Beffkkip GT-U7

Beffkkip GT-U7 GPS Module Receiver Instruction Manual

Model: GT-U7
Brand: Beffkkip

1. Introduction

The Beffkkip GT-U7 GPS Module Receiver is a compact and high-performance satellite positioning module designed for various microcontroller applications, including Arduino, STM32, and 51 Microcontrollers. It integrates the UBLOX 7th generation chip, offering high sensitivity, low power consumption, and excellent tracking capabilities. This manual provides essential information for setting up, operating, and maintaining your GT-U7 module.

2. Features

- **UBLOX 7th Generation Chip:** Utilizes the original UBLOX 7th generation chip, with software compatible with NEO-6M.
- **USB Interface:** Features a micro USB port for direct connection to a computer, allowing for easy power supply and data communication without an external serial module.
- **IPEX Antenna Interface:** Includes an IPEX connector for the active antenna, ensuring quick and reliable satellite positioning.
- **High Sensitivity & Low Power:** Designed for high sensitivity and low power consumption, enhancing its performance in various environments.
- **Miniaturized Design:** Compact form factor suitable for integration into small projects and devices.
- **Broad Compatibility:** Compatible with 51 Microcontroller, STM32, and Arduino UNO R3 platforms.

3. Package Contents

Verify that all items are present in your package:

- 1x Beffkkip GT-U7 GPS Module Receiver
- 1x Active Antenna with IPEX Connector
- 1x Set of Pin Headers (typically 5-pin)

