# GNSS Receivers, Enclosures and Antennas Overview

## OEM GNSS Receivers and Enclosures

Trimble GNSS technology delivers position integrity and localization as it relates to the overall safety and accuracy of operations. With the increase in demand for high-quality, reliable positioning, Trimble has developed leading high-precision solutions to ensure the application can operate successfully in all conditions. Whether you need positioning tools that help you do a job better, faster, cheaper, greener or safer, we've got a full range of products that put reliable solutions in your grasp.

| | BD9250 | BD9250s | BD940 | BD940-INS | BX940 | AX940 | AX940i | BD990 | BD922 | BD922-INS | BX992 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |  |  |  |
| Technology | Maxwell 7 | Maxwell 7 | Maxwell 7 | Maxwell 7 | Maxwell 7 | Maxwell 7 | Maxwell 7 | Maxwell 7 | Maxwell 7 | Maxwell 7 | Maxwell 7 |
| Size (mm) | 71×46×11 | 71×46×11 | 51×41×7 | 67×60×15 | 149×93×43 | 221×218×52 | 221×218×52 | 100×60×11.6 | 100×60×11.6 | 100×60×11.6 | 185×93×43 |
| Weight (g) | 25 | 25 | 27 | 60 | 660 | 660 | 660 | 54 | 60 | 62 | 760 |
| Channels | 336 | 336 | 336 | 336 | 336 | 336 | 336 | 1×336 | 2×336 | 2×336 | 2×336 |
| Max. Update Rate (Hz) | 20 | 20 | 50 | 100 | 100 | 50 | 100 | 50 | 50 | 100 | 100 |
| GPS | L1, L2 or L5 | L1, L2 or L5 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 |
| GLONASS | L1, L2 or L3 | L1, L2 or L3 | L1, L2, L3 | L1, L2, L3 | L1, L2, L3 | L1, L2, L3 | L1, L2, L3 | L1, L2, L3 | L1, L2, L3 | L1, L2, L3 | L1, L2, L3 |
| BeiDou | B1, B2 | B1, B2 | B1, B2 | B1, B2 | B1, B2 | B1, B2 | B1, B2 | B1, B2, B3 | B1, B2, B3 | B1, B2, B3 | B1, B2, B3 |
| Galileo | E1, E5a, E5b | E1, E5a, E5b | E1, E5a, E5b | E1, E5a, E5b | E1, E5a, E5b | E1, E5a, E5b | E1, E5a, E5b | E1, E5a, E5b, E6 | E1, E5a, E5b, E6 | E1, E5a, E5b, E6 | E1, E5a, E5b, E6 |
| QZSS | L1, L2 or L5 | L1, L2 or L5 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 |
| NavIC | L5 | L5, S-band | L5 | L5 | L5 | L5 | L5 | L5 | L5 | L5 | L5 |
| SBAS | L1, L5 | L1, L5 | L1, L5 | L1, L5 | L1, L5 | L1, L5 | L1, L5 | L1, L5 | L1, L5 | L1, L5 | L1, L5 |
| L-Band / MSS | • | - | • | • | • | • | • | • | • | • | • |
| Trimble ProPoint Capable | • | • | • | • | • | • | • | • | • | • | • |
| Trimble RTX™ | IP / L | IP | IP / L | IP / L | IP / L | IP / L | IP / L | IP / L | IP / L | IP / L | IP / L |
| OmniSTAR® | • | - | • | • | • | • | • | • | • | • | • |
| RTK | • | • | • | • | • | • | • | • | • | • | • |
| INS Attitude / Positioning | - | - | - | • | • | - | • | - | - | • | • |
| GNSS Heading | - / - | - / - | - / - | - / - | - / - | - / - | - / - | - / - | • / - | • / - | • / - |
| Integrated Wi-Fi, Bluetooth | - | - | - | - | - | - | • | - | - | - | - |
| Connector | 28-pin | 28-pin | 80-pin | 44-pin | DE9&DA26 | 26-pin | 26-pin | 44-pin | 44-pin | 44-pin | DE9&DA26 |


