

## Combined Lightning Current and Surge Arrester

### ProTec 60 T1H, T1, T2 and T2F Series

#### Special features:

- For TN-C, TT and TN-S network systems
- Plugs available with Type 1 or Type 2 surge protection; and Type 2 with integrated fuse
- Better overall voltage protection levels due to less wiring
- Visual status monitoring of SPD and fuse (T2F) available via remote signalization
- Can be used with a variety of busbar widths and thickness
- Reduces installation cost and space requirements
- Shorter wiring time and minimized complexity
- Pluggable concept enables fast & simplified installation
- Shorter connecting cables improve voltage protection level across installation points



IEC 61643-11:2011

EN 61643-11:2012 +A11:2018



The Raycap ProTec 60mm Busbar series reduces installation time and space requirements, and enables fast and simplified installation. Shorter connecting cables improve the overall voltage protection level, providing optimal electrical protection to the installation.



More Product Information





Location of Use: Main Distribution Boards,  
60 mm Busbar Systems

Network Systems: TN-C

Mode of Protection: L-PEN

IEC/EN: Class I+II / Type 1+2

Housing: Pluggable design

Compliance: IEC 61643-11:2011

EN 61643-11:2012 + A11:2018

## Technical Data

**ProTec 60 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 (8/20 $\mu$ s)   | $I_n$      | 20 kA           |
| Maximum Discharge Current (8/20 $\mu$ s)   | $I_{max}$  | 65 kA           |
| Impulse Discharge Current (10/350 $\mu$ s) | $I_{imp}$  | 12.5 kA         |
| Specific Energy                            | W/R        | 39 kJ/ $\Omega$ |
| Charge                                     | Q          | 6.25 As         |
| Voltage Protection Level                   | $U_p$      | 1500V           |
| Response Time                              | $t_A$      | < 25ns          |
| Overcurrent Protection (max)               |            | 250 A gG        |
| Short-Circuit Current Rating (AC)          | $I_{SCCR}$ | 25 kA           |
| TOV Withstand 5s                           | $U_T$      | 337 V           |
| TOV Safe Fail 120min                       | $U_T$      | 442 V           |
| Number of Ports                            |            | 1               |

### 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              | $M_{max}$ | PH2 / 40 lbf·in [4.5 Nm]                                                                                           |
| Conductor Cross Section (max)      |           | 2 AWG (Solid, Stranded) / 4 AWG (Flexible)<br>35 mm <sup>2</sup> (Solid, Stranded) / 25 mm <sup>2</sup> (Flexible) |
| Mounting                           |           | 60 mm Busbar Systems<br>Width: 12, 15, 20, 25, 30 mm<br>Thickness: 5 mm, 10 mm (with removed spacers)              |
| Degree Of Protection               |           | IP 20*                                                                                                             |
| Housing Material                   |           | Thermoplastic: Extinguishing Degree UL 94 V-0                                                                      |
| Operating State / Fault Indication |           | Green Flag / Not Green Flag                                                                                        |
| Remote Contacts (RC)               |           | Optional                                                                                                           |
| RC Switching Capacity              |           | AC: 250V/1 A, 125V/1 A; DC: 48V/0.5 A, 24V/0.5 A, 12V/0.5 A                                                        |
| RC Conductor Cross Section (max)   |           | 16 AWG (Solid) / 1.5 mm <sup>2</sup> (Solid)                                                                       |

### Order Information

|                                                |            |
|------------------------------------------------|------------|
| Order Code                                     | <b>300</b> |
| ProTec 60 T1H-xxx-3+0                          | 515 961    |
| ProTec 60 T1H-xxx-3+0-R (with remote contacts) | 515 962    |
| ProTec T1H-xxx-P (plug)                        | 59.C384    |

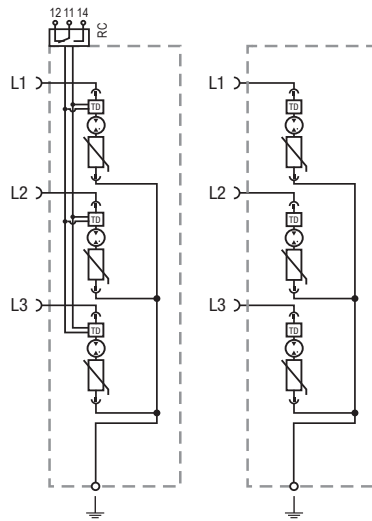
\*IP 40 (in combination with cover)

## ProTec 60 T1H 3+0

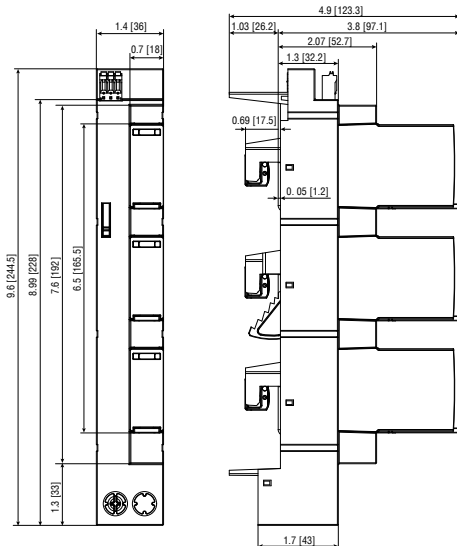
### Internal Configuration

#### Legend

- L** Line Busbar Terminal  
**⏚** PEN Conductor Terminal  
**RC** Remote Contacts Terminal (Optional)  
**TD** Thermal Disconnect



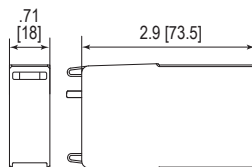
### Complete Unit



#### Complete Unit Dimensions & Packaging

| ProTec T1H-xxx-3+0           |                | 300                                   |
|------------------------------|----------------|---------------------------------------|
| Weight                       | pounds [grams] | 1.232 [559]                           |
| Packaging Dimensions (HxWxL) |                | 270 × 375 × 395" [10.6 × 14.8 × 15.5] |
| ProTec T1H-xxx-3+0-R         |                | 300                                   |
| Weight                       | pounds [grams] | 1.250 [567]                           |
| Packaging Dimensions (HxWxL) |                | 270 × 375 × 395" [10.6 × 14.8 × 15.5] |
| Standard Order Quantity      |                | 20 Units                              |

### Spare Unit



#### Single Unit

| ProTec T1H-xxx-P             |                | 300                                    |
|------------------------------|----------------|----------------------------------------|
| Weight                       | pounds [grams] | .223 [101]                             |
| DIN 43880 Dimension          |                | 1 TE / .71 [18]                        |
| Packaging Dimensions (HxWxL) |                | 4.3 × 4.5 × 13.8" [109 × 115 × 352 mm] |
| Standard Order Quantity      |                | 28 Units                               |

inches  
 [mm]

Information contained in this document is subject to  
 change at any time without notice.





