

Box with Multi-Pole SPD for Photovoltaic Systems



Lightning and Overvoltage Protection

ProTec T1 PV 3Y & 5Y Box & ProTec T2 PV 3Y & 5Y Box

Special features:

- Pre-assembled connection box with Class I & II / EN Type 1 & 2 arrester for 1100 V and 1500 V DC
- Quick on-wall installation of the DC side protection next to the inverter
- Compact UV-stable housing with protection class IP67 for indoor and outdoor instructions
- Transparent cover with identification of the failure status on the plugs
- Toolless connection of the strings
- Upcoming test class II according to EN 61643-31:2019
- Housing size only 160 × 120 × 91 mm



Konformität	EN 61643-31:2019	IEC 61643-31: 2018
ProTec T1 PV 3Y & 5Y Box	✓	✓
ProTec T2 PV 3Y & 5Y Box	✓	✓

The compact T1 and T2 PV box protects inverters, which are unprotected against overvoltages on the DC side. The installation is very easy: the drill holes can be quickly marked with the enclosed drilling template, without opening the PV box. Thanks to the push-in connections and cable glands, the strings can be attached without tools. Due to a housing with protection class IP 67 and a UV-stable cover, the PV box is suitable for indoor and outdoor use. The status display is easy to read through a transparent cover. The T1 and T2 PV-Box is available in two DC voltages and for one and two MPP tracker applications.

DATA SHEET

Box with Multi-Pole SPD for Photovoltaic Systems
ProTec T1 PV-3Y(-S)(-MC)-Box
 Class I • Class II • Type 1 • Type 2



Location of Use: Photovoltaic Systems
 Mode of Protection: (+)-PE, (-)-PE, (+)-(-)
 IEC/EN Category: Class I+II, Type 1+2
 Housing: IP 67 Enclosure
 Compliance: EN 61643-31:2019
 IEC 61643-31: 2018

Technical Data

ProTec T1-xxxxPV-3Y(-S)(-MC)-Box

1100

1500

Electrical

Maximum Continuous Operating Voltage (DC)	U_{OPV}	1100V	1500V
Nominal Discharge Current (8/20 μ s)	I_n	20 kA	20 kA
Total Discharge Current (8/20 μ s)	I_{total}	50 kA	50 kA
Maximum Discharge Current (8/20 μ s)	I_{max}	40 kA	50 kA
Impulse Discharge Current (10/350 μ s)	I_{imp}	6.25 kA	6.25 kA
Total Discharge Current (10/350 μ s)	I_{total}	12.5 kA	12.5 kA
Specific Energy	W/R	9.77 kJ/ Ω	9.77 kJ/ Ω
Charge	Q	3.125 As	3.125 As
Voltage Protection Level	U_p	< 4.4 kV	< 5.2 kV
Response Time	t_A	< 25 ns	< 25 ns
Short Circuit Current Rating	I_{SCPV}	11 kA	30 kA
Number of Strings per MPPT			1

Mechanical & Environmental

Temperature Range	T_a	-40 °F to +185 °F [-40 °C to +85 °C]	
Permissible Humidity	RH	5%...95%	
Altitude		13123 ft [4000 m]	
Type of Cable Entry		Cable Gland / MC4 Connectors	
Conductor Cross Section [Cable Gland]	(min)	13 AWG [2.5 mm ²] (stranded, flexible)	
	(max)	9 AWG [6 mm ²] (stranded, flexible)	
Conductor Cross Section Grounding [Cable Gland]	(min)	9 AWG [6 mm ²] (stranded, flexible)	
	(max)	5 AWG [16 mm ²] (stranded, flexible)	
Wire Insulation Outer Diameter [Cable Gland]	(min)	.15" [4 mm] (stranded, flexible)	
	(max)	.31" [8mm] (stranded, flexible)	
Degree of Protection		IP 67	
Thermal Protection		Yes	
Operating State / Fault Indication		Green Flag / Not Green Flag	
Housing Material		Polycarbonat with Semitransparent Cover	
Mounting		Outdoor Wall	

