

# Type 2 surge arrester - VAL-SEC-T2-2+0-48DC-FM



2907865

<https://www.phoenixcontact.com/gb/products/2907865>

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Pluggable surge protective device, in accordance with Type 2/Class II, for DC power sources with linear operating characteristics, with remote indication contact.

## Your advantages

- Surge protection family for universal use with optimum energy coordination from the lightning current arrester to the device protection
- Easy to maintain due to consistently pluggable protection modules
- Excellent level of information provided by mechanical/visual status indicator and remote indication contact
- More space in the control cabinet due to the narrow overall width of just 12 mm per position
- Extremely narrow design, just 12 mm per position
- Varistor arrester with a low leakage current

## Commercial Data

Item number	2907865
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	CL1353
Product Key	CL1353
Catalog Page	Page 58 (C-4-2019)
GTIN	4055626244587
Weight per Piece (including packing)	209.6 g
Weight per Piece (excluding packing)	206.6 g
Customs tariff number	85363030
Country of origin	DE

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## Technical Data

### Product properties

IEC test classification	II
	T2
EN type	T2
IEC power supply system	DC
Type	DIN rail module, two-section, divisible
Product type	Surge arrester
Number of positions	2
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)
Nominal voltage $U_N$	48 V DC ... 60 V DC

### Indicator/remote signaling

Connection name	Remote fault indicator contact
Switching function	Changeover contact
Operating voltage	5 V AC ... 250 V AC (Altitude $\leq$ 2000 m amsl)
	5 V AC ... 150 V AC (Altitude $>$ 2000 m amsl)
	125 V DC (200 mA DC)
Operating current	5 mA AC ... 1 A AC
	1 A DC (30 V DC)

### Connection data

Connection method	Screw connection
Screw thread	M5
Tightening torque	4.5 Nm
Stripping length	16 mm
Conductor cross section flexible	2.5 mm <sup>2</sup> ... 16 mm <sup>2</sup>
Conductor cross section solid	2.5 mm <sup>2</sup> ... 25 mm <sup>2</sup>
Conductor cross section AWG	12 ... 4
Connection method	Fork-type cable lug
Conductor cross section flexible	1.5 mm <sup>2</sup> ... 6 mm <sup>2</sup>

### Dimensions

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Dimensional drawing	
Width	25.4 mm
Width	25.4 mm
Height	97.9 mm
Height	97.9 mm
Depth	74.5 mm (incl. DIN rail 7.5 mm)
Depth	74.5 mm
Horizontal pitch	1.4 Div.

## Material specifications

Color	light grey RAL 7035
	traffic grey A RAL 7042
Flammability rating according to UL 94	V-0
CTI value of material	600
Insulating material	PA6.6-FR 20% GF
	PBT-FR
Material group	I
Housing material	PA 6.6-FR 20 % GF
	PBT-FR

## Protective circuit

Mode of protection	L-N
	L-PE
	N-PE
	(DC+) - (DC-)
	(DC+/DC-) - PE
Direction of action	(DC+/DC-) - PE
Nominal voltage $U_N$	75 V AC
Nominal voltage $U_N$	48 V DC ... 60 V DC
Nominal frequency $f_N$	50 Hz (60 Hz)
Maximum continuous voltage $U_C$	75 V DC
	75 V AC
Rated load current $I_L$	40 A (Biconnect M4 fork-type cable lug 6 mm <sup>2</sup> )
	63 A (TWIN ferrule 2 x 10 mm <sup>2</sup> )
Residual current $I_{PE}$	≤ 50 μA DC
	≤ 450 μA AC
Nominal discharge current $I_n$ (8/20) μs	20 kA
Maximum discharge current $I_{max}$ (8/20) μs	40 kA
Impulse discharge current (10/350) μs, charge	2 As
Impulse discharge current (10/350) μs, specific energy	4 kJ/Ω