Location of Use: Main Distribution Boards,  
60 mm Busbar Systems

Network Systems: TT, TN-S

Mode of Protection: L-N, N-PE

IEC/EN: Class I+II / Type 1+2

Housing: Pluggable design

Compliance: IEC 61643-11:2011

EN 61643-11:2012 + A11:2018

## Technical Data

### ProTec 60 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) $U_c$            | 300 V                              |
|                                            | (N-PE) $U_c$           | 305 V                              |
| Nominal Discharge Current (8/20 $\mu$ s)   | (L-N)/(N-PE) $I_n$     | 20 kA / 80 kA                      |
| Maximum Discharge Current (8/20 $\mu$ s)   | (L-N)/(N-PE) $I_{max}$ | 65 kA / 100 kA                     |
| Impulse Discharge Current (10/350 $\mu$ s) | (L-N)/(N-PE) $I_{imp}$ | 12.5 kA / 50 kA                    |
| Specific Energy                            | (L-N)/(N-PE) W/R       | 39 kJ/ $\Omega$ / 625 kJ/ $\Omega$ |
| Charge                                     | (L-N)/(N-PE) Q         | 6.25 As / 25 As                    |
| Voltage Protection Level                   | (L-N)/(N-PE) $U_p$     | 1500V / 1500V                      |
| Follow Current Interrupt Rating            | (N-PE) $I_{fi}$        | 100A                               |
| Response Time                              | (L-N)/(N-PE) $t_A$     | < 25ns / < 100ns                   |
| Overcurrent Protection (max)               |                        | 250 A gG                           |
| Short-Circuit Current Rating (AC)          | $I_{SCCR}$             | 25 kA                              |
| TOV Withstand 5s                           | (L-N) $U_T$            | 337 V                              |
| TOV Safe Fail 120min                       | (L-N) $U_T$            | 442 V                              |
| TOV Withstand 200ms                        | (N-PE) $U_T$           | 1200 V                             |
| Number of Ports                            |                        | 1                                  |

#### 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              | $M_{max}$ | PH2 / 40 lbf-in [4.5 Nm]                                                                                           |
| Conductor Cross Section (max)      |           | 2 AWG (Solid, Stranded) / 4 AWG (Flexible)<br>35 mm <sup>2</sup> (Solid, Stranded) / 25 mm <sup>2</sup> (Flexible) |
| Mounting                           |           | 60 mm Busbar Systems<br>Width: 12, 15, 20, 25, 30 mm<br>Thickness: 5 mm, 10 mm (with removed spacers)              |
| Degree Of Protection               |           | IP 20*                                                                                                             |
| Housing Material                   |           | Thermoplastic: Extinguishing Degree UL 94 V-0                                                                      |
| Operating State / Fault Indication |           | Green Flag / Not Green Flag                                                                                        |
| Remote Contacts (RC)               |           | Optional                                                                                                           |
| RC Switching Capacity              |           | AC: 250V/1 A, 125V/1 A; DC: 48V/0.5 A, 24V/0.5 A, 12V/0.5 A                                                        |
| RC Conductor Cross Section (max)   |           | 16 AWG (Solid) / 1.5 mm <sup>2</sup> (Solid)                                                                       |

#### Order Information

|                                                |            |
|------------------------------------------------|------------|
| Order Code                                     | <b>300</b> |
| ProTec 60 T1H-xxx-3+1                          | 515 963    |
| ProTec 60 T1H-xxx-3+1-R (with remote contacts) | 515 964    |
| ProTec T1H-xxx-P (plug)                        | 59.C384    |

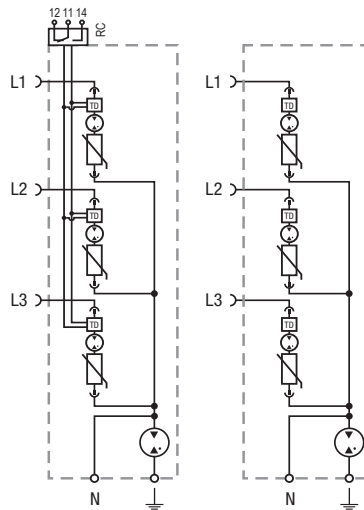
\*IP 40 (in combination with cover)

## ProTec 60 T1H 3+1

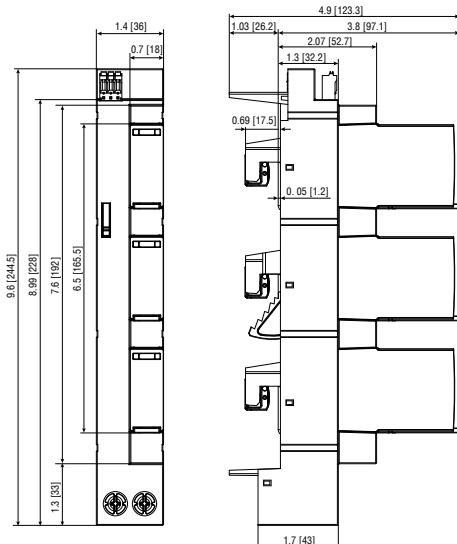
### Internal Configuration

#### Legend

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



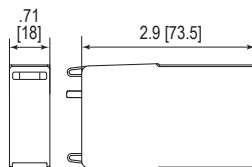
### Complete Unit



#### Complete Unit Dimensions & Packaging

| ProTec 60 T1H-xxx-3+1        |                | 300                                   |
|------------------------------|----------------|---------------------------------------|
| Weight                       | pounds [grams] | 1.325 [601]                           |
| Packaging Dimensions (HxWxL) |                | 270 x 375 x 395" [10.6 x 14.8 x 15.5] |
| ProTec 60 T1H-xxx-3+1-R      |                | 300                                   |
| Weight                       | pounds [grams] | 1.340 [608]                           |
| Packaging Dimensions (HxWxL) |                | 270 x 375 x 395" [10.6 x 14.8 x 15.5] |
| Standard Order Quantity      |                | 20 Units                              |

