

## Combined Lightning Current & Surge Arrester

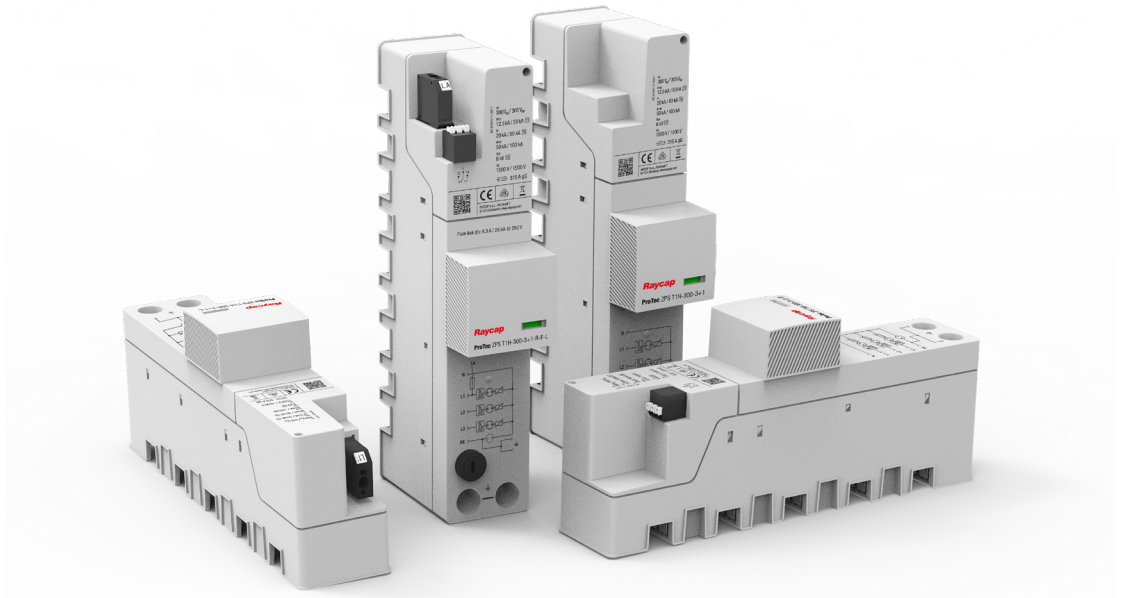


### ProTec ZPS T1H



#### Special features:

- Universal use in all main distribution cabinets due to the 47 mm compact design
- Designed for 40 mm busbar system cabinets
- Auxiliary power contact
- Remote contact (RC) for monitoring of SPD
- Leakage current-free technology
- Reliable mechanical end-of-life (EOL) indicator

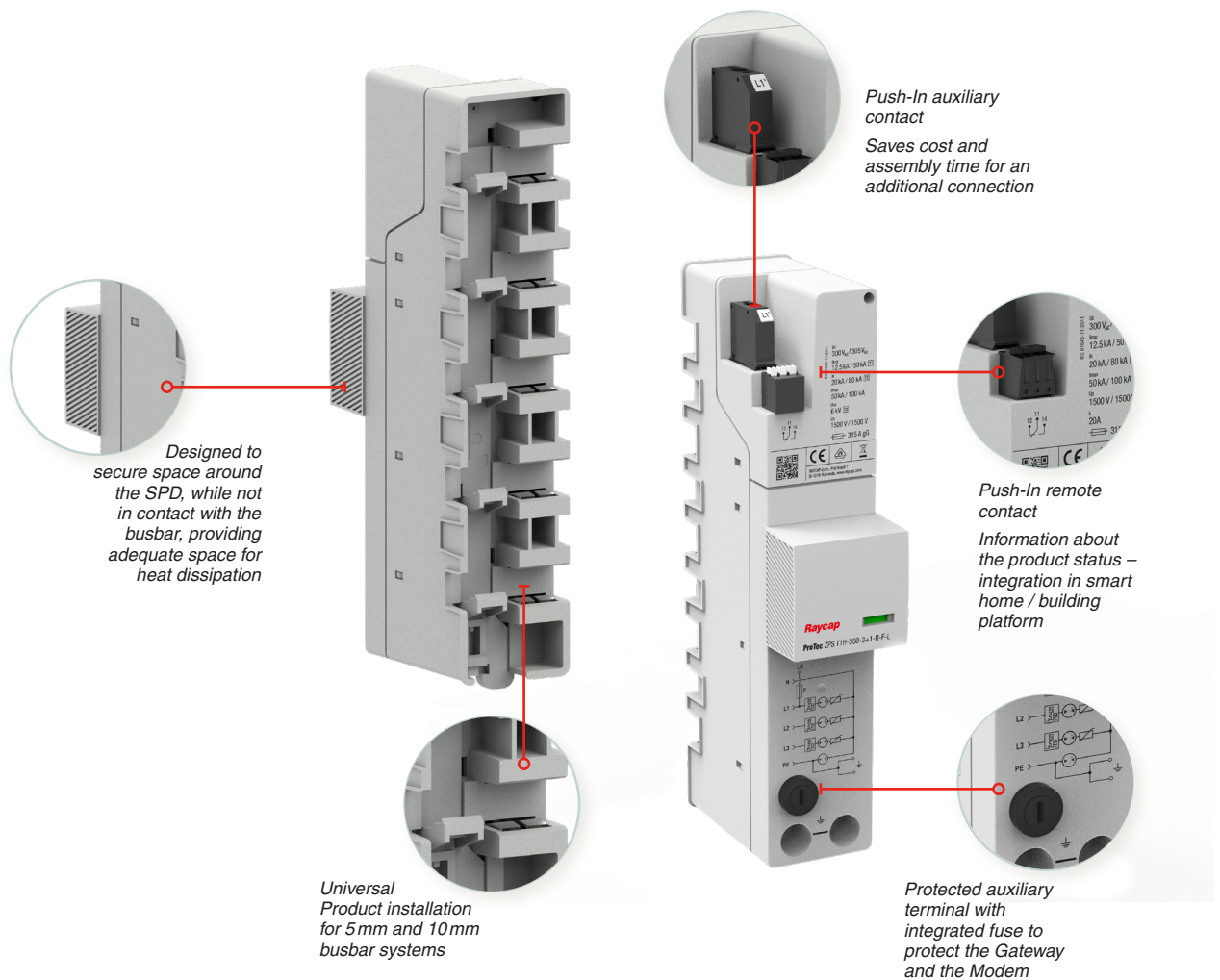


Compliance	IEC 61643-11:2011	EN 61643-11:2012
ProTec ZPS T1H Series	✓	✓

The ProTec ZPS T1H product family is specially designed for installations in front of the power meter on 40 mm busbar connection panels. The product's simple and time saving package eliminates most wire terminations and is easy to integrate into three-phase 40 mm busbar systems. The device is equipped with a state-of-the-art thermal disconnecter and mechanically driven visual indicator system (green-red). In addition to the visual mechanical indicator, a remote contact (RC) features a three-pole remote signaling terminal to remotely monitor the operating state of the device. The surge arrester is designed to fully comply with the latest requirements of the German DIN VDE 0100-443 and 534 which regulate when and how low voltage systems need to be protected against overvoltages, and to DIN VDE AR-N 4100, the new technical connection rules for low voltage applications.

