Installation Instruction

I2R-50K Series

Surge Protective Devices

These UL1449 certified Type 1CA SPDs are compact, high performance surge protection solutions for protection of AC power systems. Damaging overvoltage transients can result from:

– Direct and indirect lightning strikes
– Power company load switching
– Motor/Generator switching

Models are available for single-phase, split-phase and three-phase AC services.

PRODUCT SPECIFICATIONS

Model No.	I2R-50K
SPD Category	UL1449 5th,CSA-C22.2 Type 1CA IEC/EN 61643-11 Class II
Connection Type	Parallel Connected
Ports	1
System Voltage (50/60 Hz)	120 ~ 480 Vac
Surge Capacity per phase (8/20μs)	50 kA
Nominal discharge current (In)	20 kA
MCOV	150 ~ 550 Vac
SCCR Rating	200 kArms
Visual Status Indicator	Green = Normal, Red = Replace
Remote Alarms, Isolated Form C	AC: 250V/0.5A DC: 250V/0.1A; 125V/0.2A; 75V/0.5A
Location	Indoor
Enclosure Rating	IP20, UL94 V0
Service Wiring Connections	Single-strand #2AWG or 35mm2 Multi-strand #4AWG or 25mm2
Remote Alarm Wiring	Max. # 16AWG or 1.5mm2
Environmental Ratings	Temperature –40℃ to +80℃ Humidity relative 5~95% (25℃) Altitude ≤ 2km
Dimensions, W x D x H (1 Pole)	3.54” [90] x 0.71” [18] x 1.81” [46]
Applicable standards.	ANSI/UL1449 5th, CSA-C22.2, IEC/EN 61643-11
Approvals, Certifications	cULus/CE

The SPD Types Per ANSI/UL 1449 5th:

Type 1 – Permanently connected SPDs intended for installation between the secondary of the service transformer and the line side of the service equipment overcurrent device, as well as the load side, including watt-hour meter socket enclosures and Molded Case SPDs intended to be installed without an external overcurrent protective device.

Type 2 – Permanently connected SPDs intended for installation on the load side of the service equipment overcurrent device; including SPDs located at the branch panel and Molded Case SPDs.

WARNING !

Only qualified personnel should install or service this system. Electrical safety precautions must be followed when installing or servicing this equipment. To prevent risk of electrical shock, turn off and lock out all power sources to the unit before making electrical connections or servicing.

For proper and safe operation, neutral and ground MUST be reliably connected. Failure to operate this unit from a solidly grounded power source of the proper configuration will reduce or impede operation and may result in unit failure.

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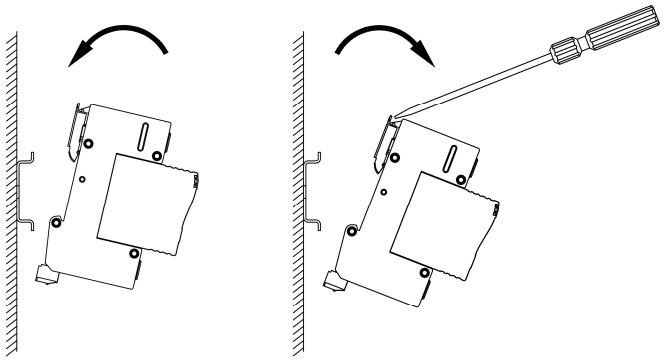
INSTALLATION

1. When installing or replacing these SPDs, AC power must be in a de-energized condition!
2. Install the DIN mounting rail (35mm, EN 50022).
3. Snap lock the SPD to the rail.
4. Connect wiring to the indicated terminals.
5. Ensure compliance with supplied instruction.
6. Apply power and observe correct operation of Status Indicators, and remote alarm facilities if utilized.
7. Never Hi-Pot test Any SPD. (Will prematurely fail or damage SPD).



