Pluggable Single Pole & Multi-pole Surge Protective Devices (SPDs)

Lightning and Overvoltage Protection

ProTec T1-LH Series

Special features:

- Type 1 SPD in low (T2) height – 70mm
- High discharge capacity – I_{imp} = 12.5 kA
- Continuous Operating Voltage U_c 300V
- Back-up fuse up to 160 A gG
- Short circuit current rating up to 50 kA
- Vibration and shock withstand capability
- All modules, also N-PE, with operating state green-red
- Optional remote contact (RC) signaling

IEC 61643-11:2011	EN 61643-11:2012 +A11:2018	UL 1449 5th Edition
✓	✓	✓

For installations where space is at a premium and would benefit from a slightly reduced module height, the Raycap ProTec LH series offers an alternative form factor with a shorter module height of 70 mm in the T2 product versions. With performance specifications similar to the ProTec T1 products, the "LH" model versions are excellent for installing in cabinets with extreme space depth restrictions. The ProTec T1-LH series offers basic protection as a Type 1 surge protective device that comes with continuous operating voltage of 300 V. Product offers Type 1 classification for installations between boundaries OA – 1 and higher in only 70 mm module height. The varistor based protection module features outstanding short-circuit currents up to 50 kA without using a back up to a main fuse nominal current of 160 A. All modules are equipped with state-of-the-art thermal disconnector and life-status monitoring (green-red). Due to a unique vibration-proof locking mechanism design, these products are suitable for use in high vibration environments. An optional remote contact (RC) feature offers a three-pole remote signaling terminal to remotely monitor the operating state of the device.

More Product Information

RoHS COMPLIANT

DATASHEET Lightning and Overvoltage Protection **12.5 kA Series**

ProTec T1 1+0 LH

Class I • Class II • Type 1 • Type 2 • Type 4CA

Location of Use: Main Distribution Boards
Network Systems: TN-S, TN-C, TT (only L-N)
Mode of Protection: L-PE, N-PE (only TN-S), L-PEN, L-N
IEC/EN Category: Class I+II / Type 1+2 / Type 4CA
Housing: Pluggable Design
Compliance: IEC 61643-11:2011
EN 61643-11:2012+A11:2018
UL 1449 5th Edition

RoHS COMPLIANT

Technical Data

ProTec T1-xxx-1+0-LH(-R)		300
IEC Electrical		
Nominal AC Voltage (50/60Hz)	U_o/U_n	240 V
Maximum Continuous Operating Voltage (AC)	U_c	300 V
Nominal Discharge Current (8/20 µs)	I_n	20 kA
Maximum Discharge Current (8/20 µs)	I_{max}	40 kA
Impulse Discharge Current (10/350 µs)	I_{imp}	12.5 kA
Specific Energy	W/R	39 kJ/Ω
Charge	Q	6.25 As
Voltage Protection Level	U_p	1500 V
Response Time	t_A	< 25 ns
Overvoltage Category		III
Maximum Backup fuse, if required		160 A gG
Short-Circuit Current Rating (AC)	I_{SCCR}	50 kA
TOV Withstand 5s	U_T	337 V
TOV 120min	U_T	442 V
	mode	Safe Fail
Number of Ports		1
UL Electrical		
Maximum Continuous Operating Voltage (AC)	MCOV	300 V
Measured Limiting Voltage	MLV	1200 V
Nominal Discharge Current (8/20 µs)	I_n	20 kA
Additional Electrical Parameters *(Tests performed within Raycap testing laboratory only)*		
Residual Voltage at 5 kA (8/20 µs)	U_{res}	700 V
Minimum Backup fuse, if required		160 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%
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 mm² (Solid, Stranded) / 25 mm² (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: 250 V / 1 A, 125 V / 1 A; DC: 48 V / 0.5 A, 24 V / 0.5 A, 12 V / 0.5 A
RC Conductor Cross Section (max)		16 AWG (Solid) / 1.5 mm² (Solid)
Overvoltage Category		III

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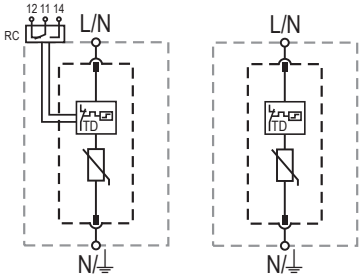
Internal Configuration

Legend

L	*Line Conductor Terminal*
N	*Neutral Conductor Terminal*
⏚	*PE Conductor Terminal*
RC	*Remote Contacts Terminal (Optional)*
TD	*Thermal Disconnector*

