

# VAL-US-SPP-277/65/3+0-R - Surge protection device



1790778

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Surge protective device, UL Listed type 1 and IEC type 2, for 3-phase power supply systems for 480Y/277 V AC, replaceable surge protection plugs with local status indicator (green/red), with plug-in remote signaling.

## Your advantages

- Universal surge protective device (SPD) with UL Listed type 1 and IEC type 2: suitable for all common supply system configurations and supply voltages in North America
- Minimal maintenance with replaceable surge protection plugs
- Clear status indication with local optical green/red display and plug-in remote signaling for quick and easy installation
- Simple planning with comprehensive digital data
- Miswiring and touch protection for safe installation

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1790778       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | CL17          |
| Product key                          | CL138U        |
| GTIN                                 | 4067923410855 |
| Weight per piece (including packing) | 420.7 g       |
| Weight per piece (excluding packing) | 362.3 g       |
| Customs tariff number                | 85363030      |
| Country of origin                    | DE            |

## Technical data

### Product properties

|                                |                                              |
|--------------------------------|----------------------------------------------|
| Product type                   | Surge protection for NEMA power supply units |
| Product family                 | VAL-SPP                                      |
| 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                                            |
| End-of-life mode               | OCM                                          |
| Surge protection fault message | Optical, remote indicator contact            |
| Number of ports                | One                                          |

### Insulation characteristics

|                      |     |
|----------------------|-----|
| Overvoltage category | III |
| Pollution degree     | 3   |

### Electrical properties

|                         |               |
|-------------------------|---------------|
| Nominal frequency $f_N$ | 50 Hz (60 Hz) |
|-------------------------|---------------|

### Indicator/remote signaling

|                            |                                                                                      |
|----------------------------|--------------------------------------------------------------------------------------|
| Connection name            | Remote fault indicator contact                                                       |
| Switching function         | Changeover contact                                                                   |
| Max. required back-up fuse | 1 A (gG)                                                                             |
| AC operating voltage       | 5 V AC ... 250 V AC                                                                  |
| AC operating current       | 5 mA AC ... 1 A AC                                                                   |
| DC operating voltage       | 30 V DC                                                                              |
| DC operating current       | 1 A DC                                                                               |
| DC operating voltage       | 125 V DC                                                                             |
| DC operating current       | 200 mA DC                                                                            |
| Insulation type            | The product has double/reinforced insulation between the main and auxiliary circuit. |

### Connection data

|                                  |                                                                  |
|----------------------------------|------------------------------------------------------------------|
| Connection method                | Screw connection                                                 |
| Screw thread                     | M5                                                               |
| Tightening torque                | 3 Nm ... 3.5 Nm                                                  |
| Stripping length                 | 18 mm                                                            |
| Conductor cross-section flexible | 1.5 mm² ... 35 mm² (without ferrule)                             |
|                                  | 2x 1.5 mm² ... 16 mm² (2 conductors with the same cross-section) |
| Conductor cross-section rigid    | 1.5 mm² ... 50 mm²                                               |
|                                  | 2x 1.5 mm² ... 16 mm² (2 conductors with the same cross-section) |

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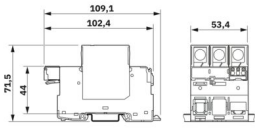
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|                                                                                           |                                                                                          |
|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
|                                                                                           | section)                                                                                 |
| Conductor cross-section AWG                                                               | 15 ... 2                                                                                 |
| 2 conductors with the same cross section, flexible, with TWIN ferrule with plastic sleeve | 1.5 mm <sup>2</sup> ... 16 mm <sup>2</sup>                                               |
| Conductor cross-section, flexible, with ferrule, with plastic sleeve                      | 1.5 mm <sup>2</sup> ... 35 mm <sup>2</sup>                                               |
|                                                                                           | 2x 1.5 mm <sup>2</sup> ... 10 mm <sup>2</sup> (2 conductors with the same cross-section) |
| Conductor cross-section, flexible, with ferrule, without plastic sleeve                   | 1.5 mm <sup>2</sup> ... 25 mm <sup>2</sup>                                               |
|                                                                                           | 2x 1.5 mm <sup>2</sup> ... 16 mm <sup>2</sup> (2 conductors with the same cross-section) |
| Connection method                                                                         | Fork-type cable lug                                                                      |
| Conductor cross-section flexible                                                          | 1.5 mm <sup>2</sup> ... 25 mm <sup>2</sup>                                               |

