

# VAL-US-120/65/1+0-FM - Type 1 surge protection device



2910355

<https://www.phoenixcontact.com/pc/products/2910355>

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Surge protective device, single channel with remote indicator contact for 120 V AC

## 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                          | 2910355            |
| Packing unit                         | 1 pc               |
| Minimum order quantity               | 1 pc               |
| Product key                          | CL115U             |
| Catalog page                         | Page 92 (C-4-2019) |
| GTIN                                 | 4055626444956      |
| Weight per piece (including packing) | 177.3 g            |
| Weight per piece (excluding packing) | 150 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-C                                         |
| Type                           | DIN rail module, two-section, divisible      |
| Number of positions            | 1                                            |
| Surge protection fault message | Optical, remote indicator contact            |

### Data management status

|                  |    |
|------------------|----|
| Article revision | 04 |
|------------------|----|

### 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 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          |

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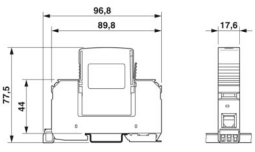


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|                                  |                                              |
|----------------------------------|----------------------------------------------|
| Stripping length                 | 7 mm                                         |
| 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               | 17.6 mm                                                                            |
| Height              | 96.8 mm                                                                            |
| Depth               | 77.5 mm (incl. DIN rail 7.5 mm)                                                    |
| Horizontal pitch    | 1 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<br>PBT    |

## Protective circuit

|                                                      |                                                                                                               |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Mode of protection                                   | L-PEN                                                                                                         |
| Direction of action                                  | 1L-GND                                                                                                        |
| Nominal voltage $U_N$                                | 120 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                                                                                                          |
| Residual current $I_{PE}$                            | $\leq 0.8$ mA                                                                                                 |
| Nominal discharge current $I_n$ (8/20) $\mu$ s       | 20 kA                                                                                                         |
| Maximum discharge current $I_{max}$ (8/20) $\mu$ s   | 65 kA                                                                                                         |
| Total discharge current $I_{total}$ (10/350) $\mu$ s | 12.5 kA                                                                                                       |
| Short-circuit current rating $I_{SCCR}$              | 25 kA                                                                                                         |
| Voltage protection level $U_p$                       | $\leq 0.8$ kV                                                                                                 |
| Residual voltage $U_{res}$                           | $\leq 0.8$ kV (at $I_n$ )<br>$\leq 0.75$ kV (at 10 kA)<br>$\leq 0.65$ kV (at 5 kA)<br>$\leq 0.5$ kV (at 3 kA) |
| TOV behavior at $U_T$                                | 208 V AC (5 s / withstand mode)<br>240 V AC (120 min / safe failure mode)                                     |

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|                                             |              |
|---------------------------------------------|--------------|
| Response time $t_A$                         | $\leq 25$ 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 | 175 V AC                |
| Short-circuit current rating (SCCR)       | 200 kA                  |
| Voltage protection rating VPR             | 700 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                     |
| 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              |

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|      |      |
|------|------|
| Note | 2012 |
|------|------|

## Mounting

|               |                 |
|---------------|-----------------|
| Mounting type | DIN rail: 35 mm |
|---------------|-----------------|

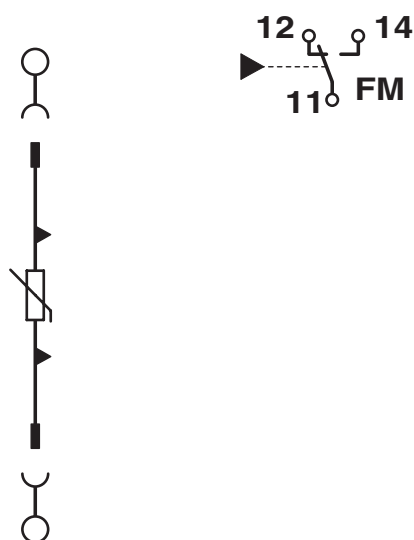
# VAL-US-120/65/1+0-FM - Type 1 surge protection device

