

## Type 2 surge arrester - VAL-MS 600DC-PV/2+V-FM - 2800641

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://phoenixcontact.com/download>)



Surge arrester for 2-pos. isolated 600 V DC voltage systems, for DIN rail mounting, 3-pos. base element with remote indication contact, three plug-in temperature-monitored protective elements, status message on each plug.

### Your advantages

- ✓ Increased safety, thanks to compliance with standard EN 50539-11
- ✓ Reliable contact, thanks to integrated rotating latch
- ✓ Easy replacement, thanks to plug-in arresters
- ✓ Optimum inverter protection, thanks to low protection level
- ✓ Efficient replacement of defective plugs, thanks to visual status indicator
- ✓ Protection against mismatching, thanks to keyed plugs and base elements
- ✓ Optimized maintenance planning, thanks to remote signaling



### Key Commercial Data

|              |                                                                                                         |
|--------------|---------------------------------------------------------------------------------------------------------|
| Packing unit | 1 pc                                                                                                    |
| GTIN         | <br>4 046356 612562 |
| GTIN         | 4046356612562                                                                                           |

### Technical data

#### Dimensions

|                  |                                 |
|------------------|---------------------------------|
| Height           | 98.7 mm                         |
| Width            | 53.4 mm                         |
| Depth            | 65.7 mm (incl. DIN rail 7.5 mm) |
| Horizontal pitch | 3 Div.                          |

#### Ambient conditions

|                                         |                                               |
|-----------------------------------------|-----------------------------------------------|
| Degree of protection                    | IP20 (only when all terminal points are used) |
| Ambient temperature (operation)         | -40 °C ... 80 °C                              |
| Ambient temperature (storage/transport) | -40 °C ... 80 °C                              |

# Type 2 surge arrester - VAL-MS 600DC-PV/2+V-FM - 2800641

## Technical data

### Ambient conditions

|                                  |                                         |
|----------------------------------|-----------------------------------------|
| 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)               |

### General

|                                                |                                         |
|------------------------------------------------|-----------------------------------------|
| IEC test classification                        | PV II                                   |
|                                                | PV T2                                   |
| EN type                                        | T2                                      |
| SPD failure behavior                           | OCM (Open-circuit mode)                 |
| Connection configuration                       | Y configuration                         |
| Installation location                          | Interior                                |
| Accessibility                                  | Accessible                              |
| Installation location of the disconnect device | Internal                                |
| Mode of protection                             | (L+) - (L-)                             |
|                                                | (L+) - PE                               |
|                                                | (L-) - PE                               |
| Mounting type                                  | DIN rail: 35 mm                         |
| Color                                          | jet black RAL 9005                      |
| Housing material                               | PA 6.6-FR                               |
|                                                | PBT-FR                                  |
| Degree of pollution                            | 2                                       |
| Distance between live and grounded parts       | 8 mm                                    |
| Flammability rating according to UL 94         | V-0                                     |
| Type                                           | DIN rail module, two-section, divisible |
| Surge protection fault message                 | Optical, remote indicator contact       |

### Additional descriptions

|      |                                                                                                                                                                             |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Note | The device is intended for touch proof installation in a housing. Ensure that there is a gap of at least 8 mm between the active and grounded parts in the connection area. |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Protective circuit DC voltage side (DC)

|                                                |             |
|------------------------------------------------|-------------|
| Maximum continuous operating voltage $U_{CPV}$ | 800 V DC    |
| Short-circuit current rating $I_{SCPV}$        | 2000 A      |
| Continuous operating current $I_{CPV}$         | 20 µA       |
| Rated load current $I_L$                       | 80 A        |
| Residual current $I_{PE}$                      | ≤ 20 µA DC  |
|                                                | ≤ 300 µA AC |
| Standby power consumption $P_C$                | ≤ 20 mVA    |
| Nominal discharge current (8/20) µs            | 15 kA       |
| Maximum discharge current $I_{max}$ (8/20) µs  | 40 kA       |
| Total discharge current $I_{total}$ (8/20) µs  | 40 kA       |

