

Lightning and Overvoltage Protection

ProTec T1HS 1+0

Class I • Class II • Type 1 • Type 2 • Type 4CA



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/UL Category: Class I+II, Type 1+2, Type 4CA
 Housing: Pluggable Design
 Compliance: IEC 61643-11:2011
 EN 61643-11: 2012+A11:2018
 UL 1449 5th Edition

Technical Data

ProTec T1HS-xxx-1+0(-R)

300

IEC Electrical

Nominal AC Voltage (50/60Hz)	U_o/U_n	240 V
Maximum Continuous Operating Voltage (AC)	U_c	300 V
Nominal Discharge Current (8/20 μ s)	I_n	25 kA
Maximum Discharge Current (8/20 μ s)	I_{max}	65 kA
Impulse Discharge Current (10/350 μ s)	I_{imp}	25 kA
Specific Energy	W/R	156.2 kJ/ Ω
Charge	Q	12.5 As
Voltage Protection Level	U_p	1500 V
Rated Load Current	I_L	100 A
Response Time	t_A	< 100 ns
Overcurrent Protection (max)		315 A gG
Short-Circuit Current Rating (AC)	I_{SCCR}	50 kA
TOV Withstand 120min	U_T	442 V
Number of Ports		1

UL Electrical

Maximum Continuous Operating Voltage (AC)	MCOV	300V
Measured Limiting Voltage	MLV	1280V
Nominal Discharge Current (8/20 μ s)	I_n	20 kA

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

Residual Voltage at 5 kA (8/20 μ s)	U_{res}	1100V
Overcurrent Protection (min)		250 A gG

Additional Electrical Parameters - Extended (Additionally tested by VDE)

Short-Circuit Current Rating (AC)	I_{SCCR}	100kA
Overcurrent Protection (max)		315 A gG

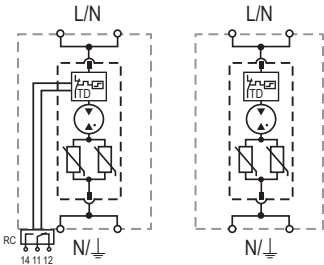
Mechanical & Environmental

Operating Temperature Range	T_a	-40 °F to +185 °F [-40 °C to +85 °C]
Permissible Operating Humidity	RH	5%...95%
Altitude		13123 ft [4000m]
Terminal Screw Torque	M_{max}	40 lbf-in [4.5 Nm]
Conductor Cross Section (max)		4 AWG (Solid, Stranded) per UL 1449 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/1A; DC: 48V/0.5A, 24V/0.5A, 12V/0.5A
RC Conductor Cross Section (max)		16 AWG (Solid) / 1.5 mm ² (Solid)

Internal Configuration

Legend

- L Line Conductor Terminal
- N Neutral Conductor Terminal
- ⏏ PE/G Conductor Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnect

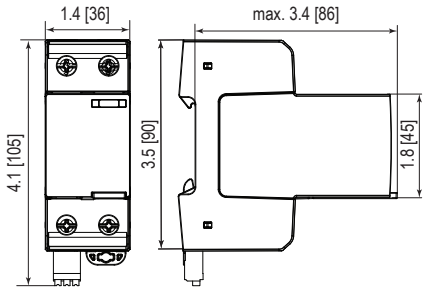


ProTec T1HS-xxx-1+0(-R)

Order Information	
Order Code	300
ProTec T1HS-xxx-1+0	59.A594
ProTec T1HS-xxx-1+0-R (with remote contacts)	59.A595
ProTec T1HS-xxx-P (plug)	59.0302

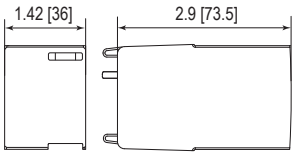
Dimensions & Packaging

inches [mm]



Complete Unit	
ProTec T1HS-xxx-1+0	300
Weight	pounds [grams] .650 [295]
ProTec T1HS-xxx-1+0-R	
Weight	pounds [grams] .670 [304]
DIN 43880 Dimension	2 TE / 1.42 [36]
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 T1HS-xxx-01-P	300
Weight	pounds [grams] .364 [165]
DIN 43880 Dimension	2 TE / 1.42" [36]
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

