

### Product Overview



TG501 Series RTU is a type of industrial cellular Remote Terminal Unit which adopts high-powered industrial 32-bits CPU, with multi-layer software detection and hardware protection mechanism to ensure reliability and stability of the device, to realize real time data acquisition, storage, control, alarm and transmission, as well as security of data transmission.

TG501 supports worldwide carrier 4G FDD-LTE, TDD-LTE, and 3G/HSPA/UMTS/WCDMA, EVDO, TD-SCDMA, EDGE, CDMA 1X and GPRS, as well as LTE CAT M1/NB-IoT. It has rich interfaces, digital input, digital output, analog input, relay, RS232, RS485, allows you to connect it to different types of sensors and equipments.

TG501 has been widely used for remote monitoring and control applications, such as, water & waste water management, pump station, gas & oil, smart energy, smart grid, smart building, precision agriculture, etc.

### Key Features

**1. Rich interfaces with industrial terminal block**

2x RS232, 1x RS485, 3x analog input, 2x digital input, 2x relay output, 1x power input(5-35V), 1x power output(12V), pulse input and TTL are customizable.

**2. Compatible with multi sensors and controllers**

Flowmeter, pressure, water quality, water level, temperature, humidity and PLC, etc.

**3. Rich cellular networks to choose**

Compatible with global 4G/3G/2G and LTE CAT M1/NB-IoT.

**4. Multi protocols and data centers**

Modbus TCP/RTU, MQTT\*, etc. Built in standard TCP/IP stack, up to 5 data centers for synchronous and transparent data transmission.

**5. Local data storage**

Supports up to 16MB local data storage, to ensure seamless data transmission.

**6. Easy to configure and use**

A visible config and debug tool, convenient for configuration and troubleshooting.

**7. Low power consumption design**

Supports types of work modes, sleep mode, timing collecting and sending data to center, auto report, etc.

**8. Remote management**

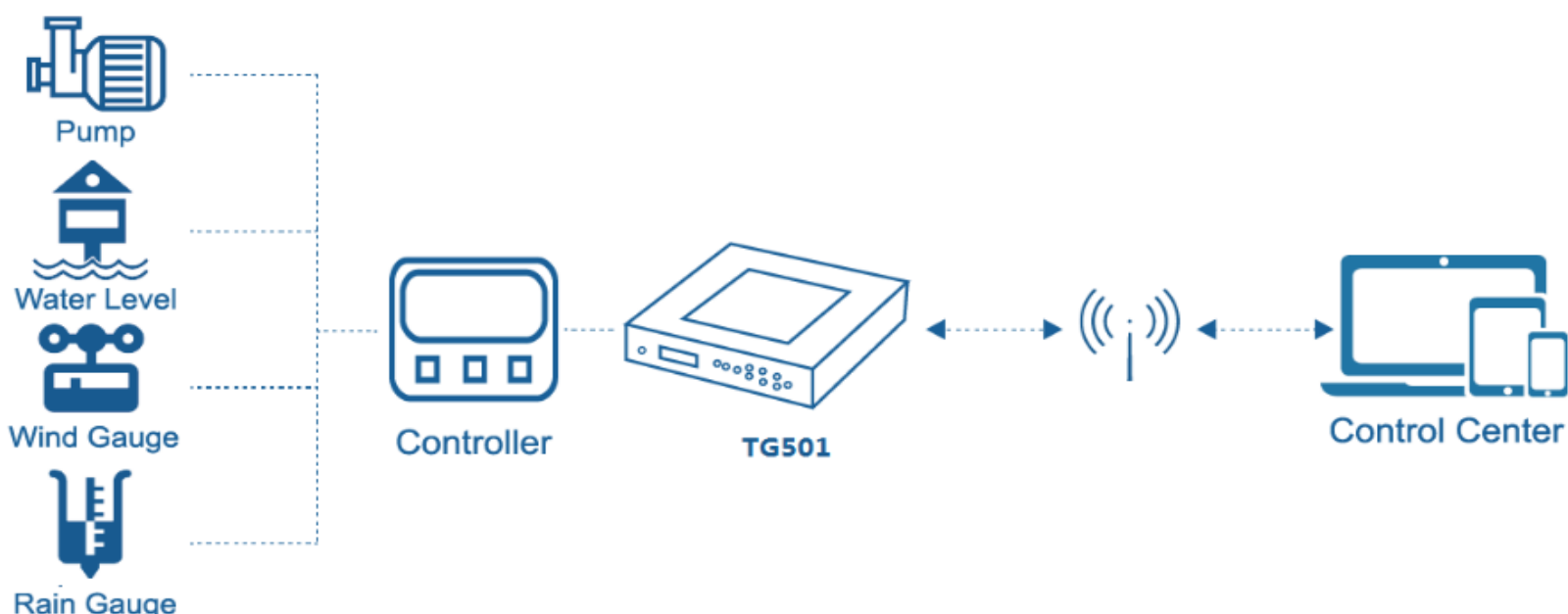
Remote configuration through data center and SMS.

**9. Robust and reliable**

High standard Industrial grade design, anti-electromagnetic interference, suitable for unattended and harsh industrial applications.