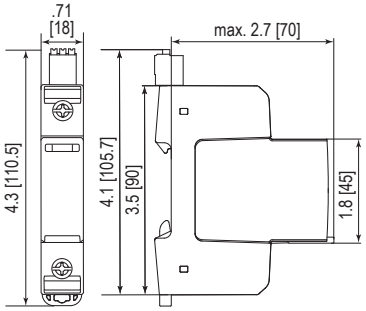


ProTec T1-xxx-1+0-LH(-R)

Order Information	
Order Code	**300**
ProTec T1-xxx-1+0-LH	59.A371
ProTec T1-xxx-1+0-LH-R (with remote contacts)	59.A372
ProTec T1-xxx-LH-P (plug)	59.A383

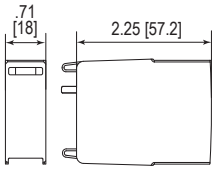
Dimensions & Packaging

inches [mm]



Complete Unit		
ProTec T1-xxx-1+0-LH		**300**
Weight	pounds	.414
	grams	188
ProTec T1-xxx-1+0-LH-R		
Weight	pounds	.421
	grams	191
DIN 43880 Dimension		1 TE / .71" [18 mm]
Packaging Dimensions (HxWxL)		4.3 × 4.5 × 13.8" [109 × 115 × 352 mm]
Standard Order Quantity		12 Units

Spare Plug



Single Unit		
ProTec T1-xxx-LH-P		**300**
Weight	pounds	.255
	grams	116
DIN 43880 Dimension		1 TE / .71" [18 mm]
Packaging Dimensions (HxWxL)		4.3 × 4.5 × 13.8" [109 × 116 × 352 mm]
Standard Order Quantity		24 Units

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DATASHEET Lightning and Overvoltage Protection **12.5 kA Series**

ProTec T1 2+0 LH

Class I • Class II • Type 1 • Type 2 • Type 4CA

Location of Use: Main Distribution Boards
Network Systems: TN-S
Mode of Protection: L-PE, N-PE
IEC/EN Category: Class I+II / Type 1+2 / Type 4CA
Housing: Pluggable Design
Compliance: IEC 61643-11:2011
EN 61643-11:2012+A11:2018
UL 1449 5th Edition

RoHS COMPLIANT

Technical Data

ProTec T1-xxx-2+0-LH(-R)		300
IEC Electrical		
Nominal AC Voltage (50/60Hz)	U_o/U_n	240 V
Maximum Continuous Operating Voltage (AC)	U_c	300 V
Nominal Discharge Current (8/20 µs)	I_n	20 kA
Maximum Discharge Current (8/20 µs)	I_{max}	40 kA
Impulse Discharge Current (10/350 µs)	I_{imp}	12.5 kA
Specific Energy	W/R	39 kJ/Ω
Charge	Q	6.25 As
Voltage Protection Level	U_p	1500 V
Response Time	t_A	< 25 ns
Overvoltage Category		III
Maximum Backup fuse, if required		160 A gG
Short-Circuit Current Rating (AC)	I_{SCCR}	50 kA
TOV Withstand 5s	U_T	337 V
TOV 120min	U_T	442 V
	mode	Safe Fail
Number of Ports		1
UL Electrical		
Maximum Continuous Operating Voltage (AC)	MCOV	300 V
Measured Limiting Voltage	MLV	1200 V
Nominal Discharge Current (8/20 µs)	I_n	20 kA
Additional Electrical Parameters *(Tests performed within Raycap testing laboratory only)*		
Residual Voltage at 5 kA (8/20 µs)	U_{res}	700 V
Minimum Backup fuse, if required		160 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%
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 mm² (Solid, Stranded) / 25 mm² (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: 250 V / 1 A, 125 V / 1 A; DC: 48 V / 0.5 A, 24 V / 0.5 A, 12 V / 0.5 A
RC Conductor Cross Section (max)		16 AWG (Solid) / 1.5 mm² (Solid)
Overvoltage Category		III

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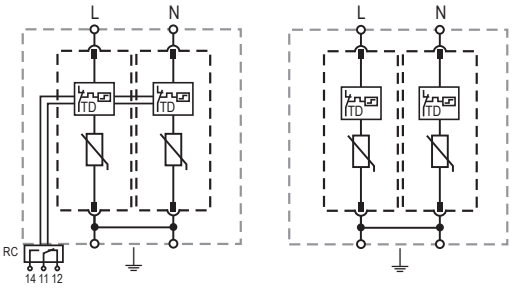
Internal Configuration

