# SA-320

## Installation Guide


**Date: Mar, 2011**
**Version: 2.5**

# TABLE OF CONTENTS

# 1. Product Overview

## 1.1 Main Features

- Built-in patch antenna
- 12 parallel tracking channels
- Fast TTFF and low power consumption
- On-board rechargeable battery sustained Real-Time Clock and control parameters memory for fast satellite acquisition during power-up
- Interference filter to major VHF channels of marine radar
- DGPS : WAAS / EGNOS support
- Perfect Static Drift for both of speed and course
- Magnetic Declination compensation
- Is protected against reverse polarity voltage
- Support USB or RS-232 or RS-422 interface

## 1.2 Applications

- Marine Navigation
- Fishing Aid
- Fleet Management
- Time Synchronization Control
- Vehicle Tracking
- Robotic

## 1.3 Package Content

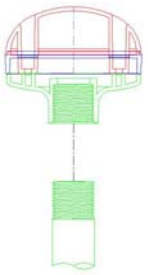
When open the package, please check it includes the following items. Contact your dealer immediately if any item is missing or damaged.

- Installation Guide
- SA-320 GPS Receiver with Cable
- Thread Adaptor
- Screw Pairs
- Mounting-Hole-Drill Alignment Mask
- CD Manual

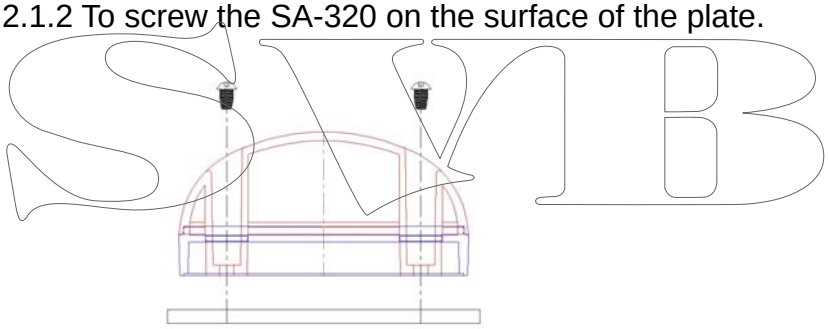
# 2. Installation

## 2.1 Mounting Methods

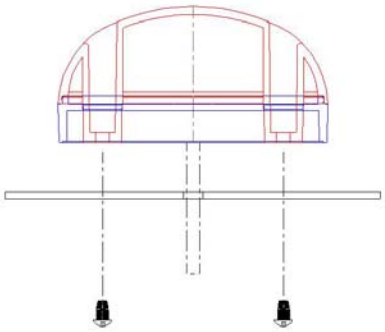
2.1.1 To mount the SA-320, with Thread Adaptor, on a standard cable pole.



2.1.2 To screw the SA-320 on the surface of the plate.



2.1.3 To screw the SA-320 on the surface of a plate from the other side.



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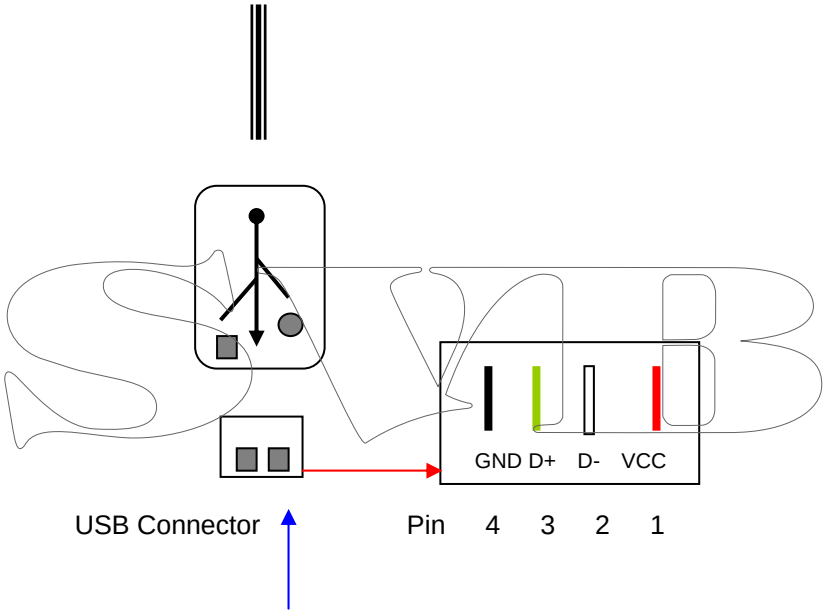
## 2.2 USB Connector Definition

