DIYmalls G72

DIYmalls G72 G-Mouse USB GPS GNSS Receiver Module Instruction Manual

Model: G72

1. Introduction and Overview

The DIYmalls G72 G-Mouse Module is a USB GPS GNSS receiver designed to provide precise positioning data. It supports multiple global navigation satellite systems (GNSS) including GPS, Beidou, and Glonass. This module is compatible with Linux and Windows operating systems, making it suitable for various applications such as Raspberry Pi projects and PC-based navigation. It outputs data using the NMEA 0183 protocol and features a PPS (Pulse Per Second) indicator LED for accurate time synchronization.

Important Compatibility Note: This device does not support iOS or Android systems.



Image 1.1: The DIYmalls G72 G-Mouse USB GPS GNSS Receiver Module. This image highlights key features such as multi-GNSS support, NMEA 0183 protocol, 72 channels, and baud rate options.

2. Product Features

- **Multi-GNSS Support:** Default GPS + Beidou. Configurable to GPS + Glonass or Glonass + Beidou using U Center software.
- **USB Connectivity:** Connects via USB. Designed for USB 2.0 ports.
- **NMEA 0183 Protocol:** Outputs standard NMEA 0183 data sentences.
- **PPS Output:** Provides a Pulse Per Second signal for precise timing.
- **LED Indicator:** Visual status indicator.
- **Built-in Flash:** Saves configuration settings.
- **Wide Baud Rate Support:** 4800, 9600 (default), 19200, 38400, 57600, 115200 bps.
- **Update Frequency:** 1-10 Hz (default 1 Hz).
- **High Sensitivity:** Tracking: -164dBm, Capture: -159dBm, Cold Start: -147dBm.

- **Fast Acquisition Times:** Cold start average: 26 seconds, Warm start average: 24 seconds, Hot start average: 1 second.
- **High Accuracy:** Horizontal position: autonomous <2.5m average, SBAS <2.0m average. Timing signal: RMS 30 NS.

3. Specifications

Feature	Value
Dimensions (L x W x H)	60 x 24 x 9 mm
Weight	21 grams
Supported GNSS	GPS + Beidou (default), GPS + Glonass, Glonass + Beidou
Frequencies	GPS L1 (1575.42 MHz), BEIDOU B1 (1561 MHz), GLONASS G1 (1602 MHz)
Channels	72
Baud Rates	4800, 9600 (default), 19200, 38400, 57600, 115200 bps
Tracking Sensitivity	-164dBm
Capture Sensitivity	-159dBm
Cold Start Sensitivity	-147dBm
Cold Start Time (Avg.)	26 seconds
Warm Start Time (Avg.)	24 seconds
Hot Start Time (Avg.)	1 second
Horizontal Position Accuracy	Autonomous <2.5m average, SBAS <2.0m average
Timing Signal Accuracy	RMS 30 NS
Maximum Altitude	50,000 m
Maximum Speed	500 m/s
Maximum Acceleration	≤ 4 G
Operating Temperature	-40 °C to 85 °C
Connectivity Protocol	USB

