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# **TW5354 Installation Manual**

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**Document Amendment Record**

Revision	Date	Comments
Rev 1_0	11 Mar 2022	Preliminary Release

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## 1 Introduction

The TW5354 is a multi-constellation GNSS L1 Receiver/Antenna with SBAS. The TW5354 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 TW5354 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 TW5354 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 TW5354 supports software controlled low power modes for battery applications with periodic sampling rates.

The TW5354 outputs standard NMEA 0183 output with navigation updates rates up to 5 Hz. The TW5354 supports RS422/485 as the serial interface and RS485 for the 1PPS time pulse. The input operating voltage supports a range of 5V to 36V.



**Figure 1 TW5354 Antenna (low-profile grey shown)**



**Figure 2 TW5354 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 TW5354 device consistent with industry best practices.

#### 3.2 Installation Considerations

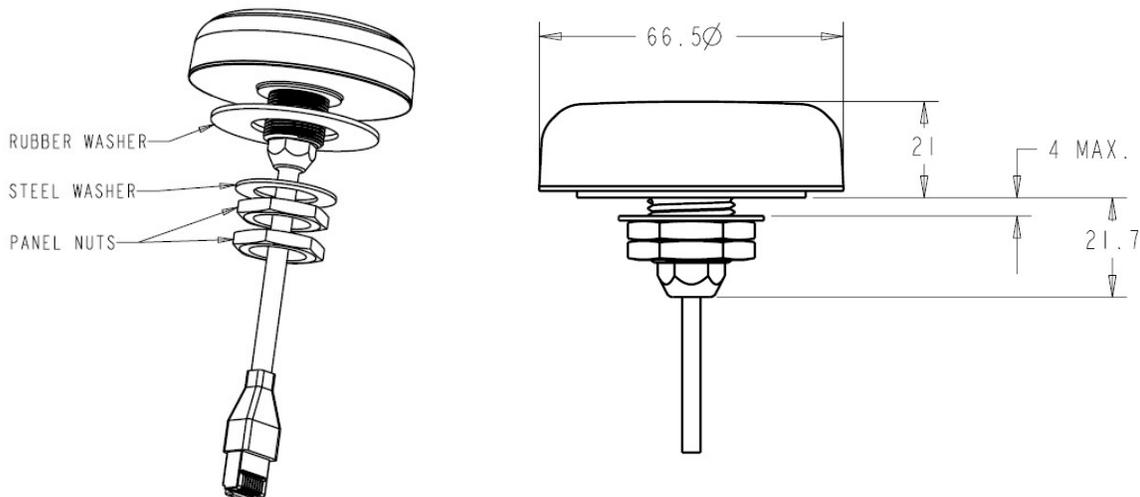
The TW5354 is mounted using the integrated fixed mount feature. For optimal performance, the device should be securely mounted to the surface of a large ground plane when possible. Recommended minimum 10cm ground plane with the antenna located at the center.

The TW5354 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 TW5354 Antenna assembly contains the following parts:

- TW5354 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 TW5354



### 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	TX_B (output D-)	RS485 0-2V DC	White/Orange
4	RX_A (input D+)	RS485 0-2V DC	Blue
5	RX_B (input D-)	RS485 0-2V DC	White/Blue
6	TX_A (output D+)	RS485 0-2V DC	Orange
7	GND	0V DC	White/Brown
8	Power	5-36V DC	Brown

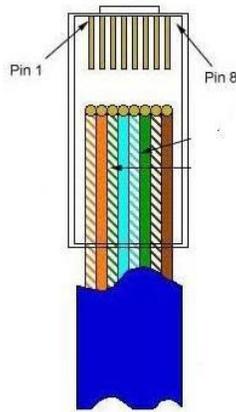


Figure 2 RJ45 - I/O Connector (looking onto the connector contacts)

### 3.4 Device Communication

The TW5354 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-422/485 TX signal pins.

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

### 3.5 NMEA Messages

The TW5354 has the following NMEA messages active by default:

GPRMC  
GNVTG  
GNGGA  
GNGSA  
GPGSV  
GLGSV  
GAGSV  
GNGLL

### 3.6 TW5354 Configured Settings

The TW5354 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 TW5354 contains flash storage memory for persisting customized configuration settings. Configuration settings may be adjusted using a PC with the 33-0095-1 USB SDK kit.

The Tallymatics TW5354 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 TW5354 Mechanical

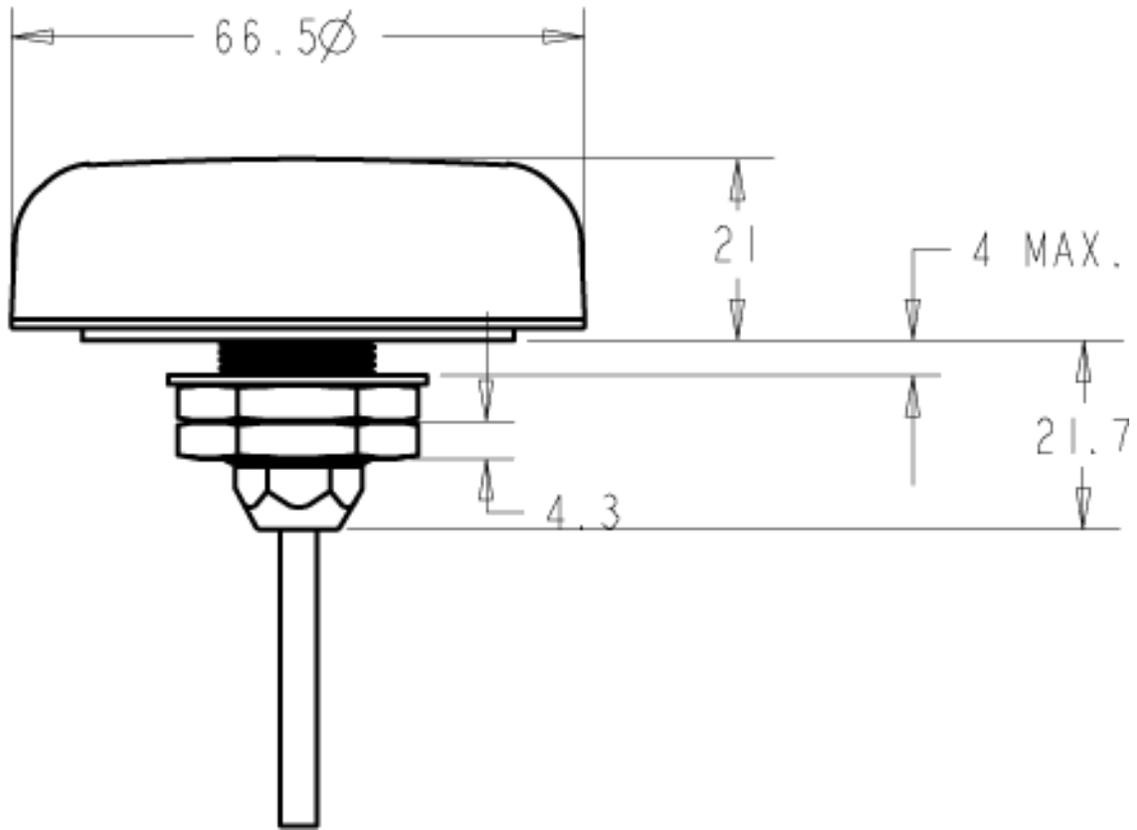


Figure 3 Mechanical dimensions of the TW5354