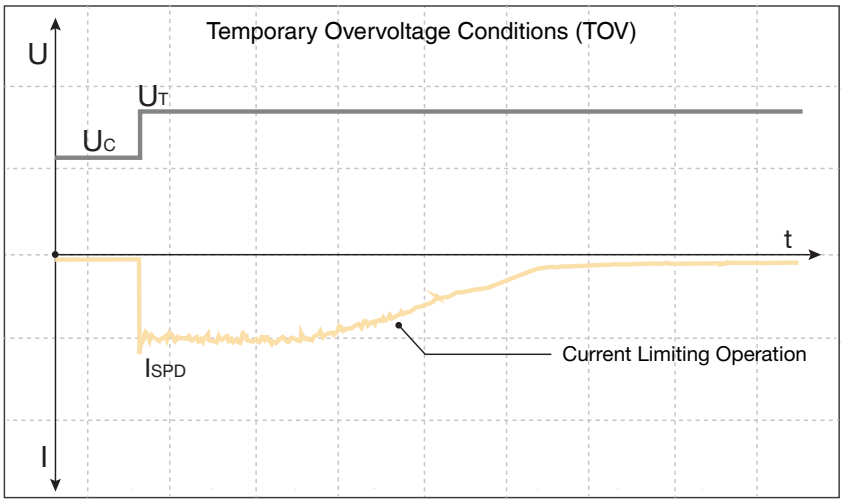
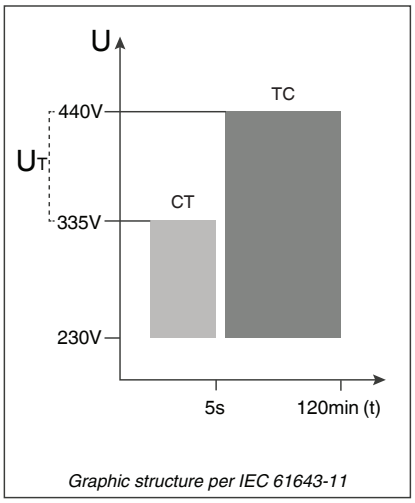
SafeTec Technology

- Good protection level
- Industry standard DIN rail technology for situations where TOVs or switching transients are present on a distribution network
- Open circuit mode in combination with patented current limiting technology offers great immunity to TOVs
- 5-year warranty, 10-year life span
- Low-maintenance cost
- Pluggable installation
- Modular, pluggable, field replaceable modules





Graphic structure per IEC 61643-11

- Maximum Continuous Operating Voltage
- Temporary Overvoltage (TOV)
- Current Flow Through SPD

- SafeTec Technology-TC
- Conventional Technology-CT

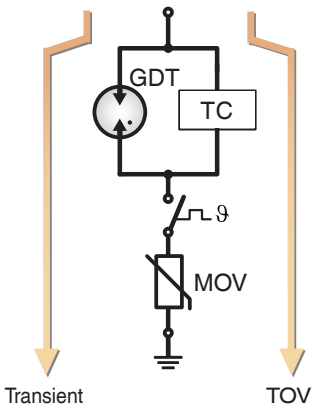
Two possible types of overvoltages may appear in the power supply network:

Transient overvoltages – switching operations, direct and indirect atmospheric discharges

Temporary overvoltages (TOVs) – last between 5 seconds and up to a few weeks, voltage amplitude can reach 173% U_{REF}

$U_{REF} = U_O \times 1{,}1$

U_O … *Nominal Line Voltage*



Legend

Transient	Short duration
TOV	Long duration
TC	Thermal control function
GDT	Gas discharge tube
MOV	Metal-oxide varistor
ϑ	Thermal disconnector

Pluggable Single Pole & Multi-pole Surge Protective Devices (SPDs)

Overvoltage Protection
SafeTec T2

Special features:

- High temporary overvoltage (TOV) immunity
- High maximum discharge current capacity (I_{max}) of 50 kA
- State-of-the-art thermal disconnector
- Continuous power to the equipment at end-of-life (EOL)
- AC current up to 880 V
- Back-up fuse up to 315 A gG
- Short circuit current rating up to 50 kA
- Vibration and shock withstand capability
- All modules, including N-PE with operating state green-red
- Optional remote contact (RC) signaling
- VDE-IEC Class II / EN Type 2 certified and Open Type 1 SPD Listed
- Worldwide patented thermal control (TC) technology
- Five year warranty

Compliance	IEC 61643-11:2011	EN 61643-11:2012	UL 1449 4th Edition
SafeTec T2 Series	✓	✓	✓

Temporary overvoltages (TOV) are by far the most frequent cause of arrester failure by abnormal overvoltages of the power network (50/60 Hz) with significant duration and amplitude. The SafeTec product family is a reliable solution for all transient overvoltages. This multi-purpose single pole arrester features the industry's widest range and an unprecedented level of integration, enabling power systems to have improved surge protection, simplified designs and lower overall costs. The patented thermal control (TC) technology function prolongs the lifespan of the SPDs, enables TOV immunity and provides low protection level, all at the same dimensions as conventional protective devices.
The universal features of SafeTec make the technology suitable for protection of electrical devices not only against overvoltages caused by lightning strikes, but also by switching operations that originate from the internal power system. In addition to the visual mechanical indicator, the optional remote contact (RC) features a three-pole remote signaling terminal enabling remote monitoring of the operating state of the device.

