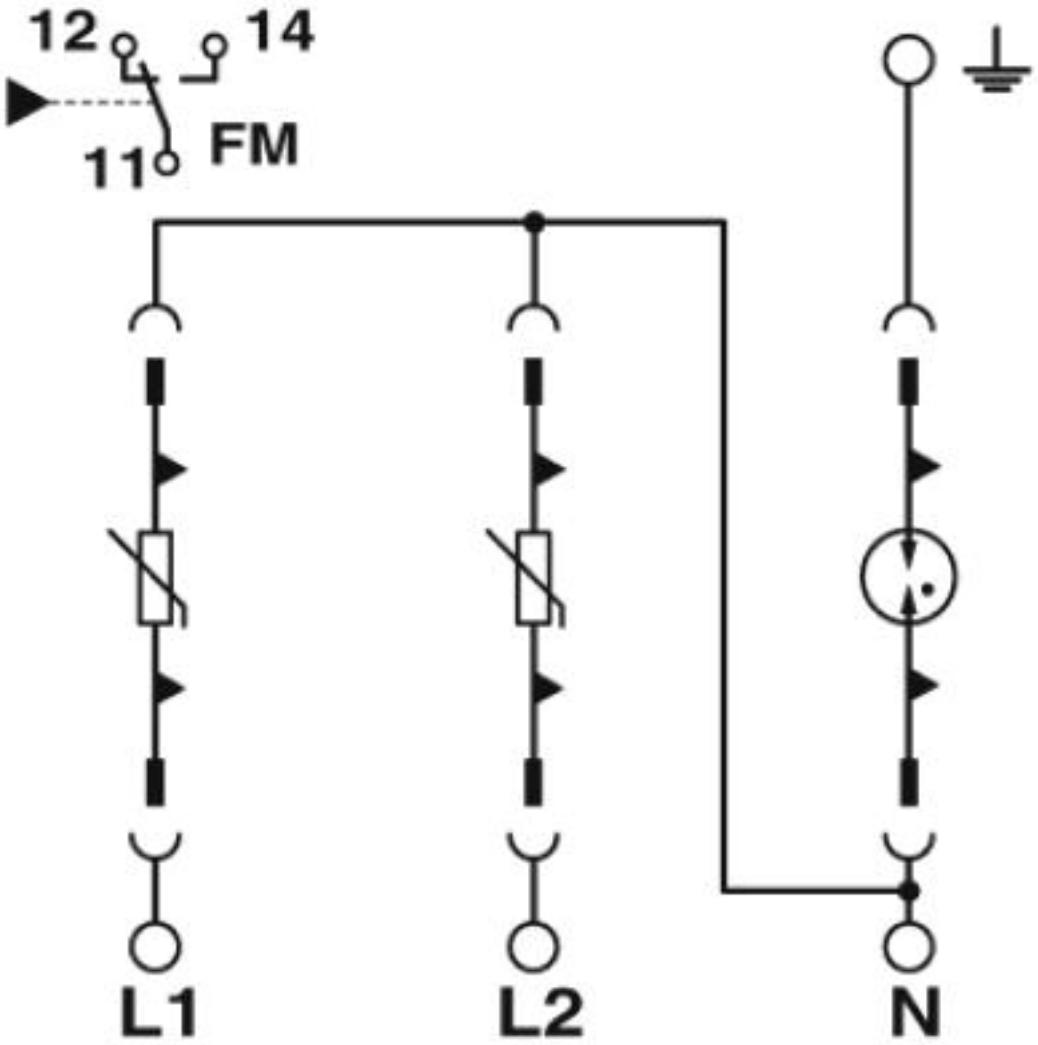
Drawings

Circuit diagram



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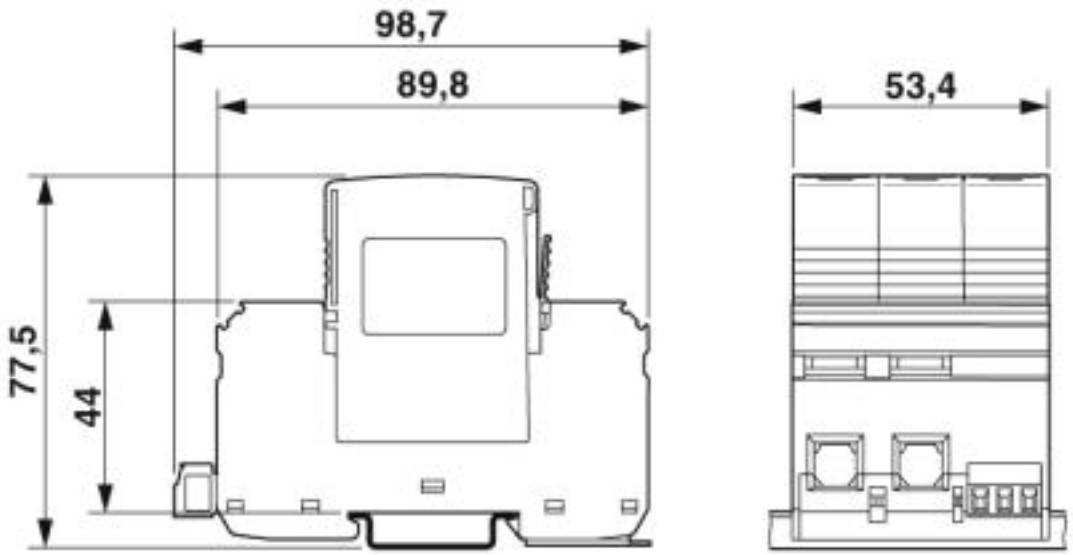
Dimensional drawing



