

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

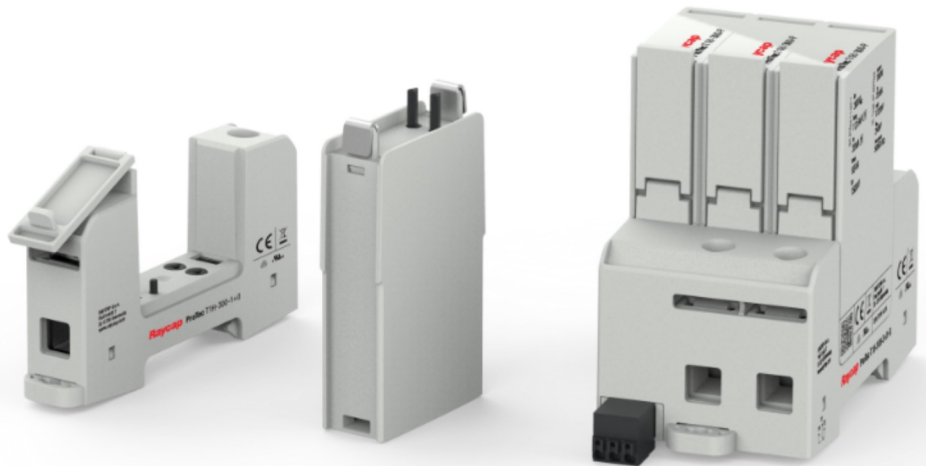
Lightning and Overvoltage Protection

ProTec T1H



Special features:

- Leakage free hybrid topology
- Energy coordinated with other ProTec families without additional cable length
- State-of-the-art thermal disconnecter
- Backup fuse up to 315 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 signaling
- VDE-IEC Class I & II / EN Type 1+2 and UL Type 4CA certified



Compliance	IEC 61643-11:2011	EN 61643-11:2012	UL 1449 4th Edition
ProTec T1H Series	✓	✓	✓

The ProTec T1H modular surge protection device provides high durability due to its leakage-free performance ensured by a special series connection of a varistor and a gas discharge tube. The product family is ideal as a supplement to the basic ProTec T1 product family, available for single or three-phase TN-S, TT and TN-C systems, with a maximum continuous operating voltage of 300 VAC where a complete absence of leakage current is required. With its Type 1 classification, the ProTec T1H can be installed between boundaries 0b – 1 and higher. The varistor-based protection modules feature outstanding short-circuit currents up to 50 kA_{RMS} without using a back up to a main fuse, with a nominal current of 315 A. The device can be installed upstream of meter panels in low-voltage consumer installations. An optional remote contact (RC) features a three-pole remote signaling terminal that enables remote monitoring of the device's operating state.

Lightning and Overvoltage Protection
ProTec T1H 1+0
 Class I • Class II • Type 1 • Type 2 • Type 4CA

12.5 kA Series



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/UL Category: Class I+II / Type 1+2 / Type 4CA
 Technology: Hybrid
 Leakage Current Free: Yes
 Housing: Pluggable Design
 Compliance: IEC 61643-11:2011
 EN 61643-11:2012
 UL 1449 4th Edition

Technical Data

ProTec T1H-xxx-1+0(-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 (8/20µs)	I_n	20 kA
Maximum Discharge Current (8/20µs)	I_{max}	65 kA
Impulse Discharge Current (10/350µs)	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	< 100 ns
Overcurrent Protection (max)		315 A / 250 A gG
Short-Circuit Current Rating (AC)	I_{SCCR}	25 kA / 50 kA
TOV Withstand 120min	U_T	442 V
Number of Ports		1

UL Electrical

Maximum Continuous Operating Voltage (AC)	MCOV	300 V
Measured Limiting Voltage	MLV	1220 V
Nominal Discharge Current (8/20µs)	I_n	20 kA

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 [4000 m]
Terminal Screw Torque	M_{max}	39.9 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)

