

## R220 GPS Receiver Dual-Frequency RTK, High Accuracy Receiver



### R220

Complete your work quickly and accurately with the R220™ GPS Receiver. Built on Hemisphere GPS' Eclipse™ platform, it boasts the latest dual-frequency patented technology. It offers 39-channel tracking with extremely quick start up and reacquisition times. The R220 GPS Receiver utilizes RTK (RealTime Kinematic) for fast, reliable, long-range centimeter-level performance. In addition to RTK, it tracks GPS, SBAS and L-Band (OmniSTAR® HP/XP). It also features Hemisphere GPS' exclusive COAST™, which provides accurate positioning data during differential correction outages.

For professional mapping, guidance, machine control and navigation applications, the R220 GPS Receiver provides an extremely accurate, versatile and robust positioning solution at a more cost-effective price point than traditional dual-frequency RTK systems. These portable receivers are packed with features allowing them to provide accurate GPS positioning, in almost any environment, anywhere in the world.

Powered by  
**Eclipse™**



### Key R220 Advantages

- High-precision positioning in RTK, OmniSTAR HP/XP and SBAS/DGPS modes
- Integrated L-Band tracking powers down when not in use
- OmniSTAR subscriber access permits remote activation via satellite
- COAST™ technology maintains accurate solutions for 40 minutes or more after loss of differential signal
- Raw GPS data output available
- Fast update rates of up to 20 Hz providing the best guidance and machine control
- Uses a standard USB Flash Drive for data logging
- The status lights and menu system make the R220 easy to monitor and configure
- SBAS satellite ranging technology increases the number of satellites in view for greater reliability

# R220 GPS Receiver

## GPS Sensor Specifications

Receiver Type:	L1 & L2 RTK with carrier phase
Channels:	12 L1CA GPS 12 L1P GPS 12 L2P GPS 3 SBAS or 3 additional L1CA GPS
Update Rate:	10 Hz standard, 20 Hz available
Cold Start Time:	<60 s
Warm Start Time 1:	30 s (valid ephemeris)
Warm Start Time 2:	30 s (almanac and RTC)
Hot Start Time:	10 s typical (valid ephemeris and RTC)
Reacquisition:	<1 s
Positioning Modes:	Autonomous, SBAS, DGPS, RTK, OmniSTAR
DGPS Formats:	External RTCM v2.x
RTK Formats:	CMR, CMR <sup>1</sup> , RTCM v3.x, Proprietary
OmniSTAR Formats:	HP, XP

## Horizontal Accuracy

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

## L-Band Sensor Specifications

Channels:	Single channel
Frequency Range:	1530 to 1560 MHz
Satellite Selection:	Manual or Automatic (based on location)
Startup and Satellite	
Reacquisition Time:	15 seconds typical

## Communications

Serial Ports:	2 full duplex RS232
Baud Rates:	4800 - 115200
USB Ports:	1 Communications, 1 Flash Drive data storage
Correction I/O	
Protocol:	Hemisphere GPS proprietary, RTCM v2.3 (DGPS), RTCM v3 (RTK), CMR, CMR+
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

## Environmental

Operating Temperature:	-30°C to +65°C (-22°F to +149°F)
Storage Temperature:	-40°C to +85°C (-40°F to +185°F)
Humidity:	95% non-condensing

## Power

Input Voltage Range:	8 to 36 VDC
Consumption, RTK:	<4.9W (0.40A @ 12 VDC typical)
Consumption, OmniSTAR:	<5.5W (0.46A @ 12 VDC typical)

## Mechanical

Height:	45 mm (1.77 in)
Width:	114 mm (4.49 in)
Length:	160 mm (6.30 in)
Weight:	0.54 kg (1.19 lbs)
LED Indicators:	Power, GPS lock, DGPS position
Power Connector:	2-pin micro-Conxall
Data Connectors:	DB9-female, USB
Antenna Connector:	TNC-male

<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> Depends also on baseline length.

<sup>4</sup> Requires a subscription from OmniSTAR.

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

## Authorized Distributor: