

Type 2 surge arrester - VAL-EV-T2 280/3+1



1180144

<https://www.phoenixcontact.com/gb/products/1180144>

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CHARX protect: pluggable surge protective device, in accordance with Type 2 / Class II, for 3-phase power supply networks with separate N and PE (5-conductor system: L1, L2, L3, N, PE). Specifically designed for use in e-mobility.

Your advantages

- Uninterrupted continuation of the charging process with a protected power supply
- Additional protection for the connected electric vehicle
- High system availability, thanks to a high-performance protective circuit
- Easy insulation measurement and simple replacement during servicing with consistently pluggable protective devices
- No mismatching of plugs, thanks to mechanical coding

Commercial Data

Item number	1180144
Packing unit	1 pc
Minimum order quantity	1 pc
Note	Made to Order (non-returnable)
Sales Key	CL1321
Product Key	CL1321
GTIN	4063151215521
Weight per Piece (including packing)	406.4 g
Weight per Piece (excluding packing)	386.115 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	TN-S
	TT
Type	DIN rail module, two-section, divisible
Product type	Arrester combination
Number of positions	4
Surge protection fault message	optical

Insulation characteristics

Overvoltage category	III
Pollution degree	2

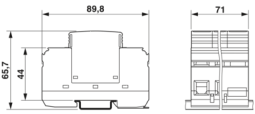
Electrical properties

Nominal frequency f_N	50 Hz (60 Hz)
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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 solid	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 mm
Height	89.8 mm
Depth	65.7 mm (incl. DIN rail 7.5 mm)
Horizontal pitch	4 Div.

Material specifications

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Color	light grey RAL 7035
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

Mechanical properties

Mechanical data

Open side panel	No
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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)	280 V AC
Maximum continuous operating voltage U_C (L-PE)	280 V AC
Maximum continuous operating voltage U_C (N-PE)	260 V AC
Rated load current I_L	80 A
Residual current I_{PE}	$\leq 5 \mu\text{A}$
Standby power consumption P_C	$\leq 450 \text{ mVA}$
Nominal discharge current I_n (8/20) μs	20 kA
Maximum discharge current I_{max} (8/20) μs	40 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)	$\leq 1.5 \text{ kV}$
Voltage protection level U_p (L-PE)	$\leq 1.9 \text{ kV}$
Voltage protection level U_p (N-PE)	$\leq 1.5 \text{ kV}$
Residual voltage U_{res} (L-N)	$\leq 1.5 \text{ kV}$ (at I_n)
	$\leq 1.3 \text{ kV}$ (at 10 kA)
	$\leq 1.2 \text{ kV}$ (at 5 kA)
	$\leq 1.1 \text{ kV}$ (at 3 kA)
Residual voltage U_{res} (L-PE)	$\leq 1.9 \text{ kV}$ (at I_n)
	$\leq 1.5 \text{ kV}$ (at 10 kA)
	$\leq 1.3 \text{ kV}$ (at 5 kA)
	$\leq 1.2 \text{ kV}$ (at 3 kA)
Residual voltage U_{res} (N-PE)	$\leq 0.4 \text{ kV}$ (at I_n)
	$\leq 0.25 \text{ kV}$ (at 10 kA)
	$\leq 0.15 \text{ kV}$ (at 5 kA)

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	≤ 0.1 kV (at 3 kA)
TOV behavior at U_T (L-N)	415 V AC (5 s / withstand mode)
	440 V AC (120 min / safe failure 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)
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 (above mean sea level))
Permissible humidity (operation)	5 % ... 95 %
Shock (operation)	25g (Half-sine / 11 ms / 3x ±X, ±Y, ±Z)
Vibration (operation)	5g (10 ... 500 Hz / 2.5 h / X, Y, Z)

