


## Type 2 surge arrester - VAL-MS 320/1+1/50 - 2800492

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Surge arrester for 3-conductor power supply systems (L1, N, PE), consisting of a base element and protective connectors, for mounting on NS 35.

### Key Commercial Data

Packing unit	50 pc
Minimum order quantity	50 pc
GTIN	 4 046356 560931
GTIN	4046356560931

### Technical data

#### Dimensions

Height	89.8 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

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

### 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)	335 V AC
Maximum continuous operating voltage $U_C$ (L-PE)	335 V AC
Maximum continuous voltage $U_C$ (N-PE)	260 V AC
Rated load current $I_L$	80 A
Residual current $I_{PE}$	$\leq 5 \mu A$
Standby power consumption $P_C$	$\leq 150 \text{ mVA}$
Nominal discharge current $I_n$ (8/20) $\mu s$	20 kA
Maximum discharge current $I_{max}$ (8/20) $\mu s$	40 kA
Follow current interrupt rating $I_{fi}$ (N-PE)	100 A
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)	$\leq 1.8 \text{ kV}$
Voltage protection level $U_p$ (N-PE)	$\leq 1.5 \text{ kV}$
Residual voltage $U_{res}$ (L-N)	$\leq 1.5 \text{ kV}$ (at $I_n$ )
	$\leq 1.3 \text{ kV}$ (at 10 kA)
	$\leq 1.2 \text{ kV}$ (at 5 kA)
	$\leq 1.1 \text{ kV}$ (at 3 kA)
Residual voltage $U_{res}$ (L-PE)	$\leq 1.8 \text{ kV}$ (at $I_n$ )
	$\leq 1.4 \text{ kV}$ (at 10 kA)
	$\leq 1.2 \text{ kV}$ (at 5 kA)
	$\leq 1.1 \text{ kV}$ (at 3 kA)
Residual voltage $U_{res}$ (N-PE)	$\leq 0.4 \text{ kV}$ (at $I_n$ )
	$\leq 0.25 \text{ kV}$ (at 10 kA)

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## Technical data

### Protective circuit

	≤ 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 / safe failure mode)
TOV behavior at $U_T$ (N-PE)	1200 V AC (200 ms / withstand mode)
Response time $t_A$ (L-N)	≤ 25 ns
Response time $t_A$ (L-PE)	≤ 100 ns
Response time $t_A$ (N-PE)	≤ 100 ns
Max. backup fuse with V-type through wiring	80 A (gG)
Max. backup fuse with branch wiring	125 A (gG)

### 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-L)	640 V AC
Maximum continuous operating voltage MCOV (L-N)	320 V AC
Maximum continuous operating voltage MCOV (L-G)	320 V AC
Maximum continuous operating voltage MCOV (N-G)	260 V AC
Nom. voltage	240 V AC
Mode of protection	L-L
	L-N
	L-G
	N-G
Power distribution system	Single phase
Nominal frequency	50/60 Hz
Measured limiting voltage MLV (L-L)	2900 V
Measured limiting voltage MLV (L-N)	2030 V
Measured limiting voltage MLV (L-G)	2720 V
Measured limiting voltage MLV (N-G)	1370 V
Nominal discharge current $I_n$ (L-L)	20 kA

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### Technical data

#### UL specifications

Nominal discharge current $I_n$ (L-N)	20 kA
Nominal discharge current $I_n$ (L-G)	20 kA
Nominal discharge current $I_n$ (N-G)	20 kA

