UM982C

GPS/BDS/GLONASS/Galileo/QZSS All-Constellation Multi-Frequency High-Precision Positioning & Heading Module (L-Band & CLAS Supported)

Features

» Dual antenna input
» All-constellation, multi-frequency on-chip RTK positioning and dual-antenna heading solution
» Multiple frequencies including GPS L1/L2/L5, BDS B1I/B3I/B2a/B2b, GLONASS G1/G2, Galileo E1/E5a/E5b/E6, QZSS L1/L2/L5/L6 and SBAS
» Dual RTK engine using master-slave antenna GNSS raw observations for independent positioning solution
» Adaptive recognition of RTCM input data format
» Supports B2b-PPP, E6-HAS and QZSS L6E (MADOCA) PPP services
» Supports QZSS L6D (CLAS) PPP-RTK solution
» Supports TruePoint REACH Sat L-band-based PPP-AR service[1]

Dimensions: 16.0 × 21.0 × 2.6 mm

UM982C is Unicore's new-generation proprietary all-constellation, multi-frequency high-precision GNSS positioning and heading module, developed based on the GNSS SoC NebulasIV which integrates RF-baseband and high-precision algorithm. The module supports multiple frequencies of all systems, including GPS, BDS, GLONASS, Galileo, QZSS, NavIC, SBAS and L-Band, supports QZSS L6D (CLAS) PPP-RTK solution, and supports TruePoint REACH Sat L-band-based PPP-AR service. UM982C supports dual-antenna heading solution, and can be used as a rover or a base station.

UM982C supports configuring the multi-system joint positioning mode or single-system standalone positioning mode, and tracking multiple signals. With the built-in anti-jamming unit, the module ensures accurate positioning even in complex electromagnetic environments. UM982C is ideal for UAVs, precision agriculture and autonomous robots.

UM982C has various types of interfaces for different purposes, including UART, I2C*, SPI*, PPS, EVENT and CAN*.

Applications

UAV

Autonomous robots

Precision agriculture

Performance Specifications

Channel	1408 channels, based on NebulasIV			
Master Antenna Frequencies	Slave Antenna Frequencies			
GPS L1C/A, L2P(Y)/ L2C, L5	GPS L1C/A, L2C			
BDS B1I, B3I, B2a, B2b	BDS B1I, B3I			
GLONASS G1, G2	-			
Galileo E1, E5a, E5b, E6	Galileo E1, E5b			
QZSS L1, L2, L5, L6	QZSS L1, L2			
L-Band	-			
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			
PPP (RMS)[2]	Horizontal: 5 cm @20min			
	Vertical: 10 cm @20min			
PPP-AR (RMS)[2]	Horizontal: 3 cm @5min			
	Vertical: 6 cm @5min			
CLAS (RMS)[2]	Horizontal: 5 cm @1min			
	Vertical: 10 cm @1min			
Heading Accuracy (RMS)	0.1°/1m baseline			
PPS (RMS)	20 ns			
Velocity Accuracy (RMS)	0.03 m/s			
Observation Accuracy (RMS)	BDS	GPS	GLONASS	Galileo
B1I/L1 C/A/G1/E1 Pseudorange	10cm	10cm	10cm	10cm
B1I/L1 C/A/G1/E1 Carrier Phase	1mm	1mm	1mm	1mm
B2I/L5/E5a/E5b Pseudorange	10cm	10cm	10cm	10cm
B2I/L5/E5a/E5b Carrier Phase	1mm	1mm	1mm	1mm
B3I/L2P(Y)/L2C/G2 Pseudorange	10cm	10cm	10cm	10cm
B3I/L2P(Y)/L2C/G2 Carrier Phase	1mm	1mm	1mm	1mm

Performance Specifications

TTFF (Time to First Fix)	Cold Start ＜30 s
	Hot Start ＜ 4 s
Initialization Time	< 5 s (Typical)
Initialization Reliability	> 99.9%
Data Update Rate	20 Hz positioning and heading data
	20 Hz raw measurements
Differential Data	RTCM V3.X
Data Format	NMEA 0183, Unicore

Physical Characteristics

Package	48 pin LGA
Dimensions	16.0 × 21.0 × 2.6 mm
Weight	1.82 g ± 0.03 g

Environmental Specifications

Operating 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

Functional Ports

3 × UART	1 × I2C*
1 × SPI*	1 × CAN* (Shared with UART3)

*: I2C, SPI and CAN are supported on specific firmware or hardware.

1. This is is a paid service
2. Under open sky and without jamming