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TW5350 Installation Manual

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Document Amendment Record

| Revision | Date | Comments |
|----------|-------------|---------------------|
| Rev 1_0 | 22 Dec 2021 | Preliminary Release |

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1 Introduction

The TW5350 is a multi-constellation GNSS L1 Receiver/Antenna with SBAS. The TW5350 is a professional grade solution offering high-performance/high-reliability positioning and timing in a compact IP69K rated enclosure. Applications include, precision timing, network synchronization, power generation and traditional tracking/positioning.

The TW5350 incorporates a latest generation GNSS receiver that supports simultaneous GPS/GLONASS/Galileo + SBAS reception and the Tallysman Accutenna™ patch antenna. This dual feed antenna greatly improves rejection of multi-path signal interference, and significantly broadens the operating frequency passband, making it the most precise antenna for tracking in dense urban environments.

The TW5350 provides a differential 1PPS output signal to support long cable deployments typically found in an infrastructure application. The 1PPS output time reference pulse is user configurable.

The TW5350 supports software controlled low power modes for battery applications with periodic sampling rates.

The TW5350 outputs standard NMEA 0183 output with navigation updates rates up to 5 Hz. The TW5350 supports RS232 as the serial interface with RS485 for the 1PPS time pulse. The input operating voltage supports a range of 5V to 36V.



Figure 1 TW5350 Antenna (low-profile grey shown)



Figure 2 TW5350 Antenna (Conical white shown)

2 Regulatory Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the condition that the device does not cause harmful interference. This device may only be used if operated or installed in a transportation vehicle including motor vehicles and aircraft, all other modes of use are prohibited. When used in a transportation vehicle it is exempt under FCC Part 15 Subpart B and ICES-003 from radiated and conducted emission test requirements.

3 Equipment Installation and Operation

3.1 Information regarding installation

Tallymatics provides wiring instructions to electrically connect the TW5350 device consistent with industry best practices.

3.2 Installation Considerations

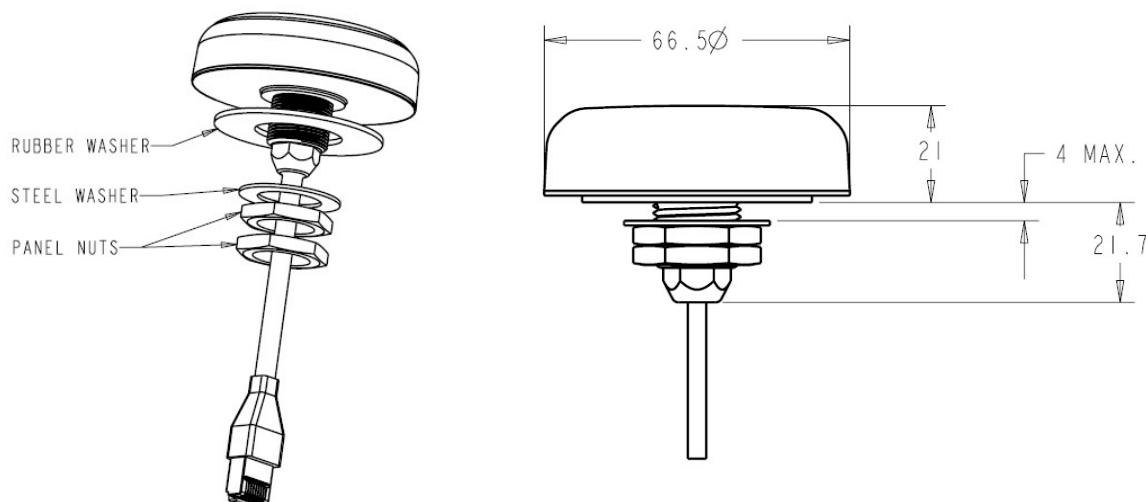
The TW5350 is mounted using the integrated fixed mount feature. For optimal performance, the device should be securely mounted to the surface of a large ground plane when possible. Recommended minimum 10cm ground plane with the antenna located at the center.

The TW5350 has a 5-meter cable terminated with an RJ45 connector. Adaptor cables are available to interface to a PC and a variety of mobile radio devices. Please contact Tallymatics for details.

The fixed mount installation requires a hole with minimum 0.75-inch (19mm) diameter and must accommodate the routing of the attached data cable.

The TW5350 Antenna assembly contains the following parts:

- TW5350 receiver Antenna with 5 Meter cable and RJ45 termination
- Two 0.75" (19mm) panel nuts.
- One metal washer
- A rubber gasket installed on the lower side of the TW5350



3.3 RJ45 Cable Connector

The smart antenna cable is terminated with an 8 position RJ45 signal connector which provides the following signals:

| PIN | Description | Notes | Color |
|-----|--------------------|-----------------|--------------|
| 1 | 1PPS_B (output D-) | RS485 0-2V DC | White/Green |
| 2 | 1PPS_A (output D+) | RS485 0-2V DC | Green |
| 3 | (OPEN) | No Connect | White/Orange |
| 4 | (OPEN) | No Connect | Blue |
| 5 | RX (input) | RS232 +/- 5V DC | White/Blue |
| 6 | TX (output) | RS232 +/- 5V DC | Orange |
| 7 | GND | 0V DC | White/Brown |
| 8 | Power | 5-36V DC | Brown |