RoHS COMPLIANT

DATA SHEET

Overvoltage Protection

SafeTec T2 1+0

Class II • Type 2 • Type 1CA

Location of Use: Sub-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 II / Type 2 / Type 1CA
Safety: Patented Current Limiting Technology
Housing: Pluggable Design
Compliance: IEC 61643-11:2011
EN 61643-11:2012
UL 1449 4th Edition

Technical Data

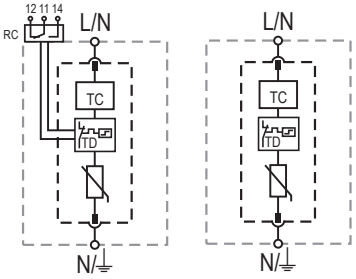
SafeTec T2-xxx-1+0(-R)		75	150	300	350	480	550	750	880
IEC Electrical									
Nominal AC Voltage (50/60Hz)	U_o/U_n	60V	120V	240V	277V	400V	400V	600V	600V
Maximum Continuous Operating Voltage (AC)	U_c	75V	150V	300V	350V	480V	550V	750V	880V
Nominal Discharge Current (8/20µs)	I_n	20kA	20kA	20kA	20kA	20kA	20kA	20kA	20kA
Maximum Discharge Current (8/20µs)	I_{max}	50kA	50kA	50kA	50kA	50kA	50kA	35kA	35kA
Voltage Protection Level	U_p	800V	1250V	1650V	1750V	2300V	2500V	3500V	3600V
Response Time	t_A	< 25ns							
Overcurrent Protection (max)		315A/250A gG							
Short-Circuit Current Rating (AC)	I_{SCCR}	25kA/50kA							
TOV Withstand 120min	U_T	150V	255V	442V	529V	762V	918V	1200V	1250V
Number of Ports		1							
UL Electrical									
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 (8/20µs)	I_n	20kA	20kA	20kA	20kA	20kA	20kA	20kA	20kA
Short-Circuit Current Rating (AC)	SCCR	85kA	200kA	150kA	200kA	200kA	200kA	200kA	200kA
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}	39.9 lbf·in [4.5Nm]							
Conductor Cross Section (max)		2 AWG (Solid, Stranded) / 4 AWG (Flexible)							
		35mm² (Solid, Stranded) / 25mm² (Flexible)							
Mounting		35mm 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) / 1.5mm² (Solid)							

Order Information								
Order Code	75	150	300	350	480	550	750	880
SafeTec T2-xxx-1+0	59.0132	59.0134	59.0136	59.0138	59.0140	59.0142	59.0144	59.0146
SafeTec T2-xxx-1+0-R (with remote contacts)	59.0133	59.0135	59.0137	59.0139	59.0141	59.0143	59.0145	59.0147
SafeTec T2-xxx-P (plug)	59.0125	59.0126	59.0127	59.0128	59.0129	59.0299	59.0130	59.0131

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

SafeTec T2 1+0

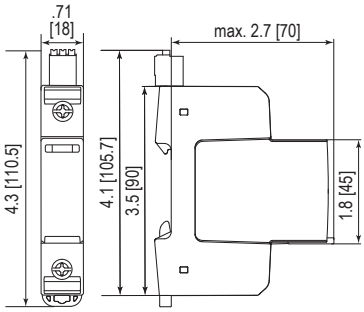
Internal Configuration



Legend

L	*Line Conductor Terminal*
N	*Neutral Conductor Terminal*
⏚	*PE/G Conductor Terminal*
RC	*Remote Contacts Terminal (Optional)*
TC	*Thermal Control Function*
TD	*Thermal Disconnector*

Complete Unit

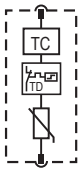


Complete Unit Dimensions & Packaging

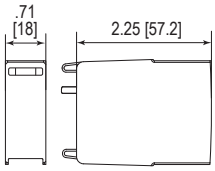
SafeTec T2-xxx-1+0		**75**	**150**	**300**	**350**	**480**	**550**	**750**	**880**
Weight	pounds	.279	.290	.297	.314	.317	.328	.345	.350
	grams	127	132	135	143	144	149	157	159
SafeTecT2-xxx-1+0-R									
Weight	pounds	.295	.306	.312	.330	.332	.343	.361	.365
	grams	134	139	142	150	151	156	164	166
DIN 43880 Dimension		1 TE / .71" [18]							
Packaging Dimensions (H x W x L)		4.3 × 4.5 × 13.8" [109 × 115 × 352 mm]							
Standard Order Quantity		12 Units							

Plug Internal Configuration

SafeTec T2-xxx-P



Spare Plug



Single Unit Dimensions & Packaging

SafeTec T2-xxx-P		**75**	**150**	**300**	**350**	**480**	**550**	**750**	**880**
Weight	pounds	.128	.139	.146	.163	.165	.176	.194	.198
	grams	58	63	66	74	75	80	88	90
DIN 43880 Dimension		1 TE / .71" [18]							
Packaging Dimensions (H x W x L)		3.2 × 4.5 × 12" [83 × 115 × 305 mm]							
Standard Order Quantity		24 Units							

inches
[mm]

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

RoHS COMPLIANT

DATA SHEET

Overvoltage Protection

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
IEC/EN/UL Category: Class II / Type 2 / Type 1CA
Safety: Patented Current Limiting Technology
Housing: Pluggable Design
Compliance: IEC 61643-11:2011
EN 61643-11:2012
UL 1449 4th Edition