Order Information

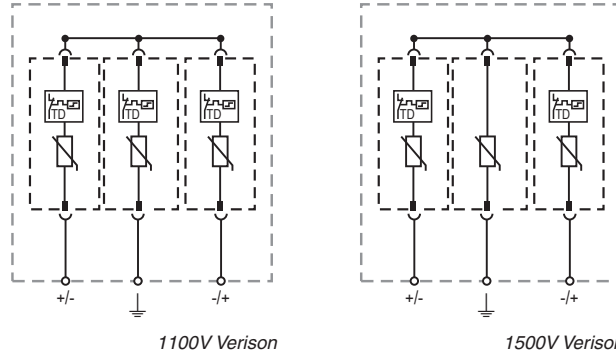
Order Code	1100	1500
ProTec T1-xxxxPV-3Y-Box	515 608	-
ProTec T1-xxxxPV-3Y-S-Box	-	515 612
ProTec T1-xxxxPV-3Y-MC-Box	515 615	-
ProTec T1-xxxxPV-3Y-S-MC-Box	-	515 617

ProTec T1 PV-3Y(-S)(-MC)-Box

Internal Configuration

Legend

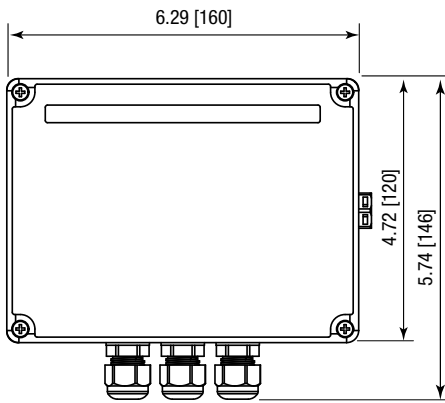
- +/-, -/+ Terminal for +/-, -/+ Conductor
- ⊥ Terminal for PE/G Conductor
- TD Thermal Disconnect



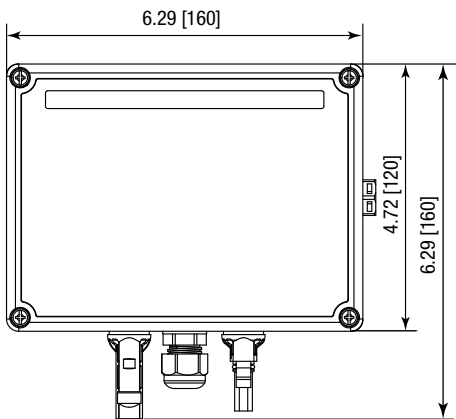
1100V Verison

1500V Verison

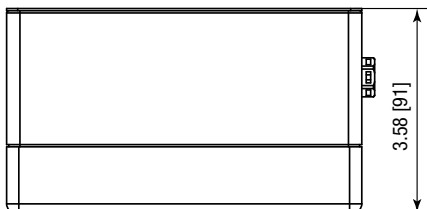
Dimensions & Packaging [mm]



Cable Glands



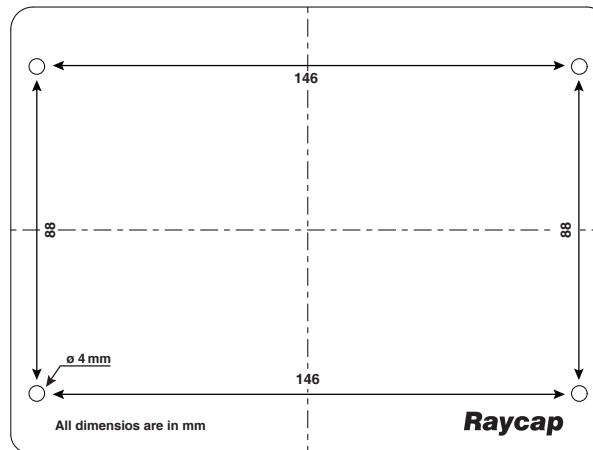
MC4 Connectors



Dimensions & Packaging

		1100	1500
ProTec T1-xxxxPV-3Y(-S)-Box			
Single Unit Weight	pounds [grams]	1.545 [701]	1.776 [806]
ProTec T1-xxxxPV-3Y(-S)-MC-Box			
Single Unit Weight	pounds [grams]	1.701 [772]	1.933 [877]
Packaging Dimensions (H x W x L)		4.06 x 6.29 x 7.87" [103 x 160 x 200 mm]	
Minimum Package Quantity		1 Unit	

