

# Type 2 surge protection plug - F-MS 12 ST



2817990

<https://www.phoenixcontact.com/il/products/2817990>

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Surge protection plug type 2, with N-PE total current spark gap for base element.



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## Commercial Data

Item number	2817990
Packing unit	10 pc
Minimum order quantity	1 pc
Product Key	CL1321
Catalog Page	Page 71 (C-4-2019)
GTIN	4017918163648
Weight per Piece (including packing)	40.12 g
Weight per Piece (excluding packing)	35.56 g
Customs tariff number	85363010
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
	TT
Type	Male
Product type	Replacement plug
Number of positions	1
Surge protection fault message	optical
Arrester can be tested with CHECKMASTER from software version:	From SW rev. 1.10

### Insulation characteristics

Overvoltage category	III
Pollution degree	2

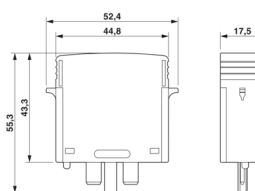
### Electrical properties

Nominal frequency $f_N$	50 Hz (60 Hz)
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### Connection data

Connection method	pluggable
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### Dimensions

Dimensional drawing	
Width	17.5 mm
Height	52.4 mm
Depth	55.3 mm
Horizontal pitch	1 Div.

### Material specifications

Color	jet black RAL 9005
Flammability rating according to UL 94	V-0
CTI value of material	600
Insulating material	PA 6.6
Material group	I
Housing material	PA 6.6

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## Protective circuit

Mode of protection	N-PE
Direction of action	N-PE
Nominal voltage $U_N$	240/415 V AC (TN - only N-PE) 240/415 V AC (TT - only N-PE)
Nominal frequency $f_N$	50 Hz (60 Hz)
Maximum continuous voltage $U_C$	260 V AC
Residual current $I_{PE}$	$\leq 5 \mu A$
Standby power consumption $P_C$	$\leq 1.5 \text{ mVA}$
Nominal discharge current $I_n$ (8/20) $\mu s$	20 kA
Maximum discharge current $I_{max}$ (8/20) $\mu s$	40 kA
Follow current interrupt rating $I_{fi}$	100 A (260 V)
Voltage protection level $U_p$	$\leq 1.5 \text{ kV}$
Residual voltage $U_{res}$	$\leq 0.4 \text{ kV}$ (at $I_n$ ) $\leq 0.25 \text{ kV}$ (at 10 kA) $\leq 0.15 \text{ kV}$ (at 5 kA) $\leq 0.1 \text{ kV}$ (at 3 kA)
Front of wave sparkover voltage at 6 kV (1.2/50) $\mu s$	$\leq 1.5 \text{ kV}$
TOV behavior at $U_T$	1200 V AC (200 ms / withstand mode)
Response time $t_A$	$\leq 100 \text{ ns}$

## Additional technical data

Maximum continuous voltage $U_C$	305 V AC
Impulse discharge current (10/350) $\mu s$ , charge	1.25 As
Impulse discharge current (10/350) $\mu s$ , specific energy	1.56 kJ/ $\Omega$
Impulse discharge current (10/350) $\mu s$ , peak value $I_{imp}$	2.5 kA (3 x)

## 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	$\leq 2000 \text{ m}$ (amsl (above mean sea level))
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)

## Approval data

### UL specifications

Maximum continuous operating voltage MCOV (N-G)	260 V AC
Nominal discharge current $I_n$ (N-G)	20 kA
Mode of protection	N-G
Power distribution system	Single phase

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Nominal frequency	50/60 Hz
Measured limiting voltage MLV (N-G)	1490 V
SPD Type	4CA

