

## TG451 Series Industrial Cellular Gateways



### Introduction

TG451 Series Gateway is a type of industrial 802.11/b/g/n cellular gateway, 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. It supports worldwide carrier 4G/3G/2G cellular network FDD-LTE, TDD-LTE, and WCDMA, EVDO, TD-SCDMA, EDGE, CDMA 1X and GPRS. With rich VPN protocols (IPSEC, PPTP, L2TP, GRE and OpenVPN) to ensure the security of data transmission, and rich interfaces, such as 4x LAN ports, 1x WAN port, 1x USB port, 2x Relay(Optional), 1x RS232, 1x RS485, 2x DI(Digital Input), 1x CAN(Optional), Dual SIM(Single module and Dual module, option), GPS(Optional) and WIFI, etc.

TG451 Series Gateway can help users to quickly access the Internet, to ensure secure and reliable data transmission. It's ideal for IOT (Internet of Things) and M2M (Machine to Machine) applications, and has been widely used in many applications, such as Intelligent Transportation, Smart Grid, Oil and Gas, ATM, Vending Machine, Agricultural Irrigation, Environmental Protection, Industrial Automation, Energy

Saving, Smart Home, etc.

### Key Features

- OPEN WRT, support second development
- Rich interfaces, 4x LAN ports, 1x WAN port, 1x USB port, 2x Relay(Optional), 1x RS232, 1x RS485, 2x DI, 1x CAN(Optional), GPS(Optional)
- High power and speed WIFI
- Din-rail mounting
- Dual SIM on dual module(option) or single module(option), failover and load balance(only available on dual module mode)
- Support 2-channel Digital Input and DI alarm
- 4G/3G/PPPoE/DHCP and Static address connection mode, auto switchover between wired and wireless connectivity
- Support MQTT protocol(Optional)
- APN/VPDN to ensure the security of data transmission.
- Multiple VPN protocols, IPSec, L2TP, PPTP and OPEN VPN.
- DHCP server, DHCP binding MAC address, DDNS, Firewall, NAT, DMZ host, QoS, Traffic Analysis, Real-time display of data transfer rate, etc.
- TCP/IP, UDP, FTP, HTTP network protocols.
- SPI Firewall, DoS attack, VPN traversal, Access Control, Port Mapping, DMZ Mapping, Access Control List(ACL), IP-MAC binding and Clone function, etc.
- Support heartbeat link detection, offline automatic reconnection.
- Hardware and software auto inspection technology, enable operation fault auto repairing.
- Status query of system, network connection, routing.
- Telnet, web, ssh configurations.
- Web upgrade, local system log, remote log, serial port output log.
- Sending SMS via web UI
- Remote configuration and management

## Specifications

### System

**CPU:** Industrial 32-bit

**FLASH:** 16MB (Extendable to 32MB)

**SDRAM:** 128MB (Extendable to 256MB)

### Cellular Interface

4G/3G/2G for option (FDD-LTE, TDD-LTE, HSPA/WCDMA, EVDO, TD-SCDMA, EDGE, CDMA 1X and GPRS)