### Spare Unit



#### Single Unit

| 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]

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## Combined Lightning Current and Surge Arrester

**ProTec 60 T1 3+0**

Class I • Class II • Type 1 • Type 2



Location of Use: Main Distribution Boards,  
60 mm Busbar Systems

Network Systems: TN-C

Mode of Protection: L-PEN

IEC/EN: Class I+II / Type 1+2

Housing: Pluggable design

Compliance: IEC 61643-11:2011

EN 61643-11:2012 + A11:2018

**Technical Data****ProTec 60 T1-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 (8/20 $\mu$ s)   | $I_n$      | 20 kA            |
| Maximum Discharge Current (8/20 $\mu$ s)   | $I_{max}$  | 50 kA            |
| Impulse Discharge Current (10/350 $\mu$ s) | $I_{imp}$  | 12.5 kA          |
| Specific Energy                            | W/R        | 39 kJ / $\Omega$ |
| Charge                                     | Q          | 6.25 As          |
| Voltage Protection Level                   | $U_p$      | 1500V            |
| Response Time                              | $t_A$      | < 25ns           |
| Overcurrent Protection (max)               |            | 250 A gG         |
| Short-Circuit Current Rating (AC)          | $I_{SCCR}$ | 25 kA            |
| TOV Withstand 5s                           | $U_T$      | 337 V            |
| TOV Safe Fail 120min                       | $U_T$      | 442 V            |
| Number of Ports                            |            | 1                |

**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              | $M_{max}$ | PH2 / 40 lbf·in [4.5Nm]                                                                                            |
| Conductor Cross Section (max)      |           | 2 AWG (Solid, Stranded) / 4 AWG (Flexible)<br>35 mm <sup>2</sup> (Solid, Stranded) / 25 mm <sup>2</sup> (Flexible) |
| Mounting                           |           | 60 mm Busbar Systems<br>Width: 12, 15, 20, 25, 30 mm<br>Thickness: 5 mm, 10 mm (with removed spacers)              |
| Degree Of Protection               |           | IP 20*                                                                                                             |
| Housing Material                   |           | Thermoplastic: Extinguishing Degree UL 94 V-0                                                                      |
| Operating State / Fault Indication |           | Green Flag / Not Green Flag                                                                                        |
| Remote Contacts (RC)               |           | Optional                                                                                                           |
| RC Switching Capacity              |           | AC: 250V/1 A, 125V/1 A; 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)                                                                       |

**Order Information**

|                                               |            |
|-----------------------------------------------|------------|
| Order Code                                    | <b>300</b> |
| ProTec 60 T1-xxx-3+0                          | 515 943    |
| ProTec 60 T1-xxx-3+0-R (with remote contacts) | 515 944    |
| ProTec T1-xxx-P (plug)                        | 59.C345    |

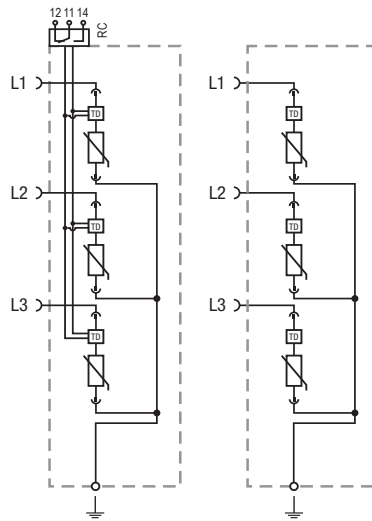
\*IP 40 (in combination with cover)

## ProTec 60 T1 3+0

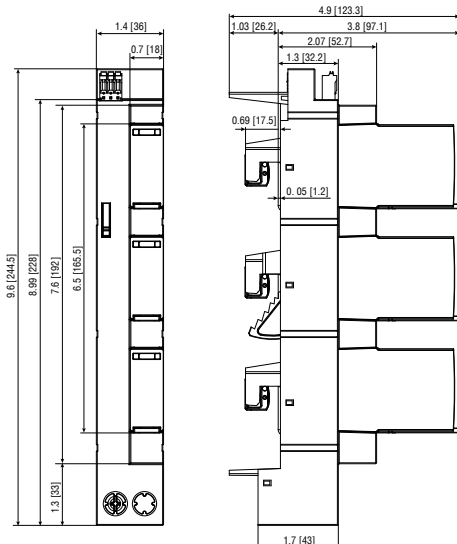
### Internal Configuration

#### Legend

- L** Line Busbar Terminal  
**⏚** PEN Conductor Terminal  
**RC** Remote Contacts Terminal (Optional)  
**TD** Thermal Disconnect



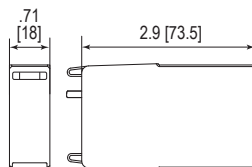
### Complete Unit



#### Complete Unit Dimensions & Packaging

| ProTec T1-xxx-3+0            |                | 300                                   |
|------------------------------|----------------|---------------------------------------|
| Weight                       | pounds [grams] | 1.252 [568]                           |
| Packaging Dimensions (HxWxL) |                | 270 × 375 × 395" [10.6 × 14.8 × 15.5] |
| ProTec T1-xxx-3+0-R          |                | 300                                   |
| Weight                       | pounds [grams] | 1.270 [576]                           |
| Packaging Dimensions (HxWxL) |                | 270 × 375 × 395" [10.6 × 14.8 × 15.5] |
| Standard Order Quantity      |                | 20 Units                              |

### Spare Unit



#### Single Unit

| ProTec T1-xxx-P              |                | 300                                    |
|------------------------------|----------------|----------------------------------------|
| Weight                       | pounds [grams] | .229 [104]                             |
| DIN 43880 Dimension          |                | 1 TE / .71 [18]                        |
| Packaging Dimensions (HxWxL) |                | 4.3 × 4.5 × 13.8" [109 × 115 × 352 mm] |
| Standard Order Quantity      |                | 28 Units                               |

inches  
 [mm]

