

MakerFocus GT-U7

MakerFocus GT-U7 GPS Module Instruction Manual

Model: GT-U7

1. INTRODUCTION

This manual provides essential information for the proper setup, operation, and maintenance of your MakerFocus GT-U7 GPS Module. Please read this manual thoroughly before using the device to ensure optimal performance and longevity.

The GT-U7 GPS module is designed for satellite navigation and positioning applications. It features high sensitivity, low power consumption, and a compact form factor, making it suitable for various projects including drones, microcontrollers, and other embedded systems. It is software compatible with NEO-6M modules and utilizes the original UBLOX 7th generation chip.

For more detailed technical documentation and software guides, please refer to the product guides and documents available for download from the manufacturer's website.

2. PRODUCT OVERVIEW

The MakerFocus GT-U7 GPS Module is a versatile positioning solution. Its core features include:

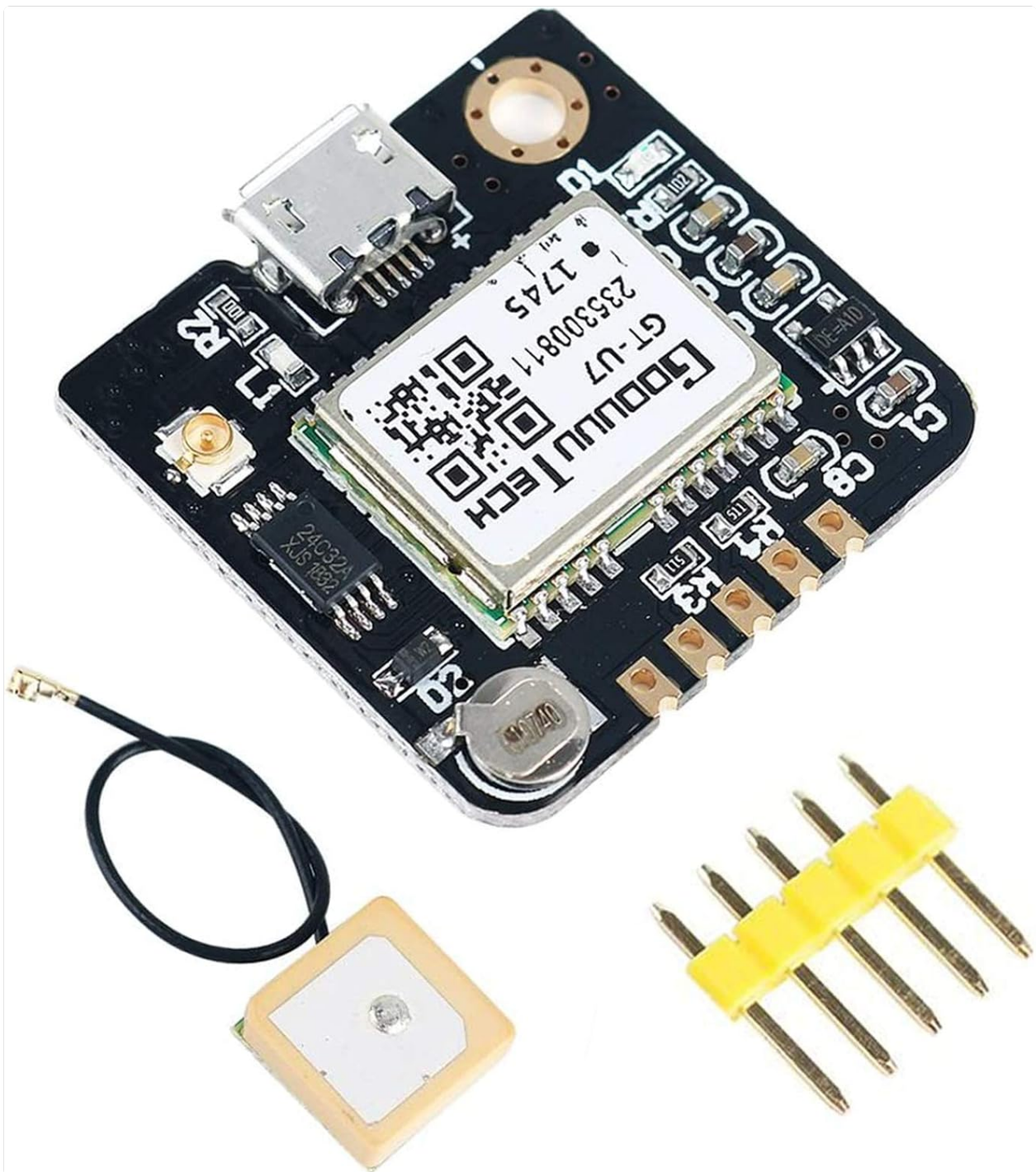


Image 2.1: A general view of the MakerFocus GT-U7 GPS Module.

