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# VAL-MS 60 - Type 2 surge arrester

2868020

https://www.phoenixcontact.com/pc/products/2868020

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Surge arresters consisting of base element and protective connector with high-capacity varistor, for mounting on NS 35/7.5, 1-channel

## Your advantages

- Quality proven millions of times over in the widest range of applications
- Rapid installation with bridges, thanks to industry-standard overall width of 1 HP
- Easy testing and insulation measurement, thanks to pluggable protection modules
- Wide range of applications due to various nominal voltages
- High degree of modularity provides individual solutions for every application

## Commercial data

| | |
|---|---|
| Item number | 2868020 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Product key | CL1321 |
| Catalog page | Page 55 (C-4-2017) |
| GTIN | 4017918930042 |
| Weight per piece (including packing) | 124.7 g |
| Weight per piece (excluding packing) | 104.67 g |
| Customs tariff number | 85363010 |
| Country of origin | DE |

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## Technical data

### Product properties

| | |
|---|---|
| Product type | Surge arrester |
| Product family | VALVETRAB MS |
| IEC test classification | II |
| | T2 |
| EN type | T2 |
| IEC power supply system | TN |
| Type | DIN rail module, two-section, divisible |
| Number of positions | 1 |
| Surge protection fault message | optical |

Insulation characteristics

| | |
|---|---|
| Overvoltage category | III |
| Pollution degree | 2 |

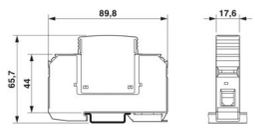
### Electrical properties

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

### 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 |

### Dimensions

| | |
|---|---|
| Dimensional drawing |   |
| Width | 17.6 mm |
| Height | 89.8 mm |
| Depth | 65.7 mm (incl. DIN rail 7.5 mm) |
| Horizontal pitch | 1 Div. |

### Material specifications

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| | |
|---|---|
| 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 |

## Protective circuit

| | |
|---|---|
| Mode of protection | L-PEN |
| Direction of action | 1L-N/PE |
| Nominal voltage $U_N$ | 60 V AC (TN) |
| | 60 V DC |
| | -48 V DC (RRH) |
| Nominal frequency $f_N$ | 50 Hz (60 Hz) |
| Maximum continuous voltage $U_C$ | 75 V AC |
| | 100 V DC |
| Rated load current $I_L$ | 80 A |
| Residual current $I_{PE}$ | ≤ 0.45 mA |
| Standby power consumption $P_C$ | ≤ 35 mVA |
| Nominal discharge current $I_n$ (8/20) µs | 15 kA |
| Maximum discharge current $I_{max}$ (8/20) µs | 40 kA |
| Short-circuit current rating $I_{SCCR}$ | 25 kA |
| Voltage protection level $U_p$ | ≤ 0.55 kV |
| Residual voltage $U_{res}$ | ≤ 0.55 kV (at $I_n$) |
| | ≤ 0.425 kV (at 10 kA) |
| | ≤ 0.325 kV (at 5 kA) |
| | ≤ 0.275 kV (at 3 kA) |
| TOV behavior at $U_T$ | 100 V AC (5 s / withstand mode) |
| Response time $t_A$ | ≤ 25 ns |
| Max. backup fuse with V-type through wiring | 80 A AC (gG) |
| Max. backup fuse with branch wiring | 125 A AC (gG) |
| | 50 A DC (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) |

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## Approvals

UL specifications

| | |
|---|---|
| Maximum continuous operating voltage MCOV (L-N) | 75 V AC |
| Maximum continuous operating voltage MCOV (L+) - (L-) | 100 V DC |
| Nominal discharge current $I_n$ (L-N) | 10 kA |
| Nominal discharge current $I_n$ (L+) - (L-) | 10 kA |
| Mode of protection | L-N |
| | (L+) - (L-) |
| Nominal voltage | 60 V AC |
| Nominal voltage | 60 V DC |
| Power distribution system | Single phase |
| Nominal frequency | 50/60 Hz |
| Measured limiting voltage MLV (L-N) | 630 V |
| Measured limiting voltage MLV (L+) - (L-) | 810 V |
| SPD Type | 4CA |

UL connection data

| | |
|---|---|
| Tightening torque | 30 $lb_f$-in. |
| Conductor cross section AWG | 14 ... 2 |

## Standards and regulations

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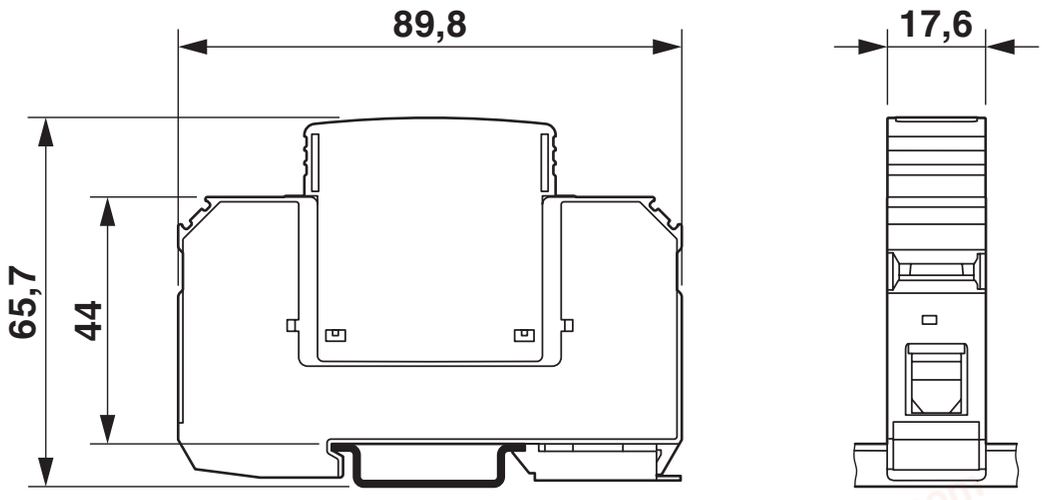
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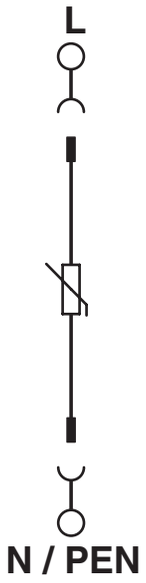
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## Drawings

Dimensional drawing




Circuit diagram



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## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/pc/products/2868020

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

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

**IECEE CB Scheme**
Approval ID: AT 2905/M1

**EAC**
Approval ID: RU C-DE.*09.B.00169

**CCA**
Approval ID: NTR-AT 1947-A

**KEMA-KEUR**
Approval ID: 71-148002

**CSA**
Approval ID: 13631

**ÖVE**
Approval ID: 18583-001-17

**UAE-RoHS**
Approval ID: 22-09-51251

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## Classifications

### ECLASS

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

### ETIM

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