Technical Data

SafeTec T2-xxx-2+0(-R)		75	150	300	350	480	550	750	880
IEC Electrical									
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 (8/20µs)	I_n	20kA	20kA	20kA	20kA	20kA	20kA	20kA	20kA
Maximum Discharge Current (8/20µs)	I_{max}	50kA	50kA	50kA	50kA	50kA	50kA	35kA	35kA
Voltage Protection Level	U_p	800V	1250V	1650V	1750V	2300V	2500V	3500V	3600V
Response Time	t_A	< 25ns							
Overcurrent Protection (max)		315A/250A gG							
Short-Circuit Current Rating (AC)	I_{SCCR}	25kA/50kA							
TOV Withstand 120min	U_T	150V	255V	442V	529V	762V	918V	1200V	1250V
Number of Ports		1							
UL Electrical									
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 (8/20µs)	I_n	20kA	20kA	20kA	20kA	20kA	20kA	20kA	20kA
Short-Circuit Current Rating (AC)	SCCR	85kA	200kA	150kA	200kA	200kA	200kA	200kA	200kA
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}	39.9 lbf·in [4.5Nm]							
Conductor Cross Section (max)		2 AWG (Solid, Stranded) / 4 AWG (Flexible)							
		35mm² (Solid, Stranded) / 25mm² (Flexible)							
Mounting		35mm 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) / 1.5mm² (Solid)							

Order Information								
Order Code	75	150	300	350	480	550	750	880
SafeTec T2-xxx-2+0	59.0345	59.0148	59.0150	59.0152	59.0154	59.0156	59.0158	59.0160
SafeTec T2-xxx-2+0-R (with remote contacts)	59.0346	59.0149	59.0151	59.0153	59.0155	59.0157	59.0159	59.0161
SafeTec T2-xxx-P (plug)	59.0125	59.0126	59.0127	59.0128	59.0129	59.0299	59.0130	59.0131

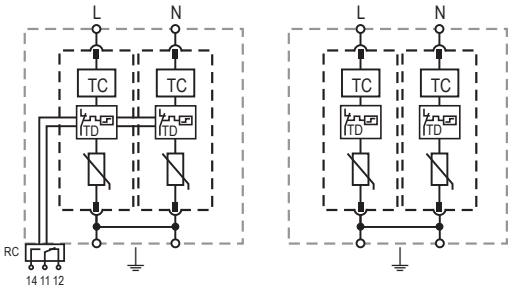
Information contained in this document is subject to change at any time without notice.

SafeTec T2 2+0

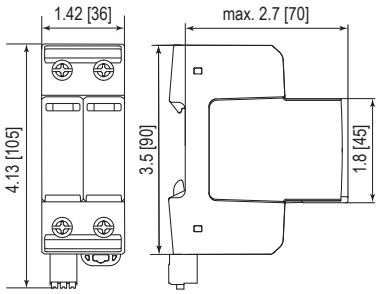
Internal Configuration

Legend

L	*Line Conductor Terminal*
N	*Neutral Conductor Terminal*
⏚	*PE/G Conductor Terminal*
RC	*Remote Contacts Terminal (Optional)*
TC	*Thermal Control Function*
TD	*Thermal Disconnector*



Complete Unit

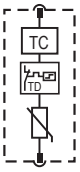


Complete Unit Dimensions & Packaging

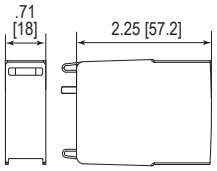
SafeTec T2-xxx-2+0		**75**	**150**	**300**	**350**	**480**	**550**	**750**	**880**
Weight	pounds	.545	.567	.580	.616	.620	.642	.677	.686
	grams	247	257	263	279	281	291	307	311
SafeTecT2-xxx-2+0-R									
Weight	pounds	.565	.587	.600	.635	.640	.662	.697	.706
	grams	256	266	272	288	290	300	316	320
DIN 43880 Dimension		2 TE / 1.42" [36]							
Packaging Dimensions (H×W×L)		4.3 × 4.5 × 13.8" [109 × 115 × 352 mm]							
Standard Order Quantity		7 Units							

Plug Internal Configuration

SafeTec T2-xxx-P



Spare Plug



Single Unit Dimensions & Packaging

SafeTec T2-xxx-P		**75**	**150**	**300**	**350**	**480**	**550**	**750**	**880**
Weight	pounds	.128	.139	.146	.163	.165	.176	.194	.198
	grams	58	63	66	74	75	80	88	90
DIN 43880 Dimension		1 TE / .71" [18]							
Packaging Dimensions (H×W×L)		3.2 × 4.5 × 12" [83 × 115 × 305 mm]							
Standard Order Quantity		24 Units							

inches
[mm]

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

RoHS COMPLIANT

DATA SHEET

Overvoltage Protection

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
IEC/EN/UL Category: Class II / Type 2 / Type 1CA
Safety: Patented Current Limiting Technology
Housing: Pluggable Design
Compliance: IEC 61643-11:2011
EN 61643-11:2012
UL 1449 4th Edition

Technical Data

SafeTec T2-xxx-3+0(-R)		150	300	350	480	550	750	880
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	U_p	1250 V	1650 V	1750 V	2300 V	2500 V	3500 V	3600 V
Response Time	t_A	< 25 ns						
Overcurrent Protection (max)		315 A / 250 A gG						
Short-Circuit Current Rating (AC)	I_{SCCR}	25 kA / 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
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 mm² (Solid, Stranded) / 25 mm² (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: 250 V / 1 A, 125 V / 1 A; DC: 48 V / 0.5 A, 24 V / 0.5 A, 12 V / 0.5 A						
RC Conductor Cross Section (max)		16 AWG (Solid) / 1.5 mm² (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 (plug)	59.0126	59.0127	59.0128	59.0129	59.0299	59.0130	59.0131

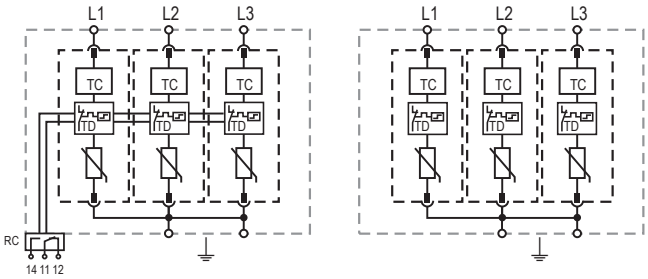
Information contained in this document is subject to change at any time without notice.

