Trimble BD940-INS

TRIPLE FREQUENCY RECEIVER WITH INTEGRATED INERTIAL NAVIGATION SYSTEM AND MSS BAND DEMODULATOR

**GNSS AND INERTIAL TIGHT INTEGRATION**

Taking advantage of Trimble’s expertise in both GNSS and Inertial technology the Trimble® BD940-INS module 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 GNSS components are fully shielded. This design ensures the high quality signals are protected from the sources of EMI on the host platform.

**MULTI CONSTELLATION GNSS**

The Trimble BD940-INS 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 BD940-INS 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 BD940-INS integrates 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 BD940-INS delivers varying levels of performance down to centimeter-level without the use of a base station.

**HIGH PERFORMANCE INTEGRATED INERTIAL SENSORS**

The Trimble BD940-INS integrates the latest in precision inertial sensors in a compact package. With the BD940-INS 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 BD940-INS 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.

**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
- Trimble RTX and OmniSTAR Support
- EMI shielded module
- Compact design for mobile applications
- Flexible RS232, USB and Ethernet interfacing
- Centimeter-level position accuracy
- Advanced RF Spectrum Monitoring
**Trimble BD940-INS Module**

**PERFORMANCE SPECIFICATIONS**

- **Time to First Fix (TTFF)**
  - Cold Start: <45 seconds
  - Warm Start: <30 seconds
  - Signal Re-acquisition: <2 seconds
- **Velocity Accuracy**
  - Horizontal: 0.007 m/sec
  - Vertical: 0.020 m/sec
- **Maximum acceleration GNSS Tracking**
  - ±4g
- **Inertial Sensors**
  - Maximum acceleration: ±4g
  - Maximum angular rate: ±390 deg/sec
- **Maximum Operating Limits**
  - Temperature: -40 °C to +75 °C
  - Storage: -55 °C to +85 °C
  - Vibration: MIL-810F, tailored
  - Mechanical shock: MIL-810D
  - Minimum required LNA Gain: 20 dB
  - Operating Humidity: 5% to 95% R.H. non-condensing, at +60 °C

**PHYSICAL AND ELECTRICAL CHARACTERISTICS**

- **Size**: 60 mm x 67 mm x 15 mm
- **Weight**: 60 grams
- **Connectors**: I/O...
- **GNSS Antenna**: ...44-pin header
- **Antenna LNA Power Input**: ...3.3 VDC to 5 VDC
- **Maximum current**: ...<400 mA
- **Minimum required LNA Gain**: ...32.0 dB

**ENVIRONMENTAL CHARACTERISTICS**

- **Temperature**: -40 °C to +75 °C
- **Storage**: -55 °C to +85 °C
- **Vibration**: MIL-810F, tailored
- **Mechanical shock**: MIL-810D
- **Operating Humidity**: 5% to 95% R.H. non-condensing, at +60 °C

**ORDERING INFORMATION**

- **Module Part Number**: 112078-XX
- **Trimble BD940-INS GNSS**: available in a variety of configurations from L1 SBAS upwards

**SPECIFICATIONS**

- **Positioning Specifications**: Includes interface board, power supply

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**Datasheet**

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