

Pluggable Multi-Pole SPD for Photovoltaic Systems

ProTec T1-PV 3+0

Type 1 • Type 2 • PV SPD Type 1CA • Open Type 1 PV SPD Listed



Location of Use: String box, Inverter
 Mode of Protection: (+)-PE, (-)-PE, (+)-(-)
 IEC/EN/UL Category: Class I+II / Type 1+2 / PV SPD Type 1CA / Open Type 1 PV SPD Listed
 Housing: Pluggable Design
 Compliance: IEC 61643-31:2018
 EN 61643-31:2019
 UL 1449 5th Edition

Technical Data

ProTec T1-xxxxPV-3+0(-R) & ProTec T1-xxxxPV-3+0-US(-R)

600*

1100

EN Electrical

Maximum Continuous Operating Voltage (PV)	U_{CPV}	600V	1100V
Nominal Discharge Current (8/20 μ s)	I_n	20kA	20kA
Impulse Discharge Current (10/350 μ s)	I_{imp}	6.25kA	6.25kA
Specific Energy	W/R	9.77 kJ/ Ω	9.77 kJ/ Ω
Charge	Q	3.125As	3.125As
Total Discharge Current (10/350 μ s)	I_{Total}	12.5kA	12.5kA
Total Discharge Current (8/20 μ s)	I_{Total}	50kA	50kA
Maximum Discharge Current (8/20 μ s)	I_{max}	40kA	40kA
Voltage Protection Level	(+)-PE, (-)-PE U_p	2800V	3800V
	(+)-(-) U_p	2800V	3800V
Response Time	t_A	< 25ns	
Short-Circuit Current Rating	I_{SCP}	11kA	
Number of Ports		1	

UL Electrical

Maximum Permitted DC Voltage	V_{pVDC}	600V	1100V
Voltage Protection Rating	(+)-G, (-)-G VPR	2000V	2500V
	(+)-(-) VPR	2000V	2500V
Nominal Discharge Current (8/20 μ s)	I_n	20kA	20kA
Short-Circuit Current Rating	SCCR	50kA	50kA

Additional Electrical Parameters (Tests performed within Raycap testing laboratory only)

Residual Voltage at 5 kA (8/20 μ s)	U_{res}	2200V	3200V
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Mechanical & Environmental

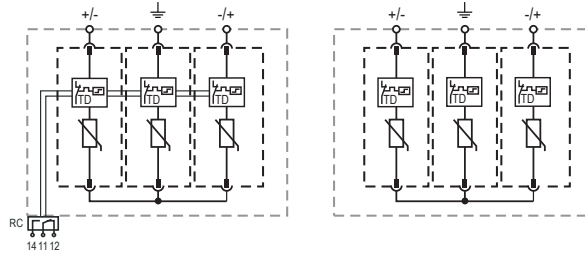
Operating Temperature Range	T_a	-40 °F to +185 °F [-40 °C to +85 °C]	
Permissible Operating Humidity	RH	5%...95%	
Altitude (max)		13123 ft [4000m]	
Terminal Screw Torque	M_{max}	35 lbf-in per UL 1499 [4.5 Nm]	
Conductor Cross Section (max)		6 AWG (Solid, Stranded) per UL 1449	
		35 mm ² (Solid, Stranded) / 25 mm ² (Flexible)	
Mounting		35 mm DIN Rail, EN 60715	
Degree Of Protection		IP 20 (built-in)	
Housing Material		Thermoplastic: Extinguishing Degree UL 94 V-0	
Thermal Protection		Yes	
Operating State / Fault Indication		Green Flag / Not Green Flag	
Remote Contacts (RC)		Optional	
RC Switching Capacity		AC: 250V/1A, 125V/1A; DC: 48V/0.5A, 24V/0.5A, 12V/0.5A	
RC Conductor Cross Section (max)		10 AWG (Solid, Stranded) per UL 1449 [1.5 mm ² (Solid)]	

*No VDE and UL certification.

Internal Configuration

Legend

- +/-, -/+ + or - Conductor Terminal
- ⊥ PE/G Conductor Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnect



ProTec T1-xxxxPV-3+0(-R)

Order Information VDE Certified and UL Recognized Products

Order Code	600*	1100
ProTec T1-xxxxPV-3+0	59.A574	59.0285
ProTec T1-xxxxPV-3+0-R (with remote contacts)	59.A575	59.0286
ProTec T1-300PV-P (middle plug)	59.A576	
ProTec T1-300PV-M-P (side plug)	59.A577	
ProTec T1-550PV-P (middle plug)	-	59.0283
ProTec T1-550PV-M-P (side plug)	-	59.0284

*No VDE and UL certification.

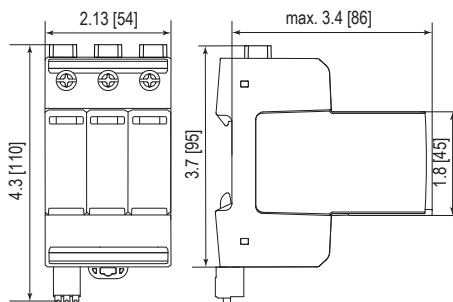
ProTec T1-xxxxPV-3+0-US(-R)

Order Information VDE Certified and Open Type 1 UL Listed Products

Order Code	1100
ProTec T1-xxxxPV-3+0-US	59.B253
ProTec T1-xxxxPV-3+0-US-R (with remote contacts)	59.B254
ProTec T1-550PV-P (middle plug)	59.0283
ProTec T1-550PV-M-P (side plug)	59.0284

Dimensions & Packaging

inches [mm]



Complete Unit UL Recognized Products

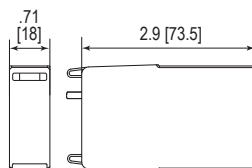
ProTec T1-xxxxPV-3+0(-US)	600	1100
Weight	pounds	.928
	grams	421

Complete Unit UL Listed Products

ProTec T1-xxxxPV-3+0(-US)-R	600	1100
Weight	pounds	.943
	grams	428

DIN 43880 Dimension	3 TE / 2.13" [54]
Packaging Dimensions (H x W x L)	4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]
Standard Order Quantity	5 Units

Spare Plug



Single Unit

ProTec T1-xxxPV-P	300	550
Weight	pounds	.231
	grams	105

ProTec T1-xxxPV-M-P	300	550
Weight	pounds	.165
	grams	75

DIN 43880 Dimension	1 TE / .71" [18]
Packaging Dimensions (H x W x L)	4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]
Standard Order Quantity	28 Units