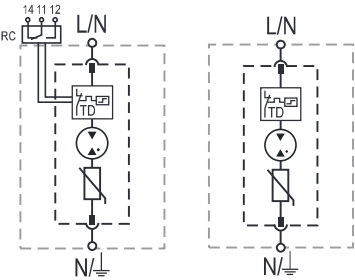
Order Information

Order Code	300
ProTec T1H-xxx-1+0	59.0310
ProTec T1H-xxx-1+0-R (with remote contacts)	59.0311
ProTec T1H-xxx-P (plug)	59.0308

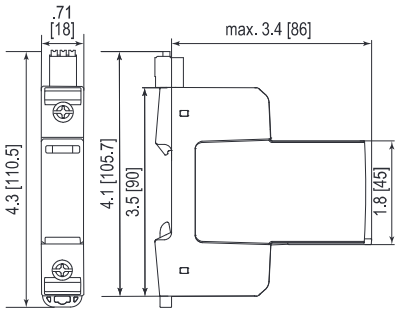
Internal Configuration

Legend

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



Complete Unit

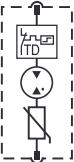


Complete Unit Dimensions & Packaging

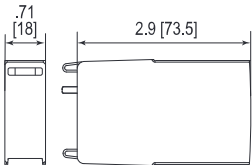
ProTec T1H-xxx-1+0		300
Weight	pounds [grams]	.375 [170]
ProTec T1H-xxx-1+0-R		
Weight	pounds [grams]	.390 [177]
DIN 43880 Dimension		1 TE / .71" [18]
Packaging Dimensions (HxWxL)		4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]
Standard Order Quantity		12 Units

Plug Internal Configuration

ProTec T1H-xxx-P



Spare Plug



Single Unit Dimensions & Packaging

ProTec T1H-xxx-P		300
Weight	pounds [grams]	.223 [101]
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

inches
[mm]

Lightning and Overvoltage Protection
ProTec T1H 2+0
 Class I • Class II • Type 1 • Type 2 • Type 4CA

12.5 kA Series



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 4CA
 Technology: Hybrid
 Leakage Current Free: Yes
 Housing: Pluggable Design
 Compliance: IEC 61643-11:2011
 EN 61643-11:2012
 UL 1449 4th Edition

Technical Data

ProTec T1H-xxx-2+0(-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 μ s)	I_n	20 kA
Maximum Discharge Current (8/20 μ s)	I_{max}	65 kA
Impulse Discharge Current (10/350 μ s)	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	< 100 ns
Overcurrent Protection (max)		315 A / 250 A gG
Short-Circuit Current Rating (AC)	I_{SCCR}	25 kA / 50 kA
TOV Withstand 120min	U_T	442 V
Number of Ports		1

UL Electrical

Maximum Continuous Operating Voltage (AC)	MCOV	300V
Measured Limiting Voltage	MLV	1220V
Nominal Discharge Current (8/20 μ s)	I_n	20kA

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 [4000 m]
Terminal Screw Torque	M_{max}	39.9 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)

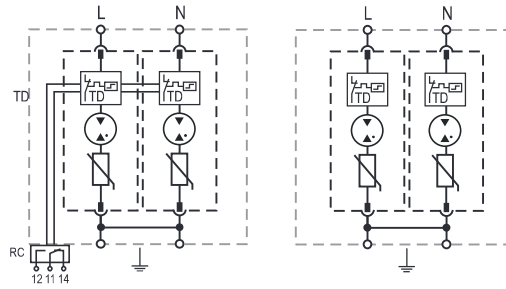
Order Information

Order Code	300
ProTec T1H-xxx-2+0	59.0312
ProTec T1H-xxx-2+0-R (with remote contacts)	59.0313
ProTec T1H-xxx-P (plug)	59.0308

