

# Type 2 surge arrester - VAL-SEC-T2-1S-350-FM



2905333

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Plug-in surge arrester, in accordance with Type 2/Class II, for 1-phase power supply networks with separate N and PE (3-conductor system: L1, N, PE), with remote indication contact.

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## Your advantages

- Surge protection family for universal use with optimum energy coordination from the lightning current arrester to the device protection
- Easy to maintain due to consistently pluggable protection modules
- Excellent level of information provided by mechanical/visual status indicator and remote indication contact
- More space in the control cabinet due to the narrow overall width of just 12 mm per position and use without separate backup fuse up to 315 A gG
- Low voltage protection level at high continuous voltage for optimum protection of the subsequent installation

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## Commercial Data

Item number	2905333
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	CL1
Product Key	CL1351
Catalog Page	Page 55 (C-4-2019)
GTIN	4046356947732
Weight per Piece (including packing)	218.1 g
Weight per Piece (excluding packing)	216.2 g
Customs tariff number	85363030
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-S
	TT
Type	DIN rail module, two-section, divisible
Product type	Surge arrester
Number of positions	2
Surge protection fault message	Optical, remote indicator contact

### Insulation characteristics

Overvoltage category	III
Pollution degree	2

### Electrical properties

Nominal frequency $f_N$	50 Hz (60 Hz)
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### Indicator/remote signaling

Connection name	Remote fault indicator contact
Switching function	Changeover contact
Operating voltage	5 V AC ... 250 V AC
	125 V DC (200 mA DC)
Operating current	5 mA AC ... 1 A AC
	1 A DC (30 V DC)

### Connection data

Connection method	Screw connection
Screw thread	M5
Tightening torque	4.5 Nm
Stripping length	16 mm
Conductor cross section flexible	2.5 mm <sup>2</sup> ... 16 mm <sup>2</sup>
Conductor cross section solid	2.5 mm <sup>2</sup> ... 25 mm <sup>2</sup>
Conductor cross section AWG	12 ... 4
Connection method	Fork-type cable lug
Conductor cross section flexible	1.5 mm <sup>2</sup> ... 6 mm <sup>2</sup>

### Dimensions

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Dimensional drawing	
Width	25.4 mm
Height	97.9 mm
Depth	74.5 mm (incl. DIN rail 7.5 mm)
Horizontal pitch	1.4 Div.

## Material specifications

Color	light grey RAL 7035
	traffic grey A RAL 7042
Flammability rating according to UL 94	V-0
CTI value of material	600
Insulating material	PA6.6-FR 20% GF
	PBT-FR
Material group	I
Housing material	PA 6.6-FR 20 % GF
	PBT-FR

## Protective circuit

Mode of protection	L-N
	L-PE
	N-PE
Direction of action	1L-N & N-PE
Nominal voltage $U_N$	240 V AC (TN-S)
	240 V AC (TT)
Nominal frequency $f_N$	50 Hz (60 Hz)
Maximum continuous operating voltage $U_C$ (L-N)	350 V AC
Maximum continuous operating voltage $U_C$ (L-PE)	350 V AC
Maximum continuous operating voltage $U_C$ (N-PE)	264 V AC
Rated load current $I_L$	40 A (Biconnect M4 fork-type cable lug 6 mm <sup>2</sup> )
	63 A (TWIN ferrule 2 x 10 mm <sup>2</sup> )
Residual current $I_{PE}$	≤ 1 μA
Nominal discharge current $I_n$ (8/20) μs	20 kA
Maximum discharge current $I_{max}$ (8/20) μs	40 kA
Follow current interrupt rating $I_{fi}$ (N-PE)	100 A (264 V AC)
Short-circuit current rating $I_{SCCR}$	25 kA (for a backup fuse of up to 315 A gG)
	50 kA (for a backup fuse of up to 200 A gG)
Voltage protection level $U_p$ (L-N)	≤ 1.5 kV
Voltage protection level $U_p$ (L-PE)	≤ 1.9 kV
Voltage protection level $U_p$ (N-PE)	≤ 1.5 kV
	≤ 1.5 kV (at $I_n$ )

