

R330 GNSS Receiver

Multi-GNSS RTK, High Accuracy Receiver

key features

- High-precision positioning in RTK, GNSS, L1/L2 GNSS, SBAS, Beacon and L-band
- Long range RTK baselines of up to 50 km
- 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



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.





R330 GNSS Receiver

GNSS Sensor Specifications

Receiver Type: GNSS L1 & L2, RTK with carrier phase
 Signals Received: GPS, GLONASS and BeiDou⁴
 Channels: 270
 SBAS Tracking: 3-channel, parallel tracking
 Update Rate: 10 Hz standard, 20 Hz optional
 Timing (1PPS): 20 ns
 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)³

Positioning Accuracy²

| RMS (67%): | Horizontal | Vertical |
|---------------------------|---------------|---------------|
| Single Point, no SA: | 1.2 m | 2.5 m |
| SBAS (WAAS): ² | 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+¹
 Data I/O Protocol: NMEA 0183, Hemisphere GPS
 binary

Receive only, does not transmit this format

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

³ Requires a subscription from OmniSTAR

⁴ Upgrade required

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

Authorized Distributor:

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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
 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)
 5 VDC maximum 80mA
 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: -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: 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, GPS lock, Differential lock,
 DGPS position, L-band lock
 Power/Data Connector: 2-pin metal ODU
 Antenna Connector: TNC-male, straight



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