

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 ¹ , RTCM v3.x, Proprietary
OmniSTAR Formats:	HP, XP

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

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

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 GPSY-Code

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