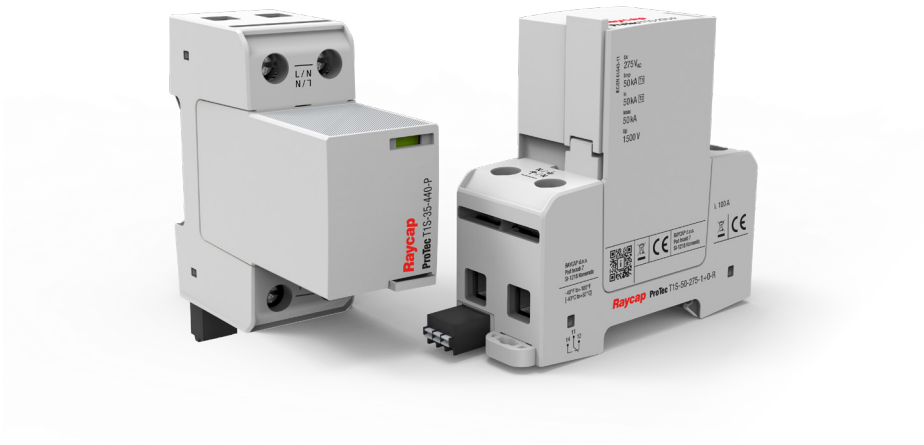
Pluggable Single Pole Surge Protective Devices (SPDs)

Overvoltage Protection (PGDT Technology)

ProTec T1S 35 kA & 50 kA Series

Special features:

- Leakage current free solution, Class I, I_{imp} = 35 kA & 50 kA
- Low voltage protection level, U_p < 2.5 kV
- Can be installed in IT systems (Only SPD with U_c 440 V)
- No external backup fuse required up to 500 A
- Vibration and shock withstand capability
- Sensitive and reliable state-of-the-art disconnector
- Short circuit current rating up to 100 kA
- Compact power package, 35 kA & 50 kA I_{imp} in 2 TE



IEC 61643-11:2011	EN 61643-11:2012+A11:2018
✓	✓

The ProTec T1S combines lightning current and surge arrester performance. The multi-gap tube technology enables the extinction of follow current under severe short-circuit conditions at a wider range, from just a few kA up to 100 kA, while also preventing the tripping of upstream fuses, thus ensuring sustainable system operation. Ease of installation in single or three phase systems is further simplified by universal energy coordination with not only Raycap's units but any other brand without additional cable length. By using a unique thermal disconnection mechanism, optimal system protection can be achieved under all kinds of overloads, setting world standards in "spark-gap" performance technologies. The operating state indicator requires no power to operate, instantly showing the operating state of the surge protective device. Besides the visual mechanical indicator, products featuring remote contacts (RC) provide a three-pole remote signaling terminal that enables users to remotely monitor the operating state of their devices.

More Product Information

RoHS COMPLIANT CE

DATASHEET

Lightning and Overvoltage Protection

ProTec T1S-50 1+0

Class I • Class II • Type 1 • Type 2

50 kA Series



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

CE RoHS COMPLIANT

Technical Data

ProTec T1S-50-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 µs)	I_n	50 kA
Maximum Discharge Current (8/20 µs)	I_{max}	50 kA
Impulse Discharge Current (10/350 µs)	I_{imp}	50 kA
Specific Energy	W/R	625 kJ/Ω
Charge	Q	25 As
Voltage Protection Level	U_p	1500 V
Rated Load Current	I_L	100 A
Response Time	t_A	< 100 ns
Overvoltage Category		III
Maximum Backup fuse, if required		500 A gG
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 - Standard *(Tests performed within Raycap testing laboratory only)*		
Residual Voltage at 5 kA (8/20 µs)	U_{res}	1000 V
Minimum Backup fuse, if required		500 A gG
Additional Electrical Parameters - Extended *(Additionally tested by VDE)*		
Short-Circuit Current Rating (AC)	I_{SCCR}	100 kA
Minimum Backup fuse, if required		500 A gG
Mechanical & Environmental		
Operating Temperature Range	T_a	-40 °F to +185 °F [-40 °C to +85 °C]
Permissible Operating Humidity	RH	5%...95%
Pollution Degree		2
Altitude		13123 ft [4000 m]
Terminal Screw Torque	M_{max}	40 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
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)
Overvoltage Category		III