Drill Template [mm]



inches
[mm]

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DATA SHEET

Box with Multi-Pole SPD for Photovoltaic Systems

ProTec T1 PV-5Y(-S)(-MC)-Box

Class I • Class II • Type 1 • Type 2



Location of Use: Photovoltaic Systems
 Mode of Protection: (+)-PE, (-)-PE, (+)-(-)
 IEC/EN Category: Class I+II, Type 1+2
 Housing: IP 67 Enclosure
 Compliance: EN 61643-31:2019
 IEC 61643-31: 2018

Technical Data**ProTec T1-xxxxPV-5Y(-S)(-MC)-Box****1100****1500****Electrical**

Maximum Continuous Operating Voltage (DC)	U_{OPV}	1100V	1500V
Nominal Discharge Current (8/20 μ s)	I_n	20 kA	20 kA
Total Discharge Current (8/20 μ s)	I_{total}	50 kA	50 kA
Maximum Discharge Current (8/20 μ s)	I_{max}	40 kA	50 kA
Impulse Discharge Current (10/350 μ s)	I_{imp}	6.25 kA	6.25 kA
Total Discharge Current (10/350 μ s)	I_{total}	12.5 kA	12.5 kA
Specific Energy	W/R	9.77 kJ/ Ω	9.77 kJ/ Ω
Charge	Q	3.125 As	3.125 As
Voltage Protection Level	U_p	< 4.4 kV	< 5.2 kV
Response Time	t_A	< 25 ns	< 25 ns
Short Circuit Current Rating	I_{SCPV}	11 kA	30 kA
Number of Strings per MPPT			2

Mechanical & Environmental

Temperature Range	T_a	-40 °F to +185 °F [-40 °C to +85 °C]	
Permissible Humidity	RH	5%...95%	
Altitude		13123 ft [4000 m]	
Type of Cable Entry		Cable Gland / MC4 Connectors	
Conductor Cross Section [Cable Gland]	(min)	13 AWG [2.5 mm ²] (stranded, flexible)	
	(max)	9 AWG [6 mm ²] (stranded, flexible)	
Conductor Cross Section Grounding [Cable Gland]	(min)	9 AWG [6 mm ²] (stranded, flexible)	
	(max)	5 AWG [16 mm ²] (stranded, flexible)	
Wire Insulation Outer Diameter [Cable Gland]	(min)	.15" [4 mm] (stranded, flexible)	
	(max)	.31" [8mm] (stranded, flexible)	
Degree of Protection		IP 67	
Thermal Protection		Yes	
Operating State / Fault Indication		Green Flag / Not Green Flag	
Housing Material		Polycarbonat with Semitransparent Cover	
Mounting		Outdoor Wall	

Order Information

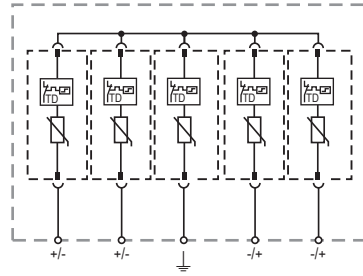
Order Code	1100	1500
ProTec T1-xxxxPV-5Y-Box	515 609	-
ProTec T1-xxxxPV-5Y-S-Box	-	515 613
ProTec T1-xxxxPV-5Y-MC-Box	515 616	-
ProTec T1-xxxxPV-5Y-S-MC-Box	-	515 618

