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
- 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 Hot start Warm start Cold start	Autonomous (All at -130dBm) (50% -130dBm) 1sec (GPS), 1sec (GLONASS) 28sec (GPS), 25sec (GLONASS) 30sec (GPS), 32 sec (GLONASS)
Sensitivity	Acquisition: -148 (GPS), -140 (GLONASS)

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(Autonomous)	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

Electrical Data

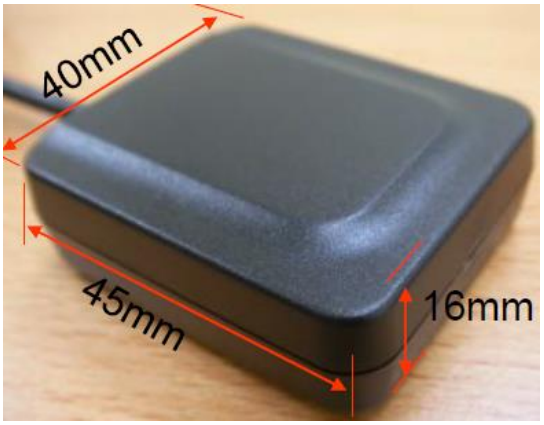
Power Supply	3.3 ~5.5 VDC
Power Consumption	37mA/average tracking (TTL)

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	GR-701R	GR-701U/W
			
			
Pin	Mini-Din 6-pin PS/2 Male Plug	Mini-Din 6-pin PS/2 Male Plug	USB A type Male Plug
1	GND	GND	VDD 5V
2	VCC	VCC	D-
3	TXD-TTL	TX-RS232	D+
4	RXD-TTL	RX-RS232	GND
5	PPS	$PPS	-
6	PWR_CTRL	PWR_CTRL	-

$: RS232 signal level for longer distance transmission

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

Ordering Information

GR-701X

T	TTL; 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

*This document is subject to change without notice.

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