SPECIFICATION

SPEC NO.   :   **PMB-248**

PART NO.   :   **PMB-248**

PRODUCT NAME   :   **GPS Receiver / PMB-248**

DESCRIPTION   :   **GPS Receiver (RS232,TTL , Baud Rate 4800bps)**

REVISION STATUS

VERSION	DATE	PAGE	REVISION DESCRIPTION	PREPARED	DESIGNED	APPROVED
01	2005/09/14	all pages	New Issued	Ken Hung	Ken Hung	S.M. Wang

Prepared By	Designed By	Approved By

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1.0 Cautions

GPS (Global Positioning System) is a satellite-based navigation system. In an unobstructed clear view of the sky, GPS works anywhere in the world, 24 hours a day.

GPS is developed and operated by the government of United States. Under the policy of the government, the degradation in accuracy shall occur without prior warnings, and sometimes satellites don't transmit signal due to adjustment, test, and orbital revision.
Also, please note:

1. products such as motors, computer, and RF devices, which emit high levels of magnetic field and interference that may cause the performance of the GPS unit to drop.
2. the optimal position during automobile applications is on the roof top of the vehicles. If the GPS unit is to be placed inside the car, be certain to avoid coverage by metal objects for optimal performance.

Please be aware that the performance of the GPS receiver module does not warrant against the above factors.

(Position Accuracy)
Position data and position accuracy are affected or degraded by the satellite geometry, electric magnetic interference, and multipath.

(Equipment)
The high frequency noise will interfere with signal receiving. The high frequency noise within the receiver frequency band, 1575Mhz ±10MHz, will affect the receiver quality. Also, because of the mixer and modulation, the low frequency noise will be increased by several times. If this increased frequency drops into the 1575MHz ±10MHz band, it will also affect the receiver quality.

(Warranty)
If the product fails within one year after the date of delivery while it has been used properly it will be replaced or repaired free of charge.

2.0 Electrical Characteristics   Vcc=3.3V

Symbol	Parameter	Min	Typ	Max	Units
Vcc	Operation Voltage	3.0	3.3	5.5	V
V_{IH}	Input High Voltage	2.0	—	—	V
V_{IL}	Input Low Voltage	—	—	0.8	V
V_{OH}	Output High Voltage	2.4	—	—	V
V_{OL}	Output Low Voltage	—	—	0.4	V
I_L	Input Leakage Current	—	—	2	μA
Cin	Input Capacitance	—	—	3	pF
Cout	Output Capacitance	—	—	3	pF

3.0 Normal Operating Conditions

Symbol	Parameter	Min	Typ	Max	Units
V_{CC}	Power Supply Voltage	3.0	3.3	5.5	V
V_{IN}	Input Pin Voltage	0	—	3.3	V
Pw	Power Consumption(*1)	—	80	—	mA
Top	Operating Temperature	-40	25	70	°C
*1: Power Consumption: Typical: 80mA @3.3V					

4.0 Specification

Satellite Tracking   12 Parallel channels

RF input   Center frequency   1575.42MHz L1 band, C/A code
                            Signal sensitivity   -152 dBm or less

Positioning system   Default   WGS-84

                            Software Selectable   All major coordinate systems

Positioning accuracy   Position   Approximately 2m,   WAAS/EGNOS Support
                            Velocity   0.1m/s   Average (without SA imposed)

Positioning condition   First Time 3 Satellites

Navigation Update Rate   1second

Operation Temperature $-10℃$ to 70℃

Storage Temperature $-40℃$ to 100℃

5.0 Time To First Fix (TTFF)

Assumes previously listed navigation conditions and 8 satellites in view

TTFF	Typ	Units
Hot Start (time, position, valid ephemeris, and valid almanac)	**2**	**seconds**
Warm Start (time, position, no ephemeris, and valid almanac)	**33**	**seconds**
Cold Start (time, position, no ephemeris, and valid almanac)	**40**	**Seconds**

The G-mouse has to establish location fix before accurate time information can be provided.

6.0 Interface

I/O connector   (Power supply, serial data I/0)   pitch 1.25mm 6pin Molex Male

7.0 Communication Specification

Communication method   Start-stop synchronization
Transfer rate input/output   4800bps NMEA
Logic levels   TTL
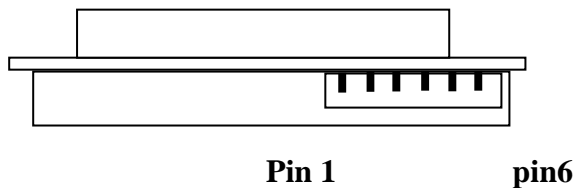I/O code   ASCII
Communication format   NMEA

8.0 LED Indicate function

status	Description	LED ON / OFF TIME
1	The GPS is In-fix status	Always ON
2	The GPS is Not-fix status	Flashing
3	The GPS is out of power	Always OFF

9.0 Module I/O Connector Pins

Pin Configuration

Pin No.	Symbol	I/O	Description
1	TTL TX	O	TTL TX
2	TTL RX	I	TTL RX.
3	VCC	I	Power supply input.
4	GND	G	Power & Data ground.
5	TX	O	RS232-TX
6	RX	I	RS232-RX

Pin 1   pin6

10.0 Dimension