

# VAL-SEC-T2-2+F-220DC-FM - Type 2 surge arrester



1033789

<https://www.phoenixcontact.com/us/products/1033789>

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Pluggable surge protective device free of leakage current for 2-pos. isolated and grounded DC voltage systems with linear operating characteristic up to 220 V DC, for DIN rail mounting, 3-pos. base element with remote indication contact, three pluggable temperature-monitored protective elements, status message on each plug.

## 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
- Free of leakage current so there is no influence on insulation monitoring

## Commercial data

Item number	1033789
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CL01
Product key	CL1353
GTIN	4055626539720
Weight per piece (including packing)	310.7 g
Weight per piece (excluding packing)	287.43 g
Customs tariff number	85363090
Country of origin	DE

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## Technical data

### Product properties

Product type	Surge arrester
Product family	SEC Family
IEC test classification	II T2
EN type	T2
IEC power supply system	DC
Type	DIN rail module, two-section, divisible
Number of positions	2
Surge protection fault message	Optical, remote indicator contact
Number of ports	One

### Insulation characteristics

Overvoltage category	III
Pollution degree	2

### Electrical properties

Nominal voltage $U_N$	200 V DC ... 220 V DC
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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 (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 rigid	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>

### Remote fault indicator contact

Connection method	Plug-in/screw connection via COMBICON
Screw thread	M2
Tightening torque	0.25 Nm

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Stripping length	7 mm
Conductor cross-section flexible	0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross-section rigid	0.14 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross-section AWG	28 ... 16

## Dimensions

Dimensional drawing	
Width	37.3 mm
Height	97.9 mm
Depth	74.5 mm (incl. DIN rail 7.5 mm)
Horizontal pitch	2 Div.

## Material specifications

Color (Male connector)	light gray (RAL 7035)
Color (Base element)	gray (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	(DC+) - (DC-) (DC+/DC-) - PE
Direction of action	(DC+/DC-) - PE
Nominal voltage $U_N$	200 V DC ... 220 V DC
Maximum continuous operating voltage $U_C$	250 V DC
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> )
Protective conductor current $I_{PE}$	≤ 5 μA
Nominal discharge current $I_n$ (8/20) μs	20 kA
Maximum discharge current $I_{max}$ (8/20) μs	40 kA
Total discharge current $I_{Total}$ (8/20) μs	40 kA
Short-circuit current rating $I_{SCCR}$	0.2 kA (without backup fuse) 6 kA (for 20 A gG/B backup fuse)
Voltage protection level $U_p$ (DC+) - (DC-)	≤ 3 kV
Voltage protection level $U_p$ (DC+/DC-) - PE	≤ 1.9 kV

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Front-of-wave sparkover voltage at 6 kV (1.2/50) $\mu$ s (DC+/DC-) - PE	$\leq 1.9$ kV
TOV behavior at $U_T$	320 V DC (5 s / withstand mode)
Response time $t_A$ (DC+) - (DC-)	25 ns
Response time $t_A$ (DC+/DC-) - PE	100 ns
Max. backup fuse with V-type through wiring	20 A (gG / B at $I_{SCCR} > 200$ A)
Max. backup fuse with branch wiring	20 A (gG / B at $I_{SCCR} > 200$ A)

## Additional technical data

Maximum continuous operating voltage $U_C$	264 V AC (for operation in safety lighting systems)
Maximum continuous operating voltage $U_{CPV}$	250 V DC
Short-circuit current rating $I_{SCPV}$	2000 A
Continuous operating current $I_{CPV}$	10 $\mu$ A

## 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	$\leq 5000$ m (amsl)
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)

## Standards and regulations

Standards/specifications	IEC 61643-11
Note	2011

### EN 61643-11

Standards/specifications	EN 61643-11
Note	2012

## Mounting

Mounting type	DIN rail: 35 mm
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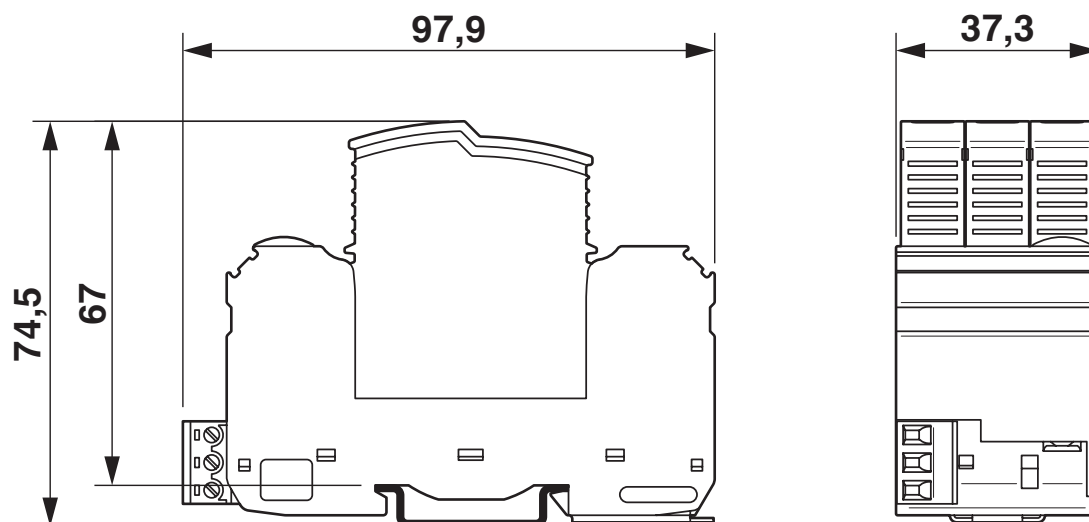


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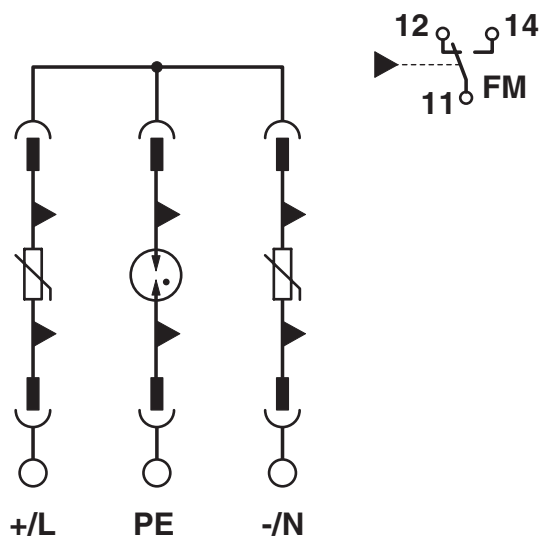
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## Drawings

Dimensional drawing



Circuit diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1033789>

### UAE-RoHS

Approval ID: 23-10-88707

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## Classifications

### ECLASS

ECLASS-13.0	27171302
ECLASS-15.0	27171302

### ETIM

ETIM 10.0	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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