INSTRUCTION MANUAL

No.7136-0663 July, 2020

Power line class I SPD (GDT)
Type LD-22G, LD-25G

OTOWA ELECTRIC CO.,LTD.

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 direct lightning current test specified in class I of IEC61643-11.
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, the SPD may deteriorate, short circuit and in the worst case fail. To prevent these problems from occurring and protect other equipment, follow below instructions.

b) The SPD may deteriorate, short circuit or in the worst case fail due to the electrical conditions and application environment. To prevent this happening, follow below instructions.

① Do not use the SPD in the circuits that are subjected to frequent current surges with a very short interval between them.

② Do not expose the SPD to high temperature such as direct sunshine or install adjacent to hot object. (Application temperature : −40℃ to +85℃)

③ Do not expose the SPD to adverse environmental conditions such as rain, wind, steam, dust, and salty air.

④ Do not expose the SPD to acid, alkali, corrosion gas, solvent, oil, dust, and salt.

⑤ Handle the SPD carefully to prevent mechanical shock (e.g. drop), vibration, or pressure, as this may cause cracking of its plastic housing.

2) Instruction for regular maintenance

When touching the SPD during inspection, it should be confirmed there are no unlikely events such as leakage current flows and so on, to protect against an electric shock.

3) In the unlikely event of failure of the SPD

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 should be confirmed there are no unlikely events such as leakage current flows and so on, to protect against an electric shock. For details of the inspection procedure, refer to "Regular maintenance" described in item 3 on back page.

2. Installation method of the SPD

1) Installation circuit

In the unlikely event of failure of the SPD, and during the inspection of the SPD, follow below instructions to protect other equipment.

a) The SPD should be installed in a metal enclosure. (Ex : Metal distribution board with transparent window)

b)Install the SPD as shown in Fig.1 and install the fuse as an external disconnector on the electric input side of the SPD. Use the fuse and fuse holder from our company's request.

c) If there are any requests from customer, please follow them.

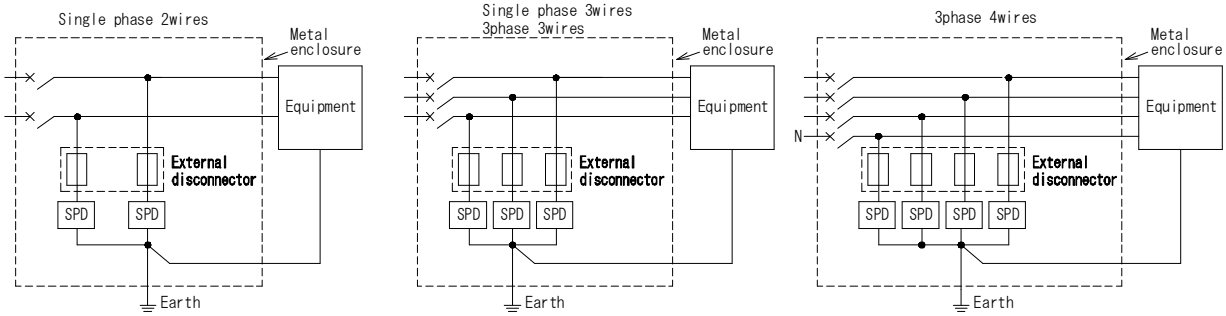

Fig.1 SPD installation circuit

2) Installation method of the SPD

a) The SPD should be installed on DIN rail only.

b) Installation method (Ref.Fig.2) : After positioning the above or bottom slider of SPD on DIN rail, push the SPD on to DIN rail until locking the slider and confirm the SPD not to remove.

c) Removing method (Ref.Fig.3) : Pull the slider by the tool (flat screw driver and so on) and pull off the SPD from DIN rail.

d) Wiring : Applied wire size should be less than 50mm² stranded or less than 35mm² flexible. Tighten the terminal screw after inserting the wire with the length of core wire at 14 to 15mm (Ref.Fig.4). Recommended torque should be 2.5N・m to 3.0N・m. After tightening terminal screws, confirm the wires cannot be pulled off.

e) Keep the wires used for the connection as short as possible, to maximize the effect of the SPD.

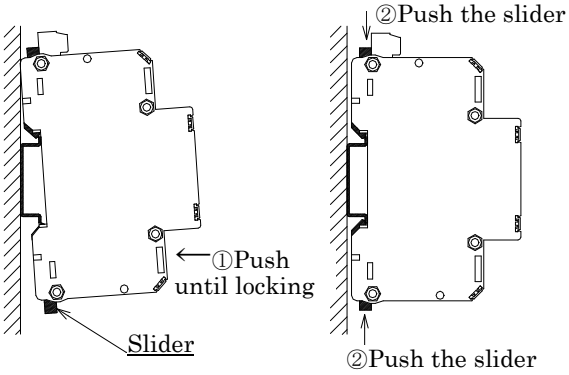

Fig.2 Installation method(Above slider is positioning)

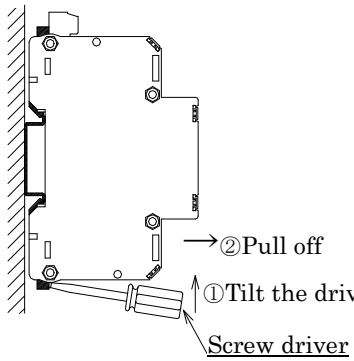

Fig.3 Removing method

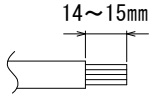

Fig.4 Core wire length

3) Specification of remote signaling contact

This SPD normally equips a remote signaling contact.

a) The specification of remote signaling contact is shown in Table 1.

Table 1 Specifications of remote signaling contact

Switching type	Normal : ON Failure : OFF
Maximum usage voltage / current	AC250V / 2A
Applied electric wire	Stranded wire : max. 1.5mm² Solid / flexible

b) Strip the cover of wire at 6mm to 7mm and insert it into the terminal block. Tighten the screw with the torque of 0.15 to 0.25N・m surely. After tightening screws, confirm the wires cannot be pulled off.

c) When the monitoring device is far from SPD, please install the SPD close to the monitoring device for protecting it from induced lightning on the signal wires.

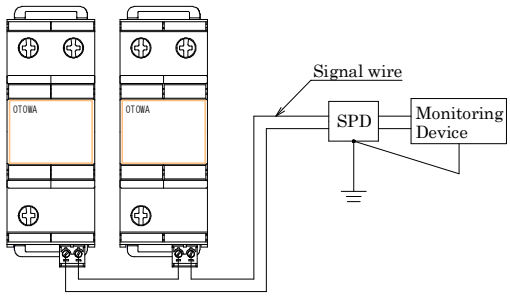

Fig.5 Connection example of remote signaling contact

Table2 Recommended SPD to protect monitoring device

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

3. Regular maintenance

When maintenance, follow below caution items.(Ref.item1 2)Instruction for regular maintenance) Maintain the SPD as follows during the lightning season and immediately after lightning strikes every year.

a) If it is noted that the plastic housing has changed color or shape, replace the SPD.

b) If the remote signaling contact turns OFF, replace the SPD.

c) Confirm the insulation resistance meets the specification as shown in Table 3. If it is out of the specification, replace the SPD.

d) When measuring, disconnect all wires from the SPD.

Table 3 Specification of insulation resistance

Insulation resistance tester	Insulation resistance
500V	More than 100MΩ

Company

OTOWA ELECTRIC CO.,Ltd. (e-mail : overseas@otowadenki.co.jp)
Sales head office : 5-6-20, Shioe, Amagasaki-city, Hyogo Pref. 〒661-0976, JAPAN