

## Type 2 surge protection device - VAL-MS 320/3+1 - 2859178

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Surge voltage arrester combination 4-channel (in the 3+1 circuit), for mounting on NS 35/7.5, voltage 230 V AC

### Product Features

- ✓ With or without floating remote indication contact
- ✓ Optical, mechanical status indication for the individual arresters
- ✓ Mechanical coding of all slots
- ✓ Disconnect device on each individual plug
- ✓ Type 2 consistent plug-in surge arresters
- ✓ Multi-channel type 2 arresters



### Key commercial data

Packing unit	1 pc
Weight per Piece (excluding packing)	400.0 GRM
Custom tariff number	85363030
Country of origin	Germany

### Technical data

#### Dimensions

Height	90 mm
Width	71 mm
Depth	58 mm
Horizontal pitch	4 Div.

#### Ambient conditions

Degree of protection	IP20 (only when all terminal points are used)
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### Technical data

#### Ambient conditions

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
Vibration (operation)	5g

#### General

Standards/specifications	IEC 61643-11 2011
	EN 61643-11 2012
IEC test classification	II
	T2
EN type	T2
Number of ports	One
SPD design	Combination type
Mode of protection	L-N
	L-PE
	N-PE
Mounting type	DIN rail: 35 mm
Color	black
Housing material	PA 6.6
	PBT
Pollution degree	2
Inflammability class according to UL 94	V-0
Type	DIN rail module, two-section, divisible
Number of positions	4
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 voltage $U_C$ (N-PE)	260 V AC
Rated load current $I_L$	80 A
Residual current $I_{PE}$	≤ 5 μA
Standby power consumption $P_C$	≤ 450 mVA
Nominal discharge current $I_n$ (8/20) μs (L-N)	20 kA

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### Technical data

#### Protective circuit

Nominal discharge current $I_n$ (8/20) $\mu$ s (L-PE)	20 kA
Nominal discharge current $I_n$ (8/20) $\mu$ s (N-PE)	20 kA
Maximum discharge current $I_{max}$ (8/20) $\mu$ s (L-N)	40 kA
Maximum discharge current $I_{max}$ (8/20) $\mu$ s (L-PE)	40 kA
Maximum discharge current $I_{max}$ (8/20) $\mu$ 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)	$\leq 1.6$ kV
Voltage protection level $U_p$ (L-PE)	$\leq 1.9$ kV
Voltage protection level $U_p$ (N-PE)	$\leq 1.5$ kV
Residual voltage $U_{res}$ (L-N)	$\leq 1.6$ kV (at $I_n$ )
	$\leq 1.5$ kV (at 10 kA)
	$\leq 1.3$ kV (at 5 kA)
	$\leq 1.1$ kV (at 3 kA)
Residual voltage $U_{res}$ (L-PE)	$\leq 1.9$ kV (at $I_n$ )
	$\leq 1.5$ kV (at 10 kA)
	$\leq 1.3$ kV (at 5 kA)
	$\leq 1.2$ kV (at 3 kA)
Residual voltage $U_{res}$ (N-PE)	$\leq 0.4$ kV (at $I_n$ )
	$\leq 0.25$ kV (at 10 kA)
	$\leq 0.15$ kV (at 5 kA)
	$\leq 0.1$ kV (at 3 kA)
Front of wave sparkover voltage at 6 kV (1.2/50) $\mu$ s (N-PE)	$\leq 1.5$ kV
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)	$\leq 25$ ns
Response time $t_A$ (N-PE)	$\leq 100$ ns
Max. backup fuse with branch wiring	125 A AC (gG)
Max. backup fuse with V-type through wiring	80 A AC (gG)

#### Connection data

Connection method	Screw connection
Conductor cross section stranded min.	1.5 mm <sup>2</sup>
Conductor cross section stranded max.	25 mm <sup>2</sup>
Conductor cross section solid min.	1.5 mm <sup>2</sup>
Conductor cross section solid max.	35 mm <sup>2</sup>

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### Technical data

#### Connection data

AWG conductor cross section	15 ... 2
	10 ... 2 (UL)
Screw thread	M5
Tightening torque	4.5 Nm
	30 lb <sub>F</sub> -in. (UL)
Stripping length	16 mm

#### UL specifications

UL class	Type 4 SPD for Type 2 applications
Maximum continuous operating voltage MCOV (L-N)	320 V AC
Maximum continuous operating voltage MCOV (N-G)	260 V AC
Nom. voltage	240/415 V AC
Mode of protection	L-L
	L-N
	L-G
	N-G
Power distribution system	3Y
Nominal frequency	50/60 Hz
Voltage protection rating VPR (L-L)	2 kV
Voltage protection rating VPR (L-N)	1.2 kV
Voltage protection rating VPR (L-G)	1.8 kV
Voltage protection rating VPR (N-G)	1.2 kV
Nominal discharge current I <sub>n</sub> (L-L)	20 kA
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

### Classifications

#### eCl@ss

eCl@ss 4.0	27140201
eCl@ss 4.1	27130801
eCl@ss 5.0	27130801
eCl@ss 5.1	27130801
eCl@ss 6.0	27130805
eCl@ss 7.0	27130805
eCl@ss 8.0	27130805

