SURVEYING & ENGINEERING

TERSUS TS20 GNSS Receiver

RIGHT TO THE POINT

TS20 GNSS RECEIVER

The TS20 is an innovative integration of visual positioning technology, GNSS, IMU and a camera.Its AR visual stakeout allows for precise path planning, while the IMU ensures accuracy with no tilt angle limit.

It can provide high accuracy and stable signaldetection with an internal high-performance multi-constellation and multi-frequency GNSS board. The high-performance antenna can speed up the time to first fix (TTFF) and improve anti-jamming performance. The built-in large capacity battery supports long time of fieldwork in 4G/3G/2G network and Rover radio mode. The built-in UHF radio module supports long-distance communication.The rugged housing protects the equipment from challenging environments.

TS20
GNSS Receiver

APPLICATION SCENARIO

Building Construction

Road Construction

Bridge Construction

Pipework

Landscaping

Metro Tunnel

Features

Multiple constellations & frequencies
GPS, GLONASS, BeiDou, Galileo, QZSS, SBAS.

Professional camera
visual navigation and stakeout in One step.

1568 1568 channels

32GB internal storage

Tilt compensation without calibration
immune to magnetic disturbances.

Rich data transmission options
UHF radio, 4G network, Wi-Fi, Bluetooth, NFC.

IP68-rated dust- & waterproof enclosure
for reliability in harsh environments conditions.

Free Tersus caster service (TCS)
transmit the correction data from TS20 Base to Rover

VISUAL NAVIGATION AND STAKEOUT

Effortless stakeout

Quick, one step stakeout on NUWA software's 3D view with 50% efficiency gain for less experienced operators.

3D visual navigation

Guided by a clear, eye catching directional arrow and real time distance.

3D visual stakeout

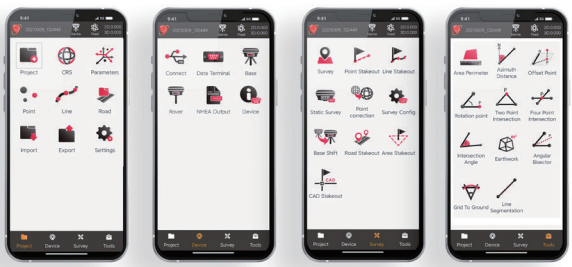
Immersive 3D stakeout experience with the stakeout point marked directly on the ground.

Star-level cameras

The stakeout display is clear even at night.

NUWA

Nuwa is a survey application software based on Android OS (Operating System), designed by and all rights reserved to Tersus GNSS Inc. Nuwa is simple, easy to use and has a friendly user interface. It is designed to work with the TS20 GNSS receiver, LUKA GNSS Receiver, and other receivers that support NMEA-0183. Nuwa provides extensive pre-defined coordinate systems that are used worldwide, and various data formats import and export like TXT, CSV, DXF, SHP, RAW, KML/KMZ, LandXML, RW5, HTML, and so on.



Technical Specifications

TS20

Performance

Signal Tracking:
GPS L1 C/A, L2C, L2P, L5;
BeiDou 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

Channels:	1568
Image Sampling Accuracy(Typically):	2cm(1)
Single Point Positioning Accuracy (RMS):	
- Horizontal:	1.5m
- Vertica:	2.5m
DGPS Positioning Accuracy (RMS):	
- Horizontal:	0.25m
- Vertica:	0.5m
High-Precision Static (RMS):	
- Horizontal:	2.5mm+0.1ppm
- Vertica:	3.5mm+0.4ppm
Static & Fast Static (RMS):	
- Horizontal:	2.5mm+0.5ppm
- Vertica:	5mm+0.5ppm
Post Processed Kinematic (RMS):	
- Horizontal:	2.5mm+1ppm
- Vertica:	5mm+1ppm
Real Time Kinematic (RMS):	
- Horizontal:	8mm+1ppm
- Vertica:	15mm+1ppm
Initialization (Typical):	4s(2)
Initialization Reliability:	>99.9%(3)
Network Real Time Kinematic (RMS):	
- Horizontal:	8mm+0.5ppm
- Vertica:	15mm+0.5ppm
Observation Accuracy (Zenith Direction):	
- C/A Code:	10cm
- P Code:	10cm
- Carrier Phase:	1mm
Time To First Fix (TTFF):	
- Cold Start:	<30s
- Warm Start:	<5s
Re-acquisition:	<1s

Performance – continued

Tilt Compensation Accuracy (No tilt angle limit):	⩽2cm(within 60°)
Timing Accuracy (RMS):	20ns
Velocity Accuracy (RMS):	0.03m/s

System & Data

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

Communication

Cellular:	4G LTE/WCDMA/GSM/EDGE
Cellular Bands(4):	LTE FDD B1,B3,B5,B7,B8,B20, B28 LTE TDD B38,B40,B41 WCDMA B1,B5,B8 GSM/EDGE 900/1800MHz
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:	0.5W/1.0W
Frequency Range:	410MHz ~ 470MHz
Operating Mode:	Half-duplex
Channel Spacing:	12.5KHZ/25KHZ/250KHz
Air Baud Rate:	4800 / 9600 / 19200bps
Modulation Type:	CSS, GMSK, 4FSK
Radio Protocols:	LORA, TrimTalk450, TrimMark3, South,Transparent,Satel
Wired Communication	
USB:	Type-C, OTG

Camera

Pixel	Bottom Camera 2.0MP

Electrical

External Power Supply:	Support USB (5~20V)
Fast Charging:	Support, 15W max(5V 3A)
Lithium Battery:	Built-in, 7000mAh/7.4V
Charing Time:	3 hours (20%~90%)
Battery Charging Temperature:	+10°C~+45°C
Working Time:	Up to 19 hours(5)
Smart Battery with Power Display:	Support
Electronic Bubble:	Support

Physical

Dimension:	ф134x71mm
Weight:	≈ 850g(6)
GNSS Antenna:	Integrated
Operating Temperature:	-40°C ~ +70°C
Storage Temperature:	-55°C ~ +85°C
Relative Humidity:	100% not condensed
Dust- & Waterproof:	IP68
Pole Drop onto Concrete:	2m
Vibration:	MIL-STD-810G,FIG 514.6C-1
Warranty Period:	One Year

Software Support

Tersus Nuwa

User Interface

Button:	Power Button
LED Indicators:	Satellite, Correction data, Static, Solution
Power Display:	Support

Note:
(1) The measurement precision may be subject to anomalies such as multi-path, obstructions, satellite geometry, atmospheric conditions, etc.
(2) The initialization time depends on various factors, including the number of satellites, observation time, atmospheric conditions, multi-path, obstructions, satellite geometry, etc.
(3) The initialization reliability may be affected by atmospheric conditions, signal multipath, and satellite geometry.
(4) Optional.
(5) The working time of the battery is related to the working environment, working temperature and battery life.
(6) The actual size/weight may vary depending on the manufacturing process and measurement method.

Linkedin Facebook Twitter YouTube

To learn more, please visit: www.tersus-gnss.com
Sales inquiry: sales@tersus-gnss.com
Technical support: support@tersus-gnss.com

Global Headquarter

Tersus GNSS Australia
Level 2, 990 Whitehorse Rd, Box Hill,
VIC 3128, Australia
+61 3 9018 5598

US Office

Tersus GNSS United States
809 San Antonio Rd, Suite 10,
Palo Alto CA 94303-4634,
United States
+1 4158 0048 00

China Office

Tersus GNSS China
No.666 Zhangheng Road,
Pudong Shanghai 201203,
PR China
+86 21-5080 3061