ProTec T1HS 3+0

Class I • Class II • Type 1 • Type 2 • Type 4CA



Location of Use: Main Distribution Boards
 Network Systems: TN-C
 Mode of Protection: L-PEN
 IEC/EN/UL Category: Class I+II, Type 1+2, Type 4CA
 Housing: Pluggable Design
 Compliance: IEC 61643-11: 2011
 EN 61643-11: 2012+A11:2018
 UL 1449 5th Edition

Technical Data

ProTec T1HS-xxx-3+0(-R)

300

IEC Electrical

Nominal AC Voltage (50/60Hz)	U_o / U_n	240 V
Maximum Continuous Operating Voltage (AC)	U_c	300 V
Nominal Discharge Current (8/20 μ s)	I_n	25 kA
Maximum Discharge Current (8/20 μ s)	I_{max}	65 kA
Impulse Discharge Current (10/350 μ s)	I_{imp}	25 kA
Specific Energy	W/R	156.2 kJ/ Ω
Charge	Q	12.5 As
Voltage Protection Level	U_p	1500 V
Rated Load Current	I_L	100 A
Response Time	t_A	< 100 ns
Overcurrent Protection (max)		315 A gG
Short-Circuit Current Rating (AC)	I_{SCCR}	50 kA
TOV Withstand 120min	U_T	442 V
Number of Ports		1

UL Electrical

Maximum Continuous Operating Voltage (AC)	MCOV	300V
Measured Limiting Voltage	MLV	1280V
Nominal Discharge Current (8/20 μ s)	I_n	20 kA

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

Residual Voltage at 5 kA (8/20 μ s)	U_{res}	1100V
Overcurrent Protection (min)		250 A gG

Additional Electrical Parameters - Extended (Additionally tested by VDE)

Short-Circuit Current Rating (AC)	I_{SCCR}	100kA
Overcurrent Protection (max)		315 A gG

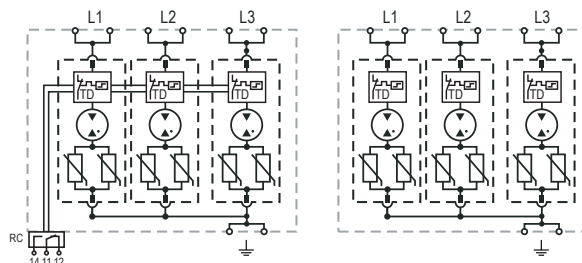
Mechanical & Environmental

Operating Temperature Range	T_a	-40 °F to +185 °F [-40 °C to +85 °C]
Permissible Operating Humidity	RH	5%...95%
Altitude		13123 ft [4000m]
Terminal Screw Torque	M_{max}	40 lbf-in [4.5 Nm]
Conductor Cross Section (max)		4 AWG (Solid, Stranded) per UL 1449 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/1A; DC: 48V/0.5A, 24V/0.5A, 12V/0.5A
RC Conductor Cross Section (max)		16 AWG (Solid) / 1.5 mm ² (Solid)

Internal Configuration

Legend

L	Line Conductor Terminal
⏚	PE/G Conductor Terminal
RC	Remote Contacts Terminal (Optional)
TD	Thermal Disconnect



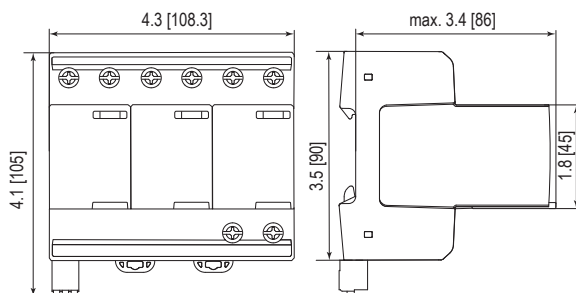
ProTec T1HS-xxx-3+0(-R)

