

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

Order No.: 2838199

<http://eshop.phoenixcontact.de/phoenix/treeViewClick.do?UID=2838199>

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



Commercial data	
EAN	4017918172800
Pack	1 pcs.
Customs tariff	85363030
Weight/Piece	0.4053 KG
Catalog page information	Page 36 (TT-2007)

## Product notes

WEEE/RoHS-compliant since:  
06/27/2006



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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 faulty	Optical, remote indicator contact
Direction of action	3L-N & N-PE
Width	70.80 mm
Height	65.50 mm
Length	96.80 mm
Pitch unit	4 Div.

**Protective circuit**

IEC category	II
	T2
EN type	T2
Nominal voltage $U_N$	230 V AC (Max. 240/415 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
Nominal frequency $f_N$	50 Hz (60 Hz)
Discharge current to PE at $U_C$	$\leq 1 \mu\text{A}$
Max. discharge surge current $I_{\text{max}}$ (8/20) $\mu\text{s}$	40 kA
Max. discharge surge current $I_{\text{max}}$ (8/20) $\mu\text{s}$ maximum (L-N)	40 kA
Max. discharge surge current $I_{\text{max}}$ (8/20) $\mu\text{s}$ maximum (L-PE)	40 kA
Max. discharge surge current $I_{\text{max}}$ (8/20) $\mu\text{s}$ maximum (N-PE)	40 kA
Nominal discharge surge current $I_n$ (8/20) $\mu\text{s}$ (L-N)	20 kA
Nominal discharge surge current $I_n$ (8/20) $\mu\text{s}$ (L-PE)	20 kA
Nominal discharge surge current $I_n$ (8/20) $\mu\text{s}$ (N-PE)	20 kA
Lightning test current (10/350) $\mu\text{s}$ , peak value $I_{\text{imp}}$	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 $I_{CC}$ 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, min	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
Schaltfunktion_Int	PDT contact
Type of connection	Screw connection
Screw thread	M2
Tightening torque, min	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 <sub>max</sub> AC	250 V AC
Maximum operating voltage U <sub>max</sub> DC	30 V DC
Max. operating current I <sub>max</sub>	0.75 A (250 V AC)
	3 A (125 V AC)
	2 A (30 V DC)
Min. permissible switching capacity	0.12 VA (12 V, 10 mA)

#### Environmental conditions

Standards/regulations	IEC 61643-1
	DIN EN 61643-11/A11

#### Certificates / Approvals



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

#### CUL

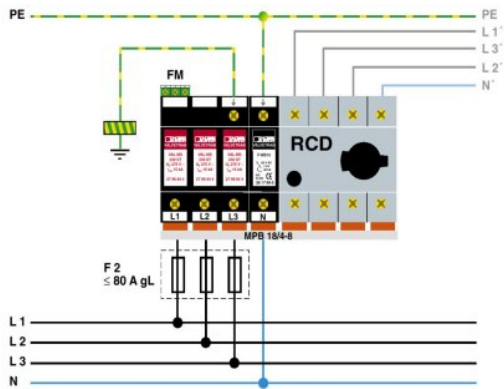
Nominal voltage U <sub>N</sub>	230 V
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**UL**

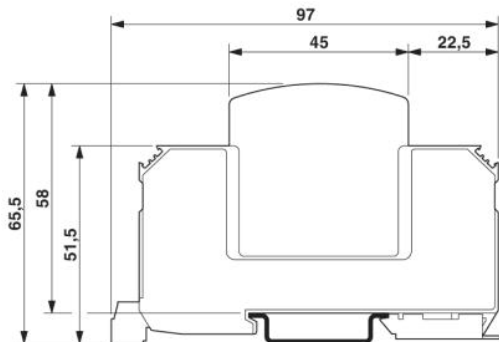
Nominal voltage $U_N$	230 V
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**Drawings**

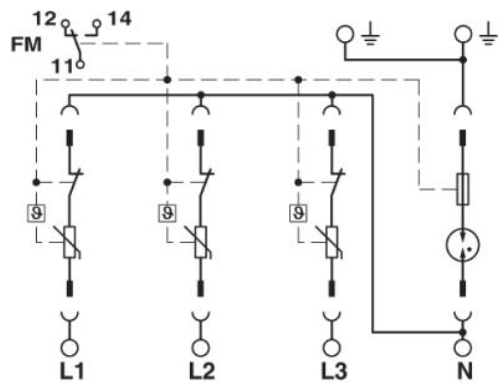
Application drawing



Dimensioned drawing



Circuit diagram



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