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.

Il 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 fullfrequency (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





Description0-frequency Single-ant Dual-ant Dual-ant Single-ant Dual-ant Dual-ant0-0-Dual-Ant Dual-Ant Marge-ant Iming-0-0-Iming Reference Station Mode0-0-0-Reference Station Mode0-0-0-Reversation Mode0-0-0-Built-in Deformation Monitoring0-0-0-Reversation Mode0-0-0-Reversation Mode0-0-0-Built-in Deformation Monitoring0-0-0-Reversation SolutionSingle0-0-GLONASS0-0-0-0-GLONASS0-0-0-0-GLONASS0-0-0-0-GLONASS0-0-0-0-GLONASS0-0-0-0-GLONASS0-0-0-0-GLONASS0-0-0-0-GLONASS0-0-0-0-GLONASS0-0-0-0-GLONASS0-0-0-0-GLONASS0-0-0-0-GLONASS0-0-0-0-GLONASS0-0-0-0-GLONASS0-0-0-0-GLONASS0-0-0-0-GLONASS0-0-0-0-Resultarion Time0-0-0-Resultarion Tim	Product Models			C1-85	C1-8D	C1-FS	C1-FD
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IRNSS		QZSS		L1CA/L1C, L2C		L1CA/L1C, L2C, L5	
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$\begin{tabular}{ c $	Measurement Accuracy	Carrier Phase		≤1mm (RMS)			
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Reacquisition $\leq 1s$ Operating $-40^{\circ}C \times +85^{\circ}C$ Storage $-55^{\circ}C \times +95^{\circ}C$ Humidity 95° non- $colensing$ VibrationGJB 150.16A-2009PowerTypical $1.5W$ $1.6W$ Input Voltage $+3.25V \times +3.45V$ Dimensions 71 mm×46 $mx \times 11$ mmWeight $-20g$ Power&Dimensions 71 mm×46 $mx \times 11$ MMCX-K × 2Power&Dimensions 71 mm×46 $mx \times 11$ MMCX-K × 1Physical and ElectricalRF ConnectorsMMCX-K × 1Physical and Electrical $Communication Ports$ $EVENT IN \times 3$ Communication Ports $EVENT IN \times 3$ $EVENT IN \times 3$ Communication Ports $EVENT IN \times 3$ $EVENT IN \times 3$ Communication Ports $EVENT IN \times 3$ $EVENT IN \times 3$ Communication Ports $EVENT IN \times 3$ $EVENT IN \to 3$ $EVENT IN \times 3$ $EVENT IN \times 3$ $EVENT IN \to 3$ E	RTK Initialization Time			≤10s			
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EnvironmentalStorage55°C ~ +95°CHumidity95% non-c-ulensingVibrationGJB 150.16A-2009PowerTypical1.5W1.8W1.6WInput Voltage+3.25V ~ +3.45VInput Voltage-55°C ~ +3.45VMeight20gRF ConnectorsMMCX-K × 1MMCX-K × 1Power&Data Connectors28-pin, double row, male (2.00mm)Physical and ElectricalVART × 3Communication PortsEVENT IN × 3Communication PortsEVENT OUT × 3CAN × 1 LAN × 1LAN × 1LAN × 1 LAN × 1LAN × 1	Environmental	Operating		-40°C ~ +85°C			
Humidity 95% non-condensing Vibration GJB 150.16A-2009 Power Typical 1.5W 1.8W 1.6W 1.9W Power Input Voltage +3.25V ~ +3.45V 1.6W 1.9W Dimensions 71mm×46mm×11mm 20g 1.6W 1.6W 1.9W Weight 20g 20g 1.6W MMCX-K × 2 MMCX-K × 1 MMCX-K × 2 Power&Data Connectors MMCX-K × 1 MMCX-K × 2 MMCX-K × 1 MMCX-K × 2 Physical and Electrical Power&Data Connectors 28-pin, double row, male (2.00mm) UART × 3 Communication Ports Communication Ports EVENT IN × 3 EVENT IN × 3 Communication Ports EVENT OUT × 3 CAN × 1 LAN × 1 LAN × 1 12C* × 1 12C* × 1		Storage		-55℃ ~ +95℃			
Vibration GjB 150.16A-2009 Power Typical 1.5W 1.8W 1.6W 1.9W Input Voltage +3.25V ~ +3.45V Dimensions 71mm×46mm×11mm Weight 20g RF Connectors MMCX-K × 1 MMCX-K × 2 MMCX-K × 1 Power&Data Connectors MMCX-K × 1 MMCX-K × 2 MMCX-K × 1 Physical and Electrical Communication Ports UART × 3 Communication Ports EVENT IN × 3 Communication Ports EVENT OUT × 3 CAN × 1 LAN × 1 LAN × 1 LAN × 1		Humidity		95% non-condensing			
Power Typical 1.5W 1.8W 1.6W 1.9W Input Voltage +3.25V ~ +3.45V Dimensions 71mm×46mm×11mm Weight 20g RF Connectors MMCX-K × 1 MMCX-K × 2 Power&Data Connectors 28-pin, double row, male (2.00mm) Physical and Electrical IPPS × 1 Communication Ports EVENT IN × 3 Communication Ports EVENT OUT × 3 CAN × 1 LAN × 1 LAN × 1 LAN × 1		Vibration			GJB 150.	16A-2009	
Input Voltage +3.25V ~ +3.45V Dimensions 71mm×46mm×11mm Weight 20g RF Connectors MMCX-K × 1 MMCX-K × 2 Power&Data Connectors 28-pin, double row, male (2.00mm) Physical and Electrical UART × 3 Communication Ports EVENT IN × 3 Communication Ports EVENT OUT × 3 CAN × 1 LAN × 1 I2C* × 1	Power	1	ypical	1.5W	1.8W	1.6W	1.9W
Dimensions //mmx46mm×11mm Weight 20g RF Connectors MMCX-K × 1 MMCX-K × 2 Power&Data Connectors 28-pin, double row, male (2.00mm) Physical and Electrical UART × 3 Communication Ports EVENT IN × 3 Communication Ports EVENT OUT × 3 CAN × 1 LAN × 1 I2C* × 1 I2C* × 1		Input Voltage		+3.25V ~ +3.45V			
Meight 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) Physical and Electrical UART × 3 Communication Ports EVENT IN × 3 Communication Ports EVENT OUT × 3 CAN × 1 LAN × 1 LAN × 1 LAN × 1 I2C* × 1 I2C* × 1		Dimensions		/Imm×46mm×IImm			
Physical and Electrical Communication Ports Communication Ports Communication Ports CAN × 1 MMCX-K × 2 MMCX-K × 1 VX + 1 IPS × 1 LAN × 1 LAN × 1 LAN × 1 L2C* × 1		weight			2		
Physical and Electrical Communication Ports Communication Ports EVENT OUT × 3 Communication Ports CAN × 1 LAN × 1 I2C* × 1					MMCX-K × 2		MMCX-K × 2
Physical and Electrical UART × 3 TPPS × 1 EVENT IN × 3 EVENT OUT × 3 CAN × 1 LAN × 1 I2C* × 1				20-pm, double low, male (2.00mm)			
EVENT IN × 3 Communication Ports CAN × 1 LAN × 1 I2C* × 1	Physical and Electrical	Communication Ports		UART × 3 1PPS × 1			
CAN × 1 LAN × 1 I2C* × 1				EVENT IN × 3 EVENT OUT × 3 CAN × 1 LAN × 1			
LAN × 1 12C* x 1							
I2C* x 1							
				I2C* x 1			

Notes: "●" means Supported, "O" 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:

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