

## Type 2 surge protection device - VAL-MS 120/3+1/FM-UD - 2856692

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Surge arrester consisting of base element with remote indicator contact and ground connectors, for mounting on NS 35/7.5, nominal voltage: 120 V AC, 3 + 1 circuit

### Product Features

- ✓ With or without floating remote indication contact
- ✓ Multi-channel type 2 arresters
- ✓ Type 2 consistent plug-in surge arresters
- ✓ Mechanical coding of all slots
- ✓ Optical, mechanical status indication for the individual arresters
- ✓ Disconnect device on each individual plug



### Key commercial data

Packing unit	1 1
Weight per Piece (excluding packing)	409.8 GRM
Custom tariff number	85363030
Country of origin	Germany

### Technical data

#### Dimensions

Height	96.8 mm
Width	70.8 mm
Depth	65.5 mm
Pitch unit	4 Div.

#### Ambient conditions

Degree of protection	IP20
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## Technical data

### Ambient conditions

Ambient temperature (operation)	-40 °C ... 80 °C
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### General

Housing material	PBT / PA
Inflammability class according to UL 94	V0
Color	black
Standards for air and creepage distances	DIN EN 60664-1
Mounting type	DIN rail: 35 mm
Design	DIN rail module, two-section, divisible
Number of positions	4
Message: Surge protection fault	Optical, remote indicator contact
Direction of action	3L-N & N-PE

### Protective circuit

IEC test classification	II
	T2
EN type	T2
Nominal voltage $U_N$	120 V AC (208 V AC)
	120 V AC ... 208 V AC
Maximum continuous operating voltage $U_C$	150 V AC
Maximum continuous operating voltage $U_C$ (L-N)	150 V AC
Maximum continuous operating voltage $U_C$ (N-PE)	260 V AC
$U_T$ (TOV-proof)	175 V AC (5 s / L-N)
	1200 V AC (200 ms / N-PE)
Nominal frequency $f_N$	50 Hz (60 Hz)
Residual current $I_{PE}$	$\leq 1 \mu A$
Standby power consumption $P_C$	$\leq 150 \text{ mVA}$
Max. discharge current $I_{max}$ (8/20) $\mu s$	40 kA
Max. discharge current $I_{max}$ (8/20) $\mu s$ maximum (L-N)	40 kA
Max. discharge current $I_{max}$ (8/20) $\mu s$ maximum (L-PE)	40 kA
Max. discharge current $I_{max}$ (8/20) $\mu s$ maximum (N-PE)	40 kA
Nominal discharge current $I_n$ (8/20) $\mu s$ (L-N)	20 kA
Nominal discharge current $I_n$ (8/20) $\mu s$ (L-PE)	20 kA
Nominal discharge current $I_n$ (8/20) $\mu s$ (N-PE)	20 kA
Impulse discharge current (10/350) $\mu s$ , peak value $I_{imp}$	12 kA (N-PE)
Front of wave sparkover voltage at 6 kV (1.2/50) $\mu s$ (N-PE)	$\leq 1.5 \text{ kV}$
Voltage protection level $U_P$ (L-N)	$\leq 0.85 \text{ kV}$

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#### Protective circuit

Voltage protection level $U_p$ (L-PE)	$\leq 1.05$ kV
Voltage protection level $U_p$ (N-PE)	$\leq 1.5$ kV
Residual voltage (L-N)	$\leq 0.85$ kV (at $I_n$ )
	$\leq 0.75$ kV (at 10 kA)
	$\leq 0.7$ kV (at 5 kA)
	$\leq 0.65$ kV (at 3 kA)
Residual voltage (L-PE)	$\leq 1.05$ kV (at $I_n$ )
	$\leq 0.85$ kV (at 10 kA)
	$\leq 0.8$ kV (at 5 kA)
	$\leq 0.7$ kV (at 3 kA)
Residual voltage (N-PE)	$\leq 0.4$ kV (at $I_n$ )
	$\leq 0.25$ kV (at 10 kA)
	$\leq 0.15$ kV (at 5 kA)
	$\leq 0.1$ kV (at 3 kA)
Response time (L-N)	$\leq 25$ ns
Response time (L-PE)	$\leq 100$ ns
Response time (N-PE)	$\leq 100$ ns
Max. required backup fuse with branch wiring	125 A (gL)
Short-circuit resistance $I_p$ with max. backup fuse (effective)	25 kA
Follow current quenching capacity $I_f$ (N-PE)	100 A (260 V)

