

# Type 1/2 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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## Technical data

### 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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### Technical data

#### Protective circuit

Voltage protection level $U_p$ (N-PE)	$\leq 1.7$ kV
Residual voltage $U_{res}$ (L-N)	$\leq 0.8$ kV (at $I_n$ )
	$\leq 0.75$ kV (at 10 kA)
	$\leq 0.65$ kV (at 5 kA)
	$\leq 0.6$ kV (at 3 kA)
Residual voltage $U_{res}$ (L-PE)	$\leq 2$ kV (at $I_n$ )
	$\leq 1.5$ kV (at 10 kA)
	$\leq 1.4$ kV (at 5 kA)
	$\leq 1.3$ kV (at 3 kA)
Residual voltage $U_{res}$ (N-PE)	$\leq 0.6$ kV (at $I_n$ )
	$\leq 0.5$ kV (at 10 kA)
	$\leq 0.5$ kV (at 5 kA)
	$\leq 0.4$ 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)	$\leq 25$ ns
Response time $t_A$ (L-PE)	$\leq 100$ ns
Response time $t_A$ (N-PE)	$\leq 100$ 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 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross section solid	0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross section AWG	28 ... 16

#### 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> )

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## Technical data

### Connection data

Stripping length	16 mm
Conductor cross section flexible	1.5 mm <sup>2</sup> ... 25 mm <sup>2</sup>
Conductor cross section solid	1.5 mm <sup>2</sup> ... 35 mm <sup>2</sup>
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	1S
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 <sub>n</sub>	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 <sub>f</sub> -in. ... 4 lb <sub>f</sub> -in.
Conductor cross section AWG	30 ... 14

### UL connection data

Conductor cross section AWG	10 ... 2
Tightening torque	30 lb <sub>f</sub> -in.

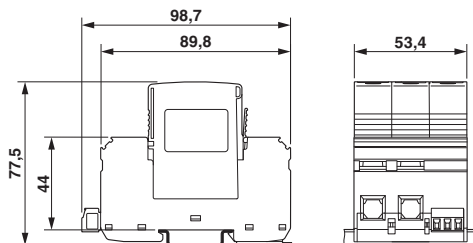
### Standards and Regulations

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

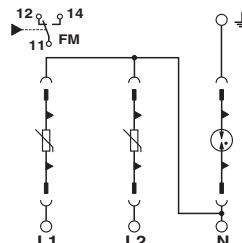
## Drawings

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Dimensional drawing



Circuit diagram



## Approvals

### Approvals

Approvals

UL Listed / cUL Listed / cULus Listed

Ex Approvals

### Approval details

UL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 330181
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cUL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 330181
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cULus Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	
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