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Plug-in surge arrester free of leakage current for 3-phase power supply networks with N and PE in a common conductor (4-conductor system: L1, L2, L3, PEN), with remote indication contact.

Commercial data

Item number	2901862
Packing unit	1 pc
Minimum order quantity	1 pc
Product key	CL1321
Catalog page	Page 42 (C-6-2015)
GTIN	4046356912846
Weight per piece (including packing)	342.1 g
Weight per piece (excluding packing)	314.46 g
Country of origin	DE

VAL-MS 350 VF/3+0-FM - Type 2 surge arrester



2901862

<https://www.phoenixcontact.com/us/products/2901862>

Technical data

Notes

General

Note	Only usable in IT Systems between L-PE, if the exposed-conductive-parts (bodies) of the equipment of the low-voltage installation is connected to the earthing arrangement of the transformer substation (interconnected earthing arrangement of the HV-transformer substation with the bodies of the LV-installation. $R_E = R_A$ accordance to IEC 60364-4-442 / VDE 0100-442 Fig. 44D / Example a).
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Product properties

Product type	Surge arrester
Product family	VALVETRAB MS
IEC test classification	II
	T2
EN type	T2
Type	DIN rail module, two-section, divisible
Number of positions	3
Surge protection fault message	Optical, remote indicator contact

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

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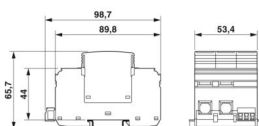
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Connection method	Fork-type cable lug
Conductor cross section flexible	1.5 mm ² ... 16 mm ²

Remote fault indicator contact

Connection method	Plug-in/screw connection via COMBICON
Screw thread	M2
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	53.4 mm
Height	98.7 mm
Depth	65.7 mm (incl. DIN rail 7.5 mm)
Horizontal pitch	3 Div.

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-PE L-PEN
Direction of action	3L-N/PE
Nominal voltage U_N	240/415 V AC (TN-C) 230 V AC (IT)
Nominal frequency f_N	50 Hz (60 Hz)
Maximum continuous voltage U_C	350 V AC
Rated load current I_L	80 A
Residual current I_{PE}	$\leq 5 \mu A$
Standby power consumption P_C	$\leq 6.00 \text{ mVA}$
Nominal discharge current I_n (8/20) μs	10 kA
Maximum discharge current I_{max} (8/20) μs	20 kA

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Short-circuit current rating I_{SCCR}	25 kA
Voltage protection level U_p	≤ 1.5 kV
Residual voltage U_{res}	≤ 1.2 kV (at I_n)
	≤ 1.2 kV (at 10 kA)
	≤ 1.1 kV (at 5 kA)
Front of wave sparkover voltage at 6 kV (1.2/50) μ s	≤ 1.5 kV
TOV behavior at U_T (L-PEN)	415 V AC (5 s / withstand mode)
	440 V AC (120 min / withstand mode)
Response time t_A	≤ 100 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)	700 V AC
Nominal discharge current I_n (L-L)	20 kA
Mode of protection	L-L
Nominal voltage	240 V AC
Power distribution system	Delta
Nominal frequency	50/60 Hz
Measured limiting voltage MLV (L-L)	2420 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	10 ... 2

Standards and regulations

Standards/specifications	IEC 61643-11
Note	2011

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Standards/specifications	EN 61643-11
Note	2012

Mounting

Mounting type	DIN rail: 35 mm
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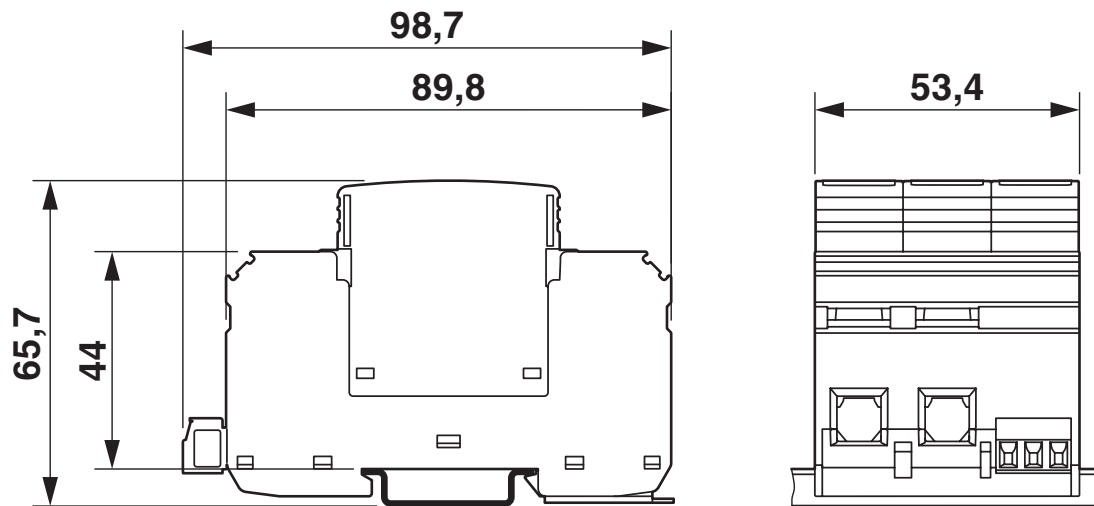
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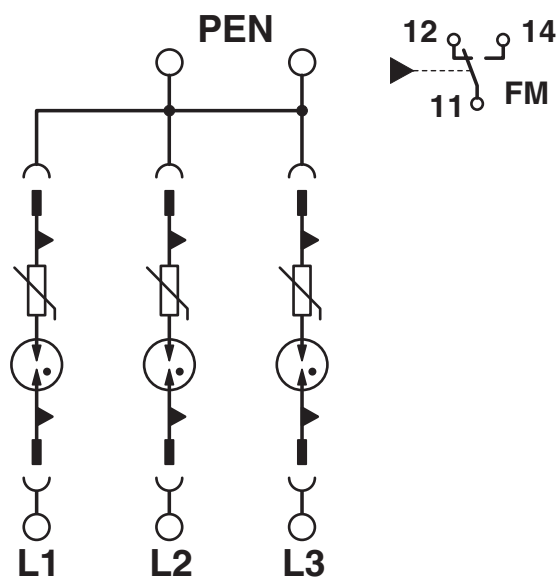
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Drawings

