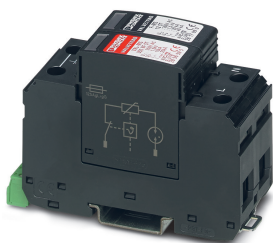


## Type 2 surge arrester - VAL-MS 350 VF/1+1-FM - 2902577


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Plug-in surge arrester free of leakage current for 1-phase power supply networks with separate N and PE (3-conductor system: L1, N, PE), with remote indication contact.



### Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 912853
GTIN	4046356912853

### Technical data

#### Dimensions

Height	96.8 mm
Width	35.6 mm
Depth	65.7 mm (incl. DIN rail 7.5 mm)
Horizontal pitch	2 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
Altitude	≤ 2000 m (amsl (above mean sea level))
Permissible humidity (operation)	5 % ... 95 %
Shock (operation)	25g (Half-sine / 11 ms / 3x ±X, ±Y, ±Z)
Vibration (operation)	5g (10 ... 500 Hz / 2.5 h / X, Y, Z)

#### General

IEC test classification	II
	T2
EN type	T2

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## Technical data

### General

IEC power supply system	TN-S
	TT
Mode of protection	L-N
	L-PE
	N-PE
Mounting type	DIN rail: 35 mm
Color	jet black RAL 9005
Housing material	PA 6.6
	PBT
Degree of pollution	2
Flammability rating according to UL 94	V-0
Type	DIN rail module, two-section, divisible
Number of positions	2
Surge protection fault message	Optical, remote indicator contact

### Protective circuit

Nominal voltage $U_N$	240/415 V AC (TN-S)
	240/415 V AC (TT)
Nominal frequency $f_N$	50 Hz (60 Hz)
Maximum continuous operating voltage $U_C$ (L-N)	350 V AC
Maximum continuous operating voltage $U_C$ (L-PE)	350 V AC
Maximum continuous voltage $U_C$ (N-PE)	260 V AC
Rated load current $I_L$	80 A
Residual current $I_{PE}$	$\leq 5 \mu\text{A}$
Standby power consumption $P_C$	$\leq 2 \text{ mVA}$
Nominal discharge current $I_n$ (8/20) $\mu\text{s}$ (L-N)	10 kA
Nominal discharge current $I_n$ (8/20) $\mu\text{s}$ (L-PE)	10 kA
Nominal discharge current $I_n$ (8/20) $\mu\text{s}$ (N-PE)	20 kA
Maximum discharge current $I_{max}$ (8/20) $\mu\text{s}$ (L-N)	20 kA
Maximum discharge current $I_{max}$ (8/20) $\mu\text{s}$ (L-PE)	20 kA
Maximum discharge current $I_{max}$ (8/20) $\mu\text{s}$ (N-PE)	40 kA
Follow current interrupt rating $I_{fi}$ (N-PE)	100 A (260 V)
Short-circuit current rating $I_{SCCR}$	25 kA
Voltage protection level $U_p$ (L-N)	$\leq 1.5 \text{ kV}$
Voltage protection level $U_p$ (L-PE)	$\leq 2 \text{ kV}$
Voltage protection level $U_p$ (N-PE)	$\leq 1.5 \text{ kV}$
Residual voltage $U_{res}$ (L-N)	$\leq 1.2 \text{ kV}$ (at $I_n$ )
	$\leq 1.2 \text{ kV}$ (at 10 kA)
	$\leq 1.1 \text{ kV}$ (at 5 kA)
Residual voltage $U_{res}$ (L-PE)	$\leq 1.35 \text{ kV}$ (at $I_n$ )

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## Technical data

### Protective circuit

	≤ 1.35 kV (at 10 kA)
	≤ 1.2 kV (at 5 kA)
Residual voltage $U_{res}$ (N-PE)	≤ 0.4 kV (at $I_n$ )
	≤ 0.25 kV (at 10 kA)
	≤ 0.15 kV (at 5 kA)
	≤ 0.1 kV (at 3 kA)
TOV behavior at $U_T$ (L-N)	415 V AC (5 s / withstand mode)
	440 V AC (120 min / withstand mode)
TOV behavior at $U_T$ (N-PE)	1200 V AC (200 ms / withstand mode)
Response time $t_A$	≤ 100 ns
Max. backup fuse with V-type through wiring	80 A (gG)
Max. backup fuse with branch wiring	125 A (gG)

### Indicator/remote signaling

Switching function	Changeover 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	4CA
Maximum continuous operating voltage MCOV (L-N)	350 V AC

