R320 GNSS Receiver

Multi-GNSS RTK, High Accuracy Receiver

R320

Complete your work quickly and accurately with the R320™ GNSS Receiver. Built on Hemisphere GPS' Eclipse II™ platform, it boasts the latest GNSS patented technology and offers extremely quick start up and reacquisition times. The feature-rich standard model R320 tracks GPS L1/L2, SBAS and L-band (OmniSTAR® HP/XP/VBS) signals and can log raw data for post processing to a removable USB Flash Drive. Also included is Hemisphere GPS' exclusive COAST™ technology, which provides accurate positioning data during DGPS and SBAS correction outages. Upgrade your R320 now or later in the field by adding RTK base station functionality or RTK rover performance. Add GLONASS tracking for a cost effective, multi-GNSS solution compatible with other GNSS products.

Eclipse GNSS RTK with SureTrack®

RTK performance is scalable on the R320. Utilize the same centimeter-level accuracy with L1/L2 GPS, or improve performance and reliability with L1/L2 GNSS signals. Our exclusive SureTrack technology gives peace of mind knowing the RTK rover is making use of every satellite it is tracking, even satellites not tracked at the base. Benefit from fewer RTK dropouts in congested environments, faster reacquisitions and more robust solutions due to better cycle slip detection. SureTrack also removes concerns with using various manufacturers GNSS base. Even if the GNSS base delivers L1/L2 GPS, SureTrack with GLONASS at the rover will deliver RTK performance where others cannot. Rely on SureTrack technology from Hemisphere GPS.

Powered by Eclipse™

Key R320 GNSS Receiver Advantages

- High-precision positioning in RTK, OmniSTAR HP/XP/VBS, and SBAS/DGPS modes
- SureTrack technology improves RTK performance, especially with optional GLONASS tracking
- Long range RTK baselines of up to 50 km
- COAST technology maintains accurate solutions for 40 minutes or more after loss of DGPS or SBAS signal
- Uses standard USB Flash Drive for data logging
- Status LEDs and menu system make R320 easy to monitor and configure
- Integrated L-Band tracking powers down when not in use
- SBAS satellite ranging technology increases the number of satellites in view for greater RTK reliability
- Fast update rate of up to 20 Hz providing the best guidance and machine control

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GNSS Sensor Specifications

Receiver Type:	GNSS L1 & L2 RTK with carrier phase
Channels:	12 L1CA GPS 12 L1P GPS 12 L2P GPS 12 L2C GPS 12 L1 GLONASS (with subscription code) 12 L2 GLONASS (with subscription code) 3 SBAS or 3 additional L1CA GPS 1 L-Band
SBAS Tracking:	3
Update Rate:	10 Hz standard, 20 Hz available
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, OmniSTAR® (G2/HP/XP/VBS)

Horizontal Accuracy

	RMS (67%)	2DRMS (95%)
RTK: [2,3]	10 mm + 1 ppm	20 mm + 2 ppm
OmniSTAR HP: [2,4]	0.1 m	0.2 m
SBAS (WAAS): [2]	0.3 m	0.6 m
Autonomous, no SA: [2]	1.2 m	2.5 m

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
Timing Output:	1 PPS (HCMOS, active high, rising edge sync, 10 kΩ, 10 pF load)
Event Marker Input:	HCMOS, active low, falling edge sync, 10 kΩ
USB:	1 USB Host, 1 USB Device

Power

Input Voltage:	8 to 36 VDC
Power Consumption:	< 4.3 W nominal (using L-Band) < 3.5 W nominal (no L-Band)
Current Consumption:	355 mA nominal (@ 12 VDC using L-Band) 295 mA nominal (@ 12 VDC no L-Band)
Antenna Voltage Input:	15 VDC maximum
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:	Vibration: EP455 Section 5.15.1 Random Mechanical Shock: EP455 Section 5.14.1 Operational
EMC:	CE (IEC 60945 Emissions and Immunity) FCC Part 15, Subpart B CISPR22

Mechanical

Dimensions:	178 L x 120 W x 46 H mm (7.01 L x 4.72 W x 1.81 H in)
Weight:	0.64 kg (1.4 lbs)
Status Indication (LED):	Power, GPS lock, Differential lock, DGPS position, L-Band lock
Power/Data Connector:	2-pin metal ODU connector
Antenna Connector:	TNC-female, straight

Authorized Distributor:

1 Receive only, does not transmit this format.

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

3 Depends also on baseline length.

4 Requires a subscription from OmniSTAR.

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

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