

# R330 GNSS Receiver

## Multi-GNSS RTK, High Accuracy Receiver

**R330**

The R330™ GNSS receiver is a full solution product in a small box. 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) and Beacon.

The R330 GNSS receiver works well in any marine or land application where positioning accuracy is required. The base unit is configured with L1 GNSS, 10 Hz and raw data. The fully-upgraded unit can be optionally subscribed to L1/L2 GNSS, 20 Hz, RTK, L-band and Beacon. 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 Eclipse Suretrack™ technology that enables the receiver to model the phase on satellites the rover is tracking, which allows the operator to continue working without corrections from the base.

Powered by  
**Eclipse™**

### Key R330 GNSS Receiver Advantages

- High-precision positioning in RTK, GNSS, L1/L2 GNSS, SBAS, Beacon and L-band
- SureTrack technology improves RTK performance
- Benefit from fewer RTK dropouts in congested environments
- Faster reacquisitions and more robust solutions due to better cycle slip detection
- Status LEDs and menu system make R330 easy to monitor and configure
- Fast update rate of up to 20 Hz providing the best guidance and machine control
- Long-range RTK baselines of up to 50 km
- Uses standard USB flash drive for data logging



# R330 GNSS Receiver

## GNSS Sensor Specifications

Receiver Type: GNSS L1 & L2, RTK with carrier phase  
Signals Received: GPS, GLONASS and BeiDou<sup>4</sup>  
Channels: 270  
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: < 30 s typical (almanac and RTC)  
Hot Start Time: < 10 s typical (almanac, RTC and position)  
Maximum Speed: 1,850 kph (999 kts)  
Maximum Altitude: 18,288 m (60,000 ft)  
Differential Options: SBAS, Autonomous, External  
RTCM, RTK, L-band (VBS/HP/XP/G2)<sup>3</sup>

## Positioning Accuracy<sup>2</sup>

RMS (67%):	Horizontal	Vertical
Single Point, no SA:	1.2 m	2.5 m
SBAS (WAAS): <sup>2</sup>	0.3 m	0.6 m
L-band DGPS:	0.3 m	0.6 m
Code Differential GPS:	0.3 m	0.6 m
L-band L1/L2:	0.15 m	0.3 m
RTK:	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: EN50081-4-2 ESD

## 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  
Baud Rates: 4800 - 115200

Correction I/O Protocol: Hemisphere GPS proprietary, RTCM v2.3 (DGPS), RTK v3, CMR, CMR+<sup>1</sup>  
Data I/O Protocol: NMEA 0183, Hemisphere GPS binary  
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 $\Omega$   
USB Ports: 1 USB Host, 1 USB Device

## Power

Input Voltage: 8 to 36 VDC  
Power Consumption: 3.8 W nominal (WAAS and Beacon)  
4.6 W nominal (L-band)  
Current Consumption: 315 mA nominal (WAAS and Beacon)  
383 mA nominal (L-band)  
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: -40°C to +70°C (-40°F to +158°F)  
Storage Temperature: -40°C to +85°C (-40°F to +185°F)  
Humidity: 95% non-condensing  
Shock and Vibration: 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: 178 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, GPS lock, Differential lock, DGPS position, L-band lock  
Power/Data Connector: 2-pin metal ODU  
Antenna Connector: TNC-male, straight

Authorized Distributor:



HEMISPHERE GNSS  
8444 N. 90<sup>th</sup> Street, Suite 120  
Scottsdale, AZ 85258

<sup>1</sup> Receive only, does not transmit this format

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

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

<sup>4</sup> Upgrade required

Note: The Eclipse receiver technology is not designed or modified to use the GPS Y-Code

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