

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_{SCCR} 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

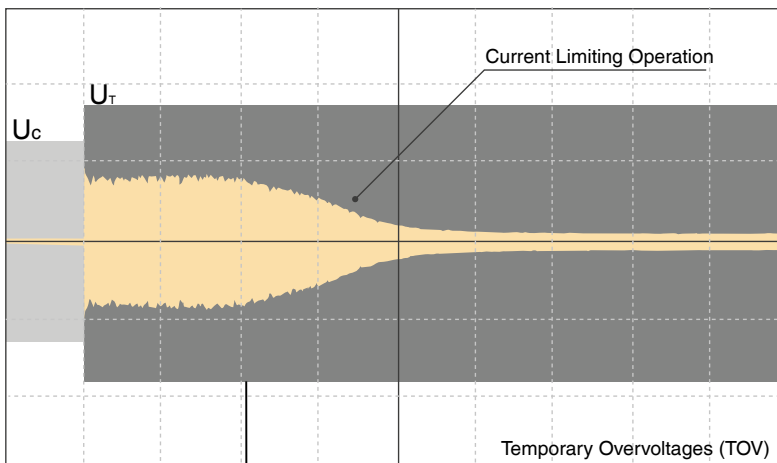
Module Locking Mechanism

TOV Immunity*
5 Year Warranty
Improved Up Level



* Tests performed within Raycap testing laboratory only.

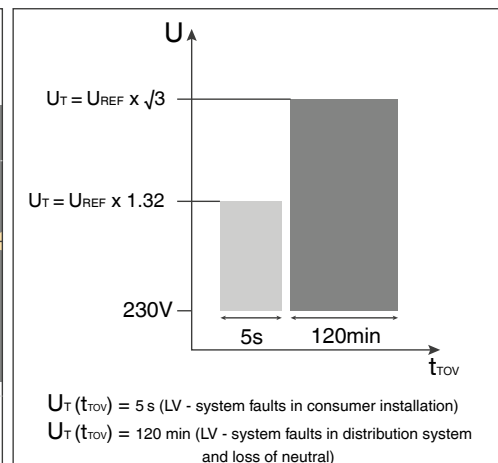
Principle of SafeTec's current limiting function



$U_T = U_{REF} \times \sqrt{3}$ ($U_{REF} = U_N + 10\%$)
 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 3+0

Class II • Type 2 • Type 1CA



Location of Use: Sub-distribution Boards
 Network Systems: TN-C
 Mode of Protection: L-PEN
 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 4th Edition
 Recognized: UL 1449 4th Edition
 Back-up Fuse: Not needed (acc. to UL 1449 4th Edition)

Technical Data

SafeTec T2-xxx-3+0(-R)	150	300	350	480	550	750	880
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IEC Electrical								
Nominal AC Voltage (50/60Hz)	U_o / U_n	120 V	240 V	277 V	400 V	400 V	600 V	600 V
Maximum Continuous Operating Voltage (AC)	U_c	150 V	300 V	350 V	480 V	550 V	750 V	880 V
Nominal Discharge Current (8/20 μs)	I_n	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA
Maximum Discharge Current (8/20 μs)	I_{max}	50 kA	50 kA	50 kA	50 kA	50 kA	35 kA	35 kA
Voltage Protection Level ($I_n = 20 \text{ kA}$)	U_p	1250 V	1650 V	1750 V	2300 V	2500 V	3500 V	3600 V
Response Time	t_A	< 25 ns						
Back-Up Fuse (max)/Short-Circuit Current Rating (AC)	I_{SCCR}	315 A gG/25 kA						
Back-Up Fuse (max)/Short-Circuit Current Rating (AC)	I_{SCCR}	250 A gG/50 kA						
TOV Withstand (120min)	U_T	255 V	442 V	529 V	762 V	918 V	1200 V	1250 V
Number of Ports		1						