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# OEM GNSS Antennas

| | Trimble AV16 | Trimble AV17 | Trimble AV28 | Trimble AV29 | Trimble AV33 | Trimble AV34 | Trimble AV39 | Trimble AV59 | Trimble LV59 | Trimble AG25/ GA810 | Trimble GA830 | Zephyr 3 Rover | Zephyr 3 Base | Zephyr 3 Rugged | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Part Number | 120982-16 | 120982-17 | 112735 | 136029 | 83553 | 86362 | 105728-10 | C02992 | C03167 | AG25:99038-00-INT GA810:99810-30-INT | 44830-00-INT | 105000-50-INT | 115000-50-INT | 125000-10-INT | 125000-30-INT |
| Design Type | UAV / UAS | UAV / UAS | Aviation | UAV / Land | Aviation | Aviation | Aviation ARINC743 TSO certified | Aviation | Land / Vehicle | Land / Vehicle | Marine / Land / Vehicle | Land / Vehicle | Lnd / Geodetic | Land / Marine / Geodetic | Land / Marine / Geodetic |
| Diameter (mm) | 44.2 | 44.2 | 66.0 | 79,5 | 89.0 | 89.0 | 142.7×111.0 | 146.0 | 146.0 | 161.0 | 149.0 | 165.0 | 343.0 | 219.0 | 187.0 |
| Thickness (mm) | 62.4 | 62.4 | 21.0 | 37,6 | 21.0 | 21.0 | 37.6 | 39.0 | 39.0 | 76.0 | 99.0 | 76.0 | 79.0 | 125.0 | 86.0 |
| Weight (g) | 37 | 42 | 185 | 114 | 200 | 210 | 390 | 300 | 480 | 570 | 820 | 640 | 1360 | 2190 | 1790 |
| Mounting style | SMA male | SMA male | 3/4" through Hole mount | 3/4" through Hole mount | Bulkhead/ Flush | Bulkhead/ Flush | Bulkhead / Flush ARINC 743 Footprint | Bulkhead / Flush | 5/8" Thread | 5/8" Thread + Magnets | 5/8" Thread | 5/8" Thread | 5/8" Thread | 3" Mast Mount | 5/8" Thread |
| GPS | L1, L2 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 | L1 | L1, L2 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 |
| GLONASS | L1, L2 | L1, L2, L3 | L1, L2, L3 | L1, L2, L3 | L1 | L1, L2 | L1, L2, L3 | L1, L2, L3 | L1, L2, L3 | L1, L2, L3 | L1, L2, L3 | L1, L2, L3 | L1, L2, L3 | L1, L2, L3 | L1, L2, L3 |
| Galileo | E1 | E1, E5a, E5b | E1, E5a, E5b | E1, E5a, E5b E6 | E1 | E1 | E1, E5a, E5b | E1, E5a, E5b | E1, E5a, E5b | E1, E5a, E5b, E6 | E1, E5a, E5b, E6 | E1, E5a, E5b, E6 | E1, E5a, E5b, E6 | E1, E5a, E5b, E6 | E1, E5a, E5b, E6 |
| BeiDou | B1 | B1, B2 | B1, B2 | B1, B2 B3 | B1 | B1 | B1, B2 | B1, B2 | B1, B2 | B1, B2, B3 | B1, B2, B3 | B1, B2, B3 | B1, B2, B3 | B1, B2, B3 | B1, B2, B3 |
| QZSS | L1, L2 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5, LEX | L1 | L1, L2 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5 | L1, L2, L5, LEX | L1, L2, L5, LEX | L1, L2, L5, LEX | L1, L2, L5, LEX | L1, L2, L5, LEX | L1, L2, L5, LEX |
| IRNSS | - | L5 | L5 | L5 | - | - | L5 | L5 | L5 | L5 | L5 | L5 | L5 | L5 | L5 |
| SBAS | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
| L-Band | • | • | • | • | - | - | • | • | • | • | •&MSK Beacon | • | • | • | • |
| Phase Center | <10 mm | <10 mm | <10 mm | <10 mm | <10 mm | <10 mm | <10 mm | <10 mm | <10 mm | <4 mm hor <14 mm ver | <5 mm hor | <2 mm | <2 mm | <2 mm | <2 mm |
| Special Features | - | - | - | - | - | - | Special Filtering | - | - | AG25: 3 Magnets and Thread GA810: Thread only | Special Filtering, 75g Shock | Special Filtering | | Special Filtering, 75g Shock | |
| Gain | 35dB | 35dB | 37dB | 40dB | 43dB | 43dB | 38dB | 39dB | 39dB | 48dB | 45dB | 50dB | 50dB | 50dB | 50dB |
| DC-Feed | 2.2V-16V 21mA | 2.2V-16V 21mA | 2.5V-16V 20mA | 2.3V-16V 40mA | 4.5V-18V 35mA | 4.5V-18V 35mA | 4.2V-15V 130mA | 4.2V-15V 65mA | 4.2V-15V 65mA | 3.4V-12V 130mA | 3.3V-15V 110mA | 3.5V-20V 125mA | 3.5V-20V 125mA | 3.5V-20V 125mA | 3.5V-20V 125mA |

## High Performance

Trimble antennas have been designed to support high accuracy air, land and marine applications.

Multiple constellation support improves the number of sattelites available for positioning, especially in obstructed environments. Trimble antennas are high-performance multiband GNSS antennas that are built with weather-resistant materials to allow operation in the most rugged of environments.

## Robust, Low Multipath

Trimble antennas are robust, low-multipath GPS antennas that resist unwanted signal interference or multipath which can cause inaccurate measurements. Multipath is caused by signals being reflected from surfaces such as the ground, surrounding tress, or buildings.

## Special Filtering

Some antennas offer special filtering against nearby Iridium and Japanese LTE transmissions.

## Flexibility

Trimble antennas come in different designs for applications that require mounting on a pole or flush-mounted to a vehicle. The connection system on the underside of the antennas allow for easy removal of the antennas and protection of the attached cable from the environments.

## Comprehensive GNSS Support

All Trimble antennas offer support for present and future GNSS signals, including GPS, GLONASS, Galileo and BeiDou. This ensures your antennas will operate with your present and most likely future GNSS receivers. This technology means any investment in a Trimble GNSS antenna will last for many years to come.