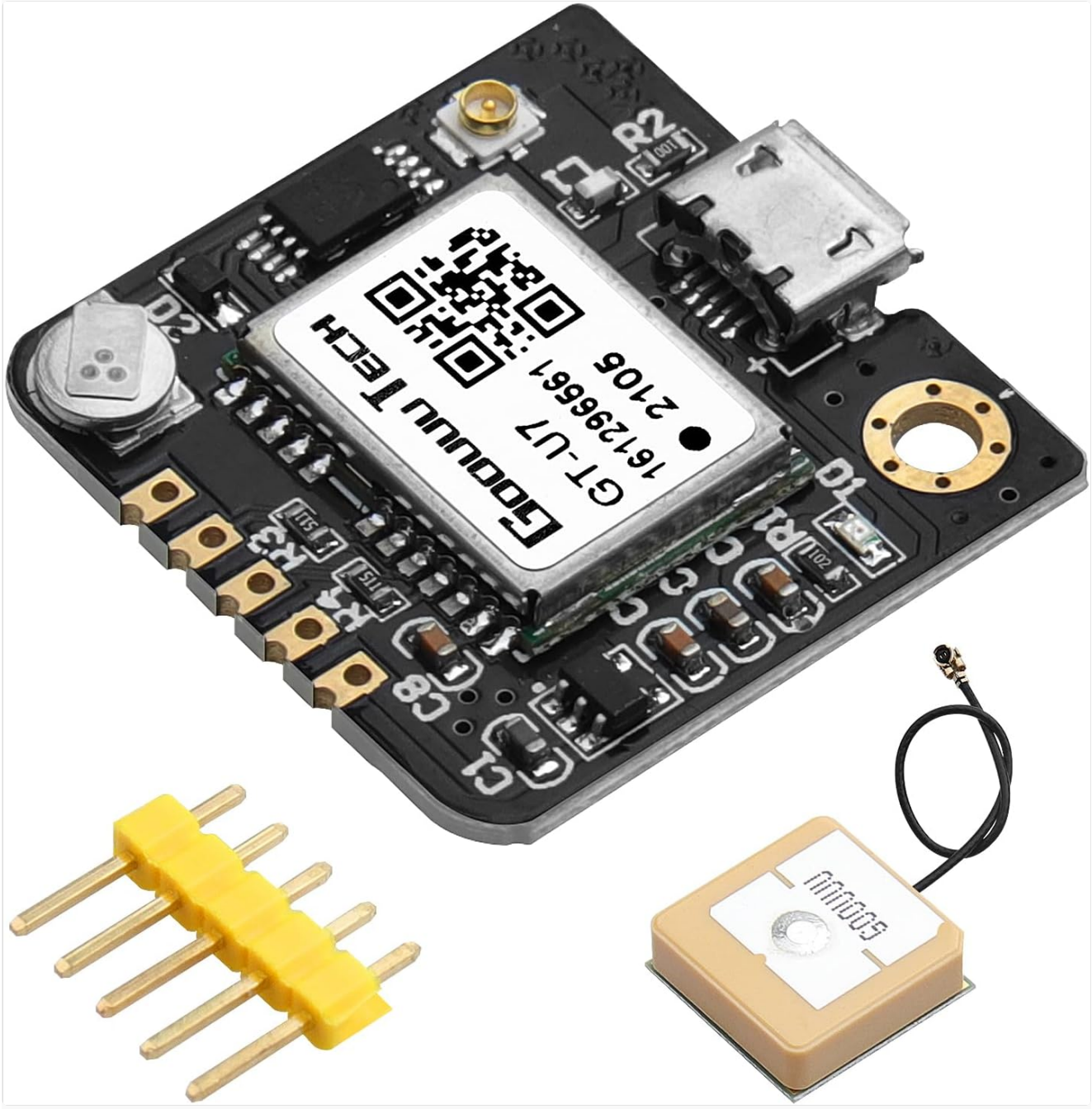

Image 3.1: GT-U7 GPS Module, active antenna, and pin headers.

4. Setup

4.1 Physical Connection

1. **Connect the Antenna:** Carefully connect the active antenna's IPEX connector to the corresponding port on the GT-U7 module. Ensure a secure connection.
2. **Connect Pin Headers (Optional):** If using the serial interface, attach the provided pin headers to the module's pinout. The pinout typically includes VCC, GND, TXD, RXD, and PPS.
3. **Power Supply:** The module can be powered via the micro USB port or through the VCC pin. It operates on 5V,

with an onboard 3.3V regulator.

4. **Data Connection:** For direct computer connection, use a micro USB cable. For microcontroller integration, connect the TXD and RXD pins to your microcontroller's serial interface.

