## **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 \( \cdot \) canyon and foliage environments \( \cdot \)
- 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	Υ	Y	MMCX(180°)
GR-85-T0B	TTL	Υ	Y	MMCX(90°)

HOLUX Technology, Inc.

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# 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 ℃to +85 ℃。		
Storage Temperature	-45 ℃to +100 ℃。		
Operating Humidity	5% to 95%, No Condensing ∘		

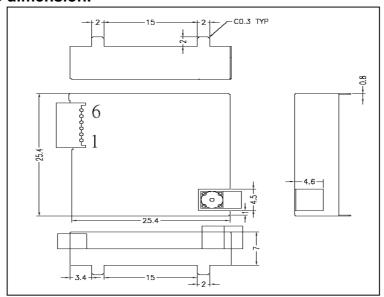
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## ■ Electrical specifications:

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

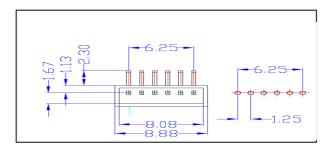
### Output terminal and definition :

#### 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	

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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.