

**DANGER**

This Quick Installation Guide is not a replacement for adequate training and safety procedures for this product. Read S&C Instruction Sheet 1069-500 thoroughly and carefully before using this Quick Installation Guide and installing and operating your IntelliCom WAN Mesh Radio. Failure to have adequate training and understanding of these instructions may lead to serious injury or death.

**WARNING**

The IntelliCom WAN Mesh Radio is intended to be installed, operated, and maintained by qualified persons who are knowledgeable in overhead electric power distribution equipment and the associated hazards. For more information on the requirements of a qualified person, see the "Introduction" section of 1069-500. These instructions are not intended to be a substitute for adequate training and experience in safety procedures for this type of equipment.

Model	Use	No. of Radios
1720	Worldwide 2.4, 4.9, 5 GHz	1 or 2

The IntelliCom WAN Mesh Radio contains two radios. The number of radios that will be active is determined by the license. The license also enables operation in **802.11n MIMO** mode.

**Package Contents**

If missing any items, contact S&C Electric Company.

- IntelliCom WAN Mesh Radio in NEMA-4X enclosure with weatherproof caps
  - (a) Six N to reverse-polarity SMA adapters
  - (b) Mounting bracket for pole and wall mounting (designed to fit 37-mm (1.5-in.) to 50-mm (2-in.) poles)

- Mounting kit
  - (a) U-Bolts, M6x1.0-80 mm, with flat and split washers, nuts
  - (b) Claw-tooth pole grippers
  - (c) M6x1.0-40 mm hex bolt
  - (d) M6x1.0-20 mm hex bolt
  - (e) Hex-head socket wrench
- Temporary staging antennas
  - (a) Six dual-band omnidirectional INDOOR antennas (**Note:** Do not use indoor antennas outdoors)
- AC power cord
- Documentation
  - (a) IntelliCom WAN Mesh Radio Quick Installation Guide
  - (b) Warranty and registration card
- Compact disk (CD)
  - (a) S&C IntelliCom® View Pro Network Management Software
  - (b) IntelliCom View Pro Reference Guide
  - (c) IntelliCom WAN Mesh Radio installation instruction sheet
  - (d) Warranty/registration card
  - (e) EULA

**Required Tools and Supplies**

- #2 Phillips screwdriver
- Small adjustable wrench
- 10 AWG grounding cable, connectors, and rod
- Weatherproofing kit—Provides electrical tape and butyl mastic
- Hose clamps, band clamps, U-bolts, or similar brackets suitable for mounting the antennas to the chosen antenna mast

Depending on the installation location, ladders, a lift truck, or other means may be needed to access the actual installation locations.



Figure 1. IntelliCom WAN mesh Radio.

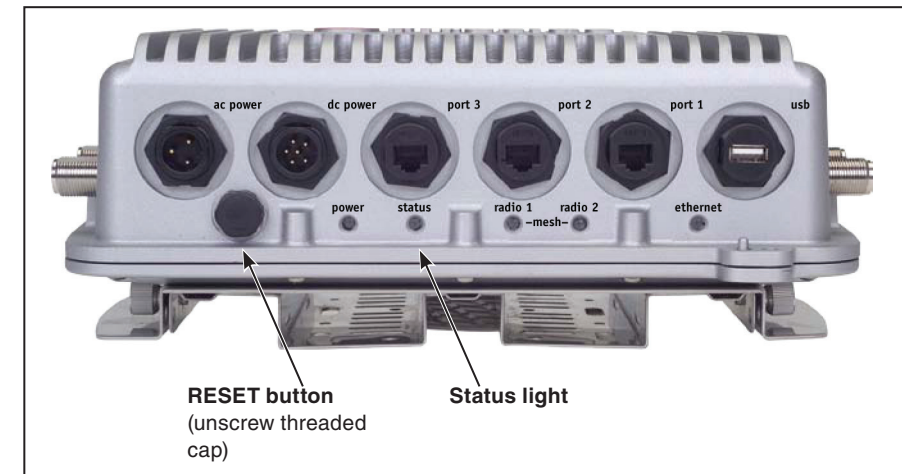


Figure 2. Cable connections

**Connecting Cables**

After the radio is mounted, attach the antennas, the power cable, and any Ethernet cables needed. Note that all of the weatherproof caps have been removed from the radio for illustrative purposes. **Do not leave any unused connector uncovered.**

Note the location of the RESET button under the black weatherproof cap. To perform a factory reset on the unit, power it on and wait for the status light to come on. Then, press and hold the RESET button until the status light blinks (about 15 seconds). See Figure 2.