SafeTec T2 3+0

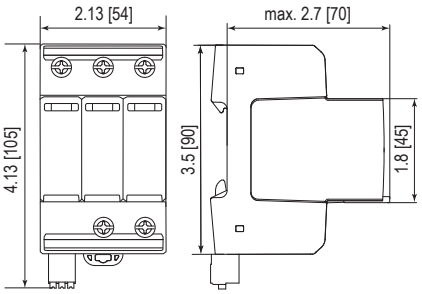
Internal Configuration

Legend

L	*Line Conductor Terminal*
⏚	*PE/G Conductor Terminal*
RC	*Remote Contacts Terminal (Optional)*
TC	*Thermal Control Function*
TD	*Thermal Disconnector*



Complete Unit

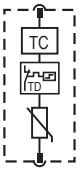


Complete Unit Dimensions & Packaging

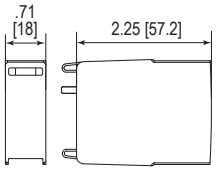
SafeTec T2-xxx-3+0		**150**	**300**	**350**	**480**	**550**	**750**	**880**
Weight	pounds	.826	.846	.899	.906	.939	.992	1.005
	grams	375	384	408	411	426	450	456
SafeTecT2-xxx-3+0-R								
Weight	pounds	.846	.866	.919	.926	.959	1.011	1.025
	grams	384	393	417	420	435	459	465
DIN 43880 Dimension		3 TE / 2.13" [54]						
Packaging Dimensions (H x W x L)		4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]						
Standard Order Quantity		5 Units						

Plug Internal Configuration

SafeTec T2-xxx-P



Spare Plug



Single Unit Dimensions & Packaging

SafeTec T2-xxx-P		**150**	**300**	**350**	**480**	**550**	**750**	**880**
Weight	pounds	.139	.146	.163	.165	.176	.194	.198
	grams	63	66	74	75	80	88	90
DIN 43880 Dimension		1 TE / .71" [18]						
Packaging Dimensions (H x W x L)		3.2 x 4.5 x 12" [83 x 115 x 305 mm]						
Standard Order Quantity		24 Units						

inches
[mm]

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

RoHS COMPLIANT

DATA SHEET

Overvoltage Protection

SafeTec T2 4+0

Class II • Type 2 • Type 1CA

Location of Use: Sub-distribution Boards
Network Systems: TN-S
Mode of Protection: L-PE, N-PE
IEC/EN/UL Category: Class II / Type 2 / Type 1CA
Safety: Patented Current Limiting Technology
Housing: Pluggable Design
Compliance: IEC 61643-11:2011
EN 61643-11:2012
UL 1449 4th Edition

Technical Data

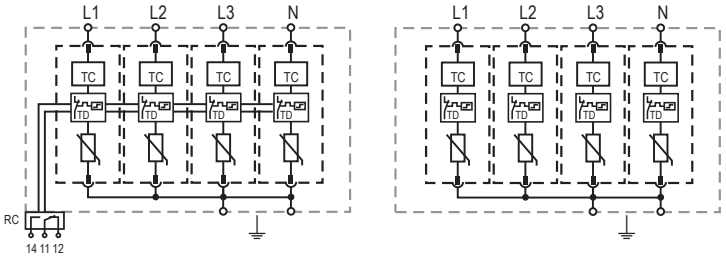
SafeTec T2-xxx-4+0(-R)		150	300	350	480	550
IEC Electrical						
Nominal AC Voltage (50/60Hz)	U_o/U_n	120 V	240 V	277 V	400 V	400 V
Maximum Continuous Operating Voltage (AC)	U_c	150 V	300 V	350 V	480 V	550 V
Nominal Discharge Current (8/20 µs)	I_n	20 kA	20 kA	20 kA	20 kA	20 kA
Maximum Discharge Current (8/20 µs)	I_{max}	50 kA	50 kA	50 kA	50 kA	50 kA
Voltage Protection Level	U_p	1250 V	1650 V	1750 V	2300 V	2500 V
Response Time	t_A	< 25 ns				
Overcurrent Protection (max)		315 A / 250 A gG				
Short-Circuit Current Rating (AC)	I_{SCCR}	25 kA / 50 kA				
TOV Withstand 120min	U_T	255 V	442 V	529 V	762 V	918 V
Number of Ports		1				
UL Electrical						
Maximum Continuous Operating Voltage (AC)	MCOV	150 V	300 V	350 V	480 V	550 V
Voltage Protection Rating	VPR	700 V	1200 V	1200 V	1500 V	1800 V
Nominal Discharge Current (8/20 µs)	I_n	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
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 mm² (Solid, Stranded) / 25 mm² (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: 250 V / 1 A, 125 V / 1 A; DC: 48 V / 0.5 A, 24 V / 0.5 A, 12 V / 0.5 A				
RC Conductor Cross Section (max)		16 AWG (Solid) / 1.5 mm² (Solid)				
Order Information						
Order Code		150	300	350	480	550
SafeTec T2-xxx-4+0		59.0176	59.0178	59.0180	59.0182	59.0184
SafeTec T2-xxx-4+0-R (with remote contacts)		59.0177	59.0179	59.0181	59.0183	59.0185
SafeTec T2-xxx-P (plug)		59.0126	59.0127	59.0128	59.0129	59.0299