Legend

L	*Line Conductor Terminal*
N	*Neutral Conductor Terminal*
⏚	*PE Conductor Terminal*
RC	*Remote Contacts Terminal (Optional)*
TD	*Thermal Disconnector*

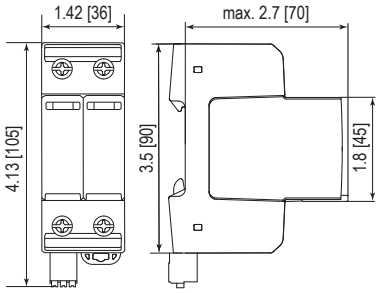


ProTec T1-xxx-2+0-LH(-R)

Order Information	
Order Code	**300**
ProTec T1-xxx-2+0-LH	59.A373
ProTec T1-xxx-2+0-LH-R (with remote contacts)	59.A374
ProTec T1-xxx-LH-P (plug)	59.A383

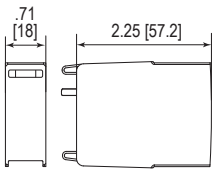
Dimensions & Packaging

inches [mm]



Complete Unit		
ProTec T1-xxx-2+0-LH		**300**
Weight	pounds	.809
	grams	367
ProTec T1-xxx-2+0-LH-R		
Weight	pounds	.820
	grams	372
DIN 43880 Dimension		2 TE / 1.42" [36 mm]
Packaging Dimensions (HxWxL)		4.3 × 4.5 × 13.8" [109 × 115 × 352 mm]
Standard Order Quantity		7 Units

Spare Plug



Single Unit		
ProTec T1-xxx-LH-P		**300**
Weight	pounds	.255
	grams	116
DIN 43880 Dimension		1 TE / .71" [18 mm]
Packaging Dimensions (HxWxL)		4.3 × 4.5 × 13.8" [109 × 116 × 352 mm]
Standard Order Quantity		24 Units

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DATASHEET Lightning and Overvoltage Protection **12.5 kA Series**

ProTec T1 3+0 LH

Class I • Class II • Type 1 • Type 2 • Type 4CA

Location of Use: Main Distribution Boards
Network Systems: TN-C
Mode of Protection: L-PEN
IEC/EN Category: Class I+II / Type 1+2 / Type 4CA
Housing: Pluggable Design
Compliance: IEC 61643-11:2011
EN 61643-11:2012+A11:2018
UL 1449 5th Edition

RoHS COMPLIANT

Technical Data

ProTec T1-xxx-3+0-LH(-R)		300
IEC Electrical		
Nominal AC Voltage (50/60Hz)	U_o/U_n	240 V
Maximum Continuous Operating Voltage (AC)	U_c	300 V
Nominal Discharge Current (8/20 µs)	I_n	20 kA
Maximum Discharge Current (8/20 µs)	I_{max}	40 kA
Impulse Discharge Current (10/350 µs)	I_{imp}	12.5 kA
Specific Energy	W/R	39 kJ/Ω
Charge	Q	6.25 As
Voltage Protection Level	U_p	1500 V
Response Time	t_A	< 25 ns
Overvoltage Category		III
Maximum Backup fuse, if required		160 A gG
Short-Circuit Current Rating (AC)	I_{SCCR}	50 kA
TOV Withstand 5s	U_T	337 V
TOV 120min	U_T	442 V
	mode	Safe Fail
Number of Ports		1
UL Electrical		
Maximum Continuous Operating Voltage (AC)	MCOV	300 V
Measured Limiting Voltage	MLV	1200 V
Nominal Discharge Current (8/20 µs)	I_n	20 kA
Additional Electrical Parameters *(Tests performed within Raycap testing laboratory only)*		
Residual Voltage at 5 kA (8/20 µs)	U_{res}	700 V
Minimum Backup fuse, if required		160 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%
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 mm² (Solid, Stranded) / 25 mm² (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: 250 V / 1 A, 125 V / 1 A; DC: 48 V / 0.5 A, 24 V / 0.5 A, 12 V / 0.5 A
RC Conductor Cross Section (max)		16 AWG (Solid) / 1.5 mm² (Solid)
Overvoltage Category		III

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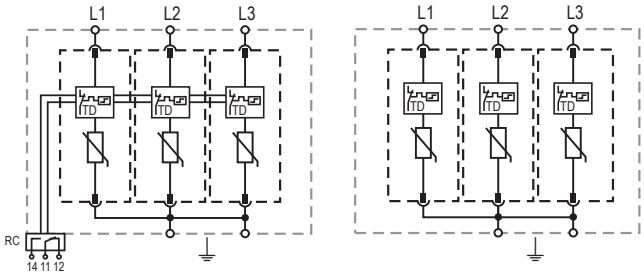
Internal Configuration

