SI-TEX®

GPK-11 MAX

SMART GNSS/SBAS RECEIVER

User Manual

MAGSGXX0AE013

Contents

CERTIFICATE OF LIMITED WARRANTY

Providing you present valid proof of purchase, SI-TEX Marine Electronics warrants all parts of each new product against defects in material and workmanship under normal use and will repair or exchange any parts proven to be defective at no charge for a period of two years from the original date of purchase, except as provided below under Limited Warranty Exceptions. Defects will be corrected during normal working hours by an authorized SI-TEX Marine Electronics dealer, service center, or at the SI-TEX office in Riverhead, NY. There will be no charge for repair labor for a period of one year from the date of purchase, except as provided below under Limited Warranty Exceptions. This Warranty and Proof of Purchase must be made available to the authorized SI-TEX Marine Electronics service location or dealer at the time of service.

LIMITED WARRANTY EXCEPTIONS

SI-TEX Marine Electronics will not be responsible for equipment which has been subjected to water or lightning damage, accident, abuse, or misuse, nor any equipment on which the serial number has been removed, altered, or mutilated. SI-TEX Marine Electronics assumes no responsibility for damage incurred during installation. This Limited Warranty is effective only with respect to the original purchaser. Any cost associated with transducer replacement, other than the cost of the transducer itself,is specifically excluded from the Limited Warranty. Travel cost incurred will not be accepted by SI-TEX Marine Electronics.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

SPECIFIC EXCLUSIONS

Charges for overtime, stand-by, holiday, and per diem are specifically excluded from the Limited Warranty. fuses are consumable items and are not covered by this Limited Warranty. Installation workmanship or materials, except as provided directly by SI-TEX Marine Electronics are not covered by this Limited Warranty. SI-TEX Marine Electronics equipment, or parts thereof which have been repaired or altered except by an authorized SI-TEX Marine Electronics dealer or service center are not warranted in any respect. Transducers, software updates, batteries, magnetrons and microwave components, are items excluded from the two-year warranty and are covered by warranty for a period of one year for both parts and labor.

SI-TEX Marine Electronics will not, at any time assume any costs or labor charges for checkout or external line fuse replacement or problems not found to be at fault in the equipment itself.

THERE ARE NO WARRANTIES OR GUARANTEES EXPRESSED OR IMPLIED WHICH EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY. SI-TEX MARINE ELECTRONICS HAS NO OTHER LIABILITY TO PURCHASE FOR DIRECT OR CONSEQUENTIAL DAMAGE OR ANY THEORY INCLUDING ABSOLUTE LIABILITY, TORT, OR CONTRACT. THIS LIMITED WARRANTY CANNOT BE ALTERED OR MODIFIED IN ANY WAY AND SHALL BE INTERPRETED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW YORK. THIS WARRANTY IS LIMITED TO THE CONTINENTAL U.S.A., ALASKA, HAWAII, AND CANADA.

MAILING ADDRESS:
SI-TEX Marine Electronics
25 Enterprise Zone Drive, suite #2
Riverhead, NY 11901
(631) 996-2690

HOW TO OBTAIN SERVICE UNDER THIS WARRANTY
To provide greater flexibility, SI-TEX Marine Electronics gives you the option to obtain service under the warranty by either:
(a) Contacting an authorized SI-TEX Marine Electronics service station
(The closest service station may be found by contacting your dealer of purchase)
OR
(b) Shipping your equipment prepaid via UPS, FED-EX or truck with insurance prepaid to SI-TEX Marine Electronics. at the address provided below. SI-TEX Marine Electronics will whenever possible, make all repairs covered by Limited Warranty within two weeks of receiving the equipment in New York and return the same to you, freight prepaid.
Please do not use the Mail Service due to delays in tracing lost packages.
(c) You must present a copy of your Purchase Sales Slip at the time you request warranty service.