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Impulse discharge current (10/350) $\mu$ s, peak value $I_{imp}$	4 kA
Total discharge current $I_{total}$ (8/20) $\mu$ s	40 kA
Short-circuit current rating $I_{SCCR}$	0.2 kA DC (without backup fuse)
	6 kA DC (for 20 A gG/B backup fuse)
	10 kA AC (C63 A miniature circuit breaker)
	25 kA AC (for a backup fuse of up to 315 A gG)
	50 kA AC (for a backup fuse of up to 200 A gG)
Voltage protection level $U_p$ (L-N)	$\leq 0.9$ kV
Voltage protection level $U_p$ (L-PE)	$\leq 0.5$ kV
Voltage protection level $U_p$ (DC+) - (DC-)	$\leq 0.9$ kV
Voltage protection level $U_p$ (DC+/DC-) - PE	$\leq 0.5$ kV
Residual voltage $U_{res}$ (L-N)	$\leq 0.9$ V (at $I_n$ )
Residual voltage $U_{res}$ (L-PE)	$\leq 0.5$ V (at $I_n$ )
TOV behavior at $U_T$	87 V DC (5 s / withstand mode)
	130 V AC (120 min / withstand mode)
Response time $t_A$	$\leq 25$ ns
Max. backup fuse with V-type through wiring	20 A DC (gG / B at $I_{SCCR} > 200$ A)
Max. backup fuse with branch wiring	20 A DC (gG / B at $I_{SCCR} > 200$ A)
	315 A AC

## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 80 °C
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Altitude	$\leq 6000$ m (amsl (above mean sea level))
Permissible humidity (operation)	5 % ... 95 %
Shock (operation)	30g (Half-sine / 11 ms / 3x $\pm X$ , $\pm Y$ , $\pm Z$ )
Vibration (operation)	5g (10 ... 500 Hz / 2.5 h / X, Y, Z)

## Approval data

### UL specifications

Short-circuit current rating (SCCR)	50 kA
Voltage protection rating VPR (DC+) - (DC-)	800 V
Voltage protection rating VPR (DC+) - G	400 V
Voltage protection rating VPR (DC-) - G	400 V
Mode of protection	(DC+) - (DC-)
	(DC+) - G
	(DC-) - G
Nominal voltage	60 V DC
Power distribution system	DC
SPD Type	1
AC operating voltage	125 V AC

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AC operating current	1 A AC
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## UL connection data

Tightening torque	30 lb <sub>F</sub> -in.
Conductor cross section AWG	10 ... 2

## Standards and regulations

Standards/specifications	IEC 61643-11
Standards/specifications	EN 61643-11

## Mounting

Mounting type	DIN rail mounting
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# Type 2 surge arrester - VAL-SEC-T2-2+0-48DC-FM

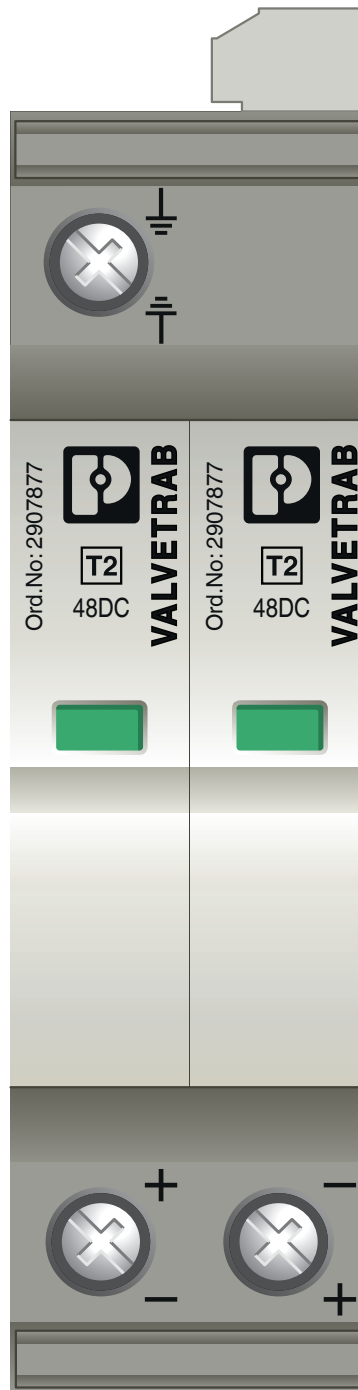
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## Drawings

