

# TW5386

## TW5386 Smart GNSS UDR Antenna for High Accuracy Positioning

### Overview

The TW5386 is a multi-band (L1/L2), multi-constellation integrated GNSS receiver/antenna with Inertial Measurement Unit (Untethered Dead Reckoning) and RTK for Precise Point Positioning. The TW5386 is capable of providing sub 1 meter accuracy stand alone and sub 10 cm accuracy with RTK corrections to support the most demanding positioning applications in the most challenging environments such as a dense urban canyon.

### Interference Resilience

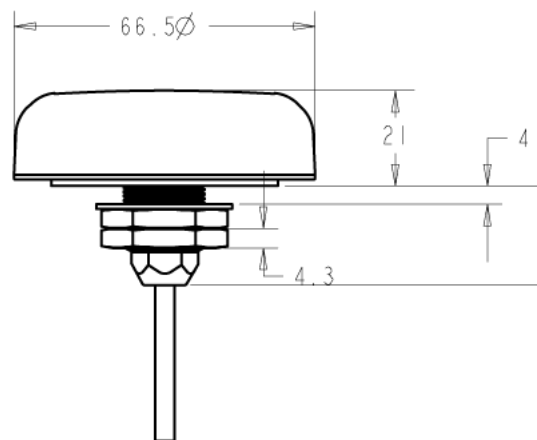
The TW5386 incorporates a latest generation multi-band (L1/L2) GNSS IMU receiver with a Tallysman Accutenna™ multi-band (L1/L2) dual feed patch. The state of the art GNSS receiver supports concurrent tracking of all four major constellations (GPS, BeiDou, Galileo and GLONASS) in multiple frequency bands. The multi-band (L1/L2) architecture is the most effective method for the removal of ionospheric error. The TW5386 employs multi-stage filtering with low noise figure LNAs, combined with the dual feed Accutenna™, which greatly improves the rejection of multi-path signal interference. The IMU Sensor Fusion further mitigates effects of severe multi-path reflections and provides continuous position availability during periods of GNSS outages caused by signal obstruction offering exceptional performance to meet the most challenging precise positioning applications.

### Precise Point Positioning

The TW5386 offers support for a broad range of corrections services (RTK base/rover or network) allowing performance optimization according to each application's unique requirements. The concurrent multi-band (L1/L2) access to all four satellite constellations improves the receiver's convergence capability to deliver a quick, precise and reliable position solution which is resilient to ionospheric errors and improves robust to interference and jamming.

The TW5386 accepts RTCM RTK message from a base station, Virtual Reference Station or SPARTN SSR message type via the Point Perfect subscription service.

The TW5386 provides sub 10 cm positioning accuracy in conjunction with RTK applied corrections.



Mechanical Dimensions (mm)

### Features

- Improved noise immunity with multi-band GNSS receiver
- Improved multi-path rejection with Dual feed Accutenna™
- Multi-band GNSS receiver is resilient to ionospheric errors
- High reliability timing with expansive constellation array
- IMU provides continuous availability during periods of signal loss
- Exceptional position performance without correction services
- Broad 5V-36V operation
- RS-485 differential (or RS-232 optional) signalling
- Industrial grade IP69K enclosure
- Rugged fixed mount
- Multiple cable lengths (5m, 15m and 25m)
- Available with conical radome

# TW5386 Smart GNSS Antenna

## Specifications

Antenna	Measured @ 5VDC supply
Architecture.....Multi-band (L1/L2), Dual Feed	
Axial Ratio.....L1: < 1 dB typical.	
Frequencies.....GPS L1C/A L2C, GLO L1OF L2OF, GAL E1B/C E5b, BDS B1I B2I, QZSS L1C/A L2C	
SBAS L1 C/A.....WAAS, EGNOS, MSAS, GAGAN	
Channels.....184-channel u-blox F9 engine	
Anti-jamming.....Active CW detection	
Interface	
Pwr, Gnd	
Tx, RX, Timepulse.....RS-485 levels (RS-232 option)	
Serial Protocol	
Output.....NMEA 0183, UBX Binary, RTCM v3.3, SPARTN v2.0	
Baud Rate.....Configurable	
Update Rate.....Configurable, 2Hz* (30Hz via HNR)	
Mechanical	
Dimensions.....66.5 mm dia. x 21 mm H	
Weight.....135 g	
Mounting Method.....Industrial grade fixed Mount	
Cable Length.....5, 15, 25m with RJ45 termination	
Electrical	
Voltages.....5 V to 36 VDC	
Current.....0.6 Watts (nominal operating)	
Environmental	
Operating Temperature.....-40°C to +85°C	
Storage Temperature.....-40°C to +85°C	
Weatherproof.....IP69K	
Shock.....Vertical axis 50G, other axis 30G 3 axis sweep – 15 min	
Vibration.....10-200 Hz log sweep 3G	
Sensitivity	
Tracking & Nav.....-160 dBm	
Reacquisition.....-160 dBm	
Hot starts.....-158 dBm	
Cold starts.....-147 dBm	
Acquisition	
Cold start......25 sec	
Aided start......3 sec	
Reacquisition......2 sec	
Position Accuracy	
Horizontal PVT.....1.5m CEP	
Horizontal SBAS.....1.0m CEP	
Horizontal RTK.....0.01 + 1ppm R50*	
Horizontal PPP-RTK (SPARTN).....<0.06m CEP	
Typical Convergence.....<45 sec*	
Timing	
Timing Accuracy.....30 ns RMS	

### Ordering Information:

33-5386-7-yy-zz-PC0 (RS-485, PCO = factory Configuration, NMEA out, no adaptor cable.)

33-5386-27-yy-zz-PC0 (RS-232, PCO = factory Configuration, NMEA out, no adaptor cable.)

yy = Radome (00=grey conical, 10=grey low profile, 01=white conical, 11=white low profile)

zz = Cable length in meters. Standard is 5m. (15m and 25m are special order only)

**TW5386 Standard SDK Test Adaptor required for programming 33-0095-x -1 (RS-485) -3 (RS-232) 33-0095-1 (RS-485)**

Please refer to the Ordering Guide for the current and complete list of available product options.



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**About Tallysman:** With global headquarters and manufacturing in Ottawa, Canada, Tallysman is a leading manufacturer of high-precision antennas and components for Global Navigation Satellite System (GNSS) applications. Tallysman's mission is to support the needs of a new generation of positioning systems by delivering unprecedented antenna precision at competitive prices. Learn more at [www.tallysman.com](http://www.tallysman.com)

**Contact us:**  
[info@tallysman.com](mailto:info@tallysman.com)  
**T: +1 613 591-3131**

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