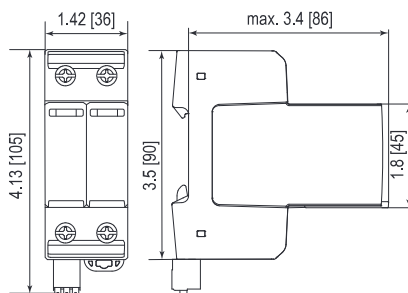
Internal Configuration

Legend

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



Complete Unit



Complete Unit Dimensions & Packaging

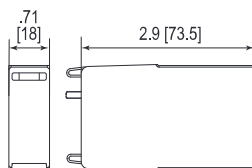
ProTec T1H-xxx-2+0	300
Weight	pounds [grams] .736 [334]
ProTec T1H-xxx-2+0-R	
Weight	pounds [grams] .756 [343]
DIN 43880 Dimension	2 TE / 1.42" [36]
Packaging Dimensions (HxWxL)	4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]
Standard Order Quantity	7 Units

Plug Internal Configuration

ProTec T1H-xxx-P



Spare Plug



Single Unit Dimensions & Packaging

ProTec T1H-xxx-P	300
Weight	pounds [grams] .223 [101]
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

inches
[mm]

Lightning and Overvoltage Protection
ProTec T1H 3+0
 Class I • Class II • Type 1 • Type 2 • Type 4CA

12.5 kA Series



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

Technical Data

ProTec T1H-xxx-3+0(-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 (8/20µs)	I_n	20 kA
Maximum Discharge Current (8/20µs)	I_{max}	65 kA
Impulse Discharge Current (10/350µs)	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	< 100 ns
Overcurrent Protection (max)		315 A / 250 A gG
Short-Circuit Current Rating (AC)	I_{SCCR}	25 kA / 50 kA
TOV Withstand 120min	U_T	442 V
Number of Ports		1

UL Electrical

Maximum Continuous Operating Voltage (AC)	MCOV	300V
Measured Limiting Voltage	MLV	1220V
Nominal Discharge Current (8/20µs)	I_n	20kA

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 [4000 m]
Terminal Screw Torque	M_{max}	39.9 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)

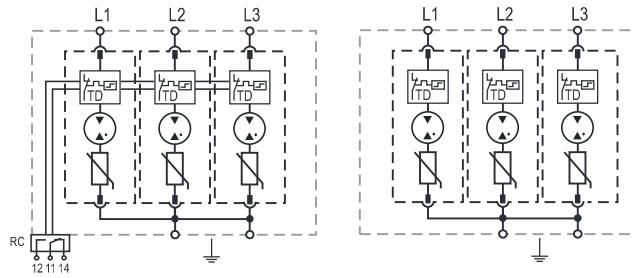
Order Information

Order Code	300
ProTec T1H-xxx-3+0	59.0314
ProTec T1H-xxx-3+0-R (with remote contacts)	59.0315
ProTec T1H-xxx-P (plug)	59.0308

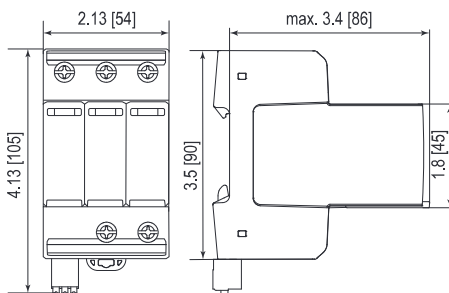
Internal Configuration

Legend

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



Complete Unit



Complete Unit Dimensions & Packaging

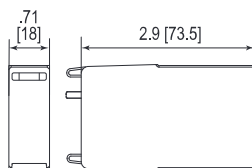
ProTec T1H-xxx-3+0	300
Weight	pounds [grams] 1.080 [490]
ProTec T1H-xxx-3+0-R	
Weight	pounds [grams] 1.100 [499]
DIN 43880 Dimension	3 TE / 2.13" [54]
Packaging Dimensions (HxWxL)	4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]
Standard Order Quantity	5 Units