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Residual voltage $U_{res}$ (L-N)	$\leq 1.3$ kV (at 10 kA)
	$\leq 1.2$ kV (at 5 kA)
	$\leq 1.1$ kV (at 4 kA)
	$\leq 1$ kV (at 2 kA)
Residual voltage $U_{res}$ (L-PE)	$\leq 1.9$ kV (at $I_n$ )
	$\leq 1.5$ kV (at 10 kA)
	$\leq 1.4$ kV (at 5 kA)
	$\leq 1.3$ kV (at 4 kA)
	$\leq 1.2$ kV (at 2 kA)
Residual voltage $U_{res}$ (N-PE)	$\leq 0.5$ kV (at $I_n$ )
	$\leq 0.5$ kV (at 10 kA)
	$\leq 0.5$ kV (at 5 kA)
	$\leq 0.5$ kV (at 4 kA)
	$\leq 0.5$ kV (at 2 kA)
TOV behavior at $U_T$ (L-N)	415 V AC (5 s / withstand mode)
	457 V AC (120 min / safe failure mode)
TOV behavior at $U_T$ (N-PE)	1200 V AC (200 ms / withstand mode)
Response time $t_A$ (L-N)	$\leq 25$ ns
Response time $t_A$ (L-PE)	$\leq 100$ ns
Response time $t_A$ (N-PE)	$\leq 100$ ns
Max. backup fuse with V-type through wiring	40 A (gG / Biconnect M4 fork-type cable lug, 6 mm <sup>2</sup> )
	63 A (gG / TWIN ferrule 2x 10mm <sup>2</sup> )
Max. backup fuse with branch wiring	315 A (gG)

## 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	$\leq 2000$ m (amsl (above mean sea level))
Permissible humidity (operation)	5 % ... 95 %
Shock (operation)	30g (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 (L-N)	350 V AC
Maximum continuous operating voltage MCOV (L-G)	350 V AC
Maximum continuous operating voltage MCOV (N-G)	264 V AC
Nominal discharge current $I_n$ (L-N)	20 kA
Nominal discharge current $I_n$ (L-G)	20 kA
Nominal discharge current $I_n$ (N-G)	20 kA
	L-N

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Mode of protection	L-G
	N-G
Nominal voltage	240 V AC
Power distribution system	Single phase
Nominal frequency	50/60 Hz
Measured limiting voltage MLV (L-N)	2000 V
Measured limiting voltage MLV (L-G)	2080 V
Measured limiting voltage MLV (N-G)	950 V
Follow current (L-G)	200 A (264 V AC)
SPD Type	4CA

## UL indicator/remote signaling

AC operating voltage	125 V AC
AC operating current	1 A AC

## UL connection data

Tightening torque	40 lb <sub>f</sub> -in. ... 50 lb <sub>f</sub> -in.
Conductor cross section AWG	14 ... 2 (solid)
	14 ... 4 (flexible)

## Standards and regulations

### Air clearances and creepage distances

Standards/regulations	DIN VDE 0110-1 / IEC 60664-1 / IEC 61643-11
Standards/specifications	IEC 61643-11

### EN 61643-11

Standards/specifications	EN 61643-11
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## Mounting

Mounting type	DIN rail: 35 mm
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# Type 2 surge arrester - VAL-SEC-T2-1S-350-FM

