



Eclipse

User Manual

Version: 8.16

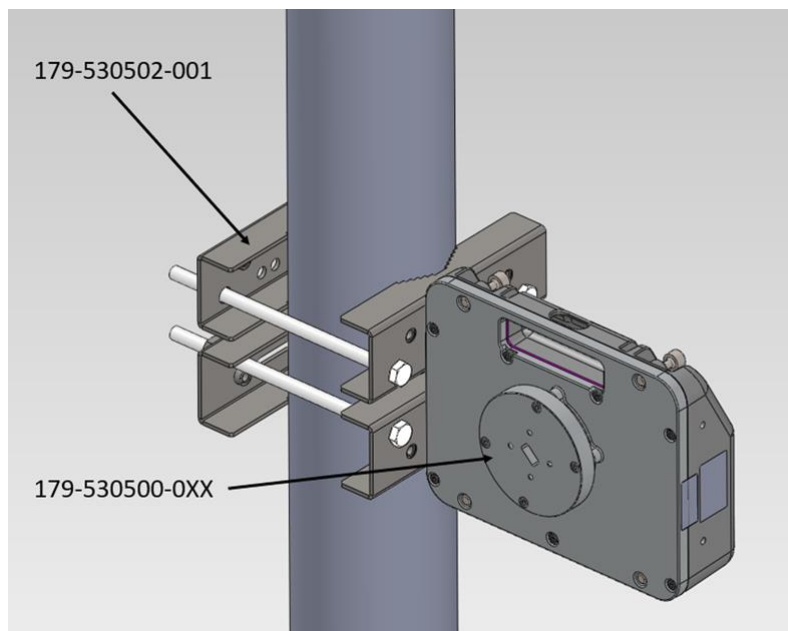
260-668066-001

GA Release



Remote mounts

The following figure shows an ODU 600v2 installed on remote mounts.



179-530502-001 is a lower cost and less robust mount.

To address installations needing a more robust mount, 179-530514-001 is also offered.

