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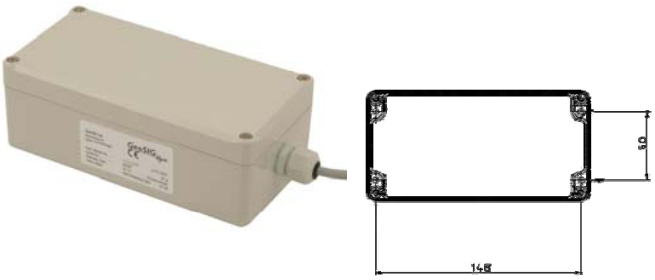
GXR-GPS Receiver

Features

- **1 microsecond time accuracy**
- **<3 m position accuracy DGPS**
  15 m position accuracy Non-DGPS
- **<2 seconds re-acquisition**
  15 seconds warm acquisition
  45 seconds cold acquisition
- **Programmable update rate**
  from 1 second to 15 minutes
- **Built in antenna**
- **Rugged, water resistant housing**



Outline

The GXR-GPS is a state of the art GPS receiver module which employs GARMIN GPS-18 that is a complete GPS receiver and embedded antenna designed for a broad spectrum of system applications.

The GPS-18 tracks up to twelve satellites at a time while providing one-second navigation updates and low power consumption. Its far-reaching capability meets the sensitivity requirements of seismic applications.

The GPS-18 design utilizes the latest technology and high-level circuit integration to achieve superior performance while minimizing space and power requirements.

The GXR-GPS is housed in a water-resistant case and designed to withstand rugged operating conditions. The host system may communicate with the GXR-GPS via a dedicated, compatible, bi-directional communication channel. Internal memory backup allows the GXR-GPS to retain critical data such as satellite orbital parameters, last position, date, and time.

Specifications GXR-GPS Receiver

General Characteristics

Type:	GXR-GPS: Signal upto 70 m GXR-GPS-485: Signal upto 1000 m
Receiver:	Differential-ready 12 parallel channel receiver tracks and uses up to twelve satellites to compute and update.
Cable	20 m standard Optional upto 1000 m
Antenna	Built in

Acquisition Times

Update Rate	1 sec, continuous
Acquisition*	<2 sec; re-acquisition 15 sec; warm 45 sec; cold 5 min; AutoLocate 5 min; SkySearch

Accuracy

Time Accuracy	1 microsec
Position Accuracy	
Differential GPS (DGPS):	<3 m
Non-differential GPS:	< 15 m**
Velocity Accuracy	0.1 m/sec RMS steady state (subject to Selective Availability)
Dynamics	999 knot; 6 g

Power

Input Voltage	4 - 5.5 VDC, typically 65 mA @ 12 VDC
Backup Power	Internal rechargeable battery to maintain the real-time clock for upto 3 weeks.

Interfaces

RS-232 compatible (standard)
RS-485 compatible (optional)

Input

Initial position, date, and time (not required)
Earth datum and differential mode configuration command, almanac

Outputs

Position, velocity, and time
Receiver and satellite status
Differential reference station ID and RTCM data age
Geometry and error estimates
Raw measurement output for both psuedorange and phase data
PWR_DN power down power management under logic level control
Real-time Differential Correction input (RTCM format)
PPS (pulse per second) output

Environment/Housing

Size	80 mm x 160 mm x 60 mm
Weight	200 g, not including cable
Operating Temperature	-30°C to +80°C (internal temperature)
Storage Temperature	-40°C to +80°C

* Warm = all data known.
Cold = position, time and almanac known.
AutoLocate™ = almanac known, position and time unknown.
SkySearch = no data known.

** Subject to accuracy degradation to 100m 2DRMS under the Selective Availability Program.