UM982

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



16.0 × 21.0 × 2.6 mm

Features

- Based on the new generation GNSS SoC - NebulasIV, which integrates RF, baseband, and high precision algorithm
- 16.0 x 21.0 x 2.6mm SMD
- Supports all-constellation multi-frequency on-chip RTK positioning and dual-antenna heading solution
- Supports BDS B1I/B2I/B3I + GPS L1/L2/L5 + GLONASS L1/L2 + Galileo E1/E5a/E5b + QZSS L1/L2/L5 + SBAS
- Dual-RTK engine
- Adaptive recognition of differential data input in RTCM format

Applications

- UAV
- Lawn Mower
- Precision Agriculture
- Intelligent Driving

Brief Introduction

UM982 is Unicore's new-generation proprietary high-precision positioning and heading module. Its main and secondary antennas can simultaneously track multiple frequencies of all GNSS systems, and the module can perform on-chip RTK positioning and dual-antenna heading calculation. The built-in advanced anti-interference unit ensures the module delivers reliable and accurate positioning data even in complex electromagnetic environment. Featuring the extraordinary positioning performance and stability, UM982 is a perfect choice for high-precision navigation and positioning applications such as UAV, lawn mower, precision agriculture and intelligent driving.

Physical Characteristics

Packaging	48 pin LGA
Dimension	16.0 × 21.0 × 2.6 mm
Weight	1.82±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 × SPI*
1 × CAN* (share the pin with UART3)

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

Basic Information

Channel	1408 channels, based on NebulasIV
Frequency	BDS: B1I, B2I, B3I
	GPS: L1C/A, L2P (Y), L2C, L5
	GLONASS: L1, L2
	Galileo: E1, E5a, E5b
	QZSS: L1, L2, L5

Performance Specifications

Single point positioning(RMS)	Horizontal: 1.5m	Heading accuracy (RMS)	0.2°/1m baseline
	Vertical: 2.5m	Time accuracy (RMS)	20 ns
DGPS (RMS)	Horizontal: 0.4m	Velocity accuracy (RMS)	0.03 m/s
	Vertical: 0.8m	Cold start	<30s
RTK (RMS)	Horizontal: 0.8cm+1ppm	Initialization time	<5s (typical)
	Vertical: 1.5cm+1ppm	Initialization reliability	>99.9%

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/L5/E5a/E5b code	10cm	10cm	10cm	10cm
B2I/L5/E5a/E5b carrier phase	1mm	1mm	1mm	1mm
B3I/L2P(Y)/L2C/G2 code	10cm	10cm	10cm	10cm
B3I/L2P(Y)/L2C/G2 carrier phase	1mm	1mm	1mm	1mm

Data update rate	Dual antenna 20 Hz
	20 Hz raw data output
Differential data	RTCM V3.X
Data format	NMEA-0183, Unicore

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