

INSTRUCTION MANUAL

Integrated Block SPD for use for power line

Type : LT-122HT, LT-122HTS

Please read the instructions before installing the product, as this instruction manual explains how to use the SPD effectively and safely.

The SPD conforms to the induced lightning current test specified in class II of IEC61643-11. This SPD does not withstand direct lightning surges that exceed the value described in the specification, and it may not protect the equipment connected. Please confirm the detailed specification, size, etc. using the brochure or data sheet.

1. Safety instruction

1) Instruction for use

- a) It is exceptionally difficult to predict the energy involved with lightning since it is a natural phenomenon. In the event of a direct lightning strike exceeding the specification or if there are multiple induced lightning currents in a short period of time, the SPD may deteriorate, short circuit and in the worst case fail. To prevent these problems from occurring and protect other equipment, follow instruction ① or ② below.

- ① The SPD should be installed in a grounded metal enclosure (Ex : metal distribution board), or protected by a grounded metal plate.
- ② If the SPD is used to protect critical equipment, install a Mold Case Circuit Breaker (Recommended MCCB : above 50A rated current) or a Fuse on the electric input side of the SPD. (Ref. Fig.1)

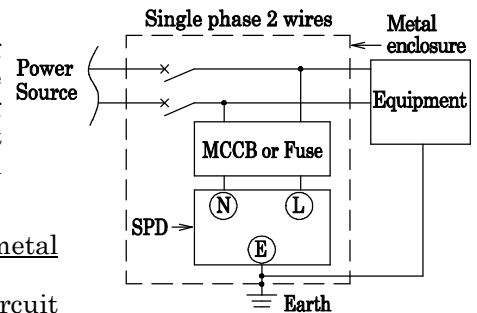


Fig.1 Circuit of the SPD

- b) The SPD may deteriorate, short circuit or in the worst case fail due to the electrical conditions and application environment — keep the following instructions to prevent this happening.
- ① Do not install the SPD on circuits where it is subjected to voltages above specified U_c .
 - ② Do not use the SPD above the peak value of $(U_c \times \sqrt{2} V)$, if DC or AC voltage has incomplete wave shapes.
 - ③ Do not use the SPD in the circuits that are subjected to frequent current surges with a very short interval between them.
 - ④ Do not expose the SPD to high temperature such as direct sunshine or install adjacent to hot object.
(Application temperature : $-25^{\circ}C \sim +70^{\circ}C$)
 - ⑤ Do not expose the SPD to adverse environmental conditions such as rain, wind, steam, dust, and salty air.
 - ⑥ Do not expose the SPD to acid, alkali, corrosion gas, solvent, oil, dust, and salt.
 - ⑦ Handle the SPD carefully to prevent mechanical shock (e.g. drop) or vibration, as this may cause cracking of its plastic housing.

2) Instruction for regular maintenance

The SPD should be disconnected from the circuit by switching off the isolating switch on the electric input side of the SPD, or switching off the MCCB or the Fuse shown in Fig.1, to provide protection from an electric shock.

3) In the unlikely event of failure of the SPD or if there is operation of the Earth Leakage Breaker or MCCB :

- a) Personnel without authorization to work on electrical circuitry — immediately contact the relevant authorized personnel but do NOT touch the SPD.
- b) Authorized person
During inspection of the SPD, it must be isolated from the circuit by switching off the isolating switch on the electric input side of the SPD, or switching off the MCCB or the Fuse shown in Fig.1, to prevent an electric shock.
For details of the inspection procedure, refer to "Regular maintenance" described in item 4 of this manual.

2. Installation method of the SPD

While installing the SPD, do the countermeasures against an electric shock.

- 1) The SPD should be installed shown in Fig.2 or Fig.3.

2) Connection wire

- a) Electric wire with a connector or copper bar should be connected to the SPD.
- b) Tighten the M5 screw slowly not to turn around the terminal clasp. The Tightening torque of M5 screw is $2.0 \sim 2.5 N \cdot m$.

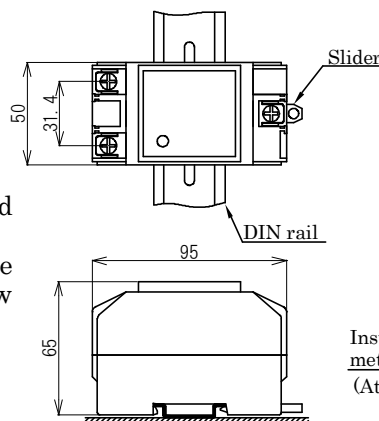


Fig.2 Installation to DIN rail

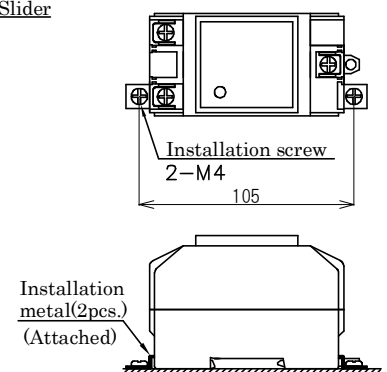


Fig.3 Using the installation metal

- c) Conductor size for the insulated wires used to connect the SPD should be 5.5mm² to 14mm², or copper bar should be used to connect it. Keep the wires used for the connection as short as possible.
- d) The earth of the SPD should be taken on the earth terminal in a distribution board after taking an earth of the distribution board. The earth wire of the equipment should be connected to the earth terminal in the distribution board to increase a protection effect. If the earth wire of the equipment cannot connect to the earth terminal in the distribution board, the earth wire of the distribution board should be connected to the earth wire of the equipment, and both wires should be taken an earth on one point. If it is not connected to the earth wire of the distribution board, the equipment may not be protected.