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

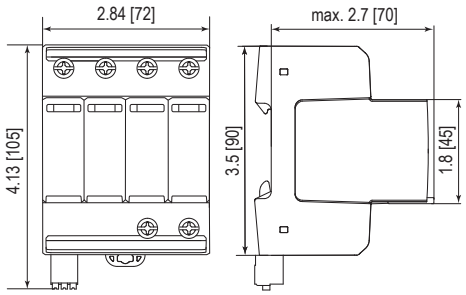
Internal Configuration

Legend

L	*Line Conductor Terminal*
N	*Neutral Conductor Terminal*
⏚	*PE/G Conductor Terminal*
RC	*Remote Contacts Terminal (Optional)*
TC	*Thermal Control Function*
TD	*Thermal Disconnector*



Complete Unit

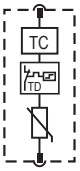


Complete Unit Dimensions & Packaging

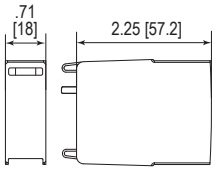
SafeTec T2-xxx-4+0		**150**	**300**	**350**	**480**	**550**
Weight	pounds	1.050	1.077	1.147	1.156	1.200
	grams	476	488	520	524	544
SafeTec T2-xxx-4+0-R						
Weight	pounds	1.070	1.097	1.167	1.176	1.220
	grams	485	497	529	533	553
DIN 43880 Dimension		4 TE / 2.84" [72]				
Packaging Dimensions (HxWxL)		4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]				
Standard Order Quantity		4 Units				

Plug Internal Configuration

SafeTec T2-xxx-P



Spare Plug



Single Unit Dimensions & Packaging

SafeTec T2-xxx-P		**150**	**300**	**350**	**480**	**550**
Weight	pounds	.139	.146	.163	.165	.176
	grams	63	66	74	75	80
DIN 43880 Dimension		1 TE / .71" [18]				
Packaging Dimensions (HxWxL)		3.2 x 4.5 x 12" [83 x 115 x 305 mm]				
Standard Order Quantity		24 Units				

inches
[mm]

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RoHS COMPLIANT

DATA SHEET

Overvoltage Protection

SafeTec T2 1+1

Class II • Type 2 • Type 1CA

Location of Use: Sub-distribution Boards
Network Systems: TT, TN-S
Mode of Protection: L-N, N-PE
IEC/EN/UL Category: Class II / Type 2 / Type 1CA
Safety: Patented Current Limiting Technology
Housing: Pluggable Design
Compliance: IEC 61643-11:2011
EN 61643-11:2012
UL 1449 4th Edition

Technical Data

SafeTec T2-xxx-1+1(-R)			75	150	300	350
IEC Electrical						
Nominal AC Voltage (50/60Hz)		U_o/U_n	60 V	120 V	240 V	277 V
Maximum Continuous Operating Voltage (AC)	(L-N)	U_c	75 V	150 V	300 V	350 V
	(N-PE)	U_c	305 V	305 V	305 V	305 V
Nominal Discharge Current (8/20 µs)	(L-N)/(N-PE)	I_n	20 kA/40 kA	20 kA/40 kA	20 kA/40 kA	20 kA/40 kA
Maximum Discharge Current (8/20 µs)	(L-N)/(N-PE)	I_{max}	50 kA/65kA	50 kA/65kA	50 kA/65kA	50 kA/65kA
Voltage Protection Level	(L-N)/(N-PE)	U_p	800 V/1500 V	1250 V/1500 V	1650 V/1500 V	1750 V/1500 V
Follow Current Interrupt Rating	(N-PE)	I_{fi}	100 A_{RMS}			
Response Time	(L-N)/(N-PE)	t_A	< 25 ns/< 100 ns			
Overcurrent Protection (max)			315 A/250 A gG			
Short-Circuit Current Rating (AC)	(L-N)	I_{SCCR}	25 kA/50 kA			
TOV Withstand 120min	(L-N)	U_T	150 V	255 V	442 V	529 V
TOV Withstand 200ms	(N-PE)	U_T	1200 V			
Number of Ports			1			
UL Electrical						
Maximum Continuous Operating Voltage (AC)	(L-N)/(N-G)	MCOV	75 V/305 V	150 V/305 V	300 V/305 V	350 V/305 V
Voltage Protection Rating	(L-N)/(N-G)	VPR	600 V/1000 V	700 V/1000 V	1200 V/1000 V	1200 V/1000 V
Nominal Discharge Current (8/20 µs)	(L-N)/(N-G)	I_n	20 kA/20 kA			
Short-Circuit Current Rating (AC)	(L-N)	SCCR	85kA	200 kA	150 kA	200 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: 250 V/1A, 125 V/1 A; DC: 48 V/0.5 A, 24 V/0.5 A, 12 V/0.5 A			
RC Conductor Cross Section (max)			16 AWG (Solid) / 1.5 mm^2 (Solid)			
Order Information						
Order Code			75	150	300	350
SafeTec T2-xxx-1+1			59.0186	59.0188	59.0190	59.0192
SafeTec T2-xxx-1+1-R (with remote contacts)			59.0187	59.0189	59.0191	59.0193
SafeTec T2-xxx-P (plug L-N)			59.0125	59.0126	59.0127	59.0128
SafeTube T2-40-P (plug N-PE)			59.0274	59.0274	59.0274	59.0274