# Type 2 surge arrester - VAL-MS 600DC-PV/2+V-FM - 2800641

## Technical data

### Protective circuit DC voltage side (DC)

|                                 |                                |
|---------------------------------|--------------------------------|
| Voltage protection level $U_p$  | $\leq 2.7$ kV                  |
| Residual voltage $U_{res}$      | $\leq 2.7$ kV (at $I_n$ )      |
|                                 | $\leq 2.2$ kV (at 5 kA)        |
|                                 | $\leq 2.5$ kV (at 10 kA)       |
|                                 | $\leq 2.9$ kV (at 20 kA)       |
|                                 | $\leq 3.4$ kV (at 30 kA)       |
|                                 | $\leq 3.8$ kV (at 40 kA)       |
| Response time $t_A$             | $\leq 25$ ns                   |
| Insulation resistance $R_{iso}$ | $> 5$ G $\Omega$ (at 500 V DC) |

### Indicator/remote signaling

|                                  |                                              |
|----------------------------------|----------------------------------------------|
| Switching function               | PDT contact                                  |
| Operating voltage                | 5 V AC ... 250 V AC                          |
|                                  | 30 V DC                                      |
| Operating current                | 5 mA AC ... 1.5 A AC                         |
|                                  | 1 A DC                                       |
| Connection method                | Plug-in/screw connection via COMBICON        |
| Screw thread                     | M2                                           |
| Tightening torque                | 0.25 Nm                                      |
| Stripping length                 | 7 mm                                         |
| Conductor cross section flexible | 0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| Conductor cross section solid    | 0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| Conductor cross section AWG      | 28 ... 16                                    |

### Connection data

|                                  |                                                     |
|----------------------------------|-----------------------------------------------------|
| Connection method                | Screw connection                                    |
| Screw thread                     | M5                                                  |
| Tightening torque                | 3 Nm (1.5 mm <sup>2</sup> ... 16 mm <sup>2</sup> )  |
|                                  | 4.5 Nm (25 mm <sup>2</sup> ... 35 mm <sup>2</sup> ) |
| Stripping length                 | 16 mm                                               |
| Conductor cross section flexible | 1.5 mm <sup>2</sup> ... 25 mm <sup>2</sup>          |
| Conductor cross section solid    | 1.5 mm <sup>2</sup> ... 35 mm <sup>2</sup>          |
| Conductor cross section AWG      | 15 ... 2                                            |
| Connection method                | Fork-type cable lug                                 |
| Conductor cross section flexible | 1.5 mm <sup>2</sup> ... 16 mm <sup>2</sup>          |

### UL specifications

|                                           |             |
|-------------------------------------------|-------------|
| SPD Type                                  | 1           |
| Maximum continuous operating voltage MCOV | 800 V DC    |
| Nominal voltage                           | 800 V DC    |
| Mode of protection                        | (L+) - (L-) |
|                                           | (L+) - G    |

## Type 2 surge arrester - VAL-MS 600DC-PV/2+V-FM - 2800641

### Technical data

#### UL specifications

|                                     |          |
|-------------------------------------|----------|
|                                     | (L-) - G |
| Power distribution system           | DC PV    |
| Voltage protection rating VPR       | 2 kV     |
| Nominal discharge current $I_n$     | 20 kA    |
| Short-circuit current rating (SCCR) | 50 kA    |

#### UL indicator/remote signaling

|                             |                        |
|-----------------------------|------------------------|
| Operating voltage           | 125 V AC               |
| Operating current           | 1 A AC                 |
| Tightening torque           | 4 lb <sub>F</sub> -in. |
| Conductor cross section AWG | 30 ... 14              |

#### UL connection data

|                             |                         |
|-----------------------------|-------------------------|
| Conductor cross section AWG | 10 ... 2                |
| Tightening torque           | 30 lb <sub>F</sub> -in. |

