TG463 Series
Industrial 5G IoT Gateway

Bivocom®

5G Brings Evolutionary Changes to The IIoT