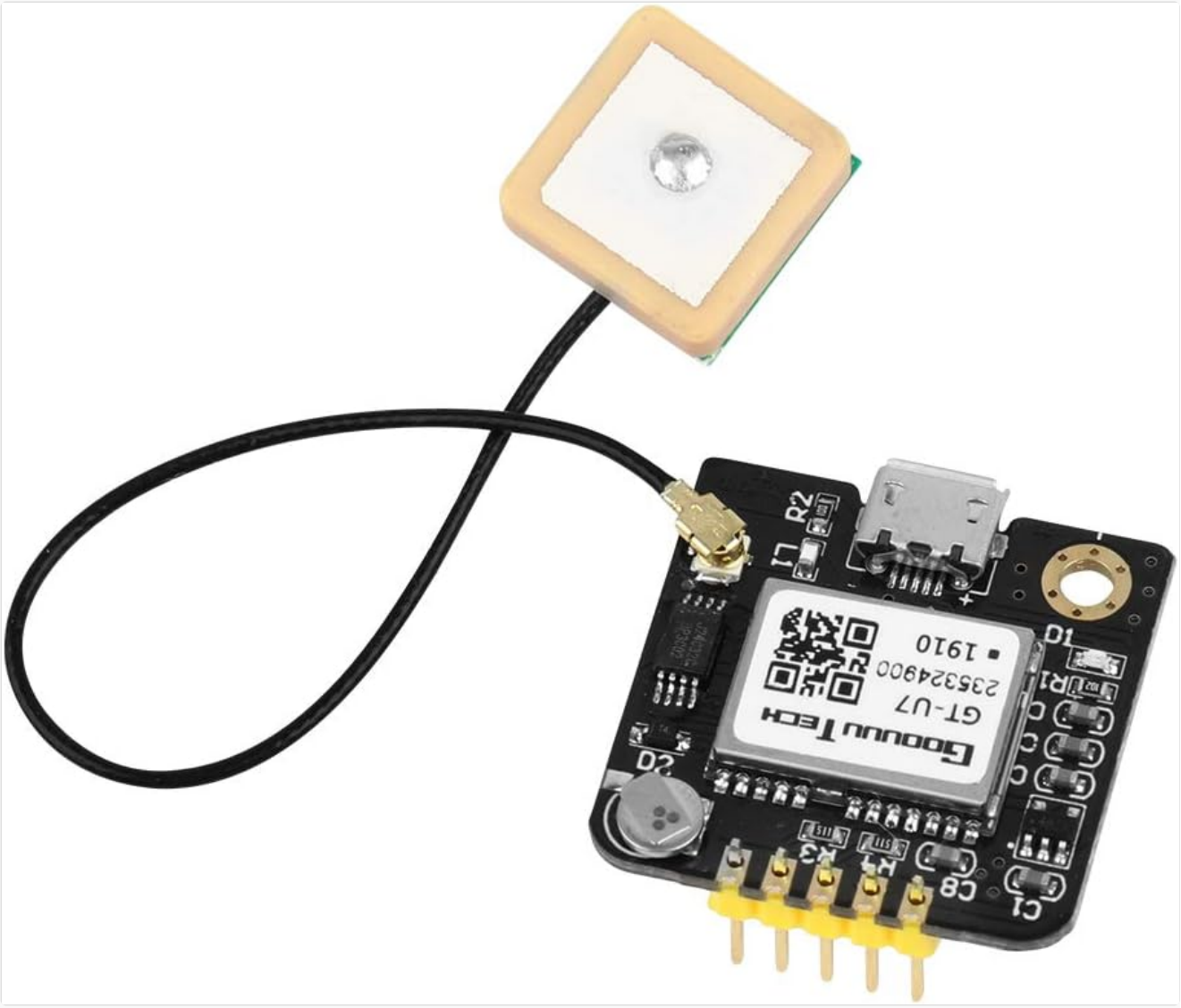

Image 4.1: GT-U7 module with the active antenna connected via IPEX connector.

Image 4.2: Pinout labels on the GT-U7 module: PPS, TXD, RXD, GND, VCC.

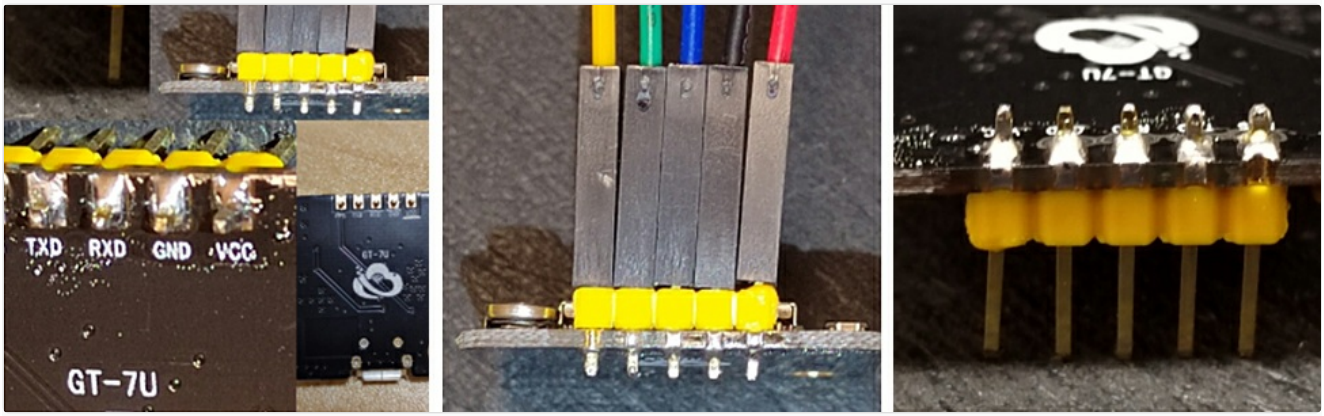

Image 4.3: Example of pin headers connected to the module for serial communication.

4.2 Software Setup

The GT-U7 module outputs NMEA sentences, which are standard for GPS data. For detailed software integration and examples:

- Refer to the product guides and documents available for download.
- For Windows, software like U-center (UBLOX's official software) can be used to configure and monitor the module.

- For Arduino, libraries such as TinyGPS++ can parse the NMEA data.
- For Linux, tools like GPSd and Chrony can interface with the module, including utilizing the PPS signal for high-accuracy timekeeping.

