

COAXIAL LIGHTNING SURGE PROTECTOR

SP1100

(TYPE: MJ-MJ)

SP3100

(TYPE: NJ-NJ)

SP3100P

(TYPE: NJ-NP)

DIAMOND
ANTENNA

OPERATION INSTRUCTIONS

To use the unit properly, read these instructions thoroughly before using it.
Keep this manual carefully at hand for later use.

⚠ DANGER

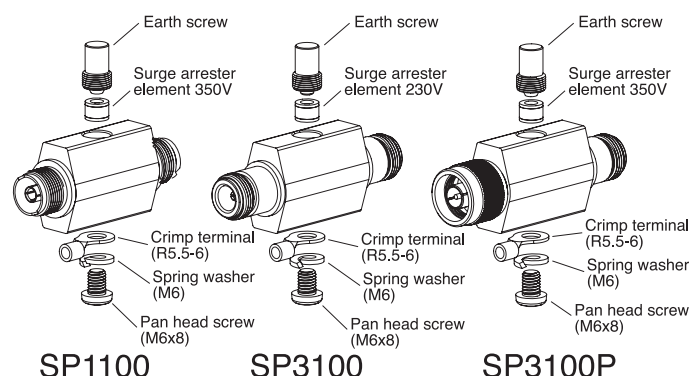
1. To avoid shock, do not touch the unit and a coaxial cable being connected to the unit after the thunder lightning starts.
2. To install the unit, be sure to provide stable foot step to avoid falling down or slipping off from a ladder.
3. To avoid injuring other people, do not drop the unit, parts, or tools.
4. To avoid falling, slipping, or injuring, do not install or inspect the unit under bad weather condition.
5. To avoid causing fire, shock, or injuring, do not connect ground the unit to a gas pipe or water pipe.

⚠ CAUTION

1. Do not share the ground line with other utility ground lines such as power line. It is recommended to separate the unit's ground line from ones in other systems to avoid malfunctioning the unit.
2. Though the unit is designed to work well to protect radio equipment from high surge voltage caused by the static electrocutions or thunder lightning.
3. It cannot protect the equipment from high current and voltage caused by a thunder strike itself. To protect the equipment from the strike, install proper thunder conductor separately.

● Description

1. To achieve maximum safety, the unit employs builtin pressured gas tube surge arrester element to discharge and ground the surge current when it exceeds predetermined discharge voltage.
2. The unit starts discharging at predetermined voltage and stops discharging repeatedly as necessary. It is practically no need to replace the unit. And, if the unit is broken by chance, it is easily accessible to replace the unit without calling a service.
3. Coaxial structure of the unit allows the unit to have good RF performance, broad bandwidth, low insertion loss, and low VSWR.
4. The unit is effective against static electricity that accumulates on antennas in snowy areas. It can also be used to prevent static discharge from the end of a coaxial cable.



● Installation

1. It is recommended to install the unit at the place where has easy access to the grounding point such as the place where a coaxial cable is fed into the building. (Fig 1)
 2. Crimp or solder a copper wire, with 2.5 to 3.2mm diameter, to a grounding lug and connect the other end to buried earth ground. It is recommended to make the grounding line as short as possible.
- ◆ To make good surge grounding take the following precautions in mind and refer to those books specialized in grounding, or consult with specialist.
- Make grounding resistance as low as possible.
 - To make ground contact are as large as possible, use electrode such as copper plate as large as possible.
 - When the antenna is installed on a tower high above the ground, ground the base section of the tower with thick wire (more than 30mm² copper wire or more than 50mm² cross sectional area aluminum wire). Then install the unit at right below the antenna and connect the unit's earth section to the tower to use the tower as effective grounding line.

● Inspection Procedure

To inspect or replace the surge arrester element, remove the ground screw and tilt the surge arrester body to take it out. As a failure inspection method, use an insulation resistance tester; if the resistance value decreases at the DC discharge starting voltage, the element is normal. High voltage is applied during measurement, so be careful to avoid electric shock.
When installing, tighten by hand using your fingertips only.
Do not tighten the ground screw using tools. Doing so may damage the surge arrester element.

Model Name	SP1100	SP3100	SP3100P
Frequency range	DC-1GHz	DC-3GHz	
Impedance	50Ω		
VSWR	Less than 1.2		
Insert loss	Less than 0.3dB	Less than 0.3dB 0-1.5GHz Less than 0.5dB 1.5GHz-3GHz	
Max. power rating	400W PEP	200W PEP	400W PEP
DC breakdown voltage (100V/S)	350V±15%	230V±15%	350V±15%
Max.impulse breakdown voltage (1000/μS)	800V	650V	800V
Nominal impulse discharge current (8/20μS 10 times)	10kA		
Impulse life (10/1000μS 100A)	400 times		
DC holdover voltage	135V		
Insulation resistance	More than 10GΩ		
Connector	M-J / M-J	N-J / N-J	N-J / N-P
Outer dimensions [mm]	66W×39H×20D	78W×39H×20D	77W×39H×20D
Weight (Approx.)	80g	110g	120g

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