Trimble BX940
TRIPLE FREQUENCY RECEIVER WITH INTEGRATED INERTIAL NAVIGATION SYSTEM IN RUGGED ENCLOSURE

GNSS AND INERTIAL TIGHT INTEGRATION
Taking advantage of Trimble’s expertise in both GNSS and Inertial technology the Trimble® BX940 enclosure has been designed for applications requiring continuous centimeter accuracy in a compact package. By integrating inertial sensors on the same module, robust high accuracy positions are produced in all environments.

The receiver is also ideal for use as a GNSS DGPS/RTK base station.

MULTI CONSTELLATION GNSS
The Trimble BX940 supports both triple frequency for the GPS and GLONASS constellations plus dual frequency from BeiDou and Galileo. As the number of satellites in the constellations grows the BX940 is ready to take advantage of the additional signals. This delivers the quickest and most reliable RTK initializations for 1–2 centimeter positioning.

For applications that do not require centimeter accuracy the BX940 integrated GNSS-Inertial engine delivers high accuracy GNSS, DGNSS positions in the most challenging environments such as urban canyons. Different configurations of the module are available. These include everything from a DGPS L1 unit all the way to a four constellation triple frequency RTK unit. Choose the receiver that suits your application and price point. All features are password-upgradeable, allowing functionality to be upgraded as your requirements change.

With the option of utilizing OmniSTAR or RTX services, the BX940 delivers varying levels of performance down to centimeter level without the use of a base station.

HIGH PERFORMANCE INTEGRATED INERTIAL SENSORS
The Trimble BX940 integrates the latest in precision inertial sensors in a compact package. With the BX940 you are buying a robust navigation solution, not just a GNSS receiver.

Key features include:
► High update rate position and orientation solutions
► Continuous positioning in GNSS denied environments
► Lever arm calculation from antenna to navigation point of interest
► Robust Moving Baseline RTK for precision landing on moving platforms
► Single antenna heading not influenced by magnetic field variations

FLEXIBLE INTERFACING
The Trimble BX940 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 and RS-232 are also supported. Just like other Trimble embedded technologies, easy to use software commands simplify integration and reduce development times. An intuitive 3D interactive graphical web page allows easy input of lever arms. Dynamic and graphic models for various vehicle types can also be selected.

RUGGED RECEIVER ENCLOSURE
The Trimble BX940 packages a single BD940-INS receiver module in a rugged enclosure. The unit comes in an environmentally sealed enclosure that is very easy to install. The unit is rigorously tested to perform in harsh environmental conditions with the reliability you expect from Trimble.

Key Features
► Trimble Maxwell 7 Technology
► Onboard high accuracy inertial sensor package integrated with GNSS for precise position and orientation
► 336 Channels for multi-constellation GNSS support
► OmniSTAR/RTX Support
► Rugged IP67 Enclosure
► Compact design for mobile applications
► Flexible RS232, USB and Ethernet interfacing
► Centimeter level position accuracy
► Advanced RF Spectrum Monitoring
Trimble BX940 MODULE

TECHNICAL SPECIFICATIONS

• Trimble Maxwell 7 Technology
• On-board Advanced MEMS inertial sensors
• 336 Tracking Channels:
  – GPS: L1 C/A, L2E, L2C, L5
  – BeiDou B1, B2
  – GLONASS: L1 C/A, L2 C/A, L3 CDMA
  – Galileo: E1, E5A, E5B, E5ab
  – IRNSS L5
  – QZSS: L1 C/A, L1 SAIF, L2C, L5, LEX
  – SBAS: L1 C/A, L5
  – MSS L-Band: OmniSTAR, Trimble RTX
• High precision multiple correlator for GNSS pseudorange measurements
• Unfiltered, unsmoothed pseudorange measurements data for low noise, low multipath error, low time correlation and high dynamic response
• Very low noise GNSS carrier phase measurements with <1 mm precision in 1 Hz bandwidth
• Proven Trimble low elevation tracking technology
• Reference outputs/inputs
  – CMR, CMR+, sCMR, RTCM 2.1, 2.2, 2.3, 3.0, 3.1, 3.2
• Navigation outputs
  – ASCII: NMEA-0183 GSV, AWR, RMC, HDT, VDG, VHD, ROT, GKG, GGA, GSA, ZDA, VTG, GST, PTP, PPK, PBO, GLL, GNS, GBS and Binary: Trimble GSOF, NMEA2000
• 1 Pulse Per Second Output
• Event Marker Input Support
• Supports Fault Detection & Exclusion (FDE), Receiver Autonomous Integrity Monitoring (RAIM)

COMMUNICATION

• 1 USB 2.0 Device port
• 1 LAN Ethernet port:
  – Supports links to 10BaseT/100BaseT auto-negotiate 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)
    > NTP Server
  – NMEA, GSOF, CMR over TCP/IP or UDP
  – NTripCaster, NtripServer, NtripClient
  – mDNS/uPnP Service discovery
  – Dynamic DNS
  – eMail alerts
  – Network link to Google Earth
  – Support for external moderns via PPP
  – RDNS Support
• 2 x RS232 ports:
  – baud rates up to 230400
• 1 CAN Port
• Control Software: HTML web browser, Internet Explorer, Firefox, Safari, Opera, Google Chrome

POSITIONING SPECIFICATIONS

No GNSS Outages

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<tr>
<th>Position (m)</th>
<th>Autonomous</th>
<th>SBAS</th>
<th>DGNSS</th>
<th>RTK</th>
<th>INS-Autonomous</th>
<th>INS-SBAS</th>
<th>INS-DGNSS</th>
<th>INS-RTK</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 (H) 150 (V)</td>
<td>0.50 (H) 0.85 (V)</td>
<td>0.25 (H) 0.50 (V)</td>
<td>0.006 (H) 0.025 (V)</td>
<td>1.00 (H) 1.50 (V)</td>
<td>0.50 (H) 0.85 (V)</td>
<td>0.40 (H) 0.60 (V)</td>
<td>0.05 (H) 0.03 (V)</td>
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</tbody>
</table>

Roll/Pitch (deg)

N/A

Heading (deg)

N/A

10 second GNSS Outages

<table>
<thead>
<tr>
<th>Position (m)</th>
<th>Autonomous</th>
<th>SBAS</th>
<th>DGNSS</th>
<th>RTK</th>
<th>INS-Autonomous</th>
<th>INS-SBAS</th>
<th>INS-DGNSS</th>
<th>INS-RTK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.50 (H) 1.80 (V)</td>
<td>1.20 (H) 2.20 (V)</td>
<td>1.00 (H) 2.00 (V)</td>
<td>0.30 (H) 0.20 (V)</td>
<td>0.30 (H) 0.20 (V)</td>
<td>0.10 (H) 0.20 (V)</td>
<td>0.10 (H) 0.20 (V)</td>
<td>0.10 (H) 0.20 (V)</td>
<td></td>
</tr>
</tbody>
</table>

Roll/Pitch (deg)

N/A

Heading (deg)

N/A

Contact your local Trimble Authorized Distribution Partner for more information

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