

# ANTREX Electronics

## Electronic Components Sourcing Information

---

### Product Reference Information

|                      |                           |
|----------------------|---------------------------|
| <b>Part Number:</b>  | 2856689                   |
| <b>Manufacturer:</b> | Phoenix Contact           |
| <b>Package:</b>      | Module                    |
| <b>Availability:</b> | Please confirm with sales |

#### Product Page:

<https://antrexco.com/product/details/phoenix-contact/2856689.html>

#### Request a Quote:

[Submit RFQ for this part](#)



Scan for product page

### Contact Information

Email: [info@antrexco.com](mailto:info@antrexco.com)

WhatsApp: +86-186-8066-5326

Website: <https://antrexco.com>

### Quality & Trust

New & Original Components

Supplier verification and packaging condition review

CoC / RoHS / REACH documents available on request

Secure sourcing support for OEM / EMS projects

#### Note:

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.

## Type 2 surge protection device - VAL-MS 320/3+1-FM-UD - 2856689

Please be informed that the data shown in this PDF Document is generated from our Online Catalog. Please find the complete data in the user's documentation. Our General Terms of Use for Downloads are valid (<http://download.phoenixcontact.com>)



Surge voltage arrester consisting of base element with remote indicator contact and ground connectors, for mounting on NS 35/7.5, nominal voltage: 320 V AC, 3 + 1 circuit

The illustration shows the version VAL-MS 120/3+1/FM-UD

### Why buy this product

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



### Key commercial data

|                        |                                                                                                         |
|------------------------|---------------------------------------------------------------------------------------------------------|
| Packing unit           | 1                                                                                                       |
| Minimum order quantity | 1                                                                                                       |
| Catalog page           | Page 36 (TT-2011)                                                                                       |
| GTIN                   | <br>4 017918 877057 |
| Custom tariff number   | 85363030                                                                                                |
| Country of origin      | GERMANY                                                                                                 |

### Technical data

#### Standards

|                                          |                                         |
|------------------------------------------|-----------------------------------------|
| Housing material                         | PBT / PA                                |
| Inflammability class according to UL 94  | V0                                      |
| Color                                    | black                                   |
| Standards for air and creepage distances | DIN EN 60664-1                          |
| Degree of protection                     | IP20                                    |
| Mounting type                            | DIN rail: 35 mm                         |
| Design                                   | DIN rail module, two-section, divisible |

# Type 2 surge protection device - VAL-MS 320/3+1-FM-UD - 2856689

## Technical data

### Standards

|                                 |                                   |
|---------------------------------|-----------------------------------|
| Number of positions             | 4                                 |
| Ambient temperature (operation) | -40 °C ... 80 °C                  |
| Message: Surge protection fault | Optical, remote indicator contact |
| Direction of action             | 3L-N & N-PE                       |
| Width                           | 70.8 mm                           |
| Height                          | 96.8 mm                           |
| Depth                           | 65.5 mm                           |
| Pitch unit                      | 4 Div.                            |