ProTec T1 PV-5Y-L(-S)(-MC)-Box

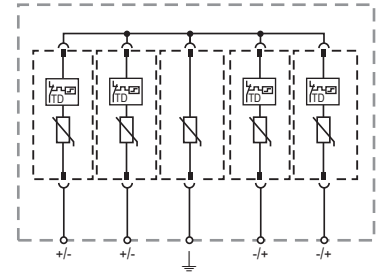
Internal Configuration

Legend

- +/-, -/+ Terminal for +/-, -/+ Conductor
- ⏚ Terminal for PE/G Conductor
- TD Thermal Disconnect

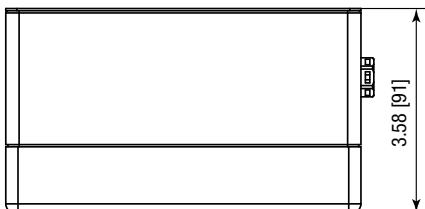
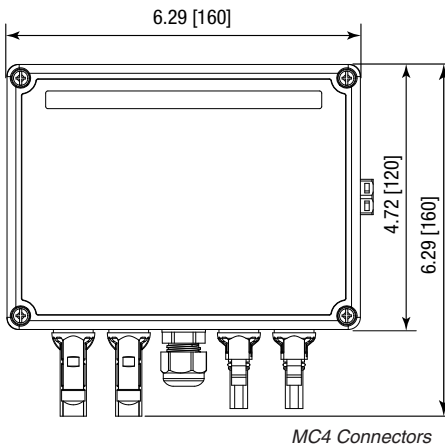
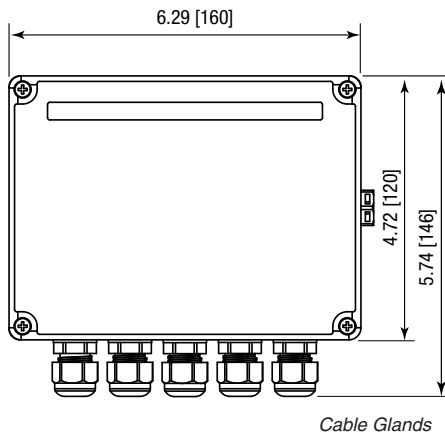


1100V Verison



1500V Verison

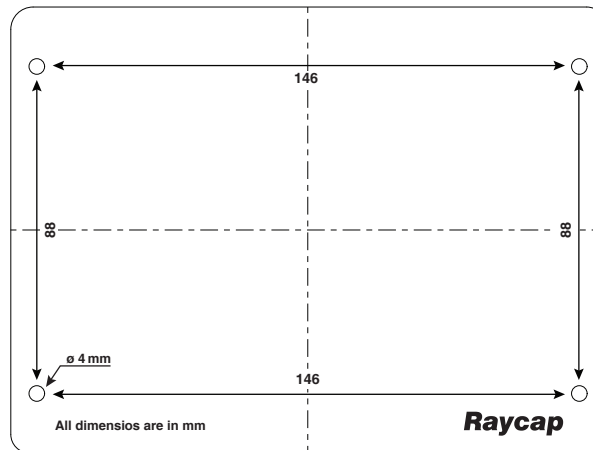
Dimensions & Packaging [mm]



Dimensions & Packaging

ProTec T1-xxxxPV-5Y(-S)-Box		1100	1500
Single Unit Weight		2.017 [915]	2.416 [1096]
ProTec T1-xxxxPV-5Y(-S)-MC-Box			
Single Unit Weight	pounds [grams]	2.222 [1008]	2.621 [1189]
Packaging Dimensions (H x W x L)		4.06 x 6.29 x 7.87" [103 x 160 x 200 mm]	
Minimum Package Quantity		1 Unit	

Drill Template [mm]



inches
[mm]

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Box with Multi-Pole SPD for Photovoltaic Systems
ProTec T2 PV-3Y-L(-MC)-Box
 Class II • Type 2



Location of Use: Photovoltaic Systems
 Mode of Protection: (+)-PE, (-)-PE, (+)-(-)
 IEC/EN Category: Class II, Type 2
 Housing: IP 67 Enclosure
 Compliance: EN 61643-31:2019
 IEC 61643-31: 2018

