

# Type 2 AC Multipolar Surge Protector FX1-C40 series



## Class II•••Type 2

- Location of Use: Sub-Distribution Boards
- Network Systems: TN-S, TN-C
- Mode of Protection: L-PE, N-PE, L-PEN
- Surge Ratings:  $I_n = 20 \text{ kA}$  (8/20  $\mu\text{s}$ )
- IEC/EN/UL Category: Class II / Type 2
- Protective Elements: High Energy MOV
- Housing: Pluggable Design
- Compliance: IEC 61643-11  
EN 61643-11

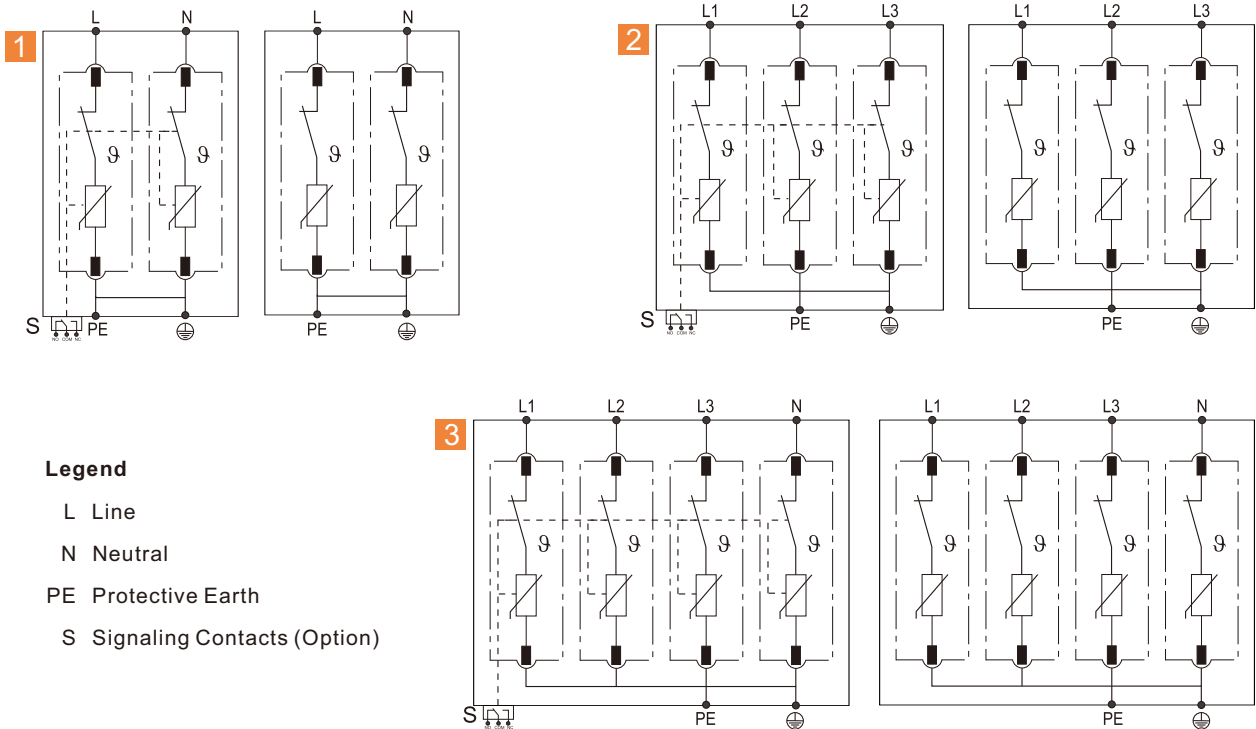
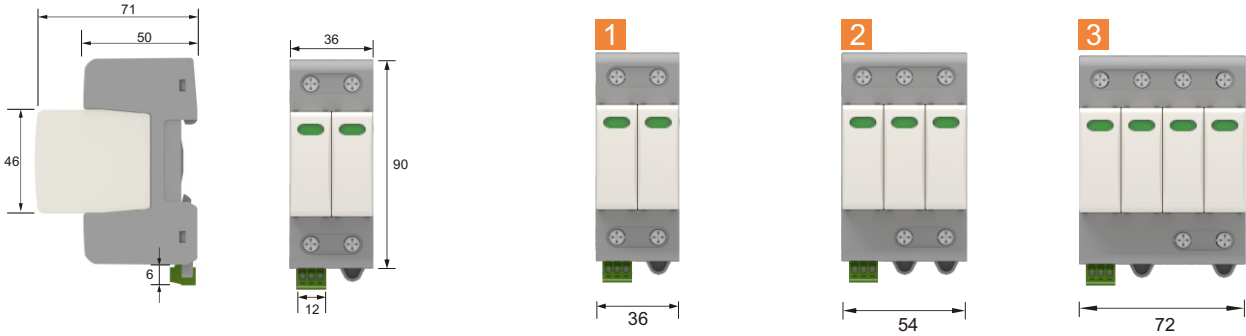
## Technical Data

