

TW5398 Datasheet

Preliminary



TW5398 Smart GNSS Antenna: Full Band u-blox ZED-X20P

Overview

The TW5398 is a multi-band (L1/L2/L5/L6), multi-constellation integrated GNSS receiver/antenna with RTK, PointPerfect®-Flex (PPP-RTK) augmentation. The TW5398 is capable of providing sub 1.2 meter accuracy stand-alone, sub 6 cm accuracy with PPP-RTK and sub 1 cm with RTK corrections (service or localized). TW5398 also authenticates Galileo OSNMA anti-spoofing messages. TW5398 can be configured to act as a base or rover for RTK operation.

Full band Accutenna®: Interference Resilience via XF®

The incorporated GNSS antenna technology is based on the Calian TW3990XF full band Accutenna® antenna. Calian's eXtended Filtering mitigates out-of-band signal interference (LTE, WIFI, Bluetooth, Ligado) by employing multi-stage precipitous filtering, offering > 60 dB protection. The stacked, precision tuned, dual-feed ceramic patch increases multi-path resiliency by attenuating first order reflections. The Accutenna patch has linear phase response and tight phase-center variation for better accuracy and excellent axial ratio.

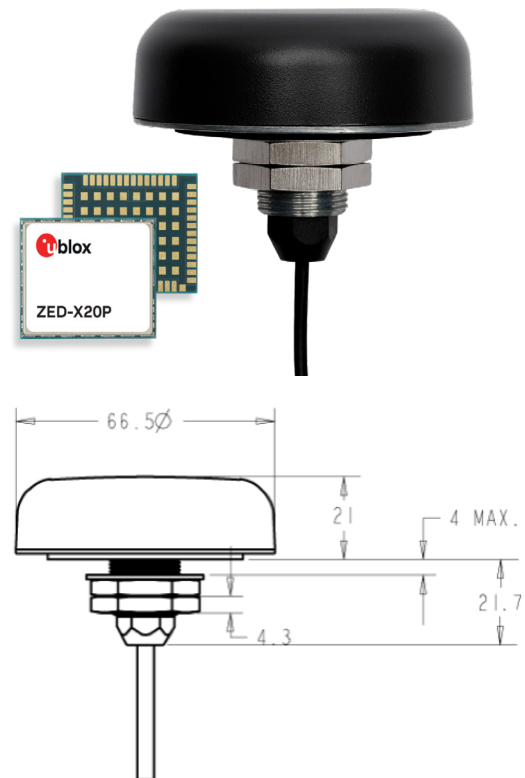
Integrated u-blox ZED-X20P Receiver: Plug & Play

TW5398 integrates u-blox's latest generation full-band ZED-X20P GNSS receiver. TW5398 supports GPS, BeiDou, Galileo satellites plus SBAS, NavIC and QZSS (configurable) across L1/L2/L5/L6 including L-Band. Integrated RTK support attains sub 1 cm precision with fast convergence times and high dynamic update rates (to 25 Hz).

Integrating the GNSS receiver on the TW5398 with a short, deterministic signal path mitigates RF interference that can be induced between the antenna and the receiver, both from the external environment as well as high speed busses and other noise sources collocated in a host application. The ZED-X20P digital interface is presented to host systems via RS-232 or RS-422, allowing long cable lengths resistant to noise; alleviating design constraints and promoting plug and play, future-proof designs. Upgrade PNT sub-system capabilities by plugging in the next generation Smart GNSS antenna solution.

GNSS Over The Air signal integrity & monitoring

TW5398 includes jamming/interference and spoofing detection and monitoring. The device may be configured to generate event messages to alert the host system. In addition the TW5398 may be configured to support Galileo Open Service Navigation Message Authentication (OSNMA) offering enhanced detection of complex spoofing and delayed attacks, also known as meaconing or record-and-replay.



Mechanical Dimensions (mm)

Features

- Full Band L1/L2/L5/L6 support with OSNMA
- Excellent axial ratio & multi-path resiliency with dual feed Accutenna®
- Enhanced impairment mitigation by integrating antenna and receiver
- Multi-band GNSS receiver offers inherent improvement via ionospheric error mitigation
- Improved multi-path and code accuracy with enhanced L5 service signal
- Improved jamming resiliency with additional active constellations
- RTK Base/Rover configurations
- Compatible with PointPerfect-Flex PPP-RTK - SPARTN
- Compatible with RTK services such as Point One Navigation Polaris RTK and Swift Navigation Skylark Cx and Nx RTK
- Fast update times (25 Hz)
- Industrial grade IP69K enclosure
- Roadmap support for Galileo High Accuracy Service (HAS) and PointPerfect Global PPP (PPP-AR)

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