

GNSS-800 Series

USER GUIDE

GM-14915147

Rev 1

February 2017

The GNSS-800 Series of antennas are active antennas designed to operate at a variety of frequencies depending on the model selected.

SIGNALS RECEIVED				
802	802L	804	804L	850
GPS L1, L2 GLONASS L1, L2 BeiDou B1 Galileo E1	GPS L1, L2 GLONASS L1, L2 BeiDou B1 Galileo E1 L-Band	GPS L1, L2 GLONASS L1, L2 BeiDou B1, B2 Galileo E1, E5b	GPS L1, L2 GLONASS L1, L2 BeiDou B1, B2 Galileo E1, E5b L-Band	GPS L1, L2, L5 GLONASS L1, L2, L3 BeiDou B1, B2, B3 Galileo E1, E5a/b, E6 L-Band

This guide provides the basic information you need to install and begin using your new antenna. Refer to the individual model Product Sheet for detailed specifications (www.novatel.com/products/gnss-antennas/vexxis-series-antennas/vexxis-gnss-800-series-antennas/).

ADDITIONAL EQUIPMENT REQUIRED

The equipment listed below is required to set up a GNSS-800 Series antenna:

- A mount, such as a range pole, tribrach or tripod, with a 5/8" x 11 thread that extends between 3/8" and 7/8" (9 mm and 22 mm)
- Coaxial cable with a male TNC connector
- A device with an antenna input port that both receives the RF signal and provides +3.8 to +18.0 VDC to the antenna. (All NovAtel GNSS receivers provide the necessary power through their antenna RF connectors.)

SITE SELECTION GUIDELINES

Before installing the antenna, select a site that as closely as possible meets the following conditions for optimal performance:

- An unobstructed line-of-sight from horizon to horizon and at all bearings and elevation angles.
- As far as possible from reflective objects, especially those that are above the antenna and any water bodies, which can be a strong source of multipath reflections.
- If obstructions and reflective surfaces are within 30 m, ensure the site is as high as possible. Otherwise, mount the antenna as low as possible.

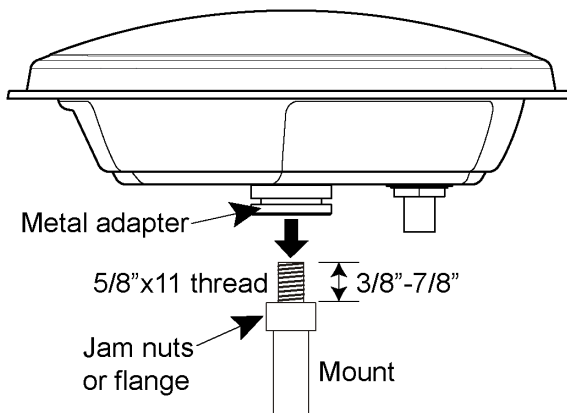


To avoid potential adverse effects, do not locate antennas near any high sources of heat.

INSTALLING THE ANTENNA

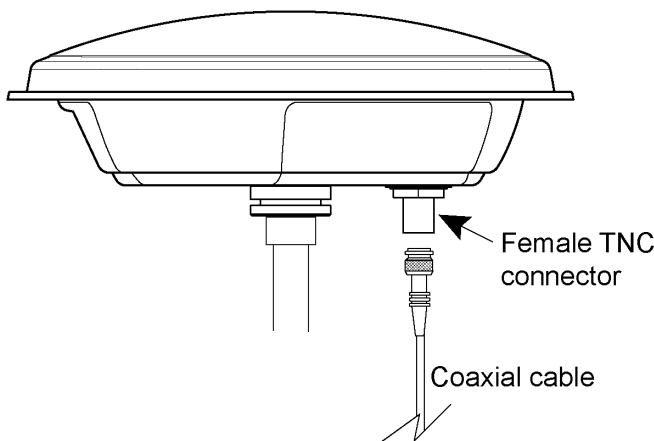
After a site has been selected, install the antenna as follows.

1. Verify that the thread on the mount does not extend more than 7/8" (22 mm) to ensure the plastic inside the antenna receptacle is not damaged when the mount is inserted. If it extends further than 7/8" (22 mm), add two jam nuts to shorten the exposed thread, ensuring the nuts are well-tightened.
2. Align the mount thread with the metal adapter on the bottom of the antenna and rotate the antenna clockwise until it is securely screwed to the mount.



