

Lightning and Overvoltage Protection with Integrated Fuse  
**ProTec T1SF 1+0**  
 Class I • Class II • Type 1 • Type 2



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

**Technical Data**

**ProTec T1SF-xxx-1+0(-R)**

**275**

**IEC Electrical**

Nominal AC Voltage (50/60Hz)	$U_o / U_n$	240 V
Maximum Continuous Operating Voltage (AC)	$U_c$	275 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
Response Time	$t_A$	< 100 ns
Overcurrent Protection		Not Required
Short-Circuit Current Rating (AC)	$I_{SCCR}$	75 kA
Follow Current Interrupt Rating (AC)	$I_{fi}$	75 kA
TOV Withstand 120min	$U_T$	442 V
Number of Ports		1

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

Residual Voltage at 5 kA (8/20 $\mu$ s)	$U_{res}$	1200 V
Overcurrent Protection (min)		Not Required

**Additional Electrical Parameters - Extended** (Additionally tested by VDE)

Short-Circuit Current Rating (AC)	$I_{SCCR}$	100 kA
Overcurrent Protection (max)		Not Required

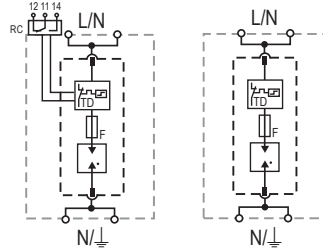
**Mechanical & Environmental**

Operating Temperature Range	$T_a$	-40 °F to +185 °F [-40 °C to +85 °C]
Permissible Operating Humidity	RH	5%...95%
Altitude		6562 ft [2000 m]
Terminal Screw Torque	$M_{max}$	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		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)

## Internal Configuration

### Legend

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



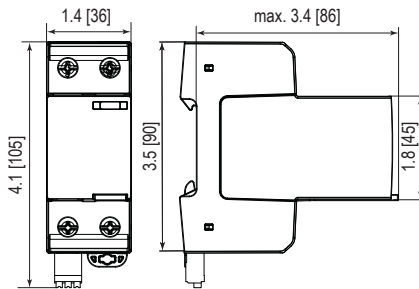
### ProTec T1SF-xxx-1+0(-R)

#### Order Information

Order Code	275
ProTec T1SF-xxx-1+0	59.A500
ProTec T1SF-xxx-1+0-R (with remote contacts)	59.A501
ProTec T1SF-xxx-P (plug)	59.A502

## Dimensions & Packaging

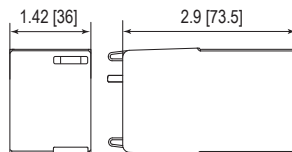
inches [mm]



#### Complete Unit

ProTec T1SF-xxx-1+0		275
Weight	pounds [grams]	.727 [330]
ProTec T1SF-xxx-1+0-R		275
Weight	pounds [grams]	.736 [334]
DIN 43880 Dimension	2 TE / 1.42" [36mm]	
Packaging Dimensions (HxWxL)	4.3 x 4.5 x 13.8" [109 x 115 x 352mm]	
Standard Order Quantity	7 Units	

## Spare Plug



#### Single Unit

ProTec T1SF-xxx-P		275
Weight	pounds [grams]	.427 [194]
DIN 43880 Dimension	2 TE / 1.42" [36mm]	
Packaging Dimensions (HxWxL)	4.3 x 4.5 x 13.8" [109 x 115 x 352mm]	
Standard Order Quantity	16 Units	

# Lightning and Overvoltage Protection with Integrated Fuse **ProTec T1SF 3+0**

**Class I • Class II • Class III • Type 1 • Type 2 • Type 3**



Location of Use: Main Distribution Boards  
 Network Systems: TN-C  
 Mode of Protection: L-PEN  
 IEC/EN Category: Class I+II+III, Type 1+2+3  
 Technology: Hybrid  
 Leakage Current Free: Yes  
 Housing: Pluggable Design  
 Compliance: IEC 61643-11: 2011  
 EN 61643-11: 2012+A11:2018

