# C321 GNSS Smart Antenna

## OEM Hardware for Machine Control Systems

key features

- **Base station with internal UHF radio**
- **UHF rover**
- **Network rover**
- **Multi-GNSS including GPS, GLONASS, BeiDou, QZSS, Galileo, SBAS, and L-band**
- **Atlas® L-band corrections**
- **aRTK™ capabilities - Satellite-based RTK augmentation**


atlas

A rugged base station for your machine control jobsite or a rover to assist with grade control checking and construction staking activities.

### Manage Your Site

Hemisphere's C321 multi-GNSS, multi-frequency receiver paired with a Windows based handheld device and Hemisphere's SiteMetrix™ field software platform is the ultimate tool to manage all of your jobsite activities.

- Grade management
- Graphical stakeout
- In-the-field volume calculations
- CAD layer management
- Enhanced graphics for data collection
- Built-in cellular communication support
- Import/export files for machine control
- Easy-to-use
- Create localization
- Real-time cut and fill information

Use the C321 as a precise base station sending RTK corrections to your existing fleet of machine control systems and rovers via the internal UHF radio or an external radio of your choice. The C321 receiver can also be tuned into a network rover receiving corrections from your jobsite base station or via the internet. Market-leading technology delivered at competitive prices make Hemisphere's C321 the ideal receiver for your high-performance satellite positioning needs.

Hemisphere®

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## GNSS Receiver

| | |
|---|---|
| Receiver Type: | Multi-Frequency GNSS |
| Positioning Modes: | RTK, L-band, DGNSS, SBAS, Autonomous |
| Channels: | 372 |
| RTK Formats: | RTCM3, ROX, CMR, CMR+4 |
| L-Band Formats: | Atlas H100, Atlas H30, Atlas H10 |
| Update Rate/ Recording Interval: | Selectable from 1, 2, 4, 5, 10 Hz(20 Hz available) |

## Performance (RMS)

| | Horizontal | Vertical |
|---|---|---|
| RTK: | 8 mm + 1 ppm | 15 mm + 1 ppm |
| Static Performance (long occupation): | 3 mm + 0.1 ppm | 3.5 mm + 0.4 ppm |
| Static Performance (rapid occupation): | 3 mm + 0.5 ppm | 5 mm + 0.5 ppm |
| L-Band Performance: | 0.08 m | 0.16 m |
| SBAS (WAAS): | 0.3 m | 0.6 m |
| Autonomous, no SA: [2] | 1.2 m | 2.4 m |

## Satellite Tracking

| | |
|---|---|
| GPS: | L1C/A, L2P, L2C |
| GLONASS: | L1C/A, L2C/A |
| BeiDou: | B1, B2, B3 |
| QZSS: | With future firmware upgrade |
| Galileo: | With future firmware upgrade |
| SBAS: | MSAS, WAAS, EGNOS, GAGAN |

## Communication

| | |
|---|---|
| Connectors I/O: | 5-pin Lemo connector for external power supply and external radio devices<br>7-pin Lemo connector for USB OTG connection and a serial port interface<br>1 TNC antenna connector for internal radio<br>1 TNC antenna connector for modem module |
| WebUI: | To upgrade the software, manage the status and settings, data download, via smart phone, tablet or other electronic device |
| TTS: | Smart voice broadcast system "Speaking" receiver |
| Reference Outputs: | RTCM2.1, RTCM2.3, RTCM3.0, RTCM3.1, RTCM3.2 including MSM |

## Radio

| | |
|---|---|
| Frequency Range: | 410 - 470 MHz |
| Channel Spacing: | 12.5KHz / 25 KHz |
| Emitting Power: | 0.5 /1 W |

## Wireless Module

| | |
|---|---|
| Wi-Fi: | Integrated module with internal Wi-Fi antenna |
| Bluetooth: | Bluetooth 2.1 + EDR Integrated Bluetooth (BT) communication module with internal BT antenna |

## Cellular

| | |
|---|---|
| Type: | UMTS/HSPA+/GSM/GPRS/EDGE |
| Function: | Data |
| Supported Frequencies: | GSM/GPRS/EDGE (850, 900, 1800, and 1900MHz) WCDMA/HSDPA (850/800, 900, 1800, and 1900MHz) |

## Power

| | |
|---|---|
| Battery: | Rechargeable 11.1 V -37.74 Wh intelligent lithium battery |
| Battery Life: | 6 hours with one battery and UHF radio in Rx mode |
| Voltage: | 9 to 22V DC external power input with over-voltage protection (5-pin Lemo) |
| Charge Time: | Typically 7 hours |

## Memory

| | |
|---|---|
| SIM Card: | User accessible SIM card slot |
| Memory: | Internal 4GB, accessible through USB and Wi-Fi |
| SD Card: | External Micro SD card slot, supports up to 64GB |

## Environmental

| | |
|---|---|
| Operating Temperature: | -30°C to 60°C (-22°F to 140°F) |
| Storage Temperature: | -40°C to 80°C (-40°F to 176°F) |
| Waterproof/Dustproof: | IP67. Protected from temporary immersion to a depth of 1 meter |
| Shock Resistance: | MIL-STD-810G, method 516.6<br>Designed to survive a 2 m pole drop on concrete floor with no damage; designed to survive a 1 m free drop on hardwood floor with no damage |
| Vibration: | MIL-STD-810G, method 514.6E-I |
| Humidity: | Up to 100% |
| Inflammabilty: | UL recognized, 94HB Flame Class Rating (3) 1.49mm |
| Chemical Resistance: | Cleaning agents, soapy water, industrial alcohol, water vapor, solar radiation (UV) |

## Mechanical

| | |
|---|---|
| Size: | 14.1 D x 14.0 H (cm)<br>5.5 D x 5.5 H (in) |
| Weight: | <1.38 kgs (<3.05 lbs) |
| Mounting: | 5/8"x11, 55° thread angle, stainless steel insert |
| Phase Center Offset: | GPS L1 and L2 offset below 2.5mm |

1 Depends on multipath environment, number of satellites in view, satellite geometry, and ionospheric activity
2 Depends also on baseline length
3 Requires a subscription from Hemisphere GNSS
4 CMR and CMR+ do not cover proprietary messages outside of the typical standard

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