 The metal adapter on the bottom of the antenna is fixed in place. Do not attempt to remove it.

3. Remove the dust cap from the antenna's connector.
4. Attach the TNC connector of the coaxial cable to the antenna's TNC connector.



5. Attach the other end of the coaxial cable to the antenna input port of the receiving device. The receiving device must provide power as detailed in the *SPECIFICATIONS* section of this guide. All NovAtel GNSS receivers provide the necessary power through their antenna RF connectors.

ANTENNA CARE

The GNSS-800 Series are designed to withstand the elements, including rain, snow and dust. However, to ensure your antenna performs optimally, keep the radome (the top surface of the antenna) clean and brush off any ice and snow. In addition, ensure the connector remains clean and dry and replace the dust cap when a cable is not connected.

SPECIFICATIONS

RADIO FREQUENCY	
Pass band (typical)	Upper passband: 1568 ± 43.0 MHz Lower passband: 1232 ± 68.0 MHz L-Band: 1545 ± 20.0 MHz (802L, 804L and 850 models only)
Out-of-band rejection	Band edges ± 50 MHz 40 dB min Band edges ± 100 MHz 60 dB min
Gain at zenith (90°)	+5.0 dBic min
Gain roll-off (zenith to horizon) ^a	L1 11 dB L2 12 dB
LNA gain (typical)	29 dB
Polarization	Right-Hand Circular
Noise figure (typical)	2.0 dB
L1-L2 differential propagation delay (maximum)	5 ns
Nominal impedance	50 Ω
VSWR	≤ 2.0:1
POWER	
Input voltage	+3.8 to +18 VDC
Current (typical)	60 mA (maximum)
PHYSICAL	
Diameter	176 mm
Weight	507 g (17.9 oz)

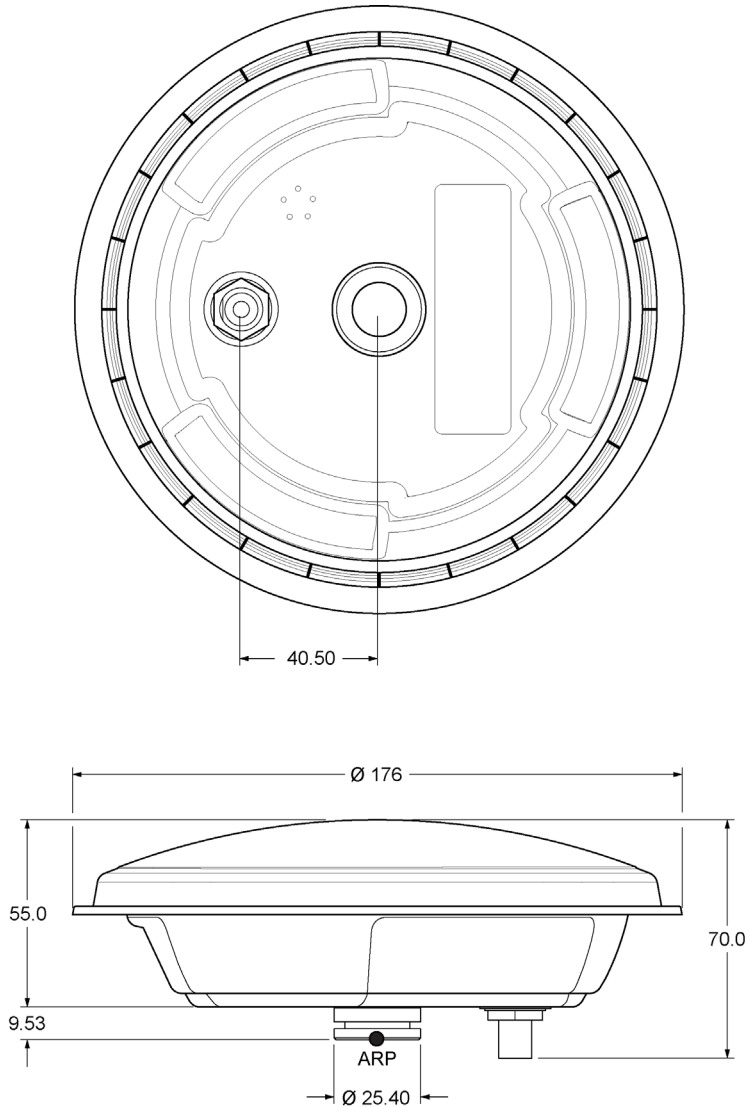
a. Refer to the table Signals Received for model specific signals.

