

### KEY FEATURES

Proven GNSS technology from Trimble

Centimeter level position accuracy

OmniSTAR XP/HP support

Convenience of Ethernet connectivity

Easy-to-integrate form factor and software commands



### EMBEDDED GNSS RECEIVER SPEEDS DEVELOPMENT OF ADVANCED POSITIONING APPLICATIONS

**THE GNSS (GLOBAL NAVIGATION SATELLITE SYSTEM) INDUSTRY IS GROWING AND EVOLVING TO ADOPT NEW SIGNAL TECHNOLOGIES. BY ADOPTING MODERNIZED GPS AND GLONASS SIGNAL POSITIONING, APPLICATIONS REACH NEW LEVELS OF PERFORMANCE AND PRODUCTIVITY.**

The Trimble® BD960 GNSS system is a multi-channel, multi-frequency, OEM GNSS receiver, in a compact Eurocard form factor. The latest, Trimble centimeter-level positioning technology is now available in an easy-to-integrate module. With the Trimble BD960, OEMs and integrators can easily harness both the modernized GPS L2C and L5 signals and GLONASS L1/L2 signals. This GNSS support is available now, with the confidence of working with proven technology.

#### DEMONSTRATED PERFORMANCE

Industry professionals trust Trimble embedded positioning technologies as the core of their precision applications. With the latest Trimble-precise Maxwell® technology, the BD960 provides assurance of long-term future-proofing and trouble-free operation.

Moving the industry forward, the Trimble BD960 redefines high-performance positioning:

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

#### OMNISTAR SUPPORT

For land and air applications where decimeter-precision is required, onboard OmniSTAR satellite service is a convenient option. OmniSTAR satellite-based services are available in specific geographic regions worldwide and require a subscription from the service provider (check with OmniSTAR for availability and operating constraints in your area). The Trimble BD960 supports the three levels of Differential GPS Service provided by OmniSTAR: VBS, HP, and XP.

#### PROVEN DESIGN

The Trimble BD960 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. The compact, Eurocard form-factor is suitable for many of the most ambitious designs. 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. The BD960 is rigorously tested to perform in harsh environmental conditions with the reliability you expect from Trimble.

# TRIMBLE BD960 GNSS RECEIVER MODULE

## TECHNICAL SPECIFICATIONS

- Advanced Trimble Maxwell 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 receiver noise GNSS carrier phase measurements with <1 mm precision in a 1 Hz bandwidth
- Signal-to-Noise ratios reported in dB-Hz
- 72 Channels:
  - GPS L1 C/A Code, L2C, L1/L2/L5<sup>1</sup> Full Cycle Carrier
  - GLONASS L1 C/A Code, L1 P Code, L2 C/A<sup>2</sup>, L2 P Code, L1/L2 Full Cycle Carrier
- 4 additional channels for SBAS WAAS/EGNOS/MSAS support
- L-Band OmniSTAR VBS, HP & XP
- 1 LAN port:
  - supports links to 10BaseT/100BaseT networks
  - all functions are performed through a single IP address simultaneously—including web GUI access and data streaming
- 3 x RS232 ports:
  - Baud rates up to 115,200
- 1 Hz, 2 Hz, 5 Hz, 10 Hz and 20 Hz positioning and data streaming outputs
- Reference outputs CMR, CMR+, RTCM 2.1, 2.2, 2.3, 3.0
- Control Software:
  - HTML web browser. Internet Explorer 7.0 or later,
  - Firefox 2.0 or later
- 1 Pulse Per Second Output
- Event Marker Input Support

Initialization time<sup>3</sup> . . . . . typically <30 seconds  
 Initialization reliability<sup>3</sup> . . . . . >99.9%  
 Navigation outputs . . . . . ASCII: NMEA-0183 GSV, AVR, RMC, HDT, VGK, VHD, ROT, GGK, GGA, GSA, ZDA, VTG, GST, PJT, PJK and Binary: Trimble GSOF  
 LED drive support. . . . . 3  
 (indicating Power, Satellite Tracking, and Differential Data)

## POSITIONING SPECIFICATIONS

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

## PHYSICAL CHARACTERISTICS

Size . . . . . 100 mm x 106.7 mm x 12.7 mm  
 Power . . . . . 4.9 V DC to 28 V DC  
 Typical 2.1 W at 5 V DC (L1/L2 GPS)  
 Connectors  
 I/O . . . . . 34-pin header  
 Antenna . . . . . MMCX receptacle

## ENVIRONMENTAL CHARACTERISTICS

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 BD960 GNSS available in a variety of configurations from L1 DGPS upwards  
 Starter Kit . . . . . Includes BD960 receiver, I/O board, Power Supply, Configuration Software and reference manual

1 The availability of the L5 signal is dependent on the US Government.  
 2 L2 C/A on GLONASS-M satellites.  
 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.

Specifications subject to change without notice.

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**NORTH AMERICA**  
 Pacific Crest Corporation  
 990 Richard Avenue  
 Suite 110  
 Santa Clara, CA 95050  
 USA  
 +1-408-653-2070 Phone  
 +1-408-748-9984 Fax

**EUROPE**  
 Pacific Crest Corporation  
 HAL Trade Center  
 Bevelandseweg 150  
 1703 AX Heerhugowaard  
 THE NETHERLANDS  
 +31-0-725-764-175 Phone  
 +31-0-725-764-176 Fax



**NORTH AMERICA**  
 Trimble Engineering  
 & Construction Group  
 5475 Kellenburger Road  
 Dayton, Ohio 45424-1099 • USA  
 800-538-7800 (Toll Free)  
 +1-937-245-5154 Phone  
 +1-937-233-9441 Fax

**EUROPE**  
 Trimble GmbH  
 Am Prime Parc 11  
 65479 Raunheim • GERMANY  
 +49-6142-2100-0 Phone  
 +49-6142-2100-550 Fax

**ASIA-PACIFIC**  
 Trimble Navigation  
 Singapore Pty Limited  
 80 Marine Parade Road  
 #22-06, Parkway Parade  
 Singapore 449269 • SINGAPORE  
 +65-6348-2212 Phone  
 +65-6348-2232 Fax