5. Operating Instructions

5.1 Initial Power-Up and Satellite Acquisition

Upon initial power-up, the module will begin searching for satellites. This process, known as 'cold start' or 'warm-up', can take several minutes (typically 2-15 minutes depending on environmental conditions and previous fix data). Ensure the antenna has a clear view of the sky for optimal performance.

- A blinking PPS (Pulse Per Second) LED on the module indicates a successful satellite fix and accurate time synchronization.
- When connected to a computer via USB, you can use compatible software to view the positioning effect and received data.

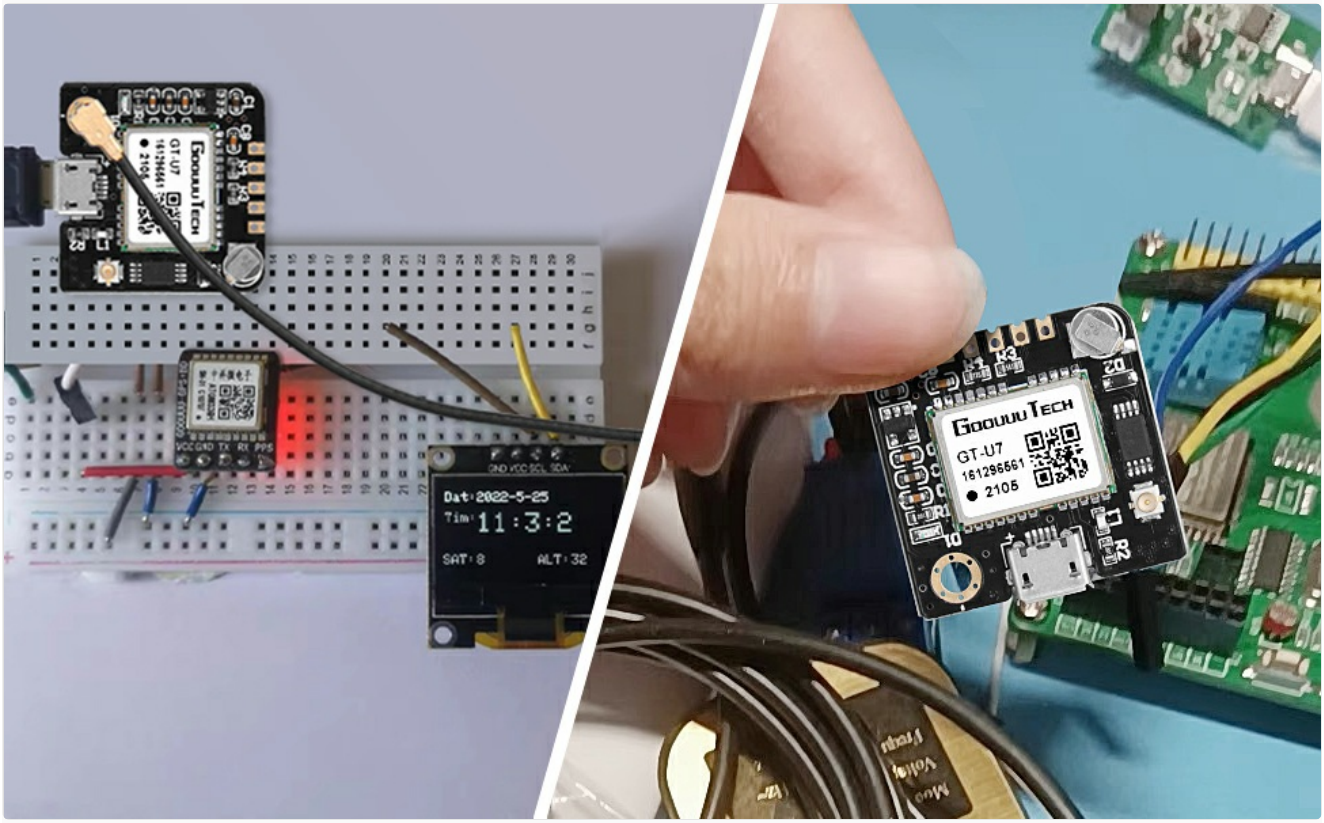

Image 5.1: GT-U7 module demonstrating data output on a display after acquiring a satellite fix.

