Canopy™ Surge Suppressor User Manual

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Notices

Safety Precautions:

Before beginning your installation, *please read and understand the following safety instructions:*

- Before installing the Canopy Surge Suppressor, turn off power to all equipment to be protected.
- Use the Canopy Surge Suppressor only with CAT 5 Ethernet equipment.
- Do not install surge suppressors or lightning protection during a storm.
- The Canopy Surge Suppressor must be connected to an antenna grounding system installed according to Article 810-15, 810-20, 810-21 of the National Electric Code, ANSI/NFPA No. 70-1993. If you have any questions or doubts about your antenna grounding system, contact a licensed electrician.

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GETTING STARTED

WELCOME

Thank you for your purchase of the Motorola Canopy Surge Suppressor. This product will provide protection from damage to computer equipment in your home or business, from near-miss lightning strikes that may occur when using an outdoor antenna or radio.

INTENDED USE

The Canopy Surge Suppressor can be used in conjunction with all Canopy products (Subscriber Module, Access Point Module, and BackHaul Module). The Canopy Surge Suppressor is not intended to be used as protection against a direct lightning strike to your equipment. Consult a licensed electrician for installation of grounding equipment at your particular installation location. The intended audience for this manual is system operators and equipment installers.

DOCUMENT CHANGE HISTORY

New in this issue (Issue 2) of the User Manual:

- Changes and updates to be consistent with CE Listing for use within the European Community.
- Clarification that mounting pipe should extend 4" (10 cm) above the SM for lightning protection
- Addition of section on lightning protection

U.S. WARRANTY

Motorola U.S. offers a warranty covering a period of 90 days from the date of purchase by the customer. If a product is found defective during the warranty period, Motorola will repair or replace the product with the same or a similar model, which may be a reconditioned unit, without charge for parts or labor.

IN NO EVENT SHALL MOTOROLA BE LIABLE TO YOU OR ANY OTHER PARTY FOR ANY DIRECT, INDIRECT, GENERAL, SPECIAL, INCIDENTAL, CONSEQUENTIAL, EXEMPLARY OR OTHER DAMAGE ARISING OUT OF THE USE OR INABILITY TO USE THE PRODUCT (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION OR ANY OTHER PECUNIARY LOSS, OR FROM ANY BREACH OF WARRANTY, EVEN IF MOTOROLA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. (Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply to you.) IN NO CASE SHALL MOTOROLA'S LIABILITY EXCEED THE AMOUNT YOU PAID FOR THE PRODUCT.

PRODUCT DESCRIPTION

The Canopy Surge Suppressor has six (6) basic components as shown in *Figure 1*:

1. Mounting holes— These holes can be used for mounting the Surge Suppressor unit to a flat surface such as an outside wall. The distance between the centers of the holes is 4.25 inches (108 mm).
2. RJ-45 connectors — One side connects to the Canopy product (Access Point, Subscriber Module, Backhaul Master or Slave or Cluster Management Module), the other side connects to the AC adaptor's Ethernet connector.
3. Ground post – use heavy gauge (10 AWG or 6 mm^2) copper wire for connection. Refer to local electrical codes for exact specifications.
4. Ground Cable Opening – Route the 10 AWG (6 mm^2)ground cable through this opening.
5. CAT-5 Cable Knockouts – Route the two CAT-5 cables through these openings.
6. Conduit Knockouts – Two large knockouts, located on the back of the case near the bottom, are available for installations where cable is to be routed through building conduit.