## Technical Data

**ProTec T1SF-xxx-3+0(-R)**

**275**

### IEC Electrical

Nominal AC Voltage (50/60Hz)	$U_o/U_n$	240 V
Maximum Continuous Operating Voltage (AC)	$U_c$	275 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
Open Circuit Voltage of Combination Wave Generator (1.2/50 $\mu$ s)	$U_{oc}$	6 kV
Short Circuit Voltage of Combination Wave Generator (8/20 $\mu$ s)	$I_{cw}$	3 kA
Voltage Protection Level	$U_p$	2100 V
Voltage Protection Level for Type 3 only	$U_p$	1500 V
Response Time	$t_A$	< 100 ns
Overcurrent Protection		Not Required
Short-Circuit Current Rating (AC)	$I_{SCCR}$	100 kA
Follow Current Interrupt Rating (AC)	$I_{fi}$	100 kA
TOV Withstand 120min	$U_T$	442 V
Number of Ports		1

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

Residual Voltage at 5 kA (8/20 $\mu$ s)	$U_{res}$	1200 V
Overcurrent Protection (min)		Not Required

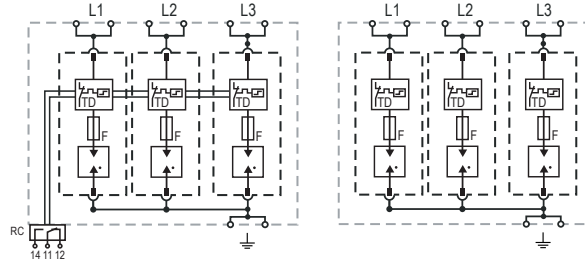
### Mechanical & Environmental

Operating Temperature Range	$T_a$	-40 °F to +185 °F [-40 °C to +85 °C]
Permissible Operating Humidity	RH	5%...95%
Altitude		6562 ft [2000 m]
Terminal Screw Torque	$M_{max}$	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		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)

## Internal Configuration

### Legend

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



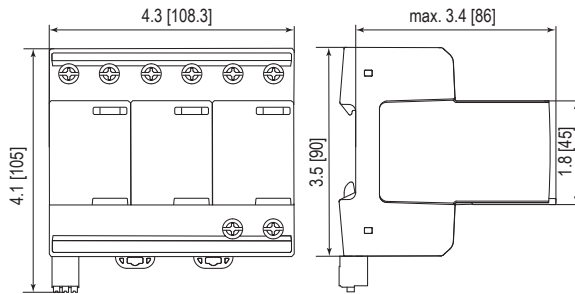
### ProTec T1SF-xxx-3+0(-R)

#### Order Information

Order Code	275
ProTec T1SF-xxx-3+0	59.C170
ProTec T1SF-xxx-3+0-R (with remote contacts)	59.C171
ProTec T1SF-xxx-P (plug)	59.C174

## Dimensions & Packaging

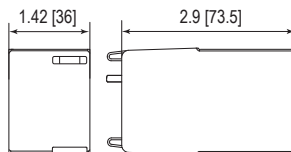
inches [mm]



#### Complete Unit

ProTec T1SF-xxx-3+0		275
Weight	pounds [grams]	1.892 [858]
ProTec T1SF-xxx-3+0-R		
Weight	pounds [grams]	1.914 [868]
DIN 43880 Dimension	6 TE / 4.3" [108.3mm]	
Packaging Dimensions (HxWxL)	4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]	
Standard Order Quantity	3 Units	

## Spare Plug



#### Single Unit

ProTec T1SF-xxx-P		275
Weight	pounds [grams]	.427 [194]
DIN 43880 Dimension	2 TE / 1.42 [36mm]	
Packaging Dimensions (HxWxL)	4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]	
Standard Order Quantity	16 Units	

# Lightning and Overvoltage Protection with Integrated Fuse **ProTec T1SF 3+1**

**Class I • Class II • Class III • Type 1 • Type 2 • Type 3**



Location of Use: Main Distribution Boards  
 Network Systems: TT, TN-S  
 Mode of Protection: L-N, N-PE  
 IEC/EN Category: Class I+II+III, Type 1+2+3  
 Technology: Hybrid  
 Leakage Current Free: Yes  
 Housing: Pluggable Design  
 Compliance: IEC 61643-11: 2011  
 EN 61643-11: 2012+A11:2018