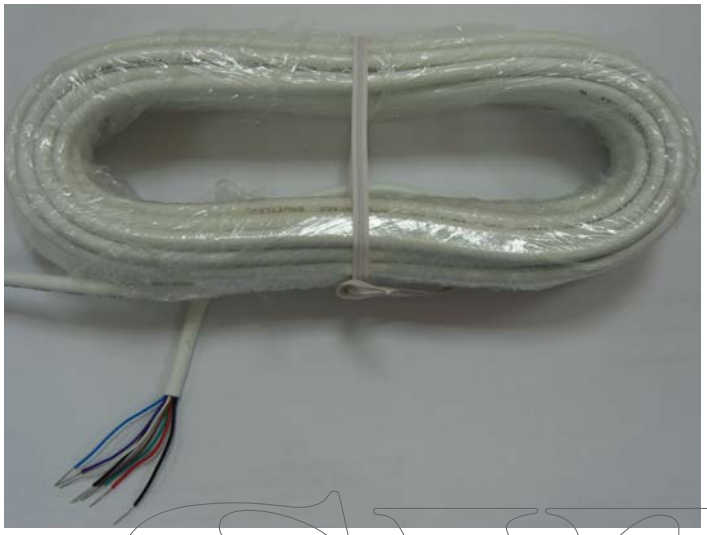
| Pin | Function | Color |
|---|---|---|
| 1 | VCC, 5V | Red |
| 2 | D- | White |
| 3 | D+ | Green |
| 4 | GND | Black |




Connector Pin Assignment

## 2.3 Bare Wires Pin Definition

### 2.3.1 Bare Wires Definition ( RS-232 ) For EverMore Standard



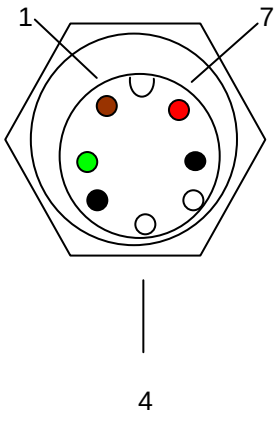
| Wire Color | Designation |
|---|---|
| **Violet** | NC |
| **Red** | VCC, Power Supply ( VDC 9V-34V) |
| **Brown** | NC |
| **Green** | RS-232 Transmit Tx, Output Signal |
| **Blue** | NC |
| **White** | RS-232 Receiver Rx, Input Signal |
| **Black** | Ground |
| **Gray** | Shield Wire, Signal Ground |

## 2.3.2 Bare Wires Definition ( RS-422 ) For EverMore Standard

| Wire Color | Designation |
|---|---|
| **Violet** | NC |
| **Red** | VCC, Power Supply ( VDC 9V-34V) |
| **Brown** | RS-422 Transmit Tx - , Output Signal |
| **Green** | RS-422 Transmit Tx+, Output Signal |
| **Blue** | RS-422 Receiver Rx -, Input Signal |
| **White** | RS-422 Receiver Rx + , Input Signal |
| **Black** | Power Ground |
| **Gray** | Shield Wire, Signal Ground |

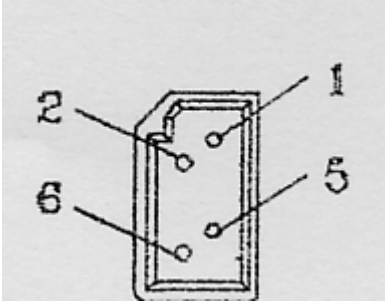
## 2.4 Circular Connector ( Male ) For GEONAV

| Pin | Function | Input/Output | Level |
|---|---|---|---|
| 1 | NC | No Connect | |
| 2 | TX | Output | RS-232 |
| 3 | GND | Ground | 0V |
| 4 | NC | No Connect | |
| 5 | RX | Input | RS-232 |
| 6 | GND | Ground | 0V |
| 7 | VCC | Power Supply | VDC 9-34V |