Figure 37: Remote Mount - 179-530514-001

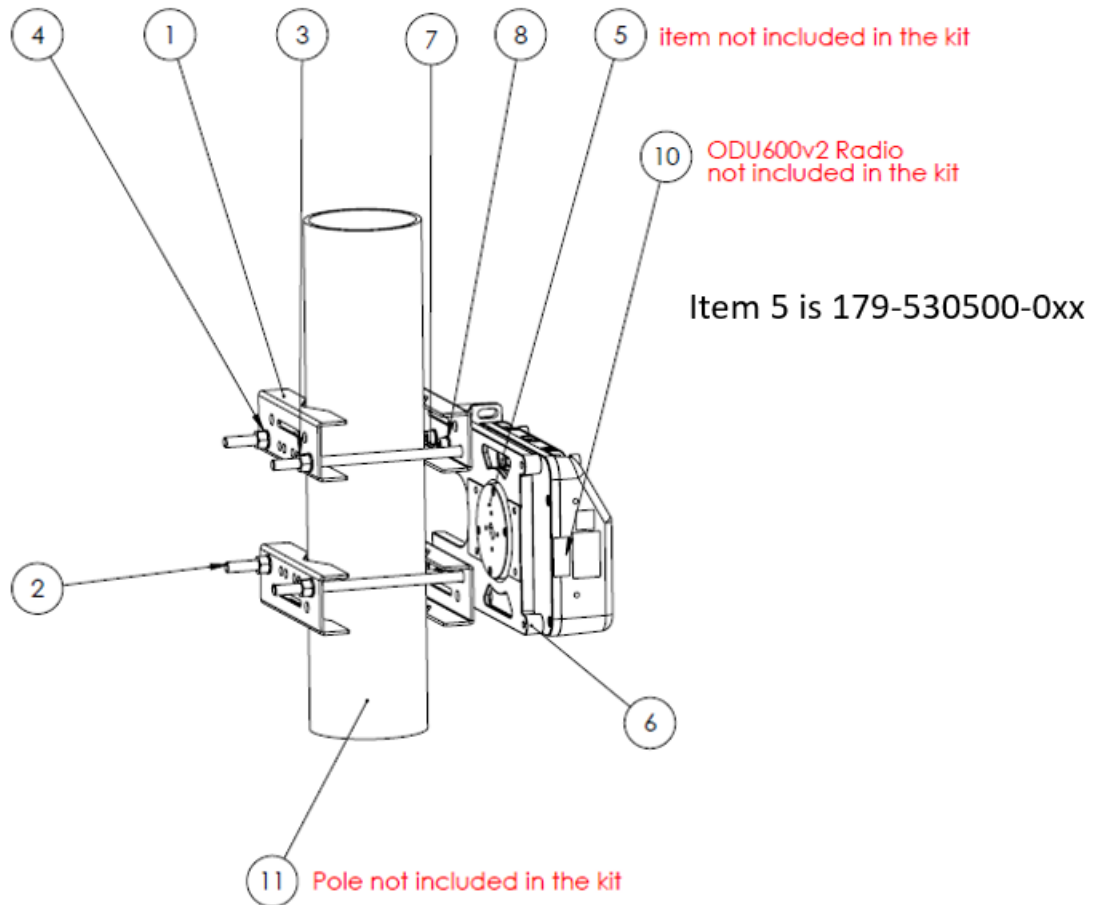
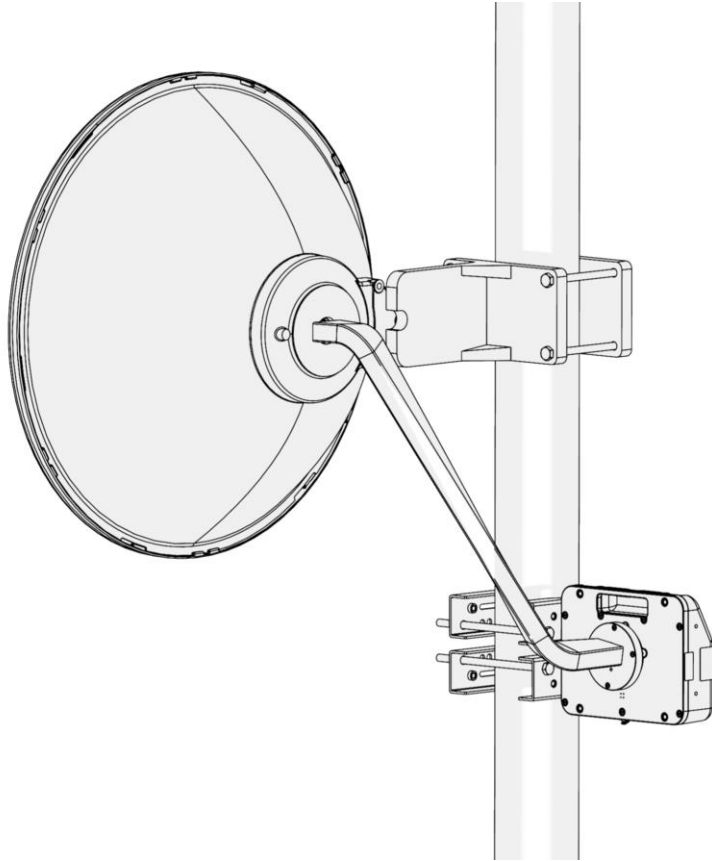
179-530514-001

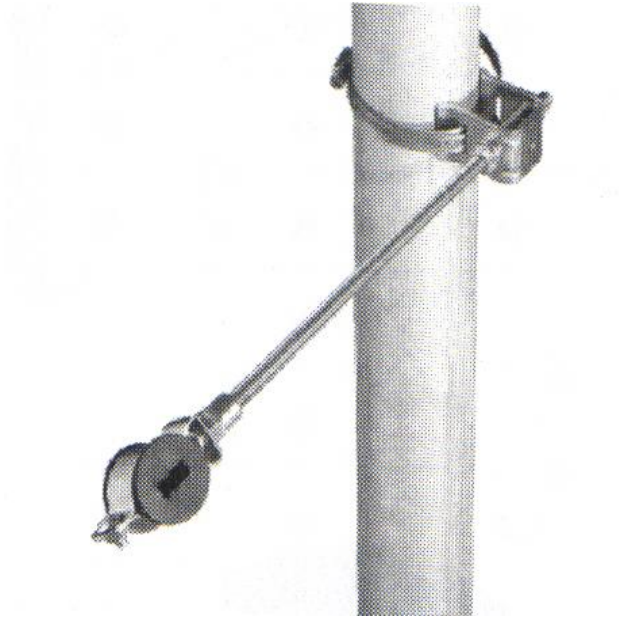
Figure 38: Remote Mount Installed with Antenna