### Cellular Antenna Interface

**Number of Ports:** 2

**Note:** Standard SMA female antenna interface, characteristic impedance 50Ω

### SIM Interface

**Number of Ports:** 1, or 2(Dual SIM is optional)

**Note:** Standard drawer type card holder, support 1.8V/3V SIM/UIM card, built-in 15KV ESD protection

### Ethernet Port (RJ45)

**Number of Ports:** 5, 1x WAN, 4x LAN

**Note:** 10/100M, Auto MDI/MDIX, 1.5KV magnetic isolation protection

### USB Port

**Number of ports:** 1x USB 2.0

**Note:** used for data storage (up to 128G) or gateway upgrade.

### Relay(Optional)

**Number of ports:** 2, up to 5A output

**Note:** to control the power supply of external devices.

### DI(Digital Input)

**Number of ports:** 2

**Input range:** DC 0-30V

**Note:** to check the status of external devices.

### CAN(Optional)

**Number of ports:** 1x standard CAN interface

### WIFI

**Standard:** IEEE802.11b/g/n for wireless LAN

**Transmission Rates:**

IEEE802.11b/g: Up to 54Mbps, IEEE802.11n: Up to 300Mbps

**Security:** WEP, WPA/WPA2

**TX Transmit Power:** 21.5dBm (11g), 26dBm (11b)

**RX Sensitivity:** <-72dBm@54Mbps

### GPS (Option)

Built in external GPS module

### Serial Interface (6-pin Industrial terminal block)

**Number of interfaces:** 2, 1x RS232, 1x RS485

**Note:** Built-in 8KV ESD protection for RS232, and 15KV ESD protection for RS485

### Serial Communication Parameters

**Baudrate:** 300~230400bits/s

**Data Bit:** 5, 6, 7, 8 bits

**Stop Bit:** 1, 1.5, 2 bits

**Check:** No, Even-parity, Odd Parity, SPACE and MARK

### Power Requirements

**Standard Power:** DC 12V/1.5A

**Power Range:** DC 5~35V

**Note:** Built-in power inverting protection and over voltage protection

### Power Consumption

**Communication:** 121~280mA@12VDC

**Standby:** 115~210mA@12VDC

**Scheduled Shutdown:** 2mA@12VDC

### LED Indicators

Power, System, WIFI, Alarm, Online, Signal Strength

### Reliability

EMC up to level 3

Use NTP technology, build-in RTC

SIM/UIM card port built-in 15KV ESD protection

### Warranty

**Warranty Period:** 12 months

### Environmental Limits

**Operating Temperature:** -35~+75°C (-31~+167 °F)

**Storage Temperature:** -40~+80°C (-40~+176 °F)

**Ambient Relative Humidity:** 93%±3%, non-condensing

### Physical Characteristics

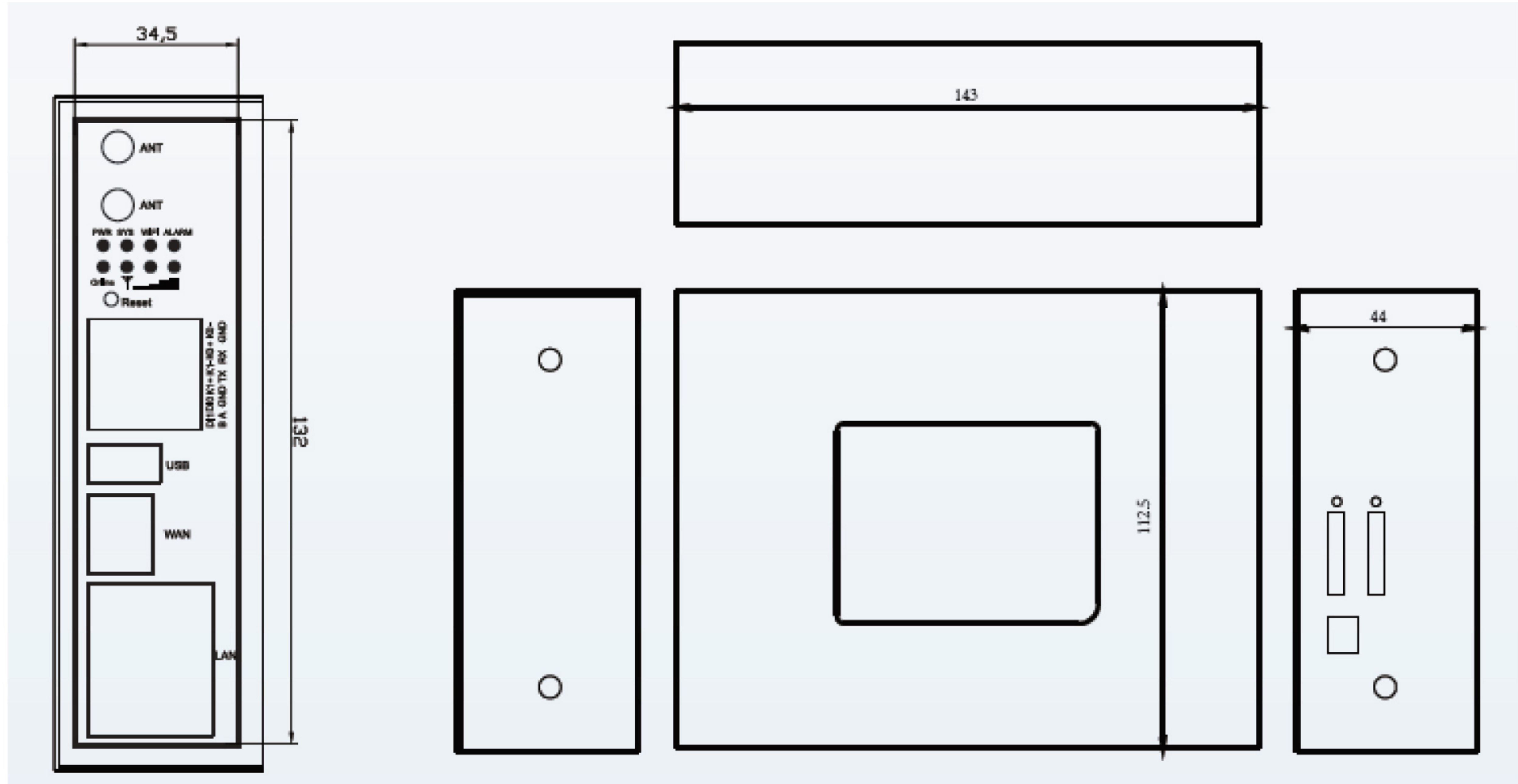
**Protection Class:** IP30, Housing and system are isolated safely, ideal for industrial automation application

**Housing:** Iron

**Weight:** 790g (1.74lbs)

**Dimension:** 145x112.5x44mm (5.71x4.43x1.73 inches),  
Antenna and other accessories not included.

## Dimensions



## Order Information

### Models to choose

**TG451-LF**, Industrial LTE/WCDMA  
WIFI Gateway

**TG451-W**, Industrial WCDMA WIFI  
Gateway

### Standard Package Content

- TG451 Gateway Host
- Power Adapter(DC 12V/1.5A)
- WIFI Antenna(Female SMA)
- 2x Cellular Antenna (Male SMA)
- Console Cable(RS232)
- Ethernet Cable(1 meter)
- 2x 6-Pin Terminal Block
- 1x 2-Pin Terminal Block
- DIN-rail mount

Note: Please visit our website for available frequency band of Bivocom industrial cellular gateways, or contact [sales@bivocom.com](mailto:sales@bivocom.com) for more information.