Field Robotics

Trimble OEM GNSS position and orientation solutions

Trimble® OEM GNSS provides original equipment manufacturers (OEM) and system integrators the ability to offer continuous dynamic positioning and high-accuracy orientation using precision GNSS technology. Trimble OEM GNSS serves a broad range of robotics applications including construction, agriculture, turf and lawn, logistics automation, and more.

Teleoperated or fully automatic GNSS systems

GNSS systems used in the field robotics industry are typically categorized as either **"teleoperated"** (uses GNSS as a guide to a remote operator) or **fully automatic** (exact information can be programmed into the robot for autonomous operation).

Position and orientation forms the foundational building block for enabling field robotic automation. Trimble positioning technology has continuously evolved over 45 years and is rooted in its mission to transform the way the world works. Trimble stands at the forefront of accuracy, availability and integrity by leveraging advanced GNSS hardware, software and inertial sensor fusion to deliver centimeter-level accuracy even in the most challenging conditions.

Trimble is the leading provider of high-precision positioning solutions that maximize productivity and enhance profitability using centimeter-level GNSS technology for use in field robotics applications. Easy to integrate high-precision GNSS products offer OEMs and system integrators the ability to differentiate their solutions and gain a competitive edge in the marketplace.

Trimble value proposition for robotics applications

Field robotics industry applications require high-precision positioning accuracy that provides location information in all kinds of environments and locations around the world. As such, loss of GNSS must be anticipated and managed. Solutions that do not maintain positioning in some environments are not dependable and are not viable for robotic applications.

Trimble's products, powered by Trimble ProPoint® positioning technology, meet the high standards of operation required in all conditions, such as tree canopy, or man-made obstructions such as bridges, that can block GNSS signals.

Interference caused by multi-path, jamming and spoofing poses an additional obstacle to achieving high accuracy positioning. Trimble provides GNSS receivers with advanced interference rejection technology and interference resistant antennas to maintain accurate positioning in these circumstances.

Trimble IonoGuard™ technology helps mitigate ionospheric disturbances, while improving accuracy, availability and integrity of the signals.

Many field robotic applications often take place off-the- grid, where connectivity can not be taken for granted. Trimble RTX® correction service provides the positioning assurance and added peace of mind to operate virtually anywhere and anytime.

Trimble solutions

- Broad range of robust and reliable field-proven GNSS positioning
- Trimble ProPoint technology performs in even the harshest environments
- Dual antenna support for heading solutions
- Tightly coupled INS to maintain positioning in GNSS-denied areas
- Wide range of antenna options based on application needs
- Interference-resistant antennas to provide jamming resilience
- Trimble IonoGuard technology to mitigate ionospheric disturbances
- Global RTX® correction service with blazing fast initialization
- Flexible interface and APIs for easy integration
- Unparalleled integration support with live applications engineering assistance

Product recommendations

Whether you need positioning tools that help you do a **job better, faster, cheaper, greener or safer,** we offer a full range of products from receiver modules, rugged enclosures, antennas, smart antennas, and correction services.

Trimble GNSS antennas provide superior signal **quality and accuracy** by incorporating advanced technologies such as low-elevation tracking and multipath mitigation. Their rugged, weather-resistant designs make them suitable for use in harsh outdoor conditions, while their compatibility with various Trimble GNSS receivers ensures seamless integration.

AV59 Bulkhead Antenna

The AV59 is a highly robust antenna with rugged 8-hole bulkhead mounting and rubber o-ring sealing for aerial, land and marine applications. It offers sub-centimeter phase center accuracy and superior signal tracking of current and near-future GNSS signals.
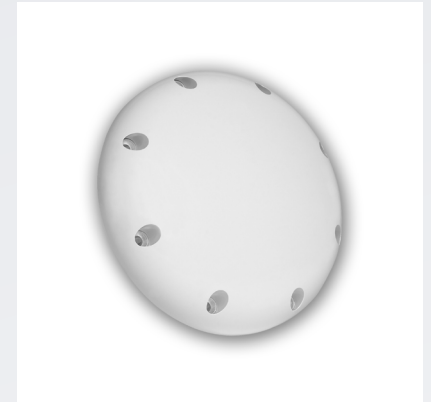
AV29 Compact Antenna

The AV29 is a lightweight, helix-based quad-frequency GNSS L-Band antenna with a versatile small form factor and low power consumption design.

BX992 with BD992-INS (Dual Antenna Receiver)

The BX992 enclosure is a dual-antenna receiver with integrated inertial navigation system powered by the quad-frequency receiver, BD992-INS. The package is an IP67 rated environmentally sealed enclosure built to provide robust, high-accuracy positions and orientations in all environments.
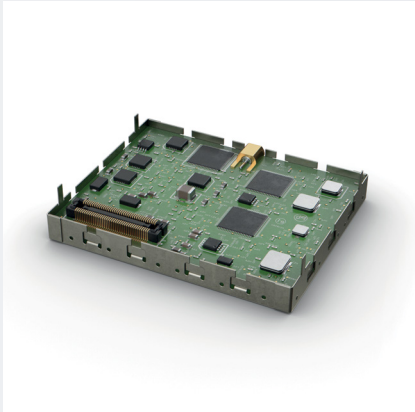
BD940 (Single Antenna Receiver)

- The BD940 is a small, light-weight, triple frequency receiver module that delivers the quickest and most reliable RTK and RTX initializations for centimeter positioning.
- The BD940-INS integrates the BD940 module with the latest in precision inertial sensors on a single board.
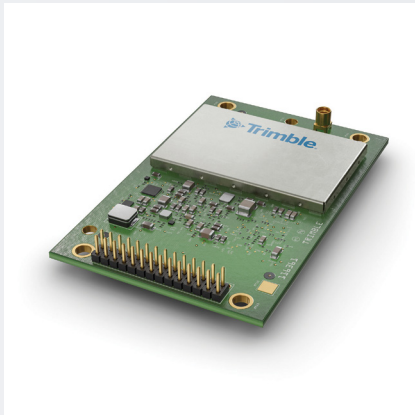
BD9250
(Single Antenna Receiver)

The BD9250 is a compact dual-frequency receiver designed for cost-sensitive robotic applications. It offers L1/L2 or L1/L5 field-switchable capability along with integrated L-Band to support Trimble RTX service.

For more information, email:
sales.oemgnss@trimble.com

Trimble RTX
correction service

Trimble RTX® is our exclusive, advanced precise point positioning technology that provides real-time, centimeter-level corrections delivered worldwide via satellite or cellular/IP. Trimble OEM GNSS receivers come equipped with L-band to receive RTX out of the box, maximizing your workflow with the freedom to work anywhere.