# VAL-US-240D/40/1+0-FM - Surge protection device

2910368

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Surge protective device,UL Listed type 1 and IEC type 2, single channel with remote indication contact for 240 V AC.

## Commercial data

| | |
|---|---|
| Item number | 2910368 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | CL17 |
| Product key | CL132U |
| GTIN | 4055626445076 |
| Weight per piece (including packing) | 141 g |
| Weight per piece (excluding packing) | 141 g |
| Customs tariff number | 85363030 |
| Country of origin | US |

# Technical data

## Notes

### General

| | |
|---|---|
| Note | For use in all low-voltage systems between L-PEN.<br><br>Only for use in IT systems between L-PE if the exposed conductive parts of the equipment of the low-voltage electrical installation are connected to the grounding system of the transformer station (common grounding of the HV transformer station and the exposed conductive part of the LV load system).<br><br>RE = RA according to VDE 0100-442:2013, Figure 44.A1 and Table 44.A1 |

## 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 |
| | IT |
| Type | DIN rail module, two-section, divisible |
| Number of positions | 1 |
| 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) |

### 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 ... 750 mA AC |
| | 1 A DC |

## Connection data

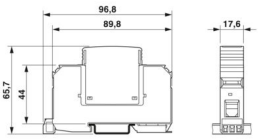
| | |
|---|---|
| Connection method | Screw connection |
| Screw thread | M5 |
| Tightening torque | 3 Nm (1.5 mm² ... 16 mm²) |
| | 4.5 Nm (25 mm² ... 35 mm²) |

| | |
|---|---|
| Stripping length | 16 mm |
| Conductor cross-section flexible | 1.5 mm² ... 25 mm² |
| Conductor cross-section rigid | 1.5 mm² ... 35 mm² |
| Conductor cross-section AWG | 15 ... 2 |
| Connection method | Fork-type cable lug |
| Conductor cross-section flexible | 1.5 mm² ... 16 mm² |

Remote fault indicator contact

| | |
|---|---|
| Connection method | Plug-in/screw connection via COMBICON |
| Screw thread | M2 |
| Tightening torque | 0.25 Nm |
| Stripping length | 7 mm |
| Conductor cross-section flexible | 0.14 mm² ... 1.5 mm² |
| Conductor cross-section rigid | 0.14 mm² ... 1.5 mm² |
| Conductor cross-section AWG | 28 ... 16 |

## Dimensions

| | |
|---|---|
| Dimensional drawing |  |
| Width | 17.6 mm |
| Height | 96.8 mm |
| Depth | 65.7 mm (incl. DIN rail 7.5 mm) |
| Horizontal pitch | 1 HP |

## 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 |

## Protective circuit

| | |
|---|---|
| Mode of protection | L-PE |
| Direction of action | 1L-GND |
| Nominal voltage $U_N$ | 240 V AC (Delta TN-S) |

| | |
|---|---|
| | 240/415 V AC (TN) |
| Nominal frequency $f_N$ | 50 Hz (60 Hz) |
| Maximum continuous operating voltage $U_C$ | 275 V AC |
| Protective conductor current $I_{PE}$ | ≤ 450 µA |
| Standby power consumption $P_C$ | ≤ 120 mVA |
| Nominal discharge current $I_n$ (8/20) µs | 20 kA |
| Maximum discharge current $I_{max}$ (8/20) µs | 40 kA |
| Short-circuit current rating $I_{SCCR}$ | 25 kA |
| Voltage protection level $U_p$ | ≤ 1.35 kV |
| Residual voltage $U_{res}$ | ≤ 1.35 kV (at $I_n$) |
| | ≤ 1.1 kV (at 10 kA) |
| | ≤ 1 kV (at 5 kA) |
| | ≤ 0.9 kV (at 3 kA) |
| TOV behavior at $U_T$ | 335 V AC (5 s / withstand mode) |
| | 440 V AC (120 min / safe failure mode) |
| Response time $t_A$ | ≤ 25 ns |
| 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 | 275 V AC |
| Short-circuit current rating (SCCR) | 200 kA |
| Voltage protection rating VPR | 1000 V |
| UL type | type 1 |
| Nominal discharge current $I_n$ | 20 kA |
| Maximum Surge Current per Phase | 40 kA |
| Mode of protection | L-G |
| Nominal voltage | 240 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 $lb_f$-in. |
| Conductor cross-section AWG | 14 ... 2 |

