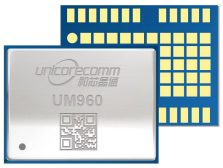
UM960

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



12.2 × 16.0 × 2.4 mm

Features

- Based on the new generation GNSS SoC - NebulasIV, which integrates RF, baseband, and high precision algorithm
- 12.2 x 16.0 x 2.4 mm SMD
- Supports all-constellation multi-frequency on-chip RTK positioning calculation
- Supports BDS B1I/B2I/B3I/B1C/B2a* + GPS L1/L2/L5 + GLONASS L1/L2 + Galileo E1/E5b/E5a + QZSS L1/L2/L5
- All-constellation multi-frequency RTK engine and advanced RTK technology
- Independent tracking of satellite frequencies and 60dB narrowband anti-jamming technology

Applications

- Lawnmower
- Autonomous Driving

Brief Introduction

UM960 is Unicore's new generation high precision RTK positioning module supporting all constellations, including BDS, GPS, 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 B1I/B2I/B3I/B1C/B2a*, GPS L1/L2/L5, GLONASS L1/L2, Galileo E1/E5b/E5a, and QZSS L1/L2/L5.

With its superb performance, UM960 is perfectly suited for high precision navigation and positioning applications, such as deformation monitoring, high precision GIS, UAV, lawnmower, precision agriculture, surveying and mapping, intelligent driving, etc.

Physical Characteristics

Packaging	24 pin LGA
Dimension	12.2 × 16.0 × 2.4 mm
Weight	1.11g ± 0.03g

Environmental Specifications

Working Temperature	-40°C~+85°C
Storage Temperature	-55°C~+95°C
Humidity	95% No condensation
Vibration	GJB150.16A-2009, MIL-STD-810F
Shock	GJB150.18A-2009, MIL-STD-810F

Communication Interfaces

3 × UART (LVTTL)
1 × I2C*
1 × CAN* (share the pin with UART3)

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

Basic Information

Channel	1408 channels, based on NebulasIV
Frequency	BDS: B1I, B2I,B3I,B1C,B2a*
	GPS: L1C/A, L2P, L5
	GLONASS: L1, L2
	Galileo: E1, E5b, E5a
	QZSS: L1, L2, L5

Performance Specifications

Single Point Positioning(RMS)	Horizontal: 1.5m	Time Accuracy (RMS)	10 ns
	Vertical: 2.5m	Velocity Accuracy (RMS)	0.03 m/s
Data Update Rate	20 Hz positioning		
DGPS (RMS)	Horizontal: 0.4m	TTFF	Cold start 20s
	Vertical: 0.8m	Initialization Time	<30s (typical)
RTK (RMS)	Horizontal: 0.8cm+1ppm	Initialization Reliability	>99.9%
	Vertical: 1.5cm+1ppm		

Observation Accuracy (RMS)	BDS	GPS	GLONASS	Galileo
B1I/L1 C/A/G1/E1 Code	10cm	10cm	10cm	10cm
B1I/L1C/A/G1/E1 Carrier Phase	1mm	1mm	1mm	1mm
B2I/L2P(Y)/L2C/G2/E5b Code	10cm	10cm	10cm	10cm
B2I/L2P(Y)/L2C/G2/E5b Carrier Phase	1mm	1mm	1mm	1mm

Differential Data	RTCM V3.X
Data Format	NMEA-0183, Unicore*

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