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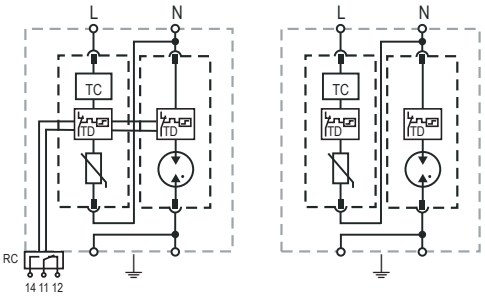
SafeTec T2 1+1

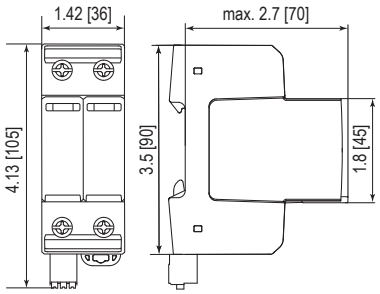
Internal Configuration



Legend

L	*Line Conductor Terminal*
N	*Neutral Conductor Terminal*
⏚	*PE/G Conductor Terminal*
RC	*Remote Contacts Terminal (Optional)*
TC	*Thermal Control Function*
TD	*Thermal Disconnector*

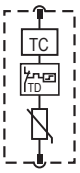
Complete Unit



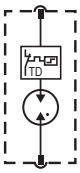
Complete Unit Dimensions & Packaging					
SafeTec T2-xxx-1+1		**75**	**150**	**300**	**350**
Weight	pounds	.532	.543	.549	.567
	grams	241	246	249	257
SafeTec T2-xxx-1+1-R					
Weight	pounds	.541	.552	.558	.576
	grams	245	250	253	261
DIN 43880 Dimension		2 TE / 1.42" [36]			
Packaging Dimensions (H x W x L)		4.3 × 4.5 × 13.8" [109 × 115 × 352 mm]			
Standard Order Quantity		7 Units			

Plug Internal Configuration

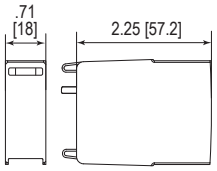
SafeTec T2-xxx-P



SafeTube T2-40-P



Spare Plug



Single Unit Dimensions & Packaging					
SafeTec T2-xxx-P		**75**	**150**	**300**	**350**
Weight	pounds	.128	.139	.146	.163
	grams	58	63	66	74
SafeTube T2-40-P			**40**		
Weight	pounds		.093		
	grams		42		
DIN 43880 Dimension			1 TE / .71" [18]		
Packaging Dimensions (H x W x L)			3.2 × 4.5 × 12" [83 × 115 × 305 mm]		
Standard Order Quantity			24 Units		

inches
[mm]

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RoHS COMPLIANT

DATA SHEET

Overvoltage Protection

SafeTec T2 3+1

Class II • Type 2 • Type 1CA

Location of Use: Sub-distribution Boards
Network Systems: TT, TN-S
Mode of Protection: L-N, N-PE
IEC/EN/UL Category: Class II / Type 2 / Type 1CA
Safety: Patented Current Limiting Technology
Housing: Pluggable Design
Compliance: IEC 61643-11:2011
EN 61643-11:2012
UL 1449 4th Edition

Technical Data

SafeTec T2-xxx-3+1(-R)			300	350
IEC Electrical				
Nominal AC Voltage (50/60Hz)		U_o/U_n	240 V	277 V
Maximum Continuous Operating Voltage (AC)	(L-N)	U_c	300 V	350 V
	(N-PE)	U_c	305 V	305 V
Nominal Discharge Current (8/20 µs)	(L-N)/(N-PE)	I_n	20 kA/40 kA	20 kA/40 kA
Maximum Discharge Current (8/20 µs)	(L-N)/(N-PE)	I_{max}	50 kA/65kA	50 kA/65kA
Voltage Protection Level	(L-N)/(N-PE)	U_p	1650 V/1500 V	1750 V/1500 V
Follow Current Interrupt Rating	(N-PE)	I_{fi}	100 A_{RMS}	
Response Time	(L-N)/(N-PE)	t_A	< 25 ns/< 100 ns	
Overcurrent Protection (max)			315 A/250 A gG	
Short-Circuit Current Rating (AC)	(L-N)	I_{SCCR}	25 kA/50 kA	
TOV Withstand 120min	(L-N)	U_T	442 V	529 V
TOV Withstand 200ms	(N-PE)	U_T	1200 V	
Number of Ports			1	
UL Electrical				
Maximum Continuous Operating Voltage (AC)	(L-N)/(N-PE)	MCOV	300 V/305 V	350 V/305 V
Voltage Protection Rating	(L-N)/(N-PE)	VPR	1200 V/1000 V	1200 V/1000 V
Nominal Discharge Current (8/20 µs)	(L-N)/(N-PE)	I_n	20 kA/20 kA	
Short-Circuit Current Rating (AC)	(L-N)	SCCR	150 kA	200 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: 250 V/1A, 125 V/1 A; DC: 48 V/0.5 A, 24 V/0.5 A, 12 V/0.5 A	
RC Conductor Cross Section (max)			16 AWG (Solid) / 1.5 mm^2 (Solid)	

Order Information		
Order Code	**300**	**350**
SafeTec T2-xxx-3+1	59.0198	59.0200
SafeTec T2-xxx-3+1-R (with remote contacts)	59.0199	59.0201
SafeTec T2-xxx-P (plug L-N)	59.0127	59.0128
SafeTube T2-40-P (plug N-PE)	59.0274	59.0274

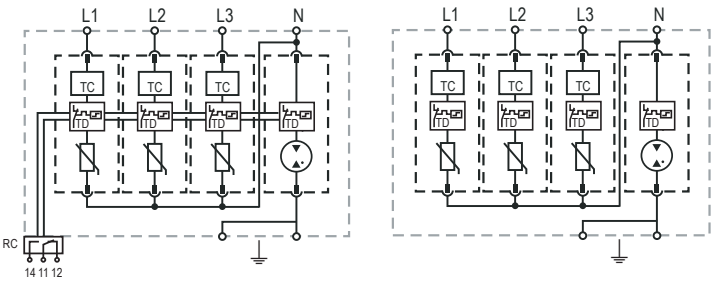
Information contained in this document is subject to change at any time without notice.

