

Industrial Cellular Edge Gateways



Product Overview

TG452 Series Edge gateways is designed for integrating your legacy and modern sensors/meters into one system, it has rich interfaces, including serial ports RS232/RS485, digital input, digital output relay, Analog input, CAN, Ethernet port RJ45, which is a cost effective solution for your applications like remote asset monitoring, energy monitoring and management, water&waste water treatment, transportation, smart agriculture, etc.,

It supports worldwide carrier 4G LTE CAT6/CAT4/3G/2G cellular network. With option of Dual SIM(Single module and Dual module), GPS(Optional) and WIFI(Optional), the TG452 can be suitable for most of IoT applications in many industries.

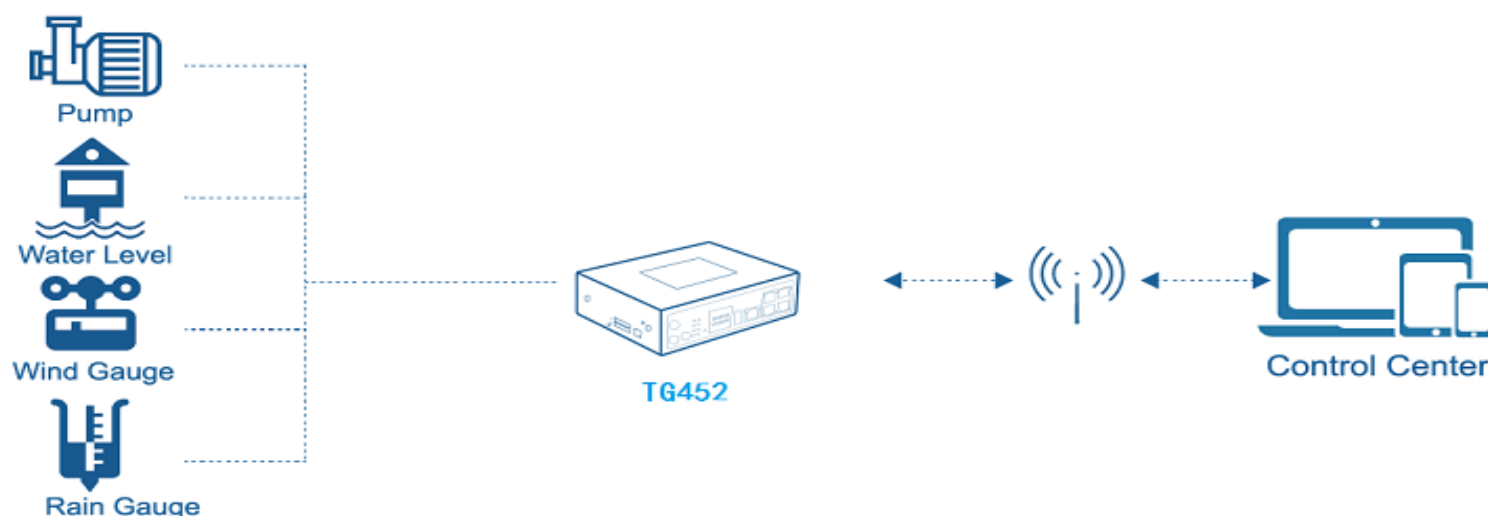
In addition, TG452 Series Edge Gateway supports multiple network and industrial protocols, includes TCP Client, TCP Server, UDP Client, UDP Server, DHCP, ICMP, NTP, DNS, DDNS, RIP, OSPF, Modbus RTU, Modbus TCP, Modbus Master, MQTT, HTTP, SNMPv1 v2 v3, ARP, Telnet, etc. Besides, as it's designed based on OpenWrt, which allows the developers install their own application based on Python or LUA.

Key Features

1. DSDM (Dual SIM on dual module) or DSSM (Dual SIM on Single Module)*, support failover and load balance mode
2. LTE/3G/PPPoE/DHCP and static address connection mode, auto switchover between wired and wireless connectivity
3. Rich interfaces, 4-LAN(or 3-LAN, 1-WAN), 2-DI, 2-ADC, 2-RS232, 3-RS485, 1-TF card slot, 2-Relay, 1-CAN, WIFI(2.4G/5G)*, GPS*
4. Support MQTT, Modbus RTU, Modbus TCP protocols
5. APN/VPDN to ensure the security of data transmission
6. Multiple VPN protocols, IPsec, L2TP, PPTP, GRE and OpenVPN
7. Din-rail mounting
8. DHCP server, DHCP binding MAC address, DDNS, Firewall, NAT, DMZ host, QoS, Traffic Analysis
9. TCP/IP, UDP, HTTP, SNMP protocols
10. SPI Firewall, Access Control, Port Mapping, DMZ Mapping, Access Control List (ACL), IP-MAC binding and Clone function
11. Support online detection, automatic recovery
12. Hardware and software watchdog technology, enable operation fault auto repairing
13. Status query of system, network connection, routing
14. Web UI, Telnet, SSH configurations
15. Local /remote syslog, serial port output log
16. Support SMS and SMS alarm, AT Commands.
17. Support DMP(Device Management Platform)¹ for remote configuration and management
18. Support Firmware customization base on OpenWrt
19. Secondary development via Python, LUA, SDK

*Option features

Application Diagram



Specifications

System

CPU	32-bit ARM Cortex A7, 528MHz
Flash	256MB(Extendable to 1GB)
Memory	256MB DDR3

Cellular Interfaces

Antenna Connector	2 × 50 Ω SMA Female
SIM Slot	1, or 2 (For DSDM and DSSM, Option)
ESD Protection	15KV