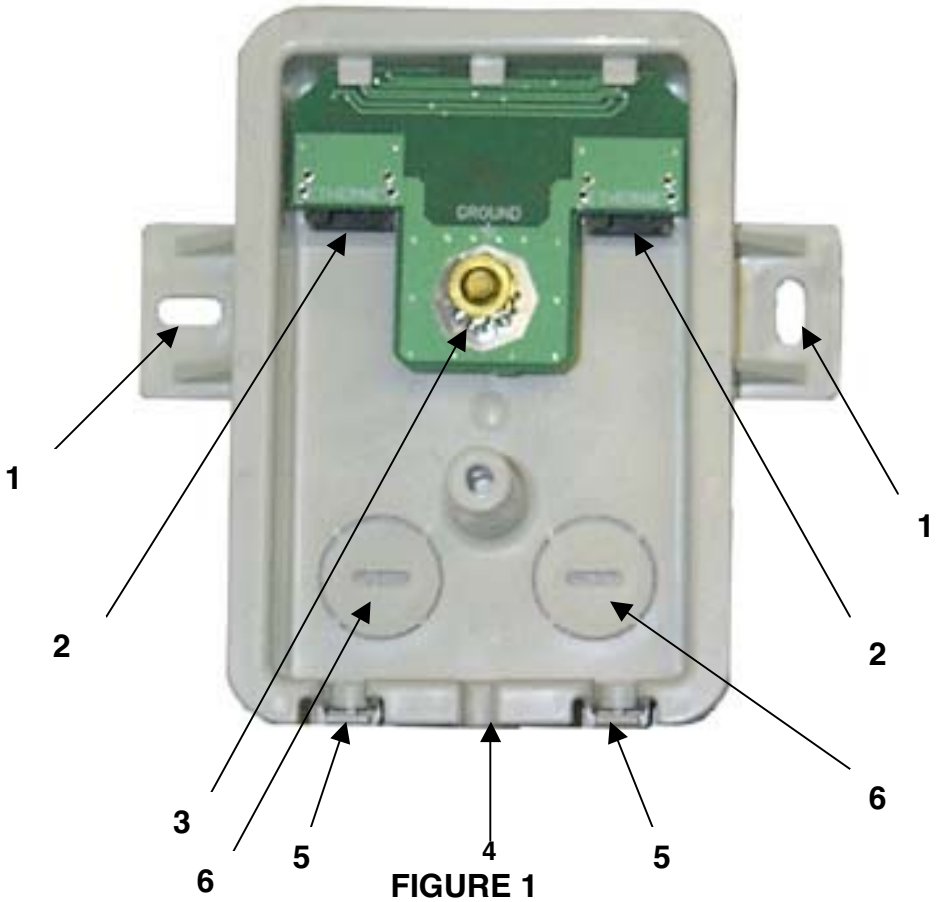


FIGURE 1

INSTALLATION

PREPARATION

Tools required

- Ethernet crimping tool
- UV rated CAT-5 cable
- RJ-45 connectors
- Philips screwdriver
- Long nose pliers
- 7/16” nut driver
- drill

PROCEDURE

Perform the following steps to install the Canopy 300 SS.

1. Remove the Canopy Surge Suppressor cover by removing the screw located on the front of the unit.
2. Mount the Surge Suppressor to a surface outside of the premise using the two (2) mounting holes shown in FIGURE 1. **Be sure to mount the unit with the cable openings facing down.**
3. Using diagonal cutters or long nose pliers, remove the knockouts covering the CAT-5 cable or conduit openings, as appropriate.
4. Connect an Ethernet cable, between the power adapter Ethernet socket (pig tail) and either one of the RJ45 sockets on the Canopy Surge Suppressor.
5. Connect an Ethernet cable, between the other RJ45 socket on the Canopy Suppressor and the RJ45 socket on the Canopy product.
6. Connect a ground wire by wrapping it around the ground post and tightening the locking nut. The ground wire should be made of heavy gauge (AWG10 or 6 mm^2) copper wire. Consult National Electrical Code (NEC) other country codes and local electrical codes for requirements on connection to grounding system.
7. Replace the Canopy Surge Suppressor cover.

