

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

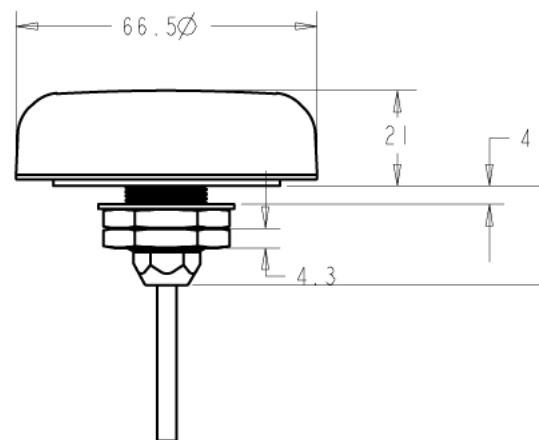
The TW5386 incorporates a latest generation multi-band (L1/L2) GNSS IMU receiver with a Tallysman Accutenna™ multi-band (L1/L2) dual feed patch. The state of the art GNSS receiver supports concurrent tracking of all four major constellations (GPS, BeiDou, Galileo and GLONASS) in multiple frequency bands. 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

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)

Measured @ 5VDC supply

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.



When precision matters.®

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

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