TERSUS

OSCAR-TAP

GNSS RTK Receiver
with Global Satellite-Based PPP Service

Oscar-TAP
GNSS Receiver
ExtremeRTK™

Speed Up Your Work

The Oscar-TAP GNSS Receiver adopts satellite-based precise point positioning service (TAP) developed by Tersus GNSS, which allows users to achieve centimeter-level high-precision positioning worldwide. With TAP, the GNSS rover receiver will not need to work with the local RTK base station or CORS but directly receive corrections broadcast by the satellites, such as ephemeris errors, satellite clock errors, etc, ensuring the high-precision operation of a single receiver.

It supports calibration-free tilt compensation function which is immune to magnetic disturbances, leveling pole is not required. Easy configuration with 1.54-inch interactive screen on Ultimate versions. With an internal high-performance multi-constellation and multi-frequency GNSS board, the Oscar-TAP GNSS Receiver can provide high accuracy and stable signal detection. The high-performance antenna can speed up the time to first fix (TTFF) and improve antijamming performance. The built-in large capacity battery is detachable, two batteries support up to 16 hours of field work 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.

Oscar-TAP meets the demand for centimeter-level high-precision positioning in areas without or with poor network coverage, such as oceans, deserts, mountains, high altitudes, etc. The Oscar-TAP GNSS Receiver has two versions: Ultimate and Basic. It provides selectivity for the requirements of different users.

Oscar-TAP GNSS Receiver

Unprecedented
Flexibility and efficiency

Danger Zone

Hidden Point

Underground Utilities

Forest

City Canyon

Features

Supports multiple constellations & frequencies: GPS, GLONASS, BeiDou, Galileo, QZSS, SBAS,L-Band

1792 Supports 1792 channels

Tilt compensation without calibration, immune to magnetic disturbances

Up to 16 hours working in 4G/3G/2G network and Rover radio mode

IP68 IP68-rated dust- & waterproof enclosure, for reliability in harsh environmental conditions

410-470MHz UHF radio, 4G network, Wi-Fi, Bluetooth, NFC, 16GB/8GB internal storage

TCS Free subscription of Tersus Caster Service (TCS): transmit the correction data from Oscar-TAP Base to Rover

TAP Global satellite-based PPP service

Tersus TAP (PPP) Service

TAP is a satellite-based precise point positioning service developed by Tersus GNSS, which allows users to achieve centimeter-level high-precision positioning worldwide.

High-performance global solution
Enjoy 15mm horizontal and 30mm vertical accuracy in just 3 minutes worldwide.

High-availability & Redundancy
With redundant backups for all hardware and broadcast paths, ensure over 99.99% service availability.

The security and simplicity
Quick and secure access, with one-way data transfer of corrections to your receiver.

Seamless subscriptions
Remote one-click activation, with flexible subscription durations to suit your application needs.
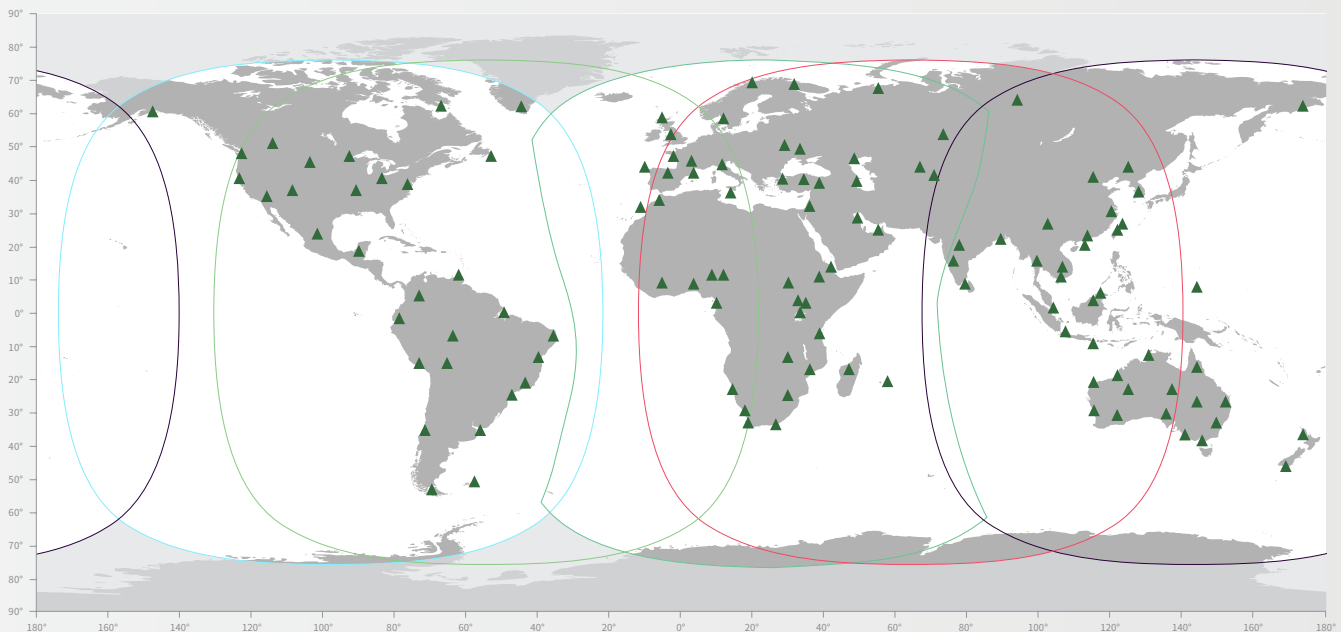
Technical Specifications
Oscar-TAP

