

KEY FEATURES

220 Channels for Multi-Constellation GNSS Support

Flexible RS232, USB, Ethernet or CAN Interfacing

Centimeter level position accuracy

Proven Trimble Maxwell 6 technology

Compact Form Factor

COMPACT, LOW-POWER GNSS RECEIVER SPEEDS DEVELOPMENT OF ADVANCED POSITIONING APPLICATIONS.

THE LATEST IN GNSS TECHNOLOGY FROM TRIMBLE IS NOW AVAILABLE TO ORIGINAL EQUIPMENT MANUFACTURERS (OEM) AND SYSTEM INTEGRATORS.

The Trimble® BD970 GNSS system is a compact multi-constellation receiver designed to deliver centimeter accuracy to a variety of applications. With the Trimble BD970, OEM's and integrators can be assured their investment is sound today and into the future. The Trimble BD970 GNSS supports a wide range of satellite signals, including GPS L2C and L5 and GLONASS L1/L2 signals. In addition, Trimble is committed to the next generation of modernized GNSS configurations by providing Galileo-compatible products available for customers well in advance of Galileo system availability. In support of this plan, the new Trimble BD970 is capable of tracking the experimental GIOVE-A and GIOVE-B test satellites for signal evaluation and test purposes.^{1,2}

DEMONSTRATED PERFORMANCE

Industry professionals trust Trimble embedded positioning technologies as the core of their precision applications. With the latest Trimble-precise Maxwell™ 6 technology, the BD970 provides assurance of long-term future-proofing and trouble-free operation. Moving the industry forward, the Trimble BD970 redefines high-performance positioning:

- On-board multipath mitigation
- Proven low-elevation tracking technology
- Dramatically improved RTK initialization

FLEXIBLE INTERFACING

The Trimble BD970 was designed for easy integration and rugged dependability. Customers benefit from the Ethernet connectivity available on the board, allowing high speed data transfer and configuration via standard web browsers. USB, RS232 and CAN are also supported. Just like other Trimble embedded technologies, easy to use software commands simplify integration and reduce development times. All software features are password-upgradeable, allowing functionality to be upgraded as your requirements change.

COMPACT DESIGN

The compact form factor is suitable for applications where lightweight is a necessity. The BD970 is rigorously tested to perform in the harsh environments your products are built for, with the reliability you expect from Trimble.



TRIMBLE BD970 GNSS RECEIVER MODULE

TECHNICAL SPECIFICATIONS

- 220 Channels:
 - GPS: Simultaneous L1 C/A, L2E, L2C, L5
 - GLONASS: Simultaneous L1 C/A, L1 P, L2 C/A (GLONASS M Only), L2 P
 - SBAS: Simultaneous L1 C/A, L5
 - GIOVE-A: Simultaneous L1 BOC, E5A, E5B, E5AltBOC¹
 - GIOVE-B: Simultaneous :L1 CBOC, E5A, E5B, E5AltBOC¹
 - GALILEO: Disabled²
- Advanced Trimble Maxwell 6 Custom Survey GNSS Technology
- High precision multiple correlator for GNSS pseudorange measurements
- Unfiltered, unsmoothed pseudorange measurements data for low noise, low multipath error, low time domain correlation and high dynamic response
- Very low noise GNSS carrier phase measurements with <1 mm precision in a 1 Hz bandwidth
- Signal-to-Noise ratios reported in dB-Hz
- Proven Trimble low elevation tracking technology
- Initialization time³ typically <10 seconds
- Initialization reliability³ >99.9%
- 1 USB port
- 1 CAN port
- 1 LAN Ethernet port:
 - Supports links to 10BaseT/100BaseT networks
 - All functions are performed through a single IP address simultaneously—including web GUI access and raw data streaming
 - Network Protocols supported
 - ▶ HTTP (web GUI)
 - ▶ FTP Server (when data logging is enabled)
 - ▶ FTP Push (when data logging is enabled)
 - ▶ NTP Server
 - ▶ NMEA, GSOF, CMR etc over TCP/IP or UDP
 - ▶ NTripCaster, NTripServer, NTripClient
 - ▶ mDNS/UPnP Service discovery
 - ▶ Dynamic DNS
 - ▶ eMail alerts
 - ▶ Network link to Google Earth
 - ▶ Support for external modems via PPP
- 3 x RS232 ports
 - Baud rates up to 115,200
- 1 Hz, 2 Hz, 5 Hz, 10 Hz, 20 & 50 Hz positioning outputs (depends on installed option)
- Up to 50 Hz raw measurement & position outputs
- Reference outputs CMR, CMR+, RTCM 2.1, 2.2, 2.3, 3.0 , 3.1
- Navigation outputs ASCII: NMEA-0183 GSV, AVR, RMC, HDT, VGK, VHD, ROT, GGK, GGA, GSA, ZDA, VTG, GST, PJT, PJK, BPO, GLL, GRS, GBS and Binary: Trimble GSOF
- Control Software
 - HTML web browser. Internet Explorer 7.0 or later
 - Firefox 3.5 or later
 - Safari 4.0
 - Opera 9
 - Google Chrome