Legend

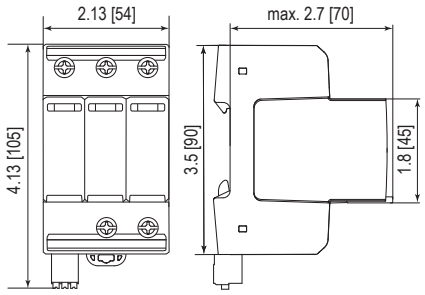
L	*Line Conductor Terminal*
⏚	*PE Conductor Terminal*
RC	*Remote Contacts Terminal (Optional)*
TD	*Thermal Disconnector*



ProTec T1-xxx-3+0-LH(-R)	**300**
Order Information	
Order Code	**300**
ProTec T1-xxx-3+0-LH	59.A375
ProTec T1-xxx-3+0-LH-R (with remote contacts)	59.A376
ProTec T1-xxx-LH-P (plug)	59.A383

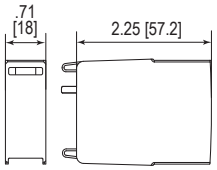
Dimensions & Packaging

inches [mm]



Complete Unit		
ProTec T1-xxx-3+0-LH		**300**
Weigh	pounds	1.177
	grams	534
ProTec T1-xxx-3+0-LH-R		
Weight	pounds	1.190
	grams	540
DIN 43880 Dimension		3 TE / 2.13" [54 mm]
Packaging Dimensions (HxWxL)		4.3 × 4.5 × 13.8" [109 × 115 × 352 mm]
Standard Order Quantity		5 Unit

Spare Plug



Single Unit		
ProTec T1-xxx-LH-P		**300**
Weight	pounds	.255
	grams	116
DIN 43880 Dimension		1 TE / .71" [18 mm]
Packaging Dimensions (HxWxL)		4.3 × 4.5 × 13.8" [109 × 116 × 352 mm]
Standard Order Quantity		24 Units

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DATASHEET Lightning and Overvoltage Protection **12.5 kA Series**

ProTec T1 4+0 LH

Class I • Class II • Type 1 • Type 2 • Type 4CA

Location of Use: Main Distribution Boards
Network Systems: TN-S
Mode of Protection: L-PE, N-PE
IEC/EN Category: Class I+II / Type 1+2 / Type 4CA
Housing: Pluggable Design
Compliance: IEC 61643-11:2011
EN 61643-11:2012+A11:2018
UL 1449 5th Edition

RoHS COMPLIANT

Technical Data

ProTec T1-xxx-4+0-LH(-R)		300
IEC Electrical		
Nominal AC Voltage (50/60Hz)	U_o/U_n	240 V
Maximum Continuous Operating Voltage (AC)	U_c	300 V
Nominal Discharge Current (8/20 µs)	I_n	20 kA
Maximum Discharge Current (8/20 µs)	I_{max}	40 kA
Impulse Discharge Current (10/350 µs)	I_{imp}	12.5 kA
Specific Energy	W/R	39 kJ/Ω
Charge	Q	6.25 As
Voltage Protection Level	U_p	1500 V
Response Time	t_A	< 25 ns
Overvoltage Category		III
Maximum Backup fuse, if required		160 A gG
Short-Circuit Current Rating (AC)	I_{SCCR}	50 kA
TOV Withstand 5s	U_T	337 V
TOV 120min	U_T	442 V
	mode	Safe Fail
Number of Ports		1
UL Electrical		
Maximum Continuous Operating Voltage (AC)	MCOV	300 V
Measured Limiting Voltage	MLV	1200 V
Nominal Discharge Current (8/20 µs)	I_n	20 kA
Additional Electrical Parameters *(Tests performed within Raycap testing laboratory only)*		
Residual Voltage at 5 kA (8/20 µs)	U_{res}	700 V
Minimum Backup fuse, if required		160 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%
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 mm² (Solid, Stranded) / 25 mm² (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: 250 V / 1 A, 125 V / 1 A; DC: 48 V / 0.5 A, 24 V / 0.5 A, 12 V / 0.5 A
RC Conductor Cross Section (max)		16 AWG (Solid) / 1.5 mm² (Solid)
Overvoltage Category		III

