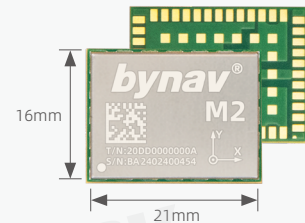


M20D GNSS High-Precision Module

Dual-antenna Tri-vector Anti-jamming

Brief Introduction

M20D is a high-precision GNSS positioning and dual-antenna heading module, it has 48 pins with package of LGA. The high-precision measurement engine, navigation engine and functional safety engine are integrated in the module. It supports anti-jamming of 65dBc narrowband and full-constellation multi-frequency RTK solution to deal with harsh environments such as satellite signal interference and outage, and can provide continuous, real-time and reliable high-precision position. It can be applied to L4 automated driving, drones, intelligent robots, precision agriculture, surveying, mapping, etc.



Technological Advantage



Full-constellation Multi-frequency Positioning & Heading

It supports BDS/GPS/GLONASS/Galileo/QZSS full-constellation multi-frequency high-precision RTK positioning and dual-antenna heading solution. Bynav REAL (Ransac Enhanced Advanced Location) GNSS positioning engine and dual-antenna heading engine have integrity monitoring algorithm which improves the fault tolerance and fixed solution rate under multipath and interference conditions in urban environments.



High-performance Multiple Interference Suppression*

SAIF (Smart Advanced Interference Defense), the high-performance multiple interference suppression technology with high AD quantization bits, is built in and capable of handling different interferences such as single-frequency, multitone, sweeping, pulse, narrowband with interference-signal ratio of 65 dBc. It can deal with vehicle anti-tracking equipment, radar/airport signal towers etc. and greatly improve the availability and integrity of high-precision positioning in vehicle scenarios.

Feature

- » 22nm Process GNSS SoC, Alice
- » Support Tri-vector RTK (Master and Slave Antenna Positioning + Dual-antenna Heading)
- » Support BDS-3, B2b (PPP)*
- » High-performance Anti-jamming*
- » Support Ethernet Port, Embedded SDK Differential Account, Support gPTP Time Synchronization
- » AP Partition Design Ensures Stable and Reliable OTA Upgrades
- » Support System Self-check and Fault Diagnosis*

Application



Intelligent Driving



Intelligent Agriculture



Drone



Electronic Driving Test



USV

Performance

Constellation: GPS, BDS, GLO, GAL, QZSS

Number of Channel: 1500

GNSS Band

Master Antenna

BDS	B1I, B2I, B1C*, B2b (PPP)*
GPS	L1 C/A, L1C*, L2
GLO	G1, G2
GAL	E1, E5b
QZSS	L1 C/A, L1C*, L2

Slave Antenna

BDS	B1I, B2I, B1C*
GPS	L1 C/A, L1C*, L2C
GLO	G1, G2
GAL	E1, E5b
QZSS	L1 C/A, L1C*, L2

Interface

UART	×3
SPI*	×1
CAN FD	×1
RMII	×1

Horizontal Positioning Accuracy (RMS)^{1,2}

Single Point	1.5 m
RTK	1.0 cm + 1 ppm

Vertical Positioning Accuracy (RMS)^{1,2}

Single Point	2.5 m
RTK	1.5 cm + 1 ppm

Heading Accuracy (RMS)^{1,2} 0.2° /1m baseline

Max. Output Rate

Dual-antenna GNSS Observation	10 Hz
Dual-antenna GNSS Position & Heading ⁹	10 Hz

Time To First Fix

Cold Start^{3,5} 30 s

Hot Start^{4,5} 5 s

RTK Initialization¹ 5 s

Re-acquisition Time ≤ 1 s

Timing Accuracy (RMS)⁷ ≤ 20 ns

Velocity Accuracy⁶ 0.03 m/s

RTK Solution Delay 50 ms

Mechanical and Electrical

Size	16.0 x 21.0 x 2.6 mm
Package	48 pin LGA
Power Consumption ⁸	530 mW
Power Supply Range	3.0~3.6 V
Weight	1.75g

Environment and Certification

Operation Temperature¹⁰ -40 °C ~ +85 °C

Storage Temperature¹¹ -40 °C ~ +105 °C

Humidity 95% Non-condensing

Vibration JESD22-B103

Shock JESD22-B110

IATF 16949*

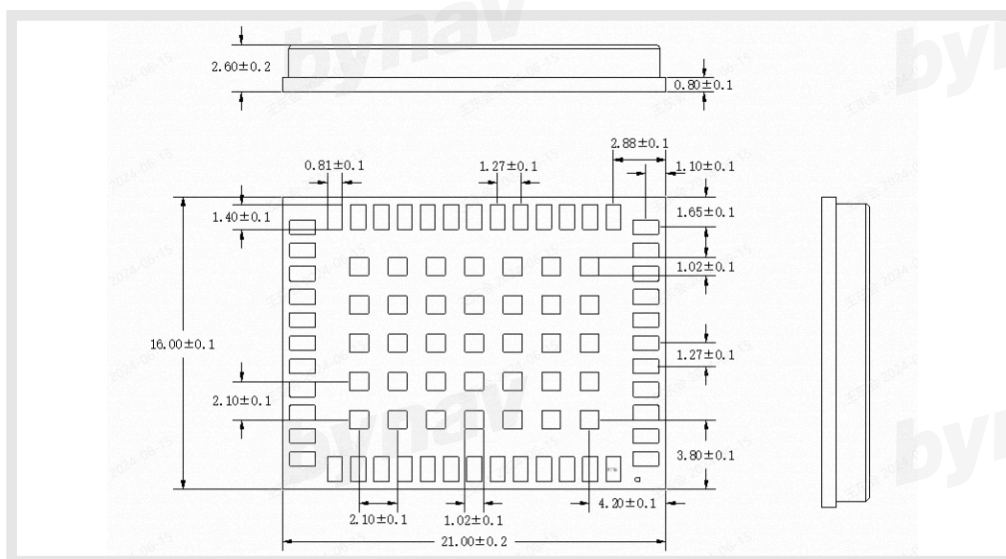
ISO 26262 ASIL B*

AEC-Q104*

Note:

1. Typical value. Performance will be affected by GNSS status, satellites' location, baseline length, multipath and other interference;
 2. Using 1 km baseline and the receiver with good antenna performance, without considering possible errors due to antenna phase center offset;
 3. Typical value. The time taken from power-on to the first output of a valid single-point position after clearing ephemeris/almanac/coarse position and time information;
 4. Typical value. The time taken from power-on to the first output of a valid single-point position when the receiver has stored valid ephemeris/almanac/coarse position and relatively accurate time information (with an error of less than 5 minutes). The special firmware supports a 3-second hot start, but the firmware not support the network port;
 5. -130dBm and more than 12 satellites are available;
 6. Open sky without any obstruction, 99%@ static;
 7. Optional. Bias caused by RF and antenna is not included;
 8. Typical value. Power of antenna and peripherals is not included;
 9. 20Hz is supported in special firmware;
 10. There is optional temperature range of -40°C ~105°C ;
- * Optional, supported in special firmware.

Mechanical Specification



More information, please refer to



www.bynav.com



Wechat Official Account

Please contact us for more information of products!

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Make Mobility More Intelligent