Standards and regulations

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

Mounting

Mounting type	DIN rail: 35 mm
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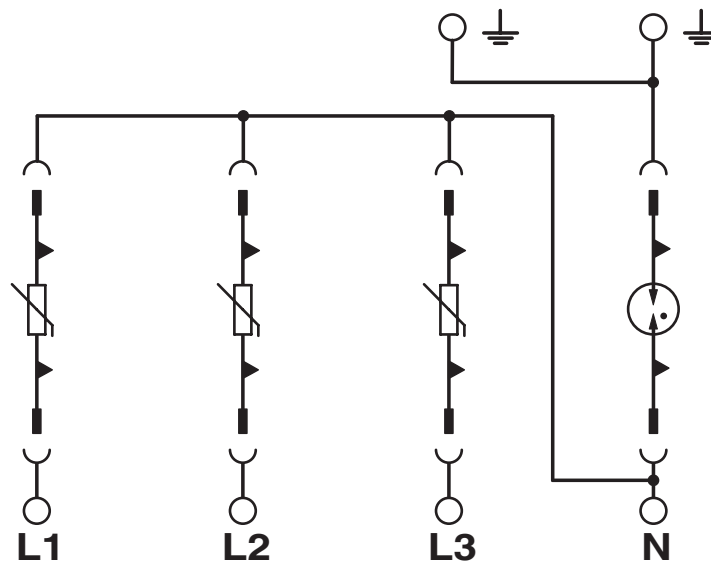
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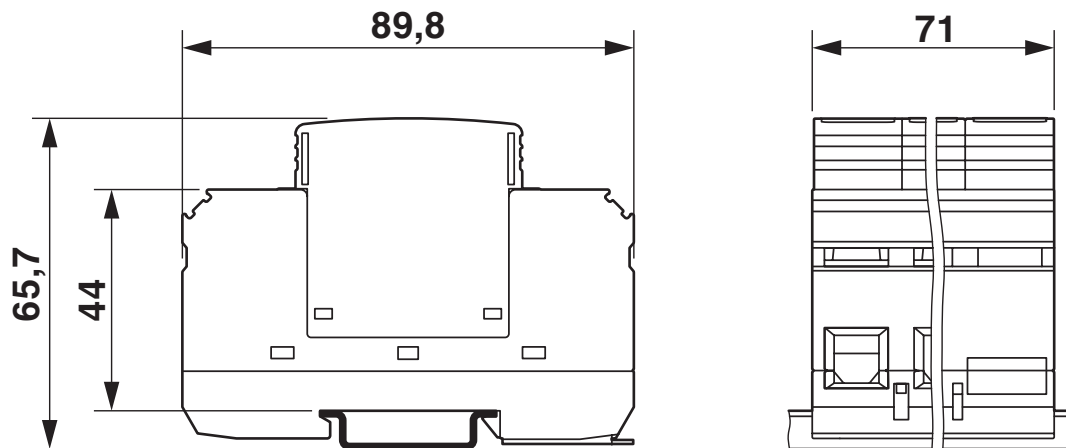
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Drawings

Circuit diagram



Dimensional drawing



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Approvals



KEMA-KEUR
Approval ID: 71-113416

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Classifications

ECLASS

ECLASS-9.0	27130802
ECLASS-10.0.1	27130802
ECLASS-11.0	27130802

ETIM

ETIM 8.0	EC000381
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UNSPSC

UNSPSC 21.0	39121600
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Environmental Product Compliance

China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

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Accessories

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

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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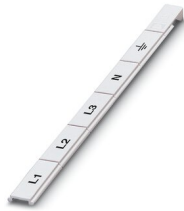
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Marker for terminal blocks

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

Marker pen

Marker pen - B-STIFT - 1051993

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



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

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Feed-through terminal block

Feed-through terminal block - DK-BIC-35 - 2749880

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



Feed-through terminal block for VAL and FLT applications

Wiring bridge

Wiring bridge - MPB 18/4- 8 - 2809283

<https://www.phoenixcontact.com/gb/products/2809283>



Wiring bridge for modules with connecting pitch 17.5 mm, 4-phase, 8-pos.

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Type 2 surge protection plug

Type 2 surge protection plug - VAL-EV 280-P - 1180142

<https://www.phoenixcontact.com/gb/products/1180142>



CHARX protect: replacement plug for surge protective devices from the VALVETRAB EV-T2 product range for the L-N path.

Type 2 surge protection plug

Type 2 surge protection plug - F-EV 12-P - 1180140

<https://www.phoenixcontact.com/gb/products/1180140>



CHARX protect: replacement plug for surge protective devices from the VALVETRAB EV-T2 product range for the N-PE path.

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