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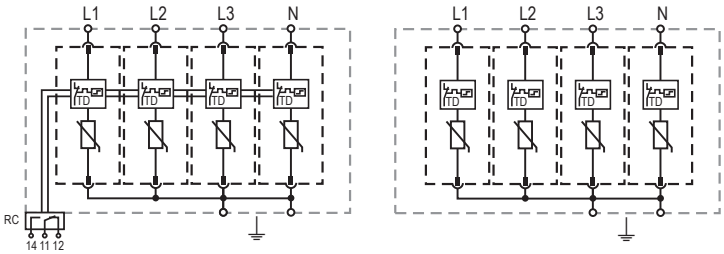
Internal Configuration

Legend

L	*Line Conductor Terminal*
N	*Neutral Conductor Terminal*
⏚	*PE Conductor Terminal*
RC	*Remote Contacts Terminal (Optional)*
TD	*Thermal Disconnector*

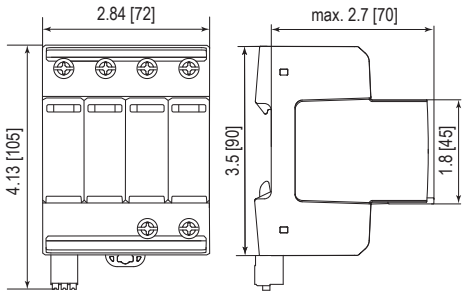


ProTec T1-xxx-4+0-LH(-R)

Order Information	
Order Code	**300**
ProTec T1-xxx-4+0-LH	59.A377
ProTec T1-xxx-4+0-LH-R (with remote contacts)	59.A378
ProTec T1-xxx-LH-P (plug)	59.A383

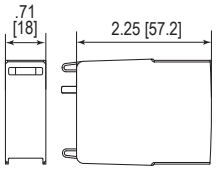
Dimensions & Packaging

inches [mm]



Complete Unit		
ProTec T1-xxx-4+0-LH		**300**
Weight	pounds	1.558
	grams	707
ProTec T1-xxx-4+0-LH-R		
Weight	pounds	1.576
	grams	715
DIN 43880 Dimension		4 TE / 2.84" [72 mm]
Packaging Dimensions (HxWxL)		4.3 × 4.5 × 13.8" [109 × 115 × 352 mm]
Standard Order Quantity		4 Units

Spare Plug



Single Unit		
ProTec T1-xxx-LH-P		**300**
Weight	pounds	.255
	grams	116
DIN 43880 Dimension		1 TE / .71" [18 mm]
Packaging Dimensions (HxWxL)		4.3 × 4.5 × 13.8" [109 × 116 × 352 mm]
Standard Order Quantity		24 Units

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DATASHEET Lightning and Overvoltage Protection **12.5 kA Series**

ProTec T1 1+1 LH

Class I • Class II • Type 1 • Type 2 • Type 4CA

Location of Use: Main Distribution Boards
Network Systems: TT, TN-S
Mode of Protection: L-N, N-PE
IEC/EN Category: Class I+II / Type 1+2 / Type 4CA
Housing: Pluggable Design
Compliance: IEC 61643-11:2011
EN 61643-11:2012+A11:2018
UL 1449 5th Edition

RoHS COMPLIANT

Technical Data

ProTec T1-xxx-1+1-LH(-R)			300
IEC Electrical			
Nominal AC Voltage (50/60Hz)		U_o/U_n	240 V
Maximum Continuous Operating Voltage	(L-N)	U_c	300 V
	(N-PE)	U_c	305 V
Nominal Discharge Current (8/20 µs)	(L-N)/(N-PE)	I_n	20 kA / 50 kA
Maximum Discharge Current (8/20 µs)	(L-N)/(N-PE)	I_{max}	40 kA / 100 kA
Impulse Discharge Current (10/350 µs)	(L-N)/(N-PE)	I_{imp}	12.5kA / 50 kA
Specific Energy	(L-N)/(N-PE)	W/R	39 kJ/Ω / 625 kJ/Ω
Charge	(L-N)/(N-PE)	Q	6.25 As / 25 As
Voltage Protection Level	(L-N)/(N-PE)	U_p	1500 V / 1500 V
Follow Current Interrupt Rating (AC)	(N-PE)	I_{fi}	100 A
Response Time	(L-N)/(N-PE)	t_A	< 25 ns / < 100 ns
Overvoltage Category			III
Maximum Backup fuse, if required			160 A gG
Short-Circuit Current Rating (AC)	(L-N)	I_{SCCR}	50 kA
TOV Withstand 5s	(L-N)	U_T	337 V
TOV 120min	(L-N)	U_T	442 V
		mode	Safe Fail
TOV Withstand 200ms	(N-PE)	U_T	1200 V
Number of Ports			1
UL Electrical			
Maximum Continuous Operating Voltage (AC)	(L-N)/(N-G)	MCOV	300 V / 305 V
Measured Limiting Voltage	(L-N)/(N-G)	MLV	1200 V / 1500 V
Nominal Discharge Current (8/20 µs)	(L-N)/(N-G)	I_n	20 kA / 20 kA
Additional Electrical Parameters *(Tests performed within Raycap testing laboratory only)*			
Residual Voltage at 5 kA (8/20 µs)		U_{res}	700 V / 305 V
Minimum Backup fuse, if required			160 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%
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 mm² (Solid, Stranded) / 25 mm² (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: 250 V / 1 A, 125 V / 1 A; DC: 48 V / 0.5 A, 24 V / 0.5 A, 12 V / 0.5 A
RC Conductor Cross Section (max)			16 AWG (Solid) / 1.5 mm² (Solid)
Overvoltage Category			III