## Remote fault indicator contact

|                                                                         |                                               |
|-------------------------------------------------------------------------|-----------------------------------------------|
| Connection method                                                       | Push-in connection                            |
| Stripping length                                                        | 8 mm                                          |
| Conductor cross-section flexible                                        | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>  |
| Conductor cross-section rigid                                           | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>  |
| Conductor cross-section AWG                                             | 24 ... 16                                     |
| Conductor cross-section, flexible, with ferrule, with plastic sleeve    | 0.25 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>  |
| Conductor cross-section, flexible, with ferrule, without plastic sleeve | 0.25 mm <sup>2</sup> ... 0.75 mm <sup>2</sup> |

## Dimensions

|                     |                                                                                      |
|---------------------|--------------------------------------------------------------------------------------|
| Dimensional drawing |  |
| Width               | 53.4 mm                                                                              |
| Height              | 109.1 mm                                                                             |
| Depth               | 71.5 mm (incl. DIN rail 7.5 mm)                                                      |
| Horizontal pitch    | 3 Div.                                                                               |

## Material specifications

|                                        |                       |
|----------------------------------------|-----------------------|
| Color                                  | gray (RAL 7042)       |
|                                        | light gray (RAL 7035) |
| Flammability rating according to UL 94 | V-0                   |
| CTI value of material                  | 600                   |
| Insulating material                    | PA 6.6-FR 20 % GF     |
|                                        | PBT                   |
| Material group                         | I                     |
| Housing material                       | PA 6.6-FR 20 % GF     |
|                                        | PBT                   |

## Mechanical properties

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## Mechanical data

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

## Protective circuit

|                                                |                                                                           |
|------------------------------------------------|---------------------------------------------------------------------------|
| Mode of protection                             | L-PEN                                                                     |
| Nominal voltage $U_N$                          | 277/480 V AC $\pm 10\%$ (TN-C)                                            |
| Nominal frequency $f_N$                        | 50 Hz (60 Hz)                                                             |
| Maximum continuous operating voltage $U_C$     | 385 V AC                                                                  |
| Rated load current $I_L$                       | 80 A (25 mm <sup>2</sup> )                                                |
| Standby power consumption $P_C$                | $\leq 462$ mVA                                                            |
| Nominal discharge current $I_n$ (8/20) $\mu$ s | 20 kA                                                                     |
| Short-circuit current rating $I_{SCCR}$        | 50 kA                                                                     |
| Voltage protection level $U_p$                 | $\leq 1.8$ kV                                                             |
| Residual voltage $U_{res}$                     | $\leq 1.8$ kV (at $I_n$ )                                                 |
| TOV behavior at $U_T$                          | 403 V AC (5 s / withstand mode)<br>530 V AC (120 min / safe failure mode) |
| Response time $t_A$                            | $\leq 25$ ns                                                              |
| Max. backup fuse with V-type through wiring    | 80 A (gG)                                                                 |
| Max. backup fuse with branch wiring            | 315 A (gG)                                                                |

## Additional technical data

|                                         |        |
|-----------------------------------------|--------|
| Short-circuit current rating $I_{SCCR}$ | 100 kA |
|-----------------------------------------|--------|

## Environmental and real-life conditions

### Ambient conditions

|                                         |                                                           |
|-----------------------------------------|-----------------------------------------------------------|
| Degree of protection                    | IP20C (Installed)                                         |
| Ambient temperature (operation)         | -40 °C ... 85 °C                                          |
| Ambient temperature (storage/transport) | -40 °C ... 85 °C                                          |
| Ambient temperature (assembly)          | -5 °C ... 50 °C                                           |
| Altitude                                | $\leq 2000$ m (amsl)                                      |
| Permissible humidity (operation)        | 5 % ... 95 %                                              |
| Shock (operation)                       | 25g (Half-sine / 11 ms / 3x $\pm X$ , $\pm Y$ , $\pm Z$ ) |
| Vibration (operation)                   | 5g (10 ... 500 Hz / 2.5 h / X, Y, Z)                      |

## Approvals

### UL specifications

|                                                 |                        |
|-------------------------------------------------|------------------------|
| Maximum continuous operating voltage MCOV (L-L) | 770 V AC               |
| Maximum continuous operating voltage MCOV (L-G) | 385 V AC               |
| Short-circuit current rating (SCCR)             | 200 kA                 |
| Voltage protection rating VPR (L-L)             | 2500 V                 |
| Voltage protection rating VPR (L-G)             | 1500 V                 |
| Nominal discharge current $I_n$                 | 20 kA                  |
| Maximum Surge Current per Phase                 | 1x 65 kA (IEEE C62.73) |

