

# VAL-SEC-T2-3S-175-FM - Type 2 surge arrester



2905354

<https://www.phoenixcontact.com/us/products/2905354>

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Plug-in surge arrester, in accordance with Type 2/Class II, for 3-phase power supply networks with separate N and PE (5-conductor system: L1, L2, L3, N, PE), with remote indication contact.

## Your advantages

- Surge protection family for universal use with optimum energy coordination from the lightning current arrester to the device protection
- Easy to maintain due to consistently pluggable protection modules
- Excellent level of information provided by mechanical/visual status indicator and remote indication contact
- More space in the control cabinet due to the narrow overall width of just 12 mm per position and use without separate backup fuse up to 315 A gG

## Commercial data

|                                      |                    |
|--------------------------------------|--------------------|
| Item number                          | 2905354            |
| Packing unit                         | 1 pc               |
| Minimum order quantity               | 1 pc               |
| Sales key                            | CL01               |
| Product key                          | CL1351             |
| Catalog page                         | Page 56 (C-4-2019) |
| GTIN                                 | 4046356948029      |
| Weight per piece (including packing) | 379.9 g            |
| Weight per piece (excluding packing) | 222.222 g          |
| Customs tariff number                | 85363090           |
| Country of origin                    | DE                 |

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## Technical data

### Product properties

|                                |                                         |
|--------------------------------|-----------------------------------------|
| IEC test classification        | II                                      |
|                                | T2                                      |
| EN type                        | T2                                      |
| IEC power supply system        | TN-S                                    |
|                                | TT                                      |
| Type                           | DIN rail module, two-section, divisible |
| Product type                   | Surge arrester                          |
| Product family                 | SEC Family                              |
| Number of positions            | 4                                       |
| 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            |
|                    | 125 V DC (200 mA DC)           |
| Operating current  | 5 mA AC ... 1 A AC             |
|                    | 1 A DC (30 V DC)               |

### 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 rigid    | 2.5 mm <sup>2</sup> ... 25 mm <sup>2</sup> |
| Conductor cross section AWG      | 12 ... 4                                   |
| Connection method                | Fork-type cable lug                        |
| Conductor cross section flexible | 1.5 mm <sup>2</sup> ... 6 mm <sup>2</sup>  |

### Remote fault indicator contact

|                   |                                       |
|-------------------|---------------------------------------|
| Connection method | Plug-in/screw connection via COMBICON |
| Screw thread      | M2                                    |
| Tightening torque | 0.25 Nm                               |
| Stripping length  | 7 mm                                  |

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|                                  |                                              |
|----------------------------------|----------------------------------------------|
| Conductor cross section flexible | 0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| Conductor cross section rigid    | 0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| Conductor cross section AWG      | 28 ... 16                                    |

## Dimensions

|                     |                                 |
|---------------------|---------------------------------|
| Dimensional drawing |                                 |
| Width               | 49.2 mm                         |
| Height              | 97.9 mm                         |
| Depth               | 74.5 mm (incl. DIN rail 7.5 mm) |
| Horizontal pitch    | 2.7 Div.                        |

## Material specifications

|                                        |                             |
|----------------------------------------|-----------------------------|
| Color (Male connector)                 | light grey (RAL 7035)       |
| Color (Base element)                   | gray (RAL 7042)             |
| Flammability rating according to UL 94 | V-0                         |
| CTI value of material                  | 600                         |
| Insulating material                    | PA6.6-FR 20% GF<br>PBT-FR   |
| Material group                         | I                           |
| Housing material                       | PA 6.6-FR 20 % GF<br>PBT-FR |

## Protective circuit

|                                                    |                                                            |
|----------------------------------------------------|------------------------------------------------------------|
| Mode of protection                                 | L-N                                                        |
|                                                    | L-PE                                                       |
|                                                    | N-PE                                                       |
| Direction of action                                | 3L-N & N-PE                                                |
| Nominal voltage $U_N$                              | 120/208 V AC (TN-S)                                        |
|                                                    | 120/208 V AC (TT)                                          |
| Nominal frequency $f_N$                            | 50 Hz (60 Hz)                                              |
| Maximum continuous operating voltage $U_C$ (L-N)   | 175 V AC                                                   |
| Maximum continuous operating voltage $U_C$ (L-PE)  | 175 V AC                                                   |
| Maximum continuous operating voltage $U_C$ (N-PE)  | 150 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 $\mu$ A                                                |
| Nominal discharge current $I_n$ (8/20) $\mu$ s     | 20 kA                                                      |
| Maximum discharge current $I_{max}$ (8/20) $\mu$ s | 40 kA                                                      |
| Follow current interrupt rating $I_{fi}$ (N-PE)    | 100 A (150 V AC)                                           |
| Short-circuit current rating $I_{SCCR}$            | 25 kA (for a backup fuse of up to 315 A gG)                |