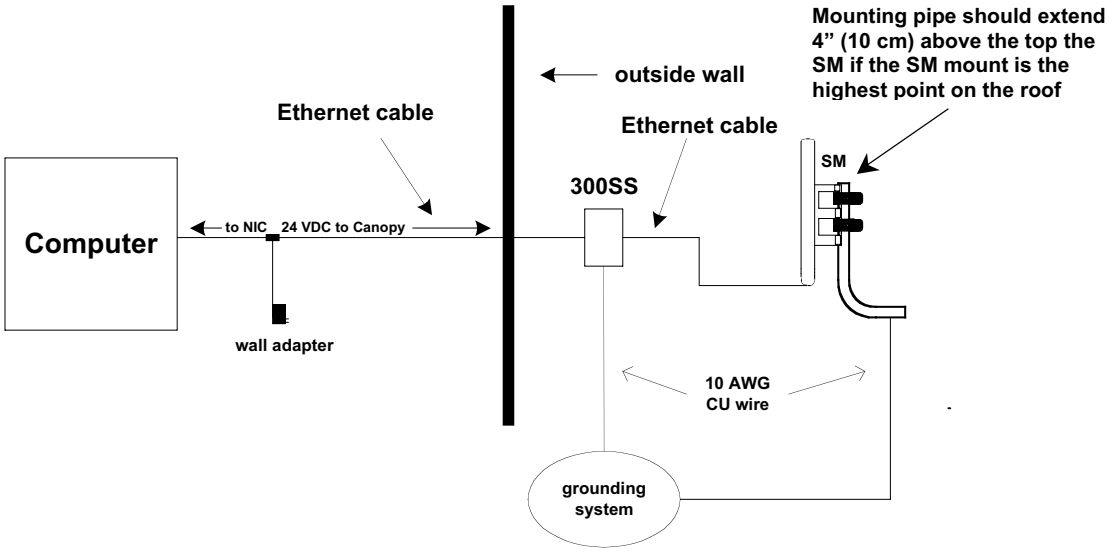
PLACEMENT

The following are descriptions of two different installation placements, using the Canopy Surge Suppressor in combination with other Canopy products. (Access Point, Subscriber Module, Cluster Management Module, and BackHaul module).

With a Subscriber Module

The Surge Suppressor is installed on the outside of the buiding between the Subscriber Module and the computing equipment.

Wiring Diagram of Canopy Subscriber Module to Computer with Surge Suppressor



With an Access Point, Cluster Management Module, or BackHaul Module

The Surge Suppressor is installed between the Canopy equipment and the networking equipment. , If a network feed is being introduced into the Cluster Management Module, the Surge Suppressor must be placed on the Ethernet cable from the networking equipment (switch/router) to the Cluster Management Module.

SPECIFICATIONS

Dimensions	H 5.2” x W 5.0” x D1.7” H 132 mm x W 127 mm x D 43.2 mm
Space between mounting holes	4.25” (108 mm)
Size of knockouts CAT-5 Conduit	 0.25” (6.35 mm) 0.75” (19 mm)
Weight	0.4 lbs. (180 g)
Operating Temperature	-40ºC to +55ºC (-40ºF to 131ºF)
Internal Connectors	RJ-45
Capacity	1500 Watts peak pulse dissipation with 10μs /1000μs waveform, repetition rate (duty cycle): 0.01%
Clamp voltage	35V

NOTES ON LIGHTNING PROTECTION

A properly designed lightning protection system provides a path for lightning current to travel. The system neither attracts nor repels a lightning strike, but simply intercepts and guides the current harmlessly to ground. A lightning protection system is generally made up of several components.

Air Terminals: (lightning rods etc.): Inconspicuous slender rods installed on a roof or tower as defined by industry standards. In some cases, these rods are placed on a tower leg opposite to the one on which the radio(s) is mounted. This is to direct the lightning strike away from the equipment.

Conductors: Aluminum or copper cables that interconnect the air terminals and the other system components such as copper grounding plates.

Ground Terminations: Metal rods driven into the earth to guide the lightning current harmlessly to ground (usually steel with copper cladding).

Surge Arrestors and Suppressors: Devices that are installed in conjunction with a lightning protection system to protect electrical wiring and electronic systems and equipment. These devices should be installed at intervals along the leg of a tower (or as designated by the tower owner), and at the point of entrance of the cable into a building.

A lightning protection system is designed to control or redirect a lightning strike on a specified path. The system does not prevent a strike, but provides a path on which the electrical current can safely be directed to ground. A properly designed lightning protection system will not attract a bolt of lightning.

Designing a grounding system prior to installing radios, antennas or other equipment on a roof or tower structure is critical to minimize the possibility of damage to equipment and serious injury to personnel.

When in doubt, consult local and national electrical codes or contact an electrician or professional trained in the design of grounding systems.

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