### Protective circuit

|                                                                        |                                |
|------------------------------------------------------------------------|--------------------------------|
| IEC category                                                           | II                             |
| IEC category                                                           | T2                             |
| EN type                                                                | T2                             |
| Nominal voltage UN                                                     | 230 V AC (400 V AC)            |
| Nominal voltage UN                                                     | 400 V AC                       |
| Nominal voltage UN                                                     | 230 V AC ... 415 V AC          |
| Arrester rated voltage UC                                              | 335 V AC                       |
| Arrester rated voltage UC (L-N)                                        | 335 V AC                       |
| Arrester rated voltage UC (N-PE)                                       | 260 V AC                       |
| UT (TOV-proof)                                                         | 415 V AC (5 s / L-N)           |
| UT (TOV-proof)                                                         | 1200 V AC (200 ms / N-PE)      |
| Nominal frequency fN                                                   | 50 Hz (60 Hz)                  |
| Ground conductor current IPE                                           | ≤ 1 µA                         |
| Standby power consumption PC                                           | ≤ 360 mVA                      |
| Max. discharge surge current I <sub>max</sub> (8/20) µs                | 40 kA                          |
| Max. discharge surge current I <sub>max</sub> (8/20) µs maximum (L-N)  | 40 kA                          |
| Max. discharge surge current I <sub>max</sub> (8/20) µs maximum (L-PE) | 40 kA                          |
| Max. discharge surge current I <sub>max</sub> (8/20) µs maximum (N-PE) | 40 kA                          |
| Nominal discharge surge current I <sub>n</sub> (8/20) µs (L-N)         | 20 kA                          |
| Nominal discharge surge current I <sub>n</sub> (8/20) µs (L-PE)        | 20 kA                          |
| Nominal discharge surge current I <sub>n</sub> (8/20) µs (N-PE)        | 20 kA                          |
| Lightning test current (10/350) µs, peak value I <sub>imp</sub>        | 12 kA (N-PE)                   |
| Impulse operate voltage at 6 kV (1.2/50)µs (N-PE)                      | ≤ 1.5 kV                       |
| Protection level UP (L-N)                                              | ≤ 1.6 kV                       |
| Protection level UP (L-PE)                                             | ≤ 1.75 kV                      |
| Protection level UP (N-PE)                                             | ≤ 1.5 kV                       |
| Residual voltage (L-N)                                                 | ≤ 1.6 kV (at I <sub>n</sub> )  |
| Residual voltage (L-N)                                                 | ≤ 1.35 kV (at 10 kA)           |
| Residual voltage (L-N)                                                 | ≤ 1.25 kV (at 5 kA)            |
| Residual voltage (L-N)                                                 | ≤ 1.2 kV (at 3 kA)             |
| Residual voltage (L-PE)                                                | ≤ 1.75 kV (at I <sub>n</sub> ) |
| Residual voltage (L-PE)                                                | ≤ 1.45 kV (at 10 kA)           |

# Type 2 surge protection device - VAL-MS 320/3+1-FM-UD - 2856689

## Technical data

### Protective circuit

|                                                               |                                       |
|---------------------------------------------------------------|---------------------------------------|
| Residual voltage (L-PE)                                       | $\leq 1.35 \text{ kV (at 5 kA)}$      |
| Residual voltage (L-PE)                                       | $\leq 1.25 \text{ kV (at 3 kA)}$      |
| Residual voltage (N-PE)                                       | $\leq 0.4 \text{ kV (at I}_n\text{)}$ |
| Residual voltage (N-PE)                                       | $\leq 0.25 \text{ kV (at 10 kA)}$     |
| Residual voltage (N-PE)                                       | $\leq 0.15 \text{ kV (at 5 kA)}$      |
| Residual voltage (N-PE)                                       | $\leq 0.1 \text{ kV (at 3 kA)}$       |
| Response time (L-N)                                           | $\leq 25 \text{ ns}$                  |
| Response time (L-PE)                                          | $\leq 100 \text{ ns}$                 |
| Response time (N-PE)                                          | $\leq 100 \text{ ns}$                 |
| Max. required backup fuse with branch wiring                  | 125 A (gL)                            |
| Short-circuit resistance IP with max. backup fuse (effective) | 25 kA                                 |
| Follow current quenching capacity $I_f$ (N-PE)                | 100 A (260 V)                         |

### Connection, protective circuit

|                                        |                                |
|----------------------------------------|--------------------------------|
| Connection method                      | Screw connection               |
| Connection type IN                     | Biconnect screw terminal block |
| Connection type OUT                    | Biconnect screw terminal block |
| Screw thread                           | M5                             |
| Tightening torque                      | 4.5 Nm                         |
| Stripping length                       | 14.5 mm                        |
| Conductor cross section stranded min.  | 0.5 mm <sup>2</sup>            |
| Conductor cross section stranded max.  | 25 mm <sup>2</sup>             |
| Conductor cross section solid min.     | 0.5 mm <sup>2</sup>            |
| Conductor cross section solid max.     | 35 mm <sup>2</sup>             |
| Conductor cross section AWG/kcmil min. | 20                             |
| Conductor cross section AWG/kcmil max  | 2                              |

### Remote indicator contact

|                                        |                                |
|----------------------------------------|--------------------------------|
| Connection name                        | Remote fault indicator contact |
| Switching function                     | PDT contact                    |
| Connection method                      | Screw connection               |
| Screw thread                           | M2                             |
| Tightening torque                      | 0.25 Nm                        |
| 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>            |
| Conductor cross section AWG/kcmil min. | 28                             |
| Conductor cross section AWG/kcmil max  | 16                             |
| Maximum operating voltage $U_{max}$ AC | 250 V AC                       |
| Maximum operating voltage $U_{max}$ DC | 30 V DC                        |