Connect the supplied ac power cable to ac power and to the IntelliCom WAN Mesh Radio. **Do not connect both ac and dc supplies simultaneously.**

Ports 2 and 3 on the IntelliCom WAN Mesh Radio can provide Power over Ethernet (PoE) functionality to powered devices connected to these ports. Port 1 cannot. A powered device can receive data and the power to process the data from the IntelliCom WAN Mesh Radio, which functions as power sourcing equipment in this configuration. To receive power from the IntelliCom WAN Mesh Radio, the device must support the IEEE 802.3af standard, which defines PoE functionality.

Remember to order permanent outdoor antennas. **Do not use the staging antennas outdoors; they may fail.**

When connecting antennas, connect them in numerical order 1-2-3. If you are not using three antennas per radio, do not skip antenna connectors. The antenna 1 connector is at the top of the unit (farthest from the power and Ethernet connections) on both the left and right sides. See Figure 3.



Figure 3. Antenna ports.

For assistance, contact S&C Headquarters at (773) 338-1000; in Canada, call (416) 249-9171, or visit S&C's website at [sandc.com](http://sandc.com) to find an office in your area.

## Planning the Installation

### Staging Considerations

Set up and test the radios indoors, on a bench or table, before installing them. This will allow preconfiguring the radios so they are all on the same RF channel. Use IntelliCom View Pro software to configure the IntelliCom WAN Mesh Radios and create a small mesh network. Test the network settings you plan to use.

**STEP 1.** Check that all radios (nodes) are visible in the IntelliCom View Pro software. If not, troubleshoot per directions in the IntelliCom View Pro software reference guide.

**STEP 2.** Set the country code for your country of operation.

**STEP 3.** Re-verify that all radios are visible, and verify that dual-radios have both radios correctly meshed.

### CAUTION

The staging antennas provided with IntelliCom WAN Mesh Radios are for temporary use only. They MUST be replaced with outdoor-rated antennas as soon as the mesh is staged and operational. The staging antennas are NOT waterproof and NOT moisture-resistant. If used outdoors, the antennas may fail.

The supplied CD includes a copy of the IntelliCom Accessory Guide. Contact S&C for assistance in selecting outdoor antennas suitable for your application(s).

- It is often easier to install all devices on the pole and then attach the pole to the roof. In many cases, connecting the devices to a pole already attached to the rooftop can be difficult and dangerous.
- A lightning surge suppressor must be used. Some antennas include one. If not, install a lightning surge suppressor.
- Locate the IntelliCom WAN Mesh Radio close to the antenna; a short antenna cable provides better performance than a longer one. Antenna cables less than 3 meters (118 inches) in length are recommended.
- The IntelliCom WAN Mesh Radio and its antenna must both be grounded.
- Use non-vulcanized rubber weatherproofing kits to weather-proof connectors and antennas.

## Preparing Earth Ground

### DANGER

The IntelliCom WAN Mesh Radio must be properly connected to earth ground.

The product warranty does not cover damages resulting in part or in whole from improper grounding. Consult your location's building and electrical codes regarding antennas and follow them, or consult the National Electrical Code (NEC) Guide.

- If connecting to a tower or pole, connect the base of the tower pole directly to the building's ground or to one or more approved grounding rods using 10 AWG ground wire and corrosion-resistant connectors.
- Connect the grounding cable to rain gutters only if the rain gutter is connected to earth ground.
- Ground rods should be copper, 1.8 to 2.4 meters (6 to 8 ft.) long.
- Install all grounding components in straight lines. If bends are unavoidable, do not make sharp turns.
- Earth-to-ground should not be more than 10 ohms.

## Antenna Placement

The use of antennas specifically designed for MIMO applications is recommended. While it is possible to select and mount six individual antennas, determining correct placement and spacing is difficult. Use an antenna engineered for best results with MIMO.

## Mounting Bracket

Your IntelliCom WAN Mesh Radio shipped with a two-piece mounting bracket.

The assembly is shown in Figure 4. To mount the radio, remove the outer piece by loosening the thumb screws.

The inner bracket can be left attached to the radio, as shown below.

## Mounting the Universal Bracket

You can mount the enclosure to a wall, a light pole, or an irregularly shaped pole. The universal mounting bracket has been designed with multiple holes and slots to allow mounting with bolts, straps, or other methods. Extra nuts and bolts are provided for this purpose; don't be concerned about leftover fasteners when installation is complete.



