

GN-5203 / GM-5204

Ultra-High Performance

GNSS Smart Antenna Module

Overview

GN-5203/GM-5204 is an easy to use, ultra-high performance, low power GNSS smart antenna module with patch antenna for vehicle/handheld applications. GN-5203/GM-5204 support multiple satellite positioning systems – GPS, GLONASS, Beidou, QZSS and SBAS.

Based on our experienced design, GN-5203/GM-5204 fully exhibits the excellent performance of MT3333 chip. It works in GNSS signal difficult environment, provides fast acquisitions and excellent tracking performance.

Applications

- Automatic vehicle location
- Vehicle navigation device
- Marine GPS plotters
- Timing (GPS clock, FEMTO cell, traffic lights etc)

Features

- Multi-satellite positioning systems support
 - GPS/QZSS/GLONASS (GN-5203)
 - GPS/QZSS/Beidou (GM-5204)
- High performance: -165dBm tracking sensitivity
- Low power: 29 mA at continuous tracking
- SBAS (WAAS, EGNOS, MSAS, GAGAN) support
- Up to 3-day self-generated orbit predictions
- AGPS support with self-generated ephemeris for fast position-fix
- 12 multi-tone active interference cancellers
- Indoor/outdoor multi-path detection & compensation

RoHS
Compliant



- Up to 10Hz update rate¹
- Optional data logger¹
- High accuracy 1PPS timing
- Easy to use: built-in patch antenna & 6-pin wire to board connector w/ pitch of 1.0mm
- Backup battery support for faster position fix
- Optional V_BAT pin support to replace backup battery
- Optional PWR_CTRL pin to disable GPS module
- Green LED for position fix indication
- Fully EMI shielded
- Industrial operating temperature range: -40 ~ 85°C

Notes

1. Some features need special firmware or command programmed by customer
2. MOQ-based customization is welcome.

Technical Specifications

Receiver Performance Data

Receiver Type	GNSS Chipset: MT3333 GPS/QZSS: L1 1575.42MHz GLONASS (GN-5203): L1OF 1598.0625 ~ 1605.375 MHz BEIDOU (GM-5204): B1 1561.098 MHz Channels: Tracking: 33 /acquisition: 99
Horizontal Position	< 3.0m (Autonomous) < 2.5m (WAAS)

Accuracy	(50% 24hr static, -130dBm)
Velocity	<0.1 m/s (speed, w/o SBAS)
Accuracy	<0.05 m/s (speed w/ SBAS) (50%@30m/s)
Timing Accuracy	±10ns RMS (1PPS output)
Time To First Fix	Autonomous
Hot start	<1sec, average
Warm start	24sec, average
Cold start	28sec, average
Reacquisition	(50% -130dBm)
Sensitivity	-148dBm (acquisition)
(Autonomous)	-165dBm (tracking)
Update Rate ⁺	Up to 10Hz, default 1Hz
Max. Altitude ⁺	<18,000 m
Max. Velocity	<1,852 km/hr
Datum ⁺	WGS-84(default)
Protocol Support ⁺	NMEA 0183 V4.1, MTK NMEA 4800/9600(default)/38400/115200bps N,8,1(No parity, 8 data bits, 1 stop bit); Default: GGA, GSA, RMC, VTG@1Hz, GSV@1/5Hz, GLL, ZDA@0Hz
SBAS Support	WAAS, EGNOS, MSAS, GAGAN
Dynamics	<4g

*Please contact Navisys for any customization demand.

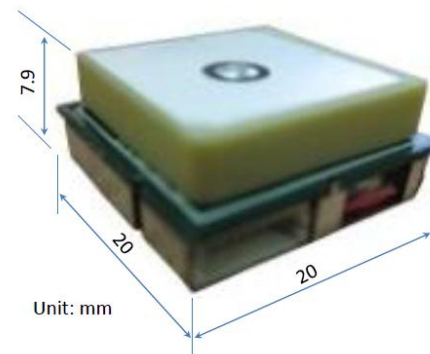
Electrical Data

Power Supply	2.8 ~ 4.3 V (w/o battery) 2.8 ~ 3.3 V (w/ battery)
Power Consumption	29mA/average tracking
Backup Power (V_BAT)	2.1 ~ 4.2 V Power consumption: 15.5uA
TTL I/O	V _{IH} : 2.1~3.1V, V _{IL} : 0~0.7V V _{OH} : ≥2.38V, V _{OL} ≤0.42V
Protocols	NMEA, MTK NMEA

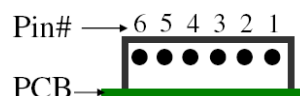
Environmental Data

Operating temperature	-40 ~ 85°C except battery: -20~60°C
Storage temperature	-40 ~ 85°C except battery: -40~60°C
Vibration	5Hz to 500Hz, 5g
Shock	Half sine 30g/11ms

Mechanical Data: 20 x 20 x 7.9 (mm)



6-pin Interface, pitch 1.0mm



GN-5203A, GM-5204A

Pin	Name	Function	I/O
1	GND	Ground	Input
2	VCC	Power supply	Input
3	TXD	TTL level serial data output (from GPS)	Output
4	RXD	TTL level serial data input (to GPS)	Input
5	IPPS	Time Pulse Per Second	Output
6	V_BAT	Backup power	Input

GN-5203B, GM-5204B

Pin	Name	Function	I/O
1	GND	Ground	Input
2	VCC	Power supply	Input
3	TXD	TTL level serial data output (from GPS)	Output
4	RXD	TTL level serial data input (to GPS)	Input
5	IPPS	Time Pulse Per Second	Output
6	NC	No connection	-

GN-5203C, GM-5204C

Pin	Name	Function	I/O
1	GND	Ground	Input
2	VCC	Power supply	Input
3	TXD	TTL level serial data output (from GPS)	Output
4	RXD	TTL level serial data input (to GPS)	Input
5	IPPS	Time Pulse Per Second	Output
6	PWR_CT L	Power control; floating or high: ON Low : OFF	Input

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Ordering Information

GN-5203X, GM-5204X (X=A,B,C etc.)

Feature \ Model	A	B	C
Backup Battery	-	Y	Y
Power Control	-	-	Y

*This document is subject to change without notice.