GM-8030, u-blox NEO-M8P Based GNSS Smart Antenna Module

RoHS Compliant



Overview

GM-8030 is an easy to use, high performance, low power, industrial grade GNSS smart antenna module. The built-in NEO-M8P engine board provides cm-level GNSS performance designed to meet the needs of unmanned vehicles and other machine control applications requiring accurate guidance.

GM-8030 receives corrections via the RTCM 3 messages from a RTCM caster or base. It then outputs its position relative to the base at cm-level accuracies.

GM-8030 supports multiple satellite positioning systems – GPS, GLONASS, QZSS and BeiDou[&]. In addition, it also supports either USB or TTL/RS232 interface.

Applications

- High-precision agriculture guidance
- UAV (Unmanned Aviation Vehicles)
- Robotic lawn mowers

Features

- Performance maximized design with big antenna (35x35x6 mm^3) and ground plane (70x70 mm^2).
- Based on u-blox NEO-M8P engine board
- Centimeter-level GNSS positioning support
- Multi-satellite positioning systems support
  - GPS/QZSS/**GLONASS/Beidou**[&]
- Higher update rate option (default 1Hz), up to
  - 5 Hz for dual-GNSS constellation
  - 8 Hz for GPS only
- Sensitivity
  - Acquisition: -148dBm
  - Tracking & Navigation: -160dBm
- Low power: 35mA at continuous tracking (USB)
- RTCM 3.2 support
- A-GPS support, OMA SUPL/3GPP TS25.171 (GSM/UMTS) compliant
- W2B (Wire to Board) connector support
- Power supply options: 12V/24V
- Electrical interface support: USB, RS232 or TTL
- Backup battery support for faster position fix
- LED for position fix indication
- Windows location sensor support
- Linux/Android support
- Fully EMI shielded
- Industrial operating temperature range: -40 ~ 85℃

[&] GM-8030 by default supports GPS+BeiDou. For GPS+ GLONASS, explicit instruction is required.

Technical Specifications

Receiver Performance Data[+]

Receiver Type	72-channel u-blox M8 engine GPS L1 C/A, QZSS L1 C/A L1: 1575.42MHz, GLONASS L1OF L1OF:1598.0625~1605.375MHz BeiDou BI1 BI1: 1561.098 MHz
Horizontal Position Accuracy	2.5 cm + 1 ppm CEP (RTK) 2.5 m CEP (Autonomous) (50% 24hr static, -130dBm, > 6 SVs; baselines < 10km for RTK)

NaviSys Technology Corp. http://www.navisys.com.tw/
Tel : +886-3-5632598 Fax: +886-3-5632597
Sales contact: sales@navisys.com.tw Technical support: service@navisys.com.tw
Address: 2F, No.56, Park Ave. II, Hsinchu Science Park, 30844, Taiwan (R.O.C.)

Velocity Accuracy	0.05 m/s (speed) 0.3° (heading); (50%@30m/s)
Time Pulse Signal Accuracy	RMS 30 ns 99% 60 ns
Time Pulse	0.25 Hz ~ 10 MHz
Time To First Fix Hot start Cold start	Autonomous, GPS&BeiDou (50%, -130dBm) 1 sec 28 sec
Sensitivity (Autonomous)	GPS&BeiDou -148dBm (acquisition) -160dBm (tracking & navigation)
Navigation. Update Rate (Default 1Hz)	Max. 5Hz, GPS & BeiDou, Max. 8Hz, GPS only
Max. Altitude	50,000 m
Max. Velocity	< 500m/sec or 1,800 km/hr)
Max. Dynamics	≦ 4 g
Protocol Support	NMEA 0183 v4.0 (V2.1, V2.3 and V4.1 configurable) UART: 115200 bps N,8,1; GGA, GLL, GSA, GSV, RMC, VTG, TXT UBX: u-blox proprietary binary message
RTCM	RTCM 3.2 Messages

+: according to GNSS IC spec

Electrical Data

Power Supply	3.3 ~ 5.5 VDC
Power Consumption	35mA/average tracking (USB)
Protocols	NMEA, u-blox Binary

Environmental Data

Operating temperature	-40 ~ 85℃ except battery: -20~60℃
Storage temperature	-40 ~ 85℃ except battery: -20~60℃
Operating humidity	5% ~ 95% non-condensing

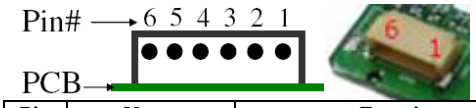
Mechanical Data

70*70*11 mm





6-pin W2B Interface, pitch 1.0mm



Pin	Name	Function	I/O
1	GND	Ground	Input
2	VCC	Power supply, 3.3~5.5V	Input
3	TX/TXD/D+	Serial data output or USB D+	Output
4	RX/RXD/D-	Serial data input or USB D-	Input
5	TIMEPULSE	1 pulse per second signal (default)	Output
6	nBOOT/TP2	Boot control or Time pulse 2 Not to hold low during start-up. TP2 disabled (could be enabled)	Input Output,

Ordering Information

GM-8030X (NEO-M8P-0-based, as rover)

X=	RS-232	TTL	USB
R	V	-	-
T	-	V	-
U	-	-	V

*This document is subject to change without notice.

NaviSys Technology Corp. http://www.navisys.com.tw/
Tel : +886-3-5632598 Fax: +886-3-5632597
Sales contact: sales@navisys.com.tw Technical support: service@navisys.com.tw
Address: 2F, No.56, Park Ave. II, Hsinchu Science Park, 30844, Taiwan (R.O.C.)