TRIMBLE BD950
GPS RECEIVER MODULE

KEY FEATURES

Accurate and reliable centimeter-level positions

Supports GPS Modernization

Extremely low power requirements

Password upgradability and application flexibility

Easy-to-integrate form factor speeds development time

Maximum interopability with established GPS infrastructure

TIME-TESTED AND FIELD-PROVEN, THE TRIMBLE BD950 PROVIDES SYSTEMS INTEGRATORS WITH POWERFUL AND EASY-TO-INTEGRATE GPS FUNCTIONALITY

DUAL-FREQUENCY RTK GPS RECEIVER ON A SINGLE COMPACT CARD

The Trimble® BD950 GPS receiver provides an exceptional level of accuracy, ease of integration, and component life. Following the Eurocard form factor, the receiver is specifically designed to allow easy integration into specialized or custom hardware solutions. Accurate to the centimeter, the BD950 provides outstanding reliability in a wide range of guidance or control applications. The receiver's small size and low power requirements make it especially suitable for portable solutions.

ADVANCED TECHNOLOGY

The BD950 is built on Trimble's vast experience in the GPS industry. This 24-channel dual-frequency GPS/WAAS/EGNOS receiver has the built-in enchanced tracking technologies of the Trimble Maxwell™ 5 chip—providing robust tracking in difficult GPS environments, yet still using less than 1.5 watts of power.

The extremely low power requirements of the BD950 result in longer battery life, less heat, increased component life, and a more portable product.

ACCURACY AND RESPONSE TIMES

The BD950 achieves horizontal accuracies of 20 mm and vertical accuracies of 30 mm. This accuracy is matched with extremely fast responsiveness. The BD950 delivers positions to guidance or control loop software with a latency of less than 20 milliseconds at 20 times per second. For the most precise applications, it provides horizontal accuracies of 10 mm at a 10 Hz rate with a small increase in latency.

EASY TO UPGRADE

Scalable design provides the features you need for your current applications and the future. All options are password-upgradeable, enabling even a basic L1-only system to be upgraded to a full L1/L2 RTK unit.

INTERFACING AND CONFIGURATION EASE

The BD950 can be integrated into your application with minimal development required. An easy-to-use application file interface allows you to completely program the operation of the receiver with a single command. Alternatively, it can be configured by the Windows-based Configuration Toolbox or MS Controller software that is included with the BD950 Starter Kit. Multiple configurations can be stored as files and activated when needed. Local datum and transformation parameters may be loaded directly into the receiver. Therefore, output grid coordinates are compatible with both GPS and traditional survey systems. ASCII or binary messages may be output through any of the four bi-directional serial ports.

APPLICATIONS

The BD950 is ideal for a wide range of demanding positioning applications in the following markets:

- Agriculture
- Machine Control/Guidance
- Mining
- Marine
- Survey
- GIS
- Seismic
- Defense

Suitable for any application that requires precision GPS, the BD950 gives you the power to design with Trimble precision.

TRIMBLE BD950 GPS RECEIVER MODULE

TECHNICAL SPECIFICATIONS

- 24 Channels L1 C/A code, L2C, L1/L2 full cycle carrier, WAAS/EGNOS support
- Advanced Maxwell 5 Custom Survey GPS chip
- High-precision multiple correlator for L1 and L2 pseudorange measurements
- Unfiltered, unsmoothed pseudorange measurements data for low noise, low multipath error, low time domain correlation and high dynamic response
- Very low noise L1 and L2 carrier phase measurements with <1 mm precision in a 1 Hz bandwidth
- Proven Trimble low-elevation tracking technology

Initialization . . . . Automatic OTF (on-the-fly) while moving
Initialization time. . . . . Typically <30 seconds
Start-up . . . . <90 seconds from power on to positioning
<30 seconds with recent ephemeris
Communications. . . . . .Four RS-232 ports. Baud rates up to 115,200
Configuration . . . . Configuration Toolbox software,
MS Controller software or user definable application files
Output formats . . . . NMEA-0183: AVR, GSV, HDT, VGK, VHD, ROT, GGK
GGA, GSA, ZDA, VTG, GST, PJT, and PJK GSOF and RT17 outputs
1 PPS . . . . ±1 microsecond
External frequency input. . . . . 10 MHz
Event input . . . . .1 event marker input
LED support 3
(indicating Power, Satellite Tracking, and Differential Data

PHYSICAL CHARACTERISTICS

Size . . . . 100 mm x 80 mm x 17 mm
Power . . . .+4.5 V DC to +32 V DC
Typical 1.0 W at 5 V DC (L1 Only)
Typical 1.5 W at 5 V DC (L1/L2 and RTK)
Connectors
I/O . . . . DIN41612 64-pin connector
Antenna . . . . SMC right angle
External frequency input . . . . .SSMC

ENVIRONMENTAL CHARACTERISTICS[1]

Temperature
Operating . . . . –40 °C to +75 °C
Storage . . . . –55 °C to +85 °C
Vibration . . . . MIL810D, tailored
Random 6.2 gRMS operating
Random 8 gRMS survival
Mechanical shock MIL810D
±40 g operating
±75 g survival

POSITIONING SPECIFICATIONS

Mode	Accuracy[2]	Latency[3]	Maximum Rate
Synchronized RTK	1 cm + 1 ppm Horizontal	300 ms[4]	10 Hz
	2 cm + 1 ppm Vertical		
Low Latency RTK	2 cm + 2 ppm Horizontal[5]	<20 ms	20 Hz
	3 cm + 2 ppm Vertical		
DGPS	<1 m 3D	<20 ms	20 Hz
WAAS[6]	<5 m 3D	<20 ms	20 Hz

ORDERING INFORMATION

Factory configurations

- BD950 Starter Kit[7]
- BD950 L1/L2 Standard RTK Reference/ Rover 20 Hz
- BD950 L1/L2 Standard RTK Reference/ Rover 20 Hz /L2C
- BD950 L1/L2 Raw Measurement Data Only
- BD950 L1/L2/L2C Raw Measurement Data Only
- BD950 L1/L2 RTK Rover 20 Hz
- BD950 L1/L2 RTK Rover 10 Hz
- BD950 L1/L2 Reference Only
- BD950 L1/L2 Standard RTK + Moving Base RTK
- BD950 L1 DGPS Reference/Rover 20 Hz
- BD950 L1 DGPS Rover 10Hz

Field installed options

- CMR/RTCM Inputs Option
- CMR/RTCM Outputs Option
- 20 Hz Option
- Moving Base RTK Option
- L1/L2 Option
- L2C Option

1 Dependent on appropriate mounting/enclosure design.
2 1 sigma level.
3 At maximum output rate.
4 Dependent on data link throughput.
5 Assumes 1 second data link delay.
6 Depends on WAAS system performance.
7 Includes Standard BD950 receiver, I/O board, Power Supply, Configuration Toolbox/MS Controller software and reference manual.

Specifications subject to change without notice.

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