Flexible waveguides

Flexible waveguides are band specific and are normally available in 900 mm (3 ft). Both flange ends are identical, and are grooved for a half-thickness gasket, which is supplied with the waveguide, along with flange mounting bolts.

To prevent wind-flex, a flexible waveguide or coax must be suitably fastened or supported over its length. Where it is not possible to fasten directly to the support structure, hanger assemblies are recommended, comprising a stainless-steel clamp, threaded rod, and a form-fit rubber grommet. The following figure shows a typical assembly.

Figure 39: Flexible Waveguide Hanger Assembly



Note: The flexible waveguides have tin-plated brass flanges to minimize dissimilar-metal corrosion between the aluminum feed-head on the ODU and the brass antenna port(s) used on most standard antennas.

ODU 600v2 coupler and XPIC remote mount

Here is the general procedure for coupler and XPIC remote mounting.

Step	Action
1	Mount four pole clamps to the pole.
2	Remove protective tape from the Coupler/XPIC output antenna port. Fit the O-ring into the groove on the WG adaptor and apply a thin layer of silicon grease around the O-ring.
3	Attach the WG adaptor to the Coupler/XPIC antenna port using four M4 screws, Tighten screws to correct torque: 2.5Nm.
4	Attach the Coupler/XPIC to the pole clamps using four M8mm screws, Tighten screws to correct torque: 16 Nm.
5	Remove protective tape from the Coupler/XPIC input port. Fit the O-ring and apply a thin layer of silicon grease around the O-ring.
6	Engage the ODU. Tighten the bolts to correct torque: 20 Nm.

