

## Type 2 surge protection device - VAL-MS 320/1+1-FM - 2804393

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

### Product Features

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



### Key commercial data

Packing unit	1 pc
Weight per Piece (excluding packing)	233.5 GRM
Custom tariff number	85363010
Country of origin	Germany

### Technical data

#### Dimensions

Height	97 mm
Width	35.6 mm
Depth	58 mm
Horizontal pitch	2 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	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)	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 $\mu$ A
Standby power consumption $P_C$	≤ 150 mVA
Nominal discharge current $I_n$ (8/20) $\mu$ s (L-N)	20 kA

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#### 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)	$\leq 1.5$ kV
Voltage protection level $U_p$ (L-PE)	$\leq 1.8$ kV
Voltage protection level $U_p$ (N-PE)	$\leq 1.5$ kV
Residual voltage $U_{res}$ (L-N)	$\leq 1.5$ kV (at $I_n$ )
	$\leq 1.3$ kV (at 10 kA)
	$\leq 1.2$ kV (at 5 kA)
	$\leq 1.1$ kV (at 3 kA)
Residual voltage $U_{res}$ (L-PE)	$\leq 1.8$ kV (at $I_n$ )
	$\leq 1.4$ kV (at 10 kA)
	$\leq 1.2$ kV (at 5 kA)
	$\leq 1.1$ 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)

#### Indicator/remote signaling

Connection name	Remote fault indicator contact
Switching function	PDT contact
Operating voltage	5 V AC ... 250 V AC
	125 V AC (UL)
	30 V DC

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#### Indicator/remote signaling

Operating current	5 mA AC ... 1.5 A AC
	1 A AC (UL)
	1 A DC
Connection method	Screw connection
Screw thread	M2
Tightening torque	0.25 Nm
	4 lb <sub>F</sub> -in. (UL)
Stripping length	7 mm
Conductor cross section stranded min.	0.14 mm <sup>2</sup>
Conductor cross section stranded max.	1.5 mm <sup>2</sup>
Conductor cross section solid min.	0.14 mm <sup>2</sup>
Conductor cross section solid max.	1.5 mm <sup>2</sup>
AWG conductor cross section	28 ... 16
	30 ... 14 (UL)

#### 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>
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

#### NEMA/UL protective circuit

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
Nominal voltage U <sub>N</sub>	240 V AC
Mode of protection	L-N
	L-G
	N-G
Power distribution system	1
Nominal frequency	50/60 Hz

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### Technical data

#### NEMA/UL protective circuit

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

#### 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 / cUL Recognized / GOST / KEMA-KEUR / CSA / ÖVE / CCA / IECCE CB Scheme / cULus Recognized

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### Approvals


Ex Approvals


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Approvals submitted

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### Approval details

UL Recognized 

KEMA-KEUR 

cUL Recognized 


GOST 

KEMA-KEUR 

CSA

ÖVE 

CCA

IECEE CB Scheme 

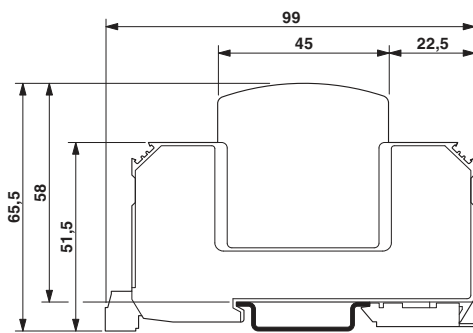
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## Approvals



## Drawings

Dimensioned drawing



Circuit diagram

