

## Type 2 surge protection device - VAL-MS 320/1+1-FM - 2804393

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Surge arrester for 3-conductor power supply systems (L1, N, PE), consisting of a base element with remote indication contact and protective connectors, for mounting on NS 35.

### Product Features

- ✓ With or without floating remote indication contact
- ✓ Mechanical coding of all slots
- ✓ Disconnect device on each individual plug
- ✓ Optical, mechanical status indication for the individual arresters
- ✓ Type 2 consistent plug-in surge arresters
- ✓ Multi-channel type 2 arresters



### Key commercial data

|                                      |           |
|--------------------------------------|-----------|
| Packing unit                         | 1 pc      |
| Weight per Piece (excluding packing) | 233.5 GRM |
| Custom tariff number                 | 85363010  |
| Country of origin                    | Germany   |

### Technical data

#### Dimensions

|                  |         |
|------------------|---------|
| Height           | 97 mm   |
| Width            | 35.6 mm |
| Depth            | 58 mm   |
| Horizontal pitch | 2 Div.  |

#### Ambient conditions

|                      |                                               |
|----------------------|-----------------------------------------------|
| Degree of protection | IP20 (only when all terminal points are used) |
|----------------------|-----------------------------------------------|

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## Technical data

### Ambient conditions

|                                         |                                        |
|-----------------------------------------|----------------------------------------|
| Ambient temperature (operation)         | -40 °C ... 80 °C                       |
| Ambient temperature (storage/transport) | -40 °C ... 80 °C                       |
| Altitude                                | ≤ 2000 m (amsl (above mean sea level)) |
| Permissible humidity (operation)        | 5 % ... 95 %                           |
| Shock (operation)                       | 25g                                    |
| Vibration (operation)                   | 5g                                     |

### General

|                                         |                                         |
|-----------------------------------------|-----------------------------------------|
| Standards/specifications                | IEC 61643-11 2011                       |
|                                         | EN 61643-11 2012                        |
| IEC test classification                 | II                                      |
|                                         | T2                                      |
| EN type                                 | T2                                      |
| Number of ports                         | One                                     |
| SPD design                              | Combination type                        |
| Mode of protection                      | L-N                                     |
|                                         | L-PE                                    |
|                                         | N-PE                                    |
| Mounting type                           | DIN rail: 35 mm                         |
| Color                                   | black                                   |
| Housing material                        | PA 6.6                                  |
|                                         | PBT                                     |
| Pollution degree                        | 2                                       |
| Inflammability class according to UL 94 | V-0                                     |
| Type                                    | DIN rail module, two-section, divisible |
| Number of positions                     | 2                                       |
| Surge protection fault message          | Optical, remote indicator contact       |

### Protective circuit

|                                                      |                     |
|------------------------------------------------------|---------------------|
| Nominal voltage $U_N$                                | 240/415 V AC (TN-S) |
|                                                      | 240/415 V AC (TT)   |
| Nominal frequency $f_N$                              | 50 Hz (60 Hz)       |
| Maximum continuous operating voltage $U_C$ (L-N)     | 335 V AC            |
| Maximum continuous voltage $U_C$ (N-PE)              | 260 V AC            |
| Rated load current $I_L$                             | 80 A                |
| Residual current $I_{PE}$                            | ≤ 5 $\mu$ A         |
| Standby power consumption $P_C$                      | ≤ 150 mVA           |
| Nominal discharge current $I_n$ (8/20) $\mu$ s (L-N) | 20 kA               |