Figure 40: Locations for Cable Grounds and Surge arrestors

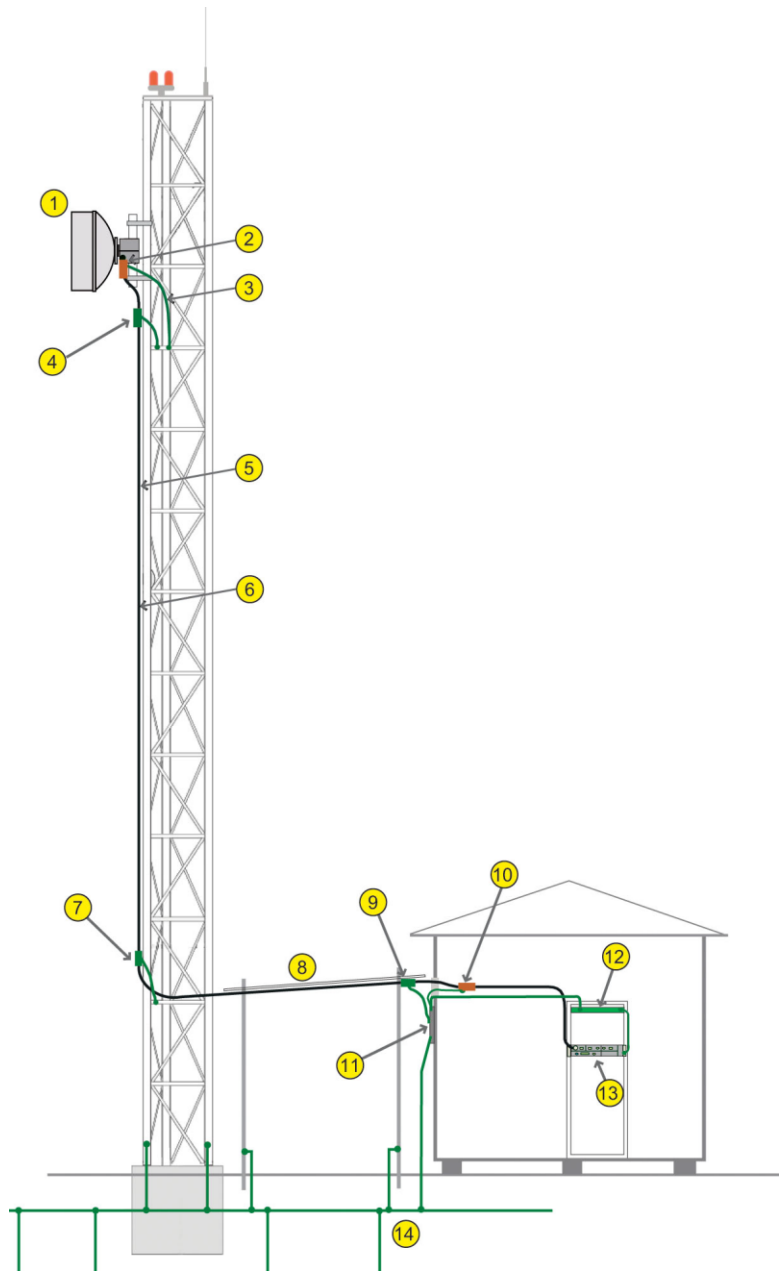


Table 10: Item Key

Item	Description
1	ODU and antenna
2	Lightning surge arrestor
3	arrestor and ODU ground wires
4	Cable ground
5	The ODU cable must be supported by black cable (UV resistant) ties at intervals no greater than 1 m (3 feet). The ODU cable must not run adjacent to tower lightning ground or electrical cables.
6	If the height of the cable on the tower exceeds 50 m (165 feet), install additional cable grounds at not more than 23 m (80 foot) intervals.
7	Cable ground
8	Cable carrier
9	Cable ground

Item	Description
10	Lightning arrestor
11	External master ground bar
12	Rack ground bar
13	INU/INUe
14	Site grounding grid/radials

Type N cable connectors

For recommended connectors and cable trim dimensions see ODU Cable Connector and Ground Kit Installation Instructions.



Note: All Type N connectors used outdoors *must* be weatherproofed. See [Weatherproofing](#) (on page 112).

Ensure connectors are correctly fitted. Where crimp connectors are used, ensure the correct crimp tool is used.

Jumper cables

A jumper cable is required from the INU/INUe, to the lightning surge arrestor installed at the building entry.

A 3 m jumper cable is included with each RAC, fitted with an SMA male connector at the RAC end and a Type N female at the arrestor end. If the run length is greater than 3m, an extension cable must be prepared to extend the jumper reach, using the ODU cable with Type N connectors fitted at both ends.

Installing Lightning Surge Arrestors



Caution: Incorrect equipment and cable grounding and a failure to correctly install lightning surge arrestors can invalidate the warranty.

If circumstances do not permit normal installation practices or do not appear to warrant a normal installation, the consequences and/or recommended solutions should be confirmed with the help desk or approved installation companies.

An arrestor should also be installed at building entry to provide added protection to the indoor equipment. Where specified by the site owner or by local regulations, it **must** be installed.

For more information on recommended installation practices for lightning protection, refer to the *Aviat Best Practices Guide*.



Note: While an internal matrix-type arrestor is standard on ODU 600v2, an additional external ODU arrestor may still be required to comply with local installation practices in regions that experience severe lightning strikes.

For external arrestor installations, the supplied arrestor (Universal Lightning Arrestor) is an in-line matrix type. It has a DC-blocked RF path with multiple protection stages in the parallel DC path. These arrestors are designed to withstand repeated strikes and in the event they do fail, they hard-fail so as not to cause uncertain or intermittent operation.

Ground resistance testers

Grounding bonding is the key to effective surge protection.

Transients will go to ground via some path; it is important that is not via the ODU or RAC/ Chassis.

Earth leads need to be directly connected to ground, no coils or right-angle bends (low impedance Z not just low resistance is essential).

