

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



2910358

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

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## 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

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## Commercial Data

Item number	2910358
Packing unit	1 pc
Sales Key	C06
Product Key	CL115U
Catalog Page	Page 94 (C-4-2019)
GTIN	4055626444987
Weight per Piece (including packing)	429.4 g
Weight per Piece (excluding packing)	283 g
Customs tariff number	85363030
Country of origin	DE

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## Technical Data

### Product properties

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
Product type	Surge arrester
Number of positions	3
Surge protection fault message	Optical, remote indicator contact

### 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 solid	1.5 mm <sup>2</sup> ... 35 mm <sup>2</sup>
Conductor cross section AWG	15 ... 2

### Dimensions

Dimensional drawing	
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2910358

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Width	53.4 mm
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Height	98.7 mm
Height	98.7 mm
Depth	77.5 mm (incl. DIN rail 7.5 mm)
Depth	77.5 mm
Horizontal pitch	3 Div.

## Material specifications

Color	jet 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

## 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
Residual 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
Total discharge current $I_{total}$ (10/350) $\mu s$	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)	$\leq 0.8$ 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)

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2910358

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Residual voltage $U_{res}$ (N-PE)	$\leq 1.4$ kV (at 5 kA)
	$\leq 1.3$ kV (at 3 kA)
	$\leq 0.6$ kV (at $I_n$ )
	$\leq 0.5$ kV (at 10 kA)
	$\leq 0.5$ kV (at 5 kA)
TOV behavior at $U_T$ (L-N)	$\leq 0.4$ kV (at 3 kA)
	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 (above mean sea level))
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)

## Approval data

### UL specifications

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
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)	1500 V
Voltage protection rating VPR (N-G)	1200 V
UL type	type 1
Maximum Surge Current per Phase	65 kA
Mode of protection	L-L
	L-N
	L-G
	N-G
Nominal voltage	120/240 V AC (Split phase)

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Power distribution system	Split phase
Nominal frequency	50/60 Hz
SPD Type	1
AC 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
Standards/specifications	EN 61643-11

## Mounting

Mounting type	DIN rail: 35 mm
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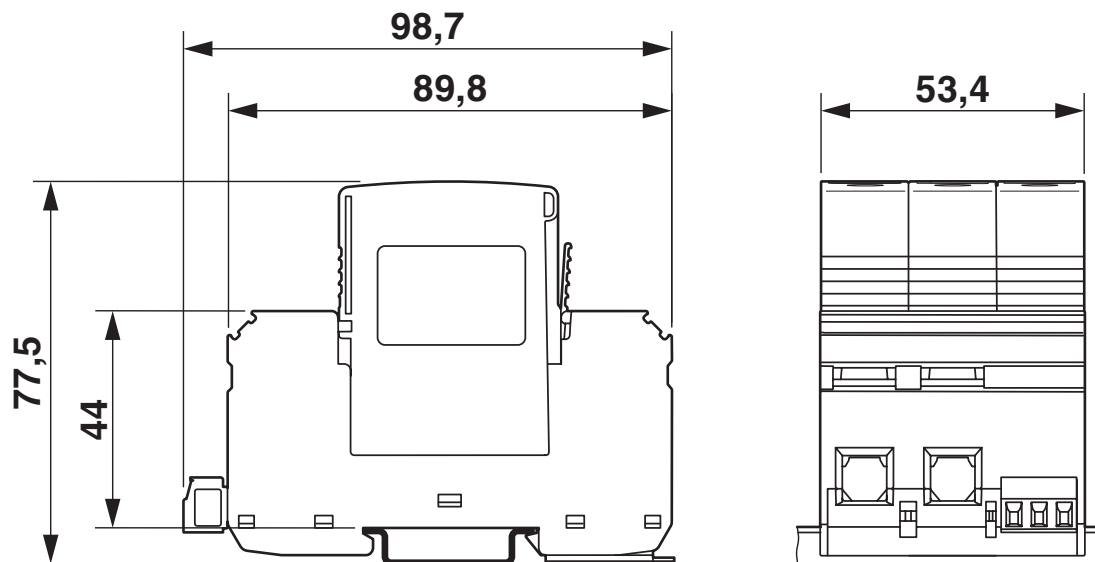


