

GSG-M8 series

SMART GNSS/SBAS RECEIVER



User Manual

MAGSGXX0AE013



Contents

- Important Information 4**
- CAUTION4**
- LIMITED WARRANTY.....4**
- 1. SMART GNSS/SBAS RECEIVER 5**
 - 1.1 TECHNICAL SPECIFICATIONS.....5**
 - 1.1.1 Physical Characteristics..... 5
 - 1.1.2 Electrical Characteristics 5
 - 1.1.3 Performance 5
 - 1.1.4 Environmental Characteristics..... 6
 - 1.2 WIRING6**
 - 1.2.1 Diagram for GSG Conxall to Conxall 6
 - 1.2.2 Diagram for GSG Fixed to Conxall 6
 - 1.2.3 Diagram for GSG Conxall to Free Wires..... 6
 - 1.3 SOFTWARE INTERFACE6**
 - 1.4 MECHANICAL CHARACTERISTICS & MOUNTING GSG - CONXALL MODEL7**
 - 1.4.1 Installing 7
 - 1.4.2 Dimensions 8
 - 1.5 MECHANICAL CHARACTERISTICS & MOUNTING GSG - FIXED MODEL8**
 - 1.5.1 Installing 8
 - 1.5.2 Dimensions 10

Important Information

CAUTION

The SMART GNSS/SBAS RECEIVER "GSG-M8 series" units are believed to be accurate and reliable, but they can be misinterpreted. For this reason we suggest that you read carefully this User Manual and make sure you understand with its contents before using the SMART GNSS/SBAS RECEIVER "GSG-M8 series" units. For a safe navigation compare information received from GPS to all available navigation indications received from other electronic navigation nav aids that you carry on board.

Do not open the SMART GNSS/SBAS RECEIVER "GSG-M8 series" units. There are not serviceable parts inside. Repairs should only be made by an authorized electronic technician, please contact your local dealer (any unauthorized repair could result in damage to the unit and this damage may not be covered by the warranty).

LIMITED WARRANTY

The manufacturer warrants each SMART GNSS/SBAS RECEIVER "GSG-M8 series" units to be free from defects in material and workmanship under normal use and service for a period of 24 months from original retail purchase. During the warranty period, the manufacturer will repair or replace any component which fails in normal use without charges for parts or labour.

To receive warranty service, contact your local authorized dealer for shipping instructions. The SMART GNSS/SBAS RECEIVER "GSG-M8 series" unit should be securely packed with its tracking code clearly written on the outside of the package, shipping to be paid by the customer. Include a copy of the original sales receipt as the proof of purchase. The manufacturer will return the SMART GNSS/SBAS RECEIVER "GSG-M8 series" unit to the purchaser freight prepaid.

This limited warranty does not extent to any SMART GNSS/SBAS RECEIVER "GSG-M8 series" unit which has been subjected to misuse, neglect, accident, incorrect wiring or improper installation. The manufacturer reserves the right to repair or replace the SMART GNSS/SBAS RECEIVER "GSG-M8 series" unit at its sole discretion.

THIS IS THE ONLY WARRANTY. THE MANUFACTURER EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF SUITABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT WILL MANUFACTURER BE LIABLE FOR CONSEQUENTIAL DAMAGES OR LOSS OF USE. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS WHICH MAY VARY FROM STATE TO STATE.

NOTE

We will not be liable for errors contained herein, or for incidental or consequential damages in connection with the performance or use of this material.

1. SMART GNSS/SBAS RECEIVER

This SMART GNSS/SBAS RECEIVER is based on a ultimate 72 channels GPS engine that delivers 2 meters accuracy by decoding the GPS correction signals from the satellite-based augmentation system. The GPS engine, interface electronics and the passive antenna are enclosed inside the water-proof plastic housing. This provides advanced state of the art GPS performance in an easy to use package.

