GE-A103,

Mini and Powerful

GNSS Engine Board

RoHS Compliant



Overview

This 9.7x10.1 (mm) GNSS engine board is tiny while exhibits unprecedented powerful performance. Antenna short circuit protection prevents it from incidental damage. Both active & passive antennas are supported. Active antenna connection does not require any external RLC circuits.

Based on our experienced design, GE-A103 fully exhibits the excellent performance of SiRFstarV chip. It works in GNSS signal difficult environment, providing fast acquisitions and excellent tracking performance.

Applications

- DSC, driving recorder
- Tablets, mobile devices
- Tracking (vehicle, person, asset, pet etc.)
- Timing (GPS clock, FEMTO cell, traffic lights etc)
- High air balloon

Features

- Multi-constellation support: GPS, QZSS, GLONASS
- SBAS support: WAAS, EGNOS, MSAS, GAGAN
- High performance: -165dBm tracking sensitivity
- Low power consumption: 29mA
- External backup power by pin V_BAT for faster position fix. Do not need additional charging circuit.
- Support both active and passive antenna.
- Built-in filtered power for active antenna. Do not need external filtering circuit.
- Antenna **short circuit protection**
- Up to 5Hz update rate
- A-GPS support
- Flies up to 99.99km for high air version.
- Built-in flash for firmware patch
- Mitigation of signal interference
- Fully EMI shielded
- Industrial operating temperature range: -40 ~ 85℃

Technical Specifications

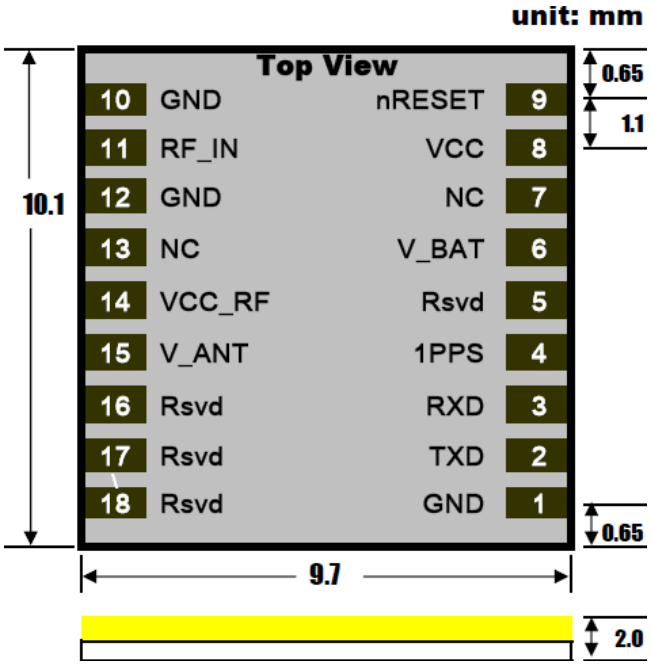
Receiver Performance Data+

Receiver Type	52 channels, L1 frequency, C/A code GPS & QZSS:1575.42MHz GLONASS: 1598.0625~1605.375MHz
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: -160dBm (GPS),

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, Science-Based Industrial Park, Hsinchu 300, Taiwan (R.O.C.)

	-159dBm(GLONASS) (-142dBm 28dB-Hz with 4dB noise figure)
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	UART: N81; NMEA V4.00: 9600/19200/38400/115200 bps 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 ~ 3.3 V
Power Consumption	29mA/average tracking
Backup Power (V_BAT)	VCC – 0.2V ~ 3.6V
TTL I/O	V_{IH}: 0.7 x V_BAT ~ 3.6V, V_{IL}: 0 ~ 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	5Hz to 500Hz, 5g
Shock	Half sine 30g/11ms

Mechanical Data (mm)

9.7 x 10.1 x 2.0

18-pin Interface,

Pin	Name	Function	I/O
1	GND	Ground	Input
2	TXD	TTL level serial data output	Output
3	RXD	TTL level serial data input	Input
4	1PPS	One pulse per second,	Output
5	Rsvd	Reserved pin, do not use.	Output
6	V_BAT	Backup power input	Input
7	NC	No connection	-
8	VCC	Power supply	Input
9	nRESET	Active low, at least 50us	Input
10	GND	Ground	Input
11	RF_IN	GPS signal from antenna	Input
12	GND	Ground	Input
13	NC	No connection	-
14	VCC_RF	VCC antenna power supply option. Connect it to V_ANT if VCC is used to supply an active antenna. Leave it open if this pin is not used, e.g. passive antenna is adopted.	Output
15	V_ANT	Active antenna power source option. Connect it to VCC_RF if VCC is used to supply an active antenna. Leave it open if it is not used, e.g. passive antenna is adopted.	Input
A16	Rsvd	Reserved pin, do not use.	Input
17	Rsvd	Reserved pin, do not use.	Output
18	Rsvd	Reserved pin, do not use.	Output

Ordering Information

GE-A103A	9600bps GGA, GSA, GSV, RMC, VTG

*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, Science-Based Industrial Park, Hsinchu 300, Taiwan (R.O.C.)