

# R330™ GNSS Receiver

## Multi-GNSS RTK, High Accuracy Receiver

### key features

- Long-range RTK baselines of up to 50 km
- High-accuracy positioning in RTK, GNSS, SBAS, Beacon, and L-Band
- 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



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, L-Band DGNSS (VBS/HP/XP/G2), Beacon, and SBAS. Our MFA DGNSS patented technology 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™, A31™, A42™, A43™, and A52™.

The new R330 GNSS receiver will outperform its predecessors and provides a user-friendly experience. It features Hemisphere GNSS' exclusive SureTrack™ technology that enables the receiver to model the phase on satellites the rover is tracking, allowing the operator to continue working without corrections from the base.



# R330 GNSS Receiver

## GNSS Sensor Specifications

Receiver Type:	GNSS L1/L2, RTK Receiver	
Signals Received:	GPS and GLONASS	
Channels:	270	
GPS Sensitivity:	-142 dBm	
SBAS Tracking:	3-channel, parallel tracking	
Update Rate:	10 Hz standard, 20 Hz optional	
Timing (1PPS):	20 ns	
Accuracy:	60 s typical (no almanac or RTC)	
Cold Start Time:	30 s typical (almanac and RTC)	
Warm Start Time:	10 s typical (almanac, RTC and position)	
Hot Start Time:	1,850 kph (999 kts)	
Maximum Speed:	18,288 m (60,000 ft)	
Maximum Altitude:	SBAS, Beacon, External RTCM, L-Band (VBS/HP/XP/G2) and RTK	
Differential Options:		

## Positioning Accuracy

RMS:	Horizontal	Vertical
Single Point <sup>1</sup> :	1.2 m	2.5 m
SBAS (WAAS) <sup>2</sup> :	0.3 m	0.6 m
L-Band DGNSS (HP) <sup>3</sup> :	0.1 m	0.2 m
Code Differential GNSS <sup>1</sup> :	0.3 m	0.6 m
RTK <sup>2,4</sup> :	10 mm + 1 ppm	20 mm + 2 ppm

## Beacon Sensor 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 Sensor Specifications

Sensitivity:	-130 dBm
Channel Spacing:	7.5 KHz
Satellite Selection:	Manual and Automatic
Reacquisition Time:	15 seconds (typical)
Rejection:	15 kHz spacing > 30 dB, 300 kHz spacing > 60 dB

## 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 <sup>TM</sup> <sup>6</sup> , RTCM v2 (DGPS), RTCM v3 (RTK), CMR (RTK), CMR+ (RTK) <sup>2,4</sup>
Data I/O Protocol:	NMEA 0183, Hemisphere GNSS binary <sup>5</sup>

Timing Output:	1 PPS (CMOS, active high, rising edge sync, 10 k $\Omega$ , 10 pF load)
Event Marker Input:	CMOS, active low, falling edge sync, 10 k $\Omega$

## Power

Input Voltage:	8 to 36 VDC
Power Consumption:	5.3 W nominal (GPS L1/L2 + GLONASS L1/L2) 6.2 W nominal (GPS L1/L2 + GLONASS L1/L2 + L-Band) 0.44 A nominal (GPS L1/L2 + GLONASS L1/L2) 0.52 A nominal (GPS L1/L2 + GLONASS L1/L2 + L-Band)
Current Consumption:	
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 $\Omega$

## 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:	645 g (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

<sup>1</sup> Depends on multipath environment, number of satellites in view, satellite geometry, no SA, and ionospheric activity

<sup>2</sup> Depends on multipath environment, number of satellites in view, WAAS coverage and satellite geometry

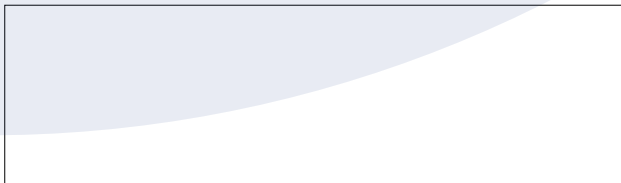
<sup>3</sup> Requires a subscription from OmniSTAR<sup>®</sup>

<sup>4</sup> Depends on multipath environment, number of satellites in view, satellite geometry, baseline length (for differential services), and ionospheric activity

<sup>5</sup> Upgrade required

<sup>6</sup> Hemisphere GNSS proprietary

## Authorized Distributor:



Copyright Hemisphere GNSS, Inc. All rights reserved. Specifications subject to change without notice.

Hemisphere GNSS, Hemisphere GNSS logo, Eclipse, Eclipse logo, R330, COAST, and SureTrack are trademarks of Hemisphere GNSS, Inc. OmniSTAR is a trademark of Trimble Navigation Limited  
Rev. 04/14



Hemisphere GNSS, Inc.  
8444 N 90th Street, Suite 120  
Scottsdale, AZ, USA 85258

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