Conventional multimeters are not good enough, test any installation with an instrument made to measure impedance to ground. Examples are shown below.

DGC-1000A Clamp Ground Resistance Tester

The Amprobe DGC-1000A clamp ground resistance tester, designed for use by electricians and electrical contractors, measures ground resistance, current, and continuity in multi-grounded electrical systems. This true RMS (root mean square) meter provides accurate readings when measuring linear or non-linear loads where the current or voltage has a sinusoidal or nonsinusoidal waveform. The clamp-on head enables the user to measure resistance on a ground rod in a multi-ground system without the use of auxiliary ground rods and without disconnecting the other grounds.

DGC-1000A Features

- Accurate ground resistance measurement from 0.025 to 1,500 Ohms
- True-rms current measurement including leakage current
- Accurate readings regardless of power quality in less than 10 seconds
- Continuity beep if the resistance is lower than 40.00 Ohms
- Simple and easy to use, no test leads or auxiliary electrodes necessary
- Data logging capability - 116 records
- Individual data point recording
- User selectable high & low ohm audible alarms
- Auto power off (can be disabled)
- Low battery indicator
- Large LCD display
- Safety: Category III 300 V and Category II 600 V



DGC-1000A
Clamp Ground Resistance Tester



Lightning arrestor kits

The ULA (Universal Lightning Arrestor), type 179-530062-00x, is a compact cylindrical inline arrestor.

A simple hybrid, RF directly connected between input and output. Surge shunted by a Gas Discharge Tube and a pair of Metal Oxide Varistors.

Two versions are available, N-female to N-female, or N-male to N-female

The ULAs are bi-directional - they can be installed with either connector facing the ODU.

The ULA kit includes a ground wire, crimp lug, washer, nut and O-ring. The ground wire is terminated at one end for connection to the ULA, and is un-terminated at the other to enable correct cutting-to-length and the fitting of the crimp lug.

Figure 41: Universal Lightning Arrestor Kit



A higher specification arrestor is available, 074-301008-001, for high lightning strike areas.

Figure 42: Surge Suppressor



A complex hybrid circuit design incorporates several different over voltage devices and RF isolating technologies. The DC is decoupled from the RF path, and passes through coordinated protection devices, and re-coupled to the RF path.

Arrestor installation at building entry

This section describes installation of an arrestor at the building-entry end of the ODU cable.



Note: The building entry arrestor must be grounded to the master ground bar at, or just below, the cable point of entry. For details on master ground bar location, refer to the *Best Practices Guide*.

The ULA is intended for bulkhead-mounted on the wall-feed-through plate, or within the cable tray just inside the building.

Bulkhead installation: Grounded copper entryway plate

The ULA ground wire is not required if the ULA is directly mounted to a properly grounded copper entryway plate. This plate can either be a feed-through plate forming the entryway itself, or a ground termination strip just inside the shelter entryway. The figure below illustrates the grounded entryway option.

Figure 43: ULA Installed in Copper Plate Entryway

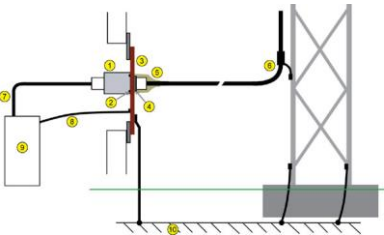


Table 11: Item Key

Item	Description
1	Lightning Surge arrestor

Item	Description
2	Rubber seal
3	Copper entryway plate
4	Star washer and nut
5	Mastic weatherproofing
6	Cable ground kit
7	Jumper cable
8	Rack ground wire
9	Equipment rack
10	Site ground system

Procedure

Step	Action
1	Carefully knock-out or drill for an N connector in the wall entryway plate. Where provided, select a knockout with flats.
2	Install the ULA using the O-ring, star washer and nut provided. Check the O-ring is correctly located within its groove, and up against the inside face of the plate.
3	Trim the ODU cable to length, fit an N male connector, and attach to the ULA.
4	Weatherproof the external N connector assembly using mastic and vinyl tape. See Weatherproofing (on page 112).
5	Install a jumper cable from the ULA to the indoor radio unit.