Performance

Signal tracking
GPS L1 C/A, L2C, L2P, L5; GLONAS L1 C/A, L2 C/A; BDS B1, B2, B3, support BDS-3; Galileo E1, E5a, E5b; QZSS L1 C/A, L2C, L5; SBAS[1] supports WAAS, EGNOS, GAGAN, SDCMMSAS, L-band

Channels:	1792

Single Point Positioning Accuracy (RMS):
– Horizontal:	1.5m
– Vertical:	3.0m

DGPS Positioning Accuracy (RMS):
– Horizontal:	0.25m
– Vertical:	0.5m

High-Precision Static (RMS):
– Horizontal:	2.5mm+0.1ppm
– Vertical:	3.5mm+0.4ppm

Static & Fast Static (RMS):
– Horizontal:	2.5mm+0.5ppm
– Vertical:	5mm+0.5ppm

Post Processed Kinematic (RMS):
– Horizontal:	2.5mm+1ppm
– Vertical:	5mm+1ppm

Real Time Kinematic (RMS):
– Horizontal:	8mm+1ppm
– Vertical:	15mm+1ppm

Initialization (typical):	4s[2]
Initialization Reliability:	>99.99%[3]

Network Real Time Kinematic (RMS):
– Horizontal:	8mm+0.5ppm
– Vertical:	15mm+0.5ppm

Observation Accuracy (zenith direction):
– C/A Code:	10cm
– P Code:	10cm
– Carrier Phase:	1mm

Time To First Fix (TTFF):
– Cold Start:	<35s
– Warm Start:	<10s
Reacquisition:	<1s

Performance – continued

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

PPP(TAP)

Positioning Accuracy (RMS):
- Horizontal:	15mm
- Vertical:	30mm
Convergence Time:	3 minutes
Coverage:	Global
Signal Stability:	99.99%

System & Data

Operating system:	Linux
Storage:	built-in 16GB/8GB[4]
Data Format:	CMR, CMR+ (GPS only),RTCM 2.x/3.x
Data output:	RINEX, NMEA-0183, Tersus Binary
Data update rate:	20Hz

Physical

Display:	1.54'' OLED[4]
Dimension:	157x157x103mm[5]
Weight:	≈ 1.2kg (without battery)
	≈ 1.4kg (with a battery)[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:	2m
Vibration:	MIL-STD-810G,FIG 514.6C-1

Software Support

Tersus Nuwa

MicroSurvey FieldGenius

Electrical

Input voltage:	9~28V DC

Power consumption (typical):
Network or Radio receive mode:	≈ 5W
Radio transmit mode (0.5W):	≈ 8 W
Radio transmit mode (1W):	≈ 9 W
Radio transmit mode (2W):	≈ 11 W
Lithium battery:	7.4V 6400mAh x2[6]
Battery Charging Temperature:	+10°C ~ +45°C
Battery Working Time:	up to 8 hours[6]

Communication

Cellular

Cellular:	4G LTE/WCDMA/GSM

Cellular Bands [7]:
FDD LTE 1,3,7,8,20,28A | 2,4,5,12,13
TDD LTE 38,40,41|
WCDMA 1,8|2,5
GSM3,8 |

Network protocols:
Ntrip Client, Ntrip Server, TCP, Tersus Caster Service (TCS)

Wi-Fi:	802.11b/g
Bluetooth	4.1

Internal Radio

RF transmit power:	0.5W/1W/2W
Frequency range:	410MHz ~ 470MHz
Operating mode:	Half-duplex
Channel spacing:	12.5KHz / 25KHz
Modulation type:	GMSK, 4FSK
Air baud rate:	4800 / 9600 / 19200bps
Distance (Typical):	>5km
Radio protocols:	TrimTalk450, TrimMark 3, South, Transparent, Satel

Wired communication

USB OTG:	USB 2.0 x1
Serial ports:	RS232 x1
COM baud rate:	up to 921600bps

Note:
(1) SBAS optional for Oscar-TAP Advanced and Basic.
(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 for Oscar-TAP Ultimate is 99.99%, Basic is 99.9%. May be affected by atmospheric conditions, signal multipath, and satellite geometry.
(4) Details refer to performance comparison table.
(5) The actual size/weight may vary depending on the manufacturing process and measurement method.
(6) Oscar-TAP uses one battery at a time, the other is a substitute. Each battery lasts up to 8 hours when Oscar-TAP works in 4G/3G/2G network and Rover radio mode. Two batteries add up to 16 hours of continuous use. The working time of the battery is related to the working environment, working temperature and battery life.
(7) Depending on version. In order Europe | American version.

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