**Installation features:**

- Universal product for 5 mm and 10 mm busbar systems
- With integrated fuse to save the space and assembling time
- 47 mm narrow width fits between two SLS circuit breakers and also provides space for more effective heat dissipation from SLS breaker
- Compliance to German utility standard (needle test with 1 mm stick)
- Push-in auxiliary contact to connect directly the Gateway and the Modem
- Push-in remote contact
- Pluggable installation
- Installation in front of the power meter due to the leakage current free design
- VDE approved for type 1, 2 and 3 acc. to IEC/EN 61643-11 to protect the end devices like Gateway and Modem



**DATA SHEET****Combined Lightning Current and Surge Arrester****ProTec ZPS T1H 3+0(-R)****Class I • Class II • Class III • Type 1 • Type 2 • Type 3**

Location of Use: Main Distribution Boards,  
40mm Busbar Systems

Network Systems: TN-C

Mode of Protection: L-PEN

IEC/EN: Class I+II+III / Type 1+2+3

Technology: Hybrid

Leakage Current Free: Yes

Line Follow Current: No

Housing: Compact design

Compliance: IEC 61643-11:2011

EN 61643-11:2012

**Technical Data****ProTec ZPS T1H-xxx-3+0(-R)****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 $\mu$ s)	$I_n$	20 kA
Maximum Discharge Current (8/20 $\mu$ s)	$I_{max}$	50 kA
Impulse Discharge Current (10/350 $\mu$ s)	$I_{imp}$	12.5 kA
Specific Energy	W/R	39 kJ/ $\Omega$
Charge	Q	6.25As
Open Circuit Voltage of Combination Wave Generator	$U_{oc}$	6 kV
Voltage Protection Level	$U_p$	1500V
Response Time	$t_A$	< 100ns
Overcurrent Protection (max)		315 A gG
Short-Circuit Current Rating (AC)	$I_{SCCR}$	25 kA
TOV Withstand 120min	$U_T$	442 V
Number of Ports		1

**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	$M_{max}$	PH2 / 39.9 lbf-in [4.5Nm]
Conductor Cross Section (max)		35 mm <sup>2</sup> (Solid, Stranded) / 25 mm <sup>2</sup> (Flexible) 2 AWG (Solid, Stranded) / 4 AWG (Flexible)
Mounting		40mm Busbar Systems
Degree Of Protection		IP 20*
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: 250V/ 1A, 125V/ 1A; DC: 48V/0.5A, 24V/0.5A, 12V/0.5A
RC Conductor Cross Section (max)		1.5mm <sup>2</sup> (Solid) / 16 AWG (Solid)

**Order Information**

Order Code		
ProTec ZPS T1H-300-3+0		59.0900
ProTec ZPS T1H-300-3+0-R (with remote contacts)		59.0901

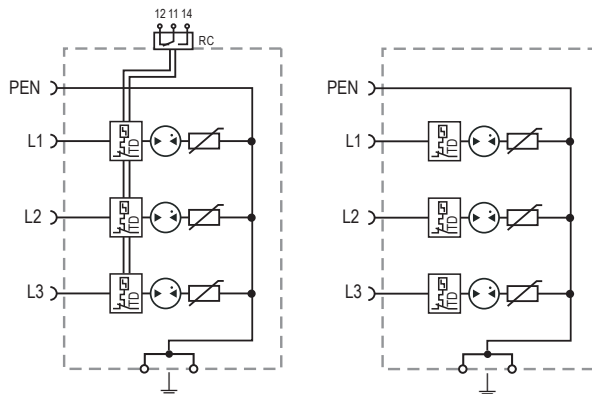
\*IP 40 (in combination with cover)

## ProTec ZPS T1H 3+0(-R)

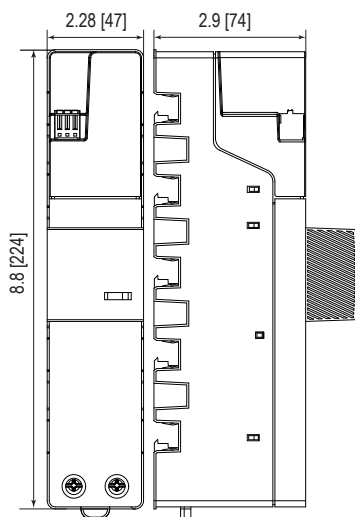
### Internal Configuration

#### Legend

- L Line Busbar Terminal
- PEN PEN Busbar Terminal
- ⏚ Terminal for Main Earthing Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnecter



### Complete Unit



#### Complete Unit Dimensions & Packaging

<b>ProTec ZPS T1H-xxx-3+0</b>	<b>300</b>
Weight	pounds [grams] 1.552 [704]
Packaging Dimensions (HxWxL)	12.5 × 13.4 × 9.5" [320 × 340 × 240 mm]
Standard Order Quantity	18 Units
<b>ProTec ZPS T1H-xxx-3+0-R</b>	<b>300</b>
Weight	pounds [grams] 1.570 [712]
Packaging Dimensions (HxWxL)	12.5 × 13.4 × 9.5" [320 × 340 × 240 mm]
Standard Order Quantity	18 Units

**DATA SHEET**

# Combined Lightning Current and Surge Arrester

## ProTec ZPS T1H 3+0(-R)(-F)-L

Class I • Class II • Class III • Type 1 • Type 2 • Type 3



Location of Use: Main Distribution Boards,  
40mm Busbar Systems

Network Systems: TN-C  
Mode of Protection: L-PEN  
IEC/EN: Class I+II+III / Type 1+2+3  
Technology: Hybrid  
Leakage Current Free: Yes  
Line Follow Current: No  
Housing: Compact design  
Compliance: IEC 61643-11:2011  
EN 61643-11:2012

**Technical Data****ProTec ZPS T1H-xxx-3+0(-R)(-F)-L****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 $\mu$ s)	$I_n$	20 kA
Maximum Discharge Current (8/20 $\mu$ s)	$I_{max}$	50 kA
Impulse Discharge Current (10/350 $\mu$ s)	$I_{imp}$	12.5 kA
Specific Energy	W/R	39 kJ/ $\Omega$
Charge	Q	6.25As
Open Circuit Voltage of Combination Wave Generator	$U_{oc}$	6 kV
Voltage Protection Level	$U_p$	1500V
Response Time	$t_A$	< 100ns
Overcurrent Protection (max)		315 A gG
Short-Circuit Current Rating (AC)	$I_{SCCR}$	25 kA
TOV Withstand 120min	$U_T$	442 V
Number of Ports		1

**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	$M_{max}$	PH2 / 39.9 lbf-in [4.5Nm]
Conductor Cross Section (max)		35 mm <sup>2</sup> (Solid, Stranded) / 25 mm <sup>2</sup> (Flexible) 2 AWG (Solid, Stranded) / 4 AWG (Flexible)
Mounting		40mm Busbar Systems
Degree Of Protection		IP 20*
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: 250V/ 1A, 125V/ 1A; DC: 48V/0.5A, 24V/0.5A, 12V/0.5A
RC Conductor Cross Section (max)		1.5mm <sup>2</sup> (Solid) / 16 AWG (Solid)

**Protected Load Terminal (L1') for ProTec ZPS T1H-xxx-3+0(-R)-L**

Rated Load Current	$I_L$	20A
Load Side Overcurrent Protection		20A gG
Wire Connection Method		Push In
Conductor Cross Section		10 AWG / 4 mm <sup>2</sup> (Solid, Stranded, Flexible)

**Order Information**

Order Code		
ProTec ZPS T1H-300-3+0-L (with protected load terminal)		59.0902
ProTec ZPS T1H-300-3+0-R-L (with remote contacts and protected load terminal)		59.0903

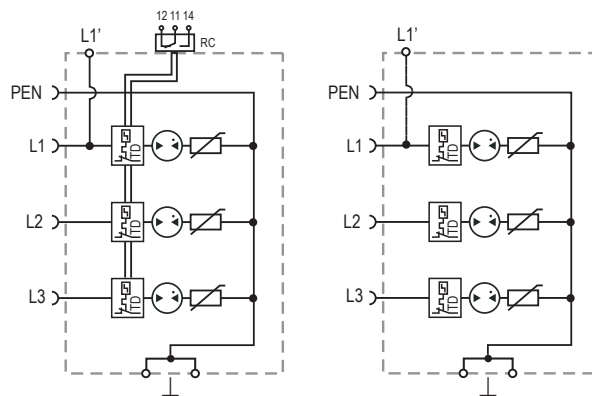
\*IP 40 (in combination with cover)

