

VAL-MS 230/2+0-FM - Type 2 surge arrester



2800102

<https://www.phoenixcontact.com/us/products/2800102>

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Two-position, rail-mountable surge arrester for 2+0 circuit, thermal-dynamic monitoring, visual fault indicator, and remote indicator contact.

Your advantages

- Quality proven millions of times over in the widest range of applications
- Rapid installation with bridges, thanks to industry-standard overall width of 1 HP
- Easy testing and insulation measurement, thanks to pluggable protection modules
- Wide range of applications due to various nominal voltages
- High degree of modularity provides individual solutions for every application

Commercial data

Item number	2800102
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CL18
Product key	CL1321
Catalog page	Page 41 (C-6-2015)
GTIN	4046356499675
Weight per piece (including packing)	254.9 g
Weight per piece (excluding packing)	257.5 g
Customs tariff number	85363030
Country of origin	DE

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Technical data

Product properties

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

Data management status

Article revision	11
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Insulation characteristics

Overvoltage category	III
Pollution degree	2

Electrical properties

Nominal frequency f_N	50 Hz (60 Hz)
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Indicator/remote signaling

Connection name	Remote fault indicator contact
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 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

Remote fault indicator contact

Connection method	Plug-in/screw connection via COMBICON
Screw thread	M2

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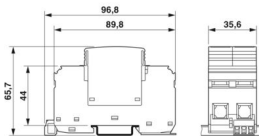


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Tightening torque	0.25 Nm
Stripping length	7 mm
Conductor cross section flexible	0.14 mm ² ... 1.5 mm ²
Conductor cross section rigid	0.14 mm ² ... 1.5 mm ²
Conductor cross section AWG	28 ... 16

Dimensions

Dimensional drawing	
Width	35.6 mm
Height	96.8 mm
Depth	65.7 mm (incl. DIN rail 7.5 mm)
Horizontal pitch	2 Div.

Material specifications

Color	black (RAL 9005)
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-PEN
Direction of action	2L-PEN
Nominal voltage U_N	240/415 V AC (TN-C)
Nominal frequency f_N	50 Hz (60 Hz)
Maximum continuous voltage U_C	275 V AC
Rated load current I_L	80 A
Residual current I_{PE}	≤ 0.9 mA
Standby power consumption P_C	≤ 240.00 mVA
Nominal discharge current I_n (8/20) μ s	20 kA
Maximum discharge current I_{max} (8/20) μ s	40 kA
Short-circuit current rating I_{SCCR}	25 kA
Voltage protection level U_p	≤ 1.35 kV
Residual voltage U_{res}	≤ 1.35 kV (at I_n) ≤ 1.1 kV (at 10 kA) ≤ 1 kV (at 5 kA) ≤ 0.9 kV (at 3 kA)
TOV behavior at U_T	335 V AC (5 s / withstand mode)

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Response time t_A	≤ 25 ns
Max. backup fuse with V-type through wiring	80 A (gG)
Max. backup fuse with branch wiring	125 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)	25g (Half-sine / 11 ms / 3x $\pm X$, $\pm Y$, $\pm Z$)
Vibration (operation)	5g (10 ... 500 Hz / 2.5 h / X, Y, Z)

Approvals

UL specifications

Maximum continuous operating voltage MCOV (L-L)	550 V AC
Maximum continuous operating voltage MCOV (L-N)	275 V AC
Nominal discharge current I_n (L-L)	20 kA
Nominal discharge current I_n (L-N)	20 kA
Mode of protection	L-L L-N
Nominal voltage	230 V AC
Power distribution system	Split phase
Nominal frequency	50/60 Hz
Measured limiting voltage MLV (L-L)	2720 V
Measured limiting voltage MLV (L-N)	1910 V
SPD Type	4CA