## Technical Data

**ProTec T1SF-xxx-3+1(-R)**

**275**

### IEC Electrical

Nominal AC Voltage (50/60Hz)	$U_o / U_n$	240 V
Maximum Continuous Operating Voltage (AC)	(L-N) / (N-PE) $U_c$	275 V / 305 V
Nominal Discharge Current (8/20 $\mu$ s)	(L-N) / (N-PE) $I_n$	25 kA / 100 kA
Maximum Discharge Current (8/20 $\mu$ s)	(L-N) / (N-PE) $I_{max}$	65 kA / 130 kA
Impulse Discharge Current (10/350 $\mu$ s)	(L-N) / (N-PE) $I_{imp}$	25 kA / 100 kA
Specific Energy	(L-N) / (N-PE) W/R	156.2 kJ/ $\Omega$ / 2500 kJ/ $\Omega$
Charge	(L-N) / (N-PE) Q	12.5 As / 50 As
Open Circuit Voltage of Combination Wave Generator (1.2/50 $\mu$ s)	$U_{oc}$	6 kV
Short Circuit Voltage of Combination Wave Generator (8/20 $\mu$ s)	$I_{cw}$	3 kA
Voltage Protection Level	(L-N) / (N-PE) $U_p$	2100 V / 1500 V
Voltage Protection Level for Type 3 only	(L-N) / (N-PE) $U_p$	1500 V / 1500 V
Response Time	(L-N) / (N-PE) $t_A$	< 100 ns / < 100 ns
Overcurrent Protection		Not Required
Short-Circuit Current Rating (AC)	$I_{SCCR}$	100 kA
Follow Current Interrupt Rating (AC)	(L-N) / (N-PE) $I_{fi}$	100 kA
TOV Withstand 120min	(L-N) $U_T$	442 V
TOV Withstand 200ms	(N-PE) $U_T$	1200 V
Number of Ports		1

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

Residual Voltage at 5 kA (8/20 $\mu$ s)	(L-N) / (N-PE) $U_{res}$	1200 V / 305 V
Overcurrent Protection (min)		Not Required

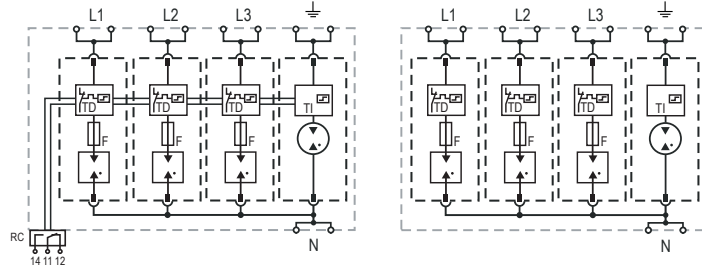
### Mechanical & Environmental

Operating Temperature Range	$T_a$	-40 °F to +185 °F [-40 °C to +85 °C]
Permissible Operating Humidity	RH	5%...95%
Altitude		6562 ft [2000 m]
Terminal Screw Torque	$M_{max}$	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		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)

## Internal Configuration

### Legend

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



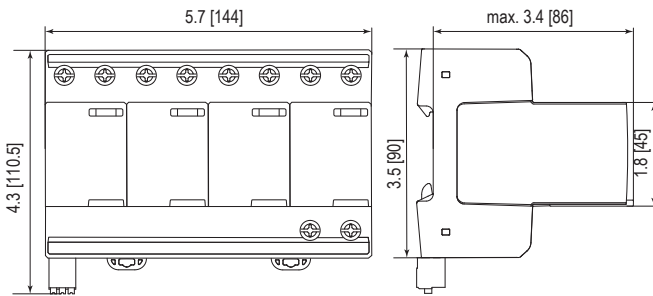
### ProTec T1SF-xxx-3+1(R)

#### Order Information

Order Code	<b>300</b>
ProTec T1SF-xxx-3+1	59.C172
ProTec T1SF-xxx-3+1-R (with remote contacts)	59.C173
ProTec T1SF-xxx-P (plug L-N)	59.C174
ProTube T1SF-100-P (plug N-PE)	59.C175

## Dimensions & Packaging

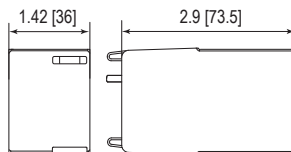
inches [mm]



#### Complete Unit

<b>ProTec T1SF-xxx-3+1</b>	<b>300</b>
Weight	pounds [grams] 2.348 [1065]
<b>ProTec T1SF-xxx-3+1-R</b>	
Weight	pounds [grams] 2.368 [1074]
DIN 43880 Dimension	8 TE / 5.7" [144 mm]
Packaging Dimensions (HxWxL)	4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]
Standard Order Quantity	2 Units

## Spare Plug



#### Single Unit

<b>ProTec T1SF-xxx-P</b>	<b>275</b>
Weight	pounds [grams] .427 [194]
<b>ProTube T1SF-100-P</b>	<b>100</b>
Weight	pounds [grams] .209 [95]
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