

# VAL-US-120/40/3+0-FM - Surge protection device



2910353

<https://www.phoenixcontact.com/us/products/2910353>

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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 or 120/208 V Wye three-phase AC, 4-wire.

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 2910353       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | CL17          |
| Product key                          | CL132U        |
| GTIN                                 | 4055626444932 |
| Weight per piece (including packing) | 312 g         |
| Weight per piece (excluding packing) | 285 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-C   |
| 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 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   |
| Conductor cross-section flexible | 0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |

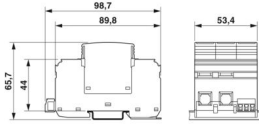
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|                               |  |
|-------------------------------|--|
| Conductor cross-section rigid | 0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| Conductor cross-section AWG   | 28 ... 16                                    |

## Dimensions

|                     |  |
|---------------------|--|
| Dimensional drawing |  |
| Width               | 53.4 mm  |
| Height              | 98.7 mm  |
| Depth               | 65.7 mm (incl. DIN rail 7.5 mm)  |
| Horizontal pitch    | 3 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    |

## Mechanical properties

### Mechanical data

|                 |    |
|-----------------|----|
| Open side panel | No |
|-----------------|----|

## Protective circuit

|  |   |
|--|---|
| Mode of protection                                 | L-PEN   |
| Direction of action                                | 3L-GND  |
| Nominal voltage $U_N$                              | 120/208 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  |
| Protective conductor current $I_{PE}$              | 0.45 mA   |
| Standby power consumption $P_C$                    | ≤ 400 mVA   |
| Nominal discharge current $I_n$ (8/20) $\mu$ s     | 20 kA   |
| Maximum discharge current $I_{max}$ (8/20) $\mu$ s | 40 kA   |
| Short-circuit current rating $I_{SCCR}$            | 25 kA   |
| Voltage protection level $U_p$                     | ≤ 0.9 kV  |
| Residual voltage $U_{res}$                         | ≤ 0.9 kV (at $I_n$ )<br>≤ 0.75 kV (at 10 kA)<br>≤ 0.6 kV (at 5 kA)<br>≤ 0.55 kV (at 3 kA) |

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|   |  |
|---|--|
| TOV behavior at $U_T$                       | 208 V AC (5 s / withstand mode)        |
|   | 240 V AC (120 min / safe failure mode) |
| Response time $t_A$                         | ≤ 25 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) | 350 V (120/240S)           |
| Maximum continuous operating voltage MCOV (L-G) | 175 V AC                   |
| Maximum continuous operating voltage MCOV (N-G) | 175 V (120/240S)           |
| Short-circuit current rating (SCCR)             | 200 kA                     |
| Voltage protection rating VPR (L-L)             | 1200 V                     |
| Voltage protection rating VPR (L-N)             | 1200 V (120/240S)          |
| Voltage protection rating VPR (L-G)             | 700 V                      |
| Voltage protection rating VPR (N-G)             | 700 V (120/240S)           |
| UL type   | type 1                     |
| Nominal discharge current $I_n$                 | 20 kA                      |
| Maximum Surge Current per Phase                 | 40 kA                      |
| Mode of protection                              | L-L                        |
|   | L-G                        |
| Nominal voltage                                 | 120/208 V AC (3-phase Wye) |
|   | 120/240 V AC (Split phase) |
| Power distribution system                       | Wye                        |
| 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

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|                             |                         |
|-----------------------------|-------------------------|
| 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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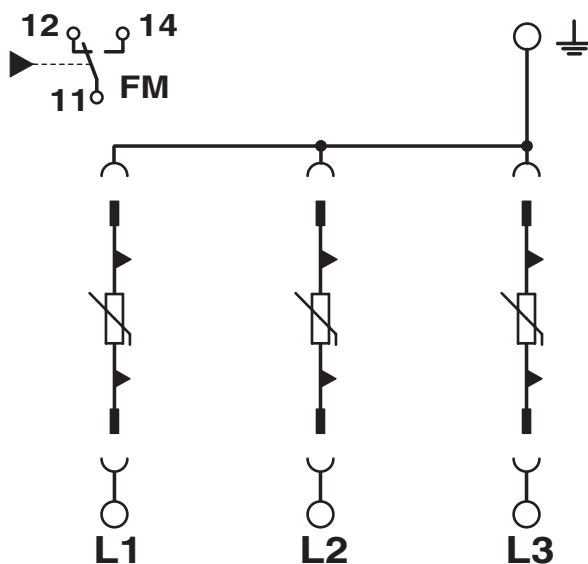
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## Drawings

Dimensional drawing



Circuit diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2910353>



**UL Listed**

Approval ID: FILE E 330181



**cUL Listed**

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27171202 |
| ECLASS-15.0 | 27171202 |

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | EC000941 |
|-----------|----------|

### UNSPSC

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

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## 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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