VAL-US-120/40/2+1-FM - Surge protection device

2910352

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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 AC, 3-wire plus ground.

Commercial data

Item number	2910352
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CL17
Product key	CL132U
GTIN	4055626444925
Weight per piece (including packing)	309 g
Weight per piece (excluding packing)	283 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-S
	TT
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)

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

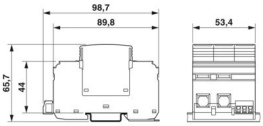
Connection method	Screw connection
Screw thread	M5
Tightening torque	4.5 Nm (1.5 mm² ... 16 mm²)
	4.5 Nm (25 mm² ... 35 mm²)
Stripping length	16 mm
Conductor cross-section flexible	1.5 mm² ... 25 mm²
Conductor cross-section rigid	1.5 mm² ... 35 mm²
Conductor cross-section AWG	15 ... 2

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 mm² ... 1.5 mm²
Conductor cross-section rigid	0.14 mm² ... 1.5 mm²
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 HP

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

Protective circuit

Mode of protection	L-N
	L-PE
	N-PE
Direction of action	2L-N & N-GND
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 operating voltage U_C (N-PE)	264 V AC
Rated load current I_L	80 A
Protective conductor current I_{PE}	5 µA
Nominal discharge current I_n (8/20) µs	20 kA
Maximum discharge current I_{max} (8/20) µs	40 kA
Follow current interrupt rating I_{fi} (N-PE)	100 A
Short-circuit current rating I_{SCCR}	25 kA

Voltage protection level U_p (L-N)	≤ 0.9 kV
Voltage protection level U_p (L-PE)	≤ 1.6 kV
Voltage protection level U_p (N-PE)	≤ 1.5 kV
Residual voltage U_{res} (L-N)	≤ 0.9 kV (at I_n)
	≤ 0.75 kV (at 10 kA)
	≤ 0.6 kV (at 5 kA)
	≤ 0.55 kV (at 3 kA)
Residual voltage U_{res} (L-PE)	≤ 1.6 kV (at I_n)
	≤ 1.2 kV (at 10 kA)
	≤ 1 kV (at 5 kA)
	≤ 0.9 kV (at 3 kA)
Residual voltage U_{res} (N-PE)	≤ 0.4 kV (at I_n)
	≤ 0.25 kV (at 10 kA)
	≤ 0.15 kV (at 5 kA)
	≤ 0.1 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	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	≤ 2000 m (amsl)
Permissible humidity (operation)	5 % ... 95 %
Shock (operation)	25g (Half-sine / 11 ms / 3x ±X, ±Y, ±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)	175 V AC
Maximum continuous operating voltage MCOV (L-G)	175 V AC
Maximum continuous operating voltage MCOV (N-G)	305 V AC
Short-circuit current rating (SCCR)	200 kA
Voltage protection rating VPR (L-L)	1200 V

Voltage protection rating VPR (L-N)	700 V
Voltage protection rating VPR (L-G)	1800 V
Voltage protection rating VPR (N-G)	1200 V
UL type	type 1
Nominal discharge current I_n	20 kA
Maximum Surge Current per Phase	40 kA
Mode of protection	L-L
	L-N
	L-G
	N-G
Nominal voltage	120/240 V AC (Split phase)
Power distribution system	Split phase
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

Tightening torque	30 lb_f-in.
Conductor cross-section AWG	14 ... 2

Standards and regulations

Air clearances and creepage distances

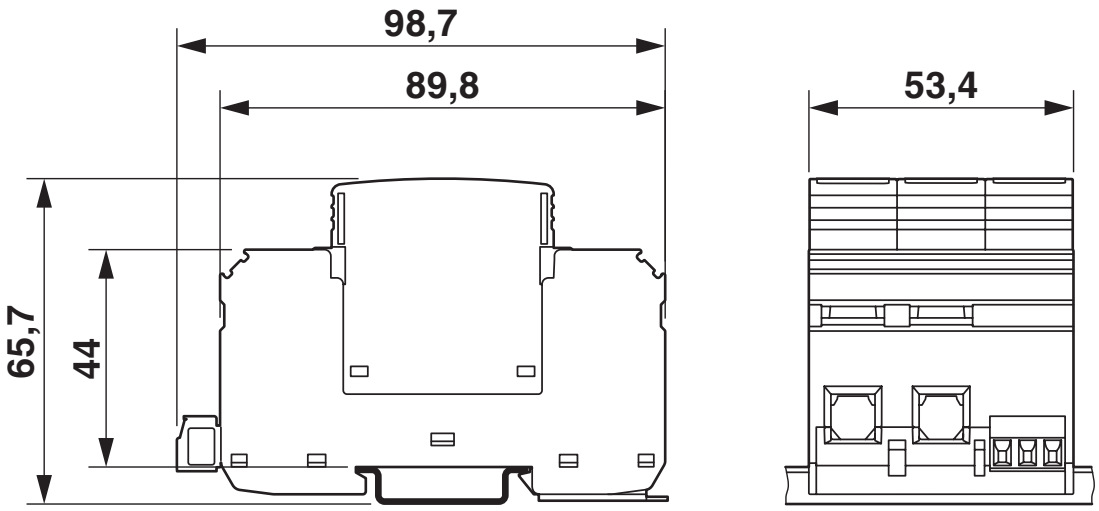
Standards/regulations	EN 60664-1 / EN 61643-11
Standards/specifications	IEC 61643-11
Note	2011
Standards/specifications	EN 61643-11
Note	2012

Mounting

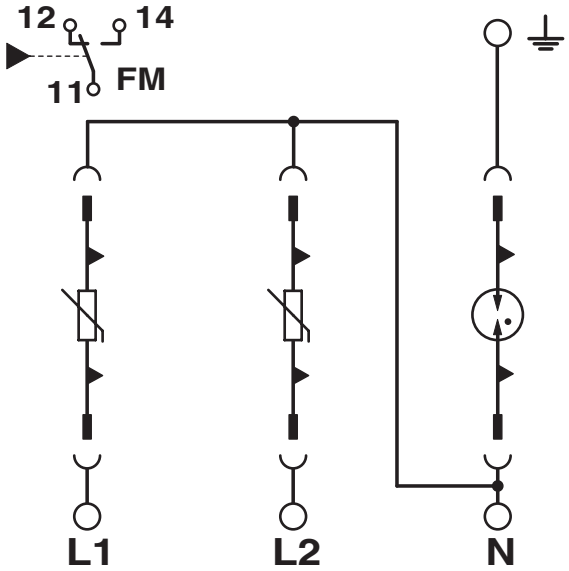
Mounting type	DIN rail: 35 mm

Drawings

Dimensional drawing



Circuit diagram



Approvals

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UL Listed
Approval ID: FILE E 330181

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Classifications

ECLASS

ECLASS-13.0	27171202
ECLASS-15.0	27171202

ETIM

ETIM 10.0	EC000941

UNSPSC

UNSPSC 21.0	39121600

Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes, No exemptions

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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