UM960

GPS/BDS/GLONASS/Galileo/QZSS
All-constellation Multi-frequency High Precision RTK Positioning Module

12.2 × 16.0 × 2.6 mm

Features

- High precision, low power consumption and compact size
- Based on the new generation GNSS SoC -NebulasIV, which integrates RF, baseband and high precision algorithm
- Supports all-constellation multi-frequency on-chip RTK positioning solution
- All-constellation multi-frequency RTK engine and advanced RTK processing technology
- Tracking different frequencies independently
- 60 dB narrowband anti-jamming and jamming detection

Applications

- Robotic Lawn Mower
- Drone Light Show
- GIS Handheld
- Robotics

UM960 is Unicore's new generation high precision RTK positioning module supporting all constellations, including GPS, BDS, GLONASS, Galileo and QZSS. Based on the proprietary RF baseband and high precision algorithm integrated GNSS SoC–NebulasIV, UM960 can concurrently track multiple frequencies, including BDS, GPS, GLONASS, Galileo, QZSS, SBAS.

With its superb performance, UM960 is perfectly suited for high precision navigation and positioning applications, such as drone light show, lawn mower, handheld devices, high precision GIS, robotics, etc.

Physical Characteristics

Packaging	24 pin LGA
Dimension	12.2 × 16.0 × 2.6 mm
Weight	1.11 g ± 0.03 g

Environmental Specifications

Working Temperature	-40 °C ~ +85°C
Storage Temperature	-55 °C ~ +95°C
Humidity	95% No condensation
Vibration	MIL-STD-810F
Shock	MIL-STD-810F

Communication Interfaces

3 × UART (LVTTL)
1 × I^2C*

Note: Items marked with * are supported by specific firmware.

Performance Specifications

Channel	1408 channels, based on NebulasIV		
Frequency	GPS L1C/A, L2C, L2P(Y), L5		
	BDS B1I, B2I, B3I, B1C, B2a		
	GLONASS G1, G2		
	Galileo E1, E5a, E5b		
	QZSS L1C/A, L2C, L5		
	SBAS L1C/A		
Single Point Positioning(RMS)	Horizontal: 1.5 m	Time Accuracy (RMS)	20 ns
	Vertical: 2.5 m	Velocity Accuracy (RMS)	0.03 m/s
DGPS (RMS)	Horizontal: 0.4 m	Data Update Rate	20 Hz positioning
	Vertical: 0.8 m	Cold Start	< 30 s
RTK (RMS)	Horizontal: 0.8 cm + 1 ppm	Initialization Time	< 5 s (typical)
	Vertical: 1.5 cm + 1 ppm	Initialization Reliability	> 99.9%

Observation Accuracy (RMS)	BDS	GPS	GLONASS	Galileo
B1I/L1C/A/G1/E1 Code	10 cm	10 cm	10 cm	10 cm
B1I/L1C/A/G1/E1 Carrier Phase	1 mm	1 mm	1 mm	1 mm
B2I/L2P(Y)/L2C/G2/E5b Code	10 cm	10 cm	10 cm	10 cm
B2I/L2P(Y)/L2C/G2/E5b Carrier Phase	1 mm	1 mm	1 mm	1 mm
Differential Data	RTCM V2.3, RTCM V3.X			
Data Format	NMEA 0183, Unicore*			