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**DATA SHEET**

# Combined Lightning Current and Surge Arrester

## ProTec 60 T1 3+1

Class I • Class II • Type 1 • Type 2



Location of Use: Main Distribution Boards,  
60 mm Busbar Systems

Network Systems: TT, TN-S

Mode of Protection: L-N, N-PE

IEC/EN: Class I+II / Type 1+2

Housing: Pluggable design

Compliance: IEC 61643-11:2011

EN 61643-11:2012 + A11:2018

### Technical Data

ProTec 60 T1-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) $U_c$            | 300 V                              |
|                                            | (N-PE) $U_c$           | 305 V                              |
| Nominal Discharge Current (8/20 $\mu$ s)   | (L-N)/(N-PE) $I_n$     | 20 kA / 80 kA                      |
| Maximum Discharge Current (8/20 $\mu$ s)   | (L-N)/(N-PE) $I_{max}$ | 50 kA / 100 kA                     |
| Impulse Discharge Current (10/350 $\mu$ s) | (L-N)/(N-PE) $I_{imp}$ | 12.5 kA / 50 kA                    |
| Specific Energy                            | (L-N)/(N-PE) W/R       | 39 kJ/ $\Omega$ / 625 kJ/ $\Omega$ |
| Charge                                     | (L-N)/(N-PE) Q         | 6.25 As / 25 As                    |
| Voltage Protection Level                   | (L-N)/(N-PE) $U_p$     | 1500V / 1500V                      |
| Follow Current Interrupt Rating            | (N-PE) $I_{fi}$        | 100A                               |
| Response Time                              | (L-N)/(N-PE) $t_A$     | < 25ns / < 100ns                   |
| Overcurrent Protection (max)               |                        | 250 A gG                           |
| Short-Circuit Current Rating (AC)          | $I_{SCCR}$             | 25 kA                              |
| TOV Withstand 5s                           | (L-N) $U_T$            | 337 V                              |
| TOV Safe Fail 120min                       | (L-N) $U_T$            | 442 V                              |
| TOV Withstand 200ms                        | (N-PE) $U_T$           | 1200 V                             |
| Number of Ports                            |                        | 1                                  |

#### 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              | $M_{max}$ | PH2 / 40 lbf-in [4.5Nm]                                                                                            |
| Conductor Cross Section (max)      |           | 2 AWG (Solid, Stranded) / 4 AWG (Flexible)<br>35 mm <sup>2</sup> (Solid, Stranded) / 25 mm <sup>2</sup> (Flexible) |
| Mounting                           |           | 60 mm Busbar Systems<br>Width: 12, 15, 20, 25, 30 mm<br>Thickness: 5 mm, 10 mm (with removed spacers)              |
| Degree Of Protection               |           | IP 20*                                                                                                             |
| Housing Material                   |           | Thermoplastic: Extinguishing Degree UL 94 V-0                                                                      |
| Operating State / Fault Indication |           | Green Flag / Not Green Flag                                                                                        |
| Remote Contacts (RC)               |           | Optional                                                                                                           |
| RC Switching Capacity              |           | AC: 250V/1 A, 125V/1 A; DC: 48V/0.5 A, 24V/0.5 A, 12V/0.5 A                                                        |
| RC Conductor Cross Section (max)   |           | 16 AWG (Solid) / 1.5 mm <sup>2</sup> (Solid)                                                                       |

#### Order Information

|                                               |         |
|-----------------------------------------------|---------|
| Order Code                                    | 300     |
| ProTec 60 T1-xxx-3+1                          | 515 949 |
| ProTec 60 T1-xxx-3+1-R (with remote contacts) | 515 950 |
| ProTec T1-xxx-P (plug)                        | 59.C345 |

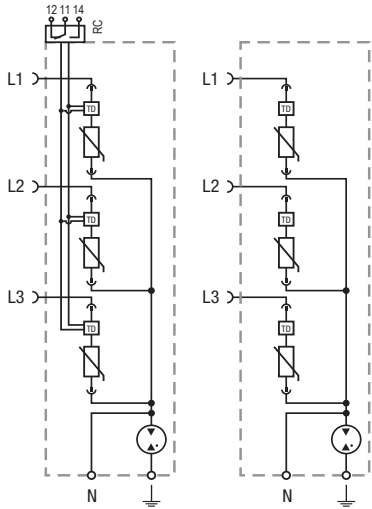
\*IP 40 (in combination with cover)

ProTec 60 T1 3+1

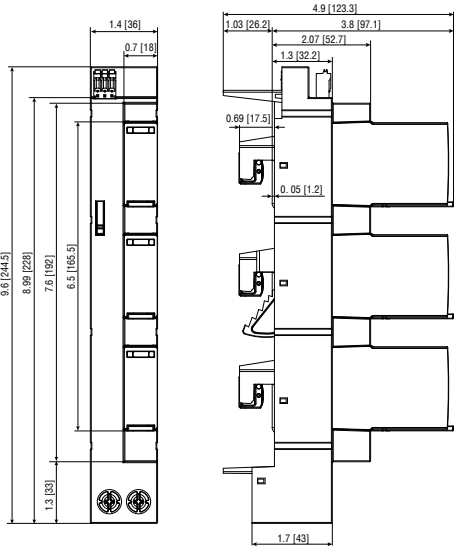
Internal Configuration

Legend

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



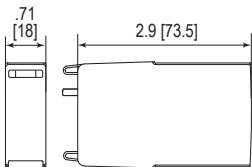
Complete Unit



Complete Unit Dimensions & Packaging

|                               |                                       |             |
|-------------------------------|---------------------------------------|-------------|
| <b>ProTec 60 T1-xxx-3+1</b>   |                                       | <b>300</b>  |
| Weight                        | pounds [grams]                        | 1.345 [610] |
| Packaging Dimensions (HxWxL)  | 270 × 375 × 395" [10.6 × 14.8 × 15.5] |             |
| <b>ProTec 60 T1-xxx-3+1-R</b> |                                       | <b>300</b>  |
| Weight                        | pounds [grams]                        | 1.360 [617] |
| Packaging Dimensions (HxWxL)  | 270 × 375 × 395" [10.6 × 14.8 × 15.5] |             |
| Standard Order Quantity       | 20 Units                              |             |

