



# MULTI-GNSS RTK, HIGH-ACCURACY RECEIVER



The new **R632** GNSS receiver is a full- solution product in an incredibly compact and powerful package, offering the ability to easily upgrade to an astounding 0.01° accurate heading.

Built on the foundation of Hemisphere's new Lyra, Cygnus and Aquila core technologies, the **R632** offers amazing new interference rejection and multipath mitigation. The result is an exceptional combination of performance, communications, and connectivity.

The **R632's** standard configuration offers multiple methods of connectivity and an impressive array of wireless communications.

Through Hemisphere's Atlas correction network, the **R632** offers worldwide stand-alone positioning to 4 cm.

The **R632** is an incredible solution for almost any application requiring professional-level position and heading performance.

## Key Features

- Multi-frequency GPS, GLONASS, BeiDou (including Phase 3), Galileo, IRNSS, QZSS, and Atlas L-band
- Long-range RTK baselines up to 50 km with fast acquisition times
- Worldwide Atlas L-band corrections to 4 cm
- UHF (400MHz& 900MHz), cellular (GSM, 3G & 4G, Bluetooth, and Wi-Fi wireless communication
- Athena GNSS engine providing best-in-class RTK performance
- Status LEDs and powerful WebUI, making the R632 easy to monitor and configure
- Ethernet, Serial, and USB, providing exceptional connectivity

## GNSS Receiver Specifications

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

**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  
IRNSS L5  
Atlas L-band

**GPS Sensitivity:** -142 dBm

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

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

### Timing (1PPS)

**Accuracy:** 20 ns

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

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

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

**Antenna Input Impedance:** 50 Ω

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

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

### Accuracy

**Heading (RMS):** 0.2° @ 0.5 m antenna separation  
0.1° @ 1.0 m antenna separation  
0.05° @ 2.0 m antenna separation

<b>Positioning (RMS):</b>	<b>Horizontal</b>	<b>Vertical</b>
<b>Single Point:</b>	1.2 m	2.4 m
<b>SBAS:</b> <sup>1</sup>	0.3 m	0.6 m
<b>Atlas H10:</b> <sup>1</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>	0.5 m	1.0 m
<b>RTK:</b> <sup>1,2</sup>	8 mm + 1 ppm	15 mm + 1 ppm

## L-Band Receiver Specifications

**Receiver Type:** Single Channel

**Frequency Range:** 1525 to 1560 MHz

**Sensitivity:** -130 dBm

**Channel Spacing:** 5.0 kHz

**Satellite Selection:** Manual and Automatic

**Reacquisition Time:** 15 seconds (typical)

## Communications

**Bluetooth:** Bluetooth 2.1+EDR / 4.0 LE

**Wi-Fi:** 802.11 b/g

**Network:** LTE FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/  
B18/B19/B20/B25/B26/B28  
LTE TDD: B38/B39/B40/B41  
UMTS: B1/B2/B4/B5/B6/B8/B19  
GSM: B2/B3/B5/B8

**Radio:** Frequency range: 410MHz ~ 470MHz and  
902.4MHz ~ 928MHz  
Channel Spacing: 12.5 KHz / 25 KHz  
Protocol: TrimTalk 450S, PCC EOT, TrimMark  
III(19200)

**RTK Formats:** RTCM2.1, RTCM2.3, RTCM3.0, RTCM3.1,  
RTCM3.2 including MSM

## Correction I/O

**Protocol:** Hemisphere GNSS proprietary ROX  
format, RTCM v2.3, RTCM v3.2, CMR,  
CMR+

**Data I/O Protocol:** NMEA 0183, Hemisphere GNSS  
binary

**Timing Output:** 1PPS (CMOS, rising edge sync)

### Event Marker

**Output:** Open drain, falling edge sync, 10 kΩ,  
10 pF load

## Physical

**Weight:** 550 g

**Dimensions:** 105 x 150 x 34 mm

**Power Connector:** 2-pin metal ODU

**Antenna Connector:** TNC female, straight (2x)

**Data Connector:** D-SUB 26 (2x RS485, 1x RS232, 1x USB2,  
1x 1PPS, 1x Event, 1x 100m  
Ethernet)

**LTE Connector:** SMA

**UHF Connector:** SMA

**Other:** Micro SIM card slot and Micro SD card slot

**Storage Type:** 8 GB internal, Micro SD card up to 32 GB

## Environmental

**Operating Temperature:** -30°C ~ +65°C

**Storage Temperature:** -40°C ~ +80°C

**Protection:** IP6x, IPx6, IPx7

**Shock Resistance:** EP455 Section 5.41.1 Operational

**Humidity:** 95% non-condensing

**Vibration:** EP455 Section 5.15.1 Random

**EMC:** CE (IEC 60945 Emissions and Immunity)  
FCC Part 15, Subpart B, CISPR22

**Inflammability:** UL recognized, 94HB Flame Class Rating  
(3) 1.49 mm

**Chemical Resistance:** Cleaning agents, soapy water, industrial  
alcohol, water vapor, solar radiation (UV)

## Electrical

**Input Voltage:** 8 to 36 V DC

**Power Consumption:** 7.65 W nominal (all signals + L-band)

**Reverse Polarity Protection:** Yes

**Antenna Voltage Output:** 5 V DC maximum

**Antenna Short Circuit Protection:** Yes

**Input Range:** 10 to 40 dB

## User Interface

**LEDs:** Power, Satellite, Bluetooth, Cellular, Wi-Fi,  
UHF, Heading <sup>3</sup>

**WebUI:** Supports software updates, receiver  
status and settings and data downloads  
via smartphones, tablets or other Wi-Fi  
capable devices.

1. Depends on multipath environment, number of satellites in view, satellite geometry, and ionospheric activity
2. Depends also on baseline length
3. Requires an activation or subscription from Hemisphere GNSS

## 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