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#### Protective circuit

|                                                                 |                                        |
|-----------------------------------------------------------------|----------------------------------------|
| Nominal discharge current $I_n$ (8/20) $\mu$ s (L-PE)           | 20 kA                                  |
| Nominal discharge current $I_n$ (8/20) $\mu$ s (N-PE)           | 20 kA                                  |
| Maximum discharge current $I_{max}$ (8/20) $\mu$ s (L-N)        | 40 kA                                  |
| Maximum discharge current $I_{max}$ (8/20) $\mu$ s (L-PE)       | 40 kA                                  |
| Maximum discharge current $I_{max}$ (8/20) $\mu$ s (N-PE)       | 40 kA                                  |
| Follow current interrupt rating $I_{fi}$ (N-PE)                 | 100 A (260 V)                          |
| Short-circuit current rating $I_{SCCR}$                         | 25 kA                                  |
| Voltage protection level $U_p$ (L-N)                            | $\leq 1.5$ kV                          |
| Voltage protection level $U_p$ (L-PE)                           | $\leq 1.8$ kV                          |
| Voltage protection level $U_p$ (N-PE)                           | $\leq 1.5$ kV                          |
| Residual voltage $U_{res}$ (L-N)                                | $\leq 1.5$ kV (at $I_n$ )              |
|                                                                 | $\leq 1.3$ kV (at 10 kA)               |
|                                                                 | $\leq 1.2$ kV (at 5 kA)                |
|                                                                 | $\leq 1.1$ kV (at 3 kA)                |
| Residual voltage $U_{res}$ (L-PE)                               | $\leq 1.8$ kV (at $I_n$ )              |
|                                                                 | $\leq 1.4$ kV (at 10 kA)               |
|                                                                 | $\leq 1.2$ kV (at 5 kA)                |
|                                                                 | $\leq 1.1$ kV (at 3 kA)                |
| Residual voltage $U_{res}$ (N-PE)                               | $\leq 0.4$ kV (at $I_n$ )              |
|                                                                 | $\leq 0.25$ kV (at 10 kA)              |
|                                                                 | $\leq 0.15$ kV (at 5 kA)               |
|                                                                 | $\leq 0.1$ kV (at 3 kA)                |
| Front of wave sparkover voltage at 6 kV (1.2/50) $\mu$ s (N-PE) | $\leq 1.5$ kV                          |
| TOV behavior at $U_T$ (L-N)                                     | 415 V AC (5 s / withstand mode)        |
|                                                                 | 440 V AC (120 min / safe failure mode) |
| TOV behavior at $U_T$ (N-PE)                                    | 1200 V AC (200 ms / withstand mode)    |
| Response time $t_A$ (L-N)                                       | $\leq 25$ ns                           |
| Response time $t_A$ (N-PE)                                      | $\leq 100$ ns                          |
| Max. backup fuse with branch wiring                             | 125 A AC (gG)                          |
| Max. backup fuse with V-type through wiring                     | 80 A AC (gG)                           |

#### Indicator/remote signaling

|                    |                                |
|--------------------|--------------------------------|
| Connection name    | Remote fault indicator contact |
| Switching function | PDT contact                    |
| Operating voltage  | 5 V AC ... 250 V AC            |
|                    | 125 V AC (UL)                  |
|                    | 30 V DC                        |

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### Technical data

#### Indicator/remote signaling

|                                       |                             |
|---------------------------------------|-----------------------------|
| Operating current                     | 5 mA AC ... 1.5 A AC        |
|                                       | 1 A AC (UL)                 |
|                                       | 1 A DC                      |
| Connection method                     | Screw connection            |
| Screw thread                          | M2                          |
| Tightening torque                     | 0.25 Nm                     |
|                                       | 4 lb <sub>F</sub> -in. (UL) |
| Stripping length                      | 7 mm                        |
| Conductor cross section stranded min. | 0.14 mm <sup>2</sup>        |
| Conductor cross section stranded max. | 1.5 mm <sup>2</sup>         |
| Conductor cross section solid min.    | 0.14 mm <sup>2</sup>        |
| Conductor cross section solid max.    | 1.5 mm <sup>2</sup>         |
| AWG conductor cross section           | 28 ... 16                   |
|                                       | 30 ... 14 (UL)              |