#### Connection, protective circuit

Connection method	Screw connection
Connection type IN	Biconnect screw terminal block
Connection type OUT	Biconnect screw terminal block
Screw thread	M5
Tightening torque	4.5 Nm
Stripping length	14.5 mm
Conductor cross section stranded min.	0.5 mm <sup>2</sup>
Conductor cross section stranded max.	25 mm <sup>2</sup>
Conductor cross section solid min.	0.5 mm <sup>2</sup>
Conductor cross section solid max.	35 mm <sup>2</sup>
Conductor cross section AWG/kcmil min.	20
Conductor cross section AWG/kcmil max	2

#### Remote indicator contact

Connection name	Remote fault indicator contact
Switching function	PDT contact

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### Technical data

#### Remote indicator contact

Connection method	Screw connection
Screw thread	M2
Tightening torque	0.25 Nm
Stripping length	7 mm
Conductor cross section stranded min.	0.14 mm <sup>2</sup>
Conductor cross section stranded max.	1.5 mm <sup>2</sup>
Conductor cross section solid min.	0.14 mm <sup>2</sup>
Conductor cross section solid max.	1.5 mm <sup>2</sup>
Conductor cross section AWG/kcmil min.	28
Conductor cross section AWG/kcmil max.	16
Maximum operating voltage $U_{\max}$ AC	250 V AC
Maximum operating voltage $U_{\max}$ DC	30 V DC
Max. operating current $I_{\max}$	0.75 A AC (250 V AC)
	1.5 A DC (30 V DC)
Min. permissible switching capacity	0.12 VA (12 V, 10 mA)

#### Standards and Regulations

Standards/regulations	IEC 61643-1 2005
	EN 61643-11/A11 2007

### Classifications

#### eCl@ss

eCl@ss 4.0	27140201
eCl@ss 4.1	27130801
eCl@ss 5.0	27130801
eCl@ss 5.1	27130801
eCl@ss 6.0	27130805
eCl@ss 7.0	27130805

#### ETIM

ETIM 2.0	EC000941
ETIM 3.0	EC000941
ETIM 4.0	EC000941
ETIM 5.0	EC000941

#### UNSPSC

UNSPSC 6.01	30212010
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### Classifications

#### UNSPSC

UNSPSC 7.0901	39121610
UNSPSC 11	39121610
UNSPSC 12.01	39121610
UNSPSC 13.2	39121620

### Approvals

#### Approvals

#### Approvals


UL Recognized / KEMA-KEUR / cUL Recognized / GOST / cULus Recognized

#### Ex Approvals

#### Approvals submitted

#### Approval details

UL Recognized 


KEMA-KEUR 

cUL Recognized 

GOST 

## Type 2 surge protection device - VAL-MS 120/3+1/FM-UD - 2856692

### Approvals

cULus Recognized  US

### Accessories

#### Accessories

#### Bridges

Wiring bridge - MPB 18/4- 8 - 2809283



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

Wiring bridge - MPB 18/4-12 - 2809296



Wiring bridge for modules with connecting pitch 17.5 mm, 4-phase, 12-pos.