## ProTec ZPS T1H 3+0(-R)(-F)-L

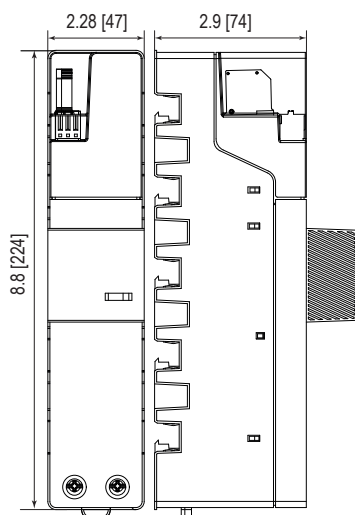
### Internal Configuration

#### Legend

- L Line Busbar Terminal
- L1' Protected Load Terminal
- PEN PEN Busbar Terminal
- ⏏ Terminal for Main Earthing Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnecter



### Complete Unit



#### Complete Unit Dimensions & Packaging

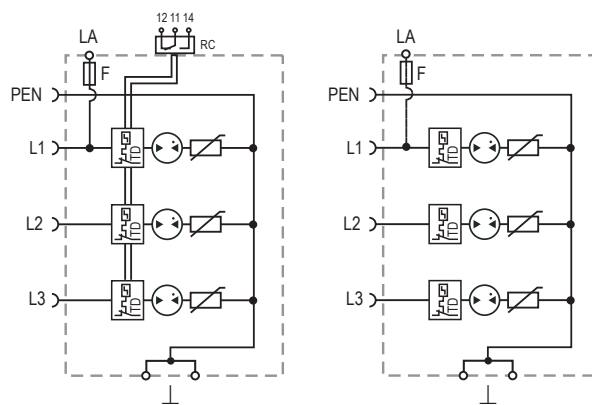
ProTec ZPS T1H-xxx-3+0(-F)-L		300
Weight	pounds [grams]	1.570 [712]
Packaging Dimensions (HxWxL)		12.5 x 13.4 x 9.5" [320 x 340 x 240 mm]
Standard Order Quantity		18 Units
ProTec ZPS T1H-xxx-3+0-R(-F)-L		300
Weight	pounds [grams]	1.587 [720]
Packaging Dimensions (HxWxL)		12.5 x 13.4 x 9.5" [320 x 340 x 240 mm]
Standard Order Quantity		18 Units

The weight for products with integrated fuse on L1' terminal is .020 pounds [9 grams] more.

### Auxiliary Terminal with Integrated Fuse

#### Legend

- F Integrated Fuse Link
- LA Auxiliary Terminal
- L Line Busbar Terminal
- N Neutral Busbar Terminal
- PEN PEN Busbar Terminal
- ⏏ Terminal for Main Earthing Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnecter



#### Auxiliary Terminal (LA) for ProTec ZPS T1H-xxx-3+0(-R)(-F)-L

Rated Current Integrated Fuse	$I_n$	6.3A
Fuse Link		SIBA GZ 5 x 20 mm FF (7000740.6,3)
Wire Connection Method		Push In
Conductor Cross Section		10 AWG / 4 mm <sup>2</sup> (Solid, Stranded, Flexible)

#### Order Information

Order Code		
ProTec ZPS T1H-300-3+0-F-L (with auxiliary terminal)		59.A242
ProTec ZPS T1H-300-3+0-R-F-L (with remote contacts and auxiliary terminal)		59.A243

**DATA SHEET**

**Combined Lightning Current and Surge Arrester**  
**ProTec ZPS T1H 3+1(-R)**  
**Class I • Class II • Class III • Type 1 • Type 2 • Type 3**



Location of Use: Main Distribution Boards,  
40mm Busbar Systems

Network Systems: TN-S, TT

Mode of Protection: L-N, N-PE

IEC/EN: Class I+II+III / Type 1+2+3

Technology: Hybrid

Leakage Current Free: Yes

Line Follow Current: No

Housing: Compact design

Compliance: IEC 61643-11:2011  
EN 61643-11:2012

**Technical Data**

**ProTec ZPS T1H-xxx-3+1(-R)**

**IEC Electrical**

Nominal AC Voltage (50/60Hz)	$U_o/U_n$	240 V
Maximum Continuous Operating Voltage (AC)	(L-N) $U_c$	300 V
	(N-PE) $U_c$	305 V
Nominal Discharge Current (8/20 $\mu$ s)	(L-N)/(N-PE) $I_n$	20 kA / 80 kA
Maximum Discharge Current (8/20 $\mu$ s)	(L-N)/(N-PE) $I_{max}$	50 kA / 100 kA
Impulse Discharge Current (10/350 $\mu$ s)	(L-N)/(N-PE) $I_{imp}$	12.5 kA / 50 kA
Specific Energy	(L-N)/(N-PE) W/R	39 kJ/ $\Omega$ / 625 kJ/ $\Omega$
Charge	(L-N)/(N-PE) Q	6.25As / 25As
Open Circuit Voltage of Combination Wave Generator	$U_{oc}$	6 kV
Voltage Protection Level	(L-N)/(N-PE) $U_p$	1500V / 1500V
Follow Current Interrupt Rating	(N-PE) $I_{fi}$	100A <sub>RMS</sub>
Response Time	(L-N)/(N-PE) $t_A$	< 100ns / < 100ns
Overcurrent Protection (max)		315 A gG
Short-Circuit Current Rating (AC)	$I_{SCCR}$	25 kA
TOV Withstand 120min	(L-N) $U_T$	442 V
TOV Withstand 200ms	(N-PE) $U_T$	1200 V
Number of Ports		1

**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	$M_{max}$	PH2 / 39.9 lbf-in [4.5Nm]
Conductor Cross Section (max)		35mm <sup>2</sup> (Solid, Stranded) / 25mm <sup>2</sup> (Flexible)
		2 AWG (Solid, Stranded) / 4 AWG (Flexible)
Mounting		40mm Busbar Systems
Degree Of Protection		IP 20*
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: 250V/ 1A, 125V/ 1A; DC: 48V/0.5A, 24V/0.5A, 12V/0.5A
RC Conductor Cross Section (max)		1.5mm <sup>2</sup> (Solid) / 16 AWG (Solid)

**Order Information**

Order Code	
ProTec ZPS T1H-300-3+1	59.0908
ProTec ZPS T1H-300-3+1-R (with remote contacts)	59.0909

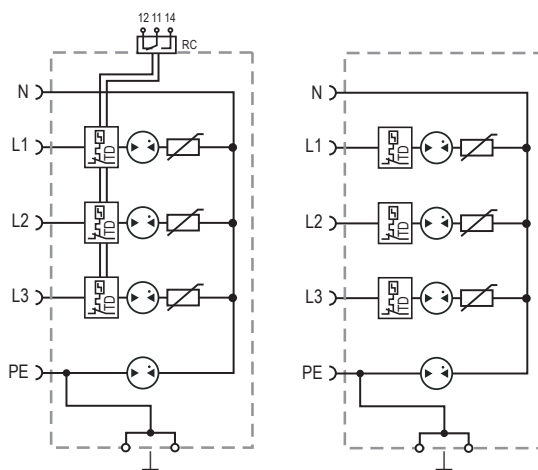
\*IP 40 (in combination with cover)