- **UBLOX 7th Generation Chip:** Utilizes the original UBLOX 7th generation chip for reliable performance.
- **NEO-6M Software Compatibility:** Software is compatible with NEO-6M modules, simplifying integration.
- **High Sensitivity:** Offers excellent tracking sensitivity, expanding its positioning coverage.
- **Low Power Consumption:** Designed for energy-efficient operation.
- **Miniaturized Design:** Compact size for easy integration into various projects.
- **USB Interface:** Allows direct connection to a computer for viewing positioning data without an external serial module.
- **IPX Interface:** Includes an IPX interface for connecting an active antenna.

Based on UBLOX 7th Generation Chip

GT-U7 main module GPS module using the original UBLOX 7th generation chip, software is compatible with NEO-6M

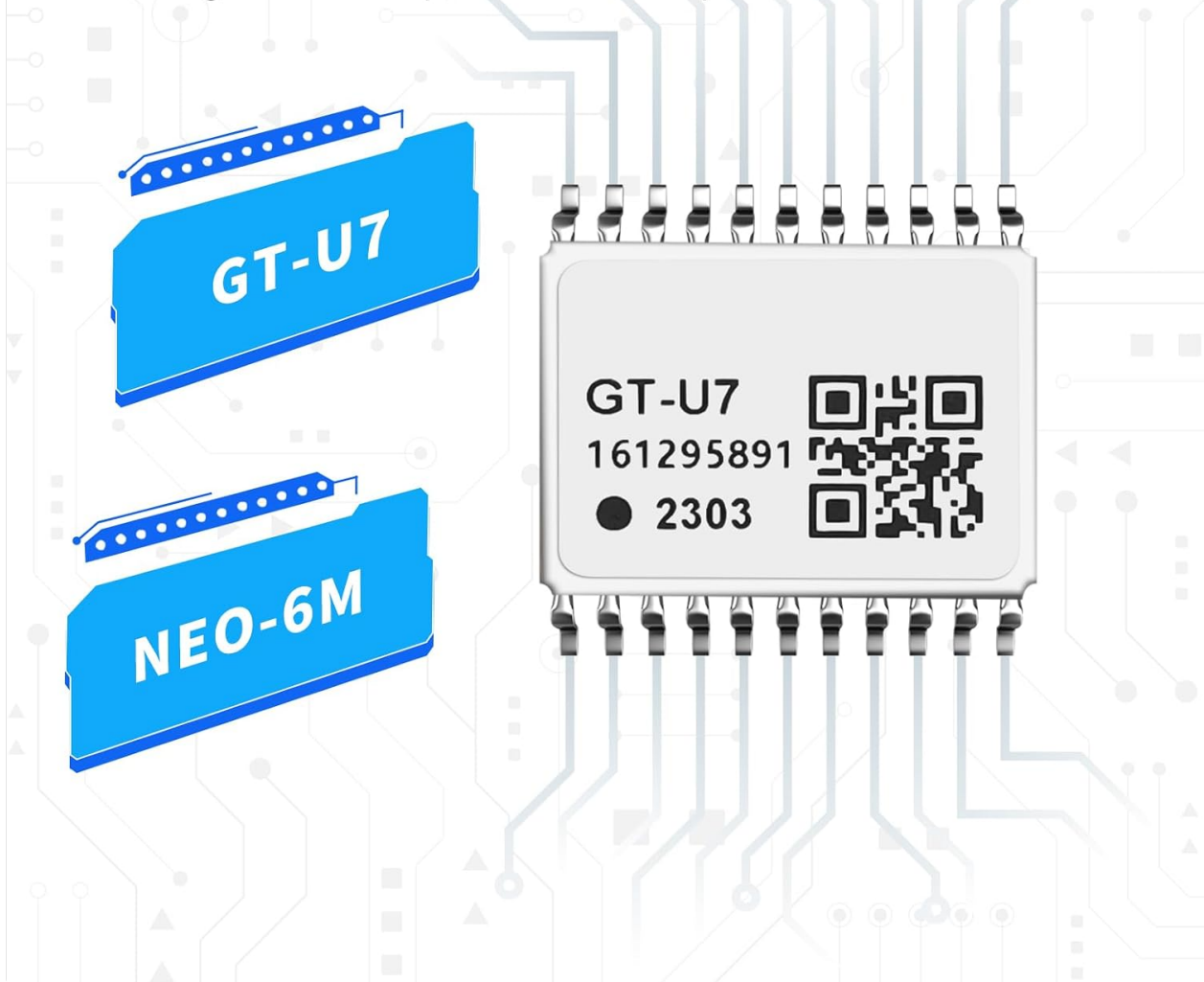


Image 2.2: Comparison of GT-U7 and NEO-6M chips, highlighting the UBLOX 7th generation chip used in the GT-U7 module. The GT-U7 chip is labeled with identifier 161295891.