Complete system protection and keep online mechanism, to ensure always online

### Application Diagram



## Specifications

### System

<b>CPU</b>	Industrial 32-bit CPU
<b>Flash</b>	512KB
<b>SRAM</b>	256KB
<b>Data Storage Flash</b>	16MB

### Cellular Interface

<b>Antenna Connector</b>	1 × 50 Ω SMA Female, or 2(Option)
<b>SIM Slot</b>	1
<b>ESD Protection</b>	15KV

### Serial Interface

<b>Connector</b>	Terminal block, 3.5 mm female socket with lock
<b>Ports</b>	2 × RS232(1 for debug) + 1 × RS485
<b>Baud Rate</b>	300bps to 230400bps
<b>ESD protection</b>	8KV for RS232, 15KV for RS485

### Analog Input

<b>Number of Ports</b>	3 x 16-bit AD, supports 4-20mA current signal input, and 0-5V voltage signal input is optional
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### Digital Input

<b>Number of Ports</b>	2
	Logic 0: Wet contact 0-3VDC, or dry contact close
	Logic 1: Wet contact DC 5-30V, or dry contact open

### Relay

<b>Number of Ports</b>	2
	Max switching voltage: 30VDC/250VAC Max switching current: 5A

### Power Output

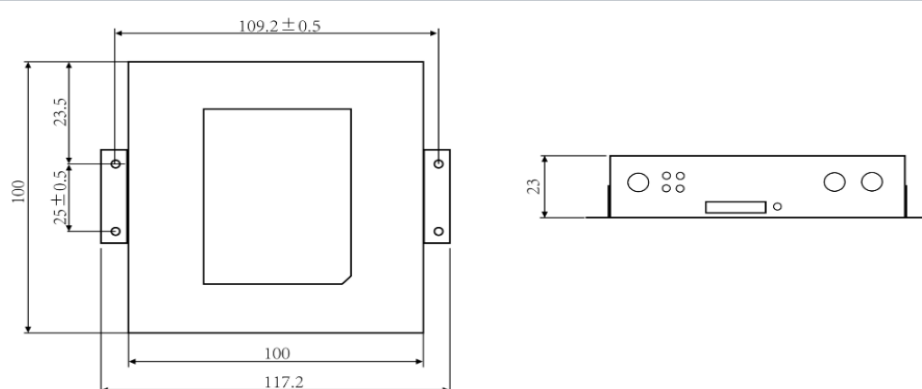
<b>Number of Ports</b>	1
	Default is 12V. rated output current is 1A, built in overcurrent protection

### Software

<b>Network Protocols</b>	MQTT*, Transparent (TCP Client/Server, UDP Client/Server), Modbus Gateway (Modbus RTU to Modbus TCP), DNS, etc.
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<b>Management</b>	Config Tool, Cloud DMP (Device Management Platform) <sup>1</sup>
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### Dimensions(mm)



### Power Supply and Consumption

<b>Connector</b>	Terminal block
<b>Standard Power</b>	DC 12V/1.5A
<b>Input Voltage</b>	5-35 VDC
<b>Data Acquisition</b>	40mA ~ 45mA@12VDC
<b>Communication</b>	40mA ~ 60mA@12VDC
<b>Idle Consumption</b>	< 1mA@12VDC

### Physical Characteristics

<b>Ingress Protection</b>	IP30
<b>Housing &amp; Weight</b>	Metal, 320g (0.71lbs)
<b>Dimensions</b>	100 x 100 x 23mm (3.94 x 3.94 x 0.91 in)
<b>Mounting</b>	Desktop, Wall mount, DIN Rail (option)

### Environmental

<b>Operating Temperature</b>	-35°C to +75°C (-31°F to +167°F)
<b>Storage Temperature</b>	-40°C to +80°C (-40°F to +176°F)
<b>Relative Humidity</b>	0% to 93% (non-condensing) at 25°C/77°F
<b>Ethernet Isolation</b>	1.5 kV RMS

### Others

<b>LED Indicators</b>	System, Online, Power, Error
<b>Built-in</b>	Watchdog, RTC, Timer
<b>Approvals<sup>2</sup></b>	CE*, RCM*, FCC*

<b>Warranty Period<sup>3</sup></b>	Standard: 12 Months Extended: 2-5 Years <sup>3</sup>
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### Standard Package Content

TG501 RTU  
Power Adapter(DC 12V/1.5A, EU/US/UK/AU plug optional)  
Mag-mount Cellular Antenna (SMA Male, 1 meter, 5dBi)  
RS232 Cable (DB9 Female, 1 meter)  
10-Pin Terminal Block, 1X 12-Pin Terminal Block,  
Wall mount kit  
Quick Start Guide(Printed)

### Order Information

Model	Frequency Band <sup>4</sup>
<b>TG501-LF</b>	LTE CAT 4 EMEA: B1/B3/B5/B7/B8/B20/B38/B40/B41 ANZ/LATAM: B1/B3/B5/B7/B8/B28 NA: B2/B4/B5/B12/B13/B14
<b>TG501-W</b>	HSPA/UMTS/WCDMA 900/2100MHz, or 850/1900/2100MHz Global: 800/850/900/1900/2100
<b>TG501-M</b>	LTE-M/NB-IoT/EDGE/GPRS AU/EU: B3/B8/B20/B28 GPRS/EDGE 900/1800Mhz CHINA/ASIA: B1/B3/B5/B8 GPRS/EDGE 900/1800 MHz NA: B2/B4/B12/B13 Global: B1/B2/B3/B4/B5/B8/B12/B13/B17/B18/B19/B20/ (B39 CAT-M1 only); GPRS/EDGE 850/900/1800/1900Mhz

#### Note:

1. There is license fee for DMP.
2. \* Under development, or option features
3. Price of extended warranty will be different.
4. If you couldn't find the frequency band for your regions or have any questions, please contact Bivocom sales representatives for more information.