#### 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

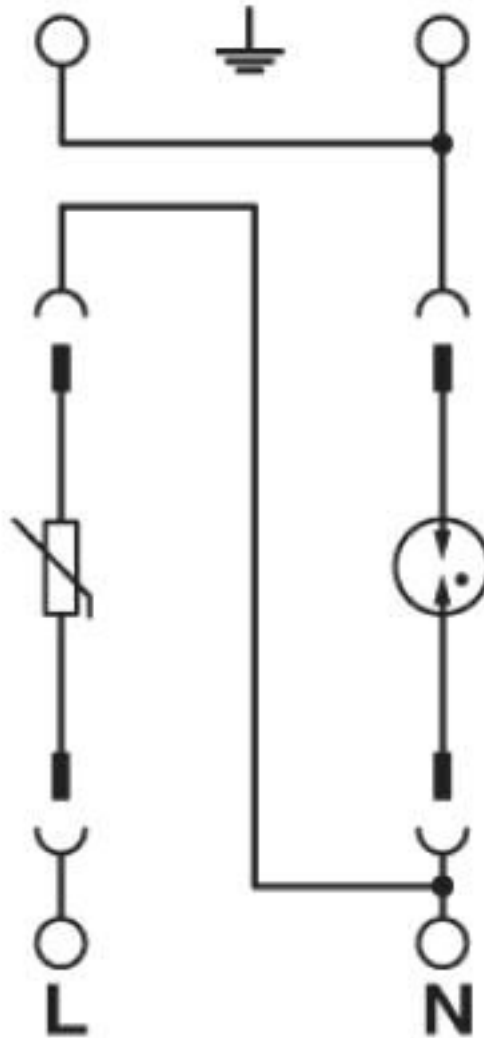
#### Environmental Product Compliance

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

### Drawings

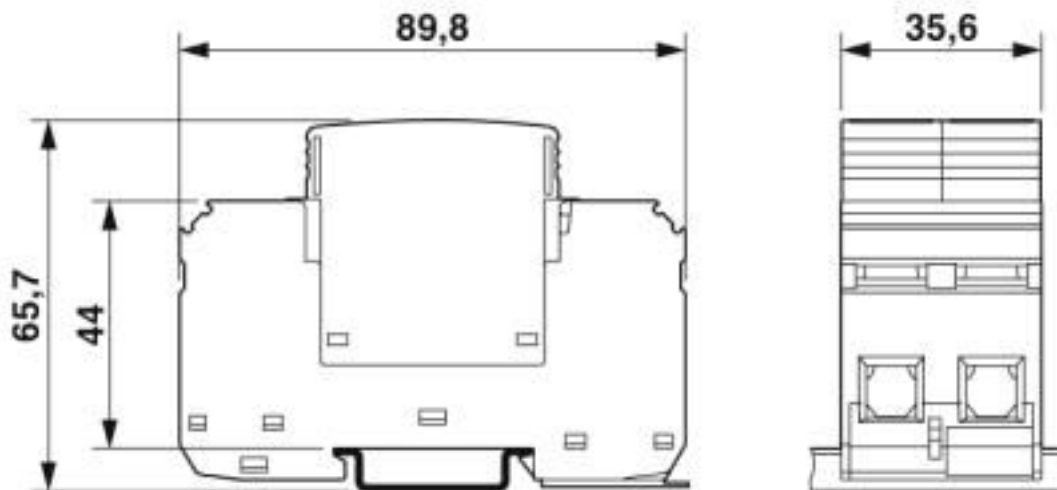
## Type 2 surge arrester - VAL-MS 320/1+1/50 - 2800492

Circuit diagram



## Type 2 surge arrester - VAL-MS 320/1+1/50 - 2800492

Dimensional drawing



### Classifications

#### eCl@ss

eCl@ss 10.0.1	27130805
eCl@ss 4.0	27140200
eCl@ss 4.1	27140200
eCl@ss 5.0	27140200
eCl@ss 5.1	27140200
eCl@ss 6.0	27130800
eCl@ss 7.0	27130805
eCl@ss 8.0	27130805
eCl@ss 9.0	27130805

#### 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

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## Classifications

### UNSPSC

UNSPSC 21.0	39121620
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## Approvals

### Approvals

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### Approvals

EAC

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### Ex Approvals

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## Approval details

EAC		RU C- DE.*09.B.00169
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## Accessories

### Accessories

#### Bridge

Wiring bridge - MPB 18/1- 2 - 2809209



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

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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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### 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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### 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

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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

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### Accessories

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 protection plug - VAL-MS 320 ST - 2838843



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