

# VAL-US-120/65/1+1-FM - Surge protection device



2910356

<https://www.phoenixcontact.com/us/products/2910356>

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Surge protective device, UL Listed type 1 and IEC type 2, two channel with remote indicator contact for 120 V AC, 2-wire plus ground.

## Your advantages

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

## Commercial data

Item number	2910356
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CL17
Product key	CL115U
GTIN	4055626444963
Weight per piece (including packing)	302 g
Weight per piece (excluding packing)	277 g
Customs tariff number	85363030
Country of origin	DE

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## Technical data

### Product properties

Product type	Surge protection for NEMA power supply units
Product family	VALVETRAB US
IEC test classification	I / II T1 / T2
EN type	T1 / T2
IEC power supply system	TN-S TT
Type	DIN rail module, two-section, divisible
Number of positions	2
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

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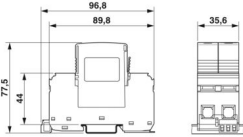


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Conductor cross-section flexible	0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross-section rigid	0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross-section AWG	28 ... 16

## Dimensions

Dimensional drawing	
Width	35.6 mm
Height	96.8 mm
Depth	77.5 mm (incl. DIN rail 7.5 mm)
Horizontal pitch	2 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-N
	L-PE
	N-PE
Direction of action	1L-N & N-GND
Nominal voltage $U_N$	120 V AC (TN-S)
	120 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 $I_{PE}$	$\leq 5 \mu A$
Nominal discharge current $I_n$ (8/20) $\mu s$ (L-N)	12.5 kA
Nominal discharge current $I_n$ (8/20) $\mu s$ (L-PE)	12.5 kA
Nominal discharge current $I_n$ (8/20) $\mu s$ (N-PE)	50 kA
Maximum discharge current $I_{max}$ (8/20) $\mu s$	65 kA

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Total discharge current $I_{Total}$ (10/350) $\mu$ s	25 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)	$\leq 0.8$ kV
Voltage protection level $U_p$ (L-PE)	$\leq 2$ kV
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)

## 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)	30g (Half-sine / 11 ms / 3x $\pm$ X, $\pm$ Y, $\pm$ Z)
Vibration (operation)	7.5g (10 ... 500 Hz / 2.5 h / X, Y, Z)

## Approvals

### UL specifications

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
Short-circuit current rating (SCCR)	200 kA

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Voltage protection rating VPR (L-N)	700 V
Voltage protection rating VPR (L-G)	1500 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	65 kA (acc. IEC61643-1)
	80 kA (acc. NEMA LS1)
Mode of protection	L-N
	L-G
	N-G
Nominal voltage	120 V AC (Single Phase)
Power distribution system	Single 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 <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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## Drawings

Dimensional drawing



Circuit diagram



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## Approvals

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**UL Listed**

Approval ID: FILE E 330181



**cUL 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
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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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