Plug Internal Configuration

ProTec T1H-xxx-P



Spare Plug



Single Unit Dimensions & Packaging

ProTec T1H-xxx-P	300
Weight	pounds [grams] .223 [101]
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

inches
[mm]

Lightning and Overvoltage Protection
ProTec T1H 4+0
 Class I • Class II • Type 1 • Type 2 • Type 4CA

12.5 kA Series



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 4CA
 Technology: Hybrid
 Leakage Current Free: Yes
 Housing: Pluggable Design
 Compliance: IEC 61643-11:2011
 EN 61643-11:2012
 UL 1449 4th Edition

Technical Data

ProTec T1H-xxx-4+0(-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 μ s)	I_n	20 kA
Maximum Discharge Current (8/20 μ s)	I_{max}	65 kA
Impulse Discharge Current (10/350 μ s)	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	< 100 ns
Overcurrent Protection (max)		315 A / 250 A gG
Short-Circuit Current Rating (AC)	I_{SCCR}	25 kA / 50 kA
TOV Withstand 120min	U_T	442 V
Number of Ports		1

UL Electrical

Maximum Continuous Operating Voltage (AC)	MCOV	300 V
Measured Limiting Voltage	MLV	1220 V
Nominal Discharge Current (8/20 μ s)	I_n	20 kA

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 [4000 m]
Terminal Screw Torque	M_{max}	39.9 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: 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 mm ² (Solid)

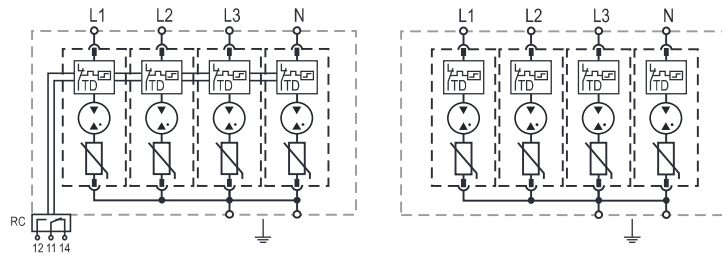
Order Information

Order Code	300
ProTec T1H-xxx-4+0	59.0316
ProTec T1H-xxx-4+0-R (with remote contacts)	59.0317
ProTec T1H-xxx-P (plug)	59.0308

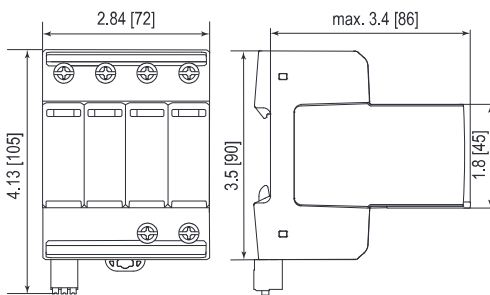
Internal Configuration

Legend

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



Complete Unit



Complete Unit Dimensions & Packaging

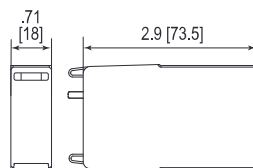
ProTec T1H-xxx-4+0		300
Weight	pounds [grams]	1.389 [630]
ProTec T1H-xxx-4+0-R		
Weight	pounds [grams]	1.409 [639]
DIN 43880 Dimension		4 TE / 2.84" [72]
Packaging Dimensions (HxWxL)		4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]
Standard Order Quantity		4 Units

Plug Internal Configuration

ProTec T1H-xxx-P



Spare Plug



Single Unit Dimensions & Packaging

ProTec T1H-xxx-P		300
Weight	pounds [grams]	.223 [101]
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

inches
[mm]

Lightning and Overvoltage Protection
ProTec T1H 1+1
 Class I • Class II • Type 1 • Type 2 • Type 4CA

12.5 kA Series



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

Technical Data

ProTec T1H-xxx-1+1(-R)

