

2920971

<https://www.phoenixcontact.com/us/products/2920971>

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 documentation. Our general terms of use for downloads are valid.



Type 2 surge protective device for 5-conductor power supply systems (L1, L2, L3, N, PE), with plug latching.

Commercial data

Item number	2920971
Packing unit	1 pc
Minimum order quantity	1 pc
Product key	CL1322
Catalog page	Page 49 (C-6-2015)
GTIN	4046356280877
Weight per piece (including packing)	594.5 g
Weight per piece (excluding packing)	594.5 g
Country of origin	DE

VAL-MS 385/80/3+1 - Type 2 surge arrester



2920971

<https://www.phoenixcontact.com/us/products/2920971>

Technical data

Product properties

Product type	Surge arrester
Product family	VALVETRAB MS
IEC test classification	II
	T2
EN type	T2
IEC power supply system	TT
	TN-C
	TN-S
Type	DIN rail module, two-section, divisible
Surge protection fault message	optical

Insulation characteristics

Overvoltage category	III
Pollution degree	2

Electrical properties

Nominal frequency f_N	50 Hz (60 Hz)
-------------------------	---------------

Connection data

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

Dimensions

Dimensional drawing	
Width	71.2 mm
Height	89.8 mm
Depth	77.5 mm (incl. DIN rail 7.5 mm)
Horizontal pitch	4 Div.

VAL-MS 385/80/3+1 - Type 2 surge arrester



2920971

<https://www.phoenixcontact.com/us/products/2920971>

Material specifications

Flammability rating according to UL 94	V-0
CTI value of material	600
Insulating material	PA 6.6/PBT
Material group	I
Housing material	PA 6.6
	PBT

Protective circuit

Mode of protection	L-N
	L-PE
	N-PE
Direction of action	3L-N & N-PE
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)	385 V AC
Maximum continuous operating voltage U_C (L-PE)	358 V AC
Maximum continuous operating voltage U_C (N-PE)	264 V AC
Rated load current I_L	80 A
Residual current I_{PE}	$\leq 5 \mu A$
Standby power consumption P_C	$\leq 690.00 \text{ mVA}$
Nominal discharge current I_n (8/20) μs	40 kA
Maximum discharge current I_{max} (8/20) μs	80 kA
Impulse discharge current (10/350) μs (L-N), charge	1.25 As
Impulse discharge current (10/350) μs (L-N), specific energy	1.56 kJ/ Ω
Impulse discharge current (10/350) μs (L-N), peak current value I_{imp}	2.5 kA
Impulse discharge current (10/350) μs (L-PE), charge	1.25 As
Impulse discharge current (10/350) μs (L-PE), specific energy	1.56 kJ/ Ω
Impulse discharge current (10/350) μs (L-PE), peak current value I_{imp}	2.5 kA
Impulse discharge current (10/350) μs (N-PE), charge	5 As
Impulse discharge current (10/350) μs (N-PE), specific energy	25 kJ/ Ω
Impulse discharge current (10/350) μs (N-PE), peak current value I_{imp}	10 kA
Total discharge current I_{total} (8/20) μs	80 kA
Total discharge current I_{total} (10/350) μs	10 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)	$\leq 2 \text{ kV}$
Voltage protection level U_p (L-PE)	$\leq 2 \text{ kV}$
Voltage protection level U_p (N-PE)	$\leq 1.7 \text{ kV}$
	$\leq 2 \text{ kV (at } I_n)$

VAL-MS 385/80/3+1 - Type 2 surge arrester



2920971

<https://www.phoenixcontact.com/us/products/2920971>

Residual voltage U_{res} (L-N)	≤ 1.4 kV (at 10 kA)
	≤ 1.25 kV (at 5 kA)
	≤ 1.2 kV (at 3 kA)
Residual voltage U_{res} (L-PE)	≤ 2 kV (at I_n)
	≤ 1.5 kV (at 10 kA)
	≤ 1.4 kV (at 5 kA)
	≤ 1.3 kV (at 3 kA)
Residual voltage U_{res} (N-PE)	≤ 0.6 kV (at I_n)
	≤ 0.5 kV (at 10 kA)
	≤ 0.5 kV (at 5 kA)
	≤ 0.4 kV (at 3 kA)
TOV behavior at U_T (L-N)	480 V AC (5 s / withstand mode)
	457 V AC (120 min / withstand 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 - 16 mm ²)
Max. backup fuse with branch wiring	250 A (gG)

Environmental and real-life conditions

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)
Permissible humidity (operation)	5 % ... 95 %
Shock (operation)	30g (Half-sine / 11 ms / 3x $\pm X$, $\pm Y$, $\pm Z$)
Vibration (operation)	7.5g (10 ... 500 Hz / 2.5 h / X, Y, Z)

Approvals

UL specifications

Maximum continuous operating voltage MCOV (L-L)	770 V AC
Maximum continuous operating voltage MCOV (L-N)	385 V AC
Maximum continuous operating voltage MCOV (L-G)	385 V AC
Maximum continuous operating voltage MCOV (N-G)	264 V AC
Nominal discharge current I_n	20 kA
Mode of protection	L-L
	L-N
	L-G
	N-G
Nominal voltage	415/240 V AC
Power distribution system	Wye

VAL-MS 385/80/3+1 - Type 2 surge arrester



2920971

<https://www.phoenixcontact.com/us/products/2920971>

Nominal frequency	50/60 Hz
Measured limiting voltage MLV (L-L)	3860 V
Measured limiting voltage MLV (L-N)	2710 V
Measured limiting voltage MLV (L-G)	3730 V
Measured limiting voltage MLV (N-G)	2590 V
SPD Type	4CA