Spare Unit



Single Unit

|                              |                                        |            |
|------------------------------|----------------------------------------|------------|
| <b>ProTec T1-xxx-P</b>       |                                        | <b>300</b> |
| Weight                       | pounds [grams]                         | .229 [104] |
| DIN 43880 Dimension          | 1 TE / .71 [18]                        |            |
| Packaging Dimensions (HxWxL) | 4.3 × 4.5 × 13.8" [109 × 115 × 352 mm] |            |
| Standard Order Quantity      | 28 Units                               |            |

inches  
[mm]

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Location of Use: Main Distribution Boards,  
60 mm Busbar Systems

Network Systems: TN-C

Mode of Protection: L-PEN

IEC/EN: Class II+III / Type 2+3

Housing: Pluggable design

Compliance: IEC 61643-11:2011

EN 61643-11:2012 + A11:2018

## Technical Data

### ProTec 60 T2F-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 (8/20 $\mu$ s)                            | $I_n$       | 20 kA        |
| Maximum Discharge Current (8/20 $\mu$ s)                            | $I_{max}$   | 40 kA        |
| Voltage Protection Level                                            | $U_p$       | 1500 V       |
| Open Circuit Voltage of Combination Wave Generator (1.2/50 $\mu$ s) | $U_{oc}$    | 6 kV         |
| Short Circuit Current of Combination Wave Generator (8/20 $\mu$ s)  | $I_{cw}$    | 3 kV         |
| Response Time                                                       | $t_A$       | < 25 ns      |
| Overcurrent Protection (max)                                        |             | Not Required |
| Short-Circuit Current Rating (AC)                                   | $I_{SCCR}$  | 100 kA       |
| TOV Withstand 5s                                                    | $U_T$       | 337 V        |
| TOV Safe Fail 120min                                                | $U_T$       | 442 V        |
| Number of Ports                                                     |             | 1            |

#### 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              | $M_{max}$ | PH2 / 40 lbf-in [4.5 Nm]                                                                                           |
| Conductor Cross Section (max)      |           | 2 AWG (Solid, Stranded) / 4 AWG (Flexible)<br>35 mm <sup>2</sup> (Solid, Stranded) / 25 mm <sup>2</sup> (Flexible) |
| Mounting                           |           | 60 mm Busbar Systems<br>Width: 12, 15, 20, 25, 30 mm<br>Thickness: 5 mm, 10 mm (with removed spacers)              |
| Degree Of Protection               |           | IP 20*                                                                                                             |
| Housing Material                   |           | Thermoplastic: Extinguishing Degree UL 94 V-0                                                                      |
| Operating State / Fault Indication |           | Green Flag / Not Green Flag                                                                                        |
| Remote Contacts (RC)               |           | Optional                                                                                                           |
| RC Switching Capacity              |           | AC: 250V/1 A, 125V/1 A; DC: 48V/0.5 A, 24V/0.5 A, 12V/0.5 A                                                        |
| RC Conductor Cross Section (max)   |           | 16 AWG (Solid) / 1.5 mm <sup>2</sup> (Solid)                                                                       |

#### Order Information

|                                                |            |
|------------------------------------------------|------------|
| Order Code                                     | <b>300</b> |
| ProTec 60 T2F-xxx-3+0                          | 515 945    |
| ProTec 60 T2F-xxx-3+0-R (with remote contacts) | 515 946    |
| ProTec T2F-xxx-P (plug)                        | 59.C347    |

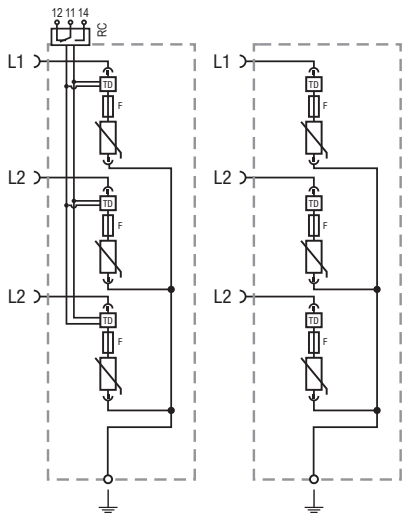
\*IP 40 (in combination with cover)

ProTec 60 T2F 3+0

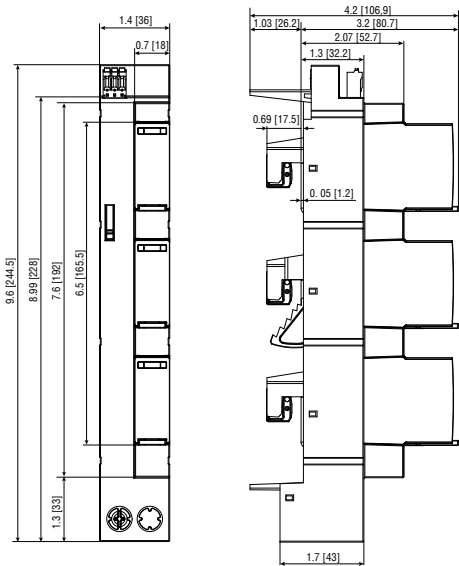
Internal Configuration

Legend

- L Line Busbar Terminal
- PEN Conductor Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnect
- F Integrated Surge Adapted Backup Fuse



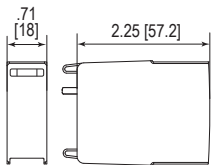
Complete Unit



Complete Unit Dimensions & Packaging

| ProTec 60 T2F-xxx-3+0        |                | 300                                   |
|------------------------------|----------------|---------------------------------------|
| Weight                       | pounds [grams] | 1.021 [463]                           |
| Packaging Dimensions (HxWxL) |                | 270 × 375 × 395" [10.6 × 14.8 × 15.5] |
| ProTec 60 T2F-xxx-3+0-R      |                | 300                                   |
| Weight                       | pounds [grams] | 1.038 [471]                           |
| Packaging Dimensions (HxWxL) |                | 270 × 375 × 395" [10.6 × 14.8 × 15.5] |
| Standard Order Quantity      |                | 20 Units                              |

Spare Unit



Single Unit

| ProTec T2F-xxx-P             |                | 300                                 |
|------------------------------|----------------|-------------------------------------|
| Weight                       | pounds [grams] | .152 [69]                           |
| DIN 43880 Dimension          |                | 1 TE / .71 [18]                     |
| Packaging Dimensions (HxWxL) |                | 3.2 × 4.5 × 12" [83 × 116 × 305 mm] |
| Standard Order Quantity      |                | 24 Units                            |

inches  
[mm]

Information contained in this document is subject to  
change at any time without notice.





