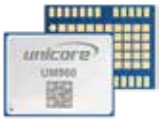
UM960

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 posititioning module based on the proprietary GNSS SoC-NebulasIV, which integrates RF, baseband and high-precision algorithm. It supports all constellations, including GPS, BDS, GLONASS, Galileo and QZSS, and can track multiple frequencies concurrently.

With its superb performance, UM960 is perfectly suited for high-precision navigation and positioning applications, such as Robotic lawn mowers, drone light show, 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

Operating 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, L5			
	BDS B1I, B2I, B3I, B1C, B2a, B2b*			
	GLONASS G1, G2			
	Galileo E1, E5a, E5b, E6*			
	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/L2C/G2/E5b Code	10 cm	10 cm	10 cm	10 cm
B2I/L2P/L2C/G2/E5b Carrier Phase	1 mm	1 mm	1 mm	1 mm
Differential Data	RTCM2.3, RTCM 3.X, CMR			
Data Format	NMEA 0183, Unicore			