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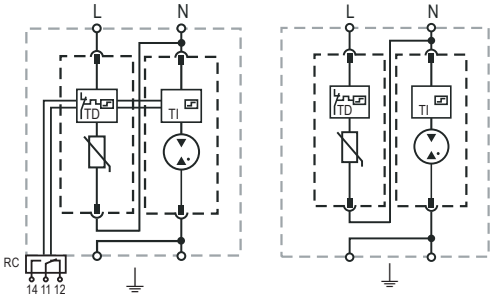
Internal Configuration

Legend

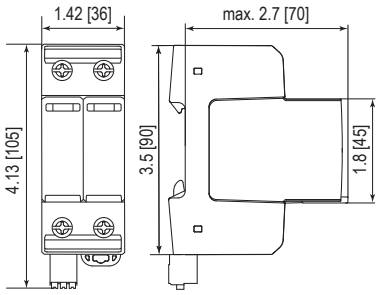
L	*Line Conductor Terminal*
N	*Neutral Conductor Terminal*
⏚	*PE Conductor Terminal*
RC	*Remote Contacts Terminal (Optional)*
TD	*Thermal Disconnector*
TI	*Thermal Indication*



ProTec T1-xxx-1+1-LH(-R)	**300**
Order Information	
Order Code	**300**
ProTec T1-xxx-1+1-LH	59.A379
ProTec T1-xxx-1+1-LH-R (with remote contacts)	59.A380
ProTec T1-xxx-LH-P (plug L-N)	59.A383
ProTube T1-50-LH-P (plug N-PE)	59.A385

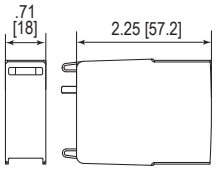
Dimensions & Packaging

inches [mm]



Complete Unit		
ProTec T1-xxx-1+1-LH		**300**
Weight	pounds	.679
	grams	308
ProTec T1-xxx-1+1-LH-R		
Weight	pounds	.687
	grams	312
DIN 43880 Dimension		2 TE / 1.42" [36 mm]
Packaging Dimensions (HxWxL)		4.3 × 4.5 × 13.8" [109 × 115 × 352 mm]
Standard Order Quantity		7 Units

Spare Plug



Single Unit		
ProTec T1-xxx-LH-P		**300**
Weight	pounds	.255
	grams	116
ProTube T1-50-LH-P		**50**
Weight	pounds	.112
	grams	51
DIN 43880 Dimension		1 TE / .71" [18 mm]
Packaging Dimensions (HxWxL)		4.3 × 4.5 × 13.8" [109 × 116 × 352 mm]
Standard Order Quantity		24 Units

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DATASHEET Lightning and Overvoltage Protection **12.5 kA Series**

ProTec T1 3+1 LH

Class I • Class II • Type 1 • Type 2 • Type 4CA

Location of Use: Main Distribution Boards
Network Systems: TT, TN-S
Mode of Protection: L-N, N-PE
IEC/EN Category: Class I+II / Type 1+2 / Type 4CA
Housing: Pluggable Design
Compliance: IEC 61643-11:2011
EN 61643-11:2012+A11:2018
UL 1449 5th Edition