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## Classifications

### ETIM

ETIM 2.0	EC000941
ETIM 3.0	EC000941
ETIM 4.0	EC000941
ETIM 5.0	EC000941

### UNSPSC

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

## Approvals

### Approvals

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#### Approvals

UL Recognized / KEMA-KEUR / ÖVE / cUL Recognized / GOST / GL / CCA / IECCEB Scheme / KEMA-KEUR / CSA / cULus Recognized

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#### Ex Approvals

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#### Approvals submitted

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## Approval details


UL Recognized

KEMA-KEUR

ÖVE

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### Approvals

cUL Recognized 

GOST 


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IECEE CB Scheme 

KEMA-KEUR 

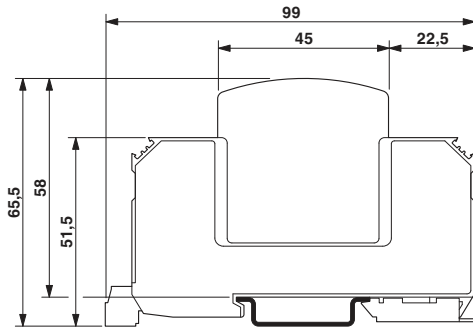
CSA

cULus Recognized 

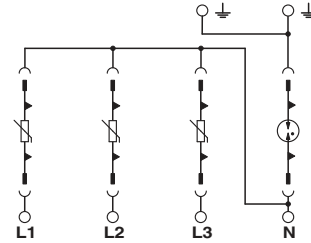
### Drawings

## Type 2 surge protection device - VAL-MS 320/3+1 - 2859178

Dimensioned drawing



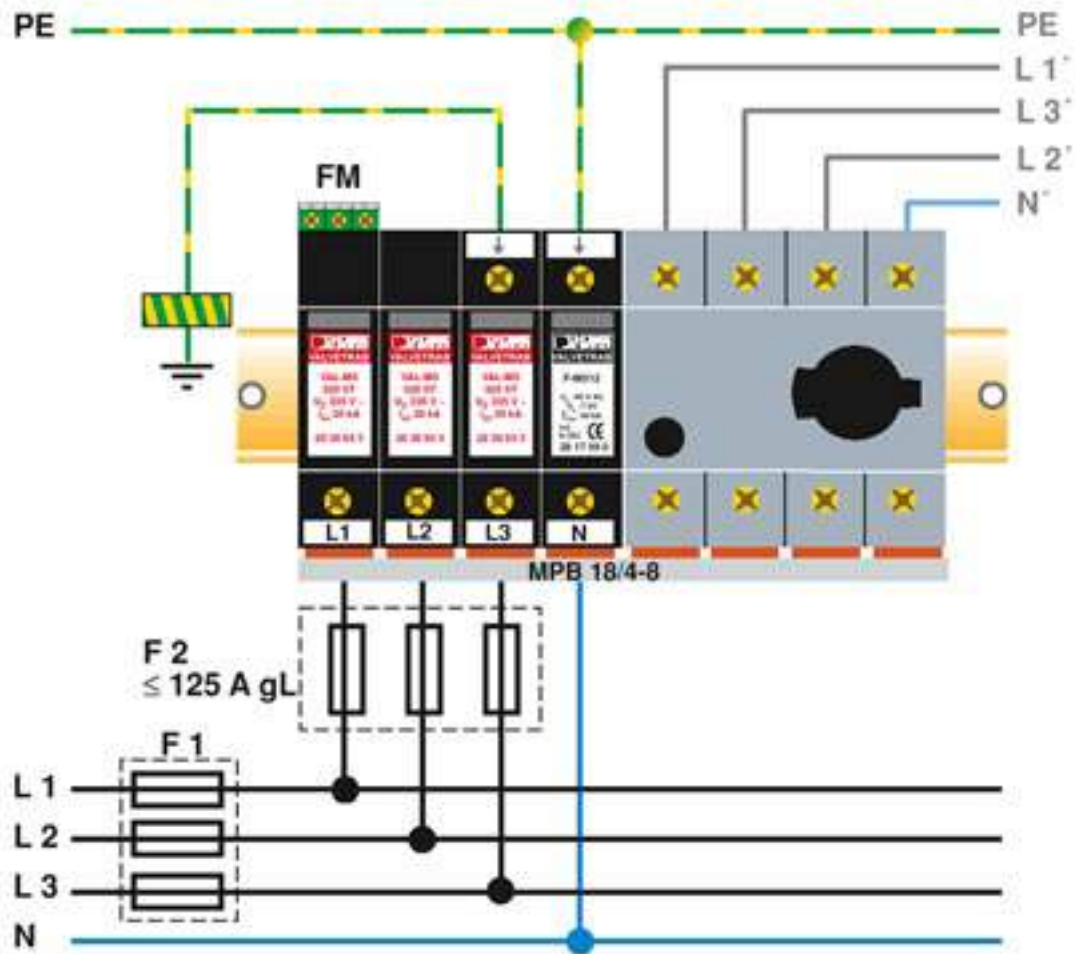
Circuit diagram



The illustration shows the dimensional drawing for a version with remote indicator contact

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Application drawing



The illustration shows the version VAL-MS 320/3+1/FM (with remote indicator contact)