

# VAL-US-120/40/3+0-FM - Surge protection device



2910353

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Surge protective device, UL Listed type 1 and IEC type 2, three-channel with remote indicator contact for 120/240 V split-phase or 120/208 V Wye three-phase AC, 4-wire.

## Commercial data

Item number	2910353
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CL17
Product key	CL132U
GTIN	4055626444932
Weight per piece (including packing)	312 g
Weight per piece (excluding packing)	285 g
Customs tariff number	85363030
Country of origin	DE

## Technical data

### Product properties

Product type	Surge protection for NEMA power supply units
Product family	VALVETRAB US
IEC test classification	II
	T2
EN type	T2
IEC power supply system	TN-C
Type	DIN rail module, two-section, divisible
Number of positions	3
Surge protection fault message	Optical, remote indicator contact
Number of ports	One

### Insulation characteristics

Overvoltage category	III
Pollution degree	2

### Electrical properties

Nominal frequency $f_N$	50 Hz (60 Hz)
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### Indicator/remote signaling

Connection name	Remote fault indicator contact
Switching function	Changeover 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 data

Connection method	Screw connection
Screw thread	M5
Tightening torque	4.5 Nm (1.5 mm <sup>2</sup> ... 16 mm <sup>2</sup> )
	4.5 Nm (25 mm <sup>2</sup> ... 35 mm <sup>2</sup> )
Stripping length	16 mm
Conductor cross-section flexible	1.5 mm <sup>2</sup> ... 25 mm <sup>2</sup>
Conductor cross-section rigid	1.5 mm <sup>2</sup> ... 35 mm <sup>2</sup>
Conductor cross-section AWG	15 ... 2

### Remote fault indicator contact

Connection method	Screw connection
Screw thread	M2
Tightening torque	0.25 Nm
Stripping length	7 mm
Conductor cross-section flexible	0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>

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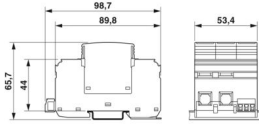


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Conductor cross-section rigid	0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross-section AWG	28 ... 16

## Dimensions

Dimensional drawing	
Width	53.4 mm
Height	98.7 mm
Depth	65.7 mm (incl. DIN rail 7.5 mm)
Horizontal pitch	3 Div.

## Material specifications

Color	black (RAL 9005)
Flammability rating according to UL 94	V-0
CTI value of material	600
Insulating material	PA 6.6/PBT
Material group	I
Housing material	PA 6.6 PBT

## Mechanical properties

### Mechanical data

Open side panel	No
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## Protective circuit

Mode of protection	L-PEN
Direction of action	3L-GND
Nominal voltage $U_N$	120/208 V AC (TN-C)
Nominal frequency $f_N$	50 Hz (60 Hz)
Maximum continuous operating voltage $U_C$ (L-PEN)	175 V AC
Rated load current $I_L$	80 A
Protective conductor current $I_{PE}$	0.45 mA
Standby power consumption $P_C$	≤ 400 mVA
Nominal discharge current $I_n$ (8/20) $\mu$ s	20 kA
Maximum discharge current $I_{max}$ (8/20) $\mu$ s	40 kA
Short-circuit current rating $I_{SCCR}$	25 kA
Voltage protection level $U_p$	≤ 0.9 kV
Residual voltage $U_{res}$	≤ 0.9 kV (at $I_n$ ) ≤ 0.75 kV (at 10 kA) ≤ 0.6 kV (at 5 kA) ≤ 0.55 kV (at 3 kA)

TOV behavior at $U_T$	208 V AC (5 s / withstand mode)
	240 V AC (120 min / safe failure mode)
Response time $t_A$	$\leq 25$ ns
Max. backup fuse with V-type through wiring	80 A (gG)
Max. backup fuse with branch wiring	125 A (gG)

## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20 (only when all terminal points are used)
Ambient temperature (operation)	-40 °C ... 80 °C
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Altitude	$\leq 2000$ m (amsl)
Permissible humidity (operation)	5 % ... 95 %
Shock (operation)	25g (Half-sine / 11 ms / 3x $\pm X$ , $\pm Y$ , $\pm Z$ )
Vibration (operation)	5g (10 ... 500 Hz / 2.5 h / X, Y, Z)

## Approvals

### UL specifications

Maximum continuous operating voltage MCOV	175 V AC
Maximum continuous operating voltage MCOV (L-L)	350 V AC
Maximum continuous operating voltage MCOV (L-N)	350 V (120/240S)
Maximum continuous operating voltage MCOV (L-G)	175 V AC
Maximum continuous operating voltage MCOV (N-G)	175 V (120/240S)
Short-circuit current rating (SCCR)	200 kA
Voltage protection rating VPR (L-L)	1200 V
Voltage protection rating VPR (L-N)	1200 V (120/240S)
Voltage protection rating VPR (L-G)	700 V
Voltage protection rating VPR (N-G)	700 V (120/240S)
UL type	type 1
Nominal discharge current $I_n$	20 kA
Maximum Surge Current per Phase	40 kA
Mode of protection	L-L
	L-G
Nominal voltage	120/208 V AC (3-phase Wye)
	120/240 V AC (Split phase)
Power distribution system	Wye
Nominal frequency	50/60 Hz
SPD Type	1

### UL indicator/remote signaling

Operating voltage	125 V AC
AC operating current	1 A AC

### UL connection data

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Tightening torque	30 lb <sub>f</sub> -in.
Conductor cross-section AWG	14 ... 2

## Standards and regulations

### Air clearances and creepage distances

Standards/regulations	EN 60664-1 / EN 61643-11
Standards/specifications	IEC 61643-11
Note	2011
Standards/specifications	EN 61643-11
Note	2012

## Mounting

Mounting type	DIN rail: 35 mm
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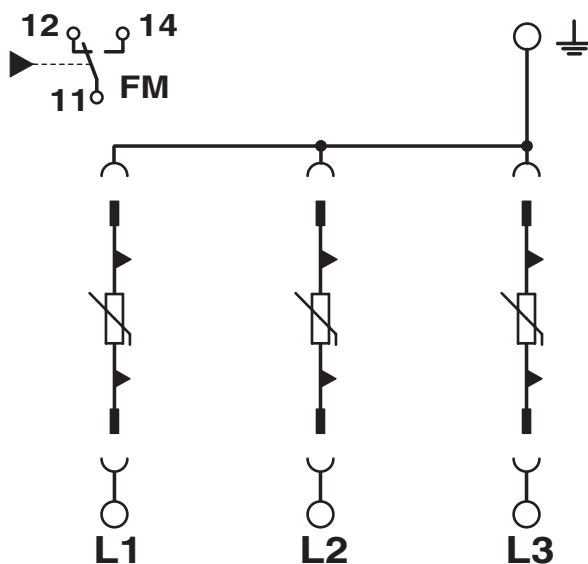
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## Drawings

Dimensional drawing



Circuit diagram



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## Approvals

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**UL Listed**

Approval ID: FILE E 330181



**cUL Listed**

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## Classifications

### ECLASS

ECLASS-13.0	27171202
ECLASS-15.0	27171202

### ETIM

ETIM 10.0	EC000941
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### UNSPSC

UNSPSC 21.0	39121600
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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes, No exemptions
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### China RoHS

Environment friendly use period (EFUP)	EFUP-E
	No hazardous substances above the limits

### EU REACH SVHC

REACH candidate substance (CAS No.)	No substance above 0.1 wt%
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