

Trimble GNSS boardsets are sold and supported through Pacific Crest Corporation.

Pacific Crest, a Trimble company, specializes in delivering positioning technologies that OEM and system integrators can adopt to bring advanced products to market faster.

### KEY FEATURES

Easy to integrate rugged package

Proven Trimble GNSS technology

Industry standard D-sub connectors

Multiple configurations to suit accuracy/  
price requirements

Convenience of Ethernet connectivity

### RUGGED RECEIVER ENCLOSURE HOUSING A SINGLE OR DUAL TRIMBLE BD960 OEM GNSS MODULE

**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.**

#### **BX960 GNSS RUGGED RECEIVER ENCLOSURE**

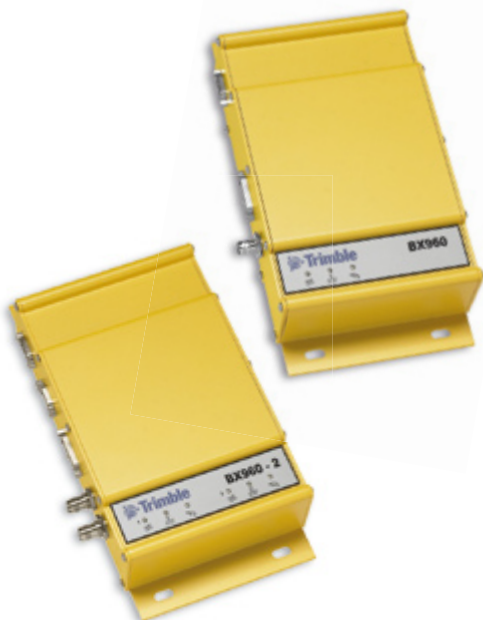
The Trimble® BX960 GNSS receiver enclosure is a multi-channel, multi-frequency, OEM GNSS receiver. Harnessing the power of the Trimble BD960 module, the receiver allows OEM's and system integrators to rapidly integrate centimeter-level positioning into their application. Industry standard D-sub connectors provide access to all power and communications. Both serial and Ethernet connectivity are supported. Multiple configurations are available from L1 DGPS to the fully loaded RTK unit tracking GPS L1/L2/L5 and GLONASS L1/L2 signals.

Industry professionals trust Trimble embedded positioning technologies as the core of their precision applications. With the latest Trimble-precise Maxwell® technology, the BX960 provides assurance of long-term futureproofing and trouble-free operation.

#### **BX960-2 GNSS RUGGED RECEIVER ENCLOSURE**

The Trimble BX960-2 GNSS receiver packages two Trimble BD960 modules in a single rugged enclosure. This allows a Moving Baseline RTK solution to be calculated between two antennas. The resulting centimeter accurate vector and heading information can be output to the serial port in ASCII or binary format. This addresses a range of precise navigation applications where both centimeter accurate positions and precise heading is required. For less demanding accuracy applications DGPS and OmniSTAR versions are available.

Both receivers were designed for easy integration and rugged dependability. Customers benefit from the Ethernet connectivity available, allowing high speed data transfer and configuration via standard web browsers. 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 BX960 is rigorously tested to perform in harsh environmental conditions with the reliability you expect from Trimble.



# TRIMBLE BX960 GNSS RUGGED RECEIVER ENCLOSURE

## 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 (BX960-2 contains a second 72 channel receiver configured for heading only)
- 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
- BX960 has 2 x RS232 ports and BX960-2 has 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
  - PC Utilities including Configuration Toolbox
- 1 Pulse Per Second Output

Initialization time<sup>3</sup> . . . . . typically <10 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's:  
 BX960 GNSS receiver enclosure . . . . . 3  
 BX960-2 GNSS receiver enclosure . . . . . 6  
 (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

## HEADING SPECIFICATIONS (BX960-2 GNSS RECEIVER ONLY)

Baseline	Accuracy <sup>4</sup>	Maximum Rate
10 m	<0.06°	10 Hz
1 m	<0.57°	10 Hz

## PHYSICAL CHARACTERISTICS

Size . . . . . 261 mm x 140 mm x 55 mm  
 Power . . . . . 9 V DC to 28 V DC  
 Maximum 8.8 W (BD960-2)  
 Connectors  
 I/O . . . . . D-sub DE9 and DA26 (BX960-2 has an additional DE9)  
 Antenna . . . . . TNC (BX960-2 has an additional TNC)

## 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 BX960 GNSS receiver enclosure available in a variety of configurations from L1 DGPS upwards

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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