



Key Features

- LoRa 850~931MHz, or 410-490MHz to choose
- 1-RS232(Debug), 1-RS485, 4-DI, 2-Relay*, 1-Pulse Input*, 3-Analog Input*, 1-Power Output*¹
- Low power, long-range up to 10Km(open air)²
- Anti-interference, high receiving sensitivity
- AES Encryption and Decryption over the air communication
- Point-to-point, fixed-point transparent transmission mode
- Easy to configure, plug and play
- Wide operating temperature: -35~+75 ° C
- Power Input: 5-35VDC

Introduction

Bivocom Outdoor TG501 LoRa RTU is a robust and versatile remote terminal unit designed for various outdoor applications. Engineered to withstand extreme environments, this device features a comprehensive suite of connectivity options, including 1 RS232 (Debug), 1 RS485, 4 digital inputs, 2 relays(option), 1 pulse input(option), and 3 analog inputs(option). With low power consumption and a remarkable long-range capability of up to 10 km in open air, it ensures reliable communication even in challenging conditions.

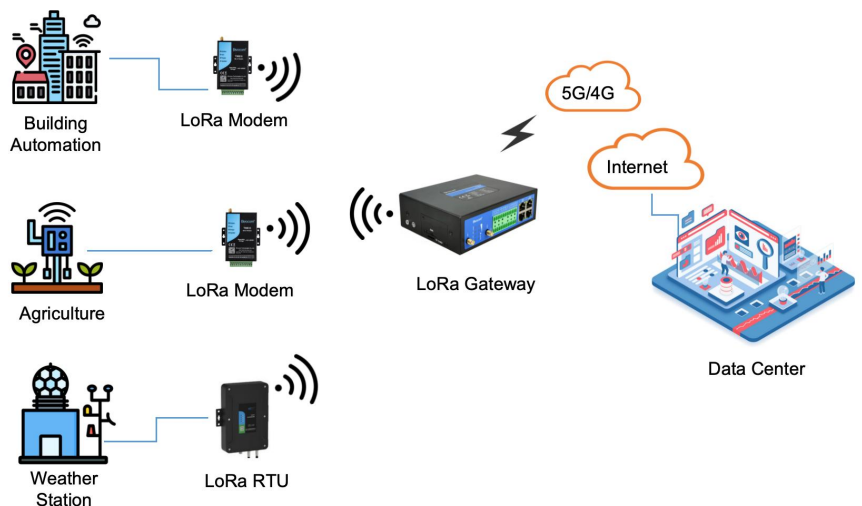
Built with anti-interference technology and high receiving sensitivity, the Bivocom TG501 LoRa RTU guarantees secure and stable data transmission. Its AES encryption and decryption capabilities ensure that your data remains protected over the air. The device supports point-to-point and fixed-point transparent transmission modes, making it easy to integrate into existing systems.

User-friendly in design, this RTU is easy to configure and operates in a plug-and-play manner, allowing for quick deployment. With an impressive operating temperature range of -35 to +75 ° C and power input flexibility of 5-35V DC, the Bivocom Outdoor IP67 TG501 LoRa RTU is the ideal solution for all your remote monitoring and control needs.

Applications

The LoRa technology is widely used in various IoT applications due to its long-range capabilities, low power consumption, and ability to handle a large number of devices.

- Smart Agriculture
- Smart Cities
- Asset Tracking
- Environmental Monitoring
- Smart Metering
- Connected Healthcare
- Flood and Weather Monitoring
- Industrial Automation



Specifications

System

- **CPU** Industrial 32-bit MCU
- **Flash** 512KB
- **SRAM** 256KB
- **Data Storage Flash** 16MB

LoRa Interface

- **Frequency** 850~931MHz, or 410-490MHz(Option)²
- **Distance** Building: Up to 3KM
Open air: Up to 10KM
Up to -129dBm
- **Sensitivity** Up to -129dBm
- **TX Power** 21-30dBm
- **Encryption** AES
- **Air Data Rate** 1.2~62.5kbps (default: 4.8kbps)
- **Single-packet Data Size** Up to 230 Bytes
- **Channel** 82 Channels
- **Antenna Connector** 1 × 50 Ω SMA Female

Serial Interfaces

- **Ports** 1-RS232(Debug), 1-RS485
- **Baud Rate** 1200bps to 115200bps
- **ESD protection** 8KV for RS232, 15KV for RS485

I/O

- **Analog Input (Option)** 3x ADC
12-bit AD, 4-20mA, or 0-5V (Option)
- **Digital Input** 4x DI, Wet Contact
Status "0": 0-3VDC, Status "1": 5-30VDC
- **Relay Output (Option)** 2 x Relay
Max switching voltage: 30VDC/250VAC
Max switching current: 5A (Pure resistive load)
- **Pulse Input(Option)** 2, Optical Isolation
- **Power Output (Option)** 1, Default is 12V. rated output current is 1A, built in overcurrent protection

Power Supply and Consumption

- **Standard Power** DC 12V/1.5A
- **Input Voltage** 5-35 VDC
- **Idle Mode** 20~45mA@12VDC
- **Communication** RX: 23mA@12VDC
TX: 350mA@12VDC

Physical Characteristics

- **Ingress Protection** IP67
- **Housing & Weight** Die-Cast Aluminum, 810.50g (1.79lbs), without accessories
187 x 158 x 35mm (7.36 x 6.22 x 1.38 in)
- **Dimensions** 187 x 158 x 35mm (7.36 x 6.22 x 1.38 in)
- **Mounting** Wall mount

Environmental

- **Operating Temperature** -35° C to +75° C (-31°F to +167°F)
- **Storage Temperature** -40° C to +80° C (-40°F to +176°F)
- **Relative Humidity** 5% to 95% (non-condensing)

Others

- **LED Indicators** System, Online, Power, Error
- **Built-in** Watchdog, RTC, Timer
- **Approvals³** CE*, RCM*, FCC*, NBTC*
- **Warranty Period⁴** Standard: 12 Months
Extended: 2-5 Years

Standard Package Content

- | | | |
|----|------------------------------------------------------|-------|
| 1. | TG501-LR RTU | 1 PCS |
| 2. | Power Adapter(DC 12V/1.5A, EU/US/UK/AU plug, Option) | 1 PCS |
| 3. | LoRa Antenna | 1 PCS |
| 4. | RS232 Cable (DB9 Female, 1 meter) | 1 PCS |
| 5. | 7-in-1 Cable | 2 PCS |

Order Information

Model	Part Number	Description	Frequency Band ⁵
TG501-LR	TG501-LR<1>-<2>	LoRa RTU, 1-RS232(Debug), 1-RS485, 4-DI	850~931MHz, or 410-490MHz to choose
<1>: LoRa module for different countries and regions <2>: Housing, or customized interfaces			

Note:

- * are optional features
- The distance is just theoretical value, it may vary due to factors like environmental conditions
- * Under progress
- Price of the extended warranty will be different.
- If you couldn't find the frequency band for your regions or have any questions, please contact Bivocom sales representatives for more information.
- To save the earth, Bivocom doesn't print the user guide, if you need it, please go to Bivocom website to [download](#).
- Icons are from Flaticon

Dimension(mm)