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|                           |                    |
|---------------------------|--------------------|
| Mode of protection        | L-L                |
|                           | L-G                |
| Nominal voltage           | 277/480 V AC (Wye) |
| Power distribution system | Wye                |
| Nominal frequency         | 50/60 Hz           |
| SPD Type                  | 1                  |

## UL indicator/remote signaling

|                      |                    |
|----------------------|--------------------|
| Operating voltage    | 250 V AC           |
| DC operating voltage | 30 V DC            |
| AC operating current | 5 mA AC ... 1 A AC |
| DC operating current | 1 A DC             |

## UL connection data

|                             |                         |
|-----------------------------|-------------------------|
| Tightening torque           | 30 lb <sub>f</sub> -in. |
| Conductor cross-section AWG | 14 ... 2                |

## Standards and regulations

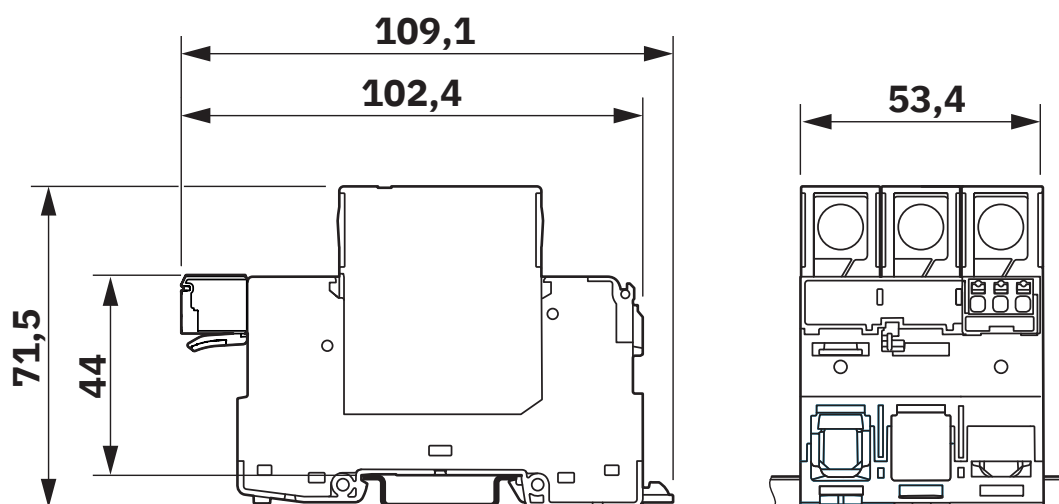
|                          |                 |
|--------------------------|-----------------|
| Standards/specifications | IEC 61643-11    |
| Note                     | 2011            |
| Standards/specifications | EN 61643-11     |
| Note                     | 2012 + A11:2018 |

## Mounting

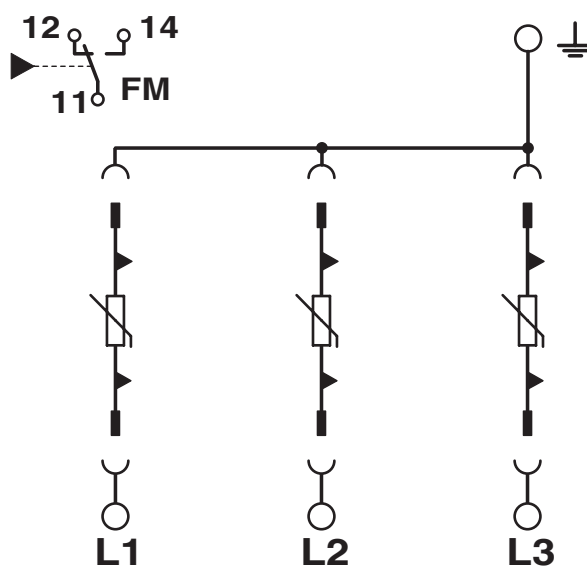
|               |                 |
|---------------|-----------------|
| Mounting type | DIN rail: 35 mm |
|---------------|-----------------|

## Drawings

Dimensional drawing



Circuit diagram



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## Approvals

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**cULus Listed**

Approval ID: E330181-20251028

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## Classifications

### ECLASS

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

### ETIM

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

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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.) | Benzene-1,2,4-tricarboxylic acid 1,2 anhydride(CAS: 552-30-7) |
|-------------------------------------|---------------------------------------------------------------|

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