## ProTec ZPS T1H 3+1(-R)

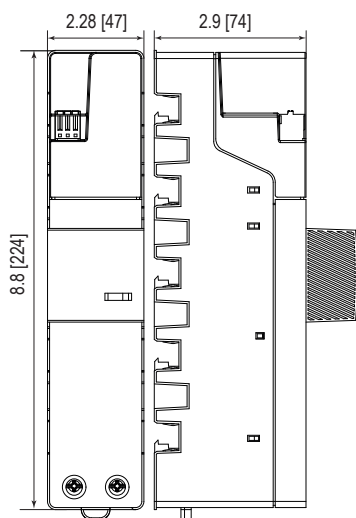
### Internal Configuration

#### Legend

- L Line Busbar Terminal
- N Neutral Busbar Terminal
- PE PE Busbar Terminal
- ⏚ Terminal for Main Earthing Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnecter



### Complete Unit



#### Complete Unit Dimensions & Packaging

<b>ProTec ZPS T1H-xxx-3+1</b>	<b>300</b>
Weight	pounds [grams] 1.640 [744]
Packaging Dimensions (HxWxL)	12.5 x 13.4 x 9.5" [320 x 340 x 240 mm]
Standard Order Quantity	18 Units
<b>ProTec ZPS T1H-xxx-3+1-R</b>	<b>300</b>
Weight	pounds [grams] 1.658 [752]
Packaging Dimensions (HxWxL)	12.5 x 13.4 x 9.5" [320 x 340 x 240 mm]
Standard Order Quantity	18 Units

**DATA SHEET**

**Combined Lightning Current and Surge Arrester**  
**ProTec ZPS T1H 3+1(-R)(-F)-L**  
**Class I • Class II • Class III • Type 1 • Type 2 • Type 3**



Location of Use: Main Distribution Boards,  
40mm Busbar Systems

Network Systems: TN-S, TT

Mode of Protection: L-N, N-PE

IEC/EN: Class I+II+III / Type 1+2+3

Technology: Hybrid

Leakage Current Free: Yes

Line Follow Current: No

Housing: Compact design

Compliance: IEC 61643-11:2011  
EN 61643-11:2012

**Technical Data**

**ProTec ZPS T1H-xxx-3+1(-R)(-F)-L**

**IEC Electrical**

Nominal AC Voltage (50/60Hz)	$U_o/U_n$	240 V
Maximum Continuous Operating Voltage (AC)	(L-N) $U_c$	300 V
	(N-PE) $U_c$	305 V
Nominal Discharge Current (8/20 $\mu$ s)	(L-N)/(N-PE) $I_n$	20 kA / 80 kA
Maximum Discharge Current (8/20 $\mu$ s)	(L-N)/(N-PE) $I_{max}$	50 kA / 100 kA
Impulse Discharge Current (10/350 $\mu$ s)	(L-N)/(N-PE) $I_{imp}$	12.5 kA / 50 kA
Specific Energy	(L-N)/(N-PE) W/R	39 kJ/ $\Omega$ / 625 kJ/ $\Omega$
Charge	(L-N)/(N-PE) Q	6.25As / 25As
Open Circuit Voltage of Combination Wave Generator	$U_{oc}$	6 kV
Voltage Protection Level	(L-N)/(N-PE) $U_p$	1500V / 1500V
Follow Current Interrupt Rating	(N-PE) $I_{fi}$	100A <sub>RMS</sub>
Response Time	(L-N)/(N-PE) $t_A$	< 100ns / < 100ns
Overcurrent Protection (max)		315 A gG
Short-Circuit Current Rating (AC)	$I_{SCCR}$	25 kA
TOV Withstand 120min	(L-N) $U_T$	442 V
TOV Withstand 200ms	(N-PE) $U_T$	1200 V
Number of Ports		1

**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	$M_{max}$	PH2 / 39.9 lbf-in [4.5Nm]
Conductor Cross Section (max)		35mm <sup>2</sup> (Solid, Stranded) / 25mm <sup>2</sup> (Flexible)
		2 AWG (Solid, Stranded) / 4 AWG (Flexible)
Mounting		40mm Busbar Systems
Degree Of Protection		IP 20*
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: 250V/ 1A, 125V/ 1A; DC: 48V/0.5A, 24V/0.5A, 12V/0.5A
RC Conductor Cross Section (max)		1.5mm <sup>2</sup> (Solid) / 16 AWG (Solid)

**Protected Load Terminal (L1') for ProTec ZPS T1H-xxx-3+1(-R)-L**

Rated Load Current	$I_L$	20A
Load Side Overcurrent Protection		20A gG
Wire Connection Method		Push In
Conductor Cross Section		10 AWG / 4 mm <sup>2</sup> (Solid, Stranded, Flexible)

**Order Information**

Order Code		
ProTec ZPS T1H-300-3+1-L (with protected load terminal)		59.0910
ProTec ZPS T1H-300-3+1-R-L (with remote contacts and protected load terminal)		59.0911

\*IP 40 (in combination with cover)



www.raycap.com

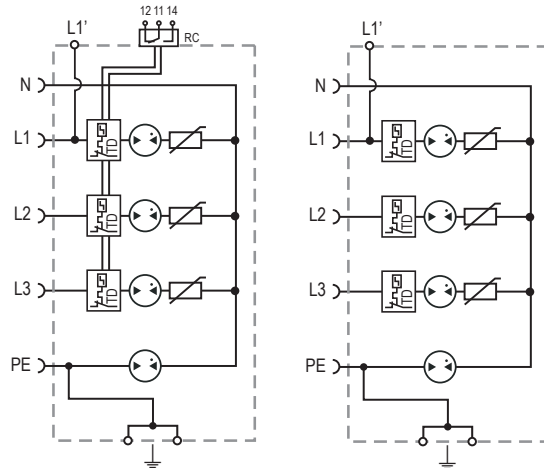
Information contained in this document is subject to change at any time without notice.

## ProTec ZPS T1H 3+1(-R)(-F)-L

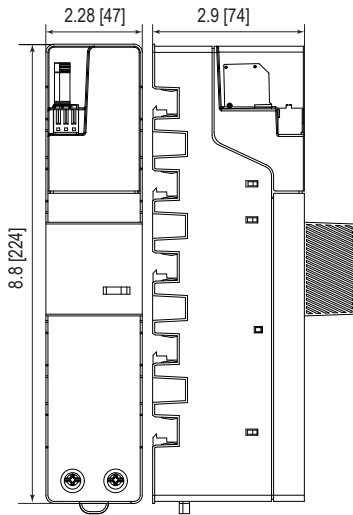
### Internal Configuration

#### Legend

- L Line Busbar Terminal
- L1' Protected Load Terminal
- N Neutral Busbar Terminal
- PE PE Busbar Terminal
- ⏚ Terminal for Main Earthing Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnecter



### Complete Unit



#### Complete Unit Dimensions & Packaging

ProTec ZPS T1H-xxx-3+1(-F)-L		300
Weight	pounds [grams]	1.658 [752]
Packaging Dimensions (HxWxL)		12.5 x 13.4 x 9.5" [320 x 340 x 240 mm]
Standard Order Quantity		18 Units

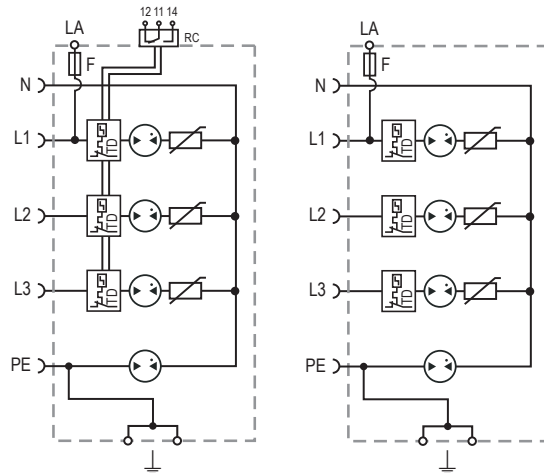
ProTec ZPS T1H-xxx-3+1-R(-F)-L		300
Weight	pounds [grams]	1.676 [760]
Packaging Dimensions (HxWxL)		12.5 x 13.4 x 9.5" [320 x 340 x 240 mm]
Standard Order Quantity		18 Units

The weight for products with integrated fuse on L1' terminal is .020 pounds [9 grams] more.