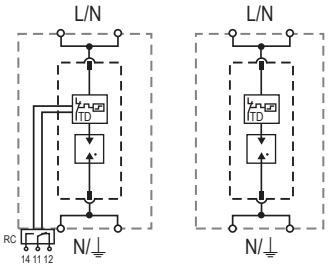
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Internal Configuration

Legend

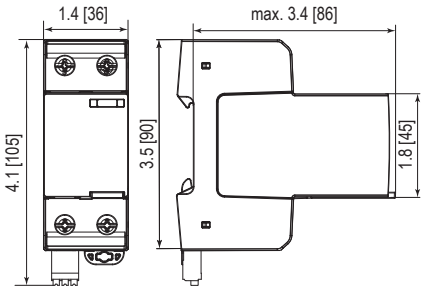
L	*Line Conductor Terminal*
N	*Neutral Conductor Terminal*
⏚	*PE Conductor Terminal*
RC	*Remote Contacts Terminal (Optional)*
TD	*Thermal Disconnector*



Order Information		
Order Code		**275**
ProTec T1S-50-xxx-1+0		59.A533
ProTec T1S-50-xxx-1+0-R (with remote contacts)		59.A534
ProTec T1S-50-xxx-P (plug)		59.A535

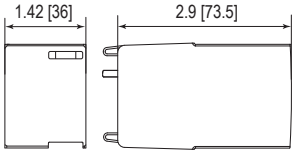
Dimensions & Packaging

inches [mm]



Complete Unit		
ProTec T1S-50-xxx-1+0		**275**
Weight	pounds [grams]	.623 [283]
ProTec T1S-50-xxx-1+0-R		
Weight	pounds [grams]	.643 [292]
DIN 43880 Dimension		2 TE / 1.42" [36 mm]
Packaging Dimensions (H x W x L)		4.3 × 4.5 × 13.8" [109 × 115 × 352 mm]
Standard Order Quantity		7 Units

Spare Plug



Single Unit		
ProTec T1S-50-xxx-P		**275**
Weight	pounds [grams]	.412 [187]
DIN 43880 Dimension		2 TE / 1.42" [36 mm]
Packaging Dimensions (H x W x L)		4.3 × 4.5 × 13.8" [109 × 115 × 352 mm]
Standard Order Quantity		16 Units

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DATASHEET

Lightning and Overvoltage Protection

ProTec T1S-35 1+0

Class I • Class II • Type 1 • Type 2

35 kA Series



Location of Use: Main Distribution Boards
Network Systems: TN-S, TN-C, TT (only L-N), IT (only 440 V)
Mode of Protection: L-PE, N-PE (only TN-S and IT), 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

CE RoHS COMPLIANT

Technical Data

ProTec T1S-35-xxx-1+0(-R)		275	440
IEC Electrical			
Nominal AC Voltage (50/60Hz)	U_o/U_n	240 V	400 V
Maximum Continuous Operating Voltage (AC)	U_c	275 V	440 V
Nominal Discharge Current (8/20 µs)	I_n	35 kA	35 kA
Maximum Discharge Current (8/20 µs)	I_{max}	50 kA	50 kA
Impulse Discharge Current (10/350 µs)	I_{imp}	35 kA	35 kA
Specific Energy	W/R	306.25 kJ/Ω	306.25 kJ/Ω
Charge	Q	17.5 As	17.5 As
Voltage Protection Level	U_p	1500 V	2500 V
Rated Load Current	I_L	100 A	100 A
Response Time	t_A	< 100 ns	< 100 ns
Overvoltage Category		III	III
Maximum Backup fuse, if required		500 A gG	400 A gG
Short-Circuit Current Rating (AC)	I_{SCCR}	100 kA	100 kA
Follow Current Interrupt Rating (AC)	I_{fi}	100 kA	100 kA
TOV Withstand 120min	U_T	442 V	762 V
TOV Safe Fail 200ms	U_T	-	1640 V
Number of Ports		1	1
Additional Electrical Parameters - Standard *(Tests performed within Raycap testing laboratory only)*			
Residual Voltage at 5 kA (8/20 µs)	U_{res}	1000 V	1500 V
Minimum Backup fuse, if required		400 A gG	400 A gG
Additional Electrical Parameters - Extended *(Additionally tested by VDE)*			
Short-Circuit Current Rating (AC)	I_{SCCR}	100 kA	
Minimum Backup fuse, if required		500 A gG	400 A gG
Mechanical & Environmental			
Operating Temperature Range	T_a	-40 °F to +185 °F [-40 °C to +85 °C]	
Permissible Operating Humidity	RH	5%...95%	
Pollution Degree		2	
Altitude		13123 ft [4000 m]	
Terminal Screw Torque	M_{max}	40 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	
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 mm² (Solid)	
Overvoltage Category		III	