FX1-C40 series		75	150	275	320	385	440
<b>IEC Electrical</b>							
Nominal AC Voltage (50/60Hz)	$U_o/U_n$	60V	120V	230V	230V	230V	400V
Maximum Continuous Operating Voltage (AC)	$U_c$	75V	150V	275V	320V	385V	440V
Nominal Discharge Current (8/20 $\mu\text{s}$ )	$I_n$	20kA					
Maximum Discharge Current (8/20 $\mu\text{s}$ )	$I_{max}$	40kA					
Voltage Protection Level	$U_p$	$\leq 380\text{V}$	$\leq 600\text{V}$	$\leq 1500\text{V}$	$\leq 1700\text{V}$	$\leq 1800\text{V}$	$\leq 2000\text{V}$
Response Time	$t_A$	< 25 ns					
Back-Up Fuse (max)		125 A gL/gG					
Short-Circuit Current Rating (AC)	$I_{SCCR}$	25 kA / 50 kA					
TOV Withstand 5s	$U_T$	90V	180V	335V	335V	335V	580V
TOV 120min	$U_T$	115V	230V	440V	440V	440V	765V
	Mode	Withstand	Withstand	Safe Fail	Safe Fail	Safe Fail	Safe Fail
Number of Ports		1					
<b>Mechanical &amp; Environmental</b>							
Operating Temperature Range	$T_a$	-40 °F to +158 °F [-40 °C to +70 °C]					
Permissible Operating Humidity	RH	5%...95%					
Atmospheric pressure and altitude		80k Pa ... 106k Pa / -500 m ... 2000 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 <sup>2</sup> (Solid, Stranded)/ 25 mm <sup>2</sup> (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 ok / Red defect					
Remote Contacts (RC)		Option					
RC Switching Capacity		<b>AC:</b> 250V / 0.5 A; <b>DC:</b> 250V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A					
RC Conductor Cross Section (max)		16 AWG (Solid)/ 1.5 mm <sup>2</sup> (Solid)					

# Type 2 AC Multipolar Surge Protector FX1-C40 series

## Dimensions - Internal Configuration

(in mm)

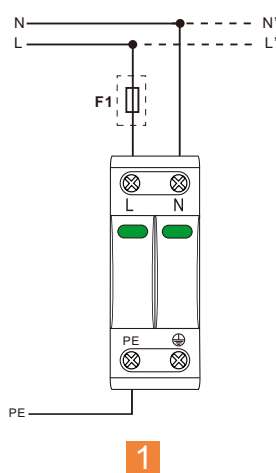


### Legend

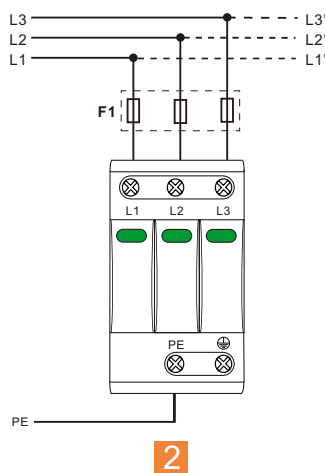
- L Line
- N Neutral
- PE Protective Earth
- S Signaling Contacts (Option)