Product drawing

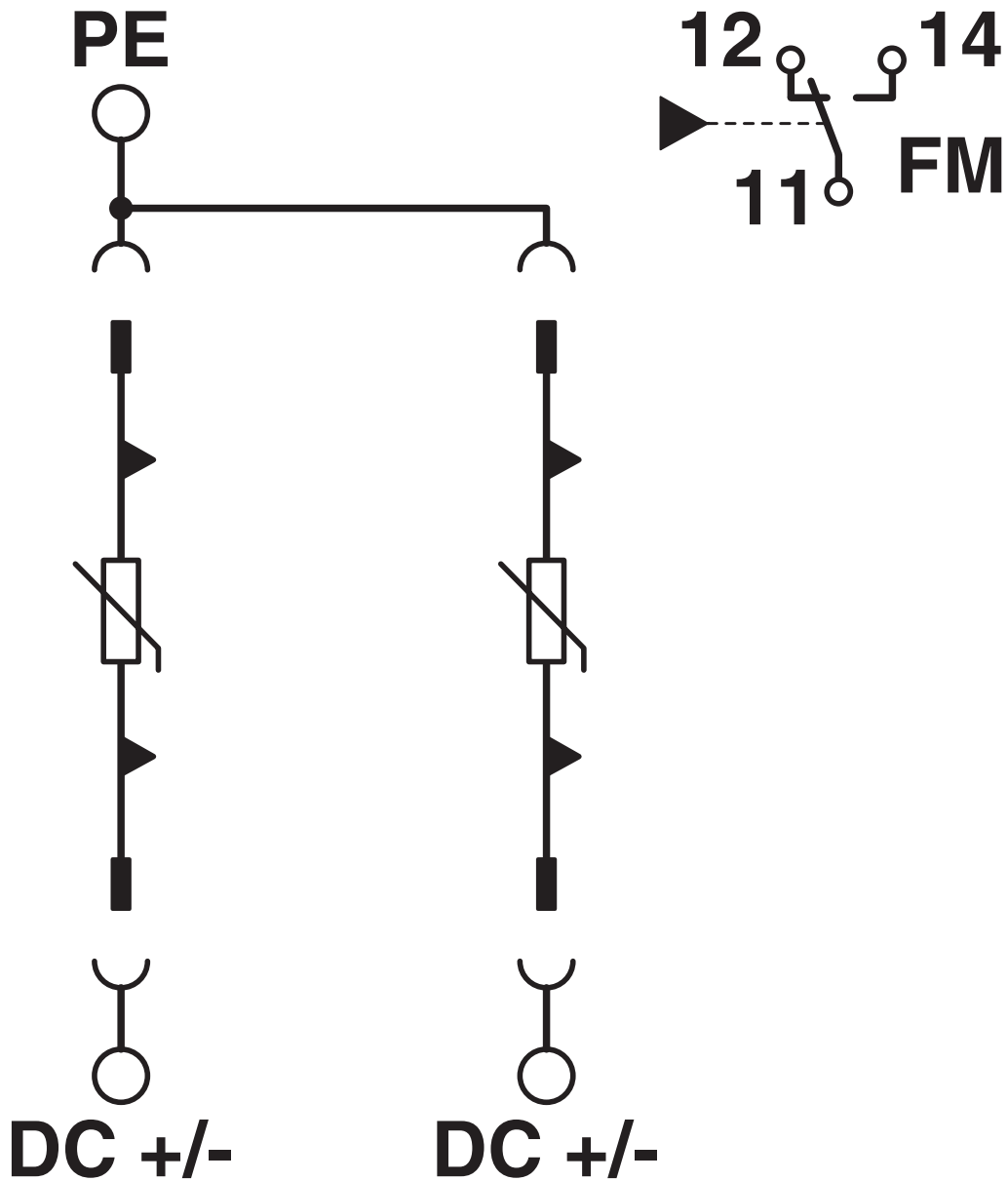


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Circuit diagram



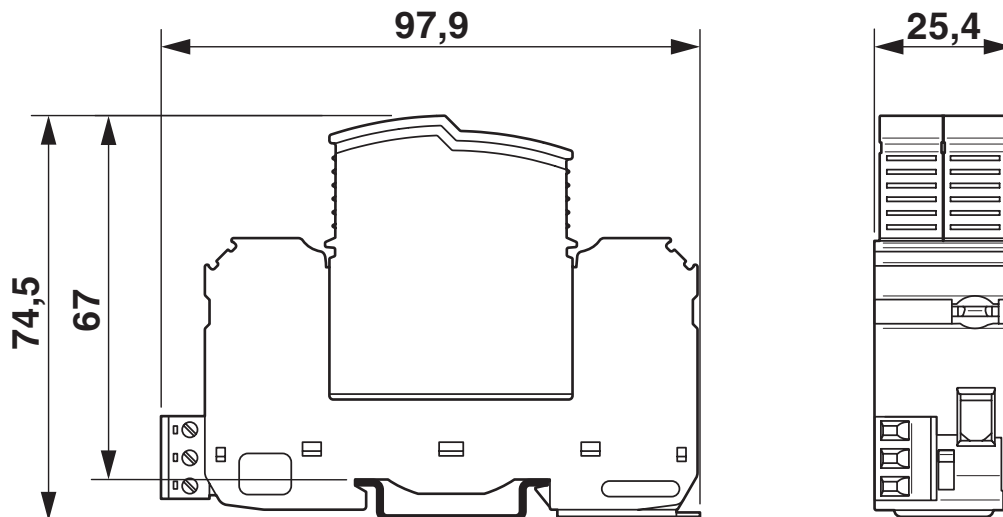
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Dimensional drawing





