

LCD RTU with Rich I/O



TY511 is an industrial remote telemetry unit(RTU) designed for industrial applications, such as water, wastewater treatment, water quality, weather station, air quality, flood disaster alarm, water pump.

TY511 is a perfect RTU that integrates features of PLC, I/O module and 4G/3G modem into one system. By using the powerful config tool software provided by Bivocom, engineer can easily configure the RTU and collect the data from different sensors and controllers without doing any programming.

TY511 RTU supports multiple I/O, such as DI, ADC, RS232/RS485, Relay, Pulse and multiple industrial protocols like MQTT, Modbus RTU/TCP, TCP/UDP, which is ideal for merging legacy and modern sensors and controllers into one system, saving time and cost on hardware investment and maintenance.

Key Features

1. Multiple I/O

2-RS232, 2-RS485, 8-DI, 8-DO(Relay), 8-ADC, 2-Pulse, 3-Power output, USB, etc.

2. Remote/Local Data Storage

Up to 5 data centers for sync data storage and backup
Up to 16MB flash and additional 16GB local data storage(via Micro SD card)

3. Easy to Configure

Support multiple ways of configuration, through config tool software, keyboard of RTU and remote configuration

4. Remote Management

Support remote management via SMS, commands, Bivocom central management software and DMP¹

5. Multiple Data Transmission Mode

Support Modbus RTU/TCP, Modbus to json, MQTT and customized industrial protocols conversion and TCP/UDP transparent data transmission mode

6. Extendable functionalities

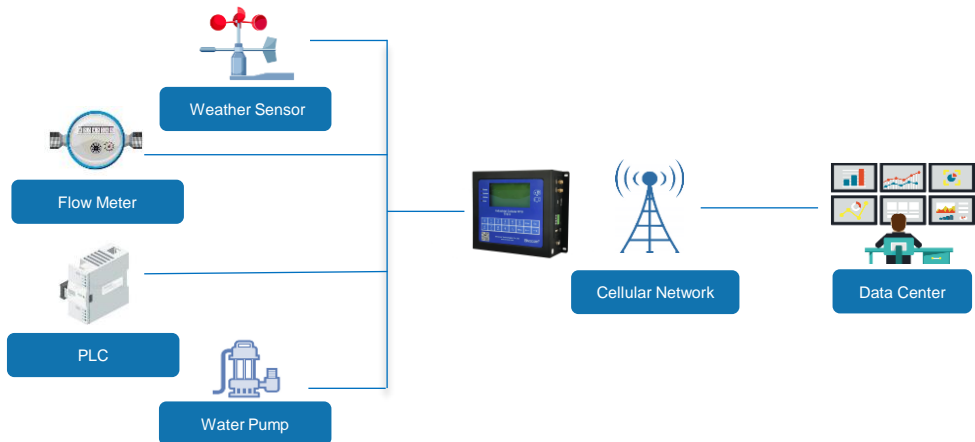
External battery status monitor
Image capture(via serial port camera)
External LCD/LED display(via USB Port)

7. Robust and reliable

Industrial grade design, suitable for unattended and harsh industrial applications.

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

Applications



Success Cases



Specifications

System

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

Cellular Interfaces

- **Antenna Connector** 2 × 50 Ω SMA Female
- **SIM Slot** 1
- **ESD Protection** 15KV

Serial Interfaces

- **Connector** Terminal block, 3.5 mm female socket with lock
- **Ports** 2-RS232, 2-RS485
- **Baud Rate** 300bps to 230400bps
- **ESD protection** 8KV for RS232, 15KV for RS485

I/O

- **Connector** Terminal block, 3.5 mm female socket with lock
- **Analog Input** 8x ADC, 16-bit AD
4-20mA current signal input
or 0-5V voltage signal input(Optional)
- **Digital Input** 8x DI
Status "0": 0-3VDC, Status "1": 5-30VDC
- **Digital Output** 2x DO (optical isolation, Open Collector)
Rated driving current: 50mA
Rated driving voltage: 35V
- **Pulse Input** 4x PI
2x tipping bucket rain gauge input(low level 0-1V)
2x pulse input(high level 2-30V)
- **Relay Output** 8 x Relay
Max switching voltage: 30VDC/220VAC
Max switching current: 4A
Max switching power: 120W

USB Port

- **Port** 1
For external display screen port, able to connect 192*64 dot matrix STN LCD screen with keyboard

Micro SD Card Slot

- **SD Card Slot** 1x Micro SD interface, Up to 16GB
- **Usage** Data Storage

Power Output

- **Port** 3
12VDC. rated output current of 1 power output is 1A, and total rated output current of 3 power outputs is 2A, built in overcurrent protection

Software

- **Network Protocols** MQTT, Transparent (TCP Client/Server, UDP Client/Server), Modbus Gateway (Modbus RTU to Modbus TCP)
- **Management** Config tool, SMS, Cloud DMP (Device Management Platform)

