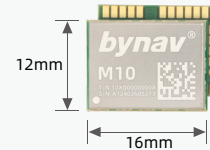


M10 GNSS High-precision Positioning Module

Full-constellation Full-frequency Extra-compact Anti-jamming

Brief Introduction

M10 is a compact high-precision RTK positioning module. It features built-in high-precision measurement engine and navigation engine. It supports 65dBc narrowband anti-jamming and high-performance RTK solution to deal with harsh environments such as satellite signal interference and multipath, and can provide continuous, real-time and reliable high-precision positioning results. It can be widely applied in fields such as intelligent driving, performance drones, and smart lawn mowers.



Technological Advantage



Full Constellation & Frequency GNSS Signal Solution

It supports BDS/GPS/GLONASS/Galileo/QZSS Full Constellation & Frequency high-precision RTK solution. And the built-in Bynav REAL (Ransac Enhanced Advanced Location) GNSS positioning engine has integrity monitoring to improve the fault tolerance and fixed solution rate under multipath and interference conditions in urban area, it can provide more stable and accurate results.



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.



Extra-compact Standard Package

Standard size (12x16mm) and interfaces facilitate integration. Suitable for size or power-sensitive industry applications such as performance drones and intelligent mowers.

Feature

- » Independent Intellectual Property Rights
- » Full Constellations and Full Frequency
- » High-performance Anti-jamming*
- » Extra-compact Standard Package, High Compatibility
- » AP Partition Design Ensures Stable and Reliable OTA Upgrades
- » Support System Self-check and Fault Diagnosis*

Application



Intelligent
Driving



Drone



Intelligent
Mower

Performance

Constellation: GPS, BDS, GLO, GAL, QZSS, NavIC

Number of Channel: 1500

Tracking

BDS-2	B1I, B2I, B3I
BDS-3	B1I, B1C*, B2a, B2b*, B3I
GPS	L1 C/A, L1C*, L2, L5
GLO	G1, G2
GAL	E1, E5a, E5b, E6*
QZSS	L1 C/A, L1C, L2, L5, L6 (CLAS*)
NavIC	L5
SBAS*	L1 C/A

Anti-jamming*

Single-frequency, Multitone, Sweeping, Pulse, Narrowband;

Interference-Signal Ratio: 65 dBc

Interface

UART	x3
PPS	x1
EVENT	x1
I ² C	x1
RTK_STAT/LNA_EN	x1

Horizontal Positioning Accuracy (RMS)¹

Single Point	1.5 m
RTK	1.0 cm + 1 ppm

Vertical Positioning Accuracy (RMS)¹

Single Point	2.5 m
RTK	1.5 cm + 1 ppm

Max. Output Rate

GNSS Observation	10 Hz
GNSS Positioning Result	10 Hz

Time To First Fix

Cold Start² 30 s

Hot Start³ 5 s

RTK Initialization¹ 5 s

Re-acquisition Time ≤ 1 s

Timing Accuracy (RMS) ≤ 20 ns

Velocity Accuracy 0.03m/s

RTK Solution Delay 50 ms

Accuracy (RMS)	BDS	GPS	GLO	GAL
B1I, B1C, L1C, L1 C/A, E1, G1 Pseudorange	10cm	10cm	10cm	10cm
B1I, B1C, L1C, L1 C/A, E1, G1 Carrier Phase	1mm	1mm	1mm	1mm
B2I, B2a, B2b, L5, E5a, E5b Pseudorange	10cm	10cm	10cm	10cm
B2I, B2a, B2b, L5, E5a, E5b Carrier Phase	1mm	1mm	1mm	1mm
B3I, L2, G2 Pseudorange	10cm	10cm	10cm	10cm
B3I, L2, G2 Carrier Phase	1mm	1mm	1mm	1mm

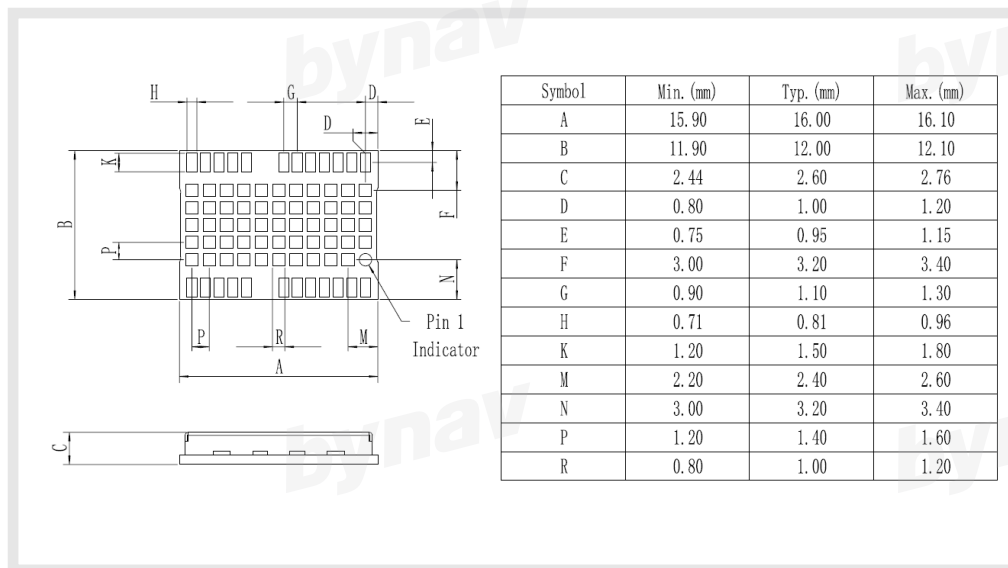
Mechanical and Electrical

Module	M10
Size (mm)	16.0 × 12.0 × 1.80
Package	24 PIN LGA
Weight (g)	1.2
Power Consumption (mW)	450
Power Supply Range (V)	3.0~3.6

Environment

Operation Temperature	-40° C ~ +85° C
Storage Temperature	-40° C ~ +105° C
Humidity	95% Non-condensing

Mechanical Specification



Note:

1. Typical value. Performance will be affected by GNSS status, satellites' location, baseline length, multipath and other interference;
 2. Typical value. There is no almanac, ephemeris and approximate position or time;
 3. Typical value. The duration from power-up to the first valid single-point solution output, assuming the receiver has valid ephemeris/almanac/approximate position and accurate time (with an error of less than 5 minutes). Special firmware supports a 3-second hot start; however, firmware that supports 3-second hot start does not support network communication interfaces;
- * Optional, supported in special firmware.

More information, please refer to



www.bynav.com



Wechat Official Account

Please contact us for more information of products!

Address: Building 12, Phase 1, Zhongdian Software Park, No.39 Jianshan Road, High-tech Zone, Changsha, Hunan 410205, China

Tel.: +86-731-8505 8117

Email: en@bynav.com