

**Increased Discharge Current due to customized High Energy MOV**

Discharge Current Capacity (8/20µs) 1 shot 60kA  
 Discharge Current Capacity (8/20µs) 15 shots 25kA

**I<sub>SCCR</sub> up to 100kA\***

Short-Circuit Current Rating (AC)  
 at 160 A gG Back-up Fuse

**IEC: If Main Fuse ≤ 315 A gG  
 no Back-up Fuse needed**

**UL: No Back-up Fuse needed**

**Immune to Vibration & Schock**  
 Module Locking Mechanism

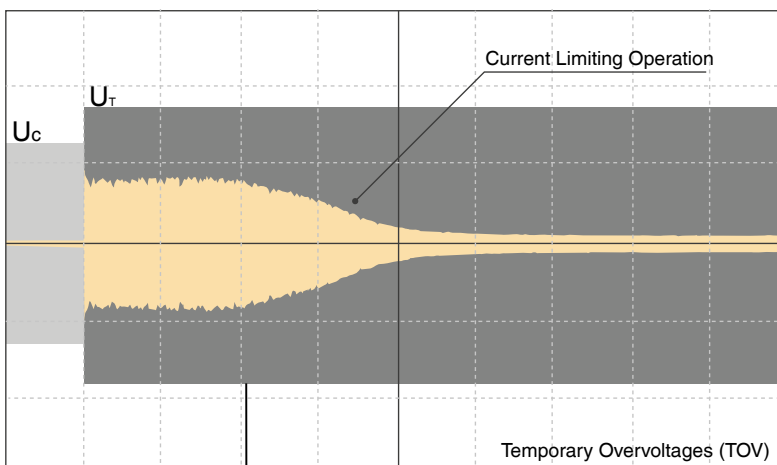
**TOV Immunity\***  
**5 Year Warranty**  
**Improved Up Level**



\* Tests performed within Raycap testing laboratory only.

PRELIMINARY

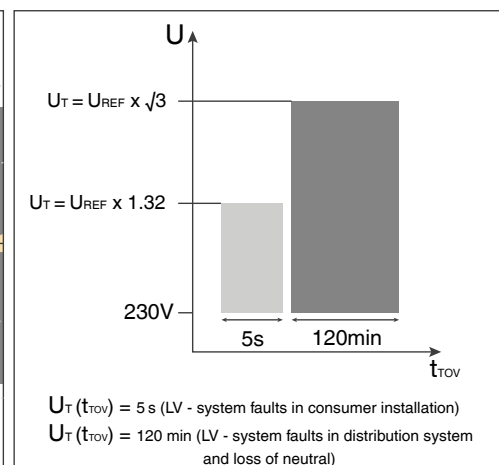
**Principle of SafeTec's current limiting function**



$U_T = U_{REF} \times \sqrt{3}$  ( $U_{REF} = U_N + 10\%$ )  
 An example case: At  $U_N = 230V_{AC}$   $U_T = 440V_{AC}$

- $U_c$  - Maximum Continuous Operating Voltage
- $U_T$  - Temporary Overvoltage (TOV)
- IPE - Current Through SPD

**TOV Withstand Performance**



$U_T(t_{TOV}) = 5\text{ s}$  (LV - system faults in consumer installation)  
 $U_T(t_{TOV}) = 120\text{ min}$  (LV - system faults in distribution system and loss of neutral)

- SafeTec TC Technology
- Conventional Technology

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# Advanced Pluggable Multi-Pole SPD

## SafeTec T2 2+0

### Class II • Type 2 • Type 1CA



Location of Use: Sub-distribution Boards  
 Network Systems: TN-S  
 Mode of Protection: L-N, N-PE  
 Surge Ratings:  $I_n = 20\text{ kA (8/20}\mu\text{s)}$   
 $I_{max} = \text{up to } 50\text{ kA (8/20}\mu\text{s)}$   
 IEC/EN/UL Category: Class II / Type 2 / Type 1CA  
 Protective Elements: High Energy MOV in series with GDT and PTC  
**Safety: Patented Current Limiting Technology (Long Lifetime)**  
 Housing: Pluggable Design  
 Humidity Range: Extended  
 Compliance: IEC 61643-11:2011  
 EN 61643-11:2012  
 UL 1449 4<sup>th</sup> Edition  
 Recognized: UL 1449 4<sup>th</sup> Edition  
 Back-up Fuse: Not needed (acc. to UL 1449 4<sup>th</sup> Edition)