#### Connection data

|                                       |                              |
|---------------------------------------|------------------------------|
| Connection method                     | Screw connection             |
| Conductor cross section stranded min. | 1.5 mm <sup>2</sup>          |
| Conductor cross section stranded max. | 25 mm <sup>2</sup>           |
| Conductor cross section solid min.    | 1.5 mm <sup>2</sup>          |
| Conductor cross section solid max.    | 35 mm <sup>2</sup>           |
| AWG conductor cross section           | 15 ... 2                     |
|                                       | 10 ... 2 (UL)                |
| Screw thread                          | M5                           |
| Tightening torque                     | 4.5 Nm                       |
|                                       | 30 lb <sub>F</sub> -in. (UL) |
| Stripping length                      | 16 mm                        |

#### NEMA/UL protective circuit

|                                                 |                                    |
|-------------------------------------------------|------------------------------------|
| UL class                                        | Type 4 SPD for Type 2 applications |
| Maximum continuous operating voltage MCOV (L-N) | 320 V AC                           |
| Maximum continuous operating voltage MCOV (N-G) | 260 V AC                           |
| Nominal voltage U <sub>N</sub>                  | 240 V AC                           |
| Mode of protection                              | L-N                                |
|                                                 | L-G                                |
|                                                 | N-G                                |
| Power distribution system                       | 1                                  |
| Nominal frequency                               | 50/60 Hz                           |

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### Technical data

#### NEMA/UL protective circuit

|                                       |        |
|---------------------------------------|--------|
| Voltage protection rating VPR (L-N)   | 1.2 kV |
| Voltage protection rating VPR (L-G)   | 1.8 kV |
| Voltage protection rating VPR (N-G)   | 1.2 kV |
| Nominal discharge current $I_n$ (L-N) | 20 kA  |
| Nominal discharge current $I_n$ (L-G) | 20 kA  |
| Nominal discharge current $I_n$ (N-G) | 20 kA  |

### Classifications

#### eCl@ss

|            |          |
|------------|----------|
| eCl@ss 4.0 | 27140201 |
| eCl@ss 4.1 | 27130801 |
| eCl@ss 5.0 | 27130801 |
| eCl@ss 5.1 | 27130801 |
| eCl@ss 6.0 | 27130805 |
| eCl@ss 7.0 | 27130805 |

#### ETIM

|          |          |
|----------|----------|
| ETIM 2.0 | EC000941 |
| ETIM 3.0 | EC000941 |
| ETIM 4.0 | EC000941 |
| ETIM 5.0 | EC000941 |

#### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 30212010 |
| UNSPSC 7.0901 | 39121610 |
| UNSPSC 11     | 39121610 |
| UNSPSC 12.01  | 39121610 |
| UNSPSC 13.2   | 39121620 |

### Approvals

#### Approvals

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UL Recognized / KEMA-KEUR / cUL Recognized / GOST / KEMA-KEUR / CSA / ÖVE / CCA / IECCEB Scheme / cULus Recognized

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### Approvals

Ex Approvals

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Approvals submitted

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### Approval details

UL Recognized 

KEMA-KEUR 

cUL Recognized 

GOST 

KEMA-KEUR 

CSA

ÖVE 

CCA

IECEE CB Scheme 

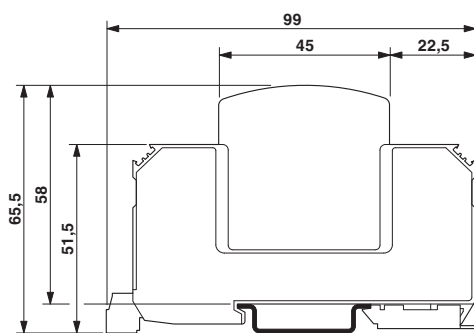
## Type 2 surge protection device - VAL-MS 320/1+1-FM - 2804393

### Approvals

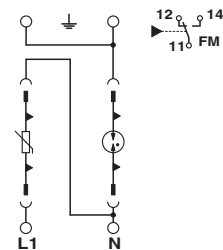
cULus Recognized  US

### Drawings

Dimensioned drawing



Circuit diagram



单击下面可查看定价，库存，交付和生命周期等信息

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