

RoHS  
Compliant



# GM-615, Compact, Ultra High Performance, USB/UART A-GPS Smart Antenna Module

## Overview

GM-615 is an easy to use, ultra-high performance GPS smart antenna module. It equips with the u-blox 6 -160dBm engine and support TTL UART or USB interface. The built-in rechargeable backup power allows for faster position fixing.

Our experienced design provides not only fast acquisition and excellent tracking performance but also quality and delivery assurance.

## Applications

- Tracking
- Automatic vehicle location
- Navigation

## Features

- Easy to use with built-in patch antenna, rechargeable backup power
- Excellent EMI protection and minimum RF efforts
- High performance: -160dBm tracking sensitivity
- A-GPS support, OMA SUPL/3GPP TS25.171 (GSM/UMTS) compliant
- SBAS (WAAS, EGNOS, MSAS, GAGAN) support
- Industrial operating temperature range: -40 ~ 85°C

## Technical Specifications

### Receiver Performance Data <sup>+</sup>

Receiver Type	50-channel, L1 frequency, C/A code
Horizontal Position	< 2.5m (Autonomous)

Accuracy	< 2.0m (WAAS) (CEP, 50%, 24-hour static, -130dBm, SEP < 3.5m)
Velocity Accuracy	<0.1 m/s (speed) <0.5° (heading) (50%@30m/s)
Time To First Fix	autonomous, all at -130dBm
Hot start	1sec
Warm start	32sec
Cold start	32sec (50%@-130dBm)
Sensitivity (Autonomous)	-146dBm (acquisition) -160dBm (tracking)
Update Rate	1~5Hz
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

<sup>+</sup> Spec by IC supplier

### Electrical Data

Power Supply (V)	3.3 ~ 5.5
Power Consumption (w/o antenna)	50mA/average tracking
TTL I/O (V)	V <sub>IH</sub> : 2~3.3, V <sub>IL</sub> : 0~0.8 V <sub>OH</sub> : >2.8, V <sub>OL</sub> < 0.3
Protocols	NMEA, u-blox Binary

### RF Interface

Built-in patch antenna	15x15x4 mm <sup>3</sup>
------------------------	-------------------------

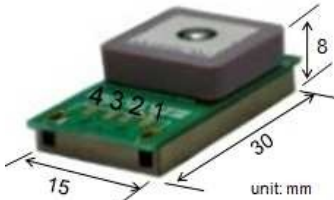
### Environmental Data

## USB/UART A-GPS Smart Antenna Module / GM-615

Operating temperature	-40 ~ 85°C except battery: -10~60°C
Storage temperature	-40 ~ 85°C except battery: -10~60°C

\*This document is subject to change without notice.

### Mechanical Data (GM-615) 15x30x8 (mm)



### 4-pin Interface (USB)

Pin	Name	Function	I/O
1	VCC	Power supply (DC 3.3~5.5V)	Input
2	DM	USB negative	I/O
3	DP	USB positive	I/O
4	GND	Ground	Input

### 4-pin Interface (TTL UART)

Pin	Name	Function	I/O
1	VCC	Power supply (DC 3.3~5.5V)	Input
2	TXA	Port A serial data output (from GPS)	Output
3	RXA	Port A serial data input (to GPS)	Input
4	GND	Ground	Input

### On-board LED

The GPS fix status is indicated by an on-board LED.

LED always ON: not fixed; LED blinks: position fixed

### Ordering Information

#### GM-615X

T	9600bps, N-8-1, TTL GGA, GLL, GSA, GSV, RMC, VTG, TXT
U	USB GGA, GLL, GSA, GSV, RMC, VTG, TXT