


**VAL-MS 230/3+1**

Order No.: 2838209

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Surge arrester consisting of base element and ground connectors, for mounting on NS 35/7.5, nominal voltage: 230 V AC, 3 + 1 circuit



Commercial data	
GTIN (EAN)	 4 017918 172824
sales group	J022
Pack	1 pcs.
Customs tariff	85363030
Catalog page information	Page 30 (TT-2009)

## Product notes

WEEE/RoHS-compliant since:  
05/10/2006



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## Technical data

## Standards

Housing material	PBT / PA
Inflammability class acc. to UL 94	V0
Color	black

Standards for air and creepage distances	DIN EN 60664-1
Degree of protection	IP20
Mounting type	DIN rail: 35 mm
Design	DIN rail module, two-section, divisible
Number of positions	4
Ambient temperature (operation)	-40 °C ... 80 °C
Message: Surge protection fault	Optical
Direction of action	3L-N & N-PE
Width	70.80 mm
Height	65.50 mm
Length	89.80 mm
Pitch unit	4 Div.

**Protective circuit**

IEC category	II
	T2
EN type	T2
Nominal voltage $U_N$	230 V AC (400 V AC)
	400 V AC
	230 V AC ... 415 V AC
Arrester rated voltage $U_C$	275 V AC
Arrester rated voltage $U_C$ (L-N)	275 V AC
Arrester rated voltage $U_C$ (N-PE)	260 V AC
$U_T$ (TOV-proof)	335 V AC (5 s / L-N)
	1200 V AC (200 ms / N-PE)
Nominal frequency $f_N$	50 Hz (60 Hz)
Ground conductor current $I_{PE}$	$\leq 1 \mu A$
Standby power consumption $P_C$	$\leq 360 \text{ mVA}$
Max. discharge surge current $I_{max}$ (8/20) $\mu s$	40 kA
Max. discharge surge current $I_{max}$ (8/20) $\mu s$ maximum (L-N)	40 kA
Max. discharge surge current $I_{max}$ (8/20) $\mu s$ maximum (L-PE)	40 kA
Max. discharge surge current $I_{max}$ (8/20) $\mu s$ maximum (N-PE)	40 kA
Nominal discharge surge current $I_n$ (8/20) $\mu s$ (L-N)	20 kA

Nominal discharge surge current $I_n$ (8/20) $\mu$ s (L-PE)	20 kA
Nominal discharge surge current $I_n$ (8/20) $\mu$ s (N-PE)	20 kA
Lightning test current (10/350) $\mu$ s, peak value $I_{imp}$	12 kA (N-PE)
Impulse operate voltage at 6 kV (1.2/50) $\mu$ s (N-PE)	$\leq 1.5$ kV
Protection level $U_p$ (L-N)	$\leq 1.35$ kV
Protection level $U_p$ (L-PE)	$\leq 1.6$ kV
Protection level $U_p$ (N-PE)	$\leq 1.5$ kV
Residual voltage (L-N)	$\leq 1.35$ kV (at $I_n$ )
	$\leq 1.2$ kV (at 10 kA)
	$\leq 1.1$ kV (at 5 kA)
	$\leq 0.95$ kV (at 3 kA)
Residual voltage (L-PE)	$\leq 1.6$ kV (at $I_n$ )
	$\leq 1.35$ kV (at 10 kA)
	$\leq 1.2$ kV (at 5 kA)
	$\leq 1$ 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)
Clamping voltage SVR (L-N)	$\leq 0.9$ kV (6kV - 500 A)
Clamping voltage SVR (L-PE)	$\leq 1.2$ kV (6kV - 500 A)
Clamping voltage SVR (N-PE)	$\leq 1$ kV (6kV - 500 A)
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**

Type of connection	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

### Standards

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

### Certificates / Approvals



Certification

CB, CCA, CUL, GL, GOST, KEMA, OEVE, UL

### Accessories

Item	Designation	Description
<b>Bridges</b>		
2809209	MPB 18/1- 2	Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 2-pos.
2809212	MPB 18/1- 3	Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 3-pos.
2809225	MPB 18/1- 4	Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 4-pos.
2748564	MPB 18/1- 6	Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 6-pos.
2748577	MPB 18/1- 8	Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 8-pos.
2748580	MPB 18/1- 9	Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 9-pos.
2748593	MPB 18/1-12	Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 12-pos.