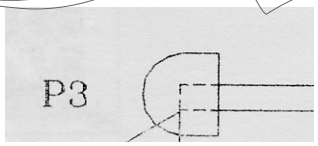

Connectors Pin Assignment

## 2.5 NMEA Connector Pin Definition (RS-232 ) For HUMMINBIRD




| Pin Number | Designation |
|---|---|
| **1** | VCC, Power Supply + ( VDC 9V-34 V ) |
| **2** | PGND, Power Ground |
| **5** | RS-232 Transmit Tx, Output Signal |
| **6** | RS-232 Receiver Rx, Input Signal |

### 2.5.1 Bare Wire Pin Definition




| Wire Color | Designation |
|---|---|
| **Black** | PGND, Power Ground |
| **Red** | VCC, Power Supply + ( VDC 9V-34 V ) |
| **White** | RS-232 Receiver Rx, Input Signal |

## 2.6 DB_9 ( Female ) Connector Pin Definition ( RS-232 ) with Power Supply

| Pin Number | Designation |
|---|---|
| 1 | NC |
| 2 | RS-232 Transmit Tx, Output Signal |
| 3 | RS-232 Receiver Rx, Input Signal |
| 4 | NC |
| 5 | PGND, Power Ground |
| 6 | VCC, Power Supply + ( VDC 9V-34 V ) |
| 7 | NC |
| 8 | NC |
| 9 | NC |

# 3. Technical Specification

## Performance Specification

| Features | Description |
|---|---|
| **General** | L1 1575.42MHz, C/A code, 12-channel, Carrier-Aided with HWTrack© |
| **Sensitivity** | -143 dBm minimum |
| **Update Rate** | 1Hz |
| **Accuracy** | Position: 15m CEP without S/A<br>Velocity: 0.1m/sec without S/A<br>Time: ± 100ns synchronized to UTC time |
| **WAAS Accuracy** | Position: 3m CEP<br>Velocity: 0.05m/sec |
| **Acquisition** | Cold start: 45sec (average)<br>Warm start: 38sec (average)<br>Hot start: 8sec ( average ) |
| **Reacquisition** | 0.1 sec |
| **DGPS** | WAAS/EGNOS |
| **Dynamics** | Altitude: -1000m to 18000m<br>Velocity: 500m/sec<br>Acceleration: ±4g |
| **Antenna** | Built-in Patch Antenna |

## Environmental Specification

| Features | Description |
|---|---|
| **Operation Temperature** | -30°C to +80°C degrees Celsius |
| **Storage Temperature** | -40°C to +90°C degrees Celsius |
| **Operating Humidity** | 5% to 95% |

## Physical characteristics

| Features | Description |
|---|---|
| **Input current** | Maximum 150 mA |
| **Dimensions** | Diameter: 83.3mm or 3.27-inch, Height: 60mm or 2.36-inch |
| **Weight** | 8.46oz or 240g |

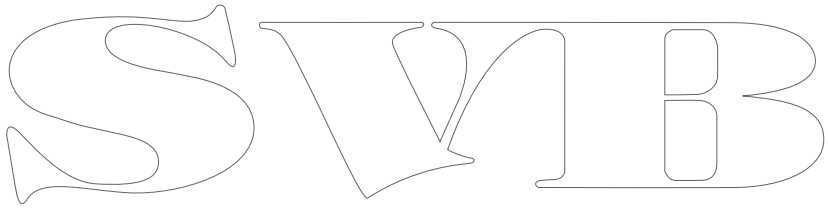
## Protocol

| Features | Description |
|---|---|
| Protocols | NMEA-0183 V2.2 at 4800 baud rate , 8-None-1 |
| NMEA messages | Default : GGA, RMC, GSA, GSV<br>Optional : GLL, VTG |

### Interface Specification

| Features | Description |
|---|---|
| Interface | USB or RS-232 or RS-422 |
| Power Input | VDC +5V ( USB ) or VDC 9V-34V (RS-232/RS-422 , Circular Connector ) |

Preliminary Specification, Subject To Change without Notice



## 4. Limited Warranty

The SA-320 GPS receiver is warranted to be defect free in material designed to use and production for one year from the date of purchase. Under normal operation conditions, any failure of this product caused by material/production within the warranted period, it would be replaced with no charge.

## 5. Appendix

### EverMore Website

Welcome to EverMore website at http://www.emt.com.tw or http://www.globalsources.com/gpsevermore.co for updated product information and drivers download.