### Auxiliary Terminal with Integrated Fuse

#### Legend

- F Integrated Fuse Link
- LA Auxiliary Terminal
- L Line Busbar Terminal
- N Neutral Busbar Terminal
- PE PE Busbar Terminal
- ⏚ Terminal for Main Earthing Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnecter



#### Auxiliary Terminal (LA) for ProTec ZPS T1H-xxx-3+1(-R)(-F)-L

Rated Current Integrated Fuse	$I_n$	6.3A
Fuse Link		SIBA GZ 5 x 20 mm FF (7000740.6,3)
Wire Connection Method		Push In
Conductor Cross Section		10 AWG / 4 mm <sup>2</sup> (Solid, Stranded, Flexible)

#### Order Information

Order Code		
ProTec ZPS T1H-300-3+1-F-L (with auxiliary terminal)		59.A244
ProTec ZPS T1H-300-3+1-R-F-L (with remote contacts and auxiliary terminal)		59.A245

# Combined Lightning Current and Surge Arrester

## ProTec ZPS T1H 3+0 E(-R)

Class I • Class II • Class III • Type 1 • Type 2 • Type 3



Location of Use: Main Distribution Boards,  
40mm Busbar Systems

Network Systems: TN-C  
Mode of Protection: L-PEN  
IEC/EN: Class I+II+III / Type 1+2+3  
Technology: Hybrid  
Leakage Current Free: Yes  
Line Follow Current: No  
Housing: Compact design  
Compliance: IEC 61643-11:2011  
EN 61643-11:2012

### Technical Data

#### ProTec ZPS T1H-xxx-3+0-E(-R)

##### 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 $\mu$ s)	$I_n$	20 kA
Maximum Discharge Current (8/20 $\mu$ s)	$I_{max}$	50 kA
Impulse Discharge Current (10/350 $\mu$ s)	$I_{imp}$	7.5 kA
Specific Energy	W/R	14 kJ/ $\Omega$
Charge	Q	3.75 As
Open Circuit Voltage of Combination Wave Generator	$U_{oc}$	6 kV
Voltage Protection Level	$U_p$	1500V
Response Time	$t_A$	< 100ns
Overcurrent Protection (max)		315 A gG
Short-Circuit Current Rating (AC)	$I_{SCCR}$	25 kA
TOV Withstand 120min	$U_T$	442 V
Number of Ports		1

##### 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	$M_{max}$	PH2 / 39.9 lbf-in [4.5Nm]
Conductor Cross Section (max)		35 mm <sup>2</sup> (Solid, Stranded) / 25 mm <sup>2</sup> (Flexible) 2 AWG (Solid, Stranded) / 4 AWG (Flexible)
Mounting		40mm Busbar Systems
Degree Of Protection		IP 20*
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: 250V/ 1A, 125V/ 1A; DC: 48V/0.5A, 24V/0.5A, 12V/0.5A
RC Conductor Cross Section (max)		1.5mm <sup>2</sup> (Solid) / 16 AWG (Solid)

##### Order Information

Order Code	
ProTec ZPS T1H-300-3+0-E	59.0904
ProTec ZPS T1H-300-3+0-E-R (with remote contacts)	59.0905

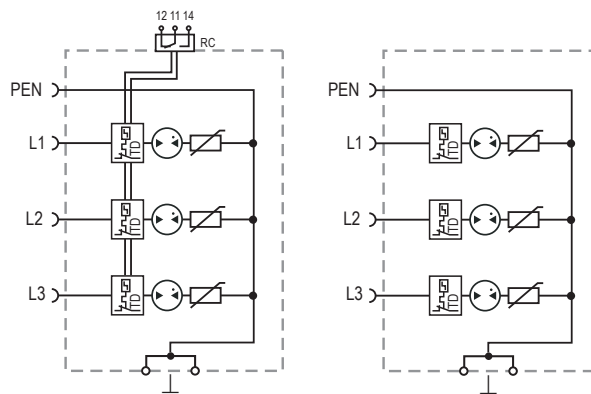
\*IP 40 (in combination with cover)

## ProTec ZPS T1H 3+0 E(-R)

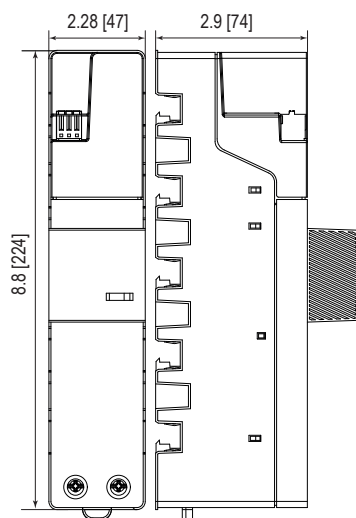
### Internal Configuration

#### Legend

- L Line Busbar Terminal
- PEN PEN Busbar Terminal
- ⏏ Terminal for Main Earthing Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnecter



### Complete Unit



#### Complete Unit Dimensions & Packaging

<b>ProTec ZPS T1H-xxx-3+0-E</b>	<b>300</b>
Weight	pounds [grams] 1.548 [702]
Packaging Dimensions (HxWxL)	12.5 × 13.4 × 9.5" [320 × 340 × 240 mm]
Standard Order Quantity	18 Units
<b>ProTec ZPS T1H-xxx-3+0-E-R</b>	<b>300</b>
Weight	pounds [grams] 1.565 [710]
Packaging Dimensions (HxWxL)	12.5 × 13.4 × 9.5" [320 × 340 × 240 mm]
Standard Order Quantity	18 Units

**DATA SHEET**

**Combined Lightning Current and Surge Arrester**  
**ProTec ZPS T1H 3+0 E(-R)(-F)-L**  
**Class I • Class II • Class III • Type 1 • Type 2 • Type 3**



Location of Use: Main Distribution Boards,  
40mm Busbar Systems

Network Systems: TN-C  
 Mode of Protection: L-PEN  
 IEC/EN: Class I+II+III / Type 1+2+3

Technology: Hybrid  
 Leakage Current Free: Yes  
 Line Follow Current: No

Housing: Compact design  
 Compliance: IEC 61643-11:2011  
 EN 61643-11:2012

**Technical Data**

**ProTec ZPS T1H-xxx-3+0-E(-R)(-F)L**

**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 $\mu$ s)	$I_n$	20 kA
Maximum Discharge Current (8/20 $\mu$ s)	$I_{max}$	50 kA
Impulse Discharge Current (10/350 $\mu$ s)	$I_{imp}$	7.5 kA
Specific Energy	W/R	14 kJ/ $\Omega$
Charge	Q	3.75 As
Open Circuit Voltage of Combination Wave Generator	$U_{oc}$	6 kV
Voltage Protection Level	$U_p$	1500V
Response Time	$t_A$	< 100ns
Overcurrent Protection (max)		315 A gG
Short-Circuit Current Rating (AC)	$I_{SCCR}$	25 kA
TOV Withstand 120min	$U_T$	442 V
Number of Ports		1