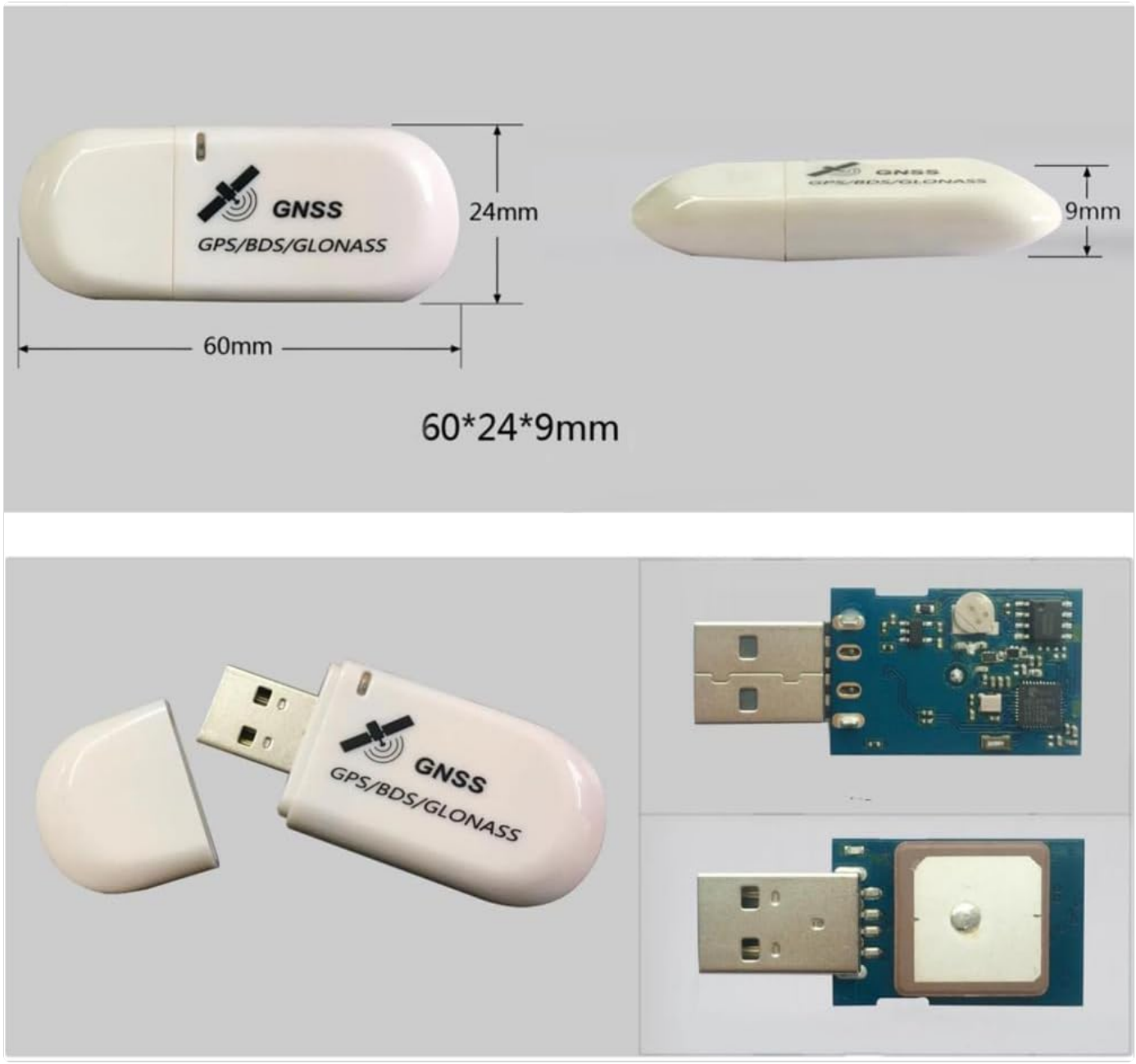


Image 3.1: Detailed dimensions of the DIYmalls G72 G-Mouse Module, showing its compact size of 60x24x9mm.

4. Setup

1. **Driver Installation:** Before plugging the G72 G-Mouse module into your computer, ensure that the necessary drivers are installed. For Windows, drivers are typically available from the manufacturer's website or may be automatically installed by the operating system. For Linux, the device is often recognized as a serial device (e.g., /dev/ttyACM0) and may require **gpsd** and **gpsd-clients** for full functionality.
2. **USB Port Selection:** Connect the G72 G-Mouse module to a USB 2.0 port. Avoid using USB 3.0 ports, especially on Raspberry Pi 4, as interference issues may occur. If using an extension cable, ensure it is a USB 2.0 compatible cable and not longer than 5 meters to maintain signal integrity.
3. **Initial Placement:** For initial satellite acquisition, place the G72 G-Mouse module outdoors or near a window with a clear view of the sky. Indoor use may significantly prolong the time required to acquire satellites.