1.1 TECHNICAL SPECIFICATIONS

1.1.1 Physical Characteristics

- ♦ Color : Ivory white
- ♦ Dimensions : 97 mm in diameter x 32 mm in height (flush mounted) or 61.5 mm on flag-pole mount
- ♦ Weight : 160 grams (without cable)
- ♦ GSG Cable options
 - Conxall to Conxall : white 15 meter 8x28AWG cable with 6 pins female and 8 pins female connectors
 - Fixed to Conxall : white 15 meter 8x28AWG cable with 6 pins female connector
 - Conxall to Free Wires : white 15 meter 5x24AWG cable with free wires and 8 pins female connector

1.1.2 Electrical Characteristics

- ♦ Input Voltage : 10 Vdc to 35 Vdc unregulated
- ♦ Power Consumption : 0.8 W max
- ♦ Electrical Interface : TTL voltage levels, RS-232 polarity

1.1.3 Performance

- ♦ Receiver Architecture
 - Acquisition Engine : 72 Channels
 - Tracking Engine : 18 Channels
- ♦ GNSS Systems : GPS
: Glonass
- ♦ Acquisition
 - Hot starts : 1 s outdoor
 - Cold starts : 26 s
- ♦ Update Rate : up to 18 Hz
- ♦ Accuracy Standalone : 2 m CEP*
- ♦ Sensitivity
 - Tracking, Navigation : -167 dBm
 - Cold Starts : -148 dBm
- ♦ Output format : NMEA-0183 Baud rate 4800 N81
- ♦ NMEA Output messages : GGA, GLL, RMC, GSA, GSV, VTG, ZDA
- ♦ Geodetic Datum : WGS84

NOTE* CEP = Circular Error Probability: The radius of a horizontal circle, centered at the antenna's True position, containing 50% of the fixes.

1.1.4 Environmental Characteristics

- Operating Temperature : from -20 °C to +60 °C
- Storage Temperature : from -40 °C to +85 °C
- Relative Humidity : 95% non-condensing
- Water Resistance : IPX7

1.2 WIRING

See the following tables for a functional description of each wire in the GPS cable.

1.2.1 Diagram for GSG Conxall to Conxall

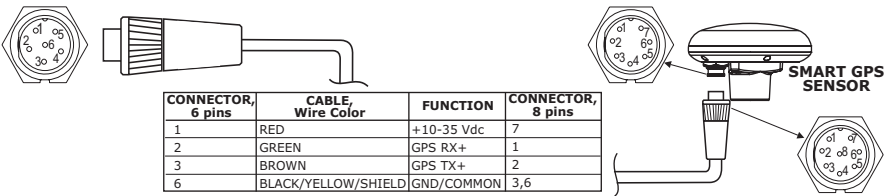


Fig. 1.2.1 - GPS Connection for GSG Conxall to Conxall

1.2.2 Diagram for GSG Fixed to Conxall

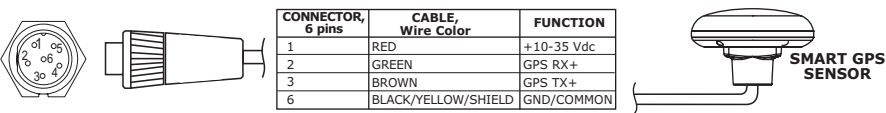


Fig. 1.2.2 - GPS Connection for GSG Fixed to Conxall

WARNING Cross check the connection on the User Manual of the device connected to the GPS.

1.2.3 Diagram for GSG Conxall to Free Wires

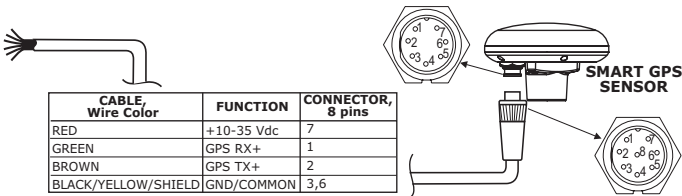


Fig. 1.2.3 - GPS Connection for GSG Conxall to Free Wires

1.3 SOFTWARE INTERFACE

The GPS products interface protocol design is based on the National Marine Electronics Association's NMEA 0183 ASCII interface specification. These standards are defined in "NMEA 0183 Version 4.1" (for more information see NMEA, www.nmea.org).