5.2 Data Output

The module outputs standard NMEA 0183 sentences via its serial (TXD) pin. These sentences contain various GPS data such as latitude, longitude, altitude, speed, time, and satellite information. Consult the UBLOX documentation for detailed NMEA sentence formats.

6. Specifications

Feature	Specification
Model	GT-U7
Chipset	UBLOX 7th Generation (Software compatible with NEO-6M)
Dimensions (Module)	27.6mm x 26.6mm x 1 inch (approx. 1.06 x 1.06 x 1 inches)
Item Weight	0.563 ounces
Connectivity	USB (Micro-B), Serial (TTL)
Antenna Interface	IPEX (for active antenna)
Power Supply	5V (with onboard 3.3V regulator)
Special Feature	High sensitivity

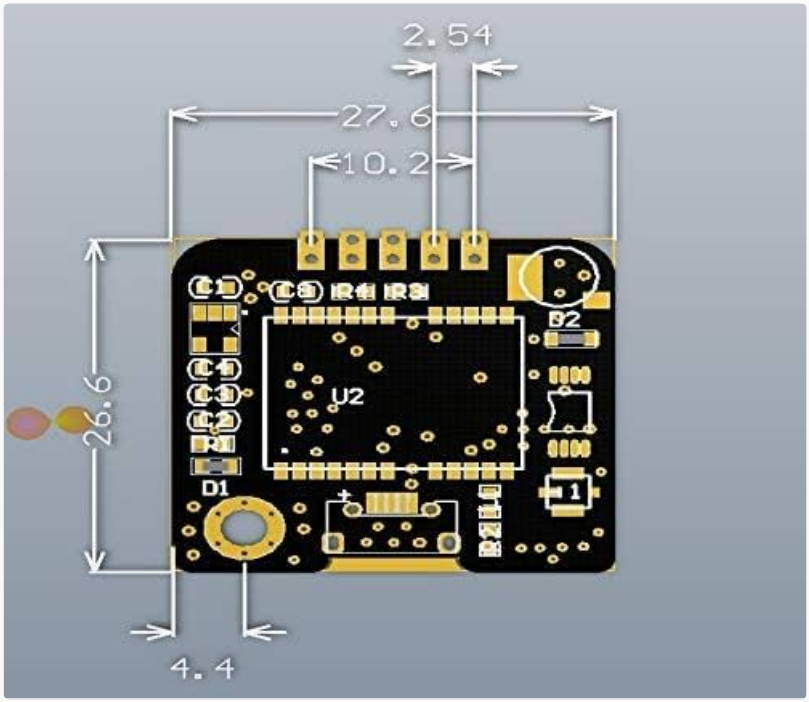

Image 6.1: Detailed dimensions of the GT-U7 GPS module.

7. Maintenance

To ensure the longevity and optimal performance of your GT-U7 GPS module:

- **Environmental Conditions:** Keep the module in a dry environment and avoid exposure to extreme temperatures, humidity, or corrosive substances.
- **Antenna Connection:** Periodically check that the IPEX antenna connection is secure. A loose connection can degrade GPS signal reception.
- **Cleaning:** If necessary, gently clean the module with a soft, dry cloth. Avoid using liquids or harsh chemicals.

8. Troubleshooting

- **No Satellite Fix / Slow Acquisition:**
  - Ensure the antenna has a clear, unobstructed view of the sky. Indoor use near windows is often sufficient, but

open-air is best for initial fixes.
    - Verify the antenna is securely connected to the IPEX port.
    - Allow sufficient time for a cold start (up to 15 minutes).
- **No Data Output:**
    - Check power supply to the module (VCC and GND).
    - Verify serial connections (TXD, RXD) are correct and baud rates match between the module and your microcontroller/computer.
    - Ensure your software is correctly configured to read NMEA data.
- **Inaccurate Positioning:**
    - Relocate the antenna to an area with better sky visibility, away from tall buildings or dense foliage.
    - Ensure there are no strong electromagnetic interference sources nearby.

9. Warranty and Support

While specific warranty details are not provided, Beffkkip is committed to customer satisfaction. If you encounter any issues during the use of this product or require further documentation, please contact customer support directly for assistance. We aim to respond to your inquiries within 24 hours and provide professional service.