Location of Use: Main Distribution Boards,  
60 mm Busbar Systems

Network Systems: TT, TN-S

Mode of Protection: L-N, N-PE

IEC/EN: Class II+III / Type 2+3

Housing: Pluggable design

Compliance: IEC 61643-11:2011

EN 61643-11:2012 + A11:2018

## Technical Data

**ProTec 60 T2F-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) $U_c$            | 300 V              |
|                                                                     | (N-PE) $U_c$           | 305 V              |
| Nominal Discharge Current (8/20 $\mu$ s)                            | (L-N)/(N-PE) $I_n$     | 20 kA / 40 kA      |
| Maximum Discharge Current (8/20 $\mu$ s)                            | (L-N)/(N-PE) $I_{max}$ | 40 kA / 65 kA      |
| Voltage Protection Level                                            | (L-N)/(N-PE) $U_p$     | 1500 V / 1500 V    |
| Open Circuit Voltage of Combination Wave Generator (1.2/50 $\mu$ s) | (L-N)/(N-PE) $U_{oc}$  | 6 kA / 6 kA        |
| Short Circuit Current of Combination Wave Generator (8/20 $\mu$ s)  | (L-N)/(N-PE) $I_{cw}$  | 3 kA / 3 kA        |
| Follow Current Interrupt Rating                                     | (N-PE) $I_{fi}$        | 100 A              |
| Response Time                                                       | (L-N)/(N-PE) $t_A$     | < 25 ns / < 100 ns |
| Overcurrent Protection (max)                                        |                        | Not Required       |
| Short-Circuit Current Rating (AC)                                   | $I_{SCCR}$             | 100 kA             |
| TOV Withstand 5s                                                    | (L-N) $U_T$            | 337 V              |
| TOV Safe Fail 120min                                                | (L-N) $U_T$            | 442 V              |
| TOV Withstand 200ms                                                 | (N-PE) $U_T$           | 1200 V             |
| Number of Ports                                                     |                        | 1                  |

### 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              | $M_{max}$ | PH2 / 40 lbf-in [4.5Nm]                                                                                            |
| Conductor Cross Section (max)      |           | 2 AWG (Solid, Stranded) / 4 AWG (Flexible)<br>35 mm <sup>2</sup> (Solid, Stranded) / 25 mm <sup>2</sup> (Flexible) |
| Mounting                           |           | 60mm Busbar Systems<br>Width: 12, 15, 20, 25, 30 mm<br>Thickness: 5 mm, 10 mm (with removed spacers)               |
| Degree Of Protection               |           | IP 20*                                                                                                             |
| Housing Material                   |           | Thermoplastic: Extinguishing Degree UL 94 V-0                                                                      |
| Operating State / Fault Indication |           | Green Flag / Not Green Flag                                                                                        |
| Remote Contacts (RC)               |           | Optional                                                                                                           |
| RC Switching Capacity              |           | AC: 250V/1 A, 125V/1 A; DC: 48V/0.5 A, 24V/0.5 A, 12V/0.5 A                                                        |
| RC Conductor Cross Section (max)   |           | 16 AWG (Solid) / 1.5 mm <sup>2</sup> (Solid)                                                                       |

### Order Information

|                                                |            |
|------------------------------------------------|------------|
| Order Code                                     | <b>300</b> |
| ProTec 60 T2F-xxx-3+1                          | 515 951    |
| ProTec 60 T2F-xxx-3+1-R (with remote contacts) | 515 952    |
| ProTec T2F-xxx-P (plug)                        | 59.C347    |

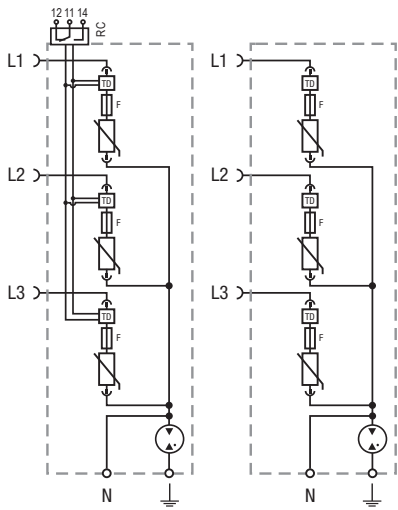
\*IP 40 (in combination with cover)

ProTec 60 T2F 3+1

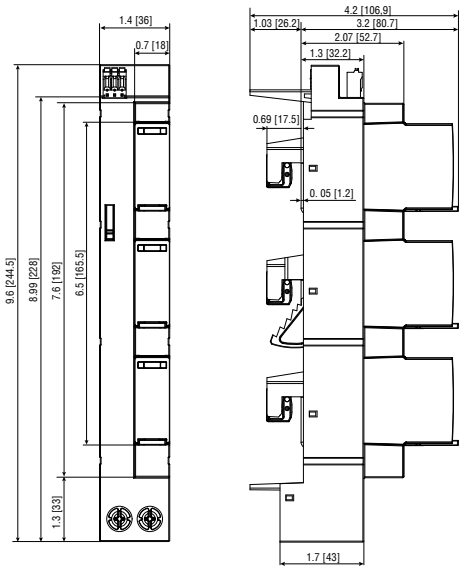
Internal Configuration

Legend

- L Line Busbar Terminal
- N Neutral Conductor Terminal
- PE Conductor Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnect
- F Integrated Surge Adapted Backup Fuse



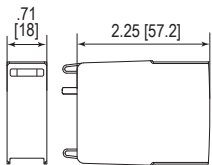
Complete Unit



Complete Unit Dimensions & Packaging

| ProTec 60 T2F-xxx-3+1        |                | 300                                   |
|------------------------------|----------------|---------------------------------------|
| Weight                       | pounds [grams] | 1.100 [499]                           |
| Packaging Dimensions (HxWxL) |                | 270 x 375 x 395" [10.6 x 14.8 x 15.5] |
| ProTec 60 T2F-xxx-3+1-R      |                | 300                                   |
| Weight                       | pounds [grams] | 1.118 [507]                           |
| Packaging Dimensions (HxWxL) |                | 270 x 375 x 395" [10.6 x 14.8 x 15.5] |
| Standard Order Quantity      |                | 20 Units                              |