Image 2.3: Examples of GT-U7 GPS module applications, including use with camcorders, mobile phones, PDAs, and in vehicle traffic systems.

3. SPECIFICATIONS

Feature	Description
Brand	MakerFocus
Model Name	GT-U7
Special Features	High Sensitivity, Low Power Consumption, Miniaturization
Connectivity Technology	USB
Map Type	Satellite
Included Components	1 * GT-U7 GPS Module
Product Dimensions (L x W x H)	1.09" x 3.94" x 0.39" (approx. 2.77cm x 10.01cm x 0.99cm)

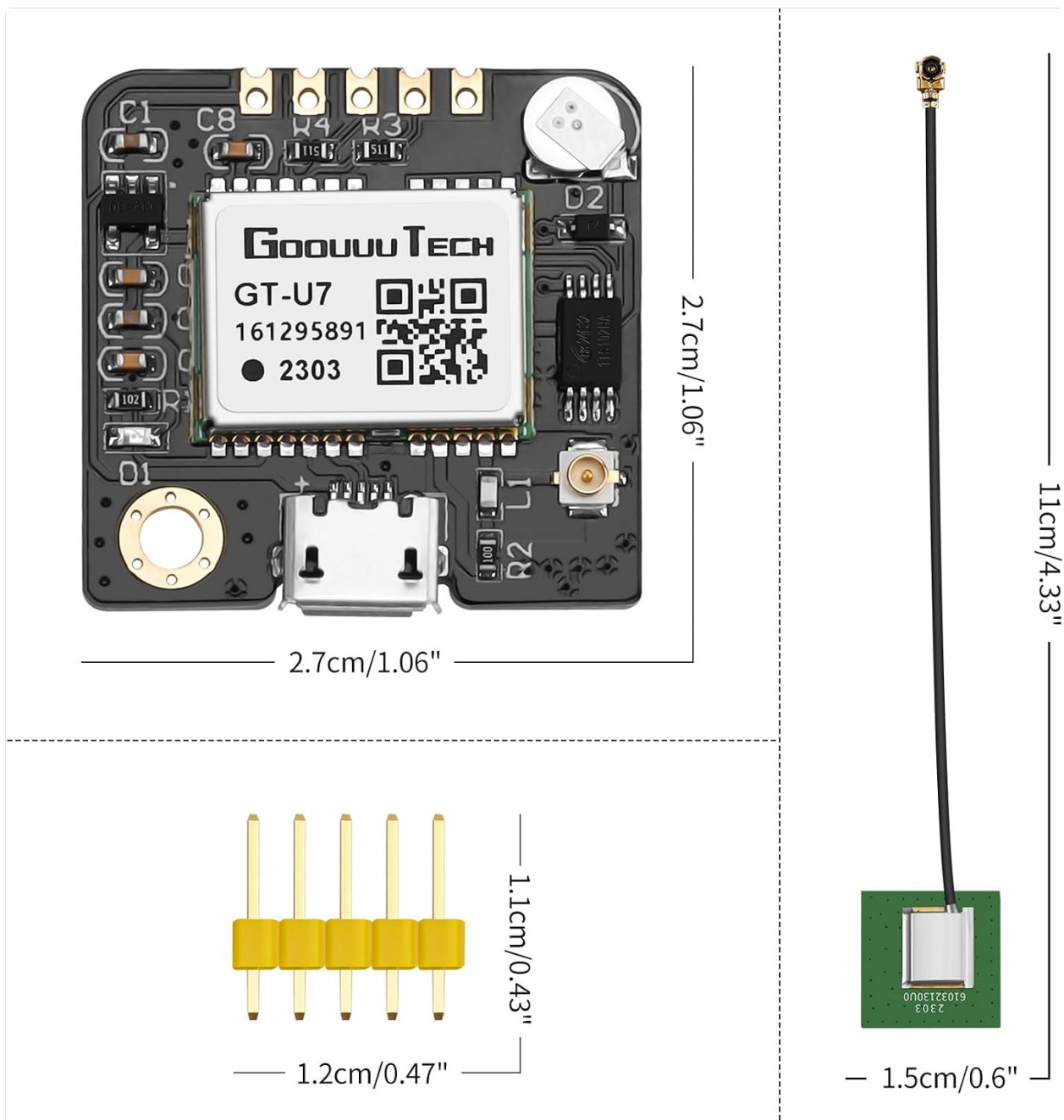


Image 3.1: Detailed dimensions of the GT-U7 GPS module and the included IPX interface active antenna.