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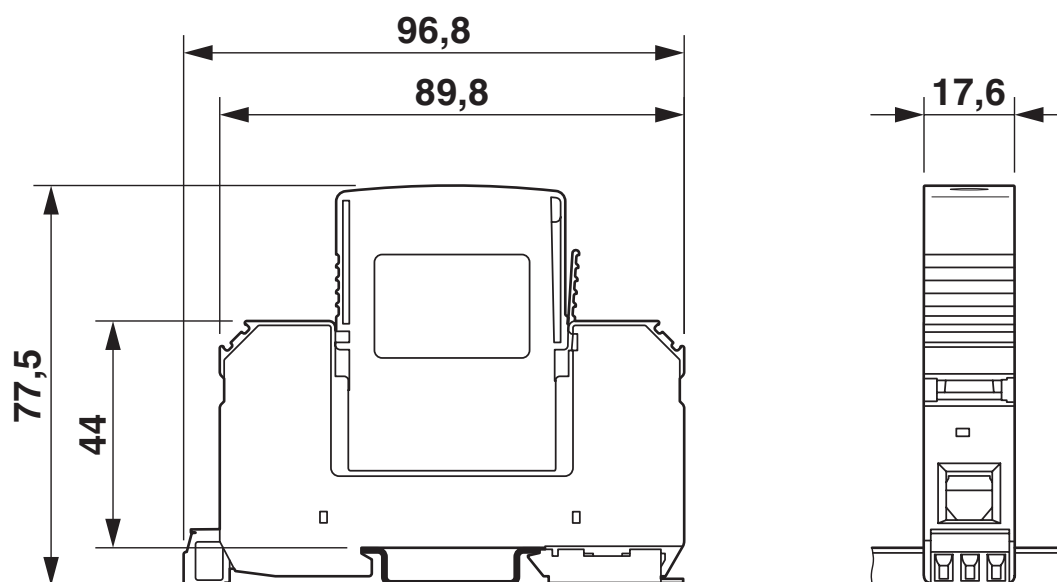
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## Drawings

Circuit diagram



Dimensional drawing



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/pc/products/2910355>



**UL Listed**  
Approval ID: FILE E 330181



**cUL Listed**  
Approval ID: FILE E 330181

**cULus Listed**

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27130805 |
| ECLASS-13.0 | 27171202 |

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC000941 |
|----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 39121600 |
|-------------|----------|



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## Accessories

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

2830443

<https://www.phoenixcontact.com/pc/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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### MPB 18/4-12 - Wiring bridge

2809296

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



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

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## MPB 18/4- 8 - Wiring bridge

2809283

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



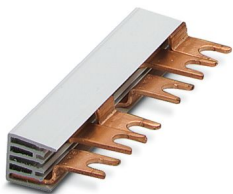
Wiring bridge for modules with connecting pitch 17.5 mm, 4-phase, 8-pos.

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## MPB 18/3- 6 - Wiring bridge

2809241

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



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

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## MPB 18/1-57 - Wiring bridge

2809238

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



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

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## MPB 18/1-12 - Wiring bridge

2748593

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



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

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## MPB 18/1- 9 - Wiring bridge

2748580

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



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

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## MPB 18/1- 8 - Wiring bridge

2748577

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

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## MPB 18/1- 6 - Wiring bridge

2748564

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



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

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## MPB 18/1- 4 - Wiring bridge

2809225

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

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## MPB 18/1- 3 - Wiring bridge

2809212

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



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

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## MPB 18/1- 2 - Wiring bridge

2809209

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



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

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

2749589

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

2749576

<https://www.phoenixcontact.com/pc/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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## ZBN 18:UNBEDRUCKT - Zack marker strip

2809128

<https://www.phoenixcontact.com/pc/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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## DK-BIC-35 - Feed-through terminal block

2749880

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



Feed-through terminal block for VAL and FLT applications



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## B-STIFT - Marker pen

1051993

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



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

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## SZK PZ2 VDE - Screwdriver

1206463

<https://www.phoenixcontact.com/pc/products/1206463>



Screwdriver, PZ crosshead, VDE insulated, size: PZ 2 x 100 mm, 2-component grip, with non-slip grip

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

2910330

<https://www.phoenixcontact.com/pc/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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