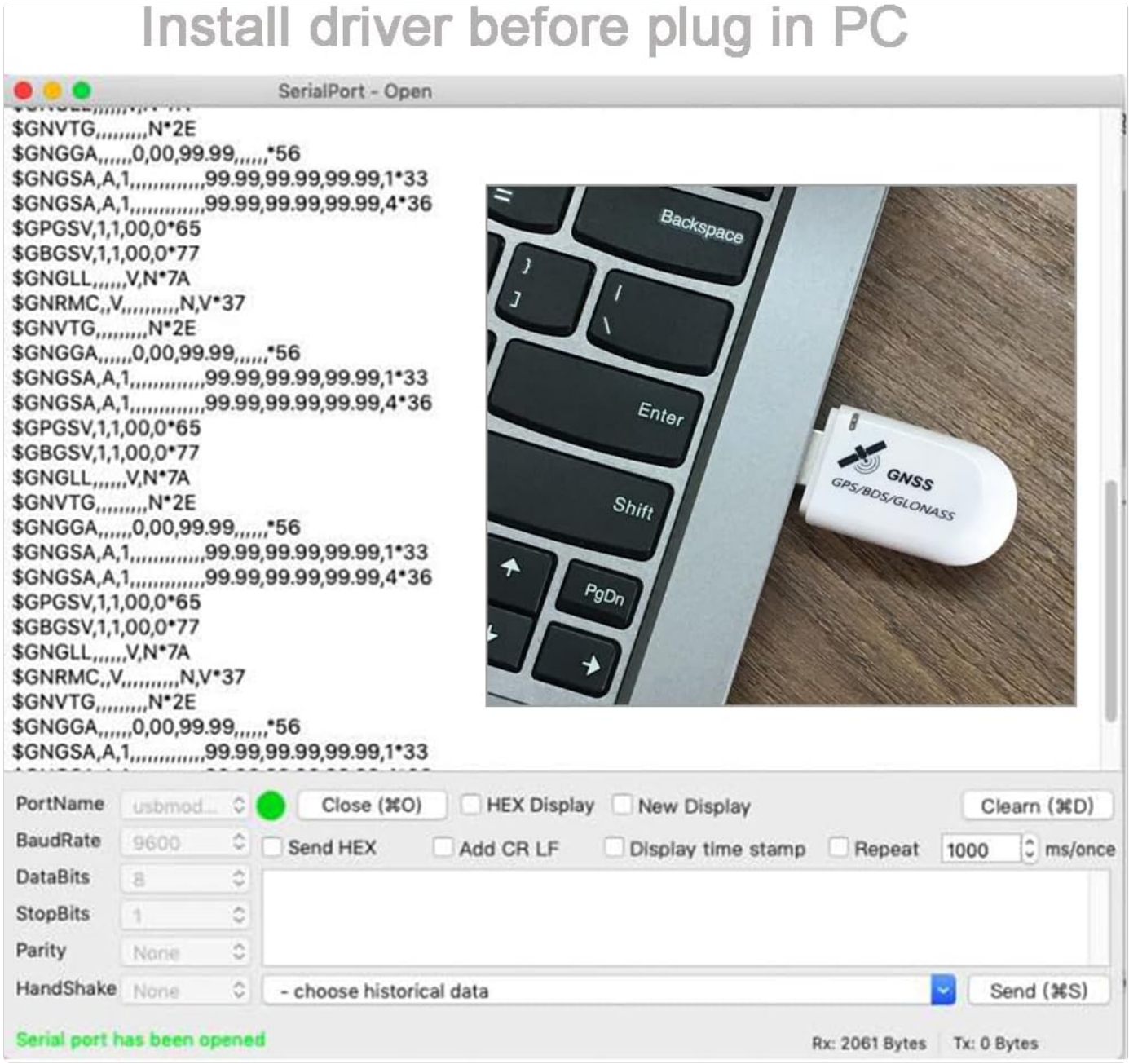


Image 4.1: The G72 G-Mouse module connected to a laptop, demonstrating the output of NMEA data in a serial port terminal. This illustrates the data stream received from the module.

