

Tersus TS30

Visual & Laser GNSS Receiver



Overview

The Tersus TS30 is an innovative integration of dual cameras, laser, GNSS, IMU and related technologies. Equipped with Tersus high-performance BX50 GNSS board, it features high accuracy, stable signal detection and global satellite-based PPP service (TAP). With built-in large-capacity battery, UHF and 4G modules, it delivers a powerful all-in-one solution for professional field operations.

TS30 is designed for versatile surveying scenarios and high-efficiency stakeout. Its front camera enables precise point cloud visual positioning, while dual cameras operate seamlessly at different distances to support CAD AR stakeout. The integrated laser ensures stable long-range measurement and stakeout, and the built-in IMU allows accuracy measurement without limitations on tilt angles.

Key Features

- Multiple constellations and frequencies
- 1792 channels
- 24/7 global TAP service
- Rugged IP68-rated design
- Point cloud visual positioning
- VSLAM-assisted laser ranging
- AI-powered stabilization
- TwinCam AR stakeout

The GNSS Expert
Right to the Point

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Performance

Signal Tracking	
GPS	L1 C/A, L2C, L2P, L5
BDS	B1, B2, B3, supports BDS-3
GLONASS	L1C/A, L2C/A
Galileo	E1, E5a, E5b
QZSS	L1 C/A, L2C, L5
SBAS	supports WAAS, EGNOS, GAGAN, SDCM, MSAS
L-band	
Channels	1792
Image Sampling Accuracy (Typ.)	2 cm ⁽¹⁾
Image Point Measurement Accuracy	Typ. 2 cm ~ 4 cm (2D) within the distance of 2 m to 15 m to the object ⁽¹⁾
Laser Measurement Accuracy (RMS)	3 cm within 10 m
Single Point Positioning Accuracy (RMS)	H: 1.5 m V: 2.5 m
DGPS Positioning Accuracy (RMS)	H: 0.25 m V: 0.5 m
High-Precision Static (RMS)	H: 2.5 mm + 0.1 ppm V: 3.5 mm + 0.4 ppm
Static & Fast Static (RMS)	H: 2.5mm+0.5 ppm V: 5 mm + 0.5 ppm
Post Processed Kinematic (RMS)	H: 2.5 mm + 1 ppm V: 5 mm + 1 ppm
Real Time Kinematic (RMS)	H: 8 mm + 1 ppm V: 15 mm + 1 ppm
Network Real Time Kinematic (RMS)	H: 8 mm + 0.5 ppm V: 15 mm + 0.5 ppm
Initialization (Typ.)	4s ⁽²⁾
Initialization Reliability	> 99.9% ⁽²⁾
Time To First Fix (TTFF)	Cold Start: < 30 s Warm Start: < 5 s
Re-acquisition	< 1 s
Timing Accuracy (RMS)	20 ns
Velocity Accuracy (RMS)	0.03 m/s
Tilt Compensation Accuracy (No tilt angle limit)	≤ 2 cm (within 60°)

Observation Accuracy (Zenith Direction)	C/A Code: 10 cm P Code: 10 cm Carrier Phase: 1 mm
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TAP ⁽³⁾ Positioning Accuracy (RMS)	H: 15 mm V: 30 mm
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TAP Convergence Time	3 minutes
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TAP Coverage	Global
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TAP Signal Stability	99.99 %
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System & Data

Operating System	Linux
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Storage	Built-in 32 GB
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Differential Data Format	CMR, RTCM 2.x / 3.x
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Data Output	RINEX, NMEA-0183, Tersus Binary
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Data Update Rate	20 Hz
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Communication

Cellular	4G LTE / WCDMA / GSM / EDGE
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Network Protocols	Ntrip Client, Ntrip Server, TCP Tersus Caster Service (TCS)
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Wi-Fi	802.11a/b/g/n/ac
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Bluetooth	5.0
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Internal Radio	
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RF Transmit Power	0.5 W / 1.0 W
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Frequency Range	410 MHz ~ 470 MHz
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Operating Mode	Half-duplex
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Channel Spacing	12.5 KHz / 25 KHz / 250 KHz
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Modulation Type	CSS, GMSK, 4FSK
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Air Baud Rate	4800 / 9600 / 19200 bps
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Radio Protocols	LORA, TrimTalk450, TrimMark 3 Transparent, South, Satel
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Wired Communication	USB: Type-C, OTG
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Camera

Pixel	front camera 2.3 MP bottom camera 2.0 MP
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Laser

Range	0.05 – 50 m
Laser Safety	Class 3R
Distance Accuracy	8 mm
Frequency	5 Hz

Electrical

External Power Supply	Support USB (5~20 V)
Lithium Battery	Built-in, 10000 mAh / 7.3 V
Charging Time	5 hours (10 % - 90 %)
Fast Charging	Support, 15 W max (5 V 3 A)
Battery Charging Temperature	+10 °C ~ +45 °C
Working Time	up to 12 hours ⁽⁴⁾
Smart Battery with Power Display	Support
Electronic Bubble	Support

User Interface

Button	Power button
LED Indicators	Satellite, Correction Data, Solution, Static
Power Display	Support

Physical

Dimension	φ 134 x 90 mm
Weight	≈ 1050 g ⁽⁵⁾
Operating Temperature	-40 °C ~ +70 °C
Storage Temperature	-55 °C ~ +85 °C
Relative Humidity	100 % not condensed
Dust - & Waterproof	IP68
Pole Drop onto Concrete	2 m
Warranty Period	One Year

Software Support

Tersus Nuwa

Note:

- (1) The measurement precision may be subject to anomalies such as multi-path, obstructions, satellite geometry, atmospheric conditions, etc.
- (2) The initialization time and reliability depend on factors such as the number of satellites, observation time, atmospheric conditions, signal multipath, obstructions, and satellite geometry.
- (3) TAP Service is available exclusively on the TAP version.
- (4) The working time of the battery is related to the working environment, working temperature and battery life.
- (5) The actual size/weight may vary depending on the manufacturing process and measurement method.

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Information is subject to change without notice.

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