## Connection Diagram

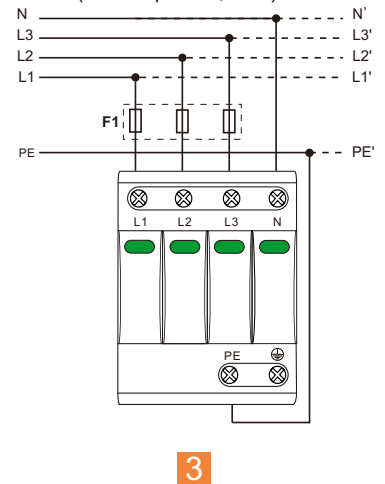
TN-S (Single-phase, 2+0)



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



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



# Type 2 AC Multipolar Surge Protector

## FX1-C40+1 series



### Class II...Type 2

- Location of Use: Sub-Distribution Boards
- Network Systems: TN-S, TT
- Mode of Protection: L-N, N-PE
- Surge Ratings:  $I_n = 20 \text{ kA}$  (8/20  $\mu\text{s}$ )
- IEC/EN/UL Category: Class II / Type 2
- Protective Elements: High Energy MOV and GDT
- Housing: Pluggable Design
- Compliance: IEC 61643-11  
EN 61643-11

### Technical Data

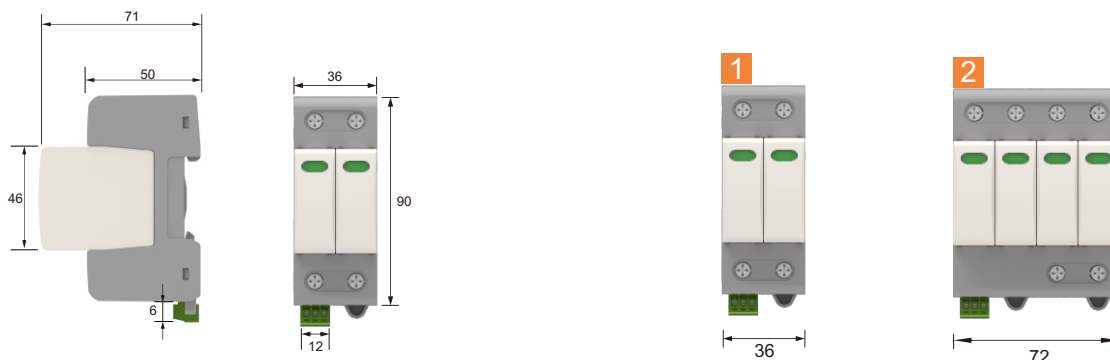
FX1-C40+1 series		75	150	275	320	385
<b>IEC Electrical</b>						
Nominal AC Voltage (50/60Hz)	$U_o/U_n$	60V	120V	230V	230V	230V
Maximum Continuous Operating Voltage	[L-N] $U_c$ [N-PE] $U_c$	75V	150V	275V 255V	320V	385V
Nominal Discharge Current (8/20 $\mu\text{s}$ )	[L-N] $I_n$ [N-PE] $I_n$			20kA		
Maximum Discharge Current (8/20 $\mu\text{s}$ )	[L-N] $I_{max}$ [N-PE] $I_{max}$			40kA		
Voltage Protection Level	[L-N] $U_p$ [N-PE] $U_p$	$\leq 380\text{V}$	$\leq 600\text{V}$	$\leq 1500\text{V}$ $\leq 1000\text{V}$	$\leq 1700\text{V}$	$\leq 1800\text{V}$
Follow Current Interrupt Rating	[N-PE] $I_{fi}$			100A <sub>RMS</sub>		
Response Time	[L-N] $t_A$ [N-PE] $t_A$			< 25 ns < 100 ns		
Back-Up Fuse (max)				125 A gL/ gG		
Short -Circuit Current Rating (AC)	[L-N] $I_{SCCR}$			25 kA / 50 kA		
TOV Withstand 5s		90V	180V	335V	335V	335V
TOV 120min	[L-N] $U_T$ Mode Withstand	115V	230V Safe Fail	440V Safe Fail	440V Safe Fail	440V Safe Fail
TOV Withstand 200ms	[N-PE] $U_T$			1200V		
Number of Ports				1		
<b>Mechanical &amp; Environmental</b>						
Operating Temperature Range	$T_a$	-40 °F to +158 °F [-40 °C to +70 °C]				
Permissible Operating Humidity	RH	5%...95%				
Atmospheric pressure and altitude		80k Pa ... 106k Pa / -500 m ... 2000 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 <sup>2</sup> (Solid, Stranded)/ 25 mm <sup>2</sup> (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 ok / Red defect				
Remote Contacts (RC)		Option				
RC Switching Capacity		<b>AC:</b> 250V / 0.5 A; <b>DC:</b> 250V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A				
RC Conductor Cross Section (max)		16 AWG (Solid)/ 1.5 mm <sup>2</sup> (Solid)				

