GR-701, u-blox7

Ultra-High Performance

GPS Mouse Receiver



Overview

GR-701 is an easy to use, ultra-high performance, low power, industrial grade GPS smart antenna. The built-in u-blox7 chip and our experienced design provide fast acquisitions and excellent tracking performance. It supports either USB, TTL, or RS232-based mini-DIN interface.

Applications

- High-precision PPS time service
- Automatic vehicle location
- Vehicle navigation device
- Fleet management

Features

- Based on u-blox7 low power single chip
- High performance: -162dBm+ tracking sensitivity
- GNSS support : either GPS/QZSS (default) or GLONASS
- Up to 10Hz update rate (default 1Hz)
- SBAS (WAAS/EGNOS/MSAS) support
- Electrical interface support: USB, RS232, TTL
- Connector: PS2, Microfit, RJ45, DB9, USB etc.
- Cable length: 0.1m ~ 15m.
- Power supply options: 12V/24V
- OMA SUPL compliant AGPS support
- RTCM 2.3 support
- Backup battery support for faster position fix
- External backup power option via I/O pin is available for special application of high working temperature.
- USB/UART TTL/RS232 interface support
- PPS support for timing application, including PPS over USB
- LED for position fix indication
- Built-in magnet
- Compatible with GPSD PPS support (GR-701W)
- Linux/Android support
- Windows **location sensor** support (u-blox USB)
- **IPX7** Waterproof
- Industrial operating temperature range: **-40 ~ 85**℃

Technical Specifications

Receiver Performance Data+

Receiver Type	56-channel, 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%@30m/s)
PPS Signal Accuracy	RMS: 30ns (GPS), 50ns (GLONASS) 99%: 60ns (GPS), 100ns (GLONASS)
Time To First Fix	Autonomous (All at -130dBm) (50% -130dBm)

NaviSys Technology Corp. http://www.navisys.com.tw/
Tel : +886-3-5632598 Fax: +886-3-5632597
Sales contact: sales@navisys.com.tw Technical support: service@navisys.com.tw
Address: 2F, No.56, Park Ave. II, Hsinchu Science Park, Hsinchu 30844, Taiwan (R.O.C.)

Hot start Warm start Cold start	1sec (GPS), 1sec (GLONASS) 28sec (GPS), 25sec (GLONASS) 30sec (GPS), 32 sec (GLONASS)
Sensitivity (Autonomous)	Acquisition: -148 (GPS), -140 (GLONASS) Tracking: -162 (GPS), -158 (GLONASS)
Max. Update Rate	Default: 1Hz, Max. : 10Hz
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

+ Note. According to IC Spec

Electrical Data

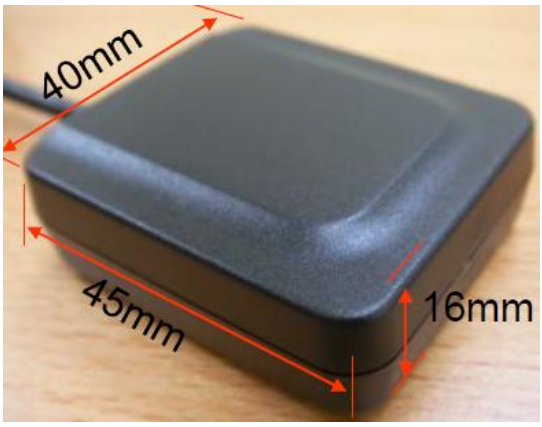
Power Supply	3.3 ~5.5 VDC
Power Consumption	37mA/average tracking (TTL)

Environmental Data

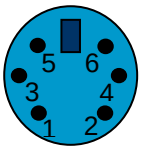
Operating temperature Storage temperature	-40 ~ 85℃ (battery: -20 ~ 60℃) -40 ~ 85℃ (battery: -40 ~ 60℃)
Operating humidity	5% ~ 95% non-condensing
Waterproof	IPX7

Other Data

Cable Length	1.5m for GR-701U <1m for GR-701T 3m for GR-701R
Dimension	40 x 45 x 16 (mm)



Interfaces

GR-701T/R/P	GR-701U/W
	
	
Mini-Din 6-pin PS/2 Male Plug	USB A type Male Plug

Pin Assignment

	GR-701T	GR-701R	GR-701P	GR-701U/W
1	GND	GND	GND	VDD 5V
2	VCC	VCC	VCC	D-
3	TXD-TTL	TX-RS232	TX-RS232	D+
4	RXD-TTL	RX-RS232	RX-RS232	GND
5	PPS-TTL	PPS-RS232	PPS-TTL	-
6	PWR_CTRL	PWR_CTRL	PWR_CTRL	-

The GR-701W makes PPS events visible to a compatible USB host system; they appear as DCD state changes to the PL2303 driver. Time precision will be limited by the USB polling interval, usually 0.5 millisecond

NaviSys Technology Corp. http://www.navisys.com.tw/
Tel : +886-3-5632598 Fax: +886-3-5632597
Sales contact: sales@navisys.com.tw Technical support: service@navisys.com.tw
Address: 2F, No.56, Park Ave. II, Hsinchu Science Park, Hsinchu 30844, Taiwan (R.O.C.)

Ordering Information

GR-701X, X=T, P, R, U, W etc

T	TTL; mini-din 6-pin male connector
P	RS-232; mini-din 6-pin male connector
R	RS-232; mini-din 6-pin male connector
U	u-blox USB; type A connector
W	Prolific USB, PPS connected to DCD; type A connector

* MOQ-based customizations are welcome.

* For non-standard demand (12V/24V power supply, connector, cable length, baud rate etc.), please specify them when ordering.

*This document is subject to change without notice.

NaviSys Technology Corp. http://www.navisys.com.tw/
Tel : +886-3-5632598 Fax: +886-3-5632597
Sales contact: sales@navisys.com.tw Technical support: service@navisys.com.tw
Address: 2F, No.56, Park Ave. II, Hsinchu Science Park, Hsinchu 30844, Taiwan (R.O.C.)