# Type 2 surge arrester - VAL-MS 350 VF/1+1-FM - 2902577

## Technical data

### UL specifications

Maximum continuous operating voltage MCOV (L-G)	350 V AC
Maximum continuous operating voltage MCOV (N-G)	260 V AC
Nom. voltage	240 V AC
Mode of protection	L-N
	L-G
	N-G
Power distribution system	Single phase
Nominal frequency	50/60 Hz
Measured limiting voltage MLV (L-N)	1610 V
Measured limiting voltage MLV (L-G)	2030 V
Measured limiting voltage MLV (N-G)	870 V
Nominal discharge current I <sub>n</sub> (L-N)	20 kA
Nominal discharge current I <sub>n</sub> (L-G)	20 kA
Nominal discharge current I <sub>n</sub> (N-G)	20 kA

### UL indicator/remote signaling

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

### UL connection data

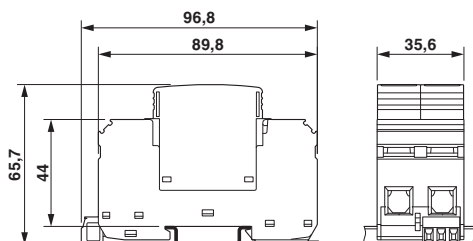
Conductor cross section AWG	10 ... 2
Tightening torque	30 lb <sub>r</sub> -in.

### Standards and Regulations

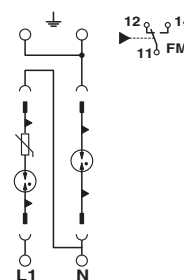
Standards/regulations	IEC 61643-11 2011
	EN 61643-11 2012

## Drawings

Dimensional drawing



Circuit diagram



# Type 2 surge arrester - VAL-MS 350 VF/1+1-FM - 2902577

## Classifications

### eCl@ss

eCl@ss 4.0	27140201
eCl@ss 4.1	27130801
eCl@ss 5.0	27130801
eCl@ss 5.1	27130800
eCl@ss 6.0	27130800
eCl@ss 7.0	27130805
eCl@ss 9.0	27130805

### ETIM

ETIM 6.0	EC000941
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### UNSPSC

UNSPSC 6.01	30212010
UNSPSC 7.0901	39121610
UNSPSC 11	39121610
UNSPSC 12.01	39121610
UNSPSC 13.2	39121620
UNSPSC 19.0	39121620

## Accessories

### Accessories

#### Bridge

Wiring bridge - MPB 18/1- 2 - 2809209



Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 2-pos.

Wiring bridge - MPB 18/1- 3 - 2809212



Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 3-pos.

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### Accessories

Wiring bridge - MPB 18/1- 4 - 2809225



Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 4-pos.

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Wiring bridge - MPB 18/1- 6 - 2748564



Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 6-pos.

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Wiring bridge - MPB 18/1- 7 BU - 2856278



Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 7-pos., color: Blue

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Wiring bridge - MPB 18/1- 8 BU - 2858470



Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 8-pos., color: Blue

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Wiring bridge - MPB 18/1- 8 - 2748577



Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 8-pos.

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## Type 2 surge arrester - VAL-MS 350 VF/1+1-FM - 2902577

### Accessories

Wiring bridge - MPB 18/1- 9 - 2748580



Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 9-pos.

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Wiring bridge - MPB 18/1-12 - 2748593



Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 12-pos.

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Wiring bridge - MPB F200X16/ 1GS - 2818339



Wiring bridge flexible, diameter 16 mm<sup>2</sup>, with a fork-type cable lug on one side, length: 200 mm

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Wiring bridge - MPB F400X16/ 1GS - 2818342



Wiring bridge flexible, diameter 16 mm<sup>2</sup>, with a fork-type cable lug on one side, length: 400 mm

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Wiring bridge - MPB F600X16/ 1GS - 2818355



Wiring bridge flexible, diameter: 16 mm<sup>2</sup>, with a fork-type cable lug on one side, length: 600 mm

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### Device marking

## Type 2 surge arrester - VAL-MS 350 VF/1+1-FM - 2902577

### Accessories

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

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### Feed-through terminal block

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



Feed-through terminal block for VAL and FLT applications

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### 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

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### 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

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### Spare parts



## Type 2 surge arrester - VAL-MS 350 VF/1+1-FM - 2902577

### Accessories

Type 2 surge protection plug - VAL-MS 350 VF ST - 2856595



Surge protection connector type 2 with series connection consisting of varistor and gas-filled spark gap for VAL-MS base element, thermal monitoring, visual fault warning. Design: 350 V AC

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Type 2 surge protection plug - F-MS 12 ST - 2817990



Surge protection plug type 2, with N-PE total current spark gap for base element.

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