SafeTec T2 3+1

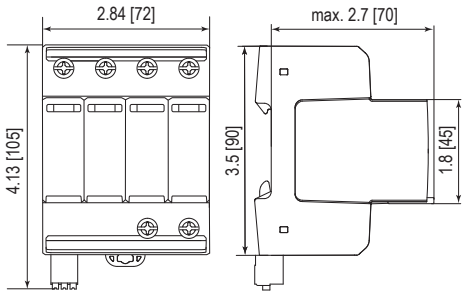
Internal Configuration

Legend

L	*Line Conductor Terminal*
N	*Neutral Conductor Terminal*
⏚	*PE/G Conductor Terminal*
RC	*Remote Contacts Terminal (Optional)*
TC	*Thermal Control Function*
TD	*Thermal Disconnector*



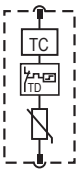
Complete Unit



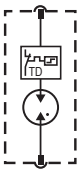
Complete Unit Dimensions & Packaging			
SafeTec T2-xxx-3+1		**300**	**350**
Weight	pounds	1.046	1.099
	grams	474	498
SafeTec T2-xxx-3+1-R			
Weight	pounds	1.057	1.110
	grams	479	503
DIN 43880 Dimension		4 TE / 2.84" [72]	
Packaging Dimensions (H x W x L)		4.3 × 4.5 × 13.8" [109 × 115 × 352 mm]	
Standard Order Quantity		4 Units	

Plug Internal Configuration

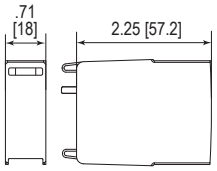
SafeTec T2-xxx-P



SafeTube T2-40-P



Spare Plug



Single Unit Dimensions & Packaging			
SafeTec T2-xxx-P		**300**	**350**
Weight	pounds	.146	.163
	grams	66	74
SafeTube T2-40-P		**40**	
Weight	pounds	.093	
	grams	42	
DIN 43880 Dimension		1 TE / .71" [18]	
Packaging Dimensions (H x W x L)		3.2 × 4.5 × 12" [83 × 115 × 305 mm]	
Standard Order Quantity		24 Units	

inches
[mm]

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

RoHS COMPLIANT

DATA SHEET

Overvoltage Protection

SafeTube T2 40 0+1

Class II • Type 2 • Type 1CA

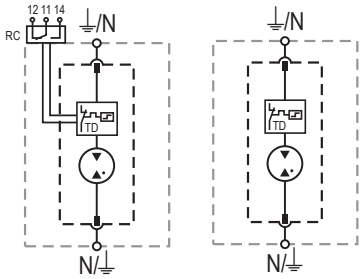
Location of Use:	Sub-Distribution Boards
Network Systems:	TT, TN-S
Mode of Protection:	N-PE
IEC/EN/UL Category:	Class II / Type 2 / Type 1CA
Housing:	Pluggable Design
Compliance:	IEC 61643-11:2011 EN 61643-11:2012 UL 1449 4th Edition

Technical Data

SafeTube T2-xx 0+1(-R)		40
IEC Electrical		
Maximum Continuous Operating Voltage	U_c	305V
Nominal Discharge Current (8/20µs)	I_n	40kA
Maximum Discharge Current (8/20µs)	I_{max}	65kA
Voltage Protection Level	U_p	1500V
Follow Current Interrupt Rating	I_{fi}	100 A_{RMS}
Response Time	t_A	< 100ns
TOV Withstand 200ms	U_T	1200V
Number of Ports		1
UL Electrical		
Maximum Continuous Operating Voltage (AC)	MCOV	305V
Voltage Protection RatingN)	VPR	1000V
Nominal Discharge Current (8/20µs)	I_n	20kA
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}	39.9 lbf·in [4.5Nm]
Conductor Cross Section (max)		2 AWG (Solid, Stranded) / 4 AWG (Flexible)
		35mm² (Solid, Stranded) / 25mm² (Flexible)
Mounting		35mm 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) / 1.5mm² (Solid)
Order Information		
Order Code		**40**
SafeTube T2-xxx-0+1		59.0281
SafeTube T2-xxx-0+1-R (with remote contacts)		59.0337
SafeTube T2-40-P (plug)		59.0274

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

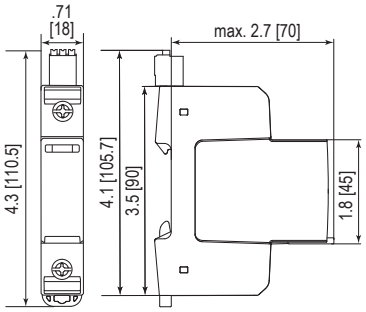
Internal Configuration



Legend

N	*Neutral Conductor Terminal*
⏚	*PE/G Conductor Terminal*
RC	*Remote Contacts Terminal (Optional)*
TC	*Thermal Control Function*
TD	*Thermal Disconnector*