300

IEC Electrical

Nominal AC Voltage (50/60Hz)	U_o/U_n	240 V
Maximum Continuous Operating Voltage (AC)	(L-N) / (N-PE) U_c	300 V / 305 V
Nominal Discharge Current (8/20 μ s)	(L-N) / (N-PE) I_n	20 kA / 50 kA
Maximum Discharge Current (8/20 μ s)	(L-N) / (N-PE) I_{max}	65 kA / 100 kA
Impulse Discharge Current (10/350 μ s)	(L-N) / (N-PE) I_{imp}	12.5 kA / 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
Response Time	(L-N) / (N-PE) t_A	< 100 ns / < 100 ns
Overcurrent Protection (max)		315 A / 250 A gG
Short-Circuit Current Rating (AC)	(L-N) I_{SCCR}	25 kA / 50 kA
Follow Current Interrupt Rating	(N-PE) I_{fi}	100 A _{RMS}
TOV Withstand 120min	(L-N) U_T	442 V
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	300V / 305V
Measured Limiting Voltage	(L-N) / (N-G) MLV	1220V / 1800V
Nominal Discharge Current (8/20 μ s)	(L-N) / (N-G) I_n	20 kA / 20 kA

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}	39.9 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)

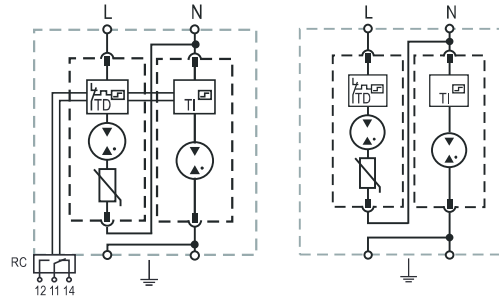
Order Information

Order Code	300
ProTec T1H-xxx-1+1	59.0318
ProTec T1H-xxx-1+1-R (with remote contacts)	59.0319
ProTec T1H-xxx-P (plug L-N)	59.0308
ProTube T1H-50-P (plug N-PE)	59.0309

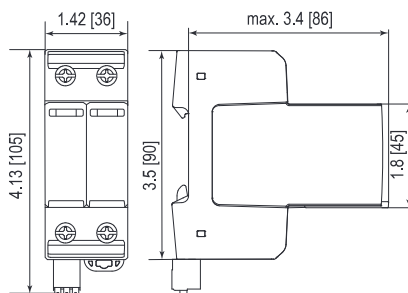
Internal Configuration

Legend

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



Complete Unit



Complete Unit Dimensions & Packaging

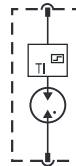
ProTec T1H-xxx-1+1	300
Weight	pounds [grams]
ProTec T1H-xxx-1+1-R	.730 [331]
Weight	pounds [grams]
DIN 43880 Dimension	2 TE / 1.42" [36]
Packaging Dimensions (HxWxL)	4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]
Standard Order Quantity	7 Units

Plug Internal Configuration

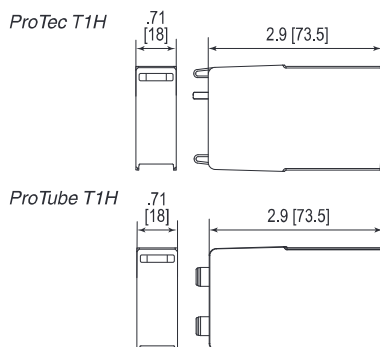
ProTec T1H-xxx-P



ProTube T1H-50-P



Spare Plug



Single Unit Dimensions & Packaging

ProTec T1H-xxx-P	300
Weight	pounds [grams]
ProTube T1H-50-P	50
Weight	pounds [grams]
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

inches
[mm]

Lightning and Overvoltage Protection
ProTec T1H 3+1
 Class I • Class II • Type 1 • Type 2 • Type 4CA