Bulkhead installation: Non-grounded / Non-master entryway plate

The ULA ground wire is required if the ULA is mounted to an un-grounded entryway plate or a plate made from non or poor conductive material (aluminum is considered a poor conductor).

Figure 44: ULA Installed in Non-grounded Entryway Plate

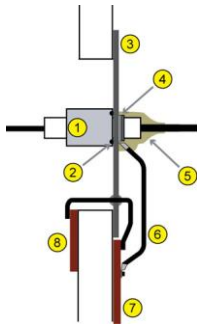


Table 12: Item Key

Item	Description
1	ULA
2	Rubber seal
3	Entryway plate (not copper)
4	Star washer and nut
5	Mastic weatherproofing
6	Ground cable
7	External ground bar
8	Internal master ground bar

Procedure

Step	Action
1	Carefully knock-out or drill for an N connector in the wall entryway plate. Where provided, select a knockout with flats.
2	Install the ULA using the O-ring, ground wire, star washer and nut provided. Check that the O-ring is correctly located within its groove, and up against the inside face of the feed-through plate. Ensure that the ground wire cable is pointing down.
3	Trim the ground wire to length allowing a little slack in the wire when connected to the external ground bar. Fit the crimp lug supplied to the trimmed end of the ground wire and firmly bolt it to the ground bar.
4	Trim the ODU cable to length, fit an N-type male connector, and attach to the ULA.
5	Weatherproof the external N connector assembly using mastic and vinyl tape. See Weatherproofing (on page 112).
6	Install a jumper cable from the ULA to the indoor radio unit.

Building entry installation

Determine where the ULA is to be located. This should be just inside the building, and as close as practical to the entry point – no more than 1m (3ft) from the entryway. A location must be chosen that ensures that the body of the ULA will not be in electrical contact with any metal structure (cable tray or similar support structure). If necessary it should be mounted to the metal support structure using a ceramic or porcelain insulator.

Figure 45: ULA Installed Inside

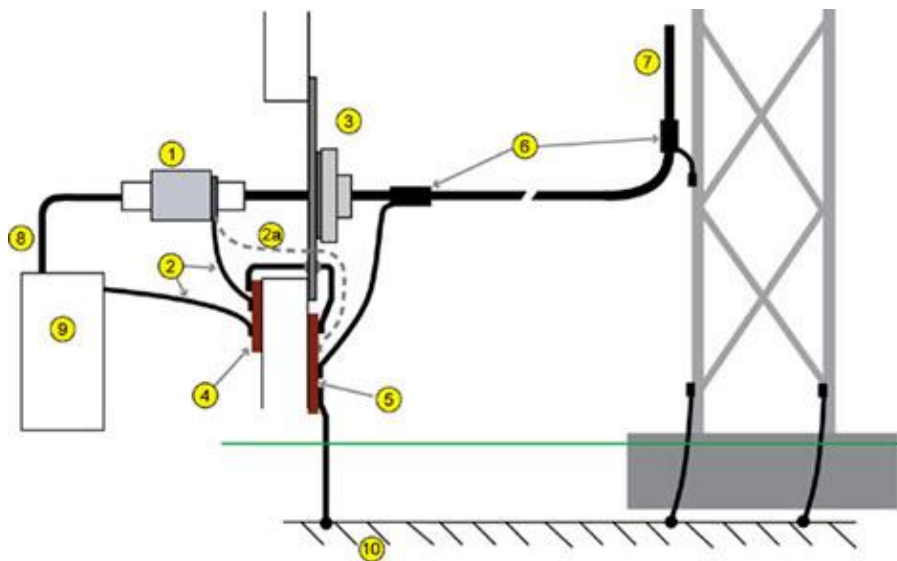


Table 13: Item Key

Item	Description
1	Lightning Surge arrestor
2	Ground wire
2a	Preferred path for ULA ground wire
3	Wall gland
4	Internal master ground bar
5	External ground bar
6	Cable ground kit
7	ODU cable
8	Indoor unit to arrestor jumper cable
9	Equipment rack