4. SETUP

Before operating your GT-U7 GPS module, follow these setup instructions:

1. Power Connection (VCC, GND):

Connect the VCC pin to a power source providing 3.3V to 5V DC. Connect the GND pin to the common ground of your circuit. Ensure correct polarity to prevent damage.

2. Data Connections (RXD, TXD):

Connect the RXD (Receive Data) pin of the GT-U7 module to the TXD (Transmit Data) pin of your microcontroller or external device. Connect the TXD (Transmit Data) pin of the GT-U7 module to the RXD (Receive Data) pin of your microcontroller or external device.

3. PPS Pin (Optional):

The PPS (Pulse Per Second) pin provides a high-precision pulse signal for time synchronization. This pin is generally not required unless you are using the GPS module to drive a hardware high-precision clock or for specific timing applications.

4. **Antenna Connection:**

Connect the provided IPX interface active antenna to the IPX connector on the GT-U7 module. Ensure the connection is secure.

5. **USB Connection (Alternative):**

For direct connection to a computer, use a standard phone data cable (Micro USB) to connect the module to your computer's USB port. The module will function as a serial port device, allowing you to view positioning data directly.



VCC	Power input pin, provides working voltage, supporting 3.3V to 5V DC
GND	Ground pin serves as the common reference point for the circuit and is connected to the negative terminal of the power supply to complete the circuit
RXD	Serial data receive pin receives commands or configuration data from an external device
TXD	Serial data transmit pin allows the module to output GPS data to an external device (such as microcontroller)
PPS	Pulse per second output pin, providing high-precision pulse per second signal for real-time time synchronization applications

Image 4.1: Pinout diagram of the GT-U7 GPS module, detailing VCC (Power Input), GND (Ground), RXD (Serial Data Receive), TXD (Serial Data Transmit), and PPS (Pulse Per Second Output). The module is labeled with identifier 161295891.