# Type 2 AC Multipolar Surge Protector

## FX1-C40+1 series

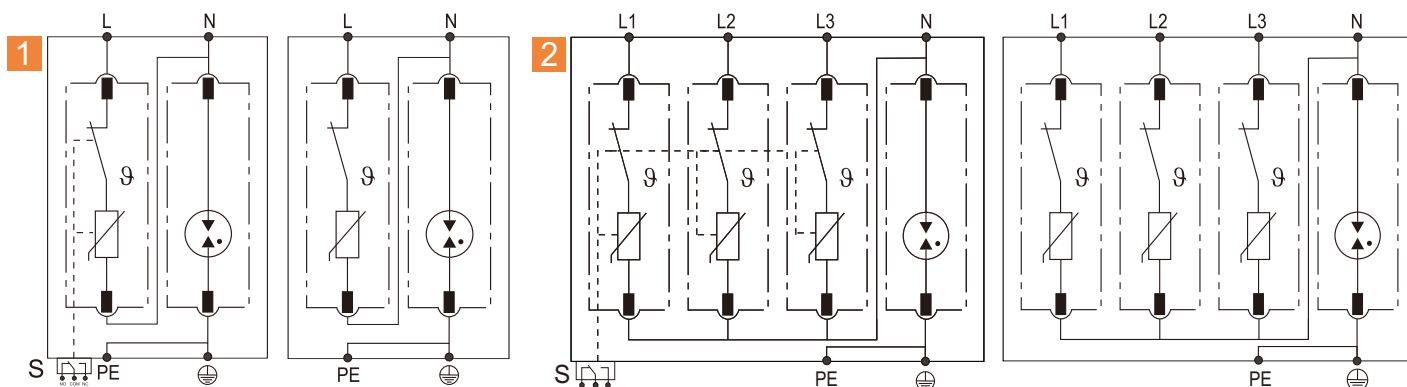
### Dimensions - Internal Configuration

(in mm)



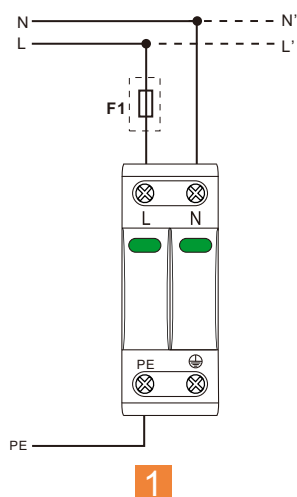
#### Legend

- L Line
- N Neutral
- PE Protective Earth
- S Signaling Contacts (Option)

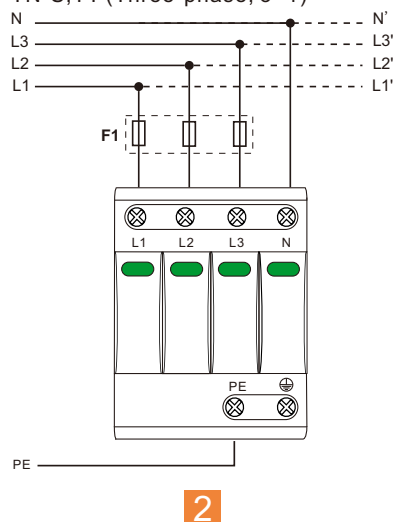


### Connection Diagram

TN-S, TT (Single-phase, 1+1)



