Oscar GNSS Receiver

Overview

The Oscar GNSS Receiver is a new generation GNSS RTK system. It supports calibration-free tilt compensation function, leveling pole is not required. Easy configuration with 1.54 inch big interactive screen on Ultimate and Advanced versions. With an internal high-performance multi-constellation and multi-frequency GNSS board, the Oscar 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 detachable large capacity battery can support up to 10 hours of field work. The built-in UHF radio module supports long distance communication. The rugged housing protects the equipment from harsh environments.

The Oscar GNSS Receiver has three versions: Ultimate, Advanced, and Basic. It provides selectivity for the requirement from different users.

Key Features

Supports multiple constellations & frequencies:
- GPS L1, L2
- GLONASS L1, L2
- BeiDou B1, B2
- GALILEO E1, E5b
- SBAS (EGNOS, WAAS, MSAS, GAGAN) L1C/A
- QZSS L1

Supports 576 channels

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

Tilt compensation without calibration

Various working modes

16GB/8GB internal storage

Up to 10 hours working

IP67-rated dust- & waterproof enclosure, for reliability in harsh environmental conditions

Technical Specifications

Performance

Signal Tracking:

GPS L1, L2; GLONASS L1, L2; BeiDou B1, B2;
GALILEO E1, E5b; QZSS L1;
SBAS (EGNOS, WAAS, MSAS) L1C/A

Channels:	576

High-Precision Static (RMS):
– Horizontal:	3mm+0.1ppm
– Vertical:	3.5mm+0.4ppm

Static & Fast Static (RMS):
– Horizontal:	3mm+0.5ppm
– Vertical:	5mm+0.5ppm

Post Processed Kinematic (RMS):
– Horizontal:	8mm+1ppm
– Vertical:	15mm+1ppm

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

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

Initialization (typical):	<10s
Initialization Reliability:	>99.9%
Tilt Compensation Accuracy (within 30°)	≤2cm [2]

System & Data

Operating System:	Linux
Storage:	built-in 16GB/8GB [2]
RTK Format:	CMR, CMR+, RTCM 2.X/3.X

Communication

Celluar:	4G LTE/TD-SCDMA/WCDMA/GPRS/GSM
Wi-Fi:	802.11b/g [3]
Bluetooth:	4.1
USB OTG:	USB 2.0 x1
Serial Ports:	RS232 x1

Internal Radio:
- Power	2W
- Frequency	410MHz ~ 470MHz
Distance (Typical):	>5km

Electrical

Input Voltage:	9~28V DC

Power Consumption (Typical):
Network or Radio Receiving Mode:	≈ 5W
Radio Transmitting Mode:	≈ 8W
Lithium Battery:	6400mAh x2 [1]

Physical

Display:	1.54'' OLED [2]
Dimension:	157x157x103mm
Weight:	≈ 1.1kg (without battery)
	≈ 1.3kg (with a battery)
Operating Temperature:	-40℃ ~ +75℃
Storage Temperature:	-55℃ ~ +85℃
Relative Humidity:	100% not condensed
Dust- & Waterproof:	IP67
Pole Drop onto Concrete:	2m

Note: (1) One battery is used in Oscar, the other is for backup.
(2) Details refer to performance comparison table.
(3) Hardware of Wi-Fi module is ready, the function will
be supported by firmware update.

Performance Comparison

Oscar Version	Ultimate	Advanced	Basic
Picture			
Channels	576	576	576
GPS	L1, L2	L1, L2	L1, L2
GLONASS	L1, L2	L1, L2	L1, L2
BeiDou	B1, B2	B1, B2	B1, B2
Galileo	E1, E5b	E1, E5b	E1, E5b
SBAS	L1C/A	L1C/A	L1C/A
GNSS Antenna	Integrated	Integrated	Integrated
Buttons	2	2	2
Display	1.54'' OLED	1.54'' OLED	✕
LED Indicators	4	4	6
Bluetooth	√	√	√
NFC	√	√	√
UHF Radio	√	√	√
4G	√	√	√
Tilt Compensation (IMU)	√	✕	✕
Electronic Bubble	√	√	√
Memory	16GB	16GB	8GB
USB OTG	√	√	√
Battery Capacity	6400mAh x2	6400mAh x2	6400mAh x2
Smart Battery with power display	√	√	√