1.4 MECHANICAL CHARACTERISTICS & MOUNTING GSG - CONXALL MODEL

1.4.1 Installing

Choose a location for the antenna that has a clear view of the sky. Ensure there are no major obstructions or fixtures in the immediate proximity to the antenna. The antenna relies on direct "line of sight" satellite reception. If you are unsure that the chosen location is suitable it may be advisable to mount the antenna in a temporary manner to verify correct operation. The thread used on the antenna (1", 14 TPI) is an industry standard thread used on a wide range of mounting brackets, including the swivel joints commonly used for angled surfaces. However due to the manufacturing process of these mounting brackets you may see that there is some slop when tightening down the antenna to the bracket. This is of no concern however as the antenna must be tightened until the antenna stops rotating on the antenna mounting bracket.

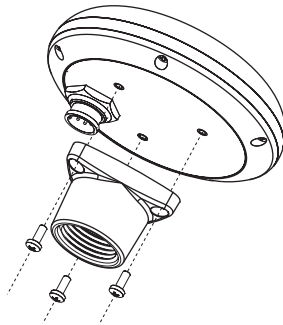


Fig. 1.4.1 - Installing GPS Antenna (I)

The antenna design also allows for easy flush mounting.

1. Apply the adhesive mounting template sheet in the area that was verified to receive satellite signal well.
2. Then, following template instruction, drill a 1" (25 mm) hole and three 0,13" (3.2 mm) holes.

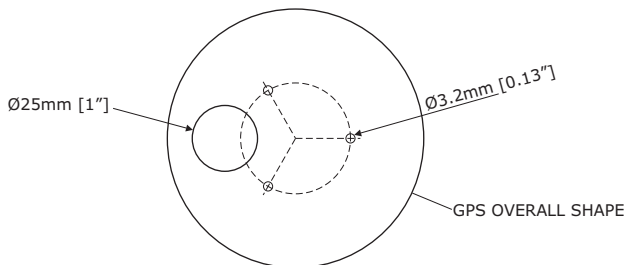


Fig. 1.4.1a - Installing GPS Antenna (II)

3. Remove the template and let the cable go through the central hole.
4. Apply a small coat of RTV to the underside of the antenna.

5. Place the antenna and then screw it with the three M3 screws.

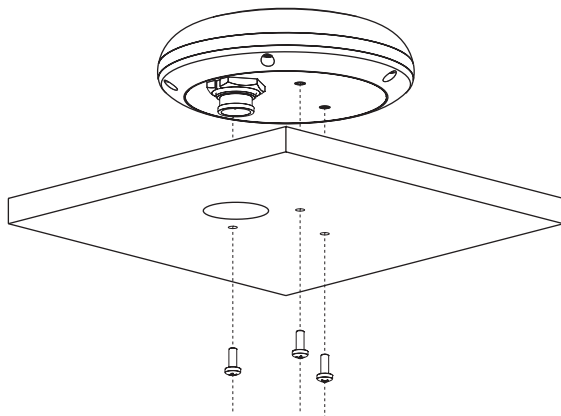


Fig. 1.4.1b - Installing GPS Antenna (III)

