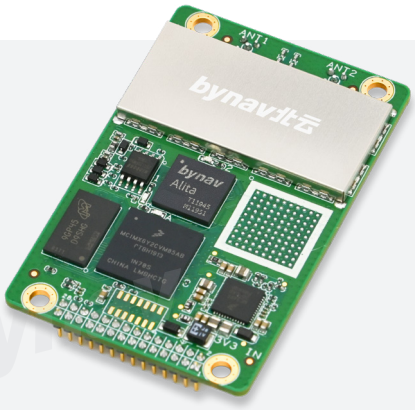
GNSS OEM Receiver C1 Series

High-Precision RTK and Heading

Single/Dual Antenna, Full-constellation, Full-Frequency



INTRODUCTION

Based on bynav GNSS Baseband ASIC Alita and RFIC Ripley and embedded with bynav's new generation REAL (Ransac Enhanced Advanced Location) positioning engine, the GNSS OEM receiver C1 supports full-constellation and multi-frequency RTK positioning and dual-antenna heading, thus delivering continuous reliable high precision positioning, heading, velocity and timing to a wide range of applications like autonomous driving, driver testing, precision agriculture, deformation monitoring, surveying and mapping and other fields.

TECHNICAL COMPETITIVENESS

REAL Positioning Engine

The RANSAC (Random Sample Consensus) based autonomous integrity monitoring algorithm is integrated for the observation anomalies caused by multipath and interference in urban environments. It can monitor pseudo-range, carrier phase, and Doppler observations in real-time and accurately eliminated the faulty satellites, thus achieving more stable positioning results.

Bynav GNSS ASIC based Adaptive Loop Tracking

The parameters of code loop and carrier loop are adjusted according to signal strength, elevation angle, multipath indication and tracking error in order to suppress more effectively the psedorange multipath error, reduce the psedorange observation noise, accelerate the loop convergence speed and reduce Carrier phase cycle slip.

Epoch Differential Smoothing Technology

The movement of the user is calculated by using the carrier phase difference between the adjacent epochs, performs fusion filtering with the RTK positioning result to have a smoother solution. all the tracked satellites of the rover are fully used in the solution when the base station satellite is blocked, and the smooth positioning result can still be maintained when the RTCM correction data is interrupted for a long time.

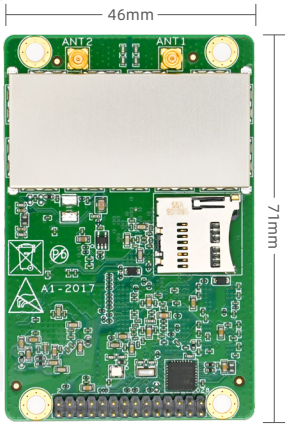
Carrier Half-Cycle Ambiguity Repair Technology

In the urban dynamic environment, the loss of lock and re-tracking of the carrier phase are frequent. After re-tracking, the frame synchronization (Frame Sync) is needed to eliminate the half-cycle ambiguity and then used for the RTK integer ambiguity solution. Bynav receiver integrates carrier half-cycle ambiguity repair technology based on navigation message prediction and matching (patent authorized), which quickly eliminates half-cycle ambiguity, thus improving satellite availability, and effectively shorten the recovery time.

FEATURES

- Compact and low-powered (46mm x 71mm, 1.5w)
- Support full-system and full-frequency (including BDS-3)*
- Support dual antenna heading
- Support dual antenna raw observation output*
- Enhanced connection including Serial, Ethernet and CAN
- Support external IMU*
- Built-in Web configuration interface
- Support EVENT_IO synchronization
- Support on-board SD card raw data storage*

Notes: * means Optional



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HUNAN BYNAV TECHNOLOGY CO.,LTD

Product Models			C1-8S	C1-8D	C1-FS	C1-FD
 Functions	Description		8-frequency Single-ant	8-frequency Dual-ant	Full-frequency Single-ant	Full-frequency Dual-ant
	Dual-Antenna Heading		-	●	-	●
	Single Point Positioning		●	●	●	●
	RTK		●	●	●	●
	Timing		●	●	●	●
	Reference Station Mode		●	●	●	●
	Rover Station Mode		●	●	●	●
	Built-in Deformation Monitoring		●	●	●	●
	Raw Observations Output		Single	Dual	Single	Dual
	NTRIP		●	●	●	●
Signal Frequency	GPS		L1CA/L1C,L2C, L2P		L1CA/L1C,L2C, L2P,L5	
	GLONASS		G1，G2		G1，G2	
	BDS		B1I，B2I		B1I，B2I/B3I	
	BDS-3		B1I/B1C，B2a/B2b		B1I/B1C，B2a/B2b/B3I	
	Galileo		E1, E5b/E5a		E1, E5b/E5a	
	QZSS		L1CA/L1C，L2C		L1CA/L1C，L2C，L5	
	IRNSS		-		L5	
	SBAS		-		L1CA	
Measurement Accuracy	Carrier Phase		≤1mm（RMS）			
	Pseudorange	L1CA,L2C,L2P,G1,G2	≤ 0.12m（RMS）			
		Other signals	≤ 0.06m（RMS）			
Single Point Accuracy	Horizontal		1.5m RMS			
	Vertical		2.5m RMS			
RTK Accuracy	Horizontal		1.0cm + 1ppm RMS			
	Vertical		1.5cm + 1ppm RMS			
Heading Accuracy			-	0.2°/m RMS	-	0.2°/m RMS
Timing Accuracy			20ns RMS			
Velocity Measurement Accuracy			0.05m/s RMS			
Maximum Data Rate	Raw Data		5Hz	5Hz	10Hz	10Hz
	RTK		5Hz	5Hz	10Hz	10Hz
	RTK+Heading		-	5Hz	-	10Hz
Time to First Fix	Cold Start		≤45s			
	Warm Start		≤30s			
RTK Initialization Time			≤10s			
Reacquisition			≤1s			
Environmental	Operating		-40℃ ~ +85℃			
	Storage		-55℃ ~ +95℃			
	Humidity		95% non-condensing			
	Vibration		GJB 150.16A-2009			
Power	Typical		1.5W	1.8W	1.6W	1.9W
	Input Voltage		+3.25V ~ +3.45V			
Physical and Electrical	Dimensions		71mm×46mm×11mm			
	Weight		20g			
	RF Connectors		MMCX-K × 1	MMCX-K × 2	MMCX-K × 1	MMCX-K × 2
	Power&Data Connectors		28-pin, double row, male（2.00mm）			
	Communication Ports		UART × 3 1PPS × 1 EVENT IN × 3 EVENT OUT × 3 CAN × 1 LAN × 1 I2C* × 1			

Notes: "●" means Supported, "○" means Optional, " - " means Not Supported.

Optional Accessory:

- GNSS Antenna Kit
- Single/Dual antenna EVK kit
- Single /Dual antenna Enclosure kit

For more details, please visit:

www.bynav.com

To get more product details, please feel free to contact us!

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