

# Type 2 surge protection device - VAL-MS 230/3+1/FM-UD - 2858959

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Surge voltage arrester 4-channel, for mounting on NS 35/7.5, with remote indicator contact. 230 V AC

The illustration shows the version VAL-MS 120/3+1/FM-UD

## Key commercial data

<b>package_quantity</b>	1
<b>GTIN</b>	4017918916350

## Technical data

### Dimensions

<b>Height</b>	96.8 mm
<b>Width</b>	70.8 mm
<b>Depth</b>	65.5 mm

### Ambient conditions

<b>Degree of protection</b>	IP20
<b>Ambient temperature (operation)</b>	-40 °C ... 80 °C
<b>Permissible humidity (operation)</b>	5 % ... 95 %

### General

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

### Protective circuit

<b>IEC test classification</b>	II
<b>IEC test classification</b>	T2
<b>EN type</b>	T2

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## Technical data

### Protective circuit

Nominal voltage $U_N$	230 V AC (400 V AC)
Nominal voltage $U_N$	400 V AC
Nominal voltage $U_N$	230 V AC ... 415 V AC
Maximum continuous operating voltage $U_C$	275 V AC
Maximum continuous operating voltage $U_C$ (L-N)	275 V AC
Maximum continuous operating voltage $U_C$ (N-PE)	260 V AC
$U_T$ (TOV-proof)	335 V AC (5 s / L-N)
$U_T$ (TOV-proof)	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 $P_C$	$\leq 360$ 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)	$\leq 1.5$ kV
Voltage protection level $U_P$ (L-N)	$\leq 1.35$ kV
Voltage protection level $U_P$ (L-PE)	$\leq 1.6$ kV
Voltage protection level $U_P$ (N-PE)	$\leq 1.5$ kV
Residual voltage (L-N)	$\leq 1.35$ kV (at $I_n$ )
Residual voltage (L-N)	$\leq 1.2$ kV (at 10 kA)
Residual voltage (L-N)	$\leq 1.1$ kV (at 5 kA)
Residual voltage (L-N)	$\leq 0.95$ kV (at 3 kA)
Residual voltage (L-PE)	$\leq 1.6$ kV (at $I_n$ )
Residual voltage (L-PE)	$\leq 1.35$ kV (at 10 kA)
Residual voltage (L-PE)	$\leq 1.2$ kV (at 5 kA)
Residual voltage (L-PE)	$\leq 1$ kV (at 3 kA)
Residual voltage (N-PE)	$\leq 0.4$ kV (at $I_n$ )
Residual voltage (N-PE)	$\leq 0.25$ kV (at 10 kA)
Residual voltage (N-PE)	$\leq 0.15$ kV (at 5 kA)
Residual voltage (N-PE)	$\leq 0.1$ 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 (gG)

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## Technical data

### Protective circuit

<b>Short-circuit resistance <math>I_p</math> with max. backup fuse (effective)</b>	25 kA
<b>Follow current quenching capacity <math>I_f</math> (N-PE)</b>	100 A (260 V)

### Connection, protective circuit

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

### Remote indicator contact

<b>Connection name</b>	Remote fault indicator contact
<b>Switching function</b>	PDT contact
<b>Connection method</b>	Screw connection
<b>Screw thread</b>	M2
<b>Tightening torque</b>	0.25 Nm
<b>Stripping length</b>	7 mm
<b>Conductor cross section stranded min.</b>	1.5 mm <sup>2</sup>
<b>Conductor cross section stranded max.</b>	0.14 mm <sup>2</sup>
<b>Conductor cross section solid min.</b>	1.5 mm <sup>2</sup>
<b>Conductor cross section solid max.</b>	0.14 mm <sup>2</sup>
<b>Conductor cross section AWG/kcmil min.</b>	28
<b>Conductor cross section AWG/kcmil max</b>	16
<b>Maximum operating voltage <math>U_{max}</math> AC</b>	250 V AC
<b>Maximum operating voltage <math>U_{max}</math> DC</b>	125 V DC
<b>Max. operating current <math>I_{max}</math></b>	0.75 A AC (250 V AC)
<b>Max. operating current <math>I_{max}</math></b>	3 A AC (125 V AC)
<b>Max. operating current <math>I_{max}</math></b>	2 A DC (30 V DC)
<b>Min. permissible switching capacity</b>	0.12 VA (12 V, 10 mA)