12.5 kA Series



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

Technical Data

ProTec T1H-xxx-3+1(-R)

300

IEC Electrical

Nominal AC Voltage (50/60Hz)	U_o/U_n	240 V
Maximum Continuous Operating Voltage (AC)	(L-N) / (N-PE) U_c	300 V / 305 V
Nominal Discharge Current (8/20 μ s)	(L-N) / (N-PE) I_n	20 kA / 50 kA
Maximum Discharge Current (8/20 μ s)	(L-N) / (N-PE) I_{max}	65 kA / 100 kA
Impulse Discharge Current (10/350 μ s)	(L-N) / (N-PE) I_{imp}	12.5 kA / 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
Response Time	(L-N) / (N-PE) t_A	< 100 ns / < 100 ns
Overcurrent Protection (max)		315 A / 250 A gG
Short-Circuit Current Rating (AC)	(L-N) I_{SCCR}	25 kA / 50 kA
Follow Current Interrupt Rating	(N-PE) I_{fi}	100 A _{RMS}
TOV Withstand 120min	(L-N) U_T	442 V
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	1220 V / 1800 V
Nominal Discharge Current (8/20 μ s)	(L-N) / (N-G) I_n	20 kA / 20 kA

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 [4000 m]
Terminal Screw Torque	M_{max}	39.9 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: 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 mm ² (Solid)

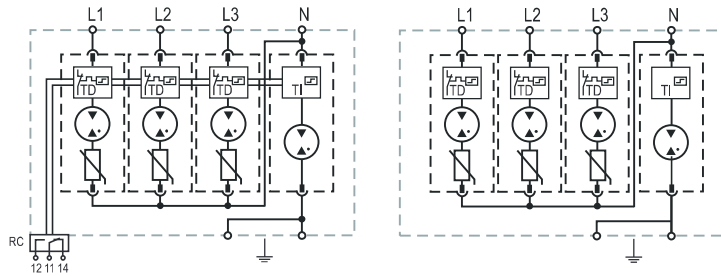
Order Information

Order Code	300
ProTec T1H-xxx-3+1	59.0320
ProTec T1H-xxx-3+1-R (with remote contacts)	59.0321
ProTec T1H-xxx-P (plug L-N)	59.0308
ProTube T1H-50-P (plug N-PE)	59.0309

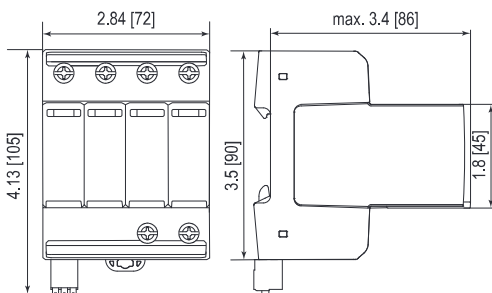
Internal Configuration

Legend

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



Complete Unit



Complete Unit Dimensions & Packaging

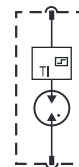
ProTec T1H-xxx-3+1	300
Weight	pounds [grams] 1.446 [656]
ProTec T1H-xxx-3+1-R	
Weight	pounds [grams] 1.466 [665]
DIN 43880 Dimension	4 TE / 2.84 [72]
Packaging Dimensions (HxWxL)	4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]
Standard Order Quantity	4 Units

Plug Internal Configuration

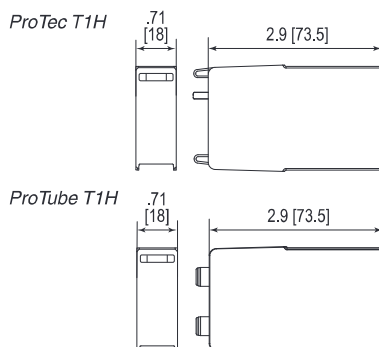
ProTec T1H-xxx-P



ProTube T1H-50-P



Spare Plug



Single Unit Dimensions & Packaging

ProTec T1H-xxx-P	300
Weight	pounds [grams] .223 [101]
ProTube T1H-50-P	50
Weight	pounds [grams] .214 [97]
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

inches
[mm]

