



captuRTK™ TS30

Visual + Laser GNSS Receiver

ONE SMART RECEIVER FOR THE NEXT ERA OF SURVEYING

captuRTK™ TS30 integrates dual cameras, laser ranging, GNSS, IMU, and full connectivity in a compact, field-ready receiver. It enables efficient measurement of hard-to-reach targets, faster stakeout, and site capture workflows that bring field data back to the office via point-cloud processing. Powered by Tersus multi-constellation GNSS board with TAP service, plus UHF, 4G, Wi-Fi, Bluetooth, NFC, and a large battery, captuRTK™ TS30 keeps crews productive anywhere in the field.



Multi-constellation Multi-frequency

GPS, GLONASS, BeiDou,
Galileo, QZSS, SBAS



1792 Channels



PPP Global satellite-based PPP Service



Rugged IP68-Rated Design For harsh environments



Laser Ranging Measurement

With high accuracy 3 cm
within 10 m



Point Cloud Visual Positioning

Capture once, measure more



TwinCam™ AR Stakeout

Stakeout at a glance



Flexible Data Transmission

UHF radio, 4G network,
Wi-Fi, Bluetooth, NFC

MEASURE THE HARD-TO-REACH. STAKE OUT THE EASY WAY.

1 Long-range laser ranging

captuRTK™ TS30 simplifies distant measurement with a laser module offering up to 50 m range, helping users capture points that are hard, time-consuming, or unsafe to access directly. Combined with a high-performance IMU, it delivers up to 3 cm laser measurement accuracy within 10 m.

2 High-precision visual positioning

captuRTK™ TS30 turns video into practical measurement power. Using a global shutter camera and point-cloud-based processing, it captures visual positioning data up to 2 cm accuracy and generates colored point clouds that bring the site back to the office digitally.

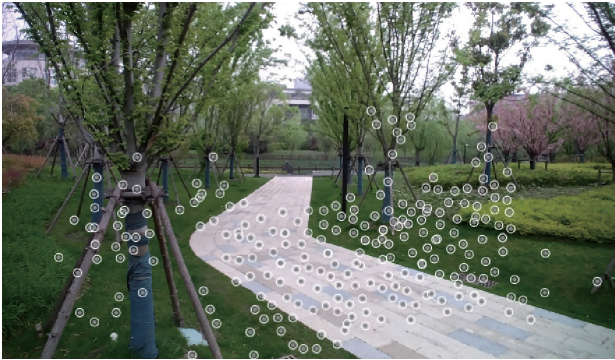
3 TwinCam™ AR Stakeout

Stakeout with captuRTK™ TS30 is faster, clearer, and easier to follow. It automatically switches between front and bottom cameras based on distance, then overlays target and direction guidance directly in the live view. This intuitive AR experience improves stakeout efficiency by up to 70%.

FROM POSITIONING TO PERCEPTION, REDEFINING LASER RANGING AND VISUAL POSITIONING

VSLAM-Assisted Laser Initialization

During laser measurement, captuRTK™ TS30 tracks visual features in real time to estimate orientation more accurately. Visual information helps correct IMU drift and adds valuable constraints to reduce pose error, improving the overall reliability of laser ranging results.



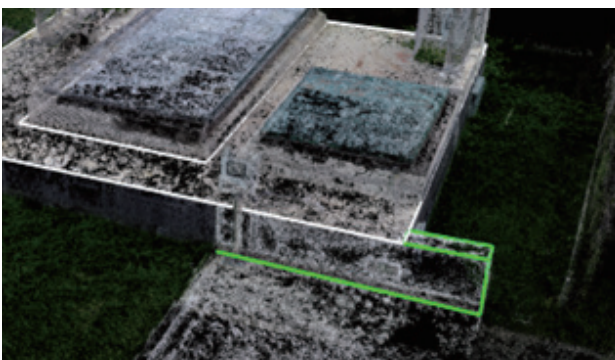
AI Powered Stabilization

captuRTK™ TS30 is designed for real-world field conditions, where hand movement and environmental variation can affect laser ranging quality. The front camera continuously captures visual features and evaluates multiple laser samples around them to identify the most reliable result. The outcome is more stable, more dependable laser measurement performance.



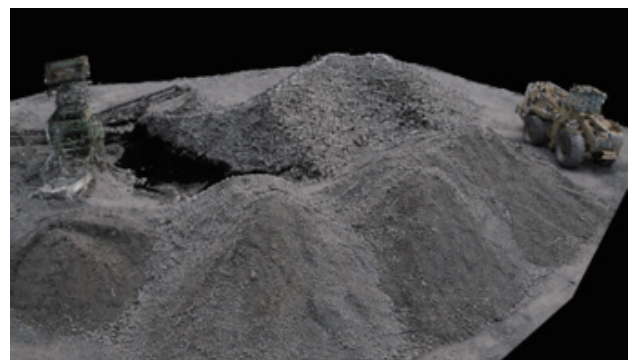
Capture Once, Measure More

With only a few minutes of video captured during visual positioning, captuRTK™ TS30 can generate a full colored 3D point cloud in a locally calibrated coordinate system. Users can then measure points, distances, and angles, create CAD lines, and complete more office-ready work from a single capture session. It reduces the need for return visits and gives field teams a more efficient way to work.



Fast Earthwork Volume Calculation

For textured terrain such as sand piles and sandy soil, captuRTK™ TS30 can generate a high-quality point cloud from only tens of seconds of video. This enables instant on-site volume calculation and avoids the slow, point-by-point measurement process required by conventional methods.



TECHNICAL SPECIFICATIONS

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
Real Time Kinematic (RMS)	
	H: 8 mm + 1 ppm
	V: 15 mm + 1 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

TAP⁽³⁾ Positioning Accuracy (RMS)

	H: 15 mm
	V: 30 mm
TAP Convergence Time	3 minutes
TAP Coverage	Global
TAP Signal Stability	99.99 %

System & Data

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

Communication

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

Camera

Pixel	
	front camera 2.3 MP
	bottom camera 2.0 MP

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

Physical

Dimension	φ134 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	
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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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Descriptions, specifications and related materials are subject to change.

To learn more, please visit: www.tersus-gnss.com

Sales inquiry: sales@tersus-gnss.com

Technical support: support@tersus-gnss.com