Power Supply and Consumption

- **Connector** 2-pin with 3.5 mm terminal block
- **Standard Power** DC 12V/1.5A
- **Input Voltage** 5-35 VDC
- **Communication** 40 ~ 85mA@12VDC
- **Idle Consumption** 40 ~ 45mA@12VDC

Physical Characteristics

- **Ingress Protection** IP30
- **Housing & Weight** Metal, 770g (1.70lbs), without accessories
- **Dimensions** 154.2×127×46.6mm (6.07×5×1.83inches)
- **Mounting** Desktop, 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)
- **Ethernet Isolation** 1.5 kV RMS

Others

- **LED Indicators** System, Online, Power, Error
- **LCD Screen** 128*64 dot matrix, backlight
- **Keyboard** 16 Keys (2*8 keys)
- **Grounding screw** 1x M3 screw
- **Built-in** Watchdog, RTC, Timer
- **Approvals²** CE*, RCM*, FCC*, NBTC*
- **Warranty Period³** Standard: 12 Months
Extended: 2-5 Years

Standard Package Content

- | | | |
|----|---|-------|
| 1. | TY511 RTU | 1 PCS |
| 2. | Power Adapter(DC 12V/1.5A, EU/US/UK/AU plug optional) | 1 PCS |
| 3. | Mag-mount Cellular Antenna (SMA Male, 1 meter, 5dBi) | 2 PCS |
| 4. | RS232 Cable (DB9 Female, 1 meter) | 1 PCS |
| 5. | 12-Pin Terminal Block | 4 PCS |
| 6. | 10-Pin Terminal Block | 2 PCS |
| 7. | 4-Pin Terminal Block | 1 PCS |

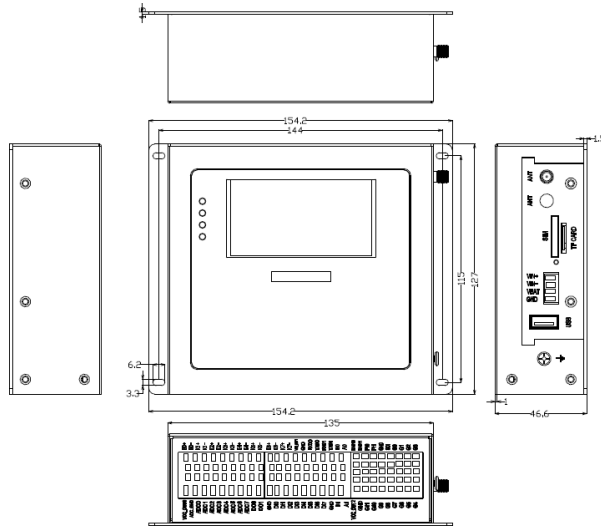
Order Information

Model	Part Number ⁴	Description	Cellular Network	Frequency Band ⁵
TY511-LF	TY511-L<1>	4G RTU	4G LTE 3G/WCDMA/UMTS/HSPA+ EDGE/GPRS	4G LTE CAT 4 • EMEA/Asia: B1/B3/B5/B7/B8/B20/B38/B40/B41 • ANZ/LATAM: B1/B3/B5/B7/B8/B28 • NA: B2/B4/B5/B12/B13/B14
TY511-W	TY511-W<1>	3G RTU	3G/WCDMA/UMTS/HSPA+ EDGE/GPRS	Global: 850/900/1900/2100

Note:

1. There has a license fee for DMP.
2. * Under progress
3. Price of the extended warranty will be different.
4. <1> means module for different cellular network, countries and regions.
5. If you couldn't find the frequency band for your regions or have any questions, please contact Bivocom sales representatives for more information.
6. To save the earth, Bivocom doesn't print the user guide, if you need it, please go to Bivocom website to [download](#).

Dimensions(mm)



Related Products



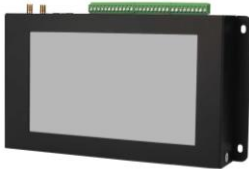
◀ **Mini Compact RTU**
[TG501 Series](#)

- ✓ 4G LTE and LTE-M/NB-IoT to choose
- ✓ Rich I/O with compact design
- ✓ MQTT, Modbus RTU/TCP, TCP/UDP



◀ **IoT Edge Gateway**
[TG452 Series](#)

- ✓ ARM based CPU
- ✓ OpenWrt based Linux OS, C/C++, Python programmable
- ✓ Edge computing, up to local 32G local data storage



◀ **Touch Screen Gateway**
[TG462S Series](#)

- ✓ 7" HD Touch screen, QT programmable UI
- ✓ Rich I/O and customizable industrial protocols
- ✓ OpenWrt based Linux OS, C/C++, Python programmable
- ✓ Edge computing, up to local 32G local data storage