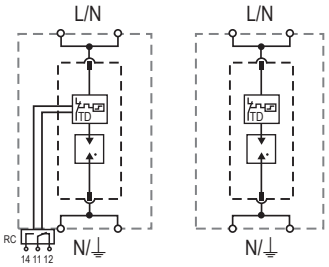
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Internal Configuration

Legend

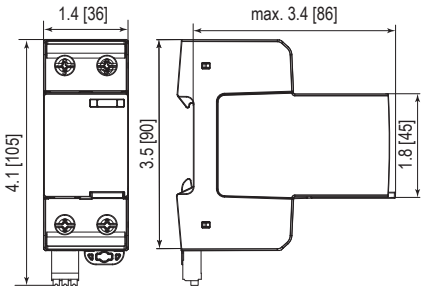
L	*Line Conductor Terminal*
N	*Neutral Conductor Terminal*
⏚	*PE Conductor Terminal*
RC	*Remote Contacts Terminal (Optional)*
TD	*Thermal Disconnector*



Order Information		
Order Code	**275**	**440**
ProTec T1S-35-xxx-1+0	59.A530	59.A536
ProTec T1S-35-xxx-1+0-R (with remote contacts)	59.A531	59.A537
ProTec T1S-35-xxx-P (plug)	59.A532	59.A538

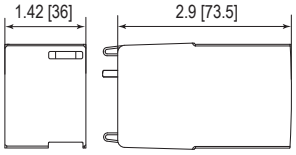
Dimensions & Packaging

inches [mm]



Complete Unit			
ProTec T1S-35-xxx-1+0		**275**	**440**
Weight	pounds [grams]	.623 [283]	.656 [298]
ProTec T1S-35-xxx-1+0-R			
Weight	pounds [grams]	.643 [292]	.676 [307]
DIN 43880 Dimension		2TE/1.42" [36 mm]	
Packaging Dimensions (HxWxL)		4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]	
Standard Order Quantity		7 Units	

Spare Plug



Single Unit			
ProTec T1S-35-xxx-P		**275**	**440**
Weight	pounds [grams]	.412 [187]	.445 [202]
DIN 43880 Dimension		2TE/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	

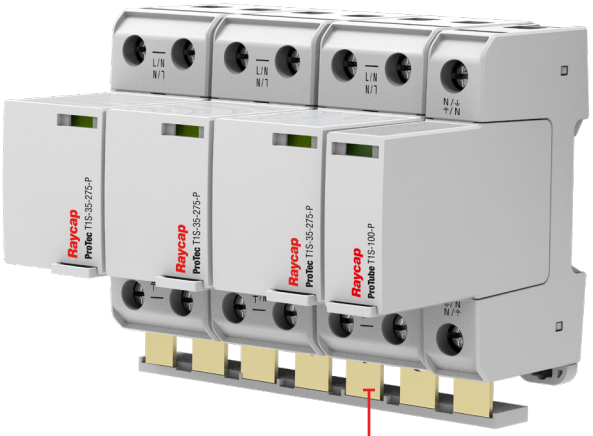
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Connection Accessories

ProTec T1S 35 kA & 50 kA Series

- Products with U_c 440 V are suitable for IT system applications
- Busbar connection accessories available for different configurations
- Compatible with other SPDs in the same product range

3+1 Configuration for TT System Wiring





1+1 Configuration for TT System Wiring

ProBar Busbars

The ProBar Accessories Series is a series of insulated busbar interconnections which can be used to easily connect multiple SPDs into a single protection unit for various systems and configurations.

Connection	Options for 275 V	Options for 440 V
Line to Line	ProTec T1S-35-275-1+0(-R) *Order Code: 59.A530 or 59.A531*	ProTec T1S-35-440-1+0(-R) *Order Code: 59.A536 or 59.A537*
	ProTec T1S-50-275-1+0(-R) *Order Code: 59.A533 or 59.A534*	-
Neutral to Ground	ProTube T1S-100-0+1 *Order Code: 59.0744*	ProTube T1S-440-100-0+1 *Order Code: 59.A529*

For each application use only products of the same voltage.