

# VAL-MS+TE-AR 350 VF/P-FM - Type 2 surge protection device



2906320

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Assembly with base element for type 2 arresters of the VALVETRAB MS product range and TE-AR disconnect terminal block, with remote indication contact and field wire isolation. Version for 1-mode protection of field signals in railroad applications.

## Your advantages

- With floating remote indication contact
- Zero leakage current
- IP20 touch safe when connected

## Commercial data

|                                      |                                |
|--------------------------------------|--------------------------------|
| Item number                          | 2906320                        |
| Packing unit                         | 1 pc                           |
| Minimum order quantity               | 1 pc                           |
| Note                                 | Made to order (non-returnable) |
| Sales key                            | CL18                           |
| Product key                          | CL1151                         |
| GTIN                                 | 4055626064192                  |
| Weight per piece (including packing) | 222.222 g                      |
| Weight per piece (excluding packing) | 222.222 g                      |
| Customs tariff number                | 85363030                       |
| Country of origin                    | DE                             |

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## Technical data

### Product properties

|                                |                                         |
|--------------------------------|-----------------------------------------|
| Product type                   | Base element                            |
| Product family                 | VALVETRAB MS                            |
| IEC test classification        | II                                      |
| EN type                        | T2                                      |
|                                | T2                                      |
|                                | T2                                      |
| Type                           | DIN rail module, two-section, divisible |
| Number of positions            | 1                                       |
| Surge protection fault message | Optical, remote indicator contact       |

### Electrical properties

|                         |               |
|-------------------------|---------------|
| Nominal frequency $f_N$ | 50 Hz (60 Hz) |
| Nominal voltage $U_N$   | 230 V AC      |
| Nominal current $I_N$   | 76 A          |

### Indicator/remote signaling

|                                         |                                |
|-----------------------------------------|--------------------------------|
| Connection name                         | Remote fault indicator contact |
| Switching function                      | Changeover contact, 1-pos.     |
| Maximum operating voltage $U_{max. AC}$ | 250 V AC                       |
| Max. operating current $I_{max}$        | 1.5 A AC (250 V AC)            |
|                                         | 1.5 A DC (30 V DC)             |
|                                         | 1.5 A DC (30 V DC)             |
| Operating voltage                       | 5 V AC ... 250 V AC            |
|                                         | 125 V AC (UL)                  |
|                                         | 30 V DC                        |
| Operating current                       | 5 mA AC ... 1.5 A              |
|                                         | 1 A (UL)                       |
|                                         | 1 A                            |

### Connection data

#### House (L0)

|                                  |                                                                 |
|----------------------------------|-----------------------------------------------------------------|
| Connection method                | Screw terminal block                                            |
| Tightening torque                | 3 Nm ... 4.5 Nm (Ground)                                        |
|                                  | 1.5 Nm ... 1.8 Nm (House)                                       |
|                                  | 2.5 Nm ... 3 Nm (Field)                                         |
| Conductor cross section flexible | 1.5 mm <sup>2</sup> ... 35 mm <sup>2</sup> (16 mm strip length) |
|                                  | 0.5 mm <sup>2</sup> ... 15 mm <sup>2</sup> (10 mm strip length) |
|                                  | 1.5 mm <sup>2</sup> ... 25 mm <sup>2</sup> (14 mm strip length) |
|                                  | 1.5 mm <sup>2</sup> ... 35 mm <sup>2</sup> (16 mm strip length) |

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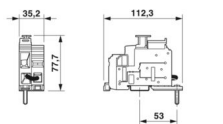
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|                               |                                                                 |
|-------------------------------|-----------------------------------------------------------------|
| Conductor cross section rigid | 0.5 mm <sup>2</sup> ... 15 mm <sup>2</sup> (10 mm strip length) |
|                               | 1.5 mm <sup>2</sup> ... 25 mm <sup>2</sup> (14 mm strip length) |
| Conductor cross section AWG   | 15 ... 2 (16 mm strip length)                                   |
|                               | 20 ... 6 (10 mm strip length)                                   |
|                               | 12 ... 4 (14 mm strip length)                                   |

## Remote fault indicator contact

|                                       |                                                        |
|---------------------------------------|--------------------------------------------------------|
| Connection method                     | Screw connection                                       |
| Screw thread                          | M2                                                     |
| Tightening torque, min                | 0.25 Nm                                                |
| Tightening torque                     | 2 lb <sub>F</sub> -in. ... 4 lb <sub>F</sub> -in. (UL) |
| Stripping length                      | 7 mm                                                   |
| Conductor cross section flexible min. | 0.14 mm <sup>2</sup>                                   |
| Conductor cross section flexible max. | 1.5 mm <sup>2</sup>                                    |
| Conductor cross section, rigid min.   | 0.14 mm <sup>2</sup>                                   |
| Conductor cross section, rigid max.   | 1.5 mm <sup>2</sup>                                    |

## Dimensions

|                     |                                                                                      |
|---------------------|--------------------------------------------------------------------------------------|
| Dimensional drawing |  |
| Width               | 17.7 mm                                                                              |
| Height              | 113 mm                                                                               |
| Depth               | 78 mm                                                                                |

## Material specifications

|                                        |                  |
|----------------------------------------|------------------|
| Color                                  | black (RAL 9005) |
| Flammability rating according to UL 94 | V0               |
| Housing material                       | PBT/PA           |

## Protective circuit

|                                                    |                                                     |
|----------------------------------------------------|-----------------------------------------------------|
| Direction of action                                | 1L-N/PE                                             |
| Nominal frequency $f_N$                            | 50 Hz (60 Hz)                                       |
| Maximum continuous voltage $U_C$                   | 350 V AC                                            |
| Rated load current $I_L$                           | 55 A (Serial through wiring at 16 mm <sup>2</sup> ) |
| Nominal discharge current $I_n$ (8/20) $\mu$ s     | 10 kA                                               |
| Maximum discharge current $I_{max}$ (8/20) $\mu$ s | 20 kA                                               |
| Short-circuit current rating $I_{SCCR}$            | 25 kA (L-PE)                                        |
| Voltage protection level $U_p$                     | $\leq 1.2$ kV                                       |
| Response time $t_A$                                | $\leq 25$ ns                                        |
| Total surge current (10/350) $\mu$ s               | 3 kA                                                |
| Total surge current (8/20) $\mu$ s                 | 15 kA                                               |

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|                                     |            |
|-------------------------------------|------------|
| Max. backup fuse with branch wiring | 125 A (gG) |
|                                     | 125 A (gG) |

## Environmental and real-life conditions

### Ambient conditions

|                                          |                               |
|------------------------------------------|-------------------------------|
| Degree of protection                     | IP20 (when disconnect closed) |
|                                          | IP20                          |
| Ambient temperature (operation)          | -40 °C ... 80 °C              |
| Altitude                                 | max. 3000 m                   |
| Permissible humidity (operation)         | 5 % ... 95 %                  |
| Permissible humidity (storage/transport) | 5 % ... 95 %                  |
| Shock (operation)                        | 10g                           |
| Vibration (operation)                    | 2g (0 Hz ... 200 Hz)          |

## Standards and regulations

### Air clearances and creepage distances

|                       |                         |
|-----------------------|-------------------------|
| Standards/regulations | EN 60664-1 / EN 61643-1 |
|-----------------------|-------------------------|

## Mounting

|               |                                                   |
|---------------|---------------------------------------------------|
| Mounting type | DIN rail mounting with additional retaining screw |
|---------------|---------------------------------------------------|

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Phoenix Contact USA  
586 Fulling Mill Road  
Middletown, PA 17057, United States  
(+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)