**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	$M_{max}$	PH2 / 39.9 lbf-in [4.5Nm]
Conductor Cross Section (max)		35 mm <sup>2</sup> (Solid, Stranded) / 25 mm <sup>2</sup> (Flexible) 2 AWG (Solid, Stranded) / 4 AWG (Flexible)
Mounting		40mm Busbar Systems
Degree Of Protection		IP 20*
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: 250V/ 1A, 125V/ 1A; DC: 48V/0.5A, 24V/0.5A, 12V/0.5A
RC Conductor Cross Section (max)		1.5mm <sup>2</sup> (Solid) / 16 AWG (Solid)

**Protected Load Terminal (L1') for ProTec ZPS T1H-xxx-3+0-E(-R)-L**

Rated Load Current	$I_L$	20A
Load Side Overcurrent Protection		20A gG
Wire Connection Method		Push In
Conductor Cross Section		10 AWG / 4 mm <sup>2</sup> (Solid, Stranded, Flexible)

**Order Information**

Order Code		
ProTec ZPS T1H-300-3+0-E-L (with protected load terminal)		59.0906
ProTec ZPS T1H-300-3+0-E-R-L (with remote contacts and protected load terminal)		59.0907

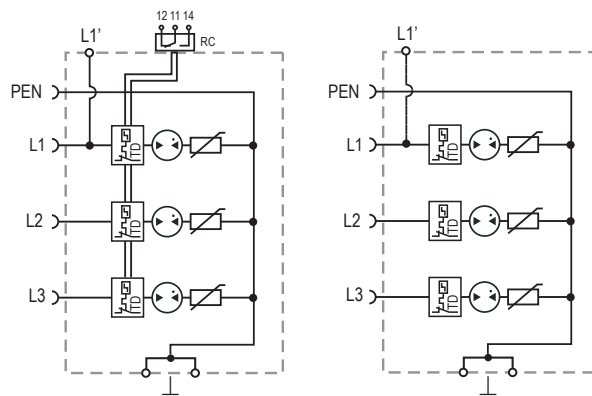
\*IP 40 (in combination with cover)

## ProTec ZPS T1H 3+0 E(-R)(-F)-L

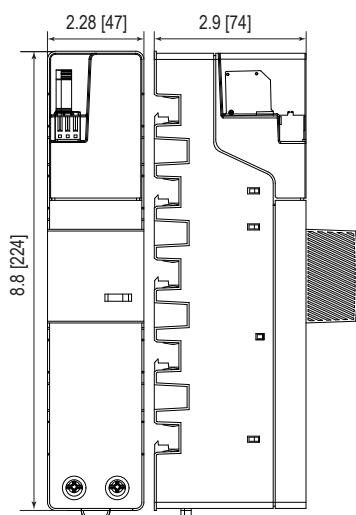
### Internal Configuration

#### Legend

- L Line Busbar Terminal
- L1' Protected Load Terminal
- PEN PEN Busbar Terminal
- ⏏ Terminal for Main Earthing Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnecter



### Complete Unit



#### Complete Unit Dimensions & Packaging

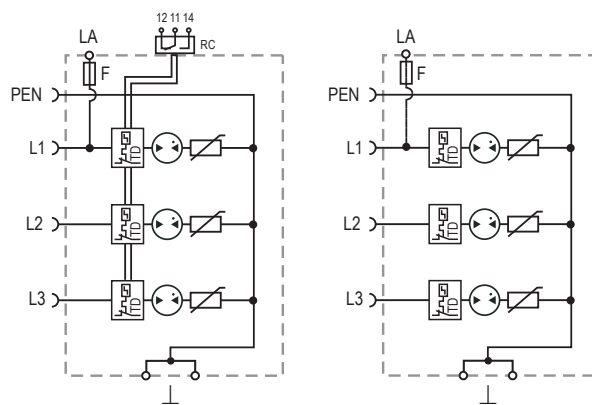
<b>ProTec ZPS T1H-xxx-3+0-E(-F)-L</b>	<b>300</b>
Weight	pounds [grams] 1.565 [710]
Packaging Dimensions (HxWxL)	12.5 x 13.4 x 9.5" [320 x 340 x 240 mm]
Standard Order Quantity	18 Units
<b>ProTec ZPS T1H-xxx-3+0-E-R(-F)-L</b>	<b>300</b>
Weight	pounds [grams] 1.583 [718]
Packaging Dimensions (HxWxL)	12.5 x 13.4 x 9.5" [320 x 340 x 240 mm]
Standard Order Quantity	18 Units

The weight for products with integrated fuse on L1' terminal is .020 pounds [9 grams] more.

### Auxiliary Terminal with Integrated Fuse

#### Legend

- F Integrated Fuse Link
- LA Auxiliary Terminal
- L Line Busbar Terminal
- N Neutral Busbar Terminal
- PEN PEN Busbar Terminal
- ⏏ Terminal for Main Earthing Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnecter



#### Auxiliary Terminal (LA) for ProTec ZPS T1H-xxx-3+0-E(-R)(-F)-L

Rated Current Integrated Fuse	$I_n$	6.3A
Fuse Link		SIBA GZ 5 x 20 mm FF (7000740.6,3)
Wire Connection Method		Push In
Conductor Cross Section		10 AWG / 4 mm <sup>2</sup> (Solid, Stranded, Flexible)

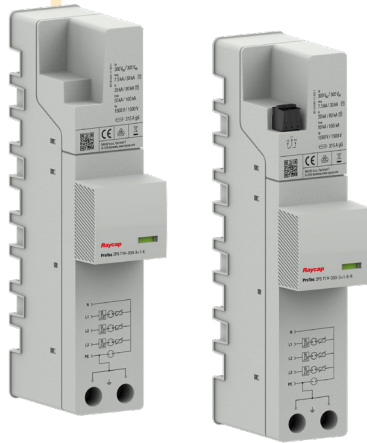
#### Order Information

Order Code	
ProTec ZPS T1H-300-3+0-E-F-L (with auxiliary terminal)	59.A246
ProTec ZPS T1H-300-3+0-E-R-F-L (with remote contacts and auxiliary terminal)	59.A247

# Combined Lightning Current and Surge Arrester

## ProTec ZPS T1H 3+1 E(-R)

Class I • Class II • Class III • Type 1 • Type 2 • Type 3



Location of Use: Main Distribution Boards,  
40mm Busbar Systems

Network Systems: TN-S, TT

Mode of Protection: L-N,N-PE  
IEC/EN: Class I+II+III / Type 1+2+3

Technology: Hybrid

Leakage Current Free: Yes

Line Follow Current: No

Housing: Compact design

Compliance: IEC 61643-11:2011  
EN 61643-11:2012

### Technical Data

#### ProTec ZPS T1H-xxx-3+1-E(-R)

##### IEC Electrical

Nominal AC Voltage (50/60Hz)	$U_o/U_n$	240 V
Maximum Continuous Operating Voltage (AC)	(L-N) $U_c$	300 V
	(N-PE) $U_c$	305 V
Nominal Discharge Current (8/20 $\mu$ s)	(L-N)/(N-PE) $I_n$	20 kA / 80 kA
Maximum Discharge Current (8/20 $\mu$ s)	(L-N)/(N-PE) $I_{max}$	50 kA / 100 kA
Impulse Discharge Current (10/350 $\mu$ s)	(L-N)/(N-PE) $I_{imp}$	7.5 kA / 30 kA
Specific Energy	(L-N)/(N-PE) W/R	14 kJ/ $\Omega$ / 225 kJ/ $\Omega$
Charge	(L-N)/(N-PE) Q	3.75 As / 15As
Open Circuit Voltage of Combination Wave Generator	$U_{oc}$	6 kV
Voltage Protection Level	(L-N)/(N-PE) $U_p$	1500V / 1500V
Follow Current Interrupt Rating	(N-PE) $I_{fi}$	100A <sub>RMS</sub>
Response Time	(L-N)/(N-PE) $t_A$	< 100ns / < 100ns
Overcurrent Protection (max)		315 A gG
Short-Circuit Current Rating (AC)	$I_{SCCR}$	25 kA
TOV Withstand 120min	(L-N) $U_T$	442 V
TOV Withstand 200ms	(N-PE) $U_T$	1200 V
Number of Ports		1