# Type 2 surge protection device - VAL-MS 320/3+1-FM-UD - 2856689

## Technical data

### Remote indicator contact

|                                         |                       |
|-----------------------------------------|-----------------------|
| Max. operating current I <sub>max</sub> | 0.75 A AC (250 V AC)  |
| Max. operating current I <sub>max</sub> | 3 A AC (125 V AC)     |
| Max. operating current I <sub>max</sub> | 2 A DC (30 V DC)      |
| Min. permissible switching capacity     | 0.12 VA (12 V, 10 mA) |

### Standards

|                       |                      |
|-----------------------|----------------------|
| Standards/regulations | IEC 61643-1 2005     |
| Standards/regulations | EN 61643-11/A11 2007 |

## Classifications

### eclass

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

### unspsc

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

## Approvals

### Approvals

#### Approvals

UL Recognized / KEMA-KEUR / cUL Recognized / GOST / cULus Recognized

#### Ex Approvals

## Type 2 surge protection device - VAL-MS 320/3+1-FM-UD - 2856689

### Approvals

Approvals submitted

---

#### Approval details

UL Recognized 

KEMA-KEUR 

cUL Recognized 

GOST 

cULus Recognized 

### Accessories

Accessories

Bridges

Wiring bridge - MPB 18/4- 8 - 2809283



Wiring bridge for modules with connecting pitch 17.5 mm, 4-phase, 8-pos.

---

Wiring bridge - MPB 18/4-12 - 2809296



Wiring bridge for modules with connecting pitch 17.5 mm, 4-phase, 12-pos.

## Type 2 surge protection device - VAL-MS 320/3+1-FM-UD - 2856689

### Accessories

---

#### Marking

Zack marker strip - ZBN 18,LGS:ERDE - 2749589



Zack marker strip, Strip, white, Labeled, Horizontal: Grounding symbol, Mounting type: Snap into tall marker groove, For terminal block width: 18 mm, Lettering field: 18 x 5 mm

Zack marker strip - ZBN 18,LGS:L1-N,ERDE - 2749576



Zack marker strip, Strip, white, Labeled, Horizontal: L1, L2, L3, N, GND, Mounting type: Snap into tall marker groove, For terminal block width: 18 mm, Lettering field: 18 x 5 mm

Zack marker strip - ZBN 18:UNBEDRUCKT - 2809128



Zack marker strip, Strip, white, Unlabeled, Can be labeled with: Plotter, Mounting type: Snap into tall marker groove, For terminal block width: 18 mm, Lettering field: 18 x 5 mm

Marker pen - B-STIFT - 1051993



Marker pen, for manual labeling of unprinted Zack strips, smear-proof and waterproof, line thickness 0.5 mm

Feed-through terminal block - DK-BIC-35 - 2749880



Feed-through terminal block for VAL and FLT applications

## Type 2 surge protection device - VAL-MS 320/3+1-FM-UD - 2856689

### Accessories

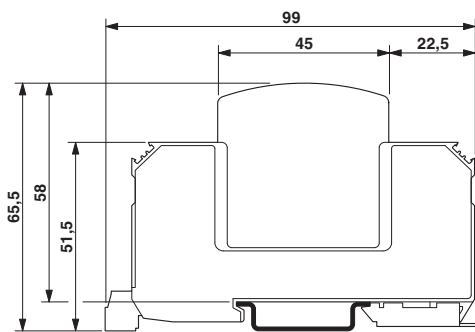
Type 2 surge protection connector - VAL-MS 320-UD ST - 2858315



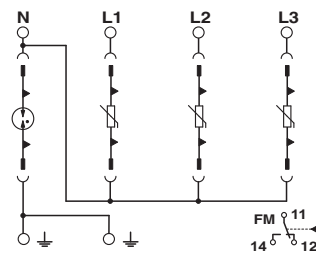
Surge protection connector type 2 with high-capacity varistor for VAL-MS base element, thermal monitoring, visual fault warning. Design: 320 V AC

### Drawings

#### Dimensioned drawing



#### Circuit diagram



## Type 2 surge protection device - VAL-MS 320/3+1-FM-UD - 2856689

Application drawing