A product return form can be downloaded from the support section of our website at www.si-tex.com

SHIPPING ADDRESS:
SI-TEX Marine Electronics
25 Enterprise Zone Drive, suite #2
Riverhead, NY 11901

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.*

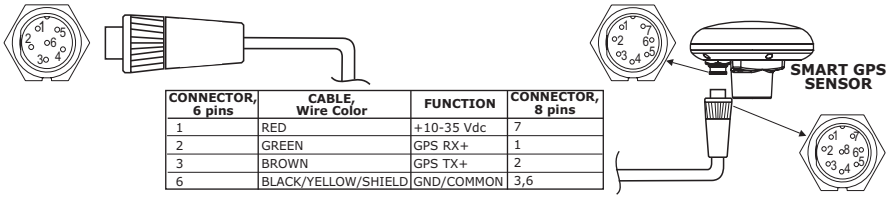
1.1.4 Environmental Characteristics

- 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.

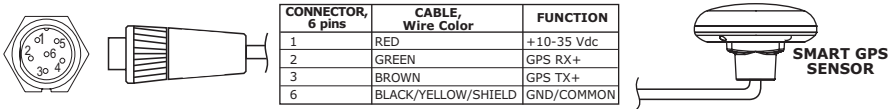
1.2.1 Diagram for GSG Conxall to Conxall



CONNECTOR, 6 pins	CABLE, Wire Color	FUNCTION	CONNECTOR, 8 pins
1	RED	+10-35 Vdc	7
2	GREEN	GPS RX+	1
3	BROWN	GPS TX+	2
6	BLACK/YELLOW/SHIELD	GND/COMMON	3,6

Fig. 1.2.1 - GPS Connection for GSG Conxall to Conxall

1.2.2 Diagram for GSG Fixed to Conxall

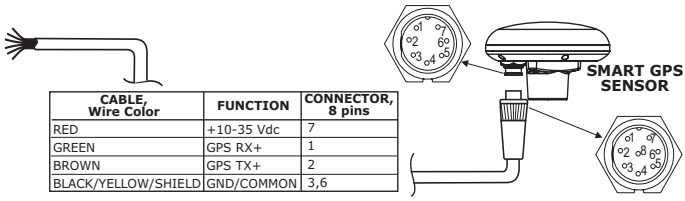


CONNECTOR, 6 pins	CABLE, Wire Color	FUNCTION
1	RED	+10-35 Vdc
2	GREEN	GPS RX+
3	BROWN	GPS TX+
6	BLACK/YELLOW/SHIELD	GND/COMMON

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



CABLE, Wire Color	FUNCTION	CONNECTOR, 8 pins
RED	+10-35 Vdc	7
GREEN	GPS RX+	1
BROWN	GPS TX+	2
BLACK/YELLOW/SHIELD	GND/COMMON	3,6

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 mouning bracket.

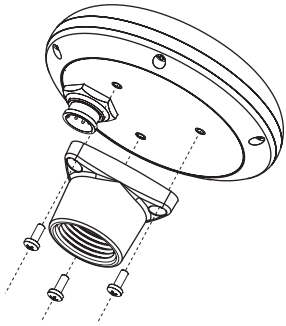


Fig. 1.4.1 - Installing GPS Antenna (I)

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.

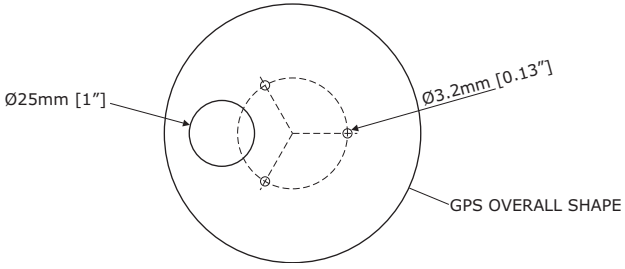


Fig. 1.4.1a - Installing GPS Antenna (II)

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.