Install Dismounting

Fig

WIRING CONNECTIONS

- Before making connections to the unit, verify that the unit model number and nameplate voltage rating are appropriate for connection to the intended power source.
- For best performance, unit should be positioned so that the length of the wiring to the surge protective device (SPD) unit is minimized. To reduce the wiring impedance to surge currents, the phase, neutral (if required), and ground conductors are recommended to be twisted together and routed in the same race way (conduit). Avoid any sharp bends in the conductors. All wiring must comply with the National Electrical Code (NEC) and applicable local codes.
- Each SPD terminal is designed to accept wire sizes from #12AWG (4 mm^2) to #2AWG (35 mm^2)-solid conductor or #4AWG (25 mm^2)-stranded conductor.
- Insulation should be stripped back 12 mm before terminating into tunnel terminal.
- Do not use excessive force when tightening the terminal. (2 Nm is recommended.)

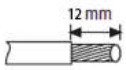
Conductor Type		
Min cross-section	L/N terminal: #12AWG or 4 mm^2 , PE terminal: #10AWG or 6 mm^2	
Max cross-section	#4AWG or 25 mm^2 (stranded)	#2AWG or 35mm^2 (solid)
Insulation stripped back	0.4in or 12 mm	

Table 1: Wire Gauge Range and Preparation

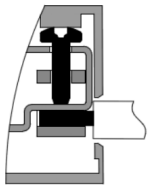
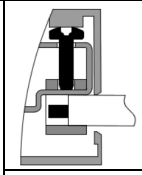
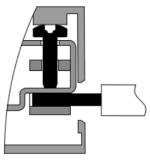
Correct	Incorrect
	 Insulation not cut back enough
	 Insulation cut back too far

Fig 2: Terminal Installation

Installation Instruction

WARNING !

Select the proper **TRANSTECTOR** SP series SPD unit according to your system voltage, configuration, and the anticipated surge environment.

Prior to install the SPD, ensure that your facility electric supply system is properly installed and connected in according with all applicable national and local codes and safety procedure.

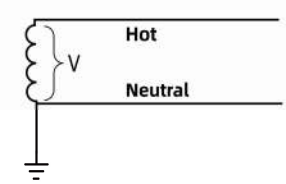
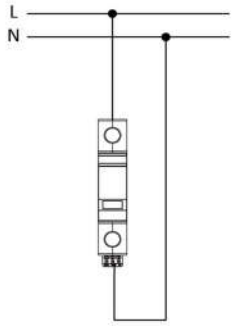
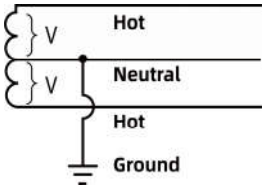
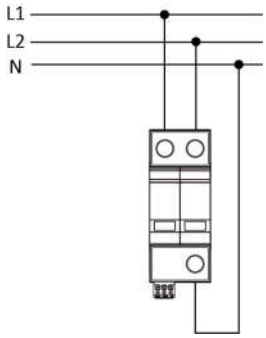
Never Hi-Pot Test Any SPD, it may cause the device to prematurely Fail

AVERTISSEMENT !

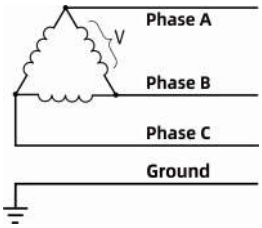
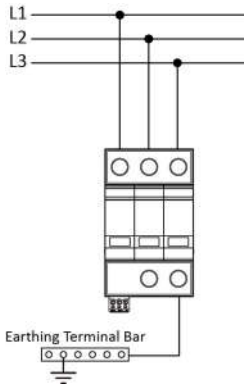
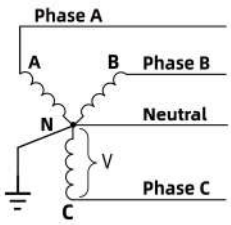
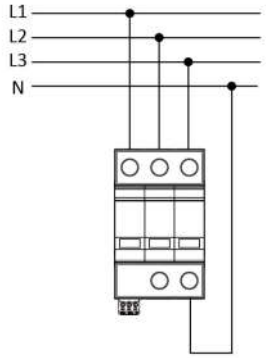
Sélectionnez l'unité SPD **TRANSTECTOR** SP appropriée en fonction de la tension de votre système, de la configuration et de l'environnement de surtension prévu.

Avant d'installer le SPD, assurez-vous que le système d'alimentation électrique de votre installation est correctement installé et connecté conformément à tous les codes nationaux et locaux applicables et à la procédure de sécurité.