Technical Data

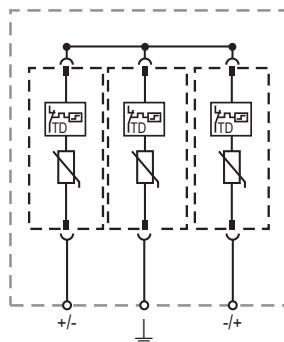
ProTec T2-xxxxPV-3Y-L(-MC)-Box		1100	1500
Electrical			
Maximum Continuous Operating Voltage (DC)	U_{OPV}	1100V	1500V
Nominal Discharge Current (8/20 μ s)	I_n	20 kA	15 kA
Total Discharge Current (8/20 μ s)	I_{total}	40 kA	40 kA
Maximum Discharge Current (8/20 μ s)	I_{max}	40 kA	40 kA
Voltage Protection Level	U_p	< 4.2 kV	< 4.8 kV
Response Time	t_A	< 25 ns	
Short Circuit Current Rating	I_{SCPV}	9 kA	
Number of Strings per MPPT		1	
Mechanical & Environmental			
Temperature Range	T_a	-40 °F to +185 °F [-40 °C to +85 °C]	
Permissible Humidity	RH	5%...95%	
Altitude		13123 ft [4000 m]	
Type of Cable Entry		Cable Gland / MC4 Connectors	
Conductor Cross Section [Cable Gland]	(min)	13 AWG [2.5 mm ²] (stranded, flexible)	
	(max)	9 AWG [6 mm ²] (stranded, flexible)	
Conductor Cross Section Grounding [Cable Gland]	(min)	9 AWG [6 mm ²] (stranded, flexible)	
	(max)	5 AWG [16 mm ²] (stranded, flexible)	
Wire Insulation Outer Diameter [Cable Gland]	(min)	.15" [4 mm] (stranded, flexible)	
	(max)	.31" [8 mm] (stranded, flexible)	
Degree of Protection		IP 67	
Thermal Protection		Yes	
Operating State / Fault Indication		Green Flag / Not Green Flag	
Housing Material		Polycarbonat with Semitransparent Cover	
Mounting		Outdoor Wall	
Order Information			
Order Code		1100	1500
ProTec T2-xxxxPV-3Y-L-Box		515 546	515 548
ProTec T2-xxxxPV-3Y-L-MC-Box		515 550	515 552

ProTec T2 PV-3Y-L(-MC)-Box

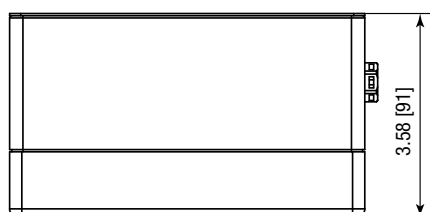
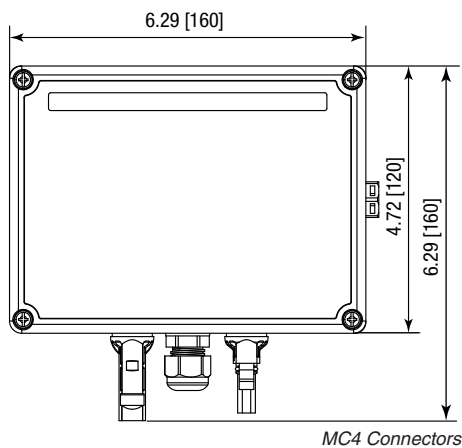
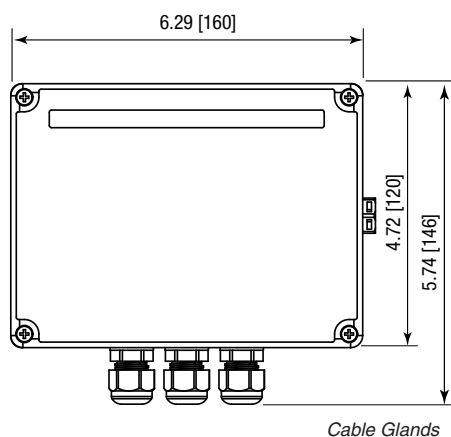
Internal Configuration