5. Operating Instructions

5.1. Data Output (NMEA 0183)

The G72 G-Mouse module outputs data in the NMEA 0183 standard format. This data can be read by various software applications that support serial port communication. Common NMEA sentences include:

- **GGA:** Time, position, fix type.
- **GLL:** Latitude, longitude, UTC time.
- **GSA:** GPS receiver operating mode, satellites used for positioning, DOP value.
- **GSV:** Visible GPS satellite information, elevation, azimuth, Signal-to-Noise Ratio (SNR).
- **RMC:** Time, date, position, speed.
- **VTG:** Ground speed information.

5.2. Using with Linux / Raspberry Pi

On Linux-based systems, including Raspberry Pi, the G72 module is typically recognized as a serial device. You can install **gpsd** and **gpsd-clients** to process the NMEA data. Tools like**xgps** can then be used to visualize satellite data and positioning information.

```
sudo apt-get update
sudo apt-get install gpsd gpsd-clients
sudo systemctl stop gpsd.socket
sudo systemctl disable gpsd.socket
sudo gpsd /dev/ttyACM0 -F /var/run/gpsd.sock
xgps
```

Note: Replace /dev/ttyACM0 with the actual device path if it differs.

5.3. Using with Windows

For Windows systems, after driver installation, the G72 module will appear as a virtual COM port. You can use serial terminal software or dedicated GPS applications that can read NMEA data from a COM port. Software like U Center can be used for advanced configuration and monitoring.