Order Information

Order Code	300
ProTec T1HS-xxx-3+0	59.0304
ProTec T1HS-xxx-3+0-R (with remote contacts)	59.0305
ProTec T1HS-xxx-P (plug)	59.0302

Dimensions & Packaging

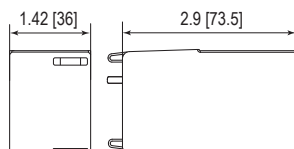
inches [mm]



Complete Unit

ProTec T1HS-xxx-3+0	300
Weight	pounds [grams]
	1.892 [858]
ProTec T1HS-xxx-3+0-R	
Weight	pounds [grams]
	1.914 [868]
DIN 43880 Dimension	6 TE / 4.3" [108.3]
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 T1HS-xxx-P	300
Weight	pounds [grams]
	.364 [165]
DIN 43880 Dimension	2 TE / 1.42" [36]
Packaging Dimensions (HxWxL)	4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]
Standard Order Quantity	16 Units



Location of Use: Main Distribution Boards
 Network Systems: TN-S
 Mode of Protection: L-PE, N-PE
 IEC/EN/UL Category: Class I+II, Type 1+2, Type 4CA
 Housing: Pluggable Design
 Compliance: IEC 61643-11: 2011
 EN 61643-11: 2012+A11:2018
 UL 1449 5th Edition

Technical Data**ProTec T1HS-xxx-4+0(-R)****300****IEC Electrical**

Nominal AC Voltage (50/60Hz)	U_o / U_n	240 V
Maximum Continuous Operating Voltage (AC)	U_c	300 V
Nominal Discharge Current (8/20 μ s)	I_n	25 kA
Maximum Discharge Current (8/20 μ s)	I_{max}	65 kA
Impulse Discharge Current (10/350 μ s)	I_{imp}	25 kA
Specific Energy	W/R	156.2 kJ/ Ω
Charge	Q	12.5 As
Voltage Protection Level	U_p	1500 V
Rated Load Current	I_L	100 A
Response Time	t_A	< 100 ns
Overcurrent Protection (max)		315 A gG
Short-Circuit Current Rating (AC)	I_{SCCR}	50 kA
TOV Withstand 120min	U_T	442 V
Number of Ports		1

UL Electrical

Maximum Continuous Operating Voltage (AC)	MCOV	300V
Measured Limiting Voltage	MLV	1280V
Nominal Discharge Current (8/20 μ s)	I_n	20 kA

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

Residual Voltage at 5 kA (8/20 μ s)	U_{res}	1100V
Overcurrent Protection (min)		250 A gG

Additional Electrical Parameters - Extended (Additionally tested by VDE)

Short-Circuit Current Rating (AC)	I_{SCCR}	100kA
Overcurrent Protection (max)		315 A gG

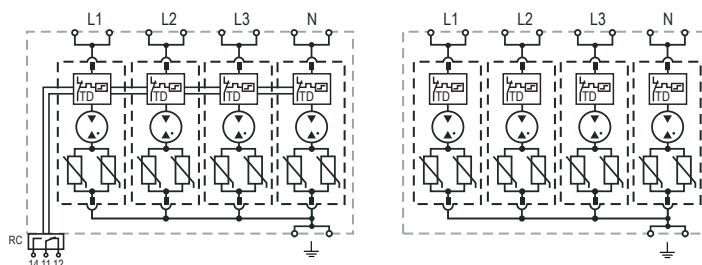
Mechanical & Environmental

Operating Temperature Range	T_a	-40 °F to +185 °F [-40 °C to +85 °C]
Permissible Operating Humidity	RH	5%...95%
Altitude		13123 ft [4000m]
Terminal Screw Torque	M_{max}	40 lbf-in [4.5 Nm]
Conductor Cross Section (max)		4 AWG (Solid, Stranded) per UL 1449 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/1A; DC: 48V/0.5A, 24V/0.5A, 12V/0.5A
RC Conductor Cross Section (max)		16 AWG (Solid) / 1.5 mm ² (Solid)

Internal Configuration

Legend

<i>L</i>	Line Conductor Terminal
<i>N</i>	Neutral Conductor Terminal
	PE/G Conductor Terminal
<i>RC</i>	Remote Contacts Terminal (Optional)
<i>TD</i>	Thermal Disconnect



