UM482

BDS/GPS/GLONASS/GALILEO All-system Multi-frequency High-precision Heading Module

Product Introduction

Developed by Unicore on basis of the Nebulas-II high-performance high-precision GNSS SoC, the UM482 is an all-system multi-frequency high-precision heading module with smallest footprint worldwide, supporting the satellite signals including BDS B1/B2, GPS L1/L2, GLONASS L1/L2, GALILEO E1/ E5b and SBAS. It is widely used in such application fields as light robot, drone, intelligent drive and mechanical control.

Smallest Multi-frequency High-precision Heading Module

The UM482 adopts a single Nebulas-II SoC chip and high-integrated RF chip, boasting the highest integration among the industry. A 30x40x4mm size brings about the world's first all-system multi-frequency high-precision heading SMD module, minimizing the dimensions of the terminal devices.

New-generation Nebulas-II SoC chip

The UM482 works with Unicore's new-generation all-system multi-core high-precision GNSS SoC -- Nebulas-II. The chip supports 432 channels, two 600MHz ARM processors and dedicated high-speed floating-point coprocessors, achieving powerful satellite signal processing

"UGypsophila" RTK processing technology

The UM482 adopts Unicore's new-generation "UGypsophila" RTK processing technology and takes advantage of the high-performance data sharing capability and super-simplified operating system within the Nebulas II GNSS SoC. It performs sufficient optimization on the multi-dimensional RTK matrix pipeline computation, resulting in 80%+ higher RTK processing capability

Adaptive recognition of RTCM

The UM482 performs pattern matching recognition and correction algorithm with the internally-abstracted RTCM protocol template to fully implement the differential RTCM input adaptation function. Upon the RTCM data access, it judges quickly the input COM port and RTCM3.2/3.0/2.3 format, without the need to specify the type of differential data, thus dramatically simplifying user operations.

On-board MEMS integrated navigation

The UB482 integrates the on-board MEMS chip and U-Fusion integrated navigation algorithm, resulting in optimized continuity and reliability of heading/ positioning output in such complex environments as buildings, tunnels and overpasses. Inputs of odometer and external higher- performance inertial components are supported*.

Application Fields

- Intelligent Driving
- Light Robots
- Mechanical Control
- Drone

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Features

- 30×40mm,smallest footprint in the industry, all-system multi-frequency high-precision heading module(SMD packaging)
- Supporting GPS L1/L2+BDS B1/B2 +GLONASS L1/ L2+GALILEO E1/E5b
- Dual antenna input with support of antenna signal detection
- Supporting simultaneous output of heading and positioning, 20Hz data output rate
- Adaptive recognition of RTCM input data format
- On-board MEMS integrated navigation

[1] Unicore Nebulas™ -II (UC4C0) is a multi-system multi-frequency high performance SoC chip, which supports all existing GNSS, including BDS B1/B2/B3, GPS L1/L2/L5, GLONASS L1/L2 and Galileo E1/E5a/E5b.

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All-system Multi-frequency
High-precision Heading Module

Technical Specifications

Performance Specifications

Channel	432 channels,		Velocity Accuracy(RMS)	0.03m/s
	based on Nebulas-II chip		Time to First Fix (TTFF)	Cold start<40s
Frequency	BDS B1/B2			Hot Start<10S
	GPS L1/L2		Initialization Time	< 5s (typical)
	GLONASS L1/L2		Initialization Reliability	> 99.9%
	Galileo E1/E5b		Reacquisition	<1s
	QZSS L1/L5		Correction	RTCM 2.3 /3.0 /3.2
	SBAS L1		Data Output	NMEA-0183 , Unicore
Single point positioning(RMS)	Horizontal : 1.5m		Update Rate	20Hz
	Vertical : 2.5m		Inertial Navigation Accuracy	< 5%x driving distance
DGPS(RMS)	Horizontal : 0.4m			(No GNSS signal)
	Vertical : 0.8m			
RTK(RMS)	Horizontal : 10mm+1ppm			
	Vertical : 15mm+1ppm			

Measurement Accuracy(RMS)	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)/E5b code	10cm	10cm	10cm	10cm
B2/L2/E5b carrier phase	1mm	1mm	1mm	1mm

Electrical Specifications

Voltage	3.3VDC +5%/–3%
LNA Output	4.75~5.10V, 0~100 mA
Ripple Voltage	100mVp-p(max)
Power Consumption	2.4W(typical)

Functional Ports

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

Physical Specifications

Size	46 x 71 x 4 mm
I/O	2x14 pin, SMD
Antenna Input	2xMMCX
Temperature	Working : -40°C~+85°C
	Storage : -55°C~+90°C
Humidity	95% No condensation
Vibration	GJB150.16-2009,MIL-STD-810
Shock	GJB150.18-2009,MIL-STD-810

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