UM960

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

12.2 × 16.0 × 2.6 mm

Features

» Based on the new generation GNSS SoC - NebulasIV, which integrates RF, baseband, and high precision algorithm

» 12.2 x 16.0 x 2.6 mm SMD

» Supports all-constellation multi-frequency on-chip RTK positioning calculation

» Supports GPS L1/L2/L5, BDS B1I/B2I/B3I/B1C/B2a, GLONASS G1/G2, Galileo E1/E5b/E5a, QZSS L1/L2/L5, SBAS

» All-constellation multi-frequency RTK engine and advanced RTK technology

» Independent tracking of different frequencies and 60dB narrowband anti-jamming technology

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 B1I/B2I/B3I/B1C/B2a, GPS L1/L2/L5, GLONASS G1/G2, 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 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 × I2C*

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

Performance Specifications

Channel	1408 channels, based on NebulasIV			
Frequency	GPS L1C/A/L2P/L5			
	BDS B1I/B2I/B3I/B1C/B2a			
	GLONASS G1/G2			
	Galileo E1/E5b/E5a			
	QZSS L1/L2/L5			
	SBAS			

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*			