## Standards and regulations

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

## Mounting

Mounting type	on base element
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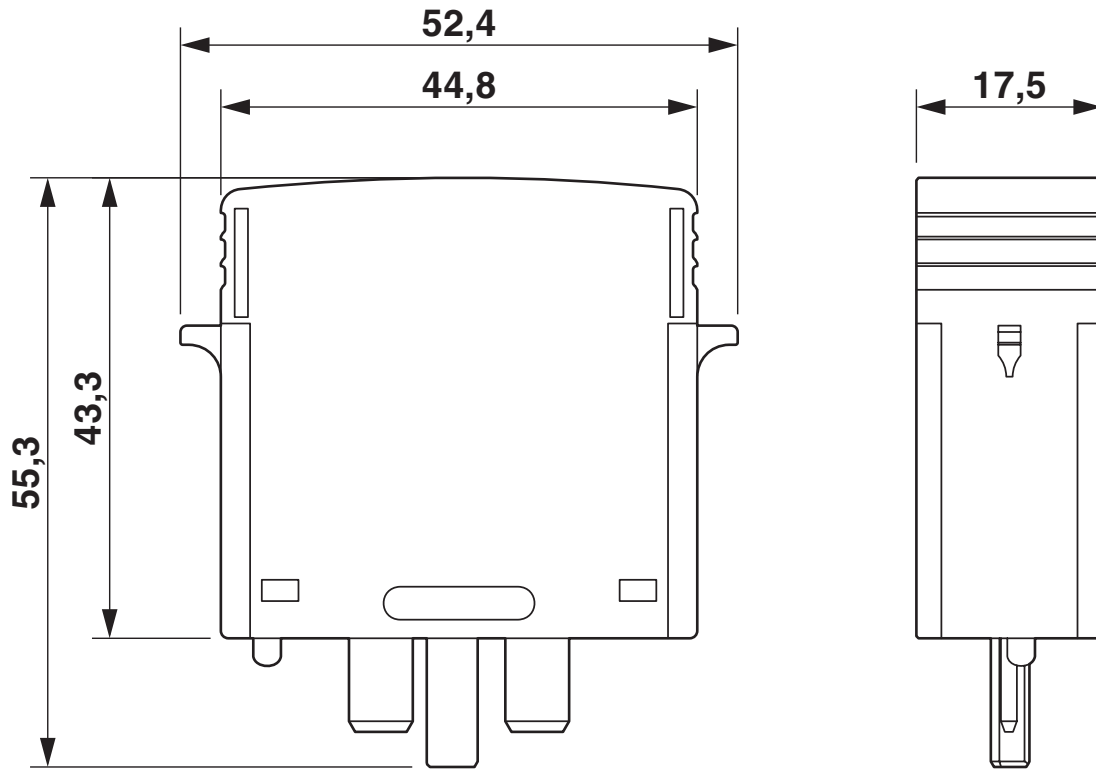
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## Drawings

Dimensional drawing



Circuit diagram



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## Approvals



**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: EAC-Zulassung

### CCA

Approval ID: NTR-AT 1947-A

Nominal Voltage  $U_N$

Nominal Current  $I_N$

Cross Section AWG

Cross Section  $\text{mm}^2$

-

-



**KEMA-KEUR**  
Approval ID: 71-113273



**DNV GL**  
Approval ID: TAE000041M

Nominal Voltage  $U_N$

Nominal Current  $I_N$

Cross Section AWG

Cross Section  $\text{mm}^2$

-

-



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



**CSA**  
Approval ID: 13631



**ÖVE**  
Approval ID: 18583-001-15

cULus Recognized

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## Classifications

### ECLASS

ECLASS-9.0	27130890
ECLASS-10.0.1	27130890
ECLASS-11.0	27130890

### ETIM

ETIM 8.0	EC002496
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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

### Marker for terminal blocks

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

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



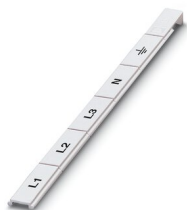
Marker for terminal blocks, Strip, white, labeled, horizontal: Grounding symbol, mounting type: snapped, for terminal block width: 18 mm, lettering field size: 18 x 5 mm, Number of individual labels: 5

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### Marker for terminal blocks

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

<https://www.phoenixcontact.com/il/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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## Zack marker strip

Zack marker strip - ZBN 18:UNBEDRUCKT - 2809128

<https://www.phoenixcontact.com/il/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 pen

Marker pen - B-STIFT - 1051993

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



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

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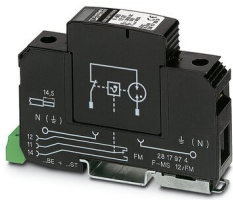
<https://www.phoenixcontact.com/il/products/2817990>



## Type 2 surge arrester

Type 2 surge arrester - F-MS 12/FM - 2817974

<https://www.phoenixcontact.com/il/products/2817974>

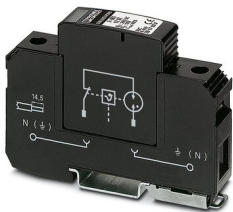


Surge arrester type 2, consisting of base element with remote indicator contact and protective plug with N-PE total current spark gap for mounting on NS 35/7.5, housing width: 17.5 mm (1 Div.)

## Type 2 surge arrester

Type 2 surge arrester - F-MS 12 - 2817987

<https://www.phoenixcontact.com/il/products/2817987>



Surge arrester type 2, consisting of base element and protective plug with N-PE total current spark gap for mounting on NS 35/7.5, housing width: 17.5 mm (1 Div.)

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## Type 2 surge protection base element

Type 2 surge protection base element - VAL-MS BE/FM - 2817738

<https://www.phoenixcontact.com/il/products/2817738>

Base element for type 2 arresters of the VALVETRAB MS series of products, with remote indication contact. Design: 1-channel



## Type 2 surge protection base element

Type 2 surge protection base element - VAL-MS BE - 2817741

<https://www.phoenixcontact.com/il/products/2817741>

Base element for type 2 arresters of the VALVETRAB MS series of products. Design: 1-channel



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