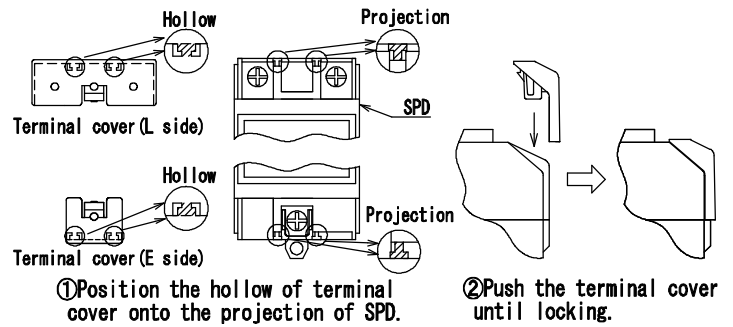


Fig.4 Installing the terminal cover

3) Terminal cover

- a) After connecting the electric wire to the SPD, the terminal cover should be installed on the SPD not to remove it. (Ref. Fig.4)
- b) When the terminal cover is removed, use the tool. (Ref. Fig.5)

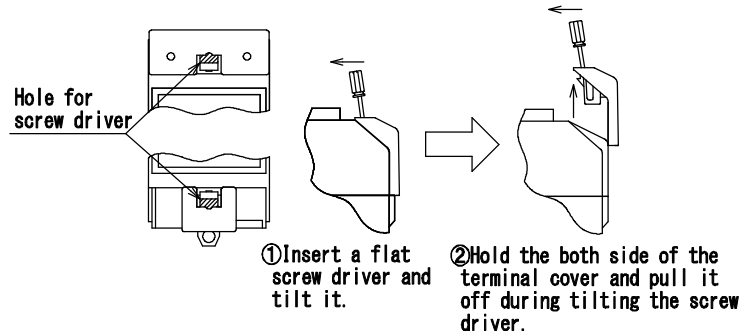


Fig.5 Removing the terminal cover

3. Remote signaling contact (Applied LT-122HTS)

1) Specification

- ① Contact output : Changeover contact “Normally Open” and “Normally Close”
- ② Switching capacity : AC250V/1.5A, DC110V/0.2A
- ③ Application wire : Stranded AWG19 to 16 (about 0.75mm² to 1.25mm²)
Rigid φ0.4mm to φ1.2mm

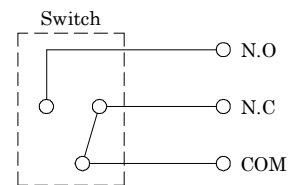


Fig.6 Circuit diagram

2) Using method

Connect the signal wires to the signaling contact terminal. Fig.6 shows circuit diagram.

Contact type	Terminal number
Normally open	COM-N.O
Normally close	COM-N.C

- 3) When the monitoring device is far from SPDs, please install the SPD for protecting the monitoring device from induced lightning on the signal wires. (Ref: Fig.7)

Contact circuit voltage	Applied SPD
AC100V	LT-121
AC200V	LT-122
DC12V	SL-GV12J
DC24V	SL-GV24J
DC48V	SL-GV48J
DC100V	LT-121

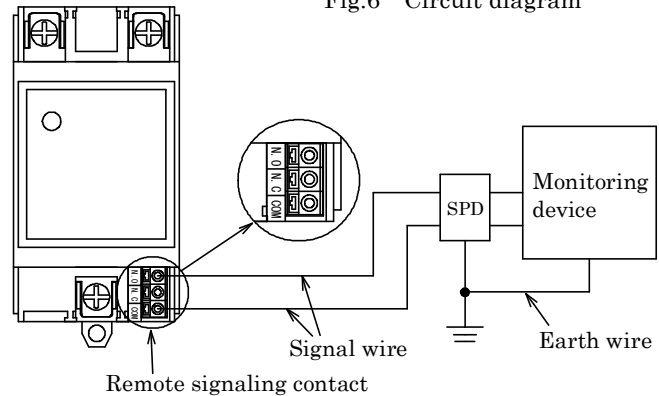


Fig.7 Connection of signal wires (Normally open)

- 4) When connecting the signal wires to the signaling contact terminal, core wire of signal wire should not be out from the terminal.

4. Regular maintenance

- During the lightning season, and after lightning strikes, maintain the SPD as follows.
- When the maintenance, the SPD should be isolated from the circuit by switching off the isolating switch on the electric input side of the SPD, or switching off the MCCB or the Fuse shown in Fig.1, to prevent an electric shock.
- a) If it is noticed that the SPD has strange color or shape, replace the SPD.
- b) Confirm the status lamp turns on as shown in Fig.8 while applying electric power. When the status lamp turns off, replace the SPD. If the SPD fails, its status lamp turns off.
- c) If the insulation resistance between (N) or (L) terminal and (E) terminal is less than 10MΩ by 500V insulation tester, replace the SPD immediately.

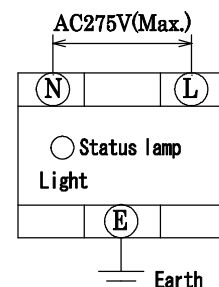


Fig.8 Lighting of the status lamp while applying electric power

5. Company

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