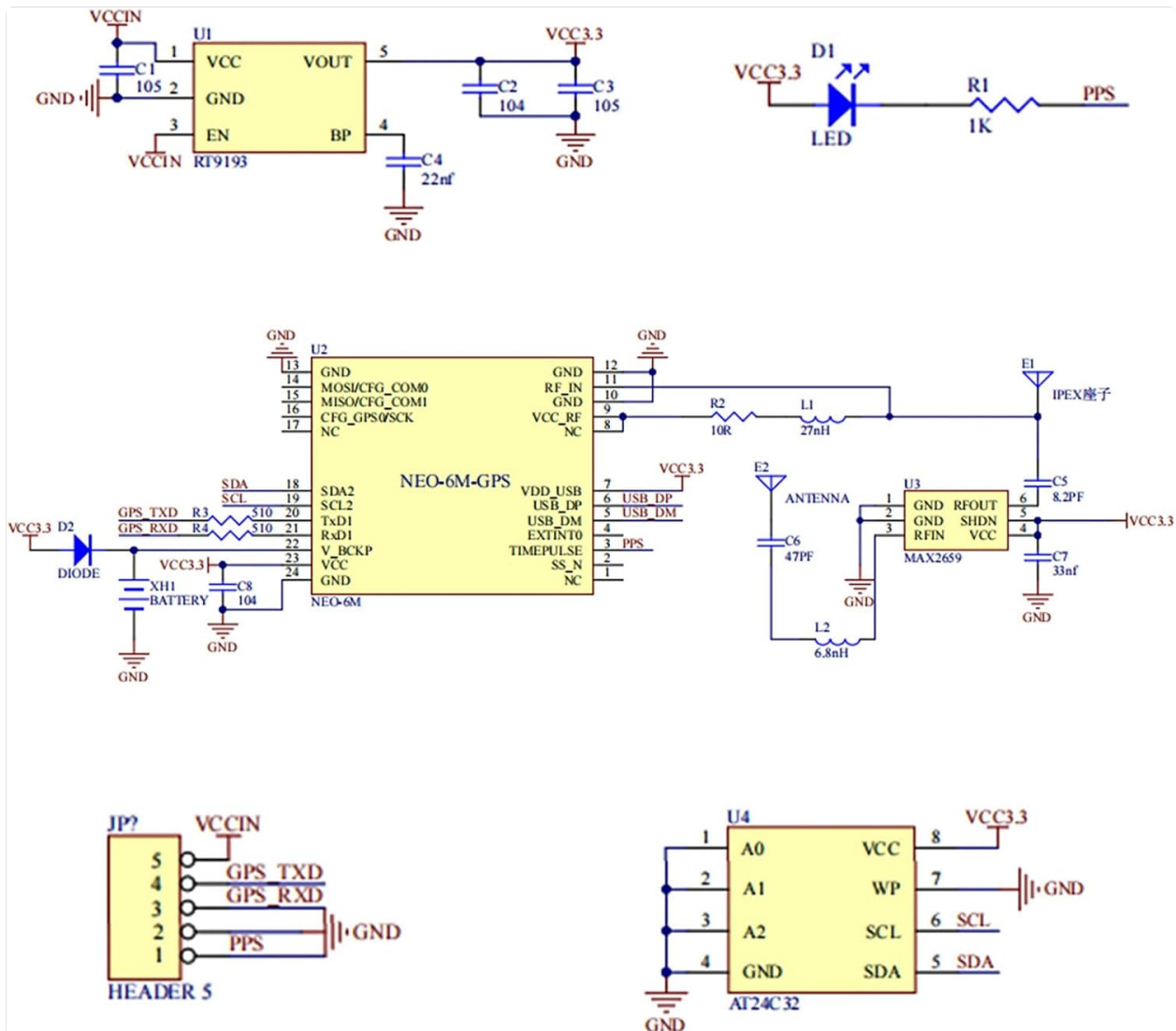


Image 4.2: Schematic diagrams illustrating the internal circuitry and typical connections for the GT-U7 GPS module, including power, LED indicator, and GPS/antenna interfaces.

5. OPERATING INSTRUCTIONS

1. Power On:

Once the module is correctly wired and powered, it will begin searching for satellite signals.

2. Satellite Acquisition:

Place the GT-U7 GPS module in an open outdoor area with a clear view of the sky. The LED indicator on the module will flash once a satellite signal is acquired and positioning data is being received.

3. Baud Rate Configuration:

Ensure your host device (microcontroller, computer) is configured to communicate with the GPS module at a baud rate of **9600**. The default baud rate for many GPS modules is 4800, but the GT-U7 requires 9600 for proper communication.

4. Data Monitoring (USB):

If connected via USB to a computer, use a serial terminal program or dedicated GPS software to monitor the NMEA data output from the module. This data includes latitude, longitude, altitude, speed, and other positioning information.



Image 5.1: The GT-U7 GPS module connected to a laptop via USB, demonstrating how positioning data can be viewed on mapping software. The inset shows the module's LED indicator, which flashes upon satellite signal acquisition.

6. MAINTENANCE

The MakerFocus GT-U7 GPS Module is designed for reliable operation with minimal maintenance. Follow these guidelines to ensure its longevity:

- **Environmental Conditions:** Avoid exposing the module to extreme temperatures, high humidity, or direct water contact.
- **Cleaning:** If necessary, gently clean the module with a dry, soft cloth. Do not use liquid cleaners or solvents.
- **Connections:** Periodically check all connections (power, data, antenna) to ensure they are secure and free from corrosion.
- **Storage:** When not in use, store the module in a dry, anti-static environment.

7. TROUBLESHOOTING

If you encounter issues with your GT-U7 GPS module, refer to the following troubleshooting tips:

Problem	Possible Cause	Solution
No satellite signal / LED not flashing	• Module is indoors or obstructed. • Bad weather conditions. • Antenna not connected or faulty. • Power supply issue.	• Move the module to an open outdoor area with a clear view of the sky. • Ensure the antenna is securely connected. • Verify power connections and voltage (3.3V-5V DC).
No data output via serial/USB	• Incorrect baud rate. • Incorrect wiring (RXD/TXD swapped). • Driver issues (for USB connection).	• Set the baud rate of your host device to 9600. • Double-check RXD and TXD connections. • Install necessary USB serial drivers for your operating system if using direct USB connection.
Inaccurate positioning	• Poor satellite signal reception. • Interference.	• Ensure the module is in an open area. • Minimize nearby electronic interference.

8. WARRANTY AND SUPPORT

For warranty information, technical support, or further assistance, please contact MakerFocus customer service through their official website or the platform where the product was purchased. Please have your product model (GT-U7) and purchase details ready when contacting support.