

## Type 1/2 surge protection plug - VAL-MS-T1/T2 1000DC-PV-ST - 2801162

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Replacement plug for PV arrester combinations from the VAL-MS-T1/T2 1000DC-PV-... product range

RoHS

### Key Commercial Data

|                                      |                                                                                                         |
|--------------------------------------|---------------------------------------------------------------------------------------------------------|
| Packing unit                         | 1 pc                                                                                                    |
| GTIN                                 | <br>4 046356 714310 |
| GTIN                                 | 4046356714310                                                                                           |
| Weight per Piece (excluding packing) | 71.550 g                                                                                                |
| Custom tariff number                 | 85363030                                                                                                |
| Country of origin                    | Germany                                                                                                 |

### Technical data

#### Dimensions

|                  |         |
|------------------|---------|
| Height           | 52.4 mm |
| Width            | 17.5 mm |
| Depth            | 55.3 mm |
| Horizontal pitch | 1 Div.  |

#### Ambient conditions

|                                         |                                         |
|-----------------------------------------|-----------------------------------------|
| Degree of protection                    | IP20                                    |
| 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)                       | 60g (Half-sine / 11 ms / 3x ±X, ±Y, ±Z) |
| Vibration (operation)                   | 7.5g (5-500 Hz/2.5 h/XYZ)               |

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## Technical data

### General

|                                                |                         |
|------------------------------------------------|-------------------------|
| IEC test classification                        | PV I / II               |
|                                                | PV T1 / T2              |
| EN type                                        | T1 / T2                 |
| SPD failure behavior                           | OCM (Open-circuit mode) |
| Installation location                          | Interior                |
| Accessibility                                  | Accessible              |
| Installation location of the disconnect device | Internal                |
| Mounting type                                  | on base element         |
| Color                                          | jet black RAL 9005      |
| Housing material                               | PA 6.6-FR               |
| Degree of pollution                            | 2                       |
| Flammability rating according to UL 94         | V-0                     |
| Type                                           | Male                    |
| Surge protection fault message                 | optical                 |

### Protective circuit DC voltage side (DC)

|                                                                  |                              |
|------------------------------------------------------------------|------------------------------|
| Maximum continuous operating voltage $U_{CPV}$                   | 525 V DC                     |
| Short-circuit current rating $I_{SCP}$                           | 2000 A                       |
| Continuous operating current $I_{CPV}$                           | < 20 $\mu$ A                 |
| Standby power consumption $P_C$                                  | $\leq$ 25 mVA                |
| Nominal discharge current (8/20) $\mu$ s                         | 15 kA                        |
| Maximum discharge current $I_{max}$ (8/20) $\mu$ s               | 40 kA                        |
| Impulse discharge current (10/350) $\mu$ s, charge               | 2.5 As                       |
| Impulse discharge current (10/350) $\mu$ s, specific energy      | 6.25 kJ/ $\Omega$            |
| Impulse discharge current (10/350) $\mu$ s, peak value $I_{imp}$ | 5 kA                         |
| Voltage protection level $U_p$                                   | $\leq$ 1.8 kV                |
| Residual voltage $U_{res}$                                       | $\leq$ 1.8 kV (at $I_n$ )    |
|                                                                  | $\leq$ 1.5 kV (at 5 kA)      |
|                                                                  | $\leq$ 1.7 kV (at 10 kA)     |
|                                                                  | $\leq$ 1.9 kV (at 20 kA)     |
|                                                                  | $\leq$ 2.2 kV (at 30 kA)     |
|                                                                  | $\leq$ 2.4 kV (at 40 kA)     |
| Response time $t_A$                                              | $\leq$ 25 ns                 |
| Insulation resistance $R_{iso}$                                  | > 5 G $\Omega$ (at 500 V DC) |

### Connection data

|                   |           |
|-------------------|-----------|
| Connection method | pluggable |
|-------------------|-----------|

### UL specifications

|          |     |
|----------|-----|
| SPD Type | 1CA |
|----------|-----|

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#### UL specifications

|                                           |             |
|-------------------------------------------|-------------|
| Maximum continuous operating voltage MCOV | 1170 V DC   |
| Nominal voltage                           | 1170 V DC   |
| Mode of protection                        | (L+) - (L-) |
|                                           | (L+) - G    |
|                                           | (L-) - G    |
| Power distribution system                 | DC PV       |
| Voltage protection rating VPR             | 3 kV        |
| Nominal discharge current $I_n$           | 10 kA       |
| Short-circuit current rating (SCCR)       | 50 kA       |

#### Standards and Regulations

|                       |                  |
|-----------------------|------------------|
| Standards/regulations | EN 50539-11 2013 |
|-----------------------|------------------|

#### Environmental Product Compliance

|            |                                                                                                     |
|------------|-----------------------------------------------------------------------------------------------------|
| China RoHS | Environmentally Friendly Use Period = 50                                                            |
|            | For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration" |