UL connection data

Tightening torque	30 lb _f -in.
Conductor cross section AWG	10 ... 2

Standards and regulations

Standards/specifications	IEC 61643-11
Note	2011
Standards/specifications	EN 61643-11
Note	2012

Mounting

Mounting type	DIN rail: 35 mm
---------------	-----------------

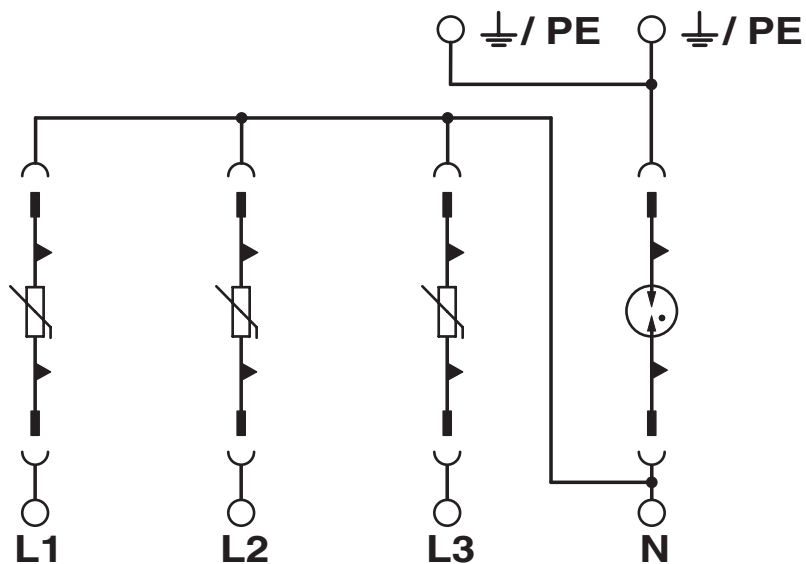
VAL-MS 385/80/3+1 - Type 2 surge arrester

2920971

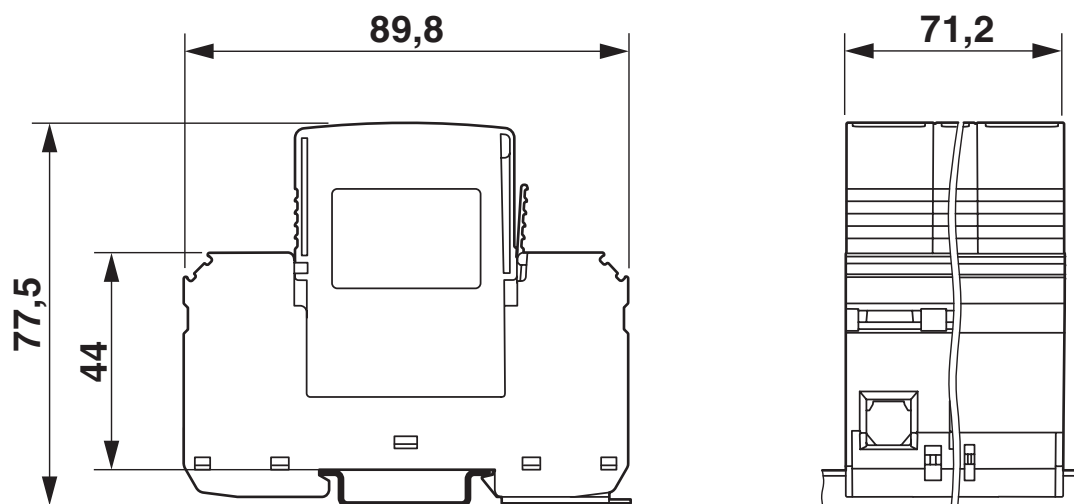
<https://www.phoenixcontact.com/us/products/2920971>

Drawings

Circuit diagram



Dimensional drawing



VAL-MS 385/80/3+1 - Type 2 surge arrester



2920971

<https://www.phoenixcontact.com/us/products/2920971>

Environmental product compliance

EU RoHS	
Fulfills EU RoHS substance requirements	Yes, No exemptions
China RoHS	
Environment friendly use period (EFUP)	EFUP-E
	No hazardous substances above the limits
EU REACH SVHC	
REACH candidate substance (CAS No.)	No substance above 0.1 wt%

VAL-MS 385/80/3+1 - Type 2 surge arrester



2920971

<https://www.phoenixcontact.com/us/products/2920971>

Accessories

VAL-MS 385/80 ST - Type 2 surge protection plug

2920353

<https://www.phoenixcontact.com/us/products/2920353>



Type 2 surge protection plug with varistor for VAL-MS 385/80/..., thermal monitoring, visual fault warning.

F-MS 80 ST - Type 2 surge protection plug

2921307

<https://www.phoenixcontact.com/us/products/2921307>



Type 2 surge protection plug with N-PE total current spark gap.

VAL-MS 385/80/3+1 - Type 2 surge arrester

2920971

<https://www.phoenixcontact.com/us/products/2920971>



VAL-MS 385/80 ST - Type 2 surge protection plug

2920353

<https://www.phoenixcontact.com/us/products/2920353>



Type 2 surge protection plug with varistor for VAL-MS 385/80/..., thermal monitoring, visual fault warning.

F-MS 80 ST - Type 2 surge protection plug

2921307

<https://www.phoenixcontact.com/us/products/2921307>



Type 2 surge protection plug with N-PE total current spark gap.

Phoenix Contact 2024 © - all rights reserved

<https://www.phoenixcontact.com>

Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com