z250

GNSS Receiver Enclosure with IPv4 NTP Server and Extended Operating Temperature Range

-40°C to +85°C

KEY FEATURES

Reduced size aluminum enclosure 108.5 x 84 x 30 mm

Compact design for mobile applications

220 Channels for multi-constellation GNSS support

GPS GLONASS

GALILEO COMPASS

QZSS SBAS

IPv4 NTP server

Integrated fully EMI shielded module

Advanced Kalman filter PVT engine

RS232, USB and Ethernet interfaces

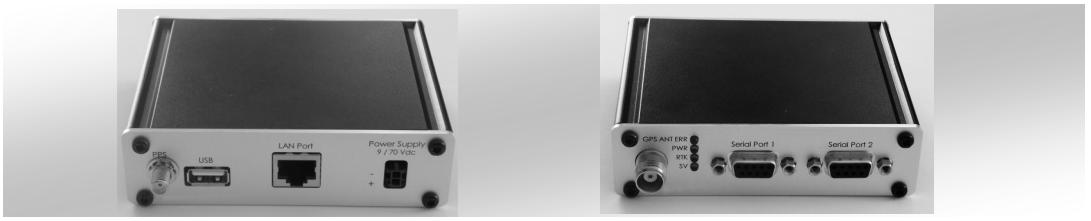
L1 RTK centimeter level position accuracy

Proven Trimble Maxwell 6 technology

Supports FDE and RAIM

SINGLE FREQUENCY GPS/GLONASS/GALILEO/COMPASS RECEIVER DELIVERS HIGHEST ACCURACY FOR MOBILE POSITIONING APPLICATIONS IN ROBUST ALUMINIUM ENCLOSURE

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



COMPACT FULL METAL JACKET DESIGN

The z250 product has been designed around the Trimble® BD910 GNSS receiver module, originally for applications requiring high accuracy from multiple GNSS constellations in a very small enclosure . Mobile platforms can now embed proven Trimble RTK technology using a very compact enclosure 108.5 x 84 x 30mm form factor.

Designed and manufactured in France, the product come fully tested whatever is the final configuration. This design ensures the high quality GNSS signals are protected from the sources of EMI on the host platform.

It also significantly reduces radiated emissions which speeds compliance certification and time to market.

MULTI CONSTELLATION GNSS

The z250 product supports the L1 frequency from the GPS, GLONASS, Galileo, and Compass constellations. An L1 RTK engine delivers 1–2 centimeter positions.

For applications that do not require centimeter accuracy the Trimble integrated module, BD910, contains an advanced Kalman filter PVT engine that delivers high accuracy GNSS, DGNSS or SBAS positions in the most challenging environments such as urban canyons.

Different configurations of the module are available from SBAS to multi-constellation L1 RTK.

All features are password-upgradeable, allowing functionality to be upgraded as your requirements change.

The receiver also supports Fault Detection and Exclusion (FDE) and Receiver Autonomous Integrity Monitoring (RAIM) for safety-critical applications.

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 Trimble BD910 provides assurance of long-term future proofing and trouble-free operation. Moving the industry forward, the Trimble BD910 redefines high-performance positioning:

- On-board multipath mitigation,
- Proven low-elevation tracking technology.

FLEXIBLE INTERFACING

The z250 product was designed for easy integration and rugged dependability. Customers benefit from the Ethernet connectivity available from RJ45 connection, allowing high speed data transfer and configuration via standard web browsers. USB and RS-232 are directly available from the enclosure.

As the product interface directly the Trimble module BD910, all the easy to use software commands simplify integration and reduce development times.

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GNSS Receiver Enclosure with IPv4 NTP Server and Extended Operating Temperature Range

TECHNICAL SPECIFICATIONS [1]

- 220 Channels:
  - GPS: L1 C/A
  - GLONASS: L1 C/A
  - Galileo: E1[2]
  - Compass: B1[3]
  - QZSS: L1 C/A, L1 SAIF
  - SBAS: L1 C/A
- 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 1Hz bandwidth
- Proven Trimble low elevation tracking technology
- 1 LAN Ethernet port (available from the rear panel):
  - 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)
    - IPv4 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 modems via PPP
- 2 x RS232 ports (available from the front panel)
  - Baud rates up to 115,200
- 1 x USB 2.0 port (available from the rear panel)
- Up to 20 Hz raw measurement & position outputs

