



# SCALABLE ALL-IN-ONE GNSS SMART ANTENNA SOLUTION



The **A631** GNSS Smart Antenna is an affordable, portable solution with professional-level accuracy for agricultural, marine, GIS, mapping, and other applications.

Focus on the job-at-hand with fast start-up and reacquisition times, scalable accuracy, and an easy-to-see LED status indicator for power, GNSS, and DGNSS. The durable enclosure houses both antenna and receiver. It can be powered through various sources, making the **A631** smart antenna ideal for a variety of applications. Dual-Serial, CAN, and pulse output options make this DGNSS receiver compatible with almost any interface. With optional Bluetooth and WiFi support, the **A631** Smart Antenna is ready to be connected with mobile devices.



**A631** supports the use of Hemisphere's Atlas® Global Correction Service. This, paired with the easy-to-use Atlas Portal ([www.atlasgnss.com](http://www.atlasgnss.com)), empowers users to update firmware and enable functionality, including Atlas® activations and subscriptions for accuracies from meter to subdecimeter levels.

## Key Features

- Multi-Frequency GPS, GLONASS, BeiDou, Galileo, and QZSS
- Powered by Hemisphere Lyra™ II ASIC & Cygnus™ Interference Mitigation technology
- Atlas® L-band corrections
- Athena™ RTK engine
- Scalable accuracy within a single product for different use cases
- Durable enclosure is proven to withstand the most aggressive environments
- Compact, low-profile design with fixed or magnetic mounting options are ideal for portable and dynamic applications
- Optional Bluetooth and WiFi interface
- Optional 16 GB Internal Storage

## GNSS Receiver Specifications

**Receiver Type:** Multi-Frequency GPS, GLONASS, BeiDou, Galileo, QZSS, and Atlas

**Signals Received:** GPS L1CA/L1P/L1C/L2P/L2C/L5  
GLONASS G1/G2/G3/P1/P2  
BeiDou B1i/B2i/B3i/B10C/B2A/B2B/ACEBOC  
Galileo E1BC/E5a/E5b/E6BC/ALTBOC  
QZSS L1CA/L2C/L5/L1C/LEX/IRNS L5  
Atlas

**Channels:** 800+

**GPS Sensitivity:** -142 dBm

**SBAS Tracking:** 3-channel, parallel tracking

**Update Rate:** 10 Hz standard, 20 Hz optional (with activation)

### Timing (1 PPS)

**Accuracy:** 20 ns

**Cold Start:** 60 s typical (no almanac RTC)

**Warm Start:** 30 s typical (almanac and RTC)

**Hot Start:** 10 s typical (almanac, RTC, and position)

**Maximum Speed:** 1,850 kph (999 kts)

### Maximum

**Altitude:** 18,000 m (59,055 ft)

## Accuracy

Positioning:	RMS (67%)	2DRMS (95%)
<b>Autonomous, no SA:</b> <sup>1</sup>	1.2 m	2.5 m
<b>SBAS:</b> <sup>1</sup>	0.3 m	0.6 m
<b>Atlas H10:</b> <sup>1,3</sup>	0.04 m	0.08 m
<b>Atlas H30:</b> <sup>1,3</sup>	0.15 m	0.3 m
<b>Atlas Basic:</b> <sup>1,3</sup>	0.50 m	1.0 m
<b>RTK:</b> <sup>1,2</sup>	8 mm + 1 ppm	15 mm + 2 ppm

## L-Band Receiver Specifications

**Receiver Type:** Single Channel

**Channels:** 1530 to 1560 MHz

**Sensitivity:** -130 dBm

**Channel Spacing:** 5 kHz

**Satellite Selection:** Manual or Automatic

### Reacquisition

**Time:** 15 sec (typical)

## Communications

**Ports:** 2 full-duplex RS-232, CAN

**Baud Rates:** 4800 - 460,800

### Correction I/O

**Protocol:** Hemisphere GNSS proprietary, RTCM v2.3 (DGPS), RTCM v3 (RTK)

**Data I/O Protocol:** NMEA 0183, NMEA 2000, Hemisphere GNSS binary, Bluetooth 2.0 (Class 2), Wi-Fi

**Timing Output:** 1 PPS, CMOS, active low, falling edge sync, 10 k $\Omega$ , 10 pF load

## Event Marker

**Input:** CMOS, active low, falling edge sync, 10 k $\Omega$ , 10 pF load

## Data & Storage

**Storage Type:** 16 GB (internal)

## Power

**Input Voltage:** 7-32 VDC

### Power

**Consumption:** 2.0 W nominal (L1/L2 GPS/GLONASS; L-band)

### Current

**Consumption:** 0.17 A nominal (L1/L2 GPS/GLONASS; L-band)

**Power Isolation:** No

### Reverse Polarity

**Protection:** Yes

**Antenna Voltage:** Internal Antenna

## Environmental

### Operating

**Temperature:** -40°C to +70°C (-40°F to +158°F)

### Storage

**Temperature:** -40°C to +85°C (-40°F to +185°F)

**Humidity:** 95% non-condensing

### Mechanical

**Shock:** MIL-STD-810H, Method 516.8 Procedure I, Operational, 50G half sine 11ms

**Vibration:** MIL-STD-810H, Method 514.8, Procedure I, General vibration Category 24 E1

**EMC:** CE, FCC Part 15, Subpart B, CISPR 32

**Enclosure:** IP67

## Mechanical

**Dimensions:** 15.8 L x 15.8 W x 7.9 H (cm)

6.2 L x 6.2 W x 3.2 H (in)

**Weight:** < 1.05 kg (< 2.53 lbs)

### Status Indications

**(LED):** Power, GNSS Lock

### Power/Data

**Connector:** 12-pin male (metal)

### Antenna

**Mounting:** 1-14 UNS-2A female adapter, 5/8-11 UNC 2B adapter, flat mount available

1. Depends on multipath environment, number of satellites in view, satellite geometry, and ionospheric activity
2. Depends also on baseline length
3. Hemisphere GNSS Proprietary



## Hemisphere GNSS

8515 E. Anderson Drive  
Scottsdale, AZ 85255, USA

Phone: +1 (480) 348-6380  
Toll-Free: +1 (855) 203-1770  
Fax: +1 (480) 270-5070

precision@hgns.com  
www.hgns.com