# Type 2 surge arrester - VAL-SEC-T2-2+0-48DC-FM



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## Approvals



**cUL Recognized**  
Approval ID: FILE E 330181



**UL Recognized**  
Approval ID: FILE E 330181



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



**DNV GL**  
Approval ID: TAE000023D

	Nominal Voltage $U_N$	Nominal Current $I_N$	Cross Section AWG	Cross Section $mm^2$
			-	-

**cULus Recognized**

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## Classifications

### ECLASS

ECLASS-9.0	27130805
ECLASS-10.0.1	27130805
ECLASS-11.0	27130805

### ETIM

ETIM 8.0	EC000941
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### UNSPSC

UNSPSC 21.0	39121600
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## Environmental Product Compliance

China RoHS	Environmentally Friendly Use Period = 50 years For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"
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## Accessories

### End clamp

End clamp - CLIPFIX 35 - 3022218

<https://www.phoenixcontact.com/gb/products/3022218>



Quick mounting end clamp for NS 35/7,5 DIN rail or NS 35/15 DIN rail, with marking option, width: 9.5 mm, color: gray

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### Marker pen

Marker pen - X-PEN 0,35 - 0811228

<https://www.phoenixcontact.com/gb/products/0811228>



Marker pen without ink cartridge, for manual labeling of markers, labeling extremely wipe-proof, line thickness 0.35 mm

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## Label

Label - EML (20XE)R - 0803452

<https://www.phoenixcontact.com/gb/products/0803452>



Label, Roll, white, unlabeled, can be labeled with: THERMOMARK ROLLMASTER 300/600, THERMOMARK X1.2, THERMOMARK ROLL X1, THERMOMARK ROLL 2.0, THERMOMARK ROLL, mounting type: adhesive, lettering field size: continuous x 20 mm

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## Label

Label - EML (20XE)R YE - 0803453

<https://www.phoenixcontact.com/gb/products/0803453>



Label, Roll, yellow, unlabeled, can be labeled with: THERMOMARK ROLLMASTER 300/600, THERMOMARK X1.2, THERMOMARK ROLL X1, THERMOMARK ROLL 2.0, THERMOMARK ROLL, mounting type: adhesive, lettering field size: continuous x 20 mm

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## Zack marker strip

Zack marker strip - ZBN 18:UNBEDRUCKT - 2809128

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



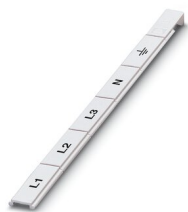
Zack marker strip, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, PLOTMARK, mounting type: snapped, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

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## Marker for terminal blocks

Marker for terminal blocks - ZBN 18,LGS:L1-N,ERDE - 2749576

<https://www.phoenixcontact.com/gb/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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## Marker for terminal blocks

Marker for terminal blocks - ZBN 18,LGS:ERDE - 2749589

<https://www.phoenixcontact.com/gb/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

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## Flat zack marker sheet

Flat zack marker sheet - ZBFM 5/WH:UNBEDRUCKT - 0803595

<https://www.phoenixcontact.com/gb/products/0803595>



Flat zack marker sheet, Sheet, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, PLOTMARK, mounting type: snapped, for terminal block width: 5.2 mm, lettering field size: 5 x 4.5 mm, Number of individual labels: 120

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## Type 2 surge protection plug

Type 2 surge protection plug - VAL-SEC-T2-48DC-P - 2907877

<https://www.phoenixcontact.com/gb/products/2907877>



Replacement plug for surge protective devices from the VALVETRAB SEC product range for DC power sources.

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