UM4B0

GPS/BDS/GLONASS/Galileo Full-freqency Full-Frequency RTK Positioning Module

Product Introduction

UM4B0 is the high precision positioning and heading RTK module developed by Unicore Communications, targeting intelligent drive, lawn mower, GIS information collection, etc. By employing a single UC4C0(432 channel tracking) baseband chip and a single RF chip, using single-sided SMD packaging, UM4B0 can achieve smallest size(30x40mm) among industry with high accuracy heading and positioning output.

It can simultaneously track BDS B1I/B2I/B3I/B1C/B2a + GPS L1/L2/L5 + GLONASS L1/L2+Galileo E1/E5a/E5b + QZSS L1/L2/L5.

It can maintain excellent application experience even in the most challenging environments such as urban canyons, by deploying anti-interference function block and on board MEMS device

Application Fields

- ADAS, Intelligent Drive
- Robots, Robotic lawn mower
- High precision GIS

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Product Characteristics

- Support GPS L1/L2/L5 +GLONASS L1/L2+BDS B1I/B2I/B3I/B1C/B2a+Galileo E1/E5a/E5b + QZSS L1/L2/L5
- Based on 432 channel NebulasII GNSS SoC
- 30x40 mm, smallest multi-system multi-frequency high precision module
- Instantaneous RTK initialization and long-distance RTK
- Adaptive recognition of differential data RTCM format, support antenna signal detection
- 60dB narrowband anti-jamming, support multi-path suppression technology
- Support UART, 1PPS, Event and other physical interface

[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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Technical Specifications

Performance Specifications

Channel	432 channels, based on NebulasII chip
Frequency	BDS B1I/B2I/B3I/B1C/B2a
	GPS L1/L2/L5
	GLONASS L1/L2
	Galileo E1/E5a/E5b
	QZSS L1/L2/L5
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：1 cm+1 ppm
	Vertical：1.5 cm+1 ppm

Velocity Accuracy(RMS)	0.03 m/s
Time to First Fix (TTFF)	Cold start ＜25 s
	Hot Start ＜ 10 s
RTK Initialization Time	＜5 s (typical)
Initialization Reliability	＞99.9%
Reacquisition	<1 s
Correction	RTCM V3.0 /3.2
Data output	NMEA-0183，Unicore
Update Rate	20 Hz*
Power Consumption	20 Hz*
Time Accuracy (RMS)	20 ns
Dead Reckoning Error	<5% of distance travelled during GPS denied conditions

Observation 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)/L2C/E5b Code	10cm	10cm	10cm	10cm
B2/L2P(Y)/L2C/E5b Carrier Phase	1mm	1mm	1mm	1mm
B3/L5/L2C/E5b Code	10cm	10cm	10cm	10cm
B3/L5/L2C/E5a Carrier Phase	1mm	1mm	1mm	1mm

Physical Specifications

Size	30 × 40 × 4 mm
Weight	9.2 g
I/O Connectors	2 x 30 pin
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

Note：Part marked with * is customizable

Functional Ports

3 x UART

1 x PPS（LV-TTL），1 x Event input

Electrical Specifications

Voltage	3.3 VDC +5%/–3%
LNA	4.75~5.0 V, 0~100 mA
Ripple Voltage	100 mV p-p（max）
Power Consumption	1.8 W (typical)

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