Hemisphere®

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A631
GNSS Smart Antenna

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.

atlas®

A631 supports the use of Hemisphere's Atlas® Global Correction Service. This, paired with the easy-to-use Atlas Portal (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:	1,342 mph (1,166 kts)
Maximum Altitude:	18,000 m (59,055 ft)

Accuracy

Positioning:	**RMS (67%)**	**2DRMS (95%)**
Autonomous, no SA: [1]	1.2 m	2.5 m
SBAS: [1]	0.3 m	0.6 m
Atlas H10: [1,3]	0.04 m	0.08 m
Atlas H30: [1,3]	0.15 m	0.3 m
Atlas Basic: [1,3]	0.50 m	1.0 m
RTK: [1,2]	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
Timing Output:	1 PPS, CMOS, active low, falling edge sync, 10 kΩ, 10 pF load
Event Marker Input:	CMOS, active low, falling edge sync, 10 kΩ, 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®

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