Lightning and Overvoltage Protection
ProTube T1H 50 0+1
 Class I • Class II • Type 1 • Type 2 • Type 4CA

12.5 kA Series



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

Technical Data

ProTube T1H-xxx-0+1

50

IEC Electrical

Maximum Continuous Operating Voltage (AC)	U_c	305 V
Nominal Discharge Current (8/20 μ s)	I_n	50 kA
Maximum Discharge Current (8/20 μ s)	I_{max}	100 kA
Impulse Discharge Current (10/350 μ s)	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	I_{fi}	100 A _{RMS}
Response Time	t_A	< 100 ns
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	1800 V
Nominal Discharge Current (8/20 μ s)	I_n	20 kA

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 [4000 m]
Terminal Screw Torque	M_{max}	39.9 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

Order Information

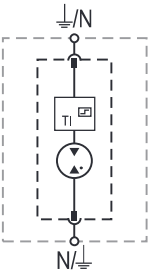
Order Code	50
ProTube T1H-xxx-0+1	59.0340
ProTube T1H-50-P (plug)	59.0309

ProTube T1H 50 0+1

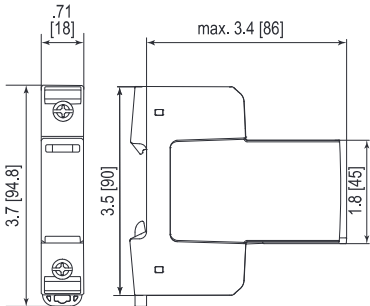
Internal Configuration

Legend

- N Neutral Conductor Terminal
- PE/G Conductor Terminal
- T1 Thermal Indication



Complete Unit

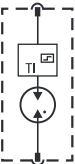


Complete Unit Dimensions & Packaging

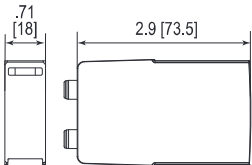
ProTube T1H-50-0+1		50
Weight	pounds [grams]	.395 [179]
DIN 43880 Dimension		1 TE / .71" [18]
Packaging Dimensions (HxWxL)		4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]
Standard Order Quantity		12 Units

Plug Internal Configuration

ProTube T1H-50-P



Spare Plug



Single Unit Dimensions & Packaging

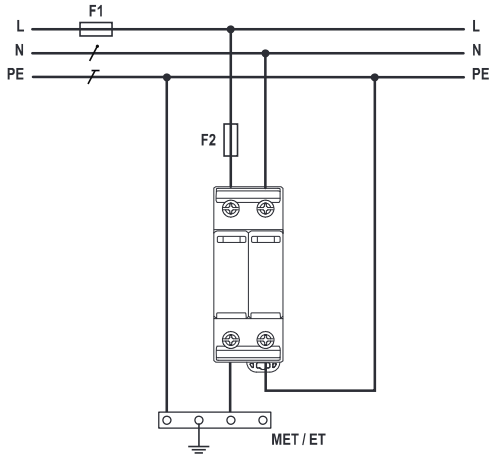
ProTube T1H-50-P		50
Weight	pounds [grams]	.214 [97]
DIN 43880 Dimension		1 TE / .71" [18]
Packaging Dimensions (HxWxL)		4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]
Standard Order Quantity		28 Units

inches
[mm]