Dimensional drawing



Circuit diagram



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Environmental product compliance

EU REACH SVHC

REACH candidate substance (CAS No.)	No substance above 0.1 wt%
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Accessories

ZBN 18,LGS:ERDE - Marker for terminal blocks

2749589

<https://www.phoenixcontact.com/us/products/2749589>



Marker for terminal blocks, Strip, white, labeled, horizontal: Grounding symbol, mounting type: snapped, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

ZBN 18,LGS:L1-N,ERDE - Marker for terminal blocks

2749576

<https://www.phoenixcontact.com/us/products/2749576>



Marker for terminal blocks, Strip, white, labeled, horizontal: L1, L2, L3, N, GND, mounting type: snapped, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

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ZBN 18:UNBEDRUCKT - Zack marker strip

2809128

<https://www.phoenixcontact.com/us/products/2809128>



Zack marker strip, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, PLOTMARK, mounting type: snapped, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

B-STIFT - Marker pen

1051993

<https://www.phoenixcontact.com/us/products/1051993>



Marker pen, for manual labeling of unprinted Zack strips, smear-proof and waterproof, line thickness 0.5 mm

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DK-BIC-35 - Feed-through terminal block

2749880

<https://www.phoenixcontact.com/us/products/2749880>

Feed-through terminal block for VAL and FLT applications



MPB 18/1- 2 - Wiring bridge

2809209

<https://www.phoenixcontact.com/us/products/2809209>

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



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MPB 18/1- 3 - Wiring bridge

2809212

<https://www.phoenixcontact.com/us/products/2809212>

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 3-pos.



MPB 18/1- 4 - Wiring bridge

2809225

<https://www.phoenixcontact.com/us/products/2809225>

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 4-pos.



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MPB 18/1- 6 - Wiring bridge

2748564

<https://www.phoenixcontact.com/us/products/2748564>

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 6-pos.



MPB 18/1- 7 BU - Wiring bridge

2856278

<https://www.phoenixcontact.com/us/products/2856278>

Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 7-pos., color: Blue



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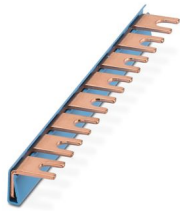
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MPB 18/1- 8 BU - Wiring bridge

2858470

<https://www.phoenixcontact.com/us/products/2858470>



Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 8-pos., color: Blue

MPB 18/1- 8 - Wiring bridge

2748577

<https://www.phoenixcontact.com/us/products/2748577>



Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 8-pos.

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MPB 18/1- 9 - Wiring bridge

2748580

<https://www.phoenixcontact.com/us/products/2748580>



Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 9-pos.

MPB 18/1-12 - Wiring bridge

2748593

<https://www.phoenixcontact.com/us/products/2748593>



Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 12-pos.

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MPB F200X16/ 1GS - Wiring bridge

2818339

<https://www.phoenixcontact.com/us/products/2818339>



Wiring bridge flexible, diameter 16 mm², with a fork-type cable lug on one side, length: 200 mm

MPB F400X16/ 1GS - Wiring bridge

2818342

<https://www.phoenixcontact.com/us/products/2818342>



Wiring bridge flexible, diameter 16 mm², with a fork-type cable lug on one side, length: 400 mm

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MPB F600X16/ 1GS - Wiring bridge

2818355

<https://www.phoenixcontact.com/us/products/2818355>



Wiring bridge flexible, diameter: 16 mm², with a fork-type cable lug on one side, length: 600 mm

VAL-MS 350 VF ST - Type 2 surge protection plug

2856595

<https://www.phoenixcontact.com/us/products/2856595>



Surge protection connector type 2 with series connection consisting of varistor and gas-filled spark gap for VAL-MS base element, thermal monitoring, visual fault warning. Design: 350 V AC

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