

GM-721, Compact,

High Performance

GNSS Smart Antenna Module

Overview

GM-721 is a compact module equipped with the latest **u-blox 7** low-power, high-sensitivity engine, GNSS antenna, and wire-to-board connector. The all-in-one design allows quick plug and play.

GM-721 supports either GPS/QZSS or GLONASS. It default works with GPS and QZSS.

Based on our experienced design, GM-721 provides not only excellent GPS performance but also quality and delivery assurance.

Applications

- Driving Recorder
- Automatic vehicle location
- Vehicle navigation device
- School Bus / Transit / Police / Fleet / POS

Features

- Compact, small, all-in-one module
 - 20.1 x 20.1 x 8.2 (mm), including patch antenna (18x18x4) and connector
 - Connect to main board via a 6-pin connector
- Backup power for faster position fix.
- GNSS support: either GPS/QZSS (default) or GLONASS
- SBAS (WAAS, EGNOS, MSAS) support
- TTL or USB support
- High sensitivity⁺: -162dBm tracking/-148dBm acquisition (GPS)

RoHS
Compliant



- Up to 10Hz update rate (default 1Hz)
- OMA SUPL compliant
- A-GPS support
- Windows **location sensor** support
- Excellent EMI protection

Technical Specifications

Receiver Performance Data⁺

Receiver Type	56-channel u-blox 7 engine GPS & QZSS: L1 C/A, 1575.42MHz, GLONASS: L1OF, 1598.0625~1605.375MHz SBAS: WAAS, EGNOS, MSAS
Horizontal Position Accuracy	Autonomous: 2.5m (GPS), 4m (GLONASS) SBAS: 2.0m (GPS) (CEP, 50%, 24-hour static, -130dBm)
Velocity Accuracy	<0.1 m/s (speed) <0.5° (heading) (50% @ 30 m/s)
Time Pulse Signal Accuracy	RMS: 30ns (GPS), 50ns (GLONASS) 99%: 60ns (GPS), 100ns (GLONASS)
Time To First Fix (TTFF)	Autonomous (All at -130dBm) Hot start: 1sec (GPS), 1sec (GLONASS) Warm start: 28sec (GPS), 25sec (GLONASS) Cold start: 29sec (GPS), 30 sec (GLONASS)
Sensitivity, dBm (Autonomous)	Acquisition: -148 (GPS), -140 (GLONASS) Tracking: -162 (GPS), -158 (GLONASS)
Navigation.	Max. 10Hz

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Update Rate	Default 1Hz
Max. Altitude	50,000 m
Max. Velocity	500 m/s
Protocol	NMEA 0183 v2.3 (compatible to 3.0)
Support	GGA, GLL, GSA, GSV, RMC, VTG, TXT
Dynamics	< 4g

* **Note. According to IC Spec**

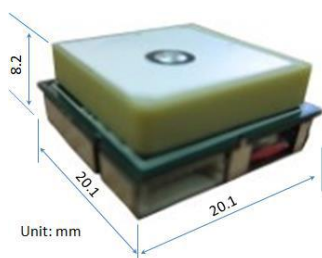
Electrical Data

Power Supply	3.1 ~ 5.5 V (TTL)
Backup power	1.5 ~ 3.5V
Power Consumption	40 mA / average tracking 13.5uA / backup power (module disabled)
USB I/O (V)	V_{IH} : 2 ~ VCC, V_{IL} : 0 ~ 0.8 V_{OH} : ≥ 2.8 , V_{OL} : ≤ 0.3
Digital I/O (V)	V_{IH} : $0.7 \times VCC \sim VCC + 0.5$ V_{IL} : $0 \sim 0.2 \times VCC$ V_{OH} : $\geq VCC - 0.4$, V_{OL} : ≤ 0.4

Environmental Data

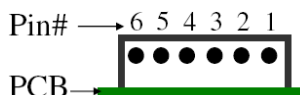
Operating temperature	-40 ~ 85°C
Storage temperature	-40 ~ 85°C

Mechanical Data – 20.1 x 20.1 x 8.2 (mm)



Tolerance : ± 0.25 mm

6-pin Interface, pitch 1.0 mm



GM-721A/U

Pin	Name	Function	I/O
1	GND	Ground	Input
2	VCC	Power supply	Input
3	TXD/D+	TTL level serial data output (from GPS) / USB positive	Output / I/O
4	RXD/D-	TTL level serial data input (to GPS) / USB negative	Input / I/O
5	1PPS	Time Pulse Per Second	Output
6	V_BAT	Backup power	Input

GM-721B/V

Pin	Name	Function	I/O
1	GND	Ground	Input
2	VCC	Power supply	Input
3	TXD/D+	TTL level serial data output (from GPS) / USB positive	Output / I/O
4	RXD/D-	TTL level serial data input (to GPS) / USB negative	Input / I/O
5	PWR_CTL	Power control; floating or high: ON Low : OFF	Input
6	V_BAT	Backup power	Input

GM-721N without on board LED

Pin	Name	Function	I/O
1	GND	Ground	Input
2	VCC	Power supply	Input
3	TXD	TTL level serial data output (from GPS)	Output
4	RXD	TTL level serial data input (to GPS)	Input
5	1PPS	Time Pulse Per Second	Output
6	V_BAT	Backup power	Input

Ordering Information

GM-721X (X=A,B etc.)

Feature \ Model	A	B	U	V
TTL	Y	Y	-	-
USB	-	-	Y	Y
PPS	Y	-	Y	-
Power Control	-	Y	-	Y

*This document is subject to change without notice.