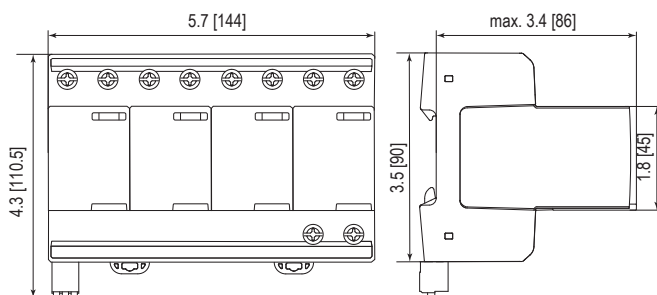
ProTec T1HS-xxx-4+0(-R)

Order Information

Order Code	300
ProTec T1HS-xxx-4+0	59.0260
ProTec T1HS-xxx-4+0-R (with remote contacts)	59.0261
ProTec T1HS-xxx-P (plug)	59.0302

Dimensions & Packaging

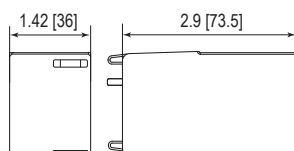
inches [mm]



Complete Unit

ProTec T1HS-xxx-4+0	300
Weight	pounds [grams] 2.502 [1135]
ProTec T1HS-xxx-4+0-R	
Weight	pounds [grams] 2.522 [1144]
DIN 43880 Dimension	8 TE / 5.7" [144]
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

ProTec T1HS-xxx-P	300
Weight	pounds [grams] .364 [165]
DIN 43880 Dimension	2 TE / 1.42" [36]
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

ProTec T1HS 3+1

Class I • Class II • Type 1 • Type 2 • Type 4CA



Location of Use: Main Distribution Boards
 Network Systems: TT, TN-S
 Mode of Protection: L-N, N-PE
 IEC/EN/UL Category: Class I+II, Type 1+2, Type 4CA
 Housing: Pluggable Design
 Compliance: IEC 61643-11: 2011
 EN 61643-11: 2012+A11:2018
 UL 1449 5th Edition

Technical Data

ProTec T1HS-xxx-3+1(-R)

300

IEC Electrical

Nominal AC Voltage (50/60Hz)	U_o / U_n	240 V
Maximum Continuous Operating Voltage (AC)	(L-N) / (N-PE) U_c	300 V / 305 V
Nominal Discharge Current (8/20 μ s)	(L-N) / (N-PE) I_n	25 kA / 100 kA
Maximum Discharge Current (8/20 μ s)	(L-N) / (N-PE) I_{max}	65 kA / 130 kA
Impulse Discharge Current (10/350 μ s)	(L-N) / (N-PE) I_{imp}	25 kA / 100 kA
Specific Energy	(L-N) / (N-PE) W/R	156.2 kJ / Ω / 2500 kJ / Ω
Charge	(L-N) / (N-PE) Q	12.5 As / 50 As
Voltage Protection Level	(L-N) / (N-PE) U_p	1500 V / 1500 V
Rated Load Current	I_L	100 A
Response Time	(L-N) / (N-PE) t_A	< 100 ns / < 100 ns
Overcurrent Protection (max)		315 A gG
Short-Circuit Current Rating (AC)	I_{SCCR}	50 kA
Follow Current Interrupt Rating	(N-PE) I_{fi}	100 A _{RMS}
TOV Withstand 120min	(L-N) U_T	442 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	300 V / 305 V
Measured Limiting Voltage	(L-N)/(N-G) MLV	1280 V / 1000 V
Nominal Discharge Current (8/20 μ s)	(L-N)/(N-G) I_n	20 kA

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

Residual Voltage at 5 kA (8/20 μ s)	(L-N) / (N-PE) U_{res}	1100 V / 305 V
Overcurrent Protection (min)		250 A gG

Additional Electrical Parameters - Extended (Additionally tested by VDE)

Short-Circuit Current Rating (AC)	I_{SCCR}	100 kA
Overcurrent Protection (max)		315 A gG