UL Electrical								
Maximum Continuous Operating Voltage (AC)	MCOV	150 V	300 V	350 V	480 V	550 V	750 V	880 V
Voltage Protection Rating	VPR	700 V	1200 V	1200 V	1500 V	1800 V	2500 V	2500 V
Nominal Discharge Current (8/20 μs)	I_n	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA
Short-Circuit Current Rating (AC)	SCCR	200 kA	150 kA	200 kA	200 kA	200 kA	200 kA	200 kA

Additional Electrical Parameters (Tests performed within Raycap testing laboratory only)								
Residual Voltage at 5 kA (8/20 μs)	U_{RES}	750 V	1000 V	1300 V	1600 V	1900 V	2700 V	2700 V
Discharge Current Capacity (15 shots; 8/20 μs)		25 kA	25 kA	25 kA	25 kA	25 kA	25 kA	25 kA
Discharge Current Capacity (1 shot; 8/20 μs)		60 kA	60 kA	60 kA	60 kA	60 kA	60 kA	60 kA
TOV Withstand (300min)	U_T	255 V	442 V	529 V	762 V	918 V	-	-
Back-Up Fuse (max)/Short-Circuit Current Rating (AC)	I_{SCCR}	160 A gG/100 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: 250V/1A, 125V/1 A; DC: 48V/0.5A, 24V/0.5A, 12V/0.5 A						
RC Conductor Cross Section (max)		16 AWG (Solid) / 1.5 mm ² (Solid)						

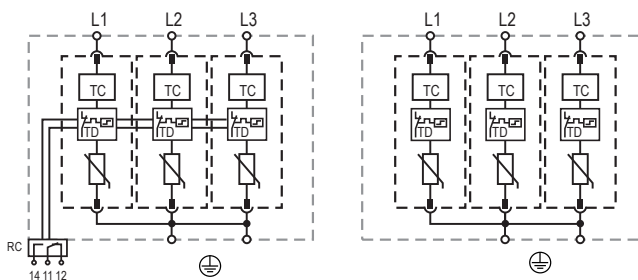
Order Information								
Order Code		150	300	350	480	550	750	880
SafeTec T2-xxx-3+0		59.0162	59.0164	59.0166	59.0168	59.0170	59.0172	59.0174
SafeTec T2-xxx-3+0-R (with remote contacts)		59.0163	59.0165	59.0167	59.0169	59.0171	59.0173	59.0175
SafeTec T2-xxx-P		59.0126	59.0127	59.0128	59.0129	59.0299	59.0130	59.0131

SafeTec T2 3+0

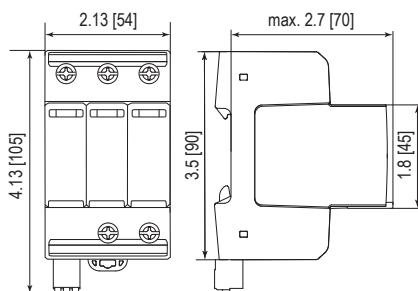
Internal Configuration

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

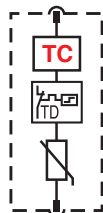
		150	300	350	480	550	750	880
Single Unit Weight	pounds	.801	.834	.887	.907	.940	1.006	1.006
	grams	363	378	402	411	426	456	456
		150	300	350	480	550	750	880
Single Unit Weight	pounds	.823	.856	.909	.929	.962	1.028	1.028
	grams	373	388	412	421	436	466	466
Single Unit DIN 43880 Dimension		3 TE						
Packaging Dimensions (HxWxL)		4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]						
Minimum Order Quantity		5 Units						

Plug Internal Configuration

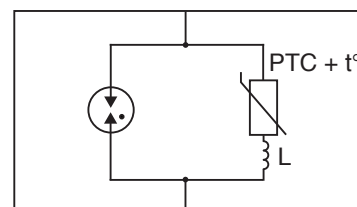
Legend

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

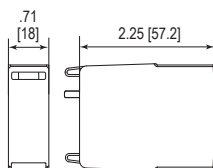
SafeTec T2-xxx-P



Thermal control (TC) schematics



Dimensions & Packaging



Dimensions & Packaging

		150	300	350	480	550	750	880
Single Unit Weight	pounds	.133	.144	.161	.168	.179	.201	.201
	grams	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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