

## GM-A203, GPS/GLONASS

### Ultra-High Performance

### GNSS Smart Antenna Module

#### 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 it is reliable.

Based on our experienced design and the SiRFstarV GNSS chip, this ultra-high performance module provides fast acquisitions 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.

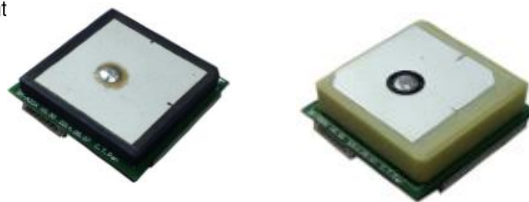
#### Applications

- Positioning (handheld, camera, driving recorder etc)
- Timing (GPS clock, FEMTO cell, traffic lights etc)

#### 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

RoHS  
Compliant



- Up to 5Hz update rate
- Local ephemeris prediction
- Blue LED for position fix indication
- Built-in flash for firmware customization
- Fully EMI shielded
- Industrial operating temperature range: -40 ~ 85°C

#### 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	Autonomous Hot start <1sec Warm start <30sec Cold start <35sec (50% -130dBm)
Sensitivity (Autonomous)	Acquisition: -146dBm (GPS) Tracking: -165dBm (GPS), -163dBm(GLONASS) Navigation: -163dBm (GPS), -159dBm(GLONASS)
Max. Update Rate	5Hz

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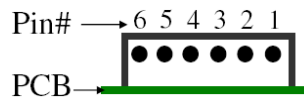
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Max. Altitude	<18,000 m
Max. Velocity	<1,852 km/hr
Protocol Support	NMEA V4.00: 4800/9600/38400bps OSP: 115200bps N,8,1; GGA, GSA, GSV, RMC, VTG
SBAS Support	WAAS, EGNOS, MSAS, GAGAN
Dynamics	<4g



**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

**Electrical Data**

Power Supply (VCC)	2.7 ~ 3.4 V
Power Consumption	31mA/average tracking
Backup Power (V_BAT)	VCC - 0.1V ~ VCC
TTL I/O	$V_{IH}$ : 0.7 x V_BAT~3.6V, $V_{IL}$ : 0~0.4V $V_{OH}$ : $\geq 0.75 \times V_{BAT}$ , $V_{OL}$ $\leq 0.4V$
Protocols	NMEA V4.00, OSP

**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.

**Environmental Data**

Operating temperature	-40 ~ 85°C
Storage temperature	-40 ~ 85°C
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**

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