Figure 4. Universal mounting bracket.

## Removing the Bracket

The bracket ships already attached to the IntelliCom WAN Mesh Radio. Begin by removing it. This is done by loosening the four Phillips screws, two on each side. Next, slide the plate down, toward the connector side of the IntelliCom WAN Mesh Radio. This releases its tabs from the radio.

## Wall Mounting

The universal mounting bracket contains holes and slots to allow it to be mounted via U-bolts or straps. Use four screws (not supplied) to attach the universal mounting bracket securely to the wall using the four holes near the top and bottom of the universal mounting bracket. Use appropriate anchors when attaching to masonry or other materials.

## Pole Mounting

**STEP 1.** Insert the two U-bolts through the holes in the claw-toothed pole-gripper piece.

**STEP 2.** On each U-bolt, place a washer, a lock washer, and a nut. Smaller pole diameters usually require a second nut as a spacer to hold the bracket away from the U-bolt clamp. Finger-tighten the nuts. There should be about 12-15 mm ( $\frac{1}{2}$ - $\frac{5}{8}$  inches) of U-bolt sticking out past the second nut.



Figure 5. U-bolt mounted on pole.

Mount the second U-bolt. Use the mounting bracket as a guide to correctly space the two U-bolts, then tighten the nuts. A

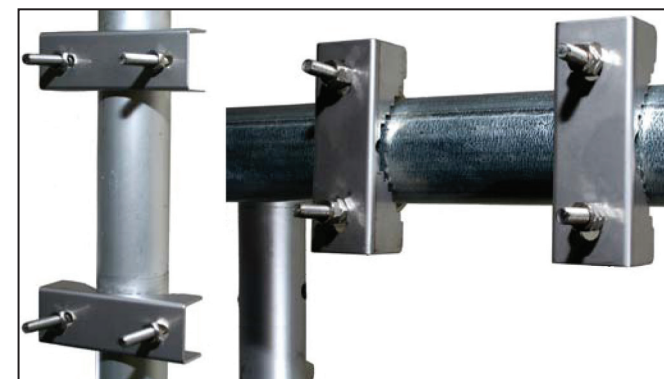


Figure 6. U-bolts, vertical and horizontal mounting.

horizontal pole-mount is also shown for reference.

Use lock washers and nuts to secure the bracket to the U-bolts. Installation on a horizontal pole is the same; you just use different holes in the mounting plate.



Figure 7. Mounting bracket showing use of spacer nuts.

This shows the use of spacer nuts when mounting to smaller poles. An open-end wrench is useful for tightening the inner nuts in these applications.

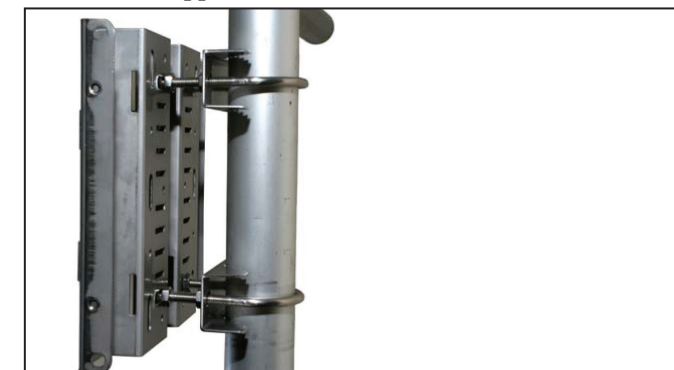


Figure 8. Universal mounting bracket attached to pole.

## Using Mounting Straps

For poles with diameters larger than 50 mm (2 inches), irregularly shaped poles, or light poles, you can use mounting straps (not supplied) to mount the IntelliCom WAN Mesh Radio enclosure.

**STEP 1.** Position the universal mounting bracket against the pole.

**STEP 2.** Thread two mounting straps around the pole and through the slots located near the top and bottom of the universal mounting bracket. Secure the mounting straps.

**STEP 3.** Attach the enclosure to the universal mounting bracket by sliding the metal clips on the back of the enclosure into the metal straps on the universal mounting bracket.

Secure the enclosure to the universal mounting bracket using the four captive screws on the sides of the universal mounting bracket.

## Mounting Antennas

Most applications use separately mounted antennas; if so, mount the antennas now. If using the temporary staging antennas, attach the IntelliCom WAN Mesh Radio.