Table 2 - AC Power Service, Recommended SPD & Wiring Connections

Power Service	Nominal Voltage (50/60Hz)	SPD Part Number	MCOV	Wiring Connections
Single-Phase, 2W 	120 V	I2R-50KS120	150 Vac	
Split-Phase, 3W 	120/240 V	I2R-50KE240	150 Vac	

Installation Instruction

Power Service	Nominal Voltage (50/60Hz)	SPD Part Number	MCOV	Wiring Connections
Three-Phase Delta, 3W+G 	240 V	I2R-50KD240	320Vac	
	480 V	I2R-50KD480	550Vac	
Three-Phase Wye, 4W 	120/208 V	I2R-50KY208	150Vac	
	277/480 V	I2R-50KY480	320Vac	

VISUAL & REMOTE SIGNAL STATUS INDICATORS

- A characteristic of all transient and surge protection devices is that they degrade in proportion to the magnitude and number of incident surges to which they have been subjected. Status indication should be periodically monitored to determine if replacement is required.
- If the indicator windows of any SPDs modules turn from GREEN to RED or if the remote signal contact turns from NC to NO, the pluggable module should be replaced as soon as practicable.

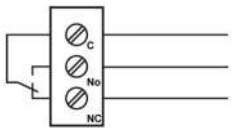
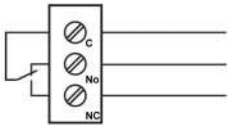
Remote signal Contact	
	
Normal	Fault, need to be replaced

Table 3 - Remote Signal Contact Wiring

Installation Instruction

PRODUCT RATINGS AND LIMITATIONS

- **Type 1ca SPD –** Permanently connected SPDs intended for installation between the secondary of the service transformer and the line side of the service equipment over-current device, as well as the load side, including watt-hour meter socket enclosures and Molded Case SPDs intended to be installed without an external over-current protective device. As described in the Standard for Safety, Surge Protective Devices (SPDs), Standard 1449, Fifth Edition, released 2021
- **Voltage Protection Rating –** To obtain the voltage protection rating (VPR), in accordance with the Standard for Safety, Surge Protective Devices (SPDs), Standard 1449 Fifth Edition, released 2021, indicated on this product, the wire specified must be utilized to connect the SPD to your facilities power grid. Connections made with unapproved conductors may result in different VPR.
- **Circuit Ampacity Limitations –** This product has been investigated to withstand, without exposing live circuits or components on power sources, a voltage of two times (2x) the device ratings, and fault currents of up to 200,000 AIC, as described in the Standard for Safety, Surge Protective Devices (SPDs), Standard 1449, Fifth Edition, released 2021.

TROUBLESHOOTING

If any of the diagnostic indicators indicates a problem, check all connections and voltages to the unit. If all connections are made and reliable, and proper voltages are supplied to the unit, please contact www.transtector.com.

NOTE

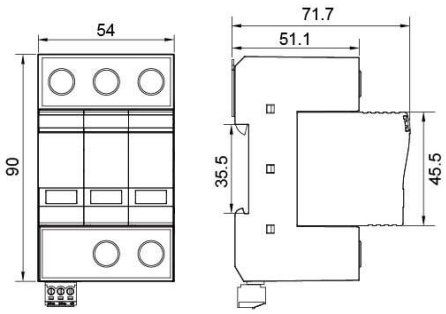
This instruction is not comprehensive. It's assumed the user will follow established safety precautions for working in an electrical environment. For more information on safety precautions and procedures, please find from related organizations as below.

- *Underwriters Laboratories(UL)*
- *American National Standards Association(ANSI)*
- *Institute of Electrical and Electronics Engineers (IEEE).*
- *National Fire Protection Association (NFPA)*
- *National Electrical Manufacturers Association (NEMA)*
- *International Electrotechnical Commission(IEC)*

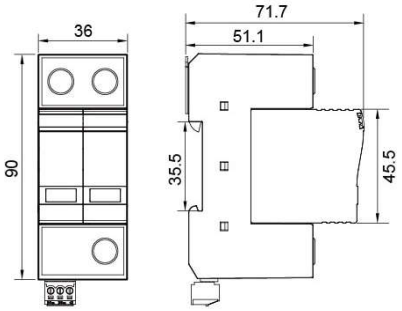
INSTALLATION DIMENSION

Note: units are in mm

Three Pole



Two Pole



Single Pole