The Global Leader in Resilient **PNT**

# GPS/GNSS Passive Anti Jam Outdoor Antenna

## Horizon Blocking Antenna Technology: Model 8230AJ

- High bandwidth to receive GNSS signals:
  - GPS L1
  - GLONASS L1
  - BeiDou B1
  - Galileo E1
  - QZSS L1
- Unique conical antenna pattern rejects interference from the horizon
- Drop in replacement for the Model 8230 Outdoor Antenna for use in high interference situations
- Uses the same cabling as the current Model 8230 and mounts to the same pipe supports with a new L bracket.
- Designed for harsh environments (IP67 rated)
- High out-of-band rejection
- One-year limited warranty

The Model 8230AJ is a high gain (40 dB) GNSS outdoor antenna covering GPS L1, GLONASS L1, BeiDou B1, Galileo E1, and QZSS L1. Similar to our proven Model 8230, it uses a three-stage low noise amplifier, a mid-section SAW, and a tight pre-filter to protect against saturation by high level sub-harmonics and L-band signals. The active antenna circuitry uses +5VDC (provided by the Orolia timing receiver over the antenna coax).

Similar to the standard Model 8230, this antenna is also terminated with a type "N" female connector and mounts to standard pipes via its own unique L bracket. Making it a drop-in replacement for existing installations. Its weather-proof housing is IP67 compliant offering a high degree of protection against dust and water. Its cylindrical radome is made of high impact UV stabilized polycarbonate to protect against rain, ice, snow and salt spray.


### Standard or AJ Antenna – Which Should I Use?

The standard antenna sees the entire view of sky, equally receiving signals from satellites at the horizon or the zenith and all points in between. However, there is increasing interference in the GNSS L1 band, whether unintentional from other transmitters like communications towers or intentional from illegal "privacy jammers". The AJ antenna rejects signals for the lower elevation angles – where most of the interference comes from – and only receives signals from the higher elevation angles where the satellites are. Of course, this reduces the number of satellites the receiver will see, but for the timing application, only a few satellites are needed. Moreover, with multi-constellation receivers, there are an increasing number of satellites available. So you get all the performance in timing accuracy you would get with a standard antenna plus 20 dB or more of interference rejection.

### Antenna Cable & Accessories

Orolia recommends low loss coaxial cable such as Times Microwave LMR-400 for the antenna cable. The attenuation characteristics of the LMR-400, or equivalent, at the GPS L1 frequency (1575.42 MHz), along with the high gain of the antenna allows the cable length to a maximum of about 125 meters (400 feet). Orolia offers standard and plenum rated cable assemblies.

For installations where the antenna cable length exceeds 125 meters Orolia offers a variety of accessories to extend cable lengths including inline pre-amplifiers (Model 8227), fiber optic links and frequency down-up converters. The receiver powers the GPS antenna and most accessories. Orolia recommends installing a lightning protection device in the antenna line to protect the receiver and connected devices. Orolia offers a Surge Protector, Model 8226, to shunt potentially damaging voltages on the antenna coax to ground.

## GPS Antenna Specifications

### Electrical

**Type:** Active
**Frequency:** 1559 to 1606 MHz
**Out-of-Band Rejection:**

- < 1500 MHz: > 50 dB
- > 1650 MHz: > 50 dB

**Gain:** 40 dB from internal LNA
**Antenna Pattern:** 0 dB at zenith
15 dB or more rejection at < 30 degrees elevation
**Connector:** N type, female
**Recommended Cable:** Low Loss LMR-400 Equivalent
**Maximum Cable Length:** 125 meters meters (400 ft.) maximum with most Orolia equipment and LMR-400 equivalent cable;
250 meters (800 ft.) maximum with Inline Amplifier - Model 8227
**Power:** 2.5 to 16 Volts, 19 milliamps (typical), powered by receiver

### Mechanical

**Size:** 100 mm dia. (3.9");
101.5 mm H (4") from base to top;
127.2 mm H (5") including "N" connector
**Enclosure:** Radome: High Temperature UV Resistant Polycarbonate.;
Base: Zamak White Metal
**Weight:** 370g (13.1oz)
**Compliance:** IP67 and RoHS
**Temperature Range:** -40° to +85° C (–40° to +185° F)
**Mounting:** L-bracket (included) for vent pipe/pole mounting via hose clamps (included), PVC pipe sold separately

### Warranty

1-Year Limited[1]
*[1]The warranty period may be dependent on country.*

## Flat Roof Mount Specifications (sold separately)

### Mechanical

**Material:** Aluminum Base
**Height:** 6" (15.24 cm)
**Diameter:** 15.625" (39.7 cm)
**Weight:** 17 lbs. (7.7 kg) when filled with ballast (included) for stability

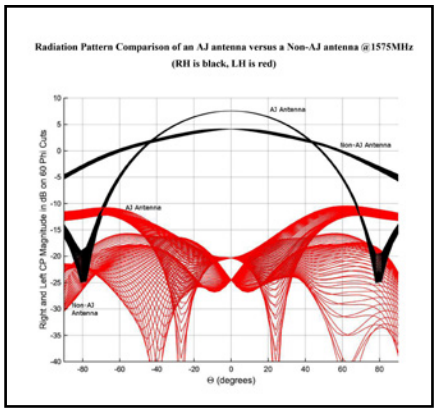
## Ordering Information

### GPS Antenna System

1. GPS Antenna - Model 8230AJ

### Additional Accessories

2. Flat Roof Antenna Mount: Model 8213
3. GPS Antenna Splitter: Model 8224
4. Antenna Surge Suppressor: Model 8226
5. Surge Protector Grounding Kit: Part Number 8226-0002-0600
6. Inline Preamplifier: Model 8227
7. Low Loss Antenna Cable: Contact factory
8. Indoor Plenum-rated Antenna Cable, CMP equivalent: Contact factory
9. Connector Interface Weather-Proofing Kit: Part Number 1142-0000-5001
10. PVC Pipe with Hose Clamps: 33.4 mm dia. x 489 mm long
11. (1.32" dia. x 19.25" long): Model 8235
12. Rugged Post Mount: Model ANT-KT





Model 8230AJ GPS/GNSS Anti Jam Outdoor Antenna with optional PVC Pipe (Model 8235) and optional Flat Roof Mount (Model 8213)


Model 8230AJ GPS/GNSS Anti Jam Outdoor Antenna with optional PVC Pipe (Model 8235) and optional Rugged Post Mount (Model ANT-KT)

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Specifications subject to change or improvement without notice
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