TW5390

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TW5390 Smart GNSS Antenna for Precise Positioning

Overview

The TW5390 is a multi-band (L1/L2), multi-constellation integrated GNSS receiver/antenna with Inertial Measurment Unit (Untethered Dead Reckoning) and integrated L-Band corrections receiver for stand alone RTK for Precise Point Positioning. The TW5390 is capable of providing sub 10 cm accuracy to support the most demanding navigation, automation and precision agriculture applications.
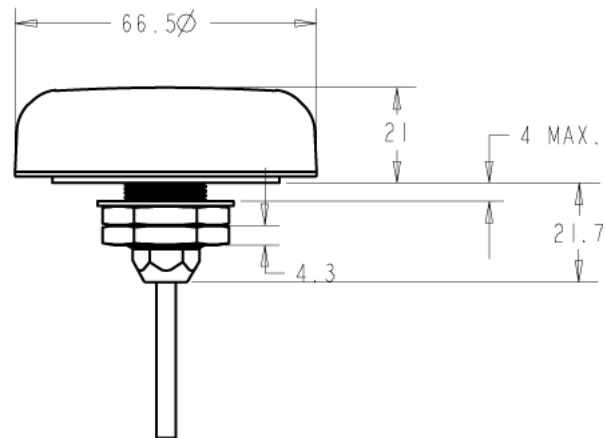
Interference Resilience

The TW5390 incorporates a latest generation multi-band (L1/L2) GNSS 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, offering high availability for RTK solutions with a quick convergence time. The multi-band (L1/L2) architecture is the most effective method for the removal of ionospheric error. The TW5390 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.

Corrections Applications

The TW5390 incorporates an L-Band correction receiver which offers sub 10 cm accuracy through real-time PPP-RTK corrections via the Point Perfect subscription service. (No RTK base station is required, typical of traditional RTK applications.) The L-Band receiver offers quick convergence and continuous corrections in geographic regions without IP/Network coverage. Point Perfect streaming corrections are available in continental US and Europe.

The TW5390 may also be configured to operate with the IP/Network corrections stream when operating in a challenging urban environment where L-Band coverage may be less optimal.

Mechanical Dimensions (mm)

Features

- Integrated L-Band corrections receiver for exceptional precision
- Improved noise immunity with multi-band GNSS receiver
- Improved multi-path rejection with Dual feed Accutenna™
- Multi-band GNSS receiver is unaffected by ionospheric errors
- High reliability timing with expansive constellation array
- High position availability in urban environemnt with UDR

- 5V operation
- RS-485 differential signalling
- Industrial grade IP69K enclosure
- Rugged fixed mount
- Multiple cable lengths (5m, 15m and 25m)
- Available with conical radome

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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 B1l B2l,
. . . . QZSS L1C/A L2C
SBAS L1 C/A . . . . .WAAS, EGNOS, MSAS, GAGAN
Channels. . . . . .184-channel u-blox F9 engine
Anti-jamming .Active CW detection
Corrections Receiver . . . . .L-Band PPP-RTK (SSR)
Signal Support . . . . .GPS: L1 C/A, L2P, L2C, L5 3
. . . . GLONASS: L1 C/A, L2 C/A
. . . . Galileo 3: E1, E5A/B
. . . . Beidou: B1l, B2l
Corrections Data Rate. . . . . .Continental: 2400 bps
Coverage. . . . . .EU and US
Format. . . . . .SPARTN, RTCM

Interface

Pwr, Gnd
Tx, RX, Timepulse . . . . .RS-485 levels

Serial Protocol

Output. . . . . .NMEA 0183, UBX Binary
Baud Rate. . . . . .Configurable

Mechanical

Dimensions . . . . .66.5 mm dia. x 21 mm H
Weight . . . . .135 g
Mounting Method . . . . .Fixed Mount
Cable Length . . . . .5m with RJ45 termination

Electrical

Voltages . . . . .5 VDC
Current . . . . .1 Watts (nominal operating)
. . . . Measured @ 5VDC supply

Environmental

Operating Temperature.. . . . .-40℃ to +85℃
Storage Temperature. . . . .-40℃ to +85℃
Weatherproof .IP69K
Shock. . . . . .Vertical axis 50G,other axis 30G
. . . . 3 axis sweep – 15 min
Vibration . . . . .10-200 Hz log sweep 3G

Sensitivity

Tracking & Nav . . . .-166 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

Standard Horizontal PVT . . . . .1.5m CEP
Standard Horizontal SBAS. . . . . .1.0m CEP
SPARTN Corrected Horizontal . . . . .<0.06m CEP*
Convergence . . . .<45 sec

Ordering Information:

33-5390-9-yy-zz-PCO   (PCO = 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)

TW5382 SDK Test Adaptor required for programming   33-0095-2

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

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Tallymatics manufactures high performance GNSS smart antennas, telematics products and solutions for a wide range of applications. With support for both RF wireless and data networks, Tallymatics enables high-resolution location awareness of mobile field assets across any type of wireless network. Tallymatics is a division of Tallysman.

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