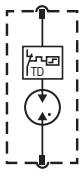
Complete Unit



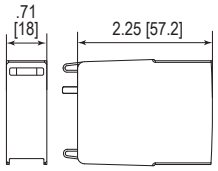
Complete Unit Dimensions & Packaging		
SafeTube T2-xxx-0+1		**40**
Weight	pounds	.244
	grams	111
SafeTube T2-xxx-0+1-R		
Weight	pounds	.259
	grams	118
DIN 43880 Dimension		1 TE / .71" [18]
Packaging Dimensions (H x W x L)		4.3 × 4.5 × 13.8" [109 × 115 × 352 mm]
Standard Order Quantity		12 Units

Plug Internal Configuration

SafeTube T2-xxx-P



Spare Plug



Single Unit Dimensions & Packaging		
SafeTube T2-40-P		**40**
Weight	pounds	.093
	grams	42
DIN 43880 Dimension		1 TE / .71" [18]
Packaging Dimensions (H x W x L)		3.2 × 4.5 × 12" [83 × 115 × 305 mm]
Standard Order Quantity		24 Units

inches
[mm]

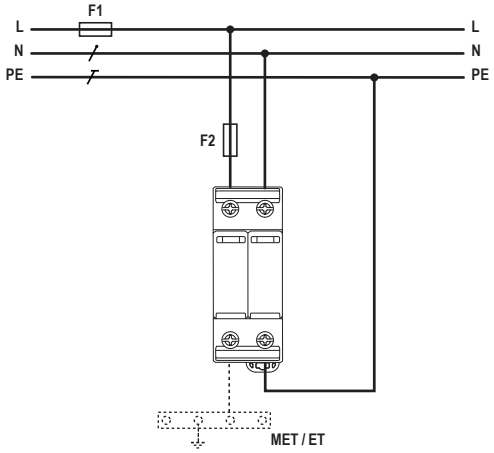
Information contained in this document is subject to change at any time without notice.

RoHS COMPLIANT

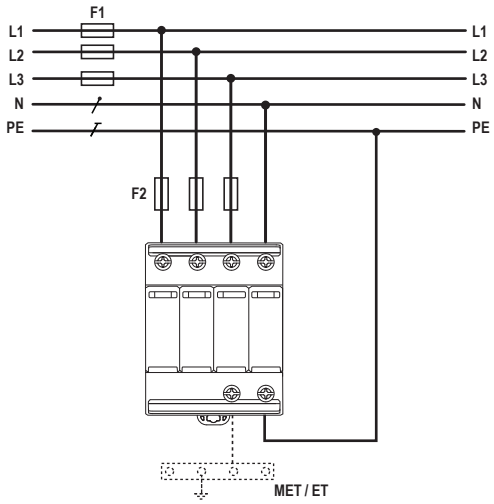
DATA SHEET Pluggable Multi-pole SPD Connection Configurations

SafeTec T2

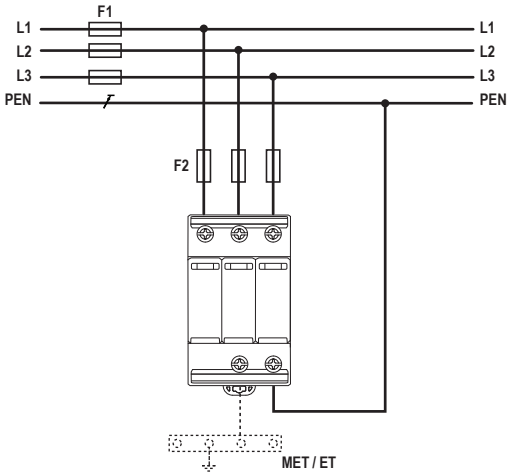
TN-S (Single-phase, 2+0, 1+1)



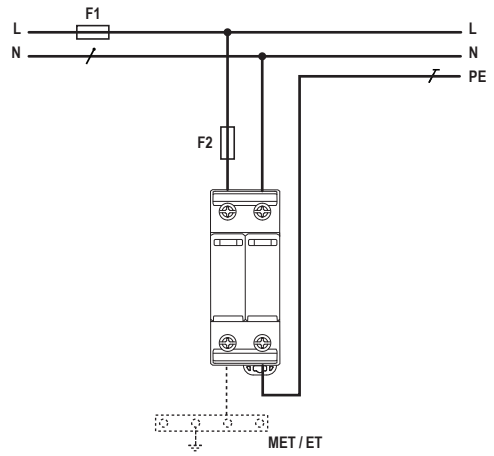
TN-S (Three-phase, 4+0, 3+1)



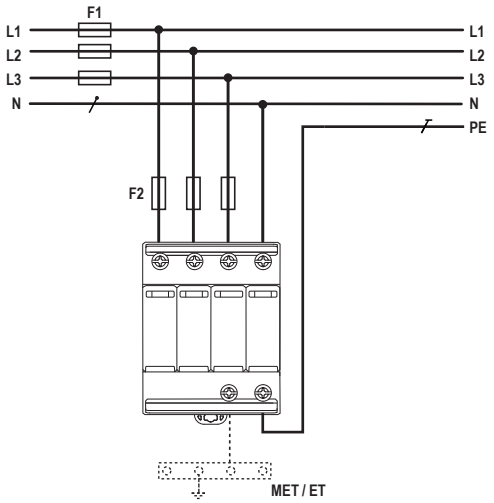
TN-C (Three-phase, 3+0)



TT (Single-phase, 1+1)



TT (Three-phase, 3+1)



N Neutral
PE Protective Earth
PEN Protective Earth & Neutral

Overcurrent Protection Rating for I_{SCCR} = 50 kA

F1 > 250 A gG → F2 = 250 A gG
F1 ≤ 250 A gG → ~~F2~~

Overcurrent Protection Rating for I_{SCCR} = 25 kA

F1 > 315 A gG → F2 = 315 A gG
F1 ≤ 315 A gG → ~~F2~~

Raycap

www.raycap.com

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