Reference outputs/inputs . . . .CMR, CMR+, sCMRx, RTCM 2.1, 2.2, 2.3, 3.0, 3.1[3]

Navigation outputs . . . . . ASCII: NMEA-0183 GSV, AVR, RMC, HDT, VGK, VHD, ROT, GGK, GGA, GSA, ZDA, VTG, GST, PJT, PJK, BPQ, 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
- Supports Fault Detection & Exclusion (FDE), Receiver Autonomous Integrity Monitoring (RAIM)
- Antenna Open and Short-Cut detection/protection with LED indication.

POSITIONING SPECIFICATIONS [4]

RTK initialization time [4] ..... Typically < 1 minute

RTK initialization reliability [4] ..... > 99.9 %

Mode	Accuracy [5]	Latency [6]	Maximum Rate
Single Baseline RTK (< 5 km)	0.008 m + 1 ppm Horizontal 0.015 m + 1 ppm Vertical	< 30ms	20 Hz
DGNSS	0.25 m + 1 ppm Horizontal 0.50 m + 1 ppm Vertical	< 20ms	20 Hz
SBAS	0.50 m Horizontal 0.85 m Vertical	< 20ms	20 Hz

PERFORMANCE SPECIFICATIONS

Time to First Fix (TTFF) [8]

Cold Start [9] . . . . . <45 seconds

Warm Start [10] . . . . . <30 seconds

Signal Re-acquisition . . . . . <2 seconds

Velocity Accuracy [4,5]

Horizontal . . . . . 0.007 m/sec

Vertical . . . . . 0.020 m/sec

Acceleration . . . . . 11 g

Maximum Operating Limits [11]

Velocity . . . . . 515 m/sec

Altitude . . . . . 18,000 m

PHYSICAL AND ELECTRICAL CHARACTERISTICS

Size. . . . . 108.5 mm x 30 mm x 84 mm

With mounting bracket & connectors : 140.3 mm x 30 mm x 105 mm

Power. . . . . 9 V DC to 70 V DC

Typical 2.5 W (L1 GPS + L1 GLONASS, with antenna 25mA, no USB)

Weight . . . . . .280 grams

Connectors

Antenna . . . . . .TNC receptacle

RS232 serial ports. . . . . .2 x Sub-D9 female

Optional : RS422, TTL or USB

PPS. . . . . .SMA receptacle

USB. . . . . Type A receptacle

LAN. . . . . .RJ45 receptacle

Power. . . . . Molex Micro-Fit

Antenna connection

Output voltage . . . . . 5 V DC

Maximum current . . . . . 100 mA

Minimum required LNA Gain with 5dB cable loss . . . . . 29.5 dB

ENVIRONMENTAL CHARACTERISTICS [12]

Temperature

Operating . . . . . -40 °C to +85 °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

Operating Humidity . . . . . 5% to 95% R.H. non-condensing, at +60 °C

ORDERING INFORMATION

Enclosure . . . . . Available in as many variety as the Trimble BD910

Power Supply. . . . . 110/220 V to 12 Volt, 1A

Evaluation Kit . . . . . Includes enclosure, power supply and antenna with 5m cable

1. As the Trimble BD910 is available in a variety of software configurations, specifications shown reflect full capability.
2. Developed under a License of the European Union and the European Space Agency.
3. At the time of this publication, no public Compass ICD was available. The current capability in the receivers is based on publicly available information. As such, Trimble cannot guarantee that these receivers will be fully compatible with a future generation of Compass satellites or signals.
4. May be affected by atmospheric conditions, signal multipath, and satellite geometry. Initialization reliability is continuously monitored to ensure highest quality.
5. 1 sigma level, when using Trimble Zephyr 2 antennas.
6. At maximum output rate.
7. GPS only and depends on SBAS System performance. FAA WAAS accuracy specifications are <5 m 3DRMS.
8. Typical observed values.
9. No previous satellite (ephemerides / almanac) or position (approximate position or time) information.
10. Ephemerides and last used position known
11. As required by the U.S. Department of Commerce to comply with export licensing restrictions.
12. These are expected values, no test has been done.

Specifications are subject to change without notice.

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