RoHS COMPLIANT

Technical Data

ProTec T1-xxx-3+1-LH(-R)			300
IEC Electrical			
Nominal AC Voltage (50/60Hz)		U_o/U_n	240 V
Maximum Continuous Operating Voltage	(L-N)	U_c	300 V
	(N-PE)	U_c	305 V
Nominal Discharge Current (8/20 µs)	(L-N)/(N-PE)	I_n	20 kA / 50 kA
Maximum Discharge Current (8/20 µs)	(L-N)/(N-PE)	I_{max}	40 kA / 100 kA
Impulse Discharge Current (10/350 µs)	(L-N)/(N-PE)	I_{imp}	12.5kA / 50 kA
Specific Energy	(L-N)/(N-PE)	W/R	39 kJ/Ω / 625 kJ/Ω
Charge	(L-N)/(N-PE)	Q	6.25 As / 25 As
Voltage Protection Level	(L-N)/(N-PE)	U_p	1500 V / 1500 V
Follow Current Interrupt Rating (AC)	(N-PE)	I_{fi}	100 A
Response Time	(L-N)/(N-PE)	t_A	< 25 ns / < 100 ns
Overvoltage Category			III
Maximum Backup fuse, if required			160 A gG
Short-Circuit Current Rating (AC)	(L-N)	I_{SCCR}	50 kA
TOV Withstand 5s	(L-N)	U_T	337 V
TOV 120min	(L-N)	U_T	442 V
		mode	Safe Fail
TOV Withstand 200ms	(N-PE)	U_T	1200 V
Number of Ports			1
UL Electrical			
Maximum Continuous Operating Voltage (AC)	(L-N)/(N-G)	MCOV	300 V / 305 V
Measured Limiting Voltage	(L-N)/(N-G)	MLV	1200 V / 1500 V
Nominal Discharge Current (8/20 µs)	(L-N)/(N-G)	I_n	20 kA / 20 kA
Additional Electrical Parameters *(Tests performed within Raycap testing laboratory only)*			
Residual Voltage at 5 kA (8/20 µs)		U_{res}	700 V / 305 V
Minimum Backup fuse, if required			160 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%
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 mm² (Solid, Stranded) / 25 mm² (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: 250 V / 1 A, 125 V / 1 A; DC: 48 V / 0.5 A, 24 V / 0.5 A, 12 V / 0.5 A
RC Conductor Cross Section (max)			16 AWG (Solid) / 1.5 mm² (Solid)
Overvoltage Category			III

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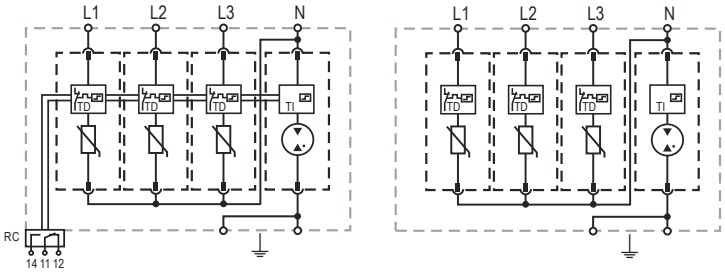
Internal Configuration

Legend

L	*Line Conductor Terminal*
N	*Neutral Conductor Terminal*
⏚	*PE Conductor Terminal*
RC	*Remote Contacts Terminal (Optional)*
TD	*Thermal Disconnector*
TI	*Thermal Indication*

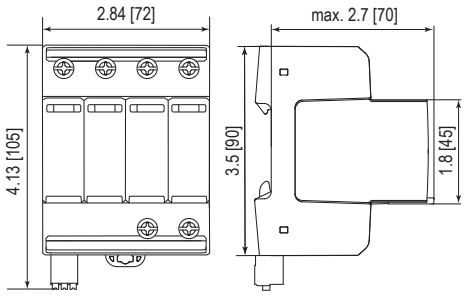


ProTec T1-xxx-3+1-LH(-R)

Order Information	
Order Code	**300**
ProTec T1-xxx-3+1-LH	59.A381
ProTec T1-xxx-3+1-LH-R (with remote contacts)	59.A382
ProTec T1-xxx-LH-P (plug L-N)	59.A383
ProTube T1-50-LH-P (plug N-PE)	59.A385

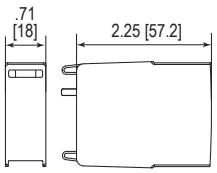
Dimensions & Packaging

inches [mm]



Complete Unit		
ProTec T1-xxx-3+1-LH		**300**
Weight	pounds	1.419
	grams	644
ProTec T1-xxx-3+1-LH-R		
Weight	pounds	1.441
	grams	654
DIN 43880 Dimension		4 TE / 2.84" [72 mm]
Packaging Dimensions (HxWxL)		4.3 × 4.5 × 13.8" [109 × 115 × 352 mm]
Standard Order Quantity		4 Units