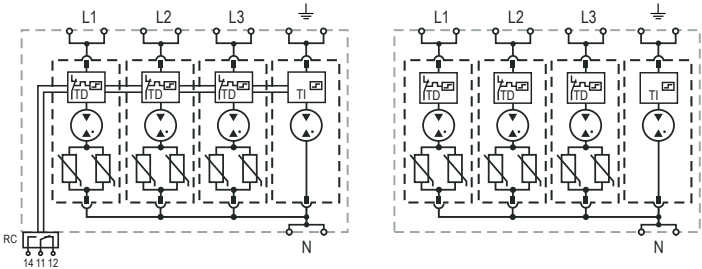
Mechanical & Environmental

Operating Temperature Range	T_a	-40 °F to +185 °F [-40 °C to +85 °C]
Permissible Operating Humidity	RH	5%...95%
Altitude		13123 ft [4000 m]
Terminal Screw Torque	M_{max}	40 lbf-in [4.5 Nm]
Conductor Cross Section (max)		4 AWG (Solid, Stranded) per UL 1449 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/1A; DC: 48V/0.5A, 24V/0.5A, 12V/0.5A
RC Conductor Cross Section (max)		16 AWG (Solid) / 1.5 mm ² (Solid)

Internal Configuration

Legend

- L Line Conductor Terminal
- N Neutral Conductor Terminal
- PE/G Conductor Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnect
- TI Thermal Indication



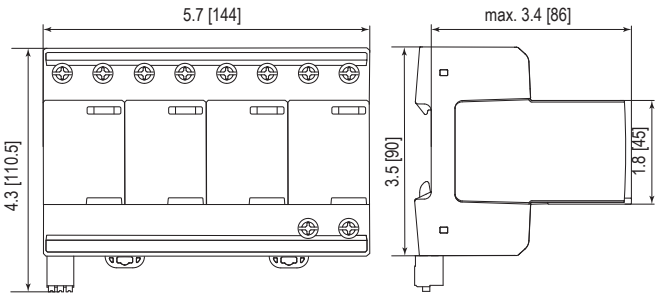
ProTec T1HS-xxx-3+1(-R)

Order Information

Order Code	300
ProTec T1HS-xxx-3+1	59.0306
ProTec T1HS-xxx-3+1-R (with remote contacts)	59.0307
ProTec T1HS-xxx-P (plug L-N)	59.0302
ProTube T1HS-100-P (plug N-PE)	59.0303

Dimensions & Packaging

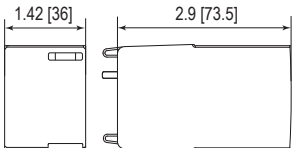
inches [mm]



Complete Unit

ProTec T1HS-xxx-3+1	300
Weight	pounds [grams] 2.348 [1065]
ProTec T1HS-xxx-3+1-R	
Weight	pounds [grams] 2.368 [1074]
DIN 43880 Dimension	8 TE / 5.7 [144]
Packaging Dimensions (HxWxL)	4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]
Standard Order Quantity	2 Units

Spare Plug



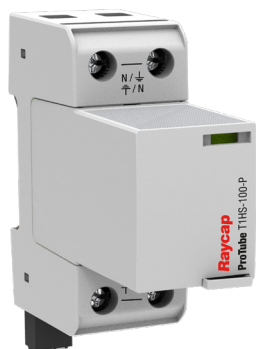
Single Unit

ProTec T1HS-xxx-P	300
Weight	pounds [grams] .364 [165]
ProTube T1HS-100-P	100
Weight	pounds [grams] 0.209 [95]
DIN 43880 Dimension	2 TE / 1.42 [36]
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

ProTube T1HS 0+1

Class I • Class II • Type 1 • Type 2 • Type 4CA



Location of Use: Main Distribution Boards
 Network Systems: TT, TN-S
 Mode of Protection: N-PE
 IEC/EN/UL Category: Class I+II, Type 1+2, Type 4CA
 Housing: Pluggable Design
 Compliance: IEC 61643-11:2011
 EN 61643-11: 2012+A11:2018
 UL 1449 5th Edition