Spare Unit



Single Unit

| ProTec T2F-xxx-P             |                | 300                                 |
|------------------------------|----------------|-------------------------------------|
| Weight                       | pounds [grams] | .152 [69]                           |
| DIN 43880 Dimension          |                | 1 TE / .71 [18]                     |
| Packaging Dimensions (HxWxL) |                | 3.2 x 4.5 x 12" [83 x 116 x 305 mm] |
| Standard Order Quantity      |                | 24 Units                            |

inches  
[mm]

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# Combined Lightning Current and Surge Arrester

## ProTec 60 T2 3+0

### Class II • Type 2



Location of Use: Main Distribution Boards,  
60 mm Busbar Systems

Network Systems: TN-C

Mode of Protection: L-PEN

IEC/EN: Class II / Type 2

Housing: Pluggable design

Compliance: IEC 61643-11:2011

EN 61643-11:2012 + A11:2018

## Technical Data

ProTec 60 T2-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 (8/20 $\mu$ s)  | $I_n$       | 20 kA    |
| Maximum Discharge Current (8/20 $\mu$ s)  | $I_{max}$   | 50 kA    |
| Voltage Protection Level                  | $U_p$       | 1500 V   |
| Response Time                             | $t_A$       | < 25 ns  |
| Overcurrent Protection (max)              |             | 250 A gG |
| Short-Circuit Current Rating (AC)         | $I_{SCCR}$  | 25 kA    |
| TOV Withstand 5s                          | $U_T$       | 337 V    |
| TOV Safe Fail 120min                      | $U_T$       | 442 V    |
| Number of Ports                           |             | 1        |

### 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              | $M_{max}$ | PH2 / 40 lbf-in [4.5 Nm]                                                                                           |
| Conductor Cross Section (max)      |           | 2 AWG (Solid, Stranded) / 4 AWG (Flexible)<br>35 mm <sup>2</sup> (Solid, Stranded) / 25 mm <sup>2</sup> (Flexible) |
| Mounting                           |           | 60 mm Busbar Systems<br>Width: 12, 15, 20, 25, 30 mm<br>Thickness: 5 mm, 10 mm (with removed spacers)              |
| Degree Of Protection               |           | IP 20*                                                                                                             |
| Housing Material                   |           | Thermoplastic: Extinguishing Degree UL 94 V-0                                                                      |
| Operating State / Fault Indication |           | Green Flag / Not Green Flag                                                                                        |
| Remote Contacts (RC)               |           | Optional                                                                                                           |
| RC Switching Capacity              |           | AC: 250V/1 A, 125V/1 A; DC: 48V/0.5 A, 24V/0.5 A, 12V/0.5 A                                                        |
| RC Conductor Cross Section (max)   |           | 16 AWG (Solid) / 1.5 mm <sup>2</sup> (Solid)                                                                       |

### Order Information

|                                               |         |
|-----------------------------------------------|---------|
| Order Code                                    | 300     |
| ProTec 60 T2-xxx-3+0                          | 515 933 |
| ProTec 60 T2-xxx-3+0-R (with remote contacts) | 515 942 |
| ProTec T2-xxx-P (plug)                        | 59.C346 |

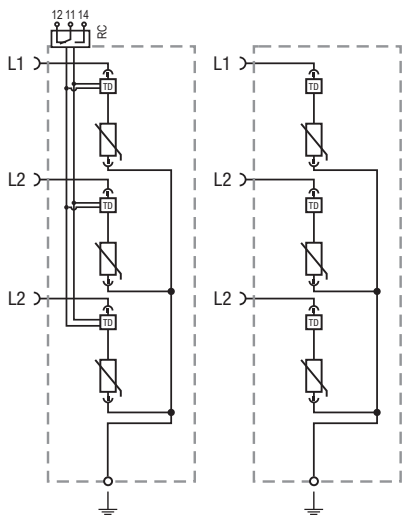
\*IP 40 (in combination with cover)

ProTec 60 T2 3+0

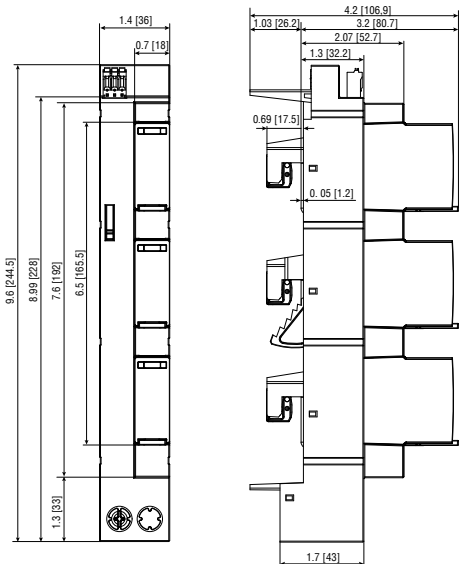
Internal Configuration

Legend

- L Line Busbar Terminal
- ⏏ PEN Conductor Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnect



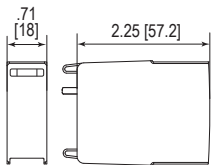
Complete Unit



Complete Unit Dimensions & Packaging

|                               |                                       |            |
|-------------------------------|---------------------------------------|------------|
| <b>ProTec 60 T2-xxx-3+0</b>   |                                       | <b>300</b> |
| Weight                        | pounds [grams]                        | .955 [433] |
| Packaging Dimensions (HxWxL)  | 270 × 375 × 395" [10.6 × 14.8 × 15.5] |            |
| <b>ProTec 60 T2-xxx-3+0-R</b> |                                       | <b>300</b> |
| Weight                        | pounds [grams]                        | .972 [441] |
| Packaging Dimensions (HxWxL)  | 270 × 375 × 395" [10.6 × 14.8 × 15.5] |            |
| Standard Order Quantity       | 20 Units                              |            |

Spare Unit



Single Unit

|                              |                                     |            |
|------------------------------|-------------------------------------|------------|
| <b>ProTec T2-xxx-P</b>       |                                     | <b>300</b> |
| Weight                       | pounds [grams]                      | .130 [59]  |
| DIN 43880 Dimension          | 1TE / .71 [18]                      |            |
| Packaging Dimensions (HxWxL) | 3.2 × 4.5 × 12" [83 × 116 × 305 mm] |            |
| Standard Order Quantity      | 24 Units                            |            |

inches  
[mm]

