

# VAL-MS-T1/T2 600DC-PV-ST - Type 1/2 surge protection plug

2801165

<https://www.phoenixcontact.com/us/products/2801165>

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Replacement plug for PV arrester combinations from the VAL-MS-T1/T2 600DC-PV-... product range

## Commercial data

Item number	2801165
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CL01
Product key	CL1152
GTIN	4046356714280
Weight per piece (including packing)	82.3 g
Weight per piece (excluding packing)	57.42 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	PV I / II PV T1 / T2
EN type	T1 / T2
IEC power supply system	DC
Type	Male
Environment	Indoor
Installation location of the disconnect device	Internal
Accessibility	Accessible
End-of-life mode	OCFM (Open-Circuit Failure Mode)
Surge protection fault message	optical

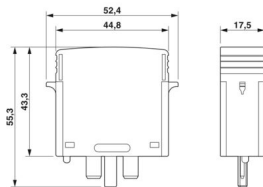
### Insulation characteristics

Overvoltage category	III
Pollution degree	2

### Connection data

Connection method	pluggable
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### Dimensions

Dimensional drawing	
Width	17.5 mm
Height	52.4 mm
Depth	55.3 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-FR
Material group	I
Housing material	PA 6.6-FR

### Protective circuit

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Direction of action	(L+)-PE & (L-)-PE & (L+)-(L-)
Standby power consumption $P_C$	$\leq 10$ mVA
Nominal discharge current $I_n$ (8/20) $\mu$ s	15 kA
Maximum discharge current $I_{max}$ (8/20) $\mu$ s	40 kA
Impulse discharge current (10/350) $\mu$ s, charge	2.5 As
Impulse discharge current (10/350) $\mu$ s, specific energy	6.25 kJ/ $\Omega$
Impulse discharge current (10/350) $\mu$ s, peak value $I_{imp}$	5 kA
Voltage protection level $U_p$	$\leq 1.4$ kV
Residual voltage $U_{res}$	$\leq 1.4$ kV (at $I_n$ )
	$\leq 1.1$ kV (at 5 kA)
	$\leq 1.2$ kV (at 10 kA)
	$\leq 1.5$ kV (at 20 kA)
	$\leq 1.6$ kV (at 30 kA)
	$\leq 1.8$ kV (at 40 kA)
Response time $t_A$	$\leq 25$ ns

## Protective circuit DC voltage side (DC)

Maximum continuous operating voltage $U_{CPV}$	360 V DC
Short-circuit current rating $I_{SCPV}$	2000 A
Open-circuit voltage $U_{OCSTC}$	$\leq 300$ V DC
Maximum discharge current $I_{max}$ (8/20) $\mu$ s	40 kA
Response time $t_A$	$\leq 25$ ns
Impulse discharge current (10/350) $\mu$ s, charge	2.5 As
Impulse discharge current (10/350) $\mu$ s, specific energy	6.25 kJ/ $\Omega$
Impulse discharge current (10/350) $\mu$ s, peak value $I_{imp}$	5 kA
Insulation resistance $R_{iso}$	$> 5$ G $\Omega$ (at 500 V DC)
Nominal discharge current $I_n$ (8/20) $\mu$ s	15 kA
Continuous operating current $I_{CPV}$	$< 20$ $\mu$ A
Maximum continuous operating voltage $U_{CPV}$	360 V DC
Short-circuit current rating $I_{SCPV}$	2000 A
Residual voltage $U_{res}$	$\leq 1.4$ kV (at $I_n$ )
	$\leq 1.1$ kV (at 5 kA)
	$\leq 1.2$ kV (at 10 kA)
	$\leq 1.5$ kV (at 20 kA)
	$\leq 1.6$ kV (at 30 kA)
	$\leq 1.8$ kV (at 40 kA)
Voltage protection level $U_p$	$\leq 1.4$ kV
Standby power consumption $P_C$	$\leq 10$ mVA

## 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

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Altitude	≤ 2000 m (amsl)
Permissible humidity (operation)	5 % ... 95 %
Shock (operation)	60g (Half-sine / 11 ms / 3x ±X, ±Y, ±Z)
Vibration (operation)	7.5g (5-500 Hz/2.5 h/XYZ)

## Approvals

### UL specifications

Maximum continuous operating voltage MCOV	800 V DC
Short-circuit current rating (SCCR)	50 kA
Voltage protection rating VPR	2 kV
Nominal discharge current $I_n$	20 kA
Mode of protection	(L+) - (L-) (L+) - G (L-) - G
Nominal voltage	800 V DC
Power distribution system	DC PV
SPD Type	1CA

## Standards and regulations

### EN 61643-31

Standards/specifications	EN 61643-31
Note	2019
Standards/specifications	IEC 61643-31
Note	2018

## Mounting

Mounting type	on base element
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## Drawings

Dimensional drawing



Circuit diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2801165>



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



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



**KEMA-KEUR**  
Approval ID: 71-123544 REV.3



**IECEE CB Scheme**  
Approval ID: NL-81006/A1

**CCA**

Approval ID: NTR-NL 7937

**UAE-RoHS**

Approval ID: 23-10-88705

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## Classifications

### ECLASS

ECLASS-13.0	27171492
ECLASS-15.0	27171492

### ETIM

ETIM 10.0	EC002496
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### UNSPSC

UNSPSC 21.0	39121620
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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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### EF3.1 Climate Change

CO2e kg	2.138 kg CO2e
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