### Standards and Regulations

<b>Standards/regulations</b>	IEC 61643-1 2005
<b>Standards/regulations</b>	DIN EN 61643-11/A11 2007
<b>Standards/regulations</b>	DIN EN 61643-11 2002

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## 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
eCl@ss 8.0	27130805

### ETIM

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

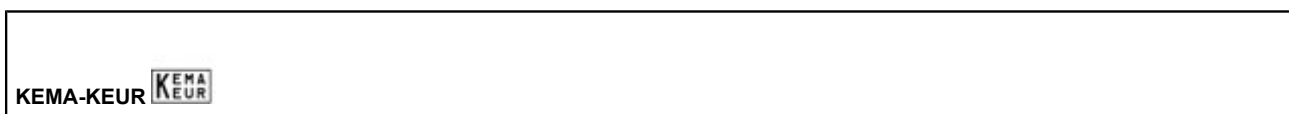
### UNSPSC

UNSPSC 6.01	30212010
UNSPSC 7.0901	39121610
UNSPSC 11	39121610
UNSPSC 12.01	39121610
UNSPSC 13.2	39121620

## approvals

KEMA-KEUR / GOST /

### Approval details



## accessories

### Labeled device marker

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## accessories

ZBN 18,LGS:ERDE - 2749589



ZBN 18,LGS:L1-N,ERDE - 2749576



## Device marking

ZBN 18:UNBEDRUCKT - 2809128



## Marker pen

B-STIFT - 1051993



## Feed-through terminal block

DK-BIC-35 - 2749880



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## accessories

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### Bridge

MPB 18/4- 8 - 2809283



MPB 18/4-12 - 2809296



### Replacement plug

F-MS 12 ST - 2817990



## accessories

ZBN 18:SO/CMS - 0800763



ZBN 18,LGS:L1-N,ERDE - 2830469



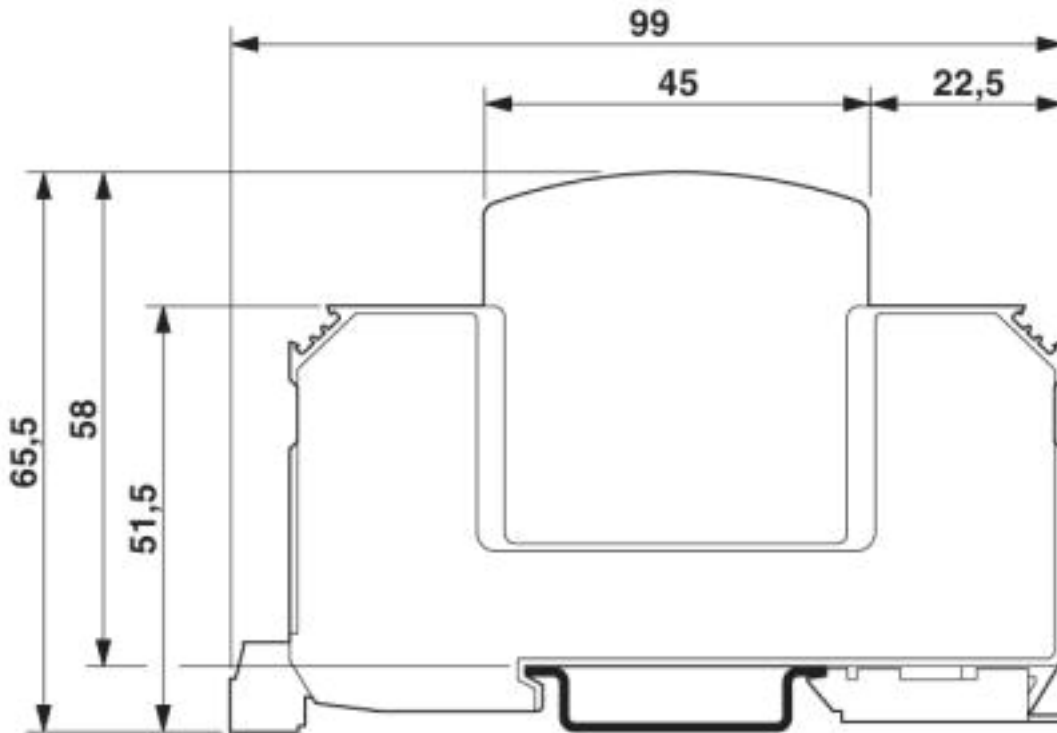
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accessories

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## Drawings

Dimensioned drawing



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