Legend

- +/-, -/+ Terminal for +/-, -/+ Conductor
- ⊥ Terminal for PE/G Conductor
- TD Thermal Disconnect



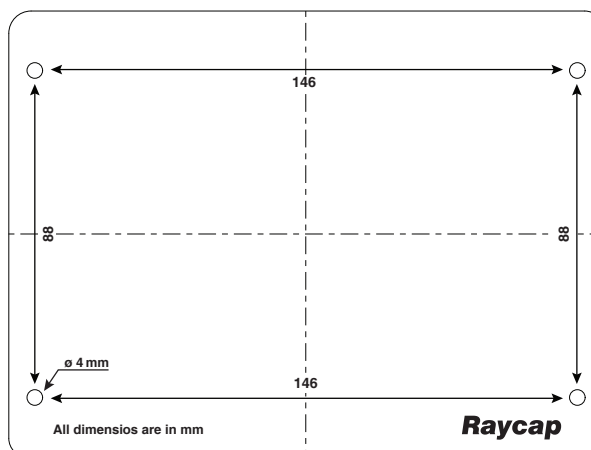
Dimensions & Packaging



Dimensions & Packaging

ProTec T2-xxxxPV-3Y-L-Box		1100	1500
Single Unit Weight	pounds [grams]	1.55 [705]	1.53 [694]
ProTec T2-xxxxPV-3Y-L-MC-Box			
Single Unit Weight	pounds [grams]	1.494 [678]	1.55 [705]
Packaging Dimensions (H x W x L)		4.06 x 6.29 x 7.87" [103 x 160 x 200 mm]	
Minimum Package Quantity		1 Unit	

Drill Template [mm]



inches
[mm]

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Box with Multi-Pole SPD for Photovoltaic Systems
ProTec T2 PV-5Y-L(-MC)-Box
 Class II • Type 2



Location of Use: Photovoltaic Systems
 Mode of Protection: (+)-PE, (-)-PE, (+)-(-)
 IEC/EN Category: Class II, Type 2
 Housing: IP 67 Enclosure
 Compliance: EN 61643-31:2019
 IEC 61643-31: 2018

Technical Data

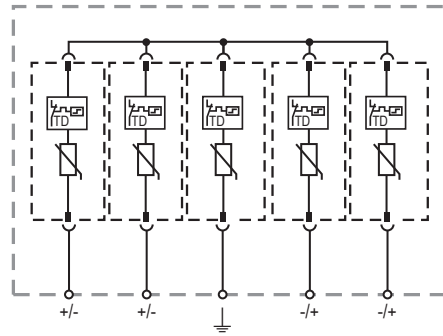
ProTec T2-xxxxPV-5Y-L(-MC)-Box		1100	1500
Electrical			
Maximum Continuous Operating Voltage (DC)	U_{OPV}	1100V	1500V
Nominal Discharge Current (8/20 μ s)	I_n	20 kA	15 kA
Total Discharge Current (8/20 μ s)	I_{total}	40 kA	40 kA
Maximum Discharge Current (8/20 μ s)	I_{max}	40 kA	40 kA
Voltage Protection Level	U_p	< 4.2kV	< 4.8 kV
Response Time	t_A	< 25 ns	
Short Circuit Current Rating	I_{SCPV}	9 kA	
Number of Strings per MPPT		2	
Mechanical & Environmental			
Temperature Range	T_a	-40 °F to +185 °F [-40 °C to +85 °C]	
Permissible Humidity	RH	5%...95%	
Altitude		13123 ft [4000m]	
Type of Cable Entry		Cable Gland / MC4 Connectors	
Conductor Cross Section [Cable Gland]	(min)	13 AWG [2.5 mm ²] (stranded, flexible)	
	(max)	9 AWG [6 mm ²] (stranded, flexible)	
Conductor Cross Section Grounding [Cable Gland]	(min)	9 AWG [6 mm ²] (stranded, flexible)	
	(max)	5 AWG [16 mm ²] (stranded, flexible)	
Wire Insulation Outer Diameter [Cable Gland]	(min)	.15" [4 mm] (stranded, flexible)	
	(max)	.31" [8mm] (stranded, flexible)	
Degree of Protection		IP 67	
Thermal Protection		Yes	
Operating State / Fault Indication		Green Flag / Not Green Flag	
Housing Material		Polycarbonat with Semitransparent Cover	
Mounting		Outdoor Wall	
Order Information			
Order Code		1100	1500
ProTec T2-xxxxPV-5Y-L-Box		515 545	515 547
ProTec T2-xxxxPV-5Y-L-MC-Box		515 549	515 551