Technical Data

ProTube T1HS-xxx-0+1(-R)

100

IEC Electrical

Nominal AC Voltage (50/60Hz)	U_o / U_n	240 V
Maximum Continuous Operating Voltage (AC)	U_c	305 V
Nominal Discharge Current (8/20 μ s)	I_n	100 kA
Maximum Discharge Current (8/20 μ s)	I_{max}	130 kA
Impulse Discharge Current (10/350 μ s)	I_{imp}	100 kA
Specific Energy	W/R	2500 kJ/ Ω
Charge	Q	50 As
Voltage Protection Level	U_p	1500 V
Rated Load Current	I_L	100 A
Response Time	t_A	< 100 ns
Overcurrent Protection (max)		315 A gG
Short-Circuit Current Rating (AC)	I_{SCCR}	50 kA
Follow Current Interrupt Rating	I_{fi}	100 A _{RMS}
TOV Withstand 200ms	U_T	1200 V
Number of Ports		1

UL Electrical

Maximum Continuous Operating Voltage (AC)	MCOV	305 V
Measured Limiting Voltage	MLV	1000 V
Nominal Discharge Current (8/20 μ s)	I_n	20 kA

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

Residual Voltage at 5 kA (8/20 μ s)	U_{res}	305 V
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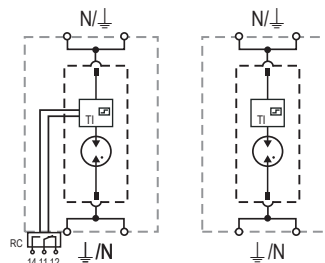
Mechanical & Environmental

Operating Temperature Range	T_a	-40 °F to +185 °F [-40 °C to +85 °C]
Permissible Operating Humidity	RH	5%...95%
Altitude		13123 ft [4000 m]
Terminal Screw Torque	M_{max}	40 lbf-in [4.5 Nm]
Conductor Cross Section (max)		4 AWG (Solid, Stranded) per UL 1449 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/1A; DC: 48V/0.5A, 24V/0.5A, 12V/0.5A
RC Conductor Cross Section (max)		16 AWG (Solid) / 1.5 mm ² (Solid)

Internal Configuration

Legend

<i>L</i>	Line Conductor Terminal
<i>N</i>	Neutral Conductor Terminal
$\perp$	PE/G Conductor Terminal
<i>RC</i>	Remote Contacts Terminal (Optional)
<i>TD</i>	Thermal Disconnecter



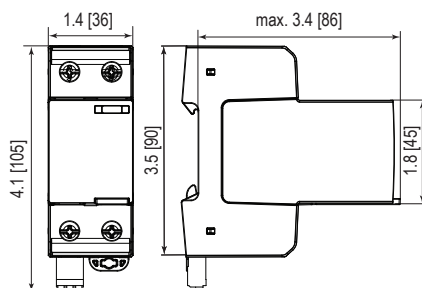
ProTube T1HS-xxx-0+1(-R)

Order Information

Order Code	100
ProTube T1HS-xxx-0+1	59.A596
ProTube T1HS-xxx-0+1-R (with remote contacts)	59.A597
ProTube T1HS-100-01-P (plug)	59.0720

Dimensions & Packaging

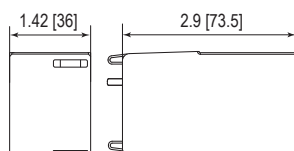
inches [mm]



Complete Unit

ProTube T1HS-xxx-0+1	300
Weight	pounds [grams] .496 [225]
ProTube T1HS-xxx-0+1-R	
Weight	pounds [grams] .515 [234]
DIN 43880 Dimension	2 TE / 1.42 [36]
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

ProTube T1HS-100-01-P	100
Weight	pounds [grams] 0.209 [95]
DIN 43880 Dimension	2 TE / 1.42 [36]
Packaging Dimensions (HxWxL)	4.3 x 4.5 x 13.8" [109 x 115 x 352 mm]
Standard Order Quantity	16 Units