

# Lightning and Overvoltage Protection

## ProTec T1HS 1+0

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/UL 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



### Technical Data

ProTec T1HS-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 (8/20 $\mu$ s)   | $I_n$      | 25 kA              |
| Maximum Discharge Current (8/20 $\mu$ s)   | $I_{max}$  | 65 kA              |
| Impulse Discharge Current (10/350 $\mu$ s) | $I_{imp}$  | 25 kA              |
| Specific Energy                            | W/R        | 156.2 kJ/ $\Omega$ |
| Charge                                     | Q          | 12.5 As            |
| Voltage Protection Level                   | $U_p$      | 1500 V             |
| Rated Load Current                         | $I_L$      | 100 A              |
| Response Time                              | $t_A$      | < 100 ns           |
| Overvoltage Category                       |            | III                |
| Overcurrent Protection (max)               |            | 315 A gG           |
| Short-Circuit Current Rating (AC)          | $I_{SCCR}$ | 100 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   | 1280 V |
| Nominal Discharge Current (8/20 $\mu$ s)  | $I_n$ | 20 kA  |

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

|                                         |           |          |
|-----------------------------------------|-----------|----------|
| Residual Voltage at 5 kA (8/20 $\mu$ s) | $U_{res}$ | 1100 V   |
| Minimum Backup fuse, if required        |           | 250 A gG |

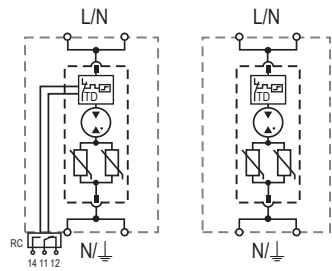
#### Mechanical & Environmental

|                                    |           |                                                                                                             |
|------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------|
| Operating Temperature Range        | $T_a$     | -40 °F to +185 °F [-40 °C to +85 °C]                                                                        |
| Permissible Operating Humidity     | RH        | 5%...95%                                                                                                    |
| Pollution Degree                   |           | 2                                                                                                           |
| Altitude                           |           | 13123 ft [4000 m]                                                                                           |
| Terminal Screw Torque              | $M_{max}$ | 40 lbf-in [4.5 Nm]                                                                                          |
| Conductor Cross Section (max)      |           | 4 AWG (Solid, Stranded) per UL 1449<br>35 mm <sup>2</sup> (Solid, Stranded) / 25 mm <sup>2</sup> (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 <sup>2</sup> (Solid)                                                                |
| Overvoltage Category               |           | III                                                                                                         |

Internal Configuration

Legend

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

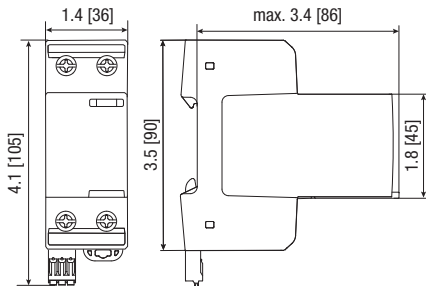


Order Information

|                                              |         |
|----------------------------------------------|---------|
| Order Code                                   | 300     |
| ProTec T1HS-xxx-1+0                          | 59.A594 |
| ProTec T1HS-xxx-1+0-R (with remote contacts) | 59.A595 |
| ProTec T1HS-xxx-P (plug)                     | 59.C669 |

Dimensions & Packaging

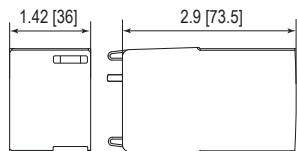
inches [mm]



Complete Unit

|                              |                                        |            |
|------------------------------|----------------------------------------|------------|
| ProTec T1HS-xxx-1+0          |                                        | 300        |
| Weight                       | pounds [grams]                         | .650 [295] |
| ProTec T1HS-xxx-1+0-R        |                                        |            |
| Weight                       | pounds [grams]                         | .670 [304] |
| DIN 43880 Dimension          | 2 TE / 1.42" [36 mm]                   |            |
| Packaging Dimensions (HxWxL) | 4.3 x 4.5 x 13.8" [109 x 115 x 352 mm] |            |
| Standard Order Quantity      | 7 Units                                |            |

Spare Plug



Single Unit

| ProTec T1HS-xxx-01-P         |                                        | 300        |
|------------------------------|----------------------------------------|------------|
| Weight                       | pounds [grams]                         | .364 [165] |
| DIN 43880 Dimension          | 2 TE / 1.42" [36 mm]                   |            |
| Packaging Dimensions (HxWxL) | 4.3 x 4.5 x 13.8" [109 x 115 x 352 mm] |            |
| Standard Order Quantity      | 16 Units                               |            |