

# VAL-US-277/80-P - Surge protection device



2910331

<https://www.phoenixcontact.com/us/products/2910331>

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UL Recognized type 1 SPD and IEC type 2 surge protection plug with a varistor and thermal disconnect for use with VAL-US base elements, mechanical and visual fault warning

## Product description

Surge protective device replacement plug

## Your advantages

- Mechanical coding of all slots
- Optical, mechanical status indication for the individual arresters
- Pluggable
- Thermal disconnect device for each individual plug
- Secure hold of plugs in the event of high lightning current loads and strong vibrations thanks to new latching

## Commercial data

Item number	2910331
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CL18
Product key	CL1151
GTIN	4055626445311
Weight per piece (including packing)	89.5 g
Weight per piece (excluding packing)	83 g
Customs tariff number	85363030
Country of origin	DE

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## Technical data

### Product properties

Product type	Replacement plug
Product family	VALVETRAB MS
IEC test classification	II
	T2
EN type	T2
Type	Male
Number of positions	1
Surge protection fault message	optical

### Insulation characteristics

Overvoltage category	III
Pollution degree	2

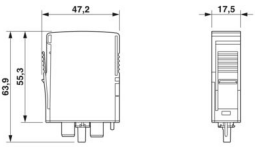
### Electrical properties

Nominal frequency $f_N$	50 Hz (60 Hz)
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### Connection data

Connection method	VALVETRAB plug-in system
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### Dimensions

Dimensional drawing	
Width	17.5 mm
Height	47 mm
Depth	67.3 mm
Horizontal pitch	1 Div.

### Material specifications

Color	black (RAL 9005)
Flammability rating according to UL 94	V-0
CTI value of material	600
Insulating material	PA 6.6/PBT
Material group	I
Housing material	PA 6.6
	PBT

### Protective circuit

	L-N
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Mode of protection	L-PEN
	N-PE
Direction of action	L-N / L-PEN
Nominal voltage $U_N$	240/415 V AC (TN-C, TN-S)
	277/480 V AC (TN-C, TN-S)
Nominal frequency $f_N$	50 Hz (60 Hz)
Maximum continuous operating voltage $U_C$	385 V AC
Protective conductor current $I_{PE}$	$\leq 600 \mu\text{A}$
Standby power consumption $P_C$	$\leq 230 \text{ mVA}$
Nominal discharge current $I_n$ (8/20) $\mu\text{s}$	40 kA
Maximum discharge current $I_{\text{max}}$ (8/20) $\mu\text{s}$	80 kA
Short-circuit current rating $I_{\text{SCCR}}$	25 kA
Voltage protection level $U_p$	$\leq 2 \text{ kV}$
Residual voltage $U_{\text{res}}$	$\leq 2 \text{ kV}$ (at $I_n$ )
	$\leq 1.3 \text{ kV}$ (at 10 kA)
	$\leq 1.2 \text{ kV}$ (at 5 kA)
	$\leq 1.15 \text{ kV}$ (at 3 kA)
TOV behavior at $U_T$	480 V AC (5 s / withstand mode)
	457 V AC (120 min / withstand mode)
	530 V AC (safe failure mode)
Response time $t_A$	$\leq 25 \text{ ns}$
Max. backup fuse with branch wiring	125 A (gG)

## Additional technical data

Maximum discharge current $I_{\text{max}}$ (8/20) $\mu\text{s}$	80 kA
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## 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	$\leq 2000 \text{ m}$ (amsl)
Permissible humidity (operation)	5 % ... 95 %
Shock (operation)	30g (Half-sine / 11 ms / 3x $\pm X$ , $\pm Y$ , $\pm Z$ )
Vibration (operation)	7.5g (10 ... 500 Hz / 2.5 h / X, Y, Z)

## Approvals

### UL specifications

Maximum continuous operating voltage MCOV	385 V AC
Short-circuit current rating (SCCR)	200 kA
Voltage protection rating VPR	1500 V
UL type	type 1
Nominal discharge current $I_n$	20 kA
Maximum Surge Current per Phase	80 kA (acc. IEC61643-1)

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	100 kA (acc. NEMA LS1)
Mode of protection	L-N
	L-G
	N-G
Nominal voltage	277/480 V AC
Power distribution system	Single phase
Nominal frequency	50/60 Hz
SPD Type	1CA

## Standards and regulations

### Air clearances and creepage distances

Standards/regulations	EN 60664-1 / EN 61643-11
Standards/specifications	IEC 61643-11
Note	2011
Standards/specifications	EN 61643-11
Note	2012

## Mounting

Mounting type	on base element
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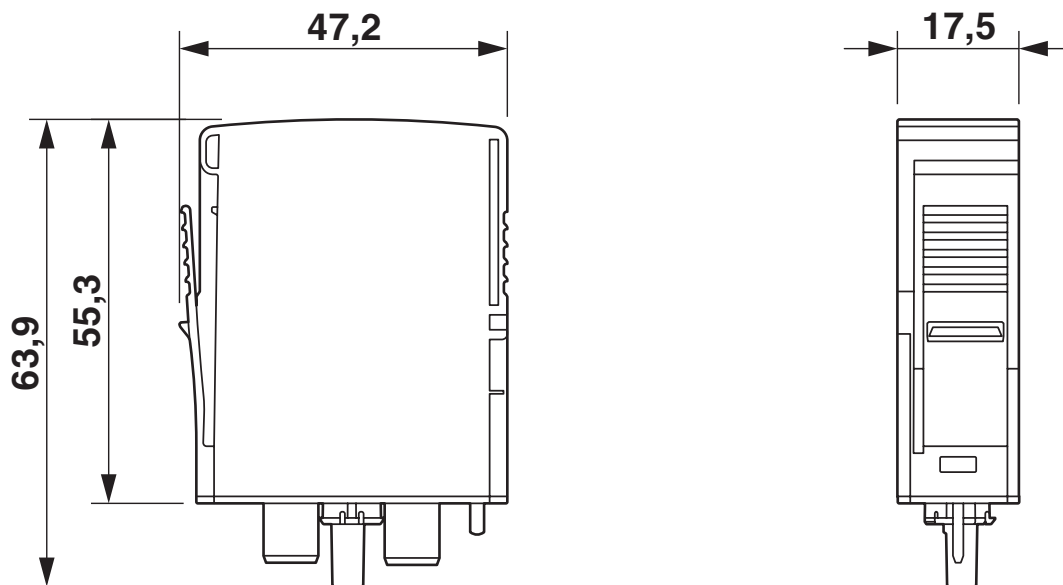
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## Drawings

Dimensional drawing



Circuit diagram



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## Approvals

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**cUL Recognized**  
Approval ID: FILE E 330181



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## Classifications

### ECLASS

ECLASS-13.0	27171292
ECLASS-15.0	27171292

### ETIM

ETIM 10.0	EC002496
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### UNSPSC

UNSPSC 21.0	39121600
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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes, No exemptions
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### China RoHS

Environment friendly use period (EFUP)	EFUP-E
	No hazardous substances above the limits

### EU REACH SVHC

REACH candidate substance (CAS No.)	No substance above 0.1 wt%
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