TN-S, TT (Three-phase, 3+1)



# Type 1+2 AC Multipolar Surge Protector

## FX1-C40 series



### Class I • Class II • Type 1 • Type 2

- Location of Use: Main Distribution Boards
- Network Systems: TN-S, TN-C
- Mode of Protection: L-PE, N-PE, L-PEN
- Surge Ratings:  $I_{imp} = 7kA (10/350 \mu s)$   
 $I_n = 20kA (8/20 \mu s)$
- IEC/EN/UL Category: Class I+II / Type 1+2
- Protective Elements: High Energy MOV
- Housing: Pluggable Design
- Compliance: IEC 61643-11  
EN 61643-11

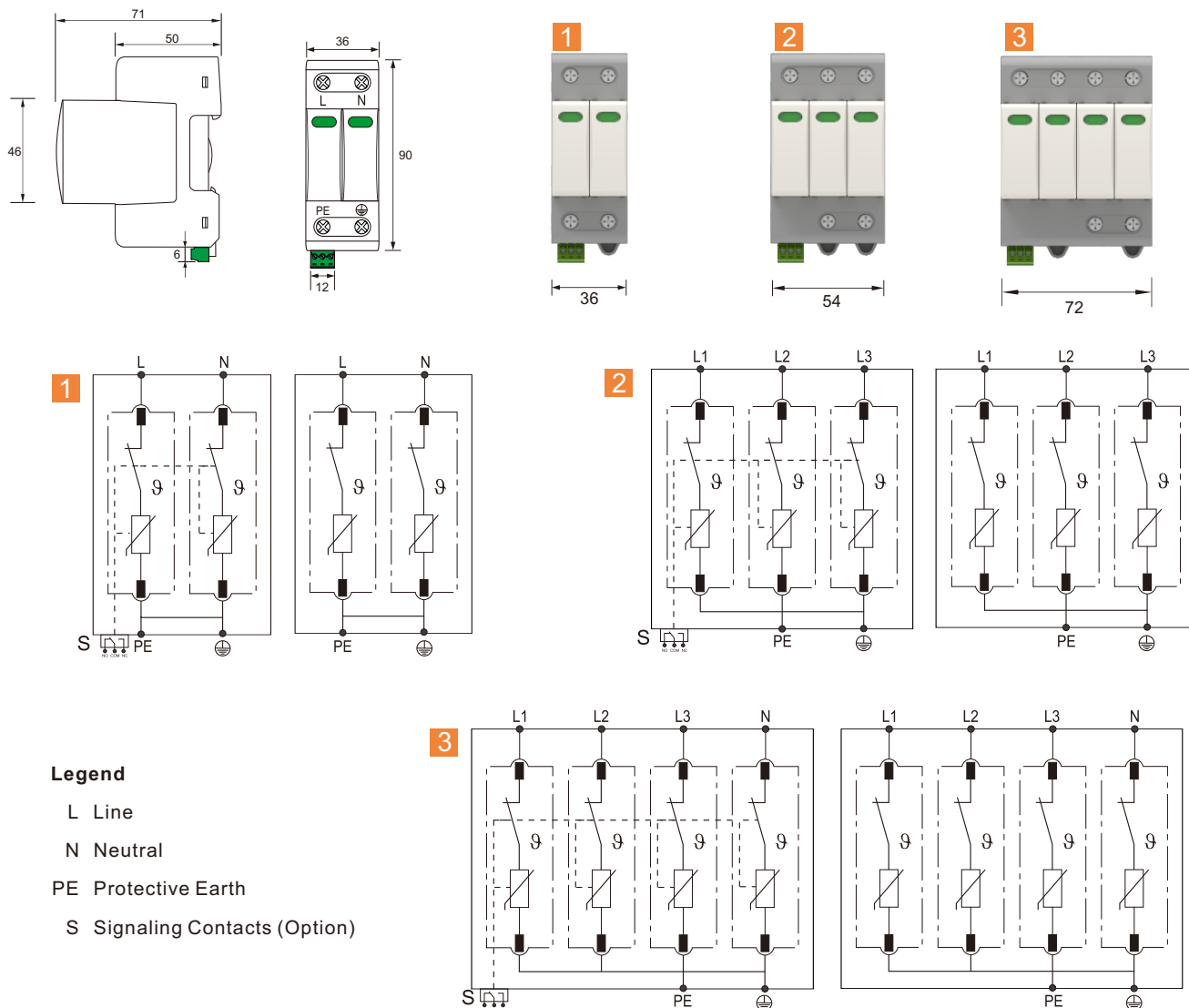
## Technical Data

FX1-C40 series		75	150	275	320	385	440
<b>IEC Electrical</b>							
Nominal AC Voltage (50/60Hz)	$U_o/U_n$	60V	120V	230V	230V	230V	400V
Maximum Continuous Operating Voltage (AC)	$U_c$	75V	150V	275V	320V	385V	440V
Nominal Discharge Current (8/20 $\mu s$ )	$I_n$	20kA	20kA	20kA	20kA	10kA	10kA
Maximum Discharge Current (8/20 $\mu s$ )	$I_{max}$	50kA	50kA	50kA	50kA	50kA	50kA
Impulse Discharge Current (10/350 $\mu s$ )	$I_{imp}$	7kA	7kA	7kA	7kA	10kA	10kA
Specific Energy	W/R	39kJ/ $\Omega$	39kJ/ $\Omega$	39kJ/ $\Omega$	39kJ/ $\Omega$	25kJ/ $\Omega$	25kJ/ $\Omega$
Charge	Q	6.25As	6.25As	6.25As	6.25As	5As	5As
Voltage Protection Level	$U_p$	$\leq 700V$	$\leq 1000V$	$\leq 1500V$	$\leq 1600V$	$\leq 1800V$	$\leq 2000V$
Response Time	$t_A$	< 25 ns					
Back-Up Fuse (max)		315 A / 250 A gG					
