Acutis DGPS

6-Channel Differential GPS Sensor

Description

Differential GPS relies on GPS corrections computed by a reference station placed at a precisely known location. For marine navigation, these corrections are broadcasted by selected marine radio beacons. A beacon receiver, like the Trimble NavBeaconXL, decodes the differential beacon broadcast and outputs the GPS corrections in the RTCM SC-104 format. Differential-capable GPS receivers, like the Acutis DGPS, use the RTCM SC-104 data to correct the errors caused by Selective Availability, the atmosphere and ionosphere and other GPS system errors.

The Acutis DGPS is a high-performance, 6-channel DGPS receiver and antenna integrated in a compact weatherproof enclosure which mounts like an antenna. It accepts GPS corrections in the RTCM SC-104 format and outputs precise position, course, speed and time measurements using the NMEA 0183 protocol. When GPS corrections are not available, the Acutis DGPS outputs standard GPS solutions. The Acutis DGPS operates automatically when power is applied. It is designed to serve as a differential GPS sensor for a broad range of navigation equipment including plotters, depth sounders, fish finders, and radars.

Performance Characteristics

General:	6-channel, digital GPS receiver; tracks up to 8 satellites
Update Rate:	1 second
Output Interval:	5 seconds
Acquisition Time:	2.5 to 3.0 minutes (typical)
Accuracy	
DGPS*:	Position: 3 to 10 meters RMS Velocity: 0.1 knots RMS steady-state
GPS (no S/A):**	Position: 15 meters Velocity: 0.1 knots RMS steady-state
Dynamic Tracking:	Velocity: 0-650 mph (0-300 m/sec) Acceleration: 2g
Datum:	WGS-84

Physical Characteristics

Antenna/Receiver:	
Dimensions:	5.8" D x 3.9" H (14.7 cm x 9.9 cm)
Weight:	1 lb.
Power Consumption:	2 watts
Voltage:	12 and 24 volt DC systems, 28 volt max.
Operating Temp:	-30° to +70°C
Storage Temp:	-40° to +80°C
Humidity:	100% non-condensing
Cable Length:	50 feet (15 meters)
Description:	Multi-conductor, shielded cable with a weatherproof jacket and connector

Interfacing Capabilities

Plotters **Depth Sounders** **Fish Finders** **Radars** **ARPAs** **Computers**	The Acutis DGPS is designed to interface with a broad range of marine navigation equipment. It has been successfully interfaced with equipment in the categories listed to the left. If your equipment accepts external position data conforming to the NMEA 0183 protocol, the Acutis DGPS is probably compatible with your equipment. Consult your equipment manuals for information on external data inputs.
Input Protocol:	RTCM SC-104 version 1.0 or 2.0 Message Type I, II, IX (including Type IX messages only)
Output Protocol:	NMEA 0183
Standard Output:	GLL: Latitude and Longitude GGA: GPS Position VTG: Course and Speed over Ground RMC: Position, COG, SOG, Date & Time RMC: (applies only to PN 18637-11) Other: Trimble Navigation may add other NMEA sentences to the standard output to maximize compatibility.
Baud Rate:	4800
Electrical Interface:	RS-422
Custom Outputs:	See OEM Options

OEM Options

The Acutis DGPS is also offered as an OEM module and can be customized to meet special requirements.
The options include:

- Output Interval
- Output Protocol: NMEA 0183, TSIP, Custom
- Operating Mode: 2-D, 3-D, Automatic
- Satellite Masks: Elevation, SNR, PDOP, PDOP Switch
- Baud Rate: 1200, 2400, 4800 or 9600
- Interface Type: RS-422 or RS-232
- Voltage Range 0→5v ± 12 DC
- Datum

For more information on OEM products and options, contact Trimble Navigation at 1-800-787-4225 inside U.S. 408-481-7920 outside U.S.

* Note: DGPS accuracy is highly dependent on the quality of the correction data and the PDOP of the satellite constellation. Old, infrequent, or inaccurate correction data will degrade the accuracy of the DGPS solution. The 3- to 10-meter DGPS accuracy range is based on 3-D position solutions with PDOPs below 7.

**Note: Standard GPS position and velocity accuracies are subject to intentional degradation under Department of Defense imposed Selective Availability (S/A). Position may be degraded up to 328 feet (100 meters) 2-D RMS. The effect of S/A on velocity measurements is significant, but is yet to be specified. Differential GPS corrects for the effects of S/A.

Specifications subject to change without notice.

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THE GPS SOLUTION

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