

## Type 2 surge arrester - VAL-CP-3S-350/O - 2881010

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Plug-in surge arrester for 3-phase power supply networks with separate N and PE (5-conductor system: L1, L2, L3, N, PE).

### Why buy this product

- ✓ With or without floating remote indication contact
- ✓ Plugs can be checked with CHECKMASTER
- ✓ High continuous voltage of 350 V AC for 230/400 V AC networks with high voltage fluctuations
- ✓ Optical, mechanical status indication for the individual arresters
- ✓ Use of varistors with a low leakage current
- ✓ Disconnect device on each individual plug
- ✓ Modular arrester blocks with ultra-narrow design
- ✓ Type 2 consistent plug-in surge arresters
- ✓ Mechanical coding of all slots



### Key Commercial Data

|              |                                                                                                         |
|--------------|---------------------------------------------------------------------------------------------------------|
| Packing unit | 1 STK                                                                                                   |
| GTIN         | <br>4 046356 049238 |
| GTIN         | 4046356049238                                                                                           |

### Technical data

#### Dimensions

|                  |          |
|------------------|----------|
| Height           | 90 mm    |
| Width            | 49.2 mm  |
| Depth            | 71.5 mm  |
| Horizontal pitch | 2.7 Div. |

#### Ambient conditions

|                                 |                  |
|---------------------------------|------------------|
| Degree of protection            | IP20             |
| Ambient temperature (operation) | -40 °C ... 80 °C |

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### Ambient conditions

|                                         |                                          |
|-----------------------------------------|------------------------------------------|
| Ambient temperature (storage/transport) | -40 °C ... 80 °C                         |
| Altitude                                | ≤ 2000 m (amsl (above mean sea level))   |
| Permissible humidity (operation)        | 5 % ... 95 %                             |
| Shock (operation)                       | 30g (half sinus / 11 ms / 3x ±X, ±Y, ±Z) |
| Vibration (operation)                   | 5g (10 ... 500 Hz / 2.5 h / X, Y, Z)     |

### General

|                                        |                                         |
|----------------------------------------|-----------------------------------------|
| IEC test classification                | II                                      |
|                                        | T2                                      |
| EN type                                | T2                                      |
| IEC power supply system                | TN-S                                    |
|                                        | TT                                      |
| Mode of protection                     | L-N                                     |
|                                        | L-PE                                    |
|                                        | N-PE                                    |
| Mounting type                          | DIN rail: 35 mm                         |
| Color                                  | gray/blue                               |
|                                        | black                                   |
| Housing material                       | PBT-FR                                  |
| Degree of pollution                    | 2                                       |
| Flammability rating according to UL 94 | V-0                                     |
| Design                                 | DIN rail module, two-section, divisible |
| Number of positions                    | 4                                       |
| Surge protection fault message         | optical                                 |

### 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)  | 350 V AC                                                   |
| Maximum continuous operating voltage $U_C$ (L-PE) | 350 V AC                                                   |
| Maximum continuous voltage $U_C$ (N-PE)           | 264 V AC                                                   |
| Rated load current $I_L$                          | 40 A (Biconnect M4 fork-type cable lug 6 mm <sup>2</sup> ) |
|                                                   | 63 A (TWIN ferrule 2 x 10 mm <sup>2</sup> )                |
| Residual current $I_{PE}$                         | ≤ 1 μA                                                     |
| Nominal discharge current $I_n$ (8/20) μs         | 20 kA                                                      |
| Maximum discharge current $I_{max}$ (8/20) μs     | 40 kA                                                      |
| Follow current interrupt rating $I_{fi}$ (N-PE)   | 100 A (264 V AC)                                           |
| Short-circuit current rating $I_{SCCR}$           | 25 kA                                                      |
| Voltage protection level $U_p$ (L-N)              | ≤ 1.5 kV                                                   |
| Voltage protection level $U_p$ (L-PE)             | ≤ 1.9 kV                                                   |

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#### Protective circuit

|                                             |                                                                  |
|---------------------------------------------|------------------------------------------------------------------|
| 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 4 kA)                                          |
|                                             | $\leq 1$ kV (at 2 kA)                                            |
| Residual voltage $U_{res}$ (N-PE)           | $\leq 0.5$ kV (at $I_n$ )                                        |
|                                             | $\leq 0.5$ kV (at 10 kA)                                         |
|                                             | $\leq 0.5$ kV (at 5 kA)                                          |
|                                             | $\leq 0.5$ kV (at 4 kA)                                          |
|                                             | $\leq 0.5$ kV (at 2 kA)                                          |
| 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         | 315 A (gG)                                                       |
| Max. backup fuse with V-type through wiring | 40 A (gG / Biconnect M4 fork-type cable lug, 6 mm <sup>2</sup> ) |
|                                             | 63 A (gG / TWIN ferrule 2x 10mm <sup>2</sup> )                   |