#### Standards and Regulations

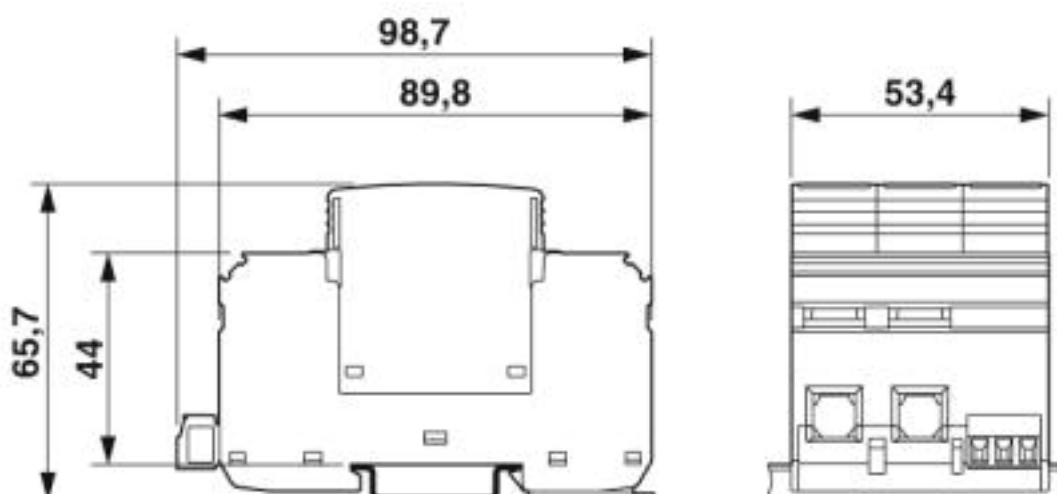
|                       |                  |
|-----------------------|------------------|
| Standards/regulations | EN 50539-11 2013 |
|-----------------------|------------------|

#### Environmental Product Compliance

|            |                                                         |
|------------|---------------------------------------------------------|
| REACH SVHC | Lead 7439-92-1                                          |
| China RoHS | Environmentally friendly use period: unlimited = EFUP-e |
|            | No hazardous substances above threshold values          |