Short -Circuit Current Rating (AC)	$I_{SCCR}$	25 kA / 50 kA					
TOV Withstand 5s	$U_T$	114V	180V	335V	335V	335V	580V
TOV 120min	$U_T$	180V	230V	440V	440V	440V	765V
	Mode	Withstand	Safe Fail	Safe Fail	Safe Fail	Safe Fail	Safe Fail
Number of Ports		1					
<b>Mechanical &amp; Environmental</b>							
Operating Temperature Range	$T_a$	-40 °F to +158 °F [-40 °C to +70 °C]					
Permissible Operating Humidity	RH	5%...95%					
Atmospheric pressure and altitude		80k Pa ... 106k Pa / -500 m ... 2000 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 <sup>2</sup> (Solid, Stranded)/ 25 mm <sup>2</sup> (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 ok / Red defect					
Remote Contacts (RC)		Option					
RC Switching Capacity		<b>AC:</b> 250V / 0.5 A; <b>DC:</b> 250V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A					
RC Conductor Cross Section (max)		16 AWG (Solid)/ 1.5 mm <sup>2</sup> (Solid)					

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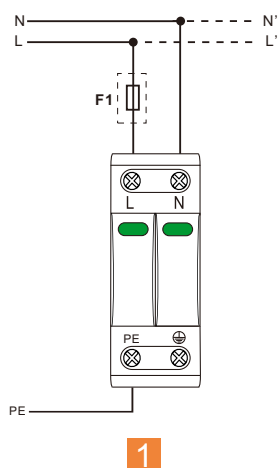
## Dimensions - Internal Configuration

(in mm)

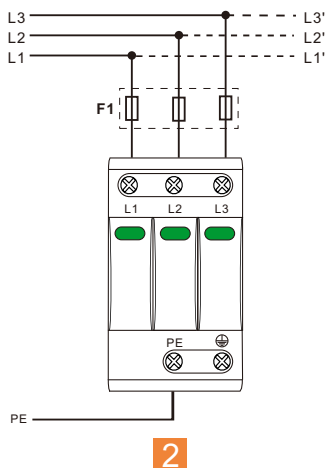


## Connection Diagram

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



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



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

