

Pluggable Multi-pole Surge Protective Devices (SPDs) for Photovoltaic Systems (DC)

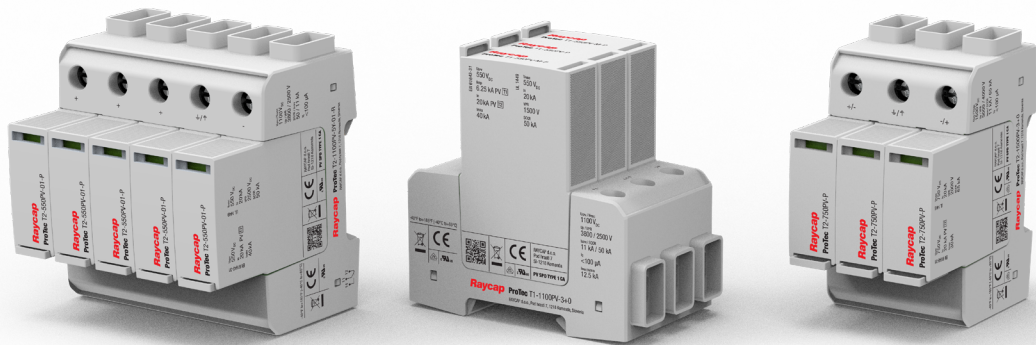


Lightning and Overvoltage Protection

ProTec T1-PV & ProTec T2-PV

Special features:

- Vibration and shock withstand capability
- Sensitive and reliable state-of-the-art disconnecter
- Short circuit current rating up to 30 kA
- Sensitive and reliable remote contact



ProTec T1 PV 5Y Series



ProTec T2 PV 5Y Series



ProTec T1 PV Series



ProTec T2 PV Series



IEC 61643-31:2018

EN 61643-31:2019

UL 1449 5th Edition



ProTec T1 PV and ProTec T2 PV solutions are high-performance, Type 1 and Type 2 pluggable surge protective devices designed to protect the DC power in photovoltaic systems. The products are ideal solutions for protecting String Combiner boxes and PV Inverters and are intended for use in both 1100VDC and 1500VDC systems.

All ProTec PV devices have low-height modules and a short circuit rating of 11 kA, except the ProTec T1-PV-S, which has an excellent short circuit rating of up to 30 kA.

More Product Information



DATASHEET

Pluggable Multi-Pole SPD for Photovoltaic Systems

ProTec T2-PV 3+0

Type 2 • PV SPD Type 1CA



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



Technical Data

ProTec T2-xxxxPV-3+0(-R)

		1100	1500
EN Electrical			
Maximum Continuous Operating Voltage (PV)	U_{CPV}	1100 V	1500 V
Nominal Discharge Current (8/20 μ s)	I_n	20 kA	20 kA
Maximum Discharge Current (8/20 μ s)	I_{max}	40 kA	30 kA
Total Discharge Current	I_{Total}	50 kA	40 kA
Voltage Protection Level	U_p	3800 V	5000 V
Response Time	t_A	< 25 ns	
Overvoltage Category		III	
Short-Circuit Current Rating	I_{SCPV}	11 kA	
Number of Ports		1	

UL Electrical

Maximum Permitted DC Voltage	V_{pvdC}	1100V	1500V
Voltage Protection Rating	VPR	2500V	4000V
Nominal Discharge Current (8/20 μ s)	I_n	20 kA	20 kA
Short-Circuit Current Rating	SCCR	50 kA	65 kA

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

Residual Voltage at 5 kA (8/20 μ s)	U_{res}	3100V	4000V
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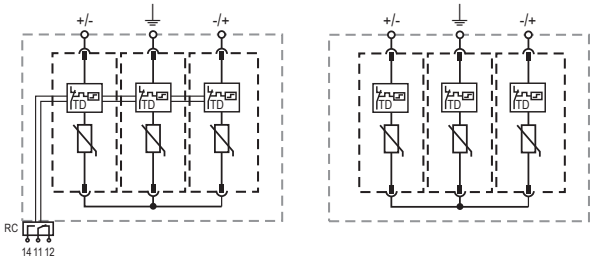
Mechanical & Environmental

Operating Temperature Range	T_a	-40 °F to +185 °F [-40 °C to +85 °C]	
Permissible Operating Humidity	RH	5%...95%	
Pollution Degree		2	
Altitude (max)		13123 ft [4000 m]	
Terminal Screw Torque	M_{max}	40 lbf-in [4.5 Nm]	
Conductor Cross Section (max)		2 AWG (Solid, Stranded) / 4 AWG (Flexible) 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)		16 AWG (Solid) / 1.5 mm ² (Solid)	
Overvoltage Category		III	

Internal Configuration

Legend

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

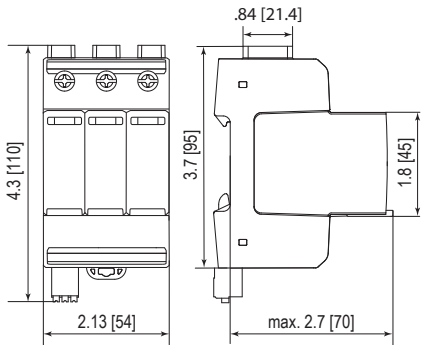


Order Information

Order Code	1100	1500
ProTec T2-xxxxPV-3+0	59.0292	59.0295
ProTec T2-xxxxPV-3+0-R (with remote contacts)	59.0293	59.0296
ProTec T2-550PV-P (plug)	59.0291	-
ProTec T2-750PV-P (plug)	-	59.0294

Dimensions & Packaging

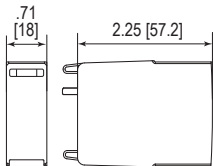
inches [mm]



Complete Unit

ProTec T2-xxxxPV-3+0	1100	1500
Weight	pounds [grams]	
	.806 [366]	.879 [399]
ProTec T2-xxxxPV-3+0-R		
Weight	pounds [grams]	
	.817 [371]	.890 [404]
DIN 43880 Dimension	3 TE / 2.13" [54 mm]	
Packaging Dimensions (HxWxL)	4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]	
Standard Order Quantity	5 Units	

Spare Plug



Single Unit

ProTec T2-xxxPV-P	550	750
Weight	pounds [grams]	
	.150 [68]	.174 [79]
DIN 43880 Dimension	1 TE / .71" [18 mm]	
Packaging Dimensions (HxWxL)	3.2 x 4.5 x 12" [83 x 116 x 305 mm]	
Standard Order Quantity	24 Units	

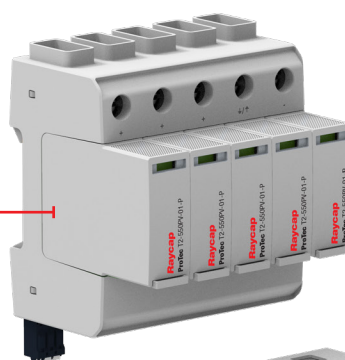
Complete Range of Protection Solutions for PV Systems

Lower Voltage SPDs for PV Systems



A wide portfolio of products in various shapes and lower voltages is also available on the QR code.

ProTec T1 & T2 5Y 1100V
Products feature different connection options and UL certifications.



ProTec T2 PV Series
Voltage ranges of 125V and 250V available in 1+0 and 2+0 configurations.



Multi-pole SPD
Available in standard and lower voltage (300V and 600V) format.