2830168	MPB 18/1-20/1.2.5	Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 20 pitches with contact sequence 1-2-0-0-5
2809238	MPB 18/1-57	Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 57-pos.
2809241	MPB 18/3- 6	Wiring bridge for modules with connecting pitch 17.5 mm, 3-phase, 6-pos.
2809283	MPB 18/4- 8	Wiring bridge for modules with connecting pitch 17.5 mm, 4-phase, 8-pos.
2809283	MPB 18/4- 8	Wiring bridge for modules with connecting pitch 17.5 mm, 4-phase, 8-pos.
2809296	MPB 18/4-12	Wiring bridge for modules with connecting pitch 17.5 mm, 4-phase, 12-pos.
2809296	MPB 18/4-12	Wiring bridge for modules with connecting pitch 17.5 mm, 4-phase, 12-pos.
2818339	MPB F200X16/ 1GS	Wiring bridge flexible, diameter 16 mm <sup>2</sup> , with a fork-type cable lug on one side, length: 200 mm
2818339	MPB F200X16/ 1GS	Wiring bridge flexible, diameter 16 mm <sup>2</sup> , with a fork-type cable lug on one side, length: 200 mm
2818342	MPB F400X16/ 1GS	Wiring bridge flexible, diameter 16 mm <sup>2</sup> , with a fork-type cable lug on one side, length: 400 mm
2818342	MPB F400X16/ 1GS	Wiring bridge flexible, diameter 16 mm <sup>2</sup> , with a fork-type cable lug on one side, length: 400 mm
2818355	MPB F600X16/ 1GS	Wiring bridge flexible, diameter: 16 mm <sup>2</sup> , with a fork-type cable lug on one side, length: 600 mm
2818355	MPB F600X16/ 1GS	Wiring bridge flexible, diameter: 16 mm <sup>2</sup> , with a fork-type cable lug on one side, length: 600 mm

**General**

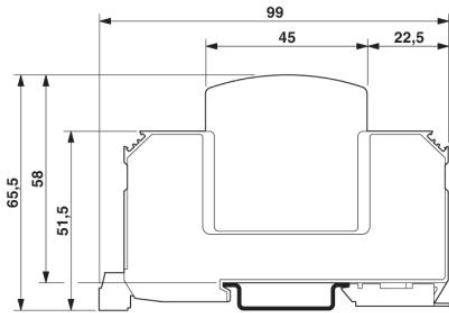
2749880	DK-BIC-35	Feed-through terminal block for VAL and FLT applications
2830443	MPB 18/1-10/1.0.0	Wiring bridge for modules with connecting pitch 17.5 mm, 1-phase, 10 pitches with contact sequence 1-0-0

**Marking**

1051993	B-STIFT	Marker pen, for manual labeling of unprinted Zack strips, smear-proof and waterproof, line thickness 0.5 mm
2749589	ZBN 18,LGS:ERDE	Marking labels, printed horizontally, strips with 5 labels, GND (grounding symbol), color: White
2749576	ZBN 18,LGS:L1-N,ERDE	Marker labels, printed horizontally, strips with 5 labels, L1, L2, L3, N, GND, color: white
0800763	ZBN 18:SO/CMS	Marker labels, 5-section, special printing, labeled according to customer requirements (Please specify the required marking with order), for terminal width: 17.5 mm, color: White
2809128	ZBN 18:UNBEDRUCKT	Unprinted marker labels, strips with 5 labels for individual labeling with M-PEN or CMS system, for terminal block width: 17.5 mm, color: White

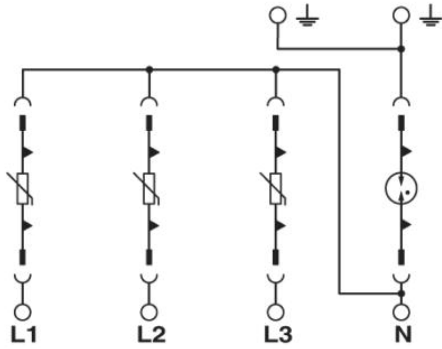
## Diagrams/Drawings

### Dimensioned drawing



The illustration shows the dimensional drawing for a version with remote indicator contact

### Circuit diagram



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