Crescent® R100 Series DGPS Receiver

High Accuracy, Multipurpose Receivers

Complete your work quickly and accurately with the Crescent R100 series DGPS receiver. Rely on consistent sub-meter performance with standard SBAS differential and Hemisphere GPS' exclusive COAST technology that maintains accuracy during temporary loss of differential signal. The Crescent R100 offers many differential correction options for various environments and worldwide coverage. The simple user interface and extensive software features make the Crescent R100 the ideal solution for professional mapping, guidance and navigation applications.

Powered by Crescent

The latest Hemisphere GPS products are powered by Crescent Receiver Technology, the future of precision GPS.

Key Crescent R100 Series Advantages

- Feature-packed sub-60cm DGPS Positioning
- Differential options including SBAS (WAAS, EGNOS, etc.), Radio Beacon, OmniSTAR
- Exclusive e-Dif® option where other differential correction signals are not practical
- COAST™ technology maintains accurate solutions for 40 minutes or more after loss of differential signal
- Fast output rates of up to 20 times per second provide the best guidance and machine control
- Compatible with our exclusive L-Dif™ technology, for applications requiring accuracy under 20cm
- The status lights and menu system make the R100 Series easy to monitor and configure

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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)
WAAS Tracking:	2-channel, parallel tracking
Update Rate:	Up to 20 Hz position
Horizontal Accuracy:	<0.6 m 95% confidence (DGPS*) <2.5 m 95% confidence** (autonomous, no SA)
Cold Start:	60 s (no almanac or RTC)
Antenna Input Impedance:	50 Ω

Beacon Sensor Specifications

Channels:	2-channel, parallel tracking
Frequency Range:	283.5 to 325 kHz
Channel Spacing:	500 Hz
MSK Bit Rates:	50, 100, and 200 bps
Operating Modes:	Manual, automatic, database
Cold Start Time:	< 60 seconds typical
Reacquisition Time:	< 2 seconds typical
Demodulation:	Minimum Shift Keying (MSK)
Sensitivity:	2.5 µV for 6 dB SNR @ 200 bps
Dynamic Range:	100 dB
Frequency Offset:	± 8 Hz (~ 27 ppm)
Adjacent Channel Rejection:	61 dB ± 1 dB @ fo ± 400 Hz

Communications

Serial Ports:	2 full duplex
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 Measurement Data:	Proprietary binary (RINEX utility available)
Timing Output:	1 PPS (HCMOS, active high, rising edge sync, 10 kΩ, 10 pF load)

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

Power

Input Voltage Range:	8 to 36 VDC
Reverse Polarity Protection:	Yes
Power Consumption:	3W
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
Antenna Connector:	TNC-male

Data Pin-out

Port A	
Pin 2	Transmit Data A (Tx)
Pin 3	Receive Data A (Rx)
Pin 5	Signal Ground
Pin 6	Event Marker
Pin 9	1 PPS Output
Port B	
Pin 2	Transmit Data B (Tx)
Pin 3	Receive Data B (Rx)
Pin 5	Signal Ground

* Depends on multipath environment, number of satellites in view, satellite geometry, baseline length (for local services) and ionospheric activity

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