GM-A023, SiRFstarV Dual-Antenna GNSS Module w/ MMCX RF Connector

RoHS Compliant



Overview

GM-A023 is an easy to use, ultra-high performance, low power, dual-antenna GNSS module. 6-pin wire-to-board connector conveys power and digital signal. MMCX RF connector allows connection of external antenna. Automatic electronic antenna switch exploits the best performance of both antennas. It supports positioning by GPS/QZSS/GLONASS/SBAS multi-satellite systems.

The built-in flash allows firmware enhancement or working parameters update without hardware change.

Based on our experienced design and SiRFstarV chip, GM-A023 provides not only excellent GNSS performance but also high quality and delivery assurance.

Applications

- Automatic vehicle location
- Personal navigation devices
- Fleet management
- Digital camera
- GPS timing

Features

- Based on SiRFstarV low power single chip
- High performance: -165dBm tracking sensitivity
- Low power: 33mA at continuous tracking
- A-GNSS ready
- SBAS (WAAS, EGNOS, MSAS, GAGAN) support
- SiRFInstantFix™ extended ephemeris aiding
- Backup battery support for faster position fix
- Easy to use: built-in patch antenna & 6-pin wire to board connector w/ pitch of 1.0mm
- Optional support of external antenna
  - MMCX RF connector
  - Short circuit protection
  - Automatic electronic antenna switch
- Green LED for position fix indication
- Fully EMI shielded
- Industrial operating temperature range: -40 ~ 85℃

Technical Specifications

Receiver Performance Data+

Receiver Type	52-channel, 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) <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)

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	Navigation: -163dBm (GPS), -159dBm(GLONASS)
Update Rate	Default: 1Hz; Max. 5Hz
Datum	WGS-84 (default)
Max. Altitude	<18,000 m
Max. Velocity	<1,852 km/hr
Protocol Support	UART: N81; NMEA V4.00: 9600/19200/38400/115200 bps GGA, GSA, GSV, RMC, VTG OSP: 115200bps N,8,1;
SBAS Support	WAAS, EGNOS, MSAS, GAGAN
Dynamics	<4g

+ Note. According to IC Spec

Electrical Data

Power Supply (VCC)	3.3 ~ 5.5 VDC
Power Consumption average tracking	33 mA (GM-A023T) 35 mA (GM-A023R)
Backup Power (V_BAT)	3.2 ~ 3.6 VDC
TTL I/O V_{IO} = 3.3V, w/ battery V_{IO} = V_BAT, w/o battery	V_{IH}: 0.7 x V_{IO} ~ 3.6V V_{IL}: 0~0.4V V_{OH}: ≧ 0.75 x V_{IO}, V_{OL}: ≦ 0.4V

Environmental Data

Operating temperature	-40 ~ 85℃ without battery -20 ~ 60℃ with battery
Storage temperature	-40 ~ 85℃ without battery -40 ~ 60℃ with battery
Vibration	5Hz to 500Hz, 5g
Shock	Half sine 30g/11ms

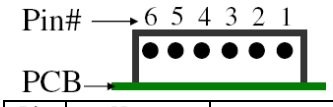
Mechanical Data

30x30x9.4 (mm, excluding MMCX connector)





6-pin Interface, pitch 1.0mm



Pin	Name	Function	I/O
1	GND	Ground	Input
2	VCC	Power supply	Input
3	TXD-TTL	TTL level serial data output	Output
4	RX-RS232	RS232 level serial data input	Input
5	TX-RS232	RS232 level serial data output	Output
6	RXD-TTL	TTL level serial data input	Input

Options of 1PPS, external backup power available

Ordering Information

GM-A023X

Options of patch antenna, backup battery, TTL/RS232, 1PPS, power control pin, output baud rate, NMEA sentences are available based on MOQ.

Default	patch: 25x25x4, 9600bps, N-8-1, GGA, GSA, RMC, VTG@1Hz, GSV@1/5Hz

*This document is subject to change without notice.

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