GE-612, Tiny, High Performance USB/UART GPS Engine Board w/ Digital & RF Connectors

RoHS Compliant

Overview

GE-612 is equipped with the **u-blox 6** high-sensitivity engine, GPS antenna RF connector, digital and fixing pins. It is the smallest GPS module with above functions and measures just **10x12x3.5** (mm). The slim design allows it to be used in dimension demanding devices. The built-in USB interface makes it very easy to integrate with modern USB-rich devices such as notebook PC etc.

Our special design allows supply main power and backup battery power from one VCC source while still keeps battery power when it is powered off by the built-in power control pin. **External backup power is thus saved**.

Our experienced design provides not only excellent GPS performance but also quality and delivery assurance.

Applications

- Driving recorder/digital camera
- AVL/personal tracker/pet tracker
- Smart phone, MID, UMPC, PND, tablet PC
- High precision clock

Features

- **Built-in RF connector**, reduce RF tuning efforts
- **Small** than most engine boards that don't build-in RF connecgtor: 10 (W) x 12 (L) x 3.5 (H) (mm)
- The tiny I-PEX RF connector allows **flexibly** placing GPS antenna at a suitable location inside housing.
- External active antenna **short circuit protection**
- Power ON/OFF pin - easy **power saving control**.
- **Save backup power & circuits**; Fast position fix even when it is powered OFF by power control pin.
- Tiny DIP connector for both electrical & **reliable PCB fixing**
- High sensitivity+:-161dBm tracking/-147dBm acquisition
- High precision time pulse signal (0.25~1KHz)
- Up to **5Hz** update rate (default 1Hz)
- USB and/or UART interfaces
- Windows **location sensor** support
- OMA SUPL compliant A-GPS support
- SBAS (WAAS, EGNOS, MSAS) support
- Excellent EMI protection

Technical Specifications

Receiver Performance Data+

Receiver Type	50-channel, L1 frequency, C/A code GPS:1575.42MHz
Horizontal Position Accuracy	< 2.5m (Autonomous) < 2.0m (WAAS) (CEP, 50%, 24-hour static, -130dBm, SEP < 3.5m)
Velocity Accuracy	<0.1 m/s (speed) <0.5° (heading) (50% @ 30 m/s)
Time Pulse Signal Accuracy	30ns (RMS) <60ns (99%)
Time To First Fix	Autonomous (All at -130dBm)

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Hot start	1sec
Warm start	32sec
Cold start	32sec
Sensitivity (Autonomous)	-147dBm (acquisition) -161 dBm (tracking & navigation)
Max. Update Rate	5Hz
Max. Altitude	50,000 m
Max. Velocity	500 m/s
Protocol Support	NMEA 0183 v2.3(compatible to 3.0) UART: 9600, 38400 bps N,8,1; GGA, GLL, GSA, GSV, RMC, VTG, TXT
SBAS Support	WAAS, EGNOS, MSAS, GAGAN
Dynamics	< 4g

+ **Note. According to IC Spec**

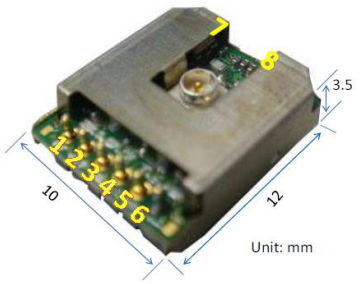
Electrical Data

Power Supply	3.3 ~ 3.6 V
Power Consumption	50 mA / average tracking
USB I/O (V)	V_{IH}: 2 ~ 3.3, V_{IL}: 0 ~ 0.8 V_{OH}: >= 2.8, V_{OL}<= 0.3

Environmental Data

Operating temperature	-40 ~ 85℃
Storage temperature	-40 ~ 85℃

Mechanical Data – 10 x 12 x 3.5 (mm)



DIP Interface for USB application

Pin	Name	Function	I/O
1	VCC	3.3 ~ 3.6 V power supply	Input
2	Reserved	Reserved	Output
3	Reserved	Reserved	Input
4	PWR_CTRL	Module power control High or floating: power OFF Low: power ON	Input
5	DP	USB positive	I/O
6	DM	USB negative	I/O
7	GND	Ground	Input
8	GND	Ground	Input

DIP Interface for timing application

Pin	Name	Function	I/O
1	VCC	3.3 ~ 3.6 V power supply	Input
2	TXD	TTL serial data output (from GPS)	Output
3	RXD	TTL serial data input (to GPS)	Input
4	PWR_CTRL	Module power control High or floating: power OFF Low: power ON	Input
5	TIMEPULSE	Default: 1 pulse per second (1Hz), synchronized at rising edge, pulse length 100ms. Configurable: 0.25Hz ~ 1kHz	Output
6	Reserved	Reserved	I/O
7	GND	Ground	Input
8	GND	Ground	Input

Application

- Mount GE-612 on main board, connect I-PEX to GPS active antenna.
- Please solder GND pins (7, 8) to big (say, main board) ground plane. Additional soldering of shielding case to big ground plane may also boost the performance.
- To save power, turn off the GPS module via pin 4.

Ordering Information, GE-612X

U	9600bps, N-8-1, USB/non-timing application GGA, GLL, GSA, GSV, RMC, VTG, TXT @1Hz

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