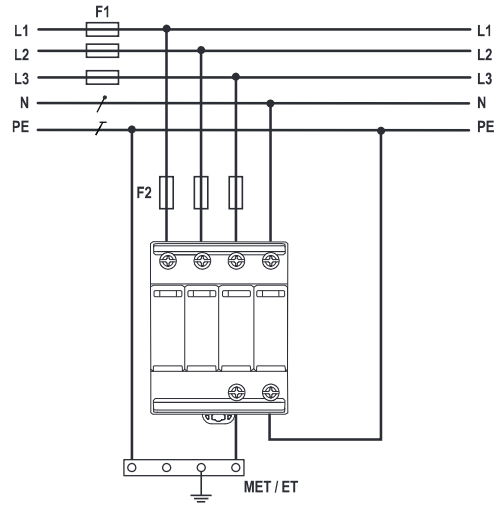
Pluggable Multi-pole SPD Connection Configurations

ProTec T1H & ProTube T1H

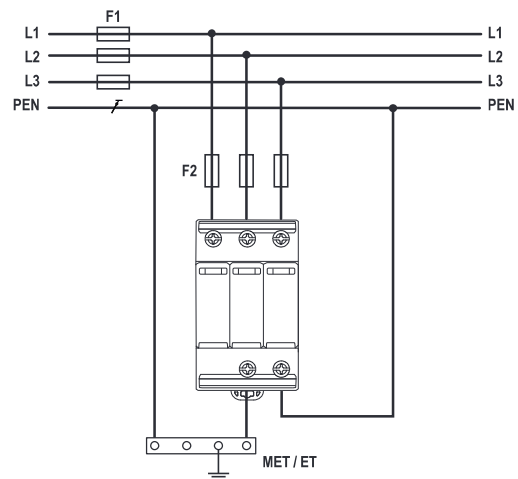
TN-S (Single-phase, 2+0, 1+1)



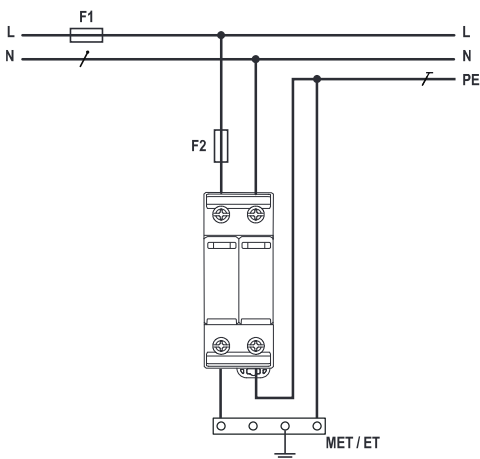
TN-S (Three-phase, 4+0, 3+1)



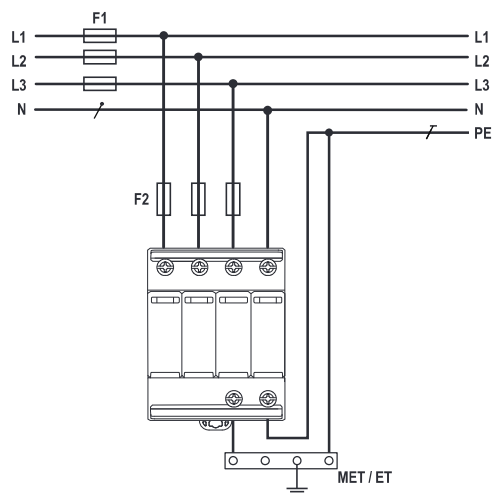
TN-C (Three-phase, 3+0)



TT (Single-phase, 1+1)



TT (Three-phase, 3+1)



/ N Neutral

/ PE Protective Earth

/ PEN Protective Earth & Neutral

Overcurrent Protection Rating for $I_{SCCR} = 50 \text{ kA}$

$F1 > 250 \text{ A gG} \rightarrow$ $F2 = 250 \text{ A gG}$

$F1 \leq 250 \text{ A gG} \rightarrow$ $F2$

Overcurrent Protection Rating for $I_{SCCR} = 25 \text{ kA}$

$F1 > 315 \text{ A gG} \rightarrow$ $F2 = 315 \text{ A gG}$

$F1 \leq 315 \text{ A gG} \rightarrow$ $F2$