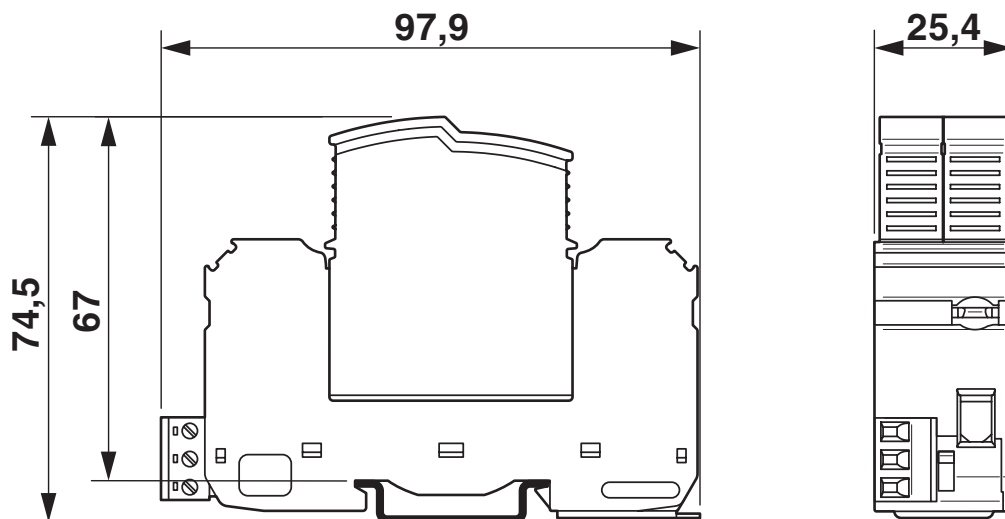
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## Drawings

Dimensional drawing



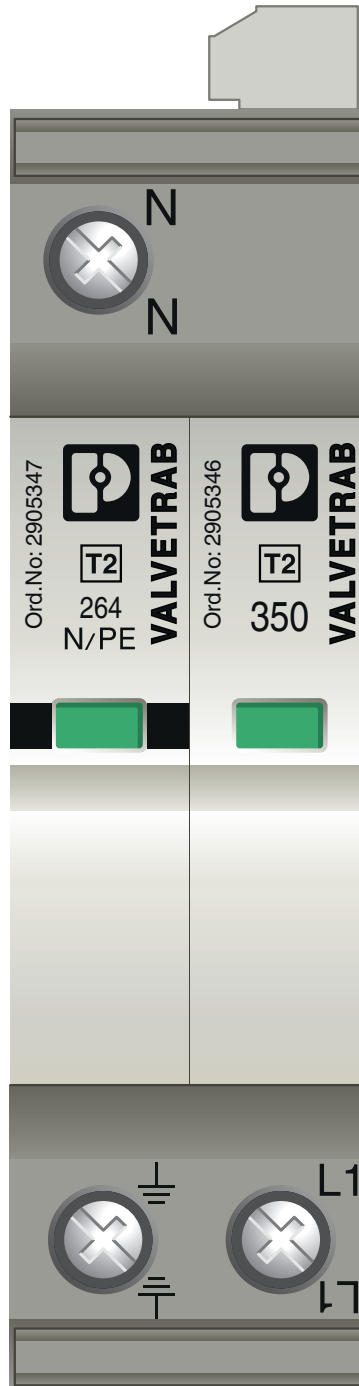
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Product drawing





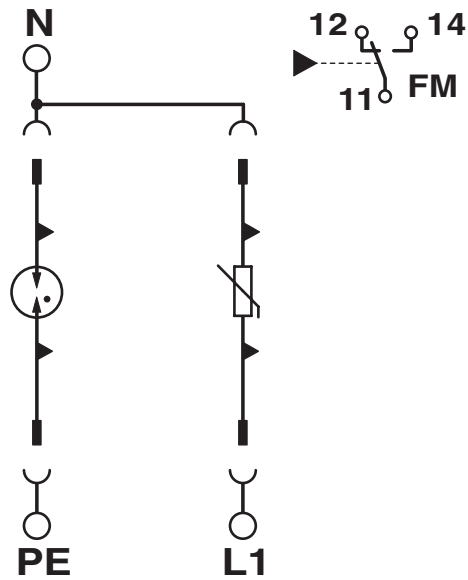
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Circuit diagram



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