1.4.2 Dimensions

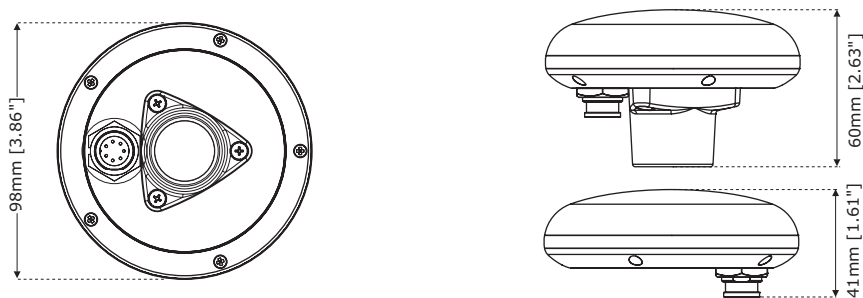


Fig. 1.4.2 - GPS Antenna Dimensions

1.5 MECHANICAL CHARACTERISTICS & MOUNTING GSG - FIXED MODEL

1.5.1 Installing

Choose a location for the antenna that has a clear view of the sky. Ensure there are no major obstructions or fixtures in the immediate proximity to the antenna. The antenna relies on direct "line of sight" satellite reception. If you are unsure that the chosen location is suitable it may be advisable to mount the antenna in a temporary manner to verify correct operation. The thread used on the antenna (1", 14 TPI) is an industry standard thread used on a wide range of mounting brackets, including the swivel joints commonly used for angled surfaces. However due to the manufacturing process of these mounting brackets you may see that there is some slop when tightening down the antenna to the bracket. This is of no concern however as the antenna must be tightened until the antenna stops rotating on the

antenna mounting bracket.

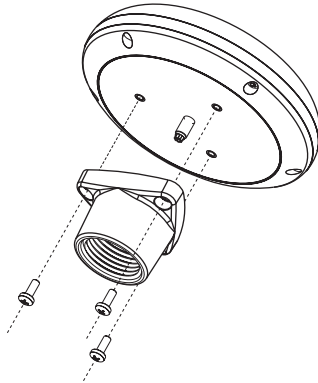


Fig. 1.5.1 - Installing GPS Antenna (I)

The antenna design also allows for easy flush mounting.

1. Apply the adhesive mounting template sheet in the area that was verified to receive satellite signal well.
2. Then, following template instruction, drill a 0,78" (20 mm) hole and three 0,13" (3.2 mm) holes.

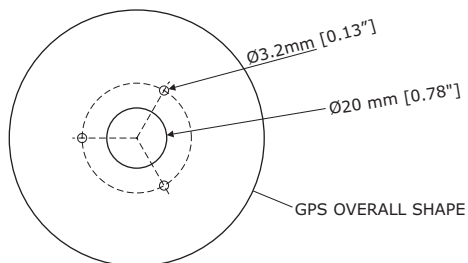


Fig. 1.5.1a - Installing GPS Antenna (II)

3. Remove the template and let the cable go through the central hole.
4. Apply a small coat of RTV to the underside of the antenna.
5. Place the antenna and then screw it with the three M3 screws.

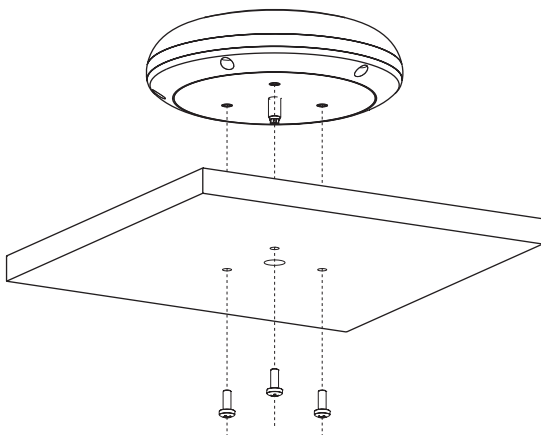


Fig. 1.5.1b - Installing GPS Antenna (III)

1.5.2 Dimensions

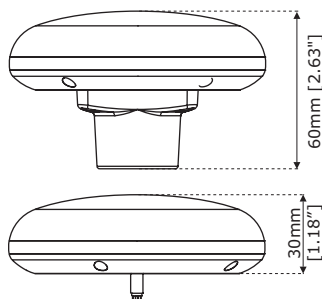
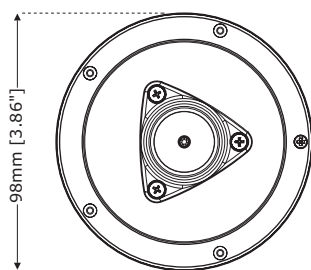


Fig. 1.5.2 - GPS Antenna Dimensions