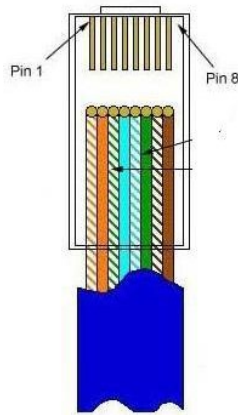


Figure 2 RJ45 - I/O Connector (looking onto the connector contacts)

3.4 Device Communication

The TW5350 smart antenna has been factory configured for out of the box operation. When the device is powered, NMEA messaging will be active immediately on the RS-232 TX signal pin.

The device has been factory configured as: **115200,8,N,1**

3.5 NMEA Messages

The TW5350 has the following NMEA messages active by default:

GNRMC
GNVTG
GNGGA
GNGSA
GPGSV
GLGSV
GAGSV
GNLL

3.6 TW5350 Configured Settings

The TW5350 has been configured with the following specific settings set:

- NMEA Version -> 4.1 (Required to support Galileo Constellation)
- Position Output Rate: 1Hz
- GNSS Configuration
 - o GPS
 - o GALILEO
 - o GLONASS
 - o w/ SBAS
- Navigation Dynamic Model -> Stationary
- Talker ID: GN
- 1PPS Active
- 1PPS 100ms duration

3.7 Flash Configuration

The TW5350 contains flash storage memory for persisting customized configuration settings. Configuration settings may be adjusted using a PC with the 27-0045-1 configuration cable.

The Tallymatics TW5350 configuration tool may be downloaded from the following link: <https://tallysman.com/downloads/TW5X5X.zip>

Please contact Tallymatics for assistance regarding factory programmed custom configuration requirements.

4 TW5350 Mechanical

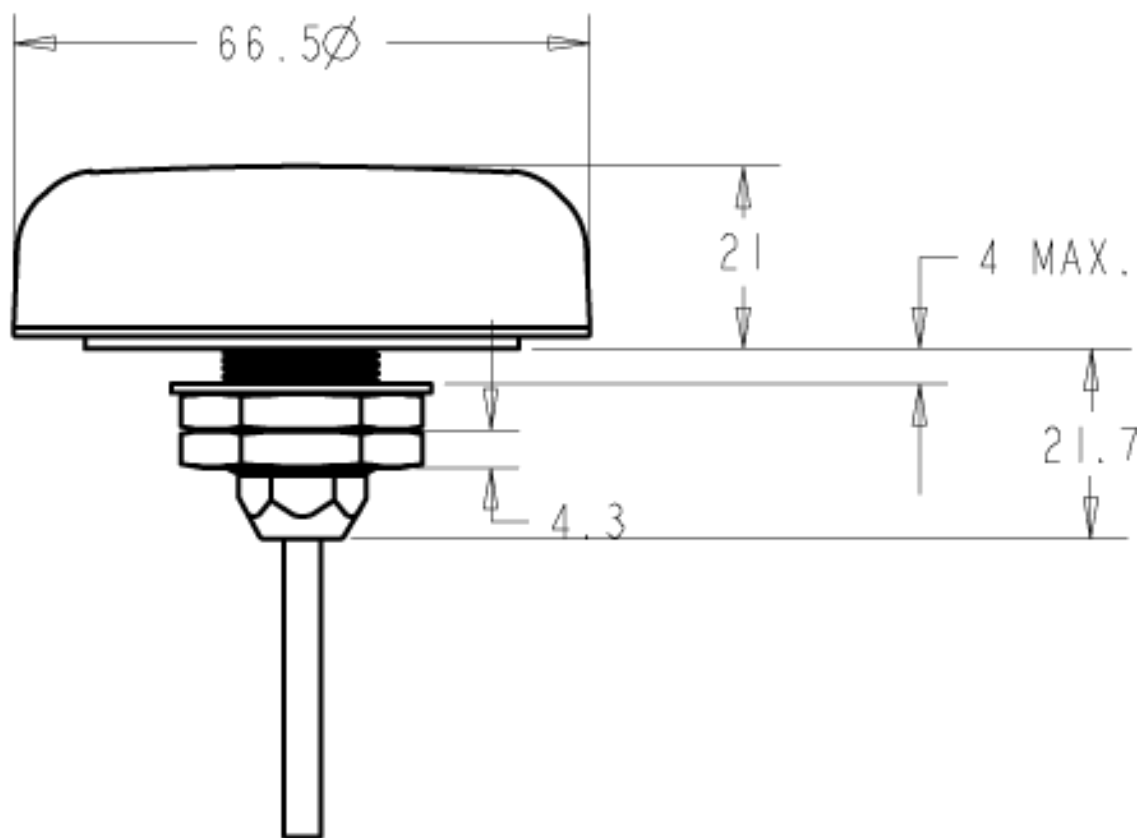


Figure 3 Mechanical dimensions of the TW5350