S321 GNSS Smart Antenna

Surveyor Tough

key features

- **Atlas® L-band global corrections**
- **Athena™ RTK engine for instantaneous high accuracy**
- **Wi-Fi, UHF, Cellular, and Bluetooth communication ports**
- **Powerful web UI control accessed via Wi-Fi**
- **4 GB Internal memory for data logging, download, and upload**
- **Rugged enclosure for use in the most demanding environments**

atlas

The S321 is Hemisphere's all-new multi-GNSS, multi-frequency, smart antenna. The S321 provides a robust performance and high precision in a compact and rugged package. With multiple wireless communications ports and an open GNSS interface, the S321 can be used in a variety of operating modes. Use the S321 as a precise base station sending RTK to your existing rover network. Turn S321 into a lightweight and easy to use rover by connecting it to your base via UHF radio or Wi-Fi network. The built-in web user interface can be used to control and manage the receiver status and operation, as well as to upgrade the S321 with new firmware and activations. S321 is Athena-enabled and Atlas-capable.

The S321 receiver is powered by the Athena RTK (Real-Time Kinematic) technology. With Athena, S321 provides state-of-art RTK performance when receiving corrections from a static base station or network RTK correction system. With multiple connectivity options, the S321 allows for RTK corrections to be received over radio, cell modem, Wi-Fi, Bluetooth, or serial connection. S321 delivers centimeter-level accuracy with virtually instantaneous initialization times and cutting edge robustness in challenging environments.

The S321 receiver also enables users to work with the Atlas service. Atlas is Hemisphere's industry leading global correction service, which can be added as a subscription to the S321. The Atlas system delivers world-wide centimeter-level correction data over L-band communication satellites and over internet. With Atlas, S321 users are able to experience sub-decimeter positioning performance anywhere on earth, without the need to be nearby a GNSS or communication infrastructure.

Atlas L-band has the following benefits:

• Positioning accuracy - Competitive positioning accuracies down to 2 cm RMS in certain applications.

• Positioning sustainability - Advanced position quality maintenance in the absence of correction signals, using Hemisphere's patented technology.

For more information about Athena RTK, see: http://hemispheregnss.com/Technology
For more information about Atlas, see: http://hemispheregnss.com/Atlas

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GPS 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 7-pin Lemo connector for USB OTG connection and a serial port interface 1 TNC antenna connector for internal radio 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 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%
Inflammability:	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) 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

Authorized Distributor:

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