Classifications

eCl@ss

eCl@ss 10.0.1	27130805
eCl@ss 6.0	27130800
eCl@ss 7.0	27130805
eCl@ss 8.0	27130805
eCl@ss 9.0	27130805

ETIM

ETIM 5.0	EC000941
ETIM 6.0	EC000941
ETIM 7.0	EC000941

Approvals

Approvals

Approvals

UL Listed / cUL Listed / cULus Listed

Ex Approvals

Approval details

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Approvals

UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 330181

cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 330181

cULus Listed	

Accessories

Accessories

Bridge

Wiring bridge - MPB F600X16/ 1GS - 2818355

Wiring bridge flexible, diameter: 16 mm², with a fork-type cable lug on one side, length: 600 mm

Wiring bridge - MPB F600X16/ 1GS - 2818355

Wiring bridge flexible, diameter: 16 mm², with a fork-type cable lug on one side, length: 600 mm

Wiring bridge - MPB F200X16/ 1GS - 2818339

Wiring bridge flexible, diameter 16 mm², with a fork-type cable lug on one side, length: 200 mm

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Accessories

Wiring bridge - MPB 18/1-10/1.0.0 - 2830443

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 10 pitches with contact sequence 1-0-0

Wiring bridge - MPB 18/4-12 - 2809296

Wiring bridge for modules with connecting pitch 17.5 mm, 4-phase, 12-pos.

Wiring bridge - MPB 18/4- 8 - 2809283

Wiring bridge for modules with connecting pitch 17.5 mm, 4-phase, 8-pos.

Wiring bridge - MPB 18/3- 6 - 2809241

Wiring bridge for modules with connecting pitch 17.5 mm, 3-phase, 6-pos.

Wiring bridge - MPB 18/1-57 - 2809238

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 57-pos.

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Wiring bridge - MPB 18/1-12 - 2748593

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 12-pos.

Wiring bridge - MPB 18/1- 9 - 2748580

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 9-pos.

Wiring bridge - MPB 18/1- 8 - 2748577

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 8-pos.

Wiring bridge - MPB 18/1- 6 - 2748564

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 6-pos.

Wiring bridge - MPB 18/1- 4 - 2809225

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 4-pos.

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Accessories

Wiring bridge - MPB 18/1- 3 - 2809212

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 3-pos.

Wiring bridge - MPB 18/1- 2 - 2809209

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 2-pos.

Device marking

Zack marker strip - ZBN 18:UNBEDRUCKT - 2809128

Zack marker strip, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, PLOTMARK, mounting type: snap into tall marker groove, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

Feed-through terminal block

Feed-through terminal block - DK-BIC-35 - 2749880

Feed-through terminal block for VAL and FLT applications

Labeled device marker

Marker for terminal blocks - ZBN 18,LGS:ERDE - 2749589

Marker for terminal blocks, Strip, white, labeled, Horizontal: Grounding symbol, mounting type: snap into tall marker groove, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

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Accessories

Marker for terminal blocks - ZBN 18,LGS:L1-N,ERDE - 2749576

Marker for terminal blocks, Strip, white, labeled, Horizontal: L1, L2, L3, N, GND, mounting type: snap into tall marker groove, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

Marker pen

Marker pen - B-STIFT - 1051993

Marker pen, for manual labeling of unprinted Zack strips, smear-proof and waterproof, line thickness 0.5 mm

Spare parts

Type 1 surge protection plug - VAL-US-120/65-P - 2910330

UL Recognized type 1 SPD and IEC type 2 surge protection plug with a varistor and thermal disconnect for use with VAL-US base elements, mechanical and visual fault warning

Type 1 surge protection plug - GDT-US-NG/80-P - 2910332

UL Recognized type 1 SPD and IEC type 2 surge protection plug with a gas discharge tube and thermal disconnect for use with VAL-US base elements, mechanical and visual fault warning

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