Spare Plug



Single Unit		
ProTec T1-xxx-LH-P		**300**
Weight	pounds	.255
	grams	116
ProTube T1-50-LH-P		**50**
Weight	pounds	.112
	grams	51
DIN 43880 Dimension		1 TE / .71" [18 mm]
Packaging Dimensions (HxWxL)		4.3 × 4.5 × 13.8" [109 × 116 × 352 mm]
Standard Order Quantity		24 Units

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DATASHEET

Lightning and Overvoltage Protection

ProTube T1 0+1 LH

Class I • Class II • Type 1 • Type 2 • Type 4CA

Location of Use: Main Distribution Boards
Network Systems: TT, TN-S
Mode of Protection: N-PE
IEC/EN Category: Class I+II / Type 1+2 / Type 4CA
Housing: Pluggable Design
Compliance: IEC 61643-11:2011
EN 61643-11:2012+A11:2018
UL 1449 5th Edition

RoHS COMPLIANT

Technical Data

ProTube T1-xxx-0+1-LH(-R)		50
IEC Electrical		
Maximum Continuous Operating Voltage	U_c	305 V
Nominal Discharge Current (8/20 µs)	I_n	50 kA
Maximum Discharge Current (8/20 µs)	I_{max}	100 kA
Impulse Discharge Current (10/350 µs)	I_{imp}	50 kA
Specific Energy	W/R	625 kJ/Ω
Charge	Q	25 As
Voltage Protection Level	U_p	1500 V
Follow Current Interrupt Rating (AC)	I_{fi}	100 A
Response Time	t_A	< 100 ns
Overvoltage Category		III
TOV Withstand 200ms	U_T	1200 V
Number of Ports		1
UL Electrical		
Maximum Continuous Operating Voltage (AC)	MCOV	305 V
Measured Limiting Voltage	MLV	1500 V
Nominal Discharge Current (8/20 µs)	I_n	20 kA
Additional Electrical Parameters *(Tests performed within Raycap testing laboratory only)*		
Residual Voltage at 5 kA (8/20 µs)	U_{res}	305 V
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 mm² (Solid, Stranded) / 25 mm² (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: 250 V / 1 A, 125 V / 1 A; DC: 48 V / 0.5 A, 24 V / 0.5 A, 12 V / 0.5 A
RC Conductor Cross Section (max)		16 AWG (Solid) / 1.5 mm² (Solid)
Overvoltage Category		III

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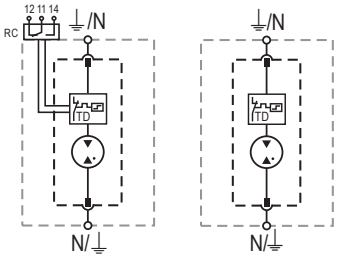
Internal Configuration

Legend

N *Neutral Conductor Terminal*

⏚ *PE/G Conductor Terminal*

TI *Thermal Indication*

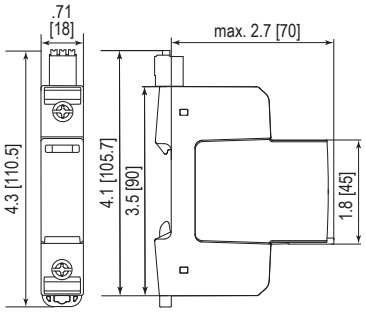


ProTube T1-xxx-0+1-LH(-R)

Order Information	
Order Code	**50**
ProTube T1-xxx-0+1-LH	59.A384
ProTube T1-xxx-0+1-LH-R	59.A761
ProTube T1-50-LH-P (plug)	59.A385

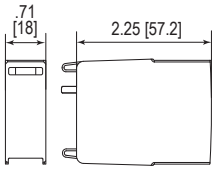
Dimensions & Packaging

inches [mm]



Complete Unit		
ProTube T1-xxx-0+1-LH		**50**
Weight	pounds	.268
	grams	122
ProTube T1-xxx-0+1-LH-R		**50**
Weight	pounds	.276
	grams	126
DIN 43880 Dimension		1 TE / .71" [18 mm]
Packaging Dimensions (HxWxL)		4.3 × 4.5 × 13.8" [109 × 115 × 352 mm]
Standard Order Quantity		12 Units

Spare Plug



Single Unit		
ProTube T1-xxx-LH-P		**50**
Weight	pounds	.112
	grams	51
DIN 43880 Dimension		1 TE / .71" [18 mm]
Packaging Dimensions (HxWxL)		4.3 × 4.5 × 13.8" [109 × 116 × 352 mm]
Standard Order Quantity		24 Units

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