## Standards and regulations

Air clearances and creepage distances

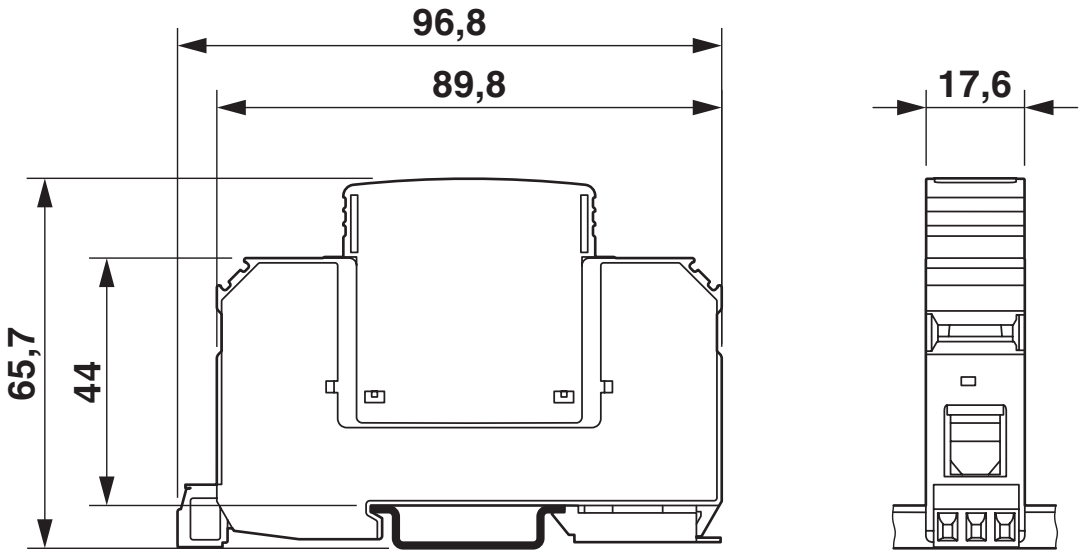
| | |
|---|---|
| Standards/regulations | EN 60664-1 / EN 61643-11 |
| Standards/specifications | IEC 61643-11 |
| Note | 2011 |
| Standards/specifications | EN 61643-11 |
| Note | 2012 |

## Mounting

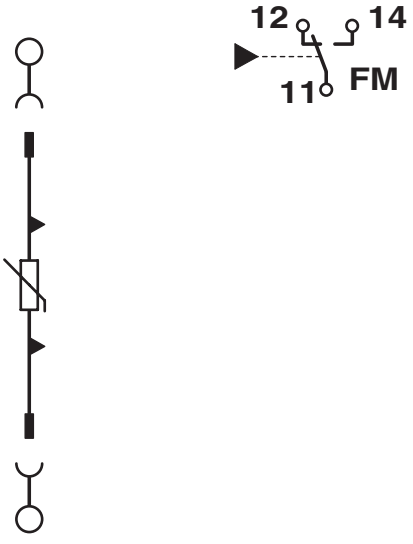
| | |
|---|---|
| Mounting type | DIN rail: 35 mm |

## Drawings

Dimensional drawing




Circuit diagram



## Approvals

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

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Approval ID: FILE E 330181

## Classifications

### ECLASS

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

### ETIM

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

### UNSPSC

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

## 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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