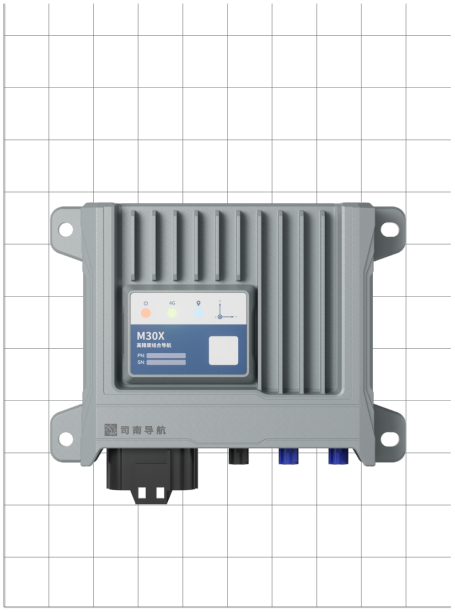
M30X GNSS/INS Receiver

GNSS/INS System | Ver.2026.06.01

98 mm



134 mm

Size: 134mm×98mm×30.2mm
Weight: 380g

Features

- GPS L1/L2/L5, BeiDou B1/B2/B3, GLONASS G1/G2, Galileo E1/E5a/E5b, QZSS, IRNSS, SBAS
- High-reliability Automotive-grade Design
- Support GNSS+INS Navigation
- 4G Cellular and Bluetooth 5.1 Connectivity
- Up to 100Hz Data Outputs
- Internal Adaptive Anti-interference Algorithm
- Professional App for Easy Configuration

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AUTOMOTIVE-GRADE DESIGN

The M30X adopts automotive-grade design and integrates a new-generation high-precision positioning and heading module. It supports full-constellation GNSS signals and features a built-in high-precision IMU with full-temperature calibration. By upgrading communication, storage, and computing capabilities, the M30X further enhances real-time performance, reliability, and ease of use .

ADVANCED FUSION ALGORITHM FOR SUPERIOR PERFORMANCE

The M30X deeply integrates GNSS and IMU navigation technologies and supports external odometer input. It provides real-time outputs of position, velocity, and vehicle attitude at up to 100 Hz, enabling fast and responsive updates for mobile platforms with rapidly changing motion states. Equipped with a high-performance QC7820 RF-baseband integrated chip, the receiver also delivers enhanced anti-interference capability.

WIRELESS CONNECTIVITY FOR DIVERSE APPLICATIONS

The M30X supports multiple wireless communication methods, including 4G cellular networks and Bluetooth 5.1. It enables real-time data transmission and cloud collaboration while supporting wireless connectivity with mobile and tablet devices. These capabilities make the M30X suitable for autonomous driving, intelligent transportation ,smart ports,and intelligent logistics applications.

PROFESSIONAL APP FOR EASY CONFIGURATION

The M30X supports mobile app-based configuration via Bluetooth connectivity, providing a simple and convenient user interface. It also supports access to the NaviCloud platform for remote monitoring and management, helping improve operational efficiency and simplify device maintenance.

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Signal Tracking

GPS	L1C/A, L2P*, L2C, L5, L1C*
BDS	B1I, B2I, B3I, B1C*, B2a, B2b
GLO	G1, G2, G3*
GAL	E1, E5a, E5b, E5 AltBOC*, E6C
QZSS	L1C/A, L2C, L5, L1C*
SBAS	L1C/A, L5
NavIC	L5*

Performance Specifications

Cold Start	<30 s
Hot Start	<10 s
Signal Reacquisition	<1 s
RTK Initialization Time	5 s
Initialization Reliability	99.90%
PPP Convergence Time	20 min
Time Accuracy	20 ns
Velocity Accuracy	0.02 m/s
Heading Accuracy	0.15 °/R[1]

Positioning Specifications

Standalone	1.5 m Horizontal 3 m Vertical
Single Baseline RTK	8 mm + 1 ppm Horizontal 15 mm + 1 ppm Vertical
PPP	0.1 m Horizontal 0.2 m Vertical

IMU

Gyroscope[2]	
Range	±300 °/s
Zero Bias Instability	0.5 °/h
Angular Random Walk	0.03 °/√h
Accelerometer[2]	
Range	±8 g
Zero Bias Instability	**20 μg**
Velocity Random Walk	0.036 m/s/√h

Integrated Navigation

Loss of Lock Horizontal Position Drift	≤8‰ @1km/60s
Loss of Lock Horizontal Position Drift (with DMI)	≤2‰ @1km/60s
Loss of Lock Heading Drift	0.15° @60s
Fix Recovery Time	≤5 s
Data Rate	GNSS Raw Observation: 1 Hz, 2 Hz, 5 Hz, 10 Hz, 20 Hz*, 50 Hz* RTK Positioning: 1 Hz, 2 Hz, 5 Hz, 10 Hz, 20 Hz*, 50 Hz* GNSS+INS Positioning:100 Hz (200 Hz Optional) IMU Raw Data Rate:100 Hz(200 Hz Optional)

Data Format

NMEA-0183	GPGGA, GPGSV, GPGLL, GPGSA,GPGST, GPHDT, GPRMC, GPVTG,GPZDA
Custom ASCII	INSPVA, INSPVAX, BESTPOS
RTCM3.X	1004~1008,1012,1019,1020, 1033,1042, 1045/1046, 1230
MSM3~MSM7	1073~1077,1083~1087, 1123~1127,1093~1097

Communication

External Interface	On-board Ethernet*1 CAN/CAN FD*2, PPS*1 RS232 serial port*2, USB(2.0) *1 GNSS antenna interface (Fakra-C)*2 4G antenna interface (Fakra-A) *1
4G Module	LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/ B13/B18/B19/B20/B25/B26/ B28 LTE-TDD:B38/B39/B40/B41 WCDMA:B1/B2/B4/B5/B6/B8/ B19 GSM:B2/B3/B5/B8
Ethernet	100 Mbps Automotive Ethernet
Bluetooth	BLE 5.1, 2.4 GHz
Built-in Storage	8 GB

Electrical

Input Voltage	6 V~32 V (Standard 12V DC Power Input)
Power Consumption	≤5 W

Environmental

Working Temperature	-40 °C to + 85 °C
Storage Temperature	-40 °C to + 85 °C
Humidity	95% non-condensing
Protection Rating	IP52
Vibration	JESD22-B103

Physical

Size (L × W × H)	134 mm×98 mm×30.2 mm
Weight	380 g

Antenna Interface

Impedance Matching	50 Ω
LNA Power: External	+3.3V @(0-100) mA
LNA Gain	20 ~ 35 dB

Note:
"*"upgradeable
1. R(meter) is the length of two GNSS antennas
2.Due to product iterations and technical updates, parameters and specifications may change periodically