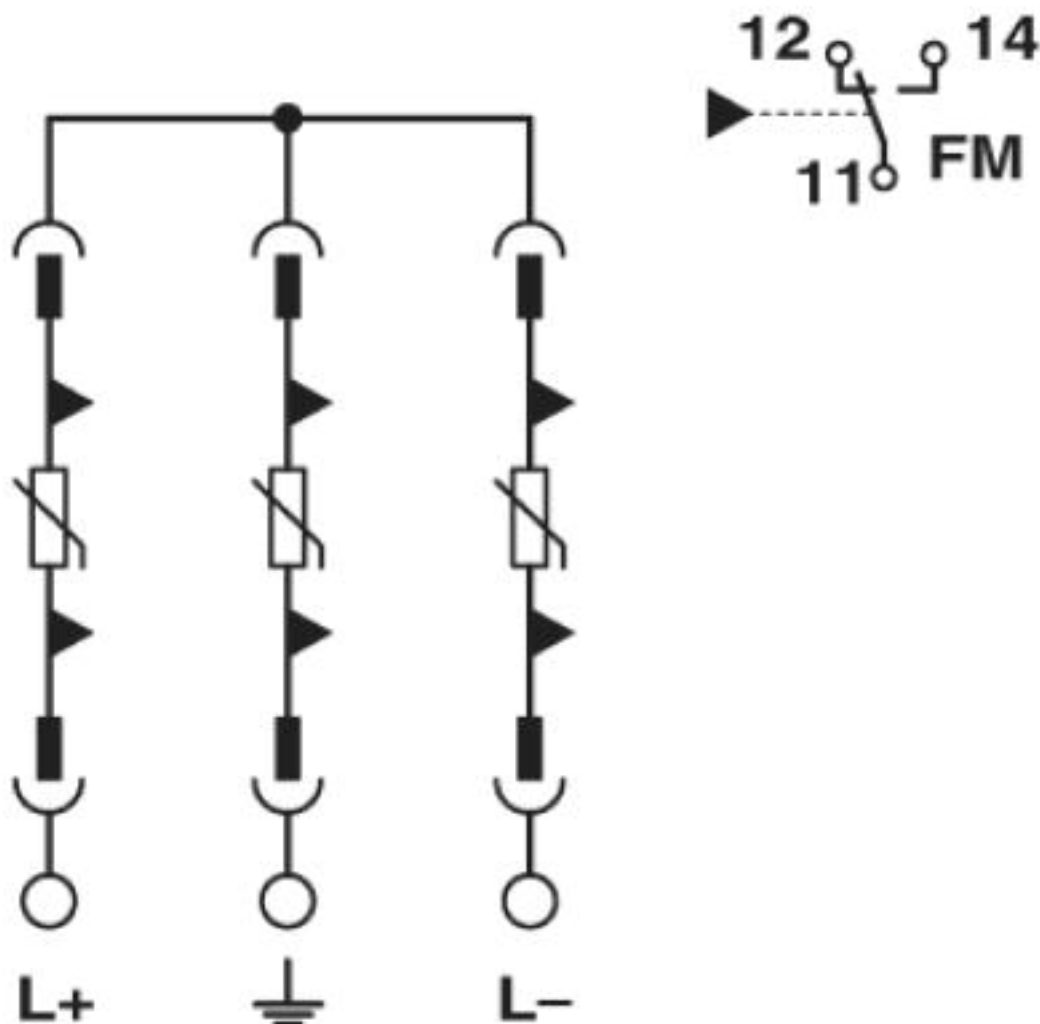
### Drawings

Dimensional drawing



## Type 2 surge arrester - VAL-MS 600DC-PV/2+V-FM - 2800641

Circuit diagram



### Classifications

eCl@ss

|               |          |
|---------------|----------|
| eCl@ss 10.0.1 | 27130805 |
| 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    | 27130805 |
| eCl@ss 8.0    | 27130805 |
| eCl@ss 9.0    | 27130805 |

## Type 2 surge arrester - VAL-MS 600DC-PV/2+V-FM - 2800641

### Classifications

#### ETIM

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

#### 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 Listed / KEMA-KEUR / cUL Listed / EAC / EAC / cULus Listed

##### Ex Approvals

#### Approval details

|           |                                                                                     |                                                                                                                                                       |               |
|-----------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| UL Listed |  | <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 Listed |  | <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 |
|------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|

## Type 2 surge arrester - VAL-MS 600DC-PV/2+V-FM - 2800641

### Approvals

|     |                                                                                   |               |
|-----|-----------------------------------------------------------------------------------|---------------|
| EAC |  | EAC-Zulassung |
|-----|-----------------------------------------------------------------------------------|---------------|

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

|              |                                                                                   |  |
|--------------|-----------------------------------------------------------------------------------|--|
| cULus Listed |  |  |
|--------------|-----------------------------------------------------------------------------------|--|

### 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

#### Labeled device marker

Marker for terminal blocks - ZBN 18,LGS:ERDE - 2749589



Marker for terminal blocks, Strip, white, labeled, Horizontal: Grounding symbol, 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

Marker for terminal blocks - ZBN 18,LGS:L1-N,ERDE - 2749576



Marker for terminal blocks, Strip, white, labeled, Horizontal: L1, L2, L3, N, GND, 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

#### Marker pen

## Type 2 surge arrester - VAL-MS 600DC-PV/2+V-FM - 2800641

### Accessories

Marker pen - B-STIFT - 1051993



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

---

### Spare parts

Type 2 surge protection plug - VAL-MS 600DC-PV-ST - 2800623



Replacement plug for PV arrester combinations from the VAL-MS 600DC-PV-... product range

---

Phoenix Contact 2020 © - all rights reserved  
<http://www.phoenixcontact.com>

PHOENIX CONTACT GmbH & Co. KG  
Flachsmarktstr. 8  
32825 Blomberg  
Germany  
Tel. +49 5235 300  
Fax +49 5235 3 41200  
<http://www.phoenixcontact.com>