



TG452 LoRa Series

Programmable LoRa Gateways

Introduction

The Bivocom TG452 LoRa Gateway integrates 4G LTE and LoRa technologies to deliver stable, long-range data transmission for industrial IoT applications.

Featuring with RJ45 ports, CAN (Optional), digital inputs, relays, ADCs and serial ports, it supports access of various sensors and devices. Dual SIM (Optional) ensures network failover and load balancing for uninterrupted connectivity, while a 32GB Micro SD card slot enables local data storage and backup.

Powered by Bivocom OS with optional Ubuntu*, the gateway supports Node-Red, Python and C/C++ for custom development. It supports mainstream protocols including Modbus RTU/TCP, MQTT, JSON and customized protocols such as OPC UA*, IEC101/104/61850*, DNP3* and BACnet IP/MSTP*, etc, for easy integration with existing systems.

Built-in VPN, SNMP, BGP, SSH, SPI firewall and multiple security protocols secure data transmission. Suited for smart agriculture, environmental monitoring and smart city deployments, the TG452 delivers reliable high-performance IoT connectivity.

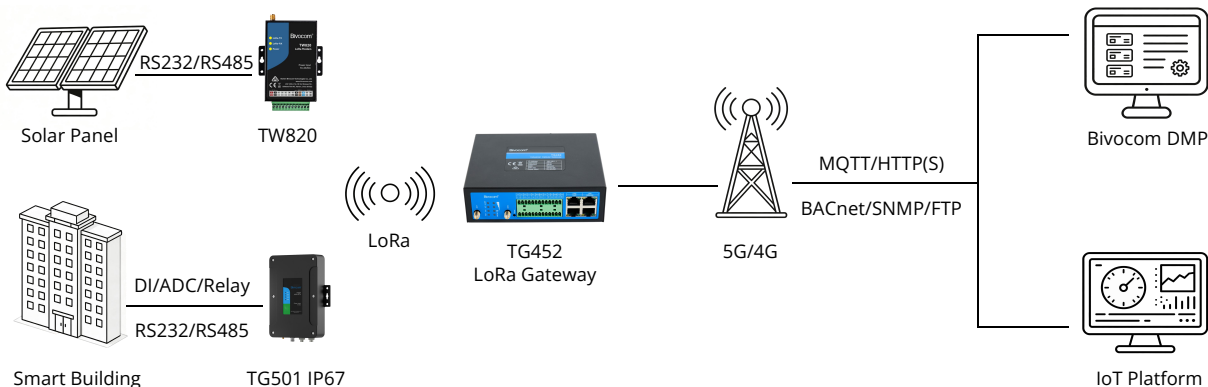
Key Features

- 4G LTE and LoRa Supported
- 4-ETH, 2-DI, 2-Relay, 2-ADC, 2-RS232, 3-RS485, 1-TF card slot, 1-DC Power Output, 1-CAN*, WIFI*, GNSS*
- Programming Bivocom OS: C/C++, Python, Node-RED, Ubuntu*, Docker*
- Dual SIM/Dual Module for failover/load balance (Optional)
- Modbus RTU/TCP, JSON, BACnet IP/MSTP*, OPC UA*, IEC 101/104/61850*, DNP3* and customized industrial protocols
- MQTT, FTP*, HTTP(S), Wireguard, Tailscale*, SNMP*, Telnet, SSH

Applications

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

Diagram



Specifications

Systems

CPU	32-bit ARM Cortex A7
Flash	1GB (8GB Optional)
RAM	256MB (512MB Optional)

Cellular

Antenna	2 x 50 Ω SMA-K
SIM Slot	1 Mini SIM(2FF)

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 x 50 Ω SMA-K

Serial

Ports	2 x RS232, 3 x RS485
Baud Rate	1200bps to 230400bps

I/O

Digital Input*	2-DI (Isolation, Dry contact), Optional Wet contact (Status "1": 0-3V, Status "0": 5-30V)
Relay Output	2-Relay (Up to 5A, 30VDC/250VAC switch)
Analog Input	2 x 12-bit (4-20mA, or 0-5/15/24V Optional)
CAN (Optional)	1, CAN2.0B, SAE J1939*
Power Output	1 x 12VDC/1A, for powering field sensors & devices