#### Connection data

|                                  |                                            |
|----------------------------------|--------------------------------------------|
| Connection method                | Screw connection                           |
| Screw thread                     | M5                                         |
| Tightening torque                | 4.5 Nm                                     |
| Stripping length                 | 16 mm                                      |
| Conductor cross section flexible | 2.5 mm <sup>2</sup> ... 16 mm <sup>2</sup> |
| Conductor cross section solid    | 2.5 mm <sup>2</sup> ... 25 mm <sup>2</sup> |
| Conductor cross section AWG      | 12 ... 4                                   |

#### UL specifications

|                                                 |              |
|-------------------------------------------------|--------------|
| SPD Type                                        | 4CA          |
| Maximum continuous operating voltage MCOV (L-L) | 700 V AC     |
| Maximum continuous operating voltage MCOV (L-N) | 350 V AC     |
| Maximum continuous operating voltage MCOV (L-G) | 350 V AC     |
| Maximum continuous operating voltage MCOV (N-G) | 264 V AC     |
| Nom. voltage                                    | 240/415 V AC |
| Mode of protection                              | L-L          |
|                                                 | L-N          |
|                                                 | L-G          |
|                                                 | N-G          |
| Power distribution system                       | 3Y           |

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## Technical data

### UL specifications

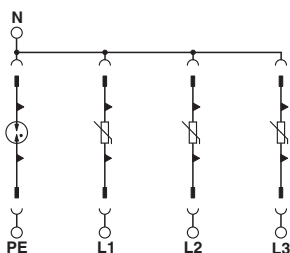
|                                       |          |
|---------------------------------------|----------|
| Nominal frequency                     | 50/60 Hz |
| Measured limiting voltage MLV (L-L)   | 3280 V   |
| Measured limiting voltage MLV (L-N)   | 2000 V   |
| Measured limiting voltage MLV (L-G)   | 2080 V   |
| Measured limiting voltage MLV (N-G)   | 950 V    |
| Nominal discharge current $I_n$ (L-L) | 20 kA    |
| 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    |

### Environmental Product Compliance

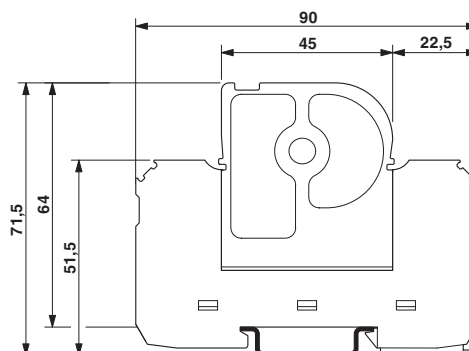
|            |                                                         |
|------------|---------------------------------------------------------|
| China RoHS | Environmentally friendly use period: unlimited = EFUP-e |
|            | No hazardous substances above threshold values          |

## Drawings

Circuit diagram



Dimensional drawing



## Approvals

### Approvals

Approvals

UL Recognized / KEMA-KEUR / cUL Recognized / GL / IECCEB CB Scheme / CCA / EAC / EAC / cULus Recognized

Ex Approvals

### Approval details

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### Approvals

|                  |  |                                                                                                                                                       |                         |
|------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| UL Recognized    |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 330181           |
| KEMA-KEUR        |  | <a href="http://www.dekra-certification.com">http://www.dekra-certification.com</a>                                                                   | 2161502.01              |
| cUL Recognized   |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 330181           |
| GL               |  | <a href="http://exchange.dnv.com/tari/">http://exchange.dnv.com/tari/</a>                                                                             | 94387-10 HH             |
| IECEE CB Scheme  |  | <a href="http://www.iecee.org/">http://www.iecee.org/</a>                                                                                             | NL-29957                |
| CCA              |  |                                                                                                                                                       | NTR-NL 7221             |
| EAC              |  |                                                                                                                                                       | EAC-Zulassung           |
| EAC              |  |                                                                                                                                                       | RU C-<br>DE.A*30.B01561 |
| cULus Recognized |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> |                         |