- 1 Pulse Per Second Output
- Event Marker Input Support
- LED drive support. 3 (indicating Power, Satellite Tracking, and Differential Data)

POSITIONING SPECIFICATIONS

Mode	Accuracy ⁴	Latency ⁵	Maximum Rate
Synchronized RTK	1 cm + 1 ppm Horizontal 2 cm + 1 ppm Vertical	300 ms ⁶	10 Hz
Low Latency RTK	2 cm + 2 ppm Horizontal ⁷ 3 cm + 2 ppm Vertical	<20 ms	50 Hz
DGPS	<1 m 3D	<20 ms	50 Hz
SBAS ⁸	<5 m 3D	<20 ms	50 Hz

PHYSICAL CHARACTERISTICS

- Size 100 mm X 60 mm X 11.6 mm
- Power 3.3V DC +5%/-3%
Typical 1.4W (L1/L2 GPS)
Typical 1.5W (L1/L2 GPS and G1/G2 GLONASS)
- Connectors
 - I/O 24-pin header + 6-pin header
 - Antenna MMCX receptacle

ENVIRONMENTAL CHARACTERISTICS⁹

- Temperature
 - Operating -40 °C to +75 °C
 - Storage -55 °C to +85 °C
- Vibration MIL810F, tailored
Random 6.2 gRMS operating
Random 8 gRMS survival
- Mechanical shock MIL810D
±40 g operating
±75 g survival

ORDERING INFORMATION

- Module Trimble BD970 GNSS available in a variety of configurations from L1 DGPS upwards
- Evaluation Kit Includes interface board and power supply

1 Galileo GloVE-A and GloVE-B test satellite support uses information that is unrestricted in the public domain and is intended for signal evaluation and test purposes.
 2 The hardware is compliant to Galileo OS SIS ICD, Draft 1, February 2008. Commercial sale of Galileo technology requires Trimble to acquire a Commercial license from the EU. At the time of writing there is no process for obtaining a license. Therefore to comply with the ICD Copyright/IPR terms all Galileo firmware/hardware functionality have been disabled. Depending upon the terms of the license an upgrade to full Galileo (L1 CBOC, E5A, E5B, E5AltBOC) may be offered. This will require an additional fee.
 3 May be affected by atmospheric conditions, signal multipath, and satellite geometry. Initialization reliability is continuously monitored to ensure highest quality.
 4 1 sigma level.
 5 At maximum output rate.
 6 Dependent on data link throughput.
 7 Assumes 1 second data link delay.
 8 Depends on SBAS system performance.
 9 Dependent on appropriate mounting/enclosure design.

Specifications subject to change without notice.

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