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|                                             |                                                                  |
|---------------------------------------------|------------------------------------------------------------------|
|                                             | 50 kA (for a backup fuse of up to 200 A gG)                      |
| Voltage protection level $U_p$ (L-N)        | $\leq 0.85$ kV                                                   |
| Voltage protection level $U_p$ (L-PE)       | $\leq 1.3$ kV                                                    |
| Voltage protection level $U_p$ (N-PE)       | $\leq 0.95$ kV                                                   |
| Residual voltage $U_{res}$ (L-N)            | $\leq 0.85$ kV (at $I_n$ )                                       |
|                                             | $\leq 0.75$ kV (at 10 kA)                                        |
|                                             | $\leq 0.65$ kV (at 5 kA)                                         |
|                                             | $\leq 0.63$ kV (at 4 kA)                                         |
|                                             | $\leq 0.57$ kV (at 2 kA)                                         |
| Residual voltage $U_{res}$ (N-PE)           | $\leq 0.4$ kV (at $I_n$ )                                        |
|                                             | $\leq 0.4$ kV (at 10 kA)                                         |
|                                             | $\leq 0.4$ kV (at 5 kA)                                          |
|                                             | $\leq 0.4$ kV (at 4 kA)                                          |
|                                             | $\leq 0.4$ kV (at 2 kA)                                          |
| TOV behavior at $U_T$ (L-N)                 | 240 V AC (5 s / withstand mode)                                  |
|                                             | 240 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 $t_A$ (L-PE)                  | $\leq 100$ ns                                                    |
| Response time $t_A$ (N-PE)                  | $\leq 100$ ns                                                    |
| 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> )                   |
| Max. backup fuse with branch wiring         | 315 A (gG)                                                       |

## Environmental and real-life conditions

### Ambient conditions

|                                         |                                                           |
|-----------------------------------------|-----------------------------------------------------------|
| Degree of protection                    | IP20                                                      |
| Ambient temperature (operation)         | -40 °C ... 80 °C                                          |
| Ambient temperature (storage/transport) | -40 °C ... 80 °C                                          |
| Altitude                                | $\leq 2000$ m (amsl)                                      |
| Permissible humidity (operation)        | 5 % ... 95 %                                              |
| Shock (operation)                       | 30g (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) | 350 V AC |
| Maximum continuous operating voltage MCOV (L-N) | 175 V AC |
| Maximum continuous operating voltage MCOV (L-G) | 175 V AC |
| Maximum continuous operating voltage MCOV (N-G) | 150 V AC |
| 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    |

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|                                       |                  |
|---------------------------------------|------------------|
| Nominal discharge current $I_n$ (N-G) | 20 kA            |
| Mode of protection                    | L-L              |
|                                       | L-N              |
|                                       | L-G              |
|                                       | N-G              |
| Nominal voltage                       | 120/208 V AC     |
| Power distribution system             | Wye              |
| Nominal frequency                     | 50/60 Hz         |
| Measured limiting voltage MLV (L-L)   | 2010 V           |
| Measured limiting voltage MLV (L-N)   | 1510 V           |
| Measured limiting voltage MLV (L-G)   | 1630 V           |
| Measured limiting voltage MLV (N-G)   | 560 V            |
| Follow current (L-G)                  | 200 A (150 V AC) |
| SPD Type                              | 4CA              |

## UL indicator/remote signaling

|                      |          |
|----------------------|----------|
| Operating voltage    | 125 V AC |
| AC operating current | 1 A AC   |

## UL connection data

|                             |                                                     |
|-----------------------------|-----------------------------------------------------|
| Tightening torque           | 40 lb <sub>f</sub> -in. ... 50 lb <sub>f</sub> -in. |
| Conductor cross section AWG | 14 ... 2 (solid)                                    |
|                             | 14 ... 4 (flexible)                                 |

## Standards and regulations

### Air clearances and creepage distances

|                          |                                                       |
|--------------------------|-------------------------------------------------------|
| Standards/regulations    | DIN VDE 0110-1 / IEC 60664-1 / IEC 61643-11 / UL 1449 |
| Standards/specifications | IEC 61643-11                                          |
| Note                     | 2011                                                  |