ENVIRONMENTAL	
Maximum altitude	12,192 m (40,000 ft)
Operating temperature	-40°C to +85°C (-40°F to +185° F)
Storage temperature	-55°C to +85°C (-67°F to +185°F)
Humidity	95% non-condensing
Random vibration	MIL-STD-810G(CH1), 514.7 Annex E Procedure 1, Category 24

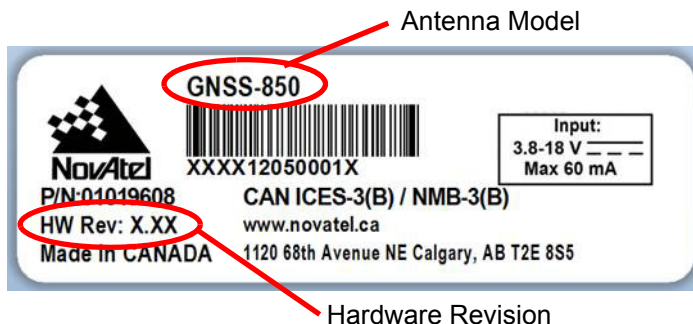
ENVIRONMENTAL

Shock	MIL-STD-810G(CH1), 516.7 (40 g), Procedure 1
Bump	IEC 60068-2-27
Salt fog	MIL-STD-810G(CH1), 509.6
Water resistance	IP67
Compliance	FCC, CE

MECHANICAL DRAWINGS



Refer to the *Mechanical Drawing* and the close-up of the label below before reading this section.





 Only integer hardware revisions affect the phase center offsets. For example, the numbers given for hardware revision 2.02 are applicable to an antenna labeled H/W Rev: 2.00, 2.04 or 2.12.

Table 1 shows typical absolute and relative offset numbers for the GNSS-800 series antennas.

Table 1: Phase Center Offset

	Absolute Height
L1	60.0 mm
L2	60.0 mm

WEEE

If you purchased a GNSS-800 Series antennas in Europe, return it to your dealer or supplier at the end of its life. The objectives of the European Community's environment policy are, in particular, to preserve, protect and improve the quality of the environment, protect human health and utilise natural resources prudently and rationally. Sustainable development advocates the reduction of wasteful consumption of natural resources and the prevention of pollution. Waste electrical and electronic equipment (WEEE) is a regulated area. Where the generation of waste cannot be avoided, it should be reused or recovered for its material or energy. WEEE products may be recognized by their wheeled bin label ()¹.

ROHS

The GNSS-802, GNSS-802L, GNSS-804, GNSS-804L and GNSS-850 are compliant with the European Union (EU) Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU.

REACH

The GNSS-802, GNSS-802L, GNSS-804, GNSS-804L and GNSS-850 are in compliance with Regulation (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH). The Candidate List of Substances of Very High Concern (SVHC) published by the European Chemical Agency (ECHA) is updated occasionally and available at <https://echa.europa.eu/candidate-list-table>. Please contact NovAtel Customer Support if you require further information.

1. See www.novatel.com/products/compliance/environmental-compliance/ for more information.

WARRANTY POLICY

NovAtel Inc. warrants that its Global Navigation Satellite System (GNSS) products are free from defects in materials and workmanship, subject to the conditions set forth on our web site: www.novatel.com/products/warranty.

GNSS Antenna™ Modules: One (1) Year
Cables and Accessories: Ninety (90) Days

RETURN INSTRUCTIONS

To return products, refer to the instructions found under the Return Policy Tab on the warranty page: www.novatel.com/products/warranty.

QUESTIONS OR COMMENTS

If you have any questions or comments regarding your GNSS-800 Series antennas, contact NovAtel Customer Service using one of methods provided below.

Log a Case and Search Knowledge:

Website: www.novatel.com/support

Log a Case, Search Knowledge and View Your Case History: (login required)

Web Portal: <https://novatelsupport.force.com/community/login>

Email:

support@novatel.com

Telephone:

U.S. and Canada: 1-800-NOVATEL (1-800-668-2835)
International: +1-403-295-4900



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