



TG501 LoRa Series
Outdoor IP67 LoRa RTU

Introduction

The Bivocom Outdoor TG501 LoRa RTU is a robust, versatile remote terminal unit designed for outdoor applications. Engineered to withstand extreme environments, it offers comprehensive connectivity, including 2-RS232 (1 Debug), 1-RS485, 2-digital inputs, 2-relays (Optional), 1-pulse input (Optional), and 3-analog inputs (Optional). With low power consumption and 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 enables secure and stable data transmission. It supports AES encryption and decryption to protect data over the air, and supports point-to-point and fixed-point transparent transmission modes for easy integration into existing systems.

Designed for ease of use, this RTU is simple to configure and supports plug-and-play operation for quick deployment. With an operating temperature range of -35 to +75 ° C and flexible power input of 5-35V DC, the Bivocom Outdoor IP67 TG501 LoRa RTU is an ideal solution for remote monitoring and control applications.

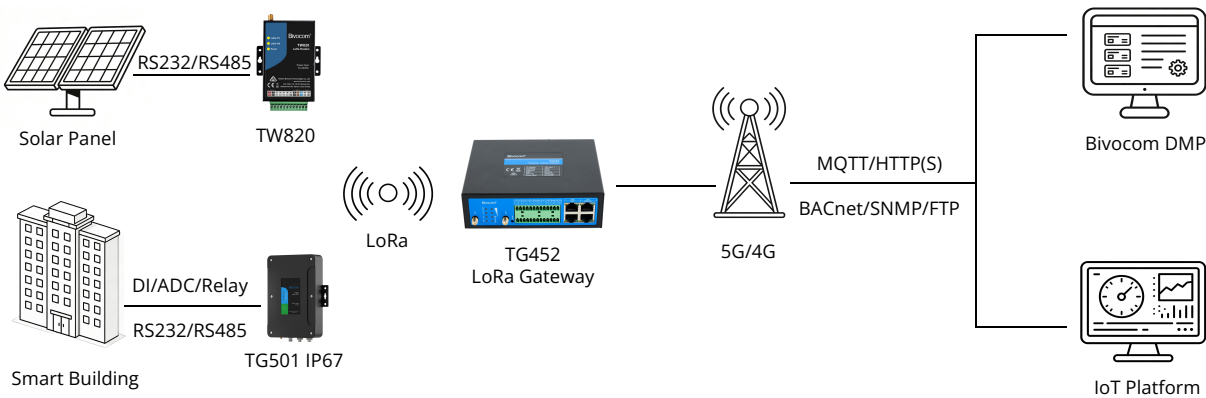
Key Features

- LoRa 850-931MHz, or 410-490MHz (Optional)
- 2-RS232 (1-Debug), 1-RS485, 2-DI, 1-DC Power Output, 2-Relay Output*, 2-Pulse Input*, 3-Analog Input*, 1-DC Power Output
- Low power, long-range up 10Km (open air)*
- 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

Applications

- HVAC
- Solar Panel
- Smart Agriculture
- Smart Cities
- Water & Waste Water
- Oil & Gas
- Power
- Weather Station

Diagram



Specifications

Systems

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

LoRa

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

Serial

Ports	2 x RS232 (1 Debug), 1 x RS485
Baud Rate	300bps to 115200bps

I/O

Digital Input	2-DI (Isolation, Dry Contact), Optional Wet Contact (Status "0": 0-3V, Status "1": 5-30V)
Relay Output (Optional)	2-Relay (Up to 5A, 30VDC/250VAC switch)
Analog Input (Optional)	3 x 12-bit (4-20mA, or 0-5V Optional)
Pulse Input (Optional)	2, Optical Isolation
Power Output	1 x 12VDC/1A, for powering field sensors & devices

Power

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

Physical Characteristics

Ingress Protection	IP30 or IP67 (Optional)
Housing & Weight	IP30: Metal, 320g (0.71lbs), no accessories IP67: Die-Cast Aluminum, 810.50g (1.79lbs)
Dimensions	IP30: 100x100x23mm (3.94 x 3.94 x 0.91 in) IP67: 187x158x35mm (7.36 x 6.22 x 1.38 in)
Mounting	Wall mount, or Optional DIN-Rail (IP30 only)

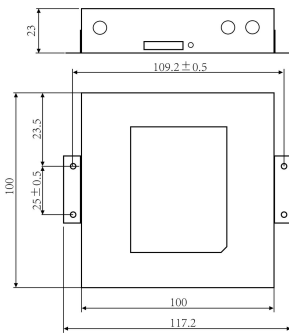
Environmental

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

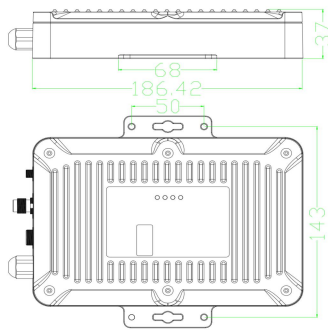
Others

LED Indicators	System, Online, Power, Error
Built-in	Watchdog, RTC, Timer
Approvals	CE*, RCM*, FCC*, NBTC*
Warranty Period	Standard: 2-Year limited warranty Extended: 3-5 Years

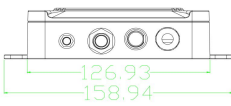
Dimensions



TG501 IP30



TG501 IP67 (Optional)



Ordering Information

Model	Part Number	LoRa	Housing & IP Rating	Package Contents
TG501-LR	TG501-LR<1>	850~931MHz, 410-490MHz (Optional)	Metal, IP30	1. TG501 x 1 2. LoRa Antenna x 1 3. RS232 Cable x 1 4. 12-Pin Terminal Block x 1 5. 10-Pin Terminal Block x 1 6. DIN-Rail Mount Kit x 1 7. Power Adapter x 1 (Optional EU/UK/AU/US/CN Type)
TG501-LR-IP67	TG501-LR<1>-<2>		Die-Cast Aluminum, IP67	1. TG501 x 1 2. LoRa Antenna x 1 3. RS232 Cable x 1 4. 7-in-1 Cable 5. Power Adapter x 1 (Optional EU/UK/AU/US/CN Type)

Part Number:
<1>: LoRa module for different countries and regions
<2>: Housing, or customized interfaces

Note:

- 1. Region-specific LoRa modules are available; consult Bivocom sales for details.
- 2. The distance is just theoretical value, it may vary due to factors like environmental conditions
- 3. Bivocom DMP (Device Management Platform) requires a license fee.
- 4. *Optional functions rely on matching hardware/firmware versions; not all features supported on one device.
- 5. Power consumption is measured under laboratory conditions and is for reference only.
- 6. *Listed certifications are pending.
- 7. Extended warranty pricing varies.
- 8. Digital user manuals are free to download from [Bivocom](#) official website for environmental protection.

About Bivocom

Founded in 2014, Bivocom specializes in industrial IoT communication technology. Our comprehensive product portfolio covers IoT sensors, cellular gateways, industrial routers, RTUs, modems, as well as self-developed IoT cloud management platforms. We deliver ruggedized industrial wireless hardware, full-lifecycle OEM/ODM customization services and end-to-end IoT connectivity one-stop solutions to industrial partners worldwide.

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