

UM482

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



30 × 40 × 4 mm

Product Characteristics

- » Based on the multi-system multi-frequency high-performance SoC - NebulasII, with 432 super channels
- » 30 × 40 mm, all-constellation multi-frequency high-precision positioning and heading SMD module
- » Support GPS, BDS, GLONASS, Galileo and QZSS, including Beidou-3 signal
- » Support dual-antenna signal input, simultaneous output of positioning and heading data, more than 20Hz data output rate
- » Dual-RTK positioning technique and 0.2°/1m baseline positioning accuracy
- » Support antenna signal detection, adaptive recognition of differential data RTCM format
- » Support serial port, SPI, 1PPS, Event and other physical interfaces

Application Fields



Intelligent
Drive



Robots



UAV

Brief Introduction

UM482 is the smallest all-system multi-frequency high-precision positioning and heading module in the world, which is based on Nebulas-II SoC developed by Unicore Communications. It tracks all the key satellite signals, including BDS B1I/B2I, GPS L1/L2, GLONASS L1/L2, Galileo E1/E5b and QZSS L1/L2. The module is mainly used in light-weight robots, UAV, intelligent driving, etc.

Electrical Specifications

Voltage	3.3VDC +5%/-3%
Ripple Voltage	100mVp-pmax
Power Consumption	2.4W(typical)

Physical Specifications

Size	30 × 40 × 4 mm
I/O	2x30 pin, SMD
Temperature	Working: -40°C~+85°C Storage: -55°C~+95°C
Humidity	95% No condensation
Vibration	GJB150.16-2009,MIL-STD-810
Shock	GJB150.18-2009,MIL-STD-810

Functional Ports

3x UART (LV-TTL)	1x PPS (LV-TTL)
1x Event	

NOTE: The parts marked with * are optional configurations;
BDS B1I/B3I can be supported by firmware upgrade.

Performance Specifications

Channel	432 channels, based on NebulasII chip			
Frequency	GPS L1/L2 BDS B1I/B2I GLONASS L1/L2 Galileo E1/E5b			
Single Point Positioning(RMS)	Horizontal: 1.5 m		Vertical: 2.5 m	
DGPS(RMS)	Horizontal: 0.4 m		Vertical: 0.8 m	
RTK(RMS)	Horizontal: 0.8 cm+1 ppm		Vertical: 1.5 cm+1 ppm	
Observation Accuracy	BDS	GPS	GLONASS	Galileo
B1/L1 C/A/E1 Code	10cm	10cm	10cm	10cm
B1/L1/E1 Carrier Phase	1mm	1mm	1mm	1mm
B2/L2P(Y)/L2C/E5b Code	10cm	10cm	10cm	10cm
B2/L2P(Y)/L2C/E5b Carrier Phase	1mm	1mm	1mm	1mm
Velocity Accuracy(RMS)	0.03 m/s		Correction	RTCM v3.0 /3.2
Time Accuracy (RMS)	20 ns		Data Output	NMEA-0183 , Unicore
Time to First Fix (TTFF)	Cold start<25 s		Update Rate	20 Hz
Initialization Time	<5 s (typical)		Heading Accuracy	0.2°/1m baseline
Initialization Reliability	>99.9%		Reacquisition	<1s