

Lightning and Overvoltage Protection

12.5 kA Series

ProTec T1 4+0

Class I • Class II • Type 1 • Type 2 • Type 1CA • Open Type 1 SPD Listed



Location of Use: Main Distribution Boards
 Network Systems: TN-S
 Mode of Protection: L-PE, N-PE
 IEC/EN/UL Category: Class I+II / Type 1+2 / Type 1CA, Open Type 1 SPD Listed
 Housing: Pluggable Design
 Compliance: IEC 61643-11:2011
 EN 61643-11:2012 +A11:2018
 UL 1449 5th Edition

Technical Data

ProTec T1-xxx-4+0(-R) & ProTec T1-xxx-4+0-US(-R)

		150	300	350	440**	480
IEC Electrical						
Nominal AC Voltage (50/60Hz)	U_o/U_n	120V	240V	277V	230V	400V
Maximum Continuous Operating Voltage (AC)	U_c	150V	300V	350V	440V	480V
Nominal Discharge Current (8/20 μ s)	I_n	20kA	20kA	20kA	20kA	20kA
Maximum Discharge Current (8/20 μ s)	I_{max}	50kA	50kA	50kA	50kA	50kA
Impulse Discharge Current (10/350 μ s)	I_{imp}	12.5kA	12.5kA	12.5kA	12.5kA	10kA
Specific Energy	W/R	39kJ/ Ω	39kJ/ Ω	39kJ/ Ω	39kJ/ Ω	25kJ/ Ω
Charge	Q	6.25As	6.25As	6.25As	6.25As	5As
Voltage Protection Level	U_p	1000V	1500V	1750V	1800V	2100V
Response Time	t_A	< 25ns				
Overcurrent Protection (max)		315 A / 250 A gG				
Short-Circuit Current Rating (AC)	I_{SCCR}	25kA / 50kA				
TOV Withstand 5s	U_T	175V	337V	403V	440V	581V
TOV 120min	U_T	229V	442V	529V	440V	762V
	mode	Safe Fail	Safe Fail	Safe Fail	Withstand	Safe Fail
Number of Ports		1				

UL Electrical						
Maximum Continuous Operating Voltage (AC)	MCOV	150V	300V	350V	-	480V
Voltage Protection Rating	VPR	600V	900V	1200V	-	1500V
Nominal Discharge Current (8/20 μ s)	I_n	20kA	20kA	20kA	-	20kA
Short-Circuit Current Rating (AC)	SCCR	200kA	150kA	150kA	-	200kA

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

Residual Voltage at 5 kA (8/20 μ s)	U_{res}	800V	1100V	1300V	1400V	1500V
Overcurrent Protection (min)		160 A gG				

Additional Electrical Parameters - Extended (Additionally tested by VDE)

Short-Circuit Current Rating (AC)	I_{SCCR}	100kA				
Overcurrent Protection (max)		250 A gG				

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.

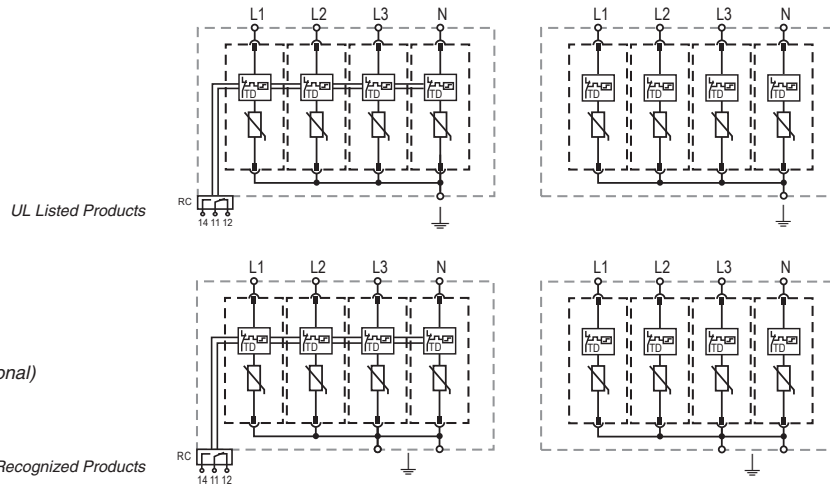
Technical Data includes technical values for both UL Recognized and Open Type 1 UL Listed products.

Mechanical Data includes only technical values for Open Type 1 UL Listed products.

Connection Configurations can be found in QR Code link on intro page.



Internal Configuration



Legend

- L Line Conductor Terminal
- N Neutral Conductor Terminal
- PE/G Conductor Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnect

ProTec T1-xxx-4+0(-R)

Order Information VDE Certified and UL Recognized Products

Order Code	150	300	350	440**	480
ProTec T1-xxx-4+0	59.0039	59.0041	59.0351	59.0537	59.0043
ProTec T1-xxx-4+0-R (with remote contacts)	59.0040	59.0042	59.0352	59.0538	59.0044
ProTec T1-xxx-P (plug)	59.0002	59.0003	59.0004	59.0539	59.0005

**No VDE and UL certification.

ProTec T1-xxx-4+0-US(-R)

For UL Listed products one PE/G Conductor Terminal is covered/closed.

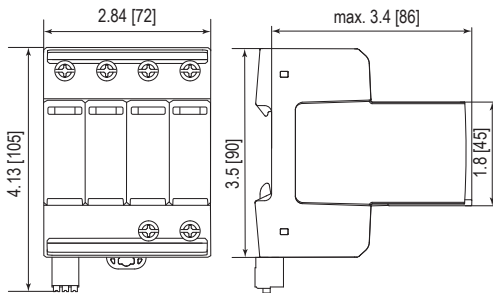
Order Information VDE Certified and Open Type 1 UL Listed Products

Order Code	150	300	350	440**	480
ProTec T1-xxx-4+0-US	59.B035	59.B037	59.B039	-	59.B041
ProTec T1-xxx-4+0-US-R (with remote contacts)	59.B036	59.B038	59.B040	-	59.B042
ProTec T1-xxx-P (plug)	59.0002	59.0003	59.0004	59.0539	59.0005

**No VDE and UL certification.

Dimensions & Packaging

inches [mm]



Complete Unit UL Recognized Products

ProTec T1-xxx-4+0	150	300	350	440**	480	
Weight						
	pounds	1.310	1.415	1.583	1.508	1.609
	grams	594	642	718	684	730

ProTec T1-xxx-4+0-R

Weight						
	pounds	1.329	1.435	1.603	1.519	1.629
	grams	603	651	727	689	739

Complete Unit UL Listed Products

ProTec T1-xxx-4+0-US	150	300	350	440**	480	
Weight						
	pounds	1.290	1.395	1.563	1.488	1.589
	grams	585	633	709	675	721

ProTec T1-xxx-4+0-US-R

Weight						
	pounds	1.309	1.415	1.583	1.499	1.609
	grams	594	642	718	680	730

DIN 43880 Dimension

4 TE / 2.84" [72]

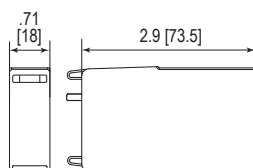
Packaging Dimensions (HxWxL)

4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]

Standard Order Quantity

4 Units

Spare Plug



Single Unit

ProTec T1-xxx-P	150	300	350	440**	480	
Weight						
	pounds	.203	.229	.271	.287	.278
	grams	92	104	123	130	126

DIN 43880 Dimension

1 TE / .71" [18]

Packaging Dimensions (HxWxL)

4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]

Standard Order Quantity

28 Units