Ethernet Interface

Ports	4-RJ45 (1-WAN, 3-LAN or 4-LAN)
Data Rate	10/100 Mbps (Auto-Sensing), Auto MDI/MDIX
Magnet Isolation	1.5KV

Serial Interface

Connector	Terminal block, 6-pin 3.5 mm female socket with lock
Ports	2-RS232, 3-RS485
Baud Rate	300bps to 230400bps
ESD protection	8KV for RS232, 15KV for RS485

Wi-Fi(Optional)

Antenna Connector	1 × 50 Ω SMA Male(or 2, option)
Standard	IEEE 802.11b/g/n, supporting AP and Client modes
Transmission Rate	IEEE802.11b/g: Up to 54Mbps, IEEE802.11n: Up to 300Mbps
Security	Open, WPA, WPA2, WPA/WPA2 Enterprise, Radius
Tx Power	18dBm (11g), 21dBm (11b)
Rx Sensitivity	<-72dBm@54Mbps

I/O

Connector	Terminal block, 3.5 mm female socket with lock
DI	2 Logic 0: Wet contact 0-3VDC, or dry contact close Logic 1: Wet contact DC 5-30V, or dry contact open
DO	2-Relay (5A and 30VDC/250VAC output)
ADC	2 x 16-bit AD, supports 4-20mA current signal input, and 0-5V voltage signal input(Option)

CAN(Optional)

Port	1
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External Storage

SD Card Slot	1 x Micro SD interface, Up to 32G
Usage	User Program, Data Storage and Firmware Upgrade

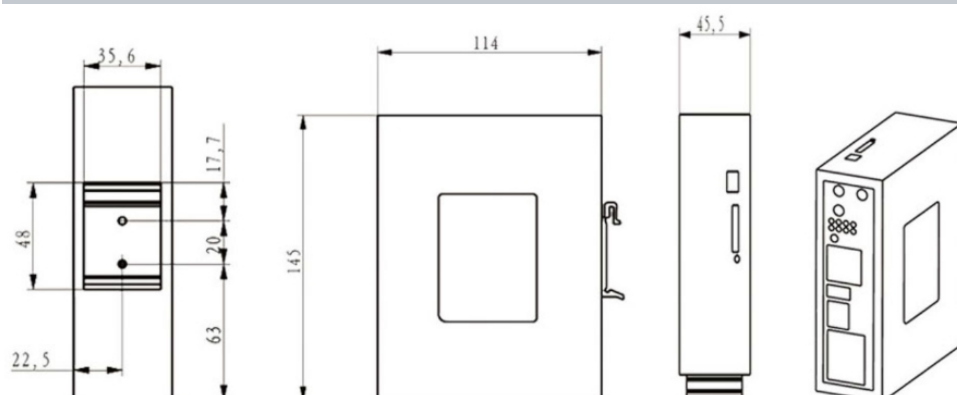
GPS (Optional)

Module	Built-in independent GPS Module
Antenna Connector	1 × 50 Ω SMA Female

Power Supply and Consumption

Connector	2-pin with 3.5 mm terminal block
Standard Power	DC 12V/1.5A
Input Voltage	5-35 VDC
Power Consumption	280 ~ 330mA@12VDC
Idle Consumption	220 ~ 265mA@12VDC

Dimenions(mm)



Software

Network Protocols	PPP, PPPoE, SNMP v1/v2c/v3, TCP, UDP, DHCP, RIPv1/v2, OSPF, DNS, DDNS, HTTP, ARP, QoS, SNTP, Telnet, VLAN, SSH, etc.
Serial Port	MQTT, Transparent (TCP Client/Server, UDP Client/Server), Modbus Gateway (Modbus RTU to Modbus TCP)
VPN Tunnel	IPsec/PPTP/L2TP/GRE/OpenVPN
Firewall	ACL/DMZ/Port Mapping/MAC Binding
Management	Web, CLI, SMS, Cloud DMP (Device Management Platform)
Reliability	WAN Failover, Dual SIM Backup and Load Balance, Hardware & Software Watchdog
Secondary Development	OpenWrt based, support Python, LUA and SDK

Physical Characteristics

Ingress Protection	IP30
Housing & Weight	Metal 630 g(1.39lbs), without accessories
Dimensions	145 x 114 x 45mm (5.71 x 4.49 x 1.77in)
Mounting	Desktop, DIN Rail

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	0% to 93% (non-condensing) at 25°C/77°F
Ethernet Isolation	1.5 kV RMS

Others

Reset Button	RESET
LED Indicators	POWER, WiFi, SYSTEM, ALARM, ONLINE, Signal Strength
Built-in	Watchdog, RTC, Timer
Certifications²	CE*, RCM*, FCC*
Warranty Period	Standard: 12 Months Extended: 2-5 Years ³

Standard Package Content

TG452 Gateway
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)
Ethernet Cable(1 meter)
13-Pin Terminal Block(2)
DIN-rail mount
Quick Start Guide(Printed)

Order Information

Model	Frequency Band⁴
TG452-LF	4G LTE CAT 6 EMEA&APAC: B1/B3/B5/B7/B8/B20/B28 NA: B2/B4/B5/B7/B12/B13/B25
	4G LTE CAT 4 EMEA: 1/B3/B5/B7/B8/B20/B38/B40/B41 ANZ/LATAM: B1/B3/B5/B7/B8/B28 NA: B2/B4/B5/B12/B13/B14
TG452-W	HSPA/UMTS/WCDMA 900/2100MHz, or 850/1900/2100MHz Global: 800/850/900/1900/2100

Note:

1. There is license fee for DMP.
2. * Under development.
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.