### EN 61643-11

|                          |             |
|--------------------------|-------------|
| Standards/specifications | EN 61643-11 |
| Note                     | 2012        |

## Mounting

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

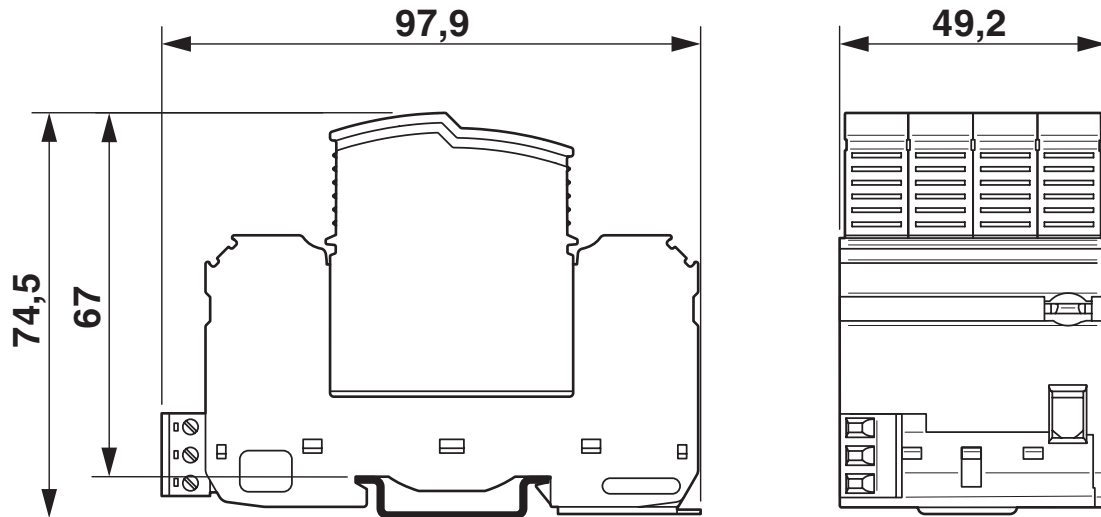
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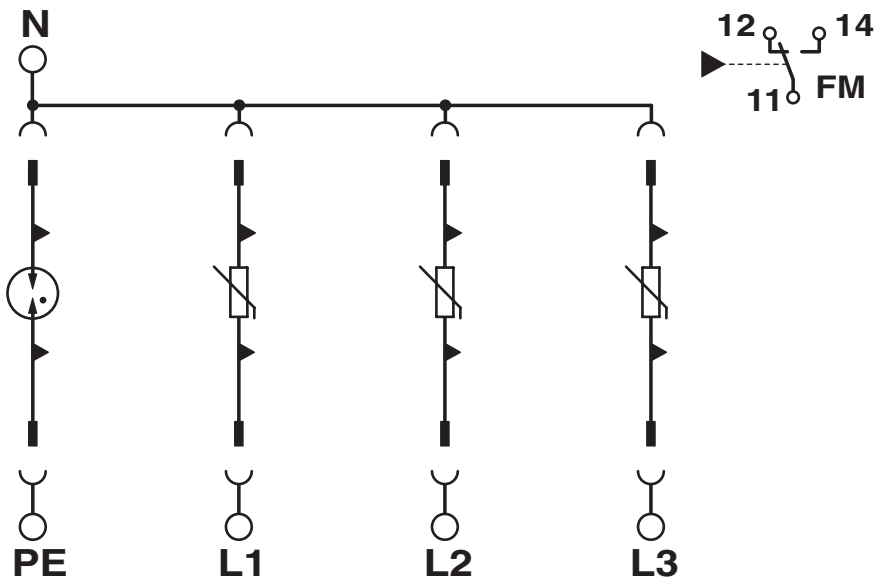
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## Drawings

Dimensional drawing



Circuit diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2905354>



**cUL Recognized**

Approval ID: FILE E 330181



**UL Recognized**

Approval ID: FILE E 330181



**IECEE CB Scheme**

Approval ID: NL-34356



**EAC**

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

**CCA**

Approval ID: NTR-NL 7347



**KEMA-KEUR**

Approval ID: 2196453.01



**DNV GL**

Approval ID: TAE000023D

**UAE-RoHS**

Approval ID: 23-10-88707

**cULus Recognized**

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27130805 |
| ECLASS-13.0 | 27171202 |

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC000941 |
|----------|----------|

### UNSPSC

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



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## Environmental product compliance

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

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