

TERSUS

Oscar Trek

GNSS Receiver



SEEING IS SURVEYING



OSCAR TREK GNSS RECEIVER

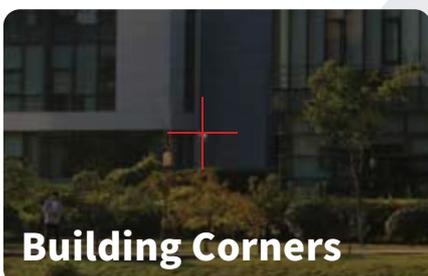
The Oscar Trek GNSS Receiver is the latest high-precision GNSS RTK system, which is an innovative integration of visual positioning technology, GNSS, IMU and a camera. It enables you to measure what you see to achieve high-precision, high-efficiency and multi-point measurement.

It also 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. With an internal multi-constellation and multi-frequency GNSS board, the Oscar Trek 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 anti-jamming 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.



APPLICATION SCENARIO

Obstruction points, danger zone, such as building corners, points on a roof or in a trench, etc.



FEATURES



Supports multiple constellations and frequencies

- GPS L1 C/A, L2C, L2P, L5
- GLONASS L1 C/A, L2 C/A
- BeiDou B1, B2, B3, support BDS-3
- Galileo E1, E5a, E5b
- QZSS L1 C/A, L2C, L5
- SBAS supports WAAS, EGNOS, GAGAN, SDCM, MSAS



Tilt compensation without calibration, immune to magnetic disturbances



576

Supports 576 channels



16GB internal storage



Innovative visual positioning technology for precise measurements



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



Measure what you see, save your time



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



410-470MHz UHF radio, 4G network, Wi-Fi, Bluetooth, NFC



Free subscription of Tersus Caster Service (TCS):

Transmit the correction data from Trek Base to Rover.



TECHNICAL SPECIFICATIONS

Oscar Trek GNSS Receiver

Signal Tracking:

GPS L1 C/A, L2C, L2P, L5;
GLONAS L1 C/A, L2 C/A;
BDS B1, B2, B3, Supports BDS-3;
Galileo E1, E5a, E5b;
QZSS L1 C/A, L2C, L5;
SBAS Supports WAAS, EGNOS, GAGAN, SDCM, MSAS

Channels: 576

Image Point Measurement Accuracy:

Typically 2 cm – 4 cm(2D),
within the distance of 2 m to 10 m to the object⁽¹⁾

Tilt Compensation Accuracy (No tilt angle limit):

≤2cm(within 60°)

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

Timing Accuracy (RMS):

20ns

Velocity Accuracy (RMS):

0.03m/s

Time To First Fix (TTFF):

- ColdStart: <35s

- WarmStart: <10s

Re-acquisition: <1s

Observation Accuracy (zenith direction):

- C/A Code: 10cm

- P Code: 10cm

- Carrier Phase: 1mm

Camera

Active Pixels: 2.3MP

Focal Length: 3.24mm

View Angle: D:88.2° V:80.2° H:51°

TV Distortion: <0.1%

Frame Rate: 120fps

System & Data

Operating System: Linux

Storage: Built-in 16GB

Differential Data Format: CMR, CMR+ (GPS only),

RTCM 2.3, RTCM3.0, RTCM3.1, RTCM3.2

Data Output: RINEX, NMEA-0183, Tersus binary

Data Update Rate: 20Hz

Communication

Cellular: 4G LTE/UMTS/GSM

Cellular Bands:

FDD LTE 1,2,3,4,5,7,8,12,13,18,19,20,25,26,28

TDD LTE 38,39,40,41

UMTS 1,2,4,5,6,8,19

GSM 2,3,5,8

Network Protocols: Ntrip Client, Ntrip Server, TCP,

Tersus Caster Service (TCS)

NFC: Support

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

Electrical

Input Voltage: 9~28V DC

Power Consumption (Typical):

Network or Radio Receive Mode: ≈ 5W

Radio Transmit Mode (0.5W): ≈ 8W

Radio Transmit Mode (1W): ≈ 9W

Radio Transmit Mode (2W): ≈ 11W

Lithium Battery: 7.4V 7000mAh x2

Battery Charging Temperature: +10°C ~ +45°C

Battery Working Time: up to 8 hours⁽⁴⁾

Smart Battery with Power Display: Support

Electronic Bubble: Support

Physical

Display: 1.54" OLED

Buttons: FN, ON/OFF

LED indicators: Satellite, Tilt, Correction data, Power

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

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 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) Oscar Trek uses one battery at a time, the other is a substitute. Each battery lasts up to 8 hours when Trek 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.
- (5) The actual size/weight may vary depending on the manufacturing process and measurement method.



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