##### 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	$M_{max}$	PH2 / 39.9 lbf-in [4.5 Nm]
Conductor Cross Section (max)		35mm <sup>2</sup> (Solid, Stranded) / 25mm <sup>2</sup> (Flexible)
		2 AWG (Solid, Stranded) / 4 AWG (Flexible)
Mounting		40mm Busbar Systems
Degree Of Protection		IP 20*
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: 250V/ 1A, 125V/ 1A; DC: 48V/0.5A, 24V/0.5A, 12V/0.5A
RC Conductor Cross Section (max)		1.5mm <sup>2</sup> (Solid) / 16 AWG (Solid)

##### Order Information

Order Code		
ProTec ZPS T1H-300-3+1-E		59.0912
ProTec ZPS T1H-300-3+1-E-R (with remote contacts)		59.0913

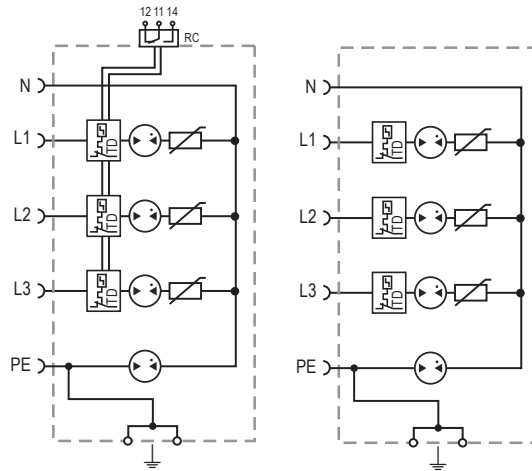
\*IP 40 (in combination with cover)

## ProTec ZPS T1H 3+1 E(-R)

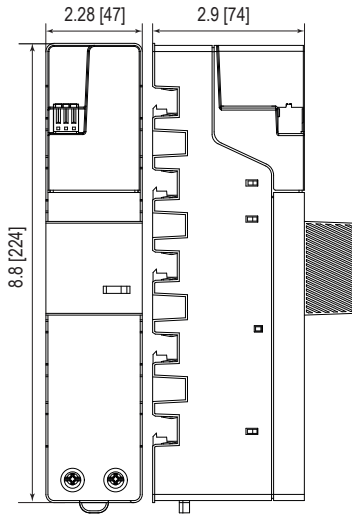
### Internal Configuration

#### Legend

- L Line Busbar Terminal
- N Neutral Busbar Terminal
- PE PE Busbar Terminal
- ⏚ Terminal for Main Earthing Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnecter



### Complete Unit



#### Complete Unit Dimensions & Packaging

<b>ProTec ZPS T1H-xxx-3+1-E</b>	<b>300</b>
Weight	pounds [grams] 1.636 [742]
Packaging Dimensions (HxWxL)	12.5 x 13.4 x 9.5" [320 x 340 x 240 mm]
Standard Order Quantity	18 Units
<b>ProTec ZPS T1H-xxx-3+1-E-R</b>	<b>300</b>
Weight	pounds [grams] 1.653 [750]
Packaging Dimensions (HxWxL)	12.5 x 13.4 x 9.5" [320 x 340 x 240 mm]
Standard Order Quantity	18 Units

**DATA SHEET**

**Combined Lightning Current and Surge Arrester**  
**ProTec ZPS T1H 3+1 E(-R)(-F)-L**  
**Class I • Class II • Class III • Type 1 • Type 2 • Type 3**



Location of Use: Main Distribution Boards,  
40mm Busbar Systems  
 Network Systems: TN-S, TT  
 Mode of Protection: L-N, N-PE  
 IEC/EN: Class I+II+III / Type 1+2+3  
 Technology: Hybrid  
 Leakage Current Free: Yes  
 Line Follow Current: No  
 Housing: Compact design  
 Compliance: IEC 61643-11:2011  
 EN 61643-11:2012

**Technical Data**

**ProTec ZPS T1H-xxx-3+1-E(-R)(-F)-L**

**IEC Electrical**

Nominal AC Voltage (50/60Hz)	$U_0/U_n$	240V
Maximum Continuous Operating Voltage (AC)	(L-N) $U_c$	300V
	(N-PE) $U_c$	305V
Nominal Discharge Current (8/20 $\mu$ s)	(L-N)/(N-PE) $I_n$	20kA / 80kA
Maximum Discharge Current (8/20 $\mu$ s)	(L-N)/(N-PE) $I_{max}$	50kA / 100kA
Impulse Discharge Current (10/350 $\mu$ s)	(L-N)/(N-PE) $I_{imp}$	7.5kA / 30kA
Specific Energy	(L-N)/(N-PE) W/R	14kJ/ $\Omega$ / 225kJ/ $\Omega$
Charge	(L-N)/(N-PE) Q	3.75As / 15As
Open Circuit Voltage of Combination Wave Generator	$U_{oc}$	6kV
Voltage Protection Level	(L-N)/(N-PE) $U_p$	1500V / 1500V
Follow Current Interrupt Rating	(N-PE) $I_{fi}$	100A <sub>RMS</sub>
Response Time	(L-N)/(N-PE) $t_A$	< 100ns / < 100ns
Overcurrent Protection (max)		315A gG
Short-Circuit Current Rating (AC)	$I_{SCCR}$	25kA
TOV Withstand 120min	(L-N) $U_T$	442V
TOV Withstand 200ms	(N-PE) $U_T$	1200V
Number of Ports		1

**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	$M_{max}$	PH2 / 39.9 lbf-in [4.5Nm]
Conductor Cross Section (max)		35mm <sup>2</sup> (Solid, Stranded) / 25mm <sup>2</sup> (Flexible)
		2 AWG (Solid, Stranded) / 4 AWG (Flexible)
Mounting		40mm Busbar Systems
Degree Of Protection		IP 20*
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: 250V/ 1A, 125V/ 1A; DC: 48V/0.5A, 24V/0.5A, 12V/0.5A
RC Conductor Cross Section (max)		1.5mm <sup>2</sup> (Solid) / 16 AWG (Solid)

**Protected Load Terminal (L1') for ProTec ZPS T1H-xxx-3+1-E(-R)-L**

Rated Load Current	$I_L$	20A
Load Side Overcurrent Protection		20A gG
Wire Connection Method		Push In
Conductor Cross Section		10 AWG / 4 mm <sup>2</sup> (Solid, Stranded, Flexible)

**Order Information**

<b>Order Code</b>		
ProTec ZPS T1H-300-3+1-E-L (with protected load terminal)		59.0914
ProTec ZPS T1H-300-3+1-E-R-L (with remote contacts and protected load terminal)		59.0915

\*IP 40 (in combination with cover)



www.raycap.com

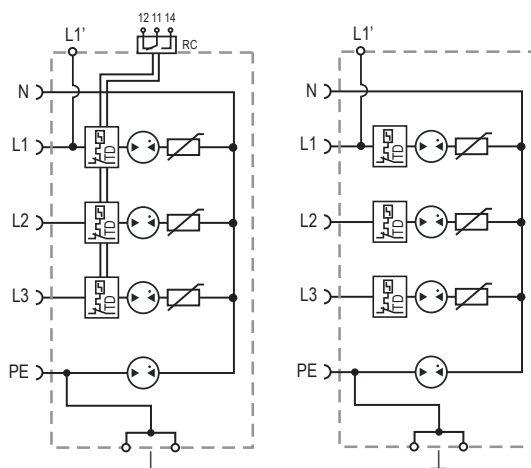
Information contained in this document is subject to change at any time without notice.