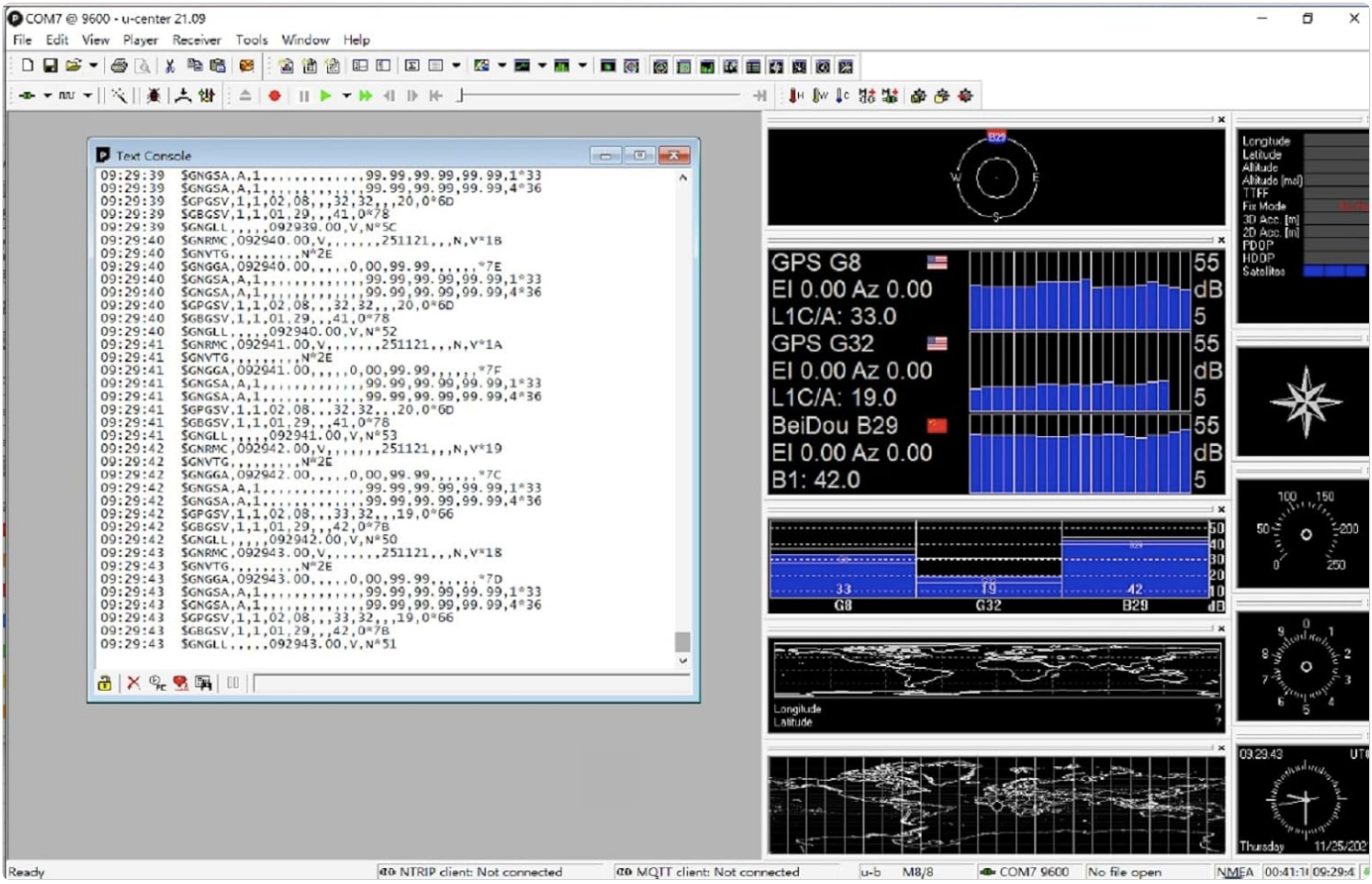


Image 5.1: Screenshot of U-Center software, showing detailed GPS and GNSS satellite information, signal strength, and NMEA data streams. This software allows for advanced configuration and monitoring of the G72 module.

Changing GNSS Configuration: The default configuration is GPS + Beidou. To change to GPS + Glonass or Glonass + Beidou, use the U Center software.

6. Compatibility

- **Supported Operating Systems:** Linux, Windows ME/98/CE, Server 2003, Server 2008, Vista, XP, Windows 7, Windows 8, Windows 10, and all Windows series systems.
- **Unsupported Operating Systems:** iOS, Android.
- **USB Port Compatibility:** Optimized for USB 2.0. USB 3.0 ports may cause interference, particularly with Raspberry

Pi 4.

7. Troubleshooting

- **No Satellite Signal / Slow Acquisition:**
  - Ensure the module has a clear view of the sky. Outdoor placement is recommended for initial acquisition.
  - Verify that the module is not obstructed by buildings, dense foliage, or other objects.
- **Module Not Detected / Not Functioning:**
  - Confirm that drivers are correctly installed for your operating system.
  - Try connecting to a different USB 2.0 port.
  - Avoid using USB 3.0 ports, especially on Raspberry Pi 4, due to potential interference.
  - If using an extension cable, ensure it is a USB 2.0 compatible cable and not excessively long (max 5 meters).
  - Check device manager (Windows) or lsusb / dmesg (Linux) to see if the device is recognized.
- **Incorrect Data Output:**
  - Verify the baud rate setting in your software matches the module's default (9600 bps) or configured rate.
  - Ensure your software is correctly parsing NMEA 0183 sentences.

8. Maintenance

The DIYmalls G72 G-Mouse module requires minimal maintenance. Keep the device clean and free from dust and moisture. Store it in a dry environment when not in use. Avoid exposing the module to extreme temperatures or direct sunlight for prolonged periods. Do not attempt to disassemble the module, as this may void any potential warranty and could damage the internal components.

9. Warranty and Support

Specific warranty information for the DIYmalls G72 G-Mouse Module is not provided in the product details. For support, technical assistance, or warranty inquiries, please refer to the official DIYmalls brand store or contact the seller directly.
DIYmalls Brand Store: Visit DIYmalls Store

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