UL indicator/remote signaling

Operating voltage	125 V AC
AC operating current	1 A AC

UL connection data

Tightening torque	30 lb _F in.
Conductor cross section AWG	14 ... 2

Standards and regulations

Standards/specifications	IEC 61643-11
Note	2011

EN 61643-11

Standards/specifications	EN 61643-11
Note	2012

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Mounting

Mounting type	DIN rail: 35 mm
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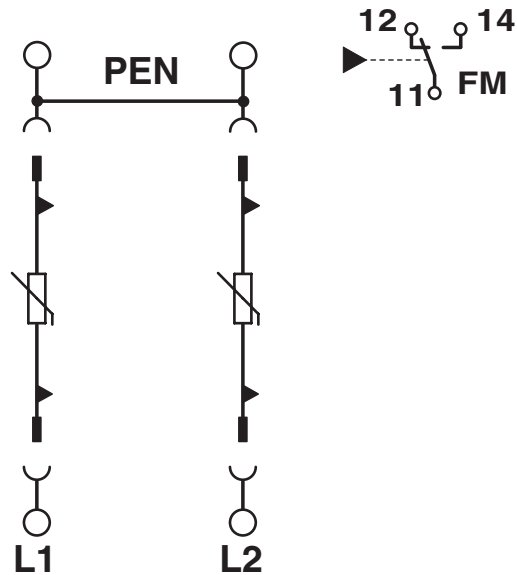
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Drawings

Circuit diagram



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Product drawing



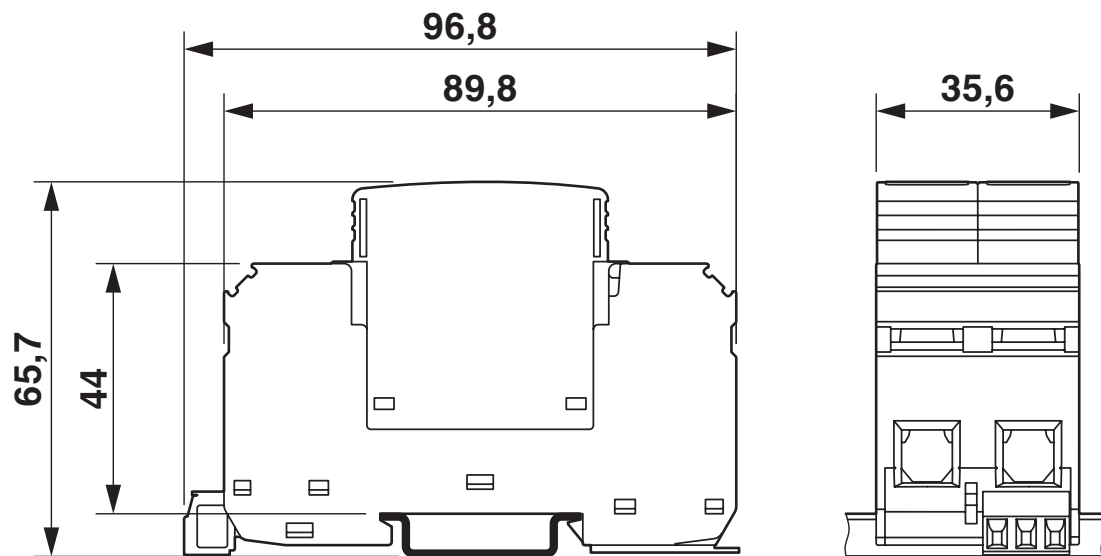
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Dimensional drawing



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Approvals

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cUL Recognized
Approval ID: FILE E 330181



UL Recognized
Approval ID: FILE E 330181



IECEE CB Scheme
Approval ID: AT 2905/M1



EAC
Approval ID: RU C-DE.*09.B.00169

CCA

Approval ID: NTR-AT 1947-A



CSA
Approval ID: 13631



ÖVE
Approval ID: 18583-001-17

UAE-RoHS

Approval ID: 22-09-51250

cULus Recognized

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Classifications

ECLASS

ECLASS-11.0	27130805
ECLASS-13.0	27171202

ETIM

ETIM 9.0	EC000941
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UNSPSC

UNSPSC 21.0	39121600
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Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes, No exemptions
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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%
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