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# Combined Lightning Current and Surge Arrester

## ProTec 60 T2 3+1

### Class II • Type 2



Location of Use: Main Distribution Boards,  
60 mm Busbar Systems

Network Systems: TT, TN-S

Mode of Protection: L-N, N-PE

IEC/EN: Class II / Type 2

Housing: Pluggable design

Compliance: IEC 61643-11:2011

EN 61643-11:2012 + A11:2018

## Technical Data

ProTec 60 T2-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) $U_c$            | 300 V              |
|                                           | (N-PE) $U_c$           | 305 V              |
| Nominal Discharge Current (8/20 $\mu$ s)  | (L-N)/(N-PE) $I_n$     | 20 kA / 40 kA      |
| Maximum Discharge Current (8/20 $\mu$ s)  | (L-N)/(N-PE) $I_{max}$ | 50 kA / 65 kA      |
| Voltage Protection Level                  | (L-N)/(N-PE) $U_p$     | 1500 V / 1500 V    |
| Follow Current Interrupt Rating           | (N-PE) $I_{fi}$        | 100 A              |
| Response Time                             | (L-N)/(N-PE) $t_A$     | < 25 ns / < 100 ns |
| Overcurrent Protection (max)              |                        | 250 A gG           |
| Short-Circuit Current Rating (AC)         | $I_{SCCR}$             | 25 kA              |
| TOV Withstand 5s                          | (L-N) $U_T$            | 337 V              |
| TOV Safe Fail 120min                      | (L-N) $U_T$            | 442 V              |
| TOV Withstand 200ms                       | (N-PE) $U_T$           | 1200 V             |
| Number of Ports                           |                        | 1                  |

### 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              | $M_{max}$ | PH2 / 40 lbf-in [4.5 Nm]                                             |
| Conductor Cross Section (max)      |           | 2 AWG (Solid, Stranded) / 4 AWG (Flexible)                           |
|                                    |           | 35 mm <sup>2</sup> (Solid, Stranded) / 25 mm <sup>2</sup> (Flexible) |
| Mounting                           |           | 60 mm Busbar Systems                                                 |
|                                    |           | Width: 12, 15, 20, 25, 30 mm                                         |
|                                    |           | Thickness: 5 mm, 10 mm (with removed spacers)                        |
| Degree Of Protection               |           | IP 20*                                                               |
| Housing Material                   |           | Thermoplastic: Extinguishing Degree UL 94 V-0                        |
| Operating State / Fault Indication |           | Green Flag / Not Green Flag                                          |
| Remote Contacts (RC)               |           | Optional                                                             |
| RC Switching Capacity              |           | AC: 250V/1 A, 125V/1 A; DC: 48V/0.5 A, 24V/0.5 A, 12V/0.5 A          |
| RC Conductor Cross Section (max)   |           | 16 AWG (Solid) / 1.5 mm <sup>2</sup> (Solid)                         |

### Order Information

|                                               |         |
|-----------------------------------------------|---------|
| Order Code                                    | 300     |
| ProTec 60 T2-xxx-3+1                          | 515 947 |
| ProTec 60 T2-xxx-3+1-R (with remote contacts) | 515 948 |
| ProTec T2-xxx-P (plug)                        | 59.C346 |

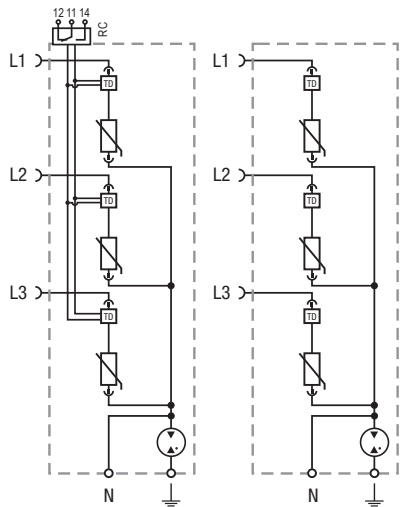
\*IP 40 (in combination with cover)

ProTec 60 T2 3+1

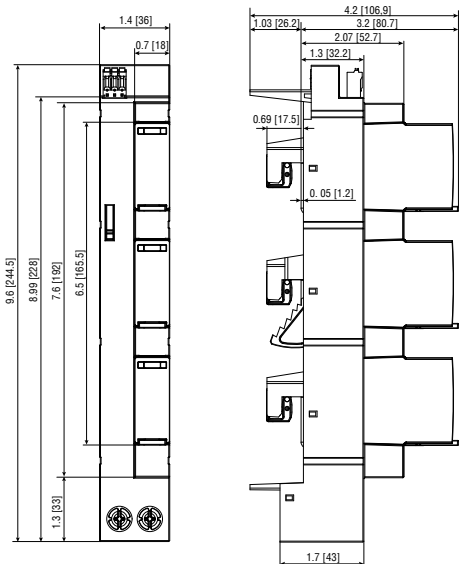
Internal Configuration

Legend

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



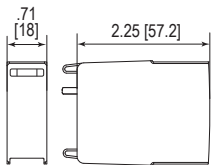
Complete Unit



Complete Unit Dimensions & Packaging

| ProTec 60 T2-xxx-3+1         |                | 300                                   |
|------------------------------|----------------|---------------------------------------|
| Weight                       | pounds [grams] | 1.034 [469]                           |
| Packaging Dimensions (HxWxL) |                | 270 x 375 x 395" [10.6 x 14.8 x 15.5] |
| ProTec 60 T2-xxx-3+1-R       |                | 300                                   |
| Weight                       | pounds [grams] | 1.052 [477]                           |
| Packaging Dimensions (HxWxL) |                | 270 x 375 x 395" [10.6 x 14.8 x 15.5] |
| Standard Order Quantity      |                | 20 Units                              |

Spare Unit



Single Unit

| ProTec T2-xxx-P              |                | 300                                 |
|------------------------------|----------------|-------------------------------------|
| Weight                       | pounds [grams] | .130 [59]                           |
| DIN 43880 Dimension          |                | 1 TE / .71 [18]                     |
| Packaging Dimensions (HxWxL) |                | 3.2 x 4.5 x 12" [83 x 116 x 305 mm] |
| Standard Order Quantity      |                | 24 Units                            |

inches  
[mm]

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change at any time without notice.