Wiring bridge - MPB 18/1- 2 - 2809209



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

Wiring bridge - MPB 18/1- 3 - 2809212



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

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### Accessories

Wiring bridge - MPB 18/1- 4 - 2809225



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

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Wiring bridge - MPB 18/1- 6 - 2748564



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

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Wiring bridge - MPB 18/1- 7 BU - 2856278



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

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Wiring bridge - MPB 18/1- 8 BU - 2858470



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

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Wiring bridge - MPB 18/1- 8 - 2748577



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

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## Type 2 surge protection device - VAL-MS 120/3+1/FM-UD - 2856692

### Accessories

Wiring bridge - MPB 18/1- 9 - 2748580



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

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Wiring bridge - MPB 18/1-12 - 2748593



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

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Wiring bridge - MPB 18/1-57 - 2809238



Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 57-pos.

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Wiring bridge - MPB 18/3- 6 - 2809241



Wiring bridge for modules with connecting pitch 17.5 mm, 3-phase, 6-pos.

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Wiring bridge - MPB 18/3- 9 - 2809254



Wiring bridge for modules with connecting pitch 17.5 mm, 3-phase, 9-pos.

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## Type 2 surge protection device - VAL-MS 120/3+1/FM-UD - 2856692

### Accessories

Wiring bridge - MPB 18/4- 8 - 2809283



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

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Wiring bridge - MPB 18/4-12 - 2809296



Wiring bridge for modules with connecting pitch 17.5 mm, 4-phase, 12-pos.

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Wiring bridge - MPB F200X16/ 1GS - 2818339



Wiring bridge flexible, diameter 16 mm<sup>2</sup>, with a fork-type cable lug on one side, length: 200 mm

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Wiring bridge - MPB F400X16/ 1GS - 2818342



Wiring bridge flexible, diameter 16 mm<sup>2</sup>, with a fork-type cable lug on one side, length: 400 mm

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Wiring bridge - MPB F600X16/ 1GS - 2818355



Wiring bridge flexible, diameter: 16 mm<sup>2</sup>, with a fork-type cable lug on one side, length: 600 mm

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### Marking

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### Accessories

Zack marker strip - ZBN 18,LGS:ERDE - 2749589



Zack marker strip, Strip, white, labeled, Horizontal: Grounding symbol, Mounting type: Snap into tall marker groove, For terminal block width: 18 mm, Lettering field: 18 x 5 mm

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Zack marker strip - ZBN 18,LGS:L1-N,ERDE - 2749576



Zack marker strip, Strip, white, labeled, Horizontal: L1, L2, L3, N, GND, Mounting type: Snap into tall marker groove, For terminal block width: 18 mm, Lettering field: 18 x 5 mm

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Zack marker strip - ZBN 18:UNBEDRUCKT - 2809128



Zack marker strip, Strip, white, Unlabeled, Can be labeled with: Plotter, Mounting type: Snap into tall marker groove, For terminal block width: 18 mm, Lettering field: 18 x 5 mm

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Marker pen - B-STIFT - 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 - DK-BIC-35 - 2749880



Feed-through terminal block for VAL and FLT applications

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### Accessories

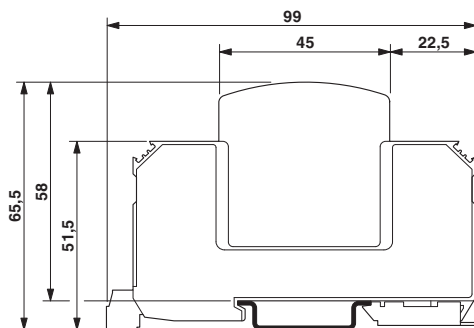
Type 2 surge protection plug - VAL-MS 120-UD ST - 2858292



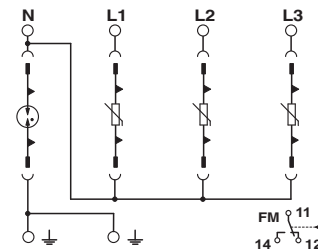
Surge protection connector type 2 with high-capacity varistor for VAL-MS base element, thermal monitoring, visual fault warning. Design: 120 V AC

### Drawings

Dimensioned drawing



Circuit diagram



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Application drawing

