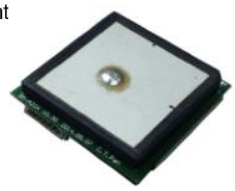
GM-A203, GPS/GLONASS

Ultra-High Performance

GNSS Smart Antenna Module

RoHS Compliant





Overview

GM-A203 is built-in with **patch antenna, power control pin,** and **digital connector.** The compact, self-contained, and easy to use design allows quick adoption with high quality and reliability.

Based on our experienced design and the SiRFstarV GNSS chip, this ultra-high performance module provides fast acquisition and excellent tracking performance even in difficult GPS environment.

This thin, low power GNSS smart antenna module is an ideal solution for devices demanding low power consumption, high performance and small dimension.

Applications

- Positioning (handheld, driving recorder etc.)
- Timing (GPS clock, FEMTO cell, traffic lights etc)
- High air balloon

Features

- Multi-constellation support: GPS/GLONASS/QZSS
- SBAS (WAAS, EGNOS, MSAS, GAGAN) support
- Ultra-thin (mm):
  - 20 x 20 x 4.3 (w/ 18x18x2 patch antenna)
  - 20 x 20 x 6.3 (w/ 18x18x4 patch antenna)
- Compact, all-in-one: built-in
  - Antenna, digital connector
- High sensitivity: -165dBm (tracking)
- Low power: 31mA, tracking (42dB-Hz, 8 SVs)
- Backup power pin for faster position fix.
- Flexible support: 1PPS/PWR_CTL pin
- Up to 5Hz update rate
- Local ephemeris prediction
- Flies up to 99.99km for high air version.
- Blue LED for position fix indication
- Built-in flash for firmware customization
- Fully EMI shielded
- Industrial operating temperature range: -40 ~ 85℃

Technical Specifications

Receiver Performance Data+

Receiver Type	52 channels, GPS/QZSS: L1 1575.42MHz GLONASS L1OF 1598.0625 ~ 1605.375 MHz
Horizontal Position Accuracy	< 2.5m (Autonomous) (50% 24hr static, -130dBm)
Velocity Accuracy	<0.01 m/s (speed, autonomous) <0.01° (heading) (50%@30m/s)
Time To First Fix Hot start Warm start Cold start	Autonomous <1sec <30sec <35sec (50% -130dBm)
Sensitivity (Autonomous)	Acquisition: -146dBm (GPS) Tracking: -165dBm (GPS), -163dBm(GLONASS) Navigation: -163dBm (GPS),

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	-159dBm(GLONASS)
Max. Update Rate	5Hz
Max. Altitude	<18,000 m (normal version) 99.99 km (high air version)
Max. Velocity	<1,852 km/hr
Protocol Support	NMEA V4.00: 4800/9600/38400bps OSP: 115200bps N,8,1; GGA, GSA, GSV, RMC, VTG
SBAS Support	WAAS, EGNOS, MSAS,GAGAN
Dynamics	<4g

+ Note. According to IC Spec

Electrical Data

Power Supply (VCC)	2.7 ~ 3.4 V
Power Consumption	31mA/average tracking
Backup Power (V_BAT)	VCC ~ 3.6V
TTL I/O	V_{IH}: 0.7 x V_BAT ~ 3.6V, V_{IL}: ≦ 0.4V V_{OH}: ≧ 0.75 x V_BAT, V_{OL}: ≦ 0.4V
Protocols	NMEA V4.00, OSP

Environmental Data

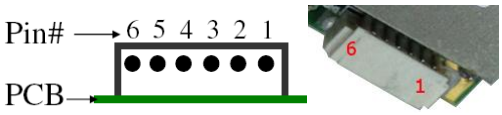
Operating temperature	-40 ~ 85℃
Storage temperature	-40 ~ 85℃
Vibration	5H z to 500Hz, 5g
Shock	Half sine 30g/11ms

Mechanical Data (mm)



20 x 20 x 4.3 (w/ 18x18x2 antenna, left) or
20 x 20 x 6.3 (w/ 18x18x4 antenna, right)

6-pin Interface, pitch 0.8mm



GM-A203A, GM-A203B

Pin	Name	Function	I/O
1	GND	Ground	Input
2	VCC	Power supply	Input
3	TXD	TTL level serial data output	Output
4	RXD	TTL level serial data input	Input
5	V_BAT	Backup power input	Input
6	1PPS	1 pulse per second,	Output

GM-A203C, GM-A203D

Pin	Name	Function	I/O
1	GND	Ground	Input
2	VCC	Power supply	Input
3	TXD	TTL level serial data output	Output
4	RXD	TTL level serial data input	Input
5	V_BAT	Backup power input	Input
6	PWR_CTL	Power control pin High (1)/NC: Power on Low (0): Power off	Input

Ordering Information

Feature \ Model	A	B	C	D
Patch height (mm)	2	4	2	4
1PPS	Y	Y	-	-
Power Control	-	-	Y	Y
Default: 9600 bps; GGA, GSA, RMC, VTG @ 1Hz, GSV @ 1/5Hz				

*This document is subject to change without notice.

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