

GM-622, u-blox6

Compact, High Performance, GPS Smart Antenna



Overview

GM-622 is an easy to use, high performance GPS smart antenna module with patch antenna for AVL applications. Our experienced design provides fast acquisitions and excellent tracking performance. Its 5Hz update rate is useful for high-speed racing car and plane applications

Applications

- Automatic vehicle location
- Tracking
- Navigation
- Fleet management
- GPS clock and digital camera
- Child/elderly/personal locator and security system
- Racing car
- Plane

Features

- Based on u-blox6 low power single chip
- High performance: -160dBm⁺ tracking sensitivity
- Low power: 56mA at continuous tracking
- SBAS (WAAS, EGNOS, MSAS, GAGAN) support
- A-GPS support, OMA SUPL/3GPP TS25.171 (GSM/UMTS) compliant
- Easy to use with built-in patch antenna and 7-pin I/O interface or 6-pin wire to board connector.
- Up to 5Hz update rate
- Fully EMI shielded
- Industrial operating temperature range: -40 ~ 85°C

Technical Specifications

Receiver Performance Data⁺

| | |
|--|--|
| Receiver Type | 50-channel, L1 frequency, C/A code |
| Horizontal Position Accuracy | < 2.5m (Autonomous) < 2.0m (WAAS) (CEP, 50% 24hr static, -130dBm) |
| Velocity Accuracy | <0.1 m/s (speed) <0.5° (heading) (50% @ 30m/s) |
| Time Pulse Signal Accuracy | 30ns (RMS) <60ns (99%) |
| Time To First Fix Hot start Warm start Cold start | Autonomous <1sec <32sec <32sec (50% -130dBm) |
| Sensitivity (Autonomous) | -146dBm (acquisition) -160dBm (tracking) |
| Max. Update Rate | 5Hz |
| Max. Altitude | 50,000 m |
| Max. Velocity | <1,852 km/hr |
| Protocol Support | NMEA 0183 v2.3 (compatible to 3.0) UART: 9600 bps N,8,1; GGA, GLL, GSA, GSV, RMC, VTG, TXT |
| SBAS Support | WAAS, EGNOS, MSAS, GAGAN |
| Dynamics | <4g |

*: according to GPS IC spec

Electrical Data

| | |
|-------------------|---|
| Power Supply | 3.3 ~ 5.5 V |
| Power Consumption | 56mA/average tracking |
| Backup power | 1.4 ~ 3.6 V |
| TTL I/O | V _{IH} : 2.31~3.3V, V _{IL} : 0~0.66V V _{OH} : >2.8V, V _{OL} < 0.4V |
| Protocols | NMEA, u-blox Binary |

Environmental Data

| | |
|-----------------------|--------------------|
| Operating temperature | -40 ~ 85°C |
| Storage temperature | -40 ~ 85°C |
| Vibration | 5Hz to 500Hz, 5g |
| Shock | Half sine 30g/11ms |

Mechanical Data

| | |
|-----------|------------------------------|
| Dimension | 22 (W) x 22 (L) x 8.2 (H) mm |
|-----------|------------------------------|

7-pin Through-hole Interface (GM-622S/Q)



| Pin | Name | Function | I/O |
|-----|----------|---|--------|
| 1 | RXD/D- | TTL serial data input or USB D- | Input |
| 2 | TXD/D+ | TTL serial data output or USB D+ | Output |
| 3 | GND | Ground | Input |
| 4 | VCC | Power supply (3.3~5.5VDC) | Input |
| 5 | VBAT | Backup battery, 1.4~3.6VDC | Input |
| 6 | 1PPS | One pulse per second | Output |
| 7 | PWR_CTRL | Power saving control high/floating: ON, low: OFF | Input |

6-pin Connector Interface (GM-622T/U)



| Pin | Name | Function | I/O |
|-----|----------|---|--------|
| 1 | GND | Ground | Input |
| 2 | VCC | Power supply (3.3~5.5VDC) | Input |
| 3 | TXD/D+ | TTL serial data output or USB D+ | Output |
| 4 | RXD/D- | TTL serial data input or USB D- | Input |
| 5 | VBAT | Backup battery, 1.4~3.6VDC | Input |
| 6 | PWR_CTRL | Power saving control high/floating: ON, low: OFF | Input |

Ordering Information

GM-622

| | |
|---|---|
| Q | USB, 1 Hz; w/ 7-pin through-hole GGA, GLL, GSA, GSV, RMC, VTG, TXT |
| S | TTL, 9600bps, N-8-1, 1 Hz; w/ 7-pin through-hole GGA, GLL, GSA, GSV, RMC, VTG, TXT |
| T | TTL, 9600bps, N-8-1, 1 Hz; w/ 6-pin connector GGA, GLL, GSA, GSV, RMC, VTG, TXT |
| U | USB, 1 Hz; w/ 6-pin connector GGA, GLL, GSA, GSV, RMC, VTG, TXT |

*This document is subject to change without notice.