### Technical Data

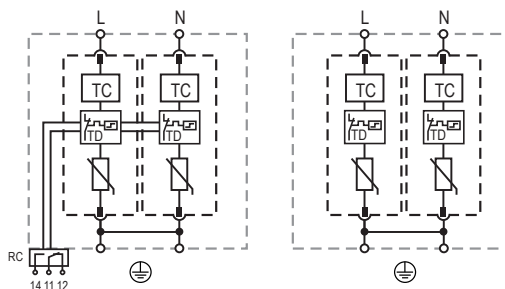
SafeTec T2-xxx-2+0(-R)	75	150	300	350	480	550	750	880	
<b>IEC Electrical</b>									
Nominal AC Voltage (50/60Hz)	$U_o/U_n$	60V	120V	240V	277V	400V	400V	600V	600V
Maximum Continuous Operating Voltage (AC)	$U_c$	75V	150V	300V	350V	480V	550V	750V	880V
Nominal Discharge Current (8/20 $\mu$ s)	$I_n$	20kA	20kA	20kA	20kA	20kA	20kA	20kA	20kA
Maximum Discharge Current (8/20 $\mu$ s)	$I_{max}$	50kA	50kA	50kA	50kA	50kA	50kA	35kA	35kA
Voltage Protection Level ( $I_n = 20\text{ kA}$ )	$U_p$	800V	1250V	1650V	1750V	2300V	2500V	3500V	3600V
Response Time	$t_A$	< 25 ns							
Back-Up Fuse (max)/Short-Circuit Current Rating (AC)	$I_{SCCR}$	315 A gG/25kA							
Back-Up Fuse (max)/Short-Circuit Current Rating (AC)	$I_{SCCR}$	250 A gG/50kA							
TOV Withstand (120min)	$U_T$	150V	255V	442V	529V	762V	918V	1200V	1250V
Number of Ports		1							
<b>UL Electrical</b>									
Maximum Continuous Operating Voltage (AC)	MCOV	75V	150V	300V	350V	480V	550V	750V	880V
Voltage Protection Rating	VPR	600V	700V	1200V	1200V	1500V	1800V	2500V	2500V
Nominal Discharge Current (8/20 $\mu$ s)	$I_n$	20kA	20kA	20kA	20kA	20kA	20kA	20kA	20kA
Short-Circuit Current Rating (AC)	SCCR	85kA	200kA	150kA	200kA	200kA	200kA	200kA	200kA
<b>Additional Electrical Parameters (Tests performed within Raycap testing laboratory only)</b>									
Residual Voltage at 5 kA (8/20 $\mu$ s)	$U_{RES}$	400V	750V	1000V	1300V	1600V	1900V	2700V	2700V
Discharge Current Capacity (15 shots; 8/20 $\mu$ s)		25 kA	25 kA	25 kA	25 kA	25 kA	25 kA	25 kA	25 kA
Discharge Current Capacity (1 shot; 8/20 $\mu$ s)		60 kA	60 kA	60 kA	60 kA	60 kA	60 kA	60 kA	60 kA
TOV Withstand (300min)	$U_T$	150V	255V	442V	529V	762V	918V	-	-
Back-Up Fuse (max)/Short-Circuit Current Rating (AC)	$I_{SCCR}$	160 A gG/100kA							
<b>Mechanical &amp; Environmental</b>									
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 [4.5Nm]							
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)							
<b>Order Information</b>									
Order Code		75	150	300	350	480	550	750	880
SafeTec T2-xxx-2+0		59.0345	59.0162	59.0164	59.0166	59.0168	59.0170	59.0172	59.0174
SafeTec T2-xxx-2+0-R (with remote contacts)		59.0346	59.0163	59.0165	59.0167	59.0169	59.0171	59.0173	59.0175
SafeTec T2-xxx-P		59.0125	59.0126	59.0127	59.0128	59.0129	59.0299	59.0130	59.0131

## SafeTec T2 2+0

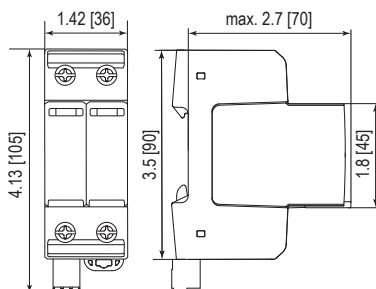
### Internal Configuration

#### Legend

- L Terminal for Line Conductor
- N Terminal for Neutral Conductor
- ⊕ Terminal for PE/G Conductor
- RC Terminal for Remote Contacts (Optional)
- TC Thermal Control (TC) Function
- TD Thermal Disconnect



### Dimensions & Packaging



#### Dimensions & Packaging

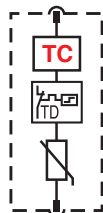
SafeTec T2-xxx-2+0	75	150	300	350	480	550	750	880	
Single Unit Weight	pounds	.534	.552	.574	.609	.622	.644	.688	.688
	grams	242	250	260	276	282	292	312	312
SafeTec T2-xxx-2+0-R	75	150	300	350	480	550	750	880	
Single Unit Weight	pounds	.565	.583	.605	.640	.653	.675	.719	.719
	grams	256	264	274	290	296	306	326	326
Single Unit DIN 43880 Dimension	2 TE								
Packaging Dimensions (HxWxL)	4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]								
Minimum Order Quantity	7 Units								

### Plug Internal Configuration

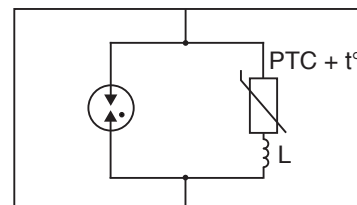
#### Legend

- TC Thermal Control (TC) Function
- TD Thermal Disconnect
- PTC + t° Positive Thermal Coefficient Resistor
- L Coil

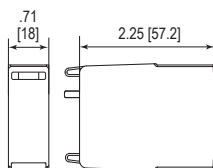
#### SafeTec T2-xxx-P



#### Thermal control (TC) schematics



### Dimensions & Packaging



#### Dimensions & Packaging

SafeTec T2-xxx-P	75	150	300	350	480	550	750	880	
Single Unit Weight	pounds	.124	.133	.144	.161	.168	.179	.201	.201
	grams	56	60	65	73	76	81	91	91
Single Unit DIN 43880 Dimension	1 TE								
Packaging Dimensions (HxWxL)	4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]								
Minimum Order Quantity	24 Units								

inches  
[mm]

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