

R100 Series DGPS Receiver

GPS Sensor Specifications

Receiver Type:	L1, C/A code, with carrier phase smoothing (Patented COAST™ technology during differential signal outage)
Channels:	12-channel, parallel tracking (10-channel when tracking SBAS)
SBAS Tracking:	2-channel, parallel tracking
Update Rate:	Up to 20 Hz position
Horizontal Accuracy:	<0.02 m 95% confidence (RTK ^{1,2}) <0.28 m 95% confidence (L-Dif™ ^{1,2}) <0.6 m 95% confidence (DGPS ^{1,3}) <2.5 m 95% confidence (autonomous, no SA ¹)
Cold Start:	60 s (no almanac or RTC)

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

Beacon Sensor Specifications

Channels:	2-channel, parallel tracking
Frequency Range:	283.5 to 325 kHz
MSK Bit Rates:	50, 100, and 200 bps

Communications

Serial Ports:	2 full duplex
USB Ports:	1 Communications (USB-B)
Interface Level:	RS-232C
Baud Rates:	4800, 9600, 19200, 38400, 57600
Correction Input /	
Output Protocol:	RTCM SC-104
Data Input / Output	
Protocol:	NMEA 0183
Raw Data:	Proprietary binary (RINEX utility available)
Timing Output:	1 PPS (HCMOS, active high, rising edge sync, 10 kΩ, 10 pF load)
Event Marker:	Yes

¹ Depends on multipath environment, antenna selection, number of satellites in view, satellite geometry, and ionospheric activity

² Up to 5km baseline length

³ Depends also on baseline length

Environmental

Operating Temperature:	-32°C to +74°C (-25°F to +165°F)
Storage Temperature:	-40°C to +85°C (-40°F to +185°F)
Humidity:	95% non-condensing
Shock and Vibration:	EP 455
EMC:	FCC Part 15, Subpart B, Class B CISPR 22 CE

Power

Input Voltage Range:	8 to 36 VDC
Reverse Polarity	
Protection:	Yes
Power Consumption:	3 W
Current Consumption:	< 250 mA @ 12 VDC
Antenna Voltage Output:	5.0 VDC
Antenna Short Circuit	
Protection:	Yes

Mechanical

Enclosure:	Powder-coated aluminum
Dimensions:	160 mm L x 114 mm W x 45 mm H (6.3" L x 4.5" W x 1.8" H)
Weight:	0.54 kg (1.20 lb)
LED Indicators:	Power, GPS lock, DGPS position
Power Connector:	2-pin micro-Conxall
Data Connectors:	DB9-female x2
Antenna Connector:	TNC-female

R100 Series Configuration Options

	R100	R110	R120	R130
GPS	●	●	●	●
SBAS	●	●	●	●
Beacon		●		●
OmniSTAR®			●	●

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