SinoGNSS®
By ComNav Technology Ltd.

Venus Laser RTK

Universe Series GNSS Receiver

LASER RTK - INNOVATION MAKES THE DIFFERENCE

Venus Laser RTK

GNSS Surveying System

Ver.2022.11.20

Signal Tracking

Channel: 1590
GPS: L1C/A, L1C, L2P, L2C, L5
BDS: B1I, B2I, B3I, B1C, B2a, B2b
GLONASS: G1, G2, G3
Galileo: E1, E5a, E5b, E6c, E5 AltBOC
QZSS: L1C/A, L2C, L5, L1C
IRNSS: L5
SBAS: L1C/A

Performance Specification

Signal Re-acquisition: ≤1s
Cold Start: ≤45s
Hot start: ≤15 s
RTK Initialization Time: <10s(Baseline≤10km)
Initialization reliability: ≥99.9%
Data Update Rate: 1Hz, 2Hz, 5Hz, 10Hz, 20Hz

Mode	Accuracy
Static and Fast Static	Horizontal 2.5 mm + 0.5 ppm RMS Vertical 5 mm + 0.5 ppm RMS
Signal Baseline RTK	Horizontal 8mm + 1ppm RMS Vertical 15mm + 1ppm RMS
DGPS	＜0.4m RMS
SBAS	Horizontal 0.5 RMS Vertical 0.8 RMS
Standalone	1.5m 3D RMS
Laser Tilt Measurement	≤5.5cm (2m range, ≤60°Tilt in handheld mode)

Data Format

Correction data I/O: RTCM2.X, 3.X,CMR(GPSonly),CMR+(GPSonly)
Position data output: - ASCII: NMEA-0183 GSV, RMC, HDT, GGA, GSA, ZDA, VTG, GST; PTNL, PJK; PTNL, AVR; PTNL, GGK
-ComNav Binary update to 20 Hz

Electrical and Battery

Voltage: 5/9V
Power Consumption: 1.45W
Over Current Protection Voltage: 30V, VBUS 9.99V
Charging Time: <4h(QC2.0)
Working time: ≥20h

Communication

Bluetooth: 5.0 Dual-Mode Bluetooth
NFC: NFC Fast Connection
Interface: USB TYPE-C

Environmental Specification

Working Temperature: -20℃~+60℃
Storage Temperature: -30℃~+70℃
Humidity: 100% non-condensing
Water- & Dustproof: IP67
Shock: Survive a 2m drop onto the concrete
Vibration: MIL-STD-810G Method 514.6 procedure Ⅰ

Physical Specification

Housing Material: Plastic
Dimension: 80±1mm(L), 70±1mm(W), 150±1mm(H)
Weight: 380g
Range Pole Interface: M8 thread

Laser Specification

Range: 10m
Accuracy(room temperature): (3-5)mm + 1ppm
Measuring Frequency: Classic Value: 3Hz
Maximum Value: 5Hz
Laser Injection Power: 0.9mW~1.5mW
Working Temperature: -20℃~+50℃
Storage Temperature: -30℃~+60℃

Specifications subject to change without notice.

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Venus Laser RTK

Venus is an innovative GNSS receiver combined with laser and IMU. Laser distance meter makes rodless survey possible, enabling GNSS surveying beyond usual constraints. IMU achieves 60° tilt compensation in both traditional and laser modes, supports free calibration and 10-second initialization.

Integrated the SinoGNSS K8 platform, Venus features full-constellation with 1590 channels, providing high-precision measurement results even in harsh environments.

Customized Powerful Antenna

NFC

SinoGNSS K8 Module

Handheld Design

All-in-one Board

Millimeter-level Laser

M8 Thread

LASER TECHNOLOGY

K8 MODULE

FULL-CONSTELLATION MULTI-FREQUENCY

QUICK CHARGE

PPP

NFC

IP67

HANDHELD DESIGN

Software

Survey Master

Optional

Microsurvey FieldGenius Android

Microsurvey FieldGenius Windows

Compatible with most of Android devices

Easier survey workflow via Wizard function

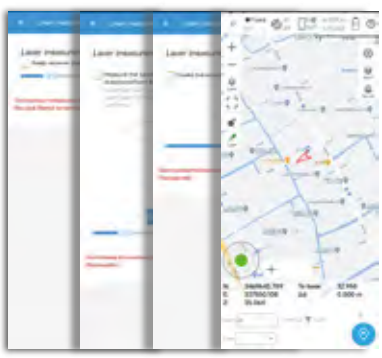
Support up to 60° IMU tilt compensation

Support all survey modes, including Static, PPK and RTK

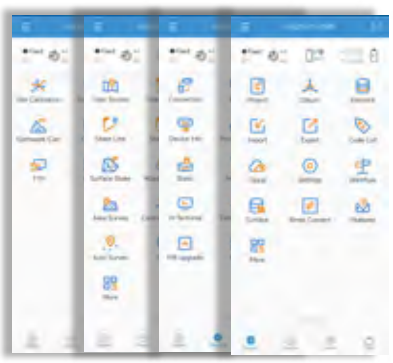
Support Surface Stake, Mapping Survey and etc. to serve various survey tasks

Support CAD import and directly use for stake out operations

Support Convert function from ComNavBinary raw file to RINEX



IMU Tilt Survey



New Interface

CAD Basemap and Stake

Post-processing Software

SinoGNSS Compass solution software

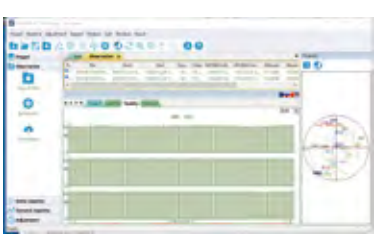
Provide the complete GPS/GLONASS/BeiDou/GALILEO post-processing solution

Support GNSS observation data in RINEX and ComNav Raw Binary Data format

Support different post-processing in static and kinematic modes

Output analysis reports in various formats (web format, DXF, TXT, KML)

Supports DJI's P4R data format. Processing results can be imported into photogrammetry and 3D modeling software directly



Features

LASER DISTANCE METER ENABLES RODLESS SURVEY

Innovatively equipped with a laser distance meter, Venus makes rod-free stakeout and measurement possible, greatly expanding the working scope.

SATELLITE TRACKING		
GPS	L1C/A, L1C, L2P, L2C, L5	
BDS	B1I, B2I, B3I, B1C, B2a, B2b	
GLONASS	G1, G2, G3	
Galileo	E1, E5a, E5b, E6c, E5 AltBOC	

SATELLITE TRACKING		
QZSS	L1C/A, L2C, L5,L1C	
IRNSS	L5	
SBAS	L1C/A	

Laser Technology

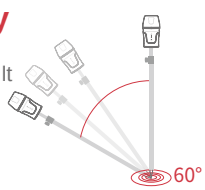
The fusion of GNSS, IMU and laser technologies pushes working efficiency to the limits and ensures accuracy.

Full-Constellation Multi-Frequency

With 1590 channels and 50+ satellite tracking capabilities, Venus also supports SBAS PPP service. Getting fixed in seconds boosts your productivity.

Third Generation IMU Improves 30% Efficiency

The 3rd generation IMU supports 60° tilt compensation, allows 10-second initialization. No bubble check needed, survey as you will.



Handheld Design, Easy to Carry

Venus is ergonomically designed for easy carrying. The 380g GNSS receiver with sophisticated structure minimizes user fatigue.

Robust Design

Built to IP67 standards, Venus is waterproof and dustproof, completely workable even in harsh environments.

NFC Connection

Venus Laser RTK can be connected automatically with a single touch.