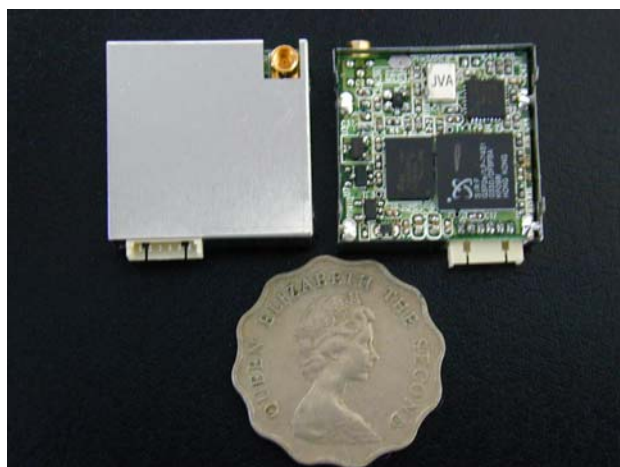


GR-85 GPS Receiver Module



■ Main Features

- SiRF Star II/LP (low power) chipset with embedded ARM7TDMI CPU available for customized applications in firmware ◦
- 12 parallel satellite-tracking channels for fast acquisition and reacquisition ◦
- Compact size(only 25.4*25.4*7mm, include RF shield) ◦
- High speed signal acquisition using 1920 time/frequency search channels ◦
- Built-in WAAS/EGNOS Demodulator ◦
- Low power consumption with Advanced Trickle-Power and Push-To-Fix mode ◦
- Optional Rechargeable battery for memory and RTC backup and for fast Time to First Fix(TTFF) ◦
- Support NMEA-0183 v2.2 data protocol and SiRF binary code ◦
- Enhanced algorithms -SnapLock and SnapStart provide superior navigation performance in urban 、canyon and foliage environments ◦
- For Car Navigation 、Marine Navigation 、Fleet Management 、AVL and Location-Based Services 、Auto Pilot 、Personal Navigation or touring devices 、Tracking devices/systems and Mapping devices application ◦

■ Products List

Model No.	Output Level (TTL or RS-232)	Back-up battery (Rechargeable Lithium)	Power Saving	RF Connector Type
GR-85-T0A	TTL	Y	Y	MMCX(180°)
GR-85-T0B	TTL	Y	Y	MMCX(90°)

■ Specifications

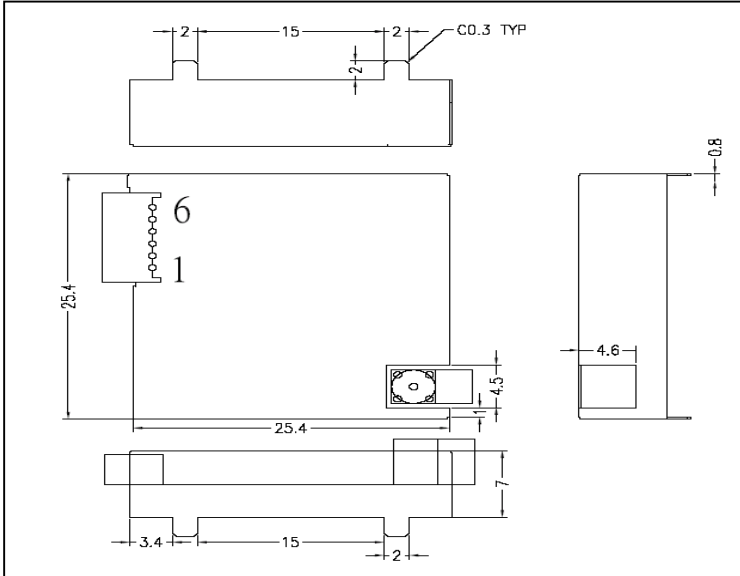
Snap Start	< 3 sec (at < 25 minutes off period) °
Hot Start	±8 sec(typ) °
Warm Start	±38 sec(typ) °
Cold Start	±45 sec(typ) °
Satellite Reacquisition Time Accuracy	100 ms °
Channels	12 satellites °
Position Accuracy	25m CEP without SA °
Receiver	L1, C/A code °
Protocol	NMEA-0183 V2.2, 4800, 8, N, 1, GGA, GSA, GSV, RMC.(VTG , GLL, RMS option) or SiRF Binary °
Maximum Altitude	< 18,000 M (60,000 feet) °
Maximum Velocity	< 515 M (700knote) °
Max. Update Rate	1 Hz °
RF Connector	MMCX °
Interface	TTL level(RS232 protocol) °
Dimension	25.4mm(L)x25.4mm(w)x7 mm(H) °
Weight	< 7g °
Firmware Upgrade	Flash memory for programming software available °
Time Mark	Output 1 pulse/sec, aligned with GPS time +/- 0.1 usec °
Operating Temperature	-40 °C to +85 °C °
Storage Temperature	-45 °C to +100 °C °
Operating Humidity	5% to 95%, No Condensing °

■ Electrical specifications :

Power consumption input current less than 80mA (without antenna) ◦

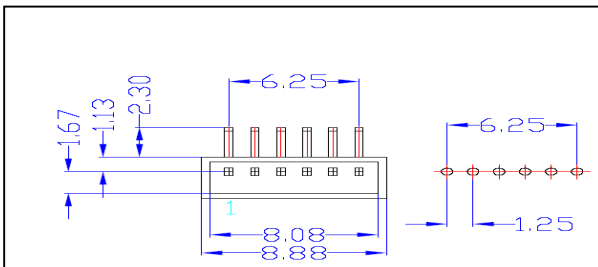
■ Output terminal and definition :

1. Outline dimension.



2. 6 Pin headers(J1) define (1.25mm Pitch).

2.1 pin size definition:



2.2 Connector pin function:

Pin	Pin Name	Function description
1	VCC_5V	+3.5~5.5Vdc power input
2	TXA	Serial Data output port A
3	RXA	Serial Data input port A
4	RXB	Serial Data input port B
5	GND	Power ground
6	TIMEMARK	1PPS Time mark output

1. **VCC_5V:** +3.3 ~ 5.5V DC voltage input.
2. Dual communication channel TTL levels with user selectable baud rates (4800-Default, 9600, 19200, 38400).
 - TXA:** Main Serial Output. This output provides navigation data to user written software.
 - RXA:** Main Receive Channel. This input is used to receive software commands to the GR-85 from user written software.
 - RXB:** Auxiliary Receive Channel. This input is used to receive serial differential GPS data.
3. **TIMEMARK:** This pin provides TTL level 1 PPS(One-Pulse-Per-Second) output from the GR-85 board, which is synchronized to GPS time. The Pulse duration is 100ms. Time reference at the pulse positive edge and measurement aligned to GPS seconds is +/- 1us. This is not available in Trickle-Power mode.