Wi-Fi (Optional)

Antenna	1 x 50 Ω RP-SMA-J
Standard	IEEE 802.11b/g/n, AP/Client modes
Bands	2.4GHz
Security	Open, WPA, WPA2, Radius

GNSS / GPS (Optional)

Module	GNSS from cellular module, or independent GPS Module
Antenna	1 x 50 Ω SMA-J

External Storage

TF Slot	1 x Micro SD slot, Up to 32GB
Usage	User Program and Data Storage

Power

Input	5-35VDC
Standard Power	12VDC/1.5A
Idle Mode	220~265mA@12VDC
Working Mode	280~330mA@12VDC

Physical Characteristics

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

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)

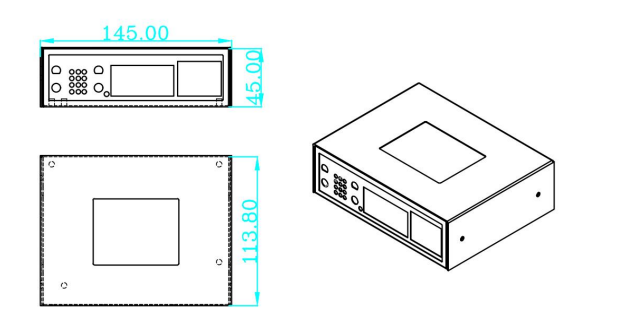
Others

Reset Button	1
LED Indicators	Power, WIFI, System, Alarm, Online, Signal
Built-in	Watchdog, RTC, Timer
Approvals	CE*, RCM*, FCC*
Warranty Period	Standard: 2-Year limited warranty Extended: 3-5 Years

Software

Programming	Bivocom OS (OpenWrt based Linux OS, Or Optional Ubuntu OS) C/C++, Python, Node-RED, Docker(Ubuntu)*, LUA* and SDK
Data Protocols	Modbus RTU/TCP, SMS, SNMP*, IEC101/104*, IEC61850*, DNP3*, BACnet IP/MSTP*, OPC UA*, etc.
Network Protocols	VXLAN, GNSS, IPV6*, DDNS, DNS, ARP, Static Routing, NAT, Firewall, Telnet/SSH, PPP, PPPoE, DHCP, ICMP, NTP, etc.
Server Supported VPN	MQTT, HTTP(S), Transparent TCP/UDP, FTP* Wireguard/OpenVPN/IPsec/PPTP/L2TP/ Tailscale*
Firewall Management	ACL/DMZ/Port Mapping/MAC Binding Web, CLI, SMS, Bivocom DMP (Device Management Platform)*
Reliability	Dual SIM*, WWAN and WAN Failover, Hardware & Software Watchdog

Dimensions



Ordering Information

Model	Part Number	LoRa	Cellular Frequency Bands	Package Contents
TG452-LR	TG452 - L <1> - <2>	850~931MHz, 410-490MHz(Optional)	4G LTE CAT 4* (Optional Global or Regional Version) • 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	1. TG452 x 1 2. 4G Antenna x 2 3. LoRa Antenna x 1 4. Ethernet Cable x 1 5. 13-Pin Terminal Block x 2 6. DIN-Rail Mount Kit x 1 7. Power Adapter x 1 (Optional EU/UK/AU/US/CN Type)
Part Number: <1>: 4G module for different countries and regions <2>: W=2.4G WIFI G=GPS (Standalone GPS) GN=GNSS from cellular module				

Note:

- 1. Region-specific cellular modules and LoRa modules are available; consult Bivocom sales for details.
- 2. Compiler & SDK are provided for secondary development. Ubuntu require dedicated hardware&firmware (8GB Flash version)
- 3. DSSM: Dual-SIM single-module design with automatic network failover; DSDM: Dual-SIM dual-module design supporting load balancing.
- 4. Bivocom DMP (Device Management Platform) requires a license fee.
- 5. *Optional functions rely on matching hardware/firmware versions; not all features supported on one device.
- 6. Power consumption is measured under laboratory conditions and is for reference only.
- 7. *Listed certifications are pending.
- 8. Extended warranty pricing varies.
- 9. 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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