R330 GNSS Receiver

Multi-GNSS RTK, High-Accuracy Receiver

key features

- **Runs Athena™ core GNSS engine offering improved initialization times, robustness in difficult environments, performance over long baselines and under scintillation**
- **High-accuracy positioning in RTK, Beacon, and Atlas™ GNSS corrections via Atlas L-band and internet**
- **Fast update rate of up to 20 Hz providing the best guidance and machine control**
- **Status LEDs and menu system make R330 easy to monitor and configure**
- **Uses standard USB flash drive for data logging**

atlas

The R330 GNSS receiver is a full solution product in a compact enclosure. The R330 utilizes Hemisphere GNSS' Eclipse™ platform and our latest GNSS patented technology. The R330 provides accurate positioning using several differential correction methods such as RTK, Atlas L-band corrections (H100, H30, H10), Beacon, and SBAS. Our patented firmware allows the R330 to smoothly transition between DGNSS systems.

The R330 GNSS receiver works well in any marine or land application where positioning accuracy is required. The base unit is configured with L1, 10 Hz, SBAS, and raw data. The fully upgraded unit can be optionally subscribed to L1/L2 GNSS, 20 Hz, RTK, L-band, Beacon, and SBAS. Compatible GNSS antennas for the R330 are A21, A25, A31, A42, A43, A45 and A52.

The new R330 GNSS receiver supports both Athena, our new core GNSS engine, and Atlas, our new GNSS global corrections service delivered via L-band satellite and internet. Athena offers significant improvements in the areas of initialization time, robustness in very difficult operating enviroments, performance over long baselines, and performance under scintillation.

Hemisphere®

precision@hgnss.com
www.hgnss.com

R330 GNSS Receiver

GNSS Receiver Specifications

Receiver Type:	GNSS multi-frequency RTK with carrier phase
Signals Received:	GPS, GLONASS, and BeiDou
Channels:	372
GPS Sensitivity:	-142 dBm
SBAS Tracking:	3-channel, parallel tracking
Update Rate:	10 Hz standard, 20 Hz optional
Timing (1PPS) Accuracy:	20 ns
Cold Start Time:	60 s typical (no almanac or RTC)
Warm Start Time:	20 s typical (almanac and RTC)
Hot Start Time:	5 s typical (almanac, RTC and position)
Maximum Speed:	1,850 kph (999 kts)
Maximum Altitude:	18,288 m (60,000 ft)
Differential Options:	SBAS, Beacon, External RTCM, Atlas L-Band and Athena RTK

Positioning Accuracy

RMS:	Horizontal	Vertical
Single Point [1]:	1.2 m	2.5 m
SBAS (WAAS) [2]:	0.3 m	0.6 m
Code Differential GNSS [1]:	0.3 m	0.6 m
L-Band [3]:	0.08 m	0.16 m
RTK [2, 4]:	10 mm + 1 ppm	20 mm + 2 ppm

Beacon Receiver Specifications

Channels:	2-channel parallel tracking
Frequency Range:	283.5 to 325.0 kHz
Operating Modes:	Manual, Automatic, and Database
Compliance:	IEC 61108-4 beacon standard

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

Serial Ports:	2 full-duplex RS232
USB Ports:	1 USB Host, 1 USB Device
Baud Rates:	4800 - 115200
Correction I/O Protocol:	RTCM SC-104, L-Dif™[5], RTCM v2 (DGPS), RTCM v3 (RTK), CMR (RTK), CMR+ (RTK) [2,4]
Data I/O Protocol:	NMEA 0183, Hemisphere GNSS binary [5]
Timing Output:	1 PPS (CMOS, active high, rising edge sync, 10 kΩ,10 pF load)
Event Marker Input:	CMOS, active low, falling edge sync, 10 kΩ

Power

Input Voltage:	8 to 36 VDC
Power Consumption:	4.0 W nominal (GPS L1/L2 + GLONASS L1/L2) 4.7 W nominal (GPS L1/L2 + GLONASS L1/L2 + L-band)
Current Consumption:	0.29 A nominal (GPS L1/L2 + GLONASS L1/L2) 0.34 A nominal (GPS L1/L2 + GLONASS L1/L2 + BeiDou B1/B2 + L-band)
Reverse Polarity Protection:	Yes
Antenna Voltage Output:	5 VDC maximum 80mA
Antenna Short Circuit Protection:	Yes
Antenna Gain Input Range:	10 to 40 dB
Antenna Input Impedance:	50 Ω

Environmental

Operating Temperature:	-30°C to + 70°C (-22°F to + 158°F)
Storage Temperature:	-40°C to +85°C (-40°F to +185°F)
Humidity:	95% non-condensing
Mechanical Shock:	EP455 Section 5.14.1 Operational
Vibration:	EP455 Section 5.15.1 Random
EMC:	CE (IEC 60945 Emissions and Immunity) FCC Part 15, Subpart B CISPR22

Mechanical

Dimensions:	17.8 L x 12.0 W x 4.6 H (cm) 7.0 L x 4.7 W x 1.8 H (in)
Weight:	0.65 kg (1.42 lbs)
Status Indicators (LED):	Power, GNSS lock, Differential lock, DGNSS position, L-band lock
Power Connector:	2-pin metal ODU
Antenna Connector:	TNC (female), straight

1 Depends on multipath environment, number of satellites in view, satellite geometry, no SA, and ionospheric activity
2 Depends on multipath environment, number of satellites in view, WAAS coverage and satellite geometry
3 Requires a subscription
4 Depends on multipath environment, number of satellites in view, satellite geometry, baseline length (for differential services), and ionospheric activity
5 Hemisphere GNSS proprietary

Authorized Distributor:

Rev. 09/15

Hemisphere®

Hemisphere GNSS, Inc.
8515 E. Anderson Drive
Scottsdale, AZ, USA 85255

Toll-Free: +1-855-203-1770
Phone: +1-480-348-6380
Fax: +1-480-270-5070
precision@hgnss.com
www.hgnss.com