ProTec T2 PV-5Y-L(-MC)-Box

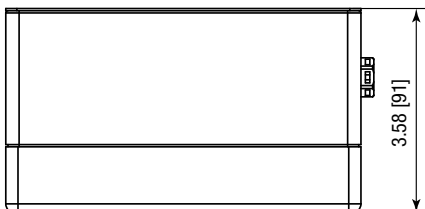
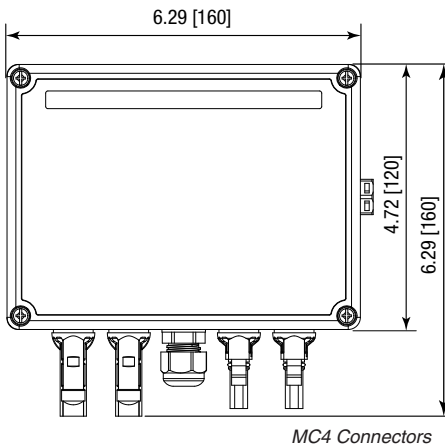
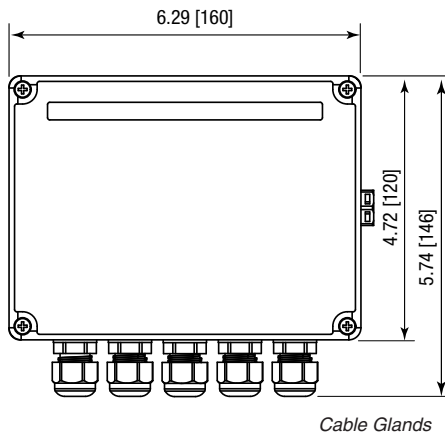
Internal Configuration

Legend

- +/-, -/+ Terminal for +/-, -/+ Conductor
- ⊥ Terminal for PE/G Conductor
- TD Thermal Disconnect



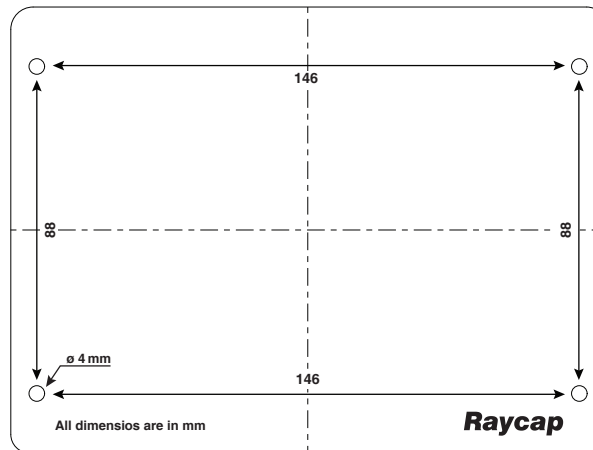
Dimensions & Packaging



Dimensions & Packaging

ProTec T2-xxxxPV-5Y-L-Box		1100	1500
Single Unit Weight	pounds [grams]	1.96 [890]	1.91 [869]
ProTec T2-xxxxPV-5Y-L-MC-Box			
Single Unit Weight	pounds [grams]	1.89 [860]	1.95 [886]
Packaging Dimensions (H x W x L)		4.06 x 6.29 x 7.87" [103 x 160 x 200 mm]	
Minimum Package Quantity		1 Unit	

Drill Template [mm]



inches
[mm]

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