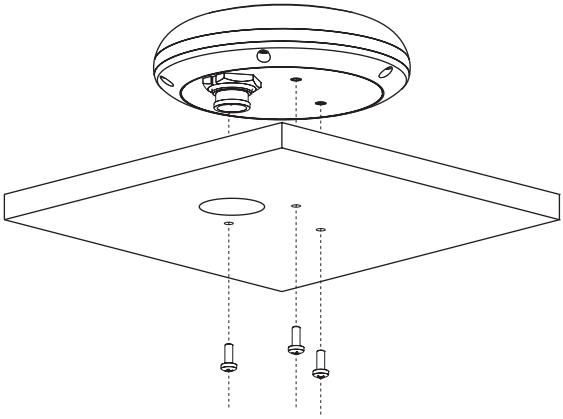


Fig. 1.4.1b - Installing GPS Antenna (III)

1.4.2 Dimensions

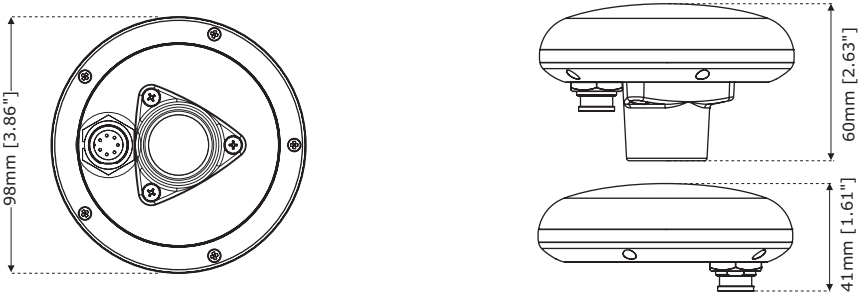


Fig. 1.4.2 - GPS Antenna Dimensions

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.

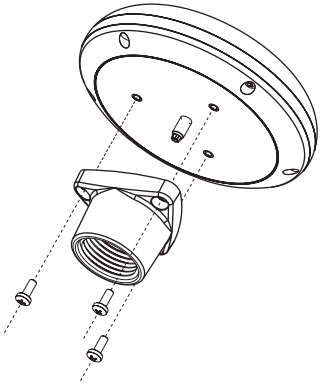


Fig. 1.5.1 - Installing GPS Antenna (I)

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.

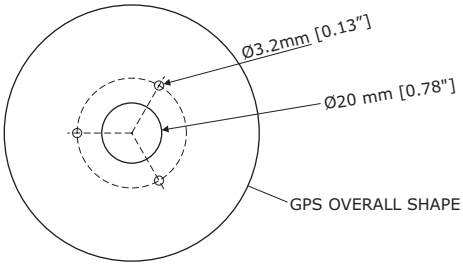


Fig. 1.5.1a - Installing GPS Antenna (II)

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.

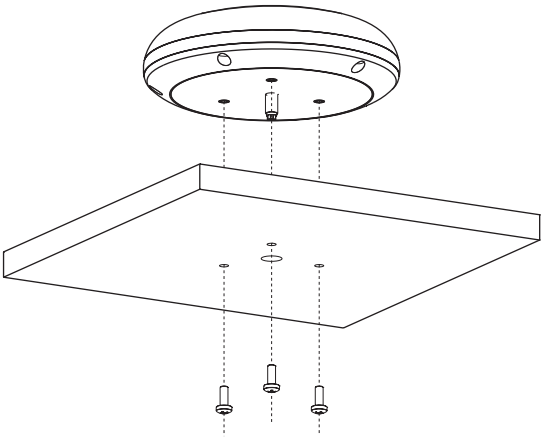


Fig. 1.5.1b - Installing GPS Antenna (III)

1.5.2 Dimensions

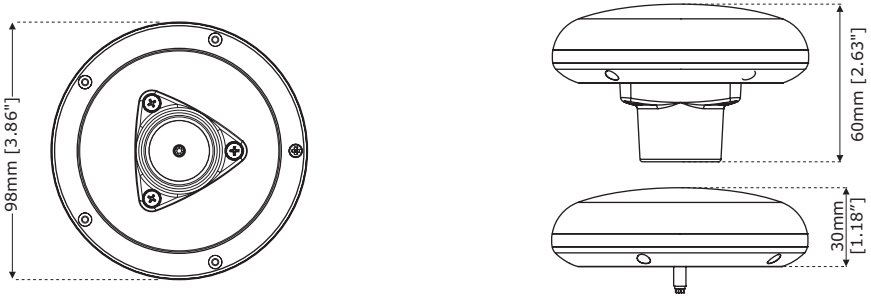


Fig. 1.5.2 - GPS Antenna Dimensions