GR-8015, u-blox8 NEO-M8T Based Ultra-High Performance GNSS Mouse Receiver

RoHS Compliant



Overview

GR-8015 is an easy to use, ultra-high performance, low power, industrial grade GNSS smart antenna. The built-in u-blox NEO-M8T engine board and our experienced design provide fast acquisitions and excellent tracking performance.

GR-8015 supports multiple satellite positioning systems – GPS, GLONASS, QZSS and SBAS. In addition, it also supports either USB or TTL/RS232-based mini-DIN interface.

In addition, the raw data support allows more precise applications.

Applications

- High-precision PPS time service
- Vehicle navigation device
- Fleet management
- Precise calculations with **raw data**

Features

- Based on u-blox NEO-M8T engine board
- Multi-satellite positioning systems support
  - GPS/QZSS/**GLONASS**[#]
- SBAS (WAAS, EGNOS, MSAS, GAGAN) support
- Higher update rate option (default 1Hz), up to
  - 4 Hz for GPS & GLONASS
  - 10 Hz for GPS only
- Sensitivity
  - Acquisition: -148dBm
  - Tracking: -167dBm
- Low power: 33mA at continuous tracking (USB)
- **Raw data** support
- RTCM 2.3 support
- A-GPS support, OMA SUPL/3GPP TS25.171 (GSM/UMTS) compliant
- Electrical interface support: USB, RS232, TTL
- Connector: PS2, Microfit, RJ45, DB9, USB etc.
- Cable length: 0.1m ~ 15m.
- Power supply options: 12V/24V
- Backup battery support for faster position fix
- LED for position fix indication
- IPX7 Waterproof
- Built-in magnet
- Windows location sensor support
- Linux/Android support
- Fully EMI shielded
- Industrial operating temperature range: -40 ~ 85℃

[#] NEO-M8T is able to support other GNSSs such as BeiDou, Galileo. To achieve best performance, separate customization is suggested for GPS+BeiDou support.

Technical Specifications

Receiver Performance Data[+]

Receiver Type	72-channel u-blox M8 engine GPS & QZSS:L1 C/A,1575.42MHz, GLONASS: L1OF,1598.0625~1605.375MHz SBAS: WAAS, EGNOS, MSAS
Horizontal	2.5m (Autonomous)

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Position Accuracy	2.0m (WAAS) (including SBAS & QZSS; CEP, 50% 24hr static, -130dBm, >6 SVs)
Velocity Accuracy	0.05 m/s (speed) <0.3° (heading) (50%@30m/s)
Time Pulse Signal Accuracy	Clear sky: ≤20ns (1-sigma) Indoor: ≤500ns (1-sigma)
Time Pulse Frequency	0.25 Hz ~ 10 MHz
Time To First Fix Hot start Cold start	Autonomous 1 sec 25 sec (50% -130dBm)
Sensitivity (Autonomous)	GPS&GLONASS -148dBm (acquisition) -167dBm (tracking)
Navigation. Update Rate	Max. 4Hz, GPS & GLONASS Max. 10Hz, GPS only Default 1Hz
Max. Altitude	50,000 m
Max. Velocity	< 500m/sec 1,800 km/hr)
Protocol Support	NMEA 0183 v4.0 (V2.3 or 4.1 configurable) UART default: 9600 bps N,8,1; RMC, VTG, GNS, GGA, GSA, GSV, GLL, GST, ZDA
SBAS Support	WAAS, EGNOS, MSAS, GAGAN
RTCM 2.3	Messages 1, 2, 3, 9

+: according to GNSS IC spec

Electrical Data

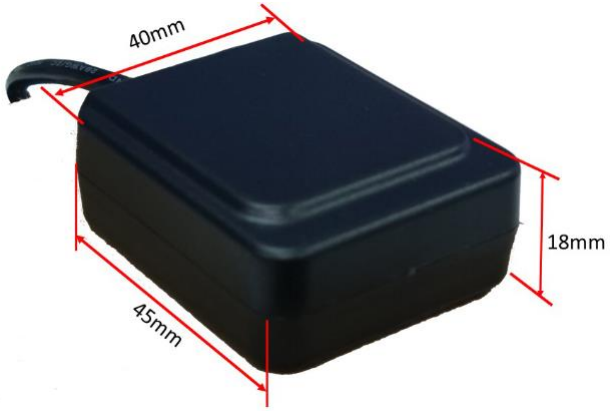
Power Supply	3.3 ~ 5.5 VDC
Power Consumption	33mA/average tracking (UART)
Protocols	NMEA, u-blox Binary

Environmental Data

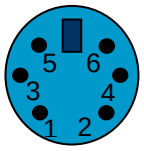
Operating temperature	-40 ~ 85℃ except battery: -20~60℃
Storage temperature	-40 ~ 85℃ except battery: -20~60℃
Operating humidity	5% ~ 95% non-condensing
Waterproof	IPX7

Other Data

Cable Length	1.5m for GR-8015U 3m for GR-8015R <1m for GR-8015T
Dimension	40 x 45 x 18 (mm)



Interfaces

	GR-8015T	GR-8015R	GR-8015U
			
			
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	$TP2	$TP2	

$:TTL signal level

Ordering Information

GR-8015X, X=T, R, U etc.

T	TTL; mini-din 6-pin male connector
R	RS232; mini-din 6-pin male connector
U	u-blox USB; 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.

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