### Drawings

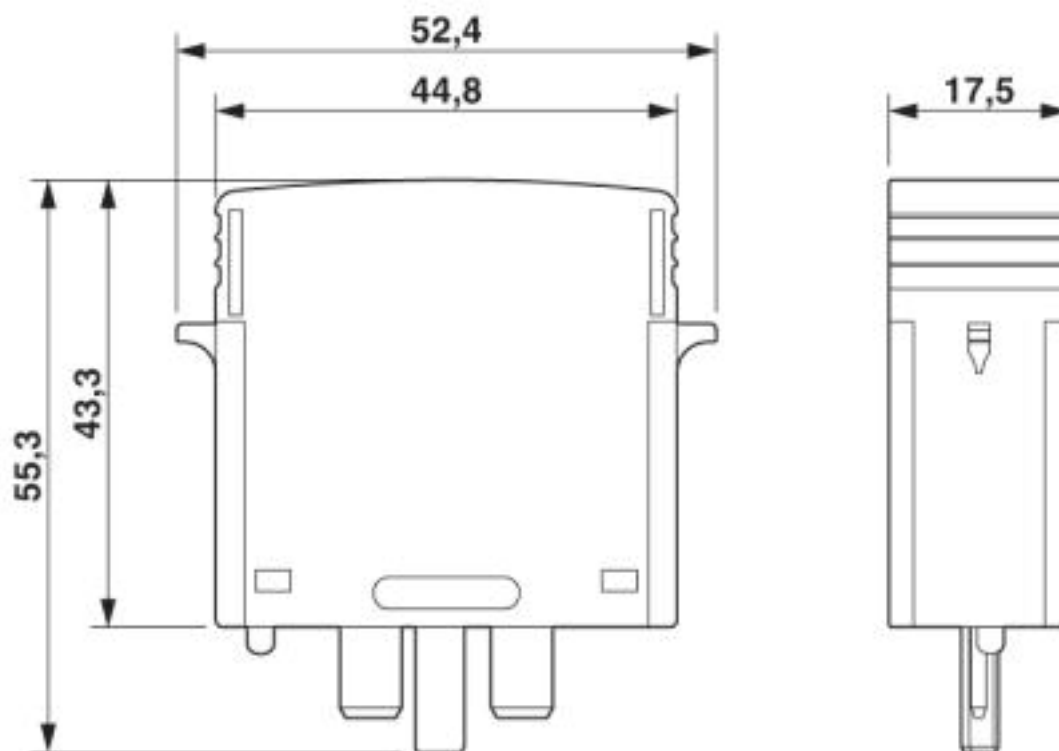
## Type 1/2 surge protection plug - VAL-MS-T1/T2 1000DC-PV-ST - 2801162

Circuit diagram



## Type 1/2 surge protection plug - VAL-MS-T1/T2 1000DC-PV-ST - 2801162

Dimensional drawing



### Classifications

#### eCl@ss

|               |          |
|---------------|----------|
| eCl@ss 10.0.1 | 27130890 |
| eCl@ss 4.0    | 27130800 |
| eCl@ss 4.1    | 27130800 |
| eCl@ss 5.0    | 27130800 |
| eCl@ss 5.1    | 27130800 |
| eCl@ss 6.0    | 27130800 |
| eCl@ss 7.0    | 27130802 |
| eCl@ss 8.0    | 27130890 |
| eCl@ss 9.0    | 27130890 |

#### ETIM

|          |          |
|----------|----------|
| ETIM 3.0 | EC000941 |
| ETIM 4.0 | EC000941 |
| ETIM 5.0 | EC002496 |
| ETIM 6.0 | EC000381 |
| ETIM 7.0 | EC000381 |

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### Classifications

#### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 30212010 |
| UNSPSC 7.0901 | 39121610 |
| UNSPSC 11     | 39121610 |
| UNSPSC 12.01  | 39121610 |
| UNSPSC 13.2   | 39121620 |
| UNSPSC 18.0   | 39121620 |
| UNSPSC 19.0   | 39121620 |
| UNSPSC 20.0   | 39121620 |
| UNSPSC 21.0   | 39121620 |

### Approvals

#### Approvals

##### Approvals

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

##### Ex Approvals

#### Approval details

|               |                                                                                     |                                                                                                                                                       |               |
|---------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 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> | 71-102960 |
|-----------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------|

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

|     |                                                                                     |  |                         |
|-----|-------------------------------------------------------------------------------------|--|-------------------------|
| EAC |  |  | RU C-<br>DE.A*30.B01561 |
|-----|-------------------------------------------------------------------------------------|--|-------------------------|

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### Approvals

cULus Recognized



### Accessories

#### Accessories

#### Device marking

Zack marker strip - ZBN 18:UNBEDRUCKT - 2809128



Zack marker strip, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, PLOTMARK, mounting type: snap into tall marker groove, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

### Feed-through terminal block

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



Feed-through terminal block for VAL and FLT applications

### Marker pen

Marker pen - B-STIFT - 1051993



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