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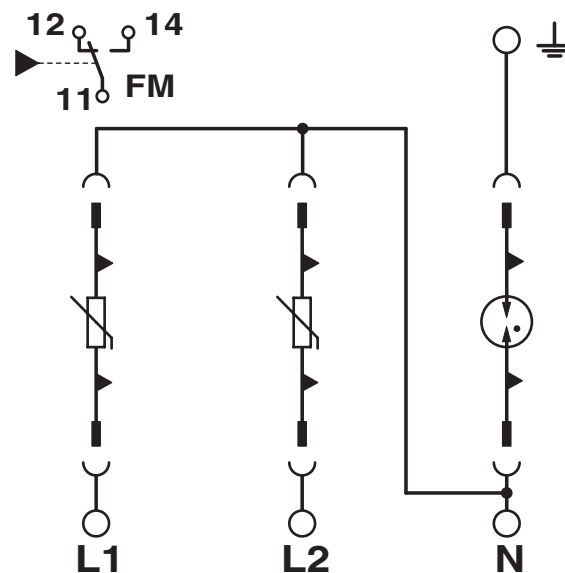
<https://www.phoenixcontact.com/us/products/2910358>

## Drawings

Dimensional drawing



Circuit diagram





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## Approvals

	<b>UL Listed</b> Approval ID: FILE E 330181
	<b>cUL Listed</b> Approval ID: FILE E 330181
	<b>cULus Listed</b>



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## Classifications

### ECLASS

ECLASS-9.0	27130805
ECLASS-10.0.1	27130805
ECLASS-11.0	27130805

### ETIM

ETIM 8.0	EC000941
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### UNSPSC

UNSPSC 21.0	39121600
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## Accessories

### Wiring bridge

Wiring bridge - MPB F600X16/ 1GS - 2818355

<https://www.phoenixcontact.com/us/products/2818355>



Wiring bridge flexible, diameter: 16 mm<sup>2</sup>, with a fork-type cable lug on one side, length: 600 mm

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### Wiring bridge

Wiring bridge - MPB F200X16/ 1GS - 2818339

<https://www.phoenixcontact.com/us/products/2818339>



Wiring bridge flexible, diameter 16 mm<sup>2</sup>, with a fork-type cable lug on one side, length: 200 mm

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2910358

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## Wiring bridge

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

<https://www.phoenixcontact.com/us/products/2830443>



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

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## Wiring bridge

Wiring bridge - MPB 18/4-12 - 2809296

<https://www.phoenixcontact.com/us/products/2809296>



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

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## Wiring bridge

Wiring bridge - MPB 18/4- 8 - 2809283

<https://www.phoenixcontact.com/us/products/2809283>



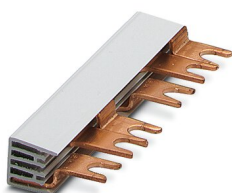
Wiring bridge for modules with connecting pitch 17.5 mm, 4-phase, 8-pos.

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## Wiring bridge

Wiring bridge - MPB 18/3- 6 - 2809241

<https://www.phoenixcontact.com/us/products/2809241>



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

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## Wiring bridge

Wiring bridge - MPB 18/1-57 - 2809238

<https://www.phoenixcontact.com/us/products/2809238>

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



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## Wiring bridge

Wiring bridge - MPB 18/1-12 - 2748593

<https://www.phoenixcontact.com/us/products/2748593>

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



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2910358

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## Wiring bridge

Wiring bridge - MPB 18/1- 9 - 2748580

<https://www.phoenixcontact.com/us/products/2748580>



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

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## Wiring bridge

Wiring bridge - MPB 18/1- 8 - 2748577

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

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



2910358

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## Wiring bridge

Wiring bridge - MPB 18/1- 6 - 2748564

<https://www.phoenixcontact.com/us/products/2748564>



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

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## Wiring bridge

Wiring bridge - MPB 18/1- 4 - 2809225

<https://www.phoenixcontact.com/us/products/2809225>



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

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## Wiring bridge

Wiring bridge - MPB 18/1- 3 - 2809212

<https://www.phoenixcontact.com/us/products/2809212>



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

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## Wiring bridge

Wiring bridge - MPB 18/1- 2 - 2809209

<https://www.phoenixcontact.com/us/products/2809209>



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



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



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## Marker for terminal blocks

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

<https://www.phoenixcontact.com/us/products/2749589>



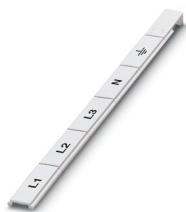
Marker for terminal blocks, Strip, white, labeled, horizontal: Grounding symbol, mounting type: snapped, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

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## Marker for terminal blocks

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

<https://www.phoenixcontact.com/us/products/2749576>



Marker for terminal blocks, Strip, white, labeled, horizontal: L1, L2, L3, N, GND, mounting type: snapped, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

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## Zack marker strip

Zack marker strip - ZBN 18:UNBEDRUCKT - 2809128

<https://www.phoenixcontact.com/us/products/2809128>



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

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## Marker pen

Marker pen - B-STIFT - 1051993

<https://www.phoenixcontact.com/us/products/1051993>



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

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## Feed-through terminal block

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

<https://www.phoenixcontact.com/us/products/2749880>

Feed-through terminal block for VAL and FLT applications



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## Type 1 surge protection plug

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

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



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## Type 1 surge protection plug

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

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