## ProTec ZPS T1H 3+1 E(-R)(-F)-L

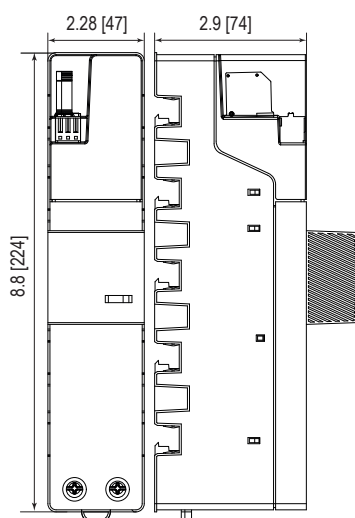
### Internal Configuration

#### Legend

- L Line Busbar Terminal
- L1' Protected Load Terminal
- N Neutral Busbar Terminal
- PE PE Busbar Terminal
- ⏏ Terminal for Main Earthing Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnecter



### Complete Unit



#### Complete Unit Dimensions & Packaging

ProTec ZPS T1H-xxx-3+1-E(-F)-L		300
Weight	pounds [grams]	1.653 [750]
Packaging Dimensions (HxWxL)		12.5 × 13.4 × 9.5" [320 × 340 × 240 mm]
Standard Order Quantity		18 Units

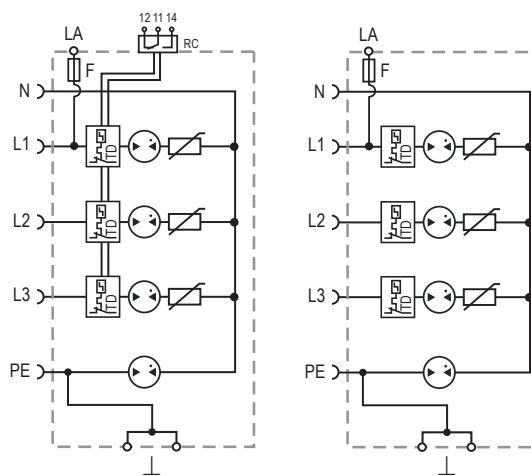
ProTec ZPS T1H-xxx-3+1-E-R(-F)-L		300
Weight	pounds [grams]	1.671 [758]
Packaging Dimensions (HxWxL)		12.5 × 13.4 × 9.5" [320 × 340 × 240 mm]
Standard Order Quantity		18 Units

The weight for products with integrated fuse on L1' terminal is .020 pounds [9 grams] more.

### Auxiliary Terminal with Integrated Fuse

#### Legend

- F Integrated Fuse Link
- LA Auxiliary Terminal
- L Line Busbar Terminal
- N Neutral Busbar Terminal
- PE PE Busbar Terminal
- ⏏ Terminal for Main Earthing Terminal
- RC Remote Contacts Terminal (Optional)
- TD Thermal Disconnecter



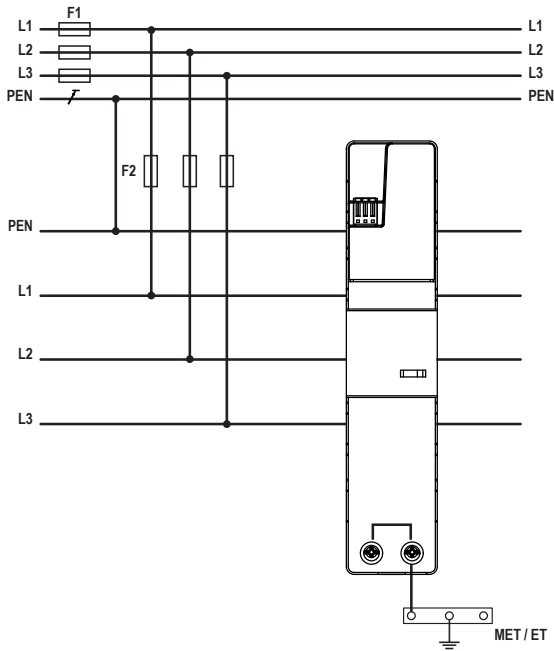
#### Auxiliary Terminal (LA) for ProTec ZPS T1H-xxx-3+1-E(-R)(-F)-L

Rated Current Integrated Fuse	$I_n$	6.3A
Fuse Link		SIBA GZ 5 x 20 mm FF (7000740.6,3)
Wire Connection Method		Push In
Conductor Cross Section		10 AWG / 4 mm <sup>2</sup> (Solid, Stranded, Flexible)

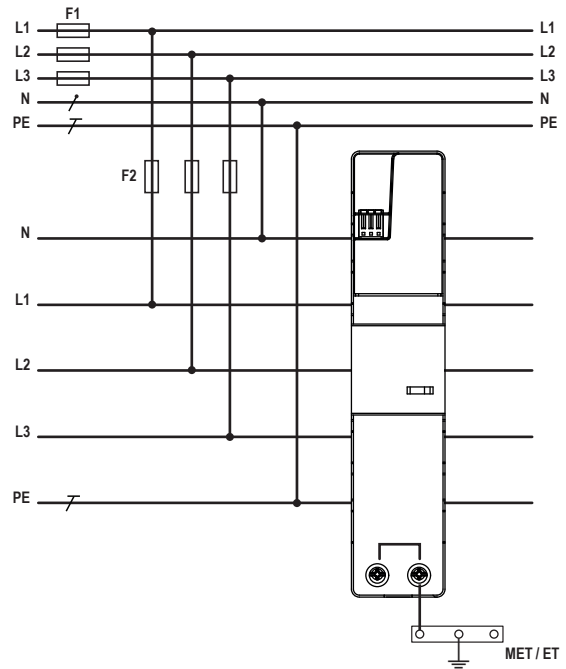
#### Order Information

Order Code		
ProTec ZPS T1H-300-3+1-E-F-L (with auxiliary terminal)		59.A248
ProTec ZPS T1H-300-3+1-E-R-F-L (with remote contacts and auxiliary terminal)		59.A249

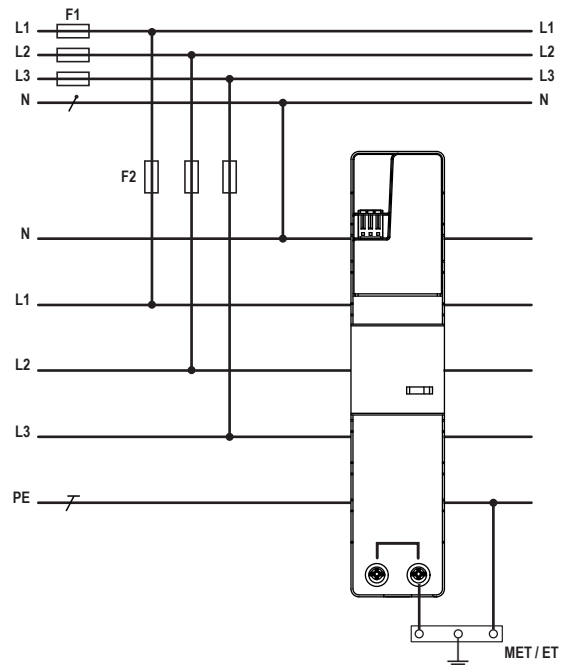
**TN-C Connection**



**TN-S Connection**



**TT Connection**



/ N Neutral

/ PE Protective Earth

/ PEN Protective Earth & Neutral

**Overcurrent Protection Rating for  $I_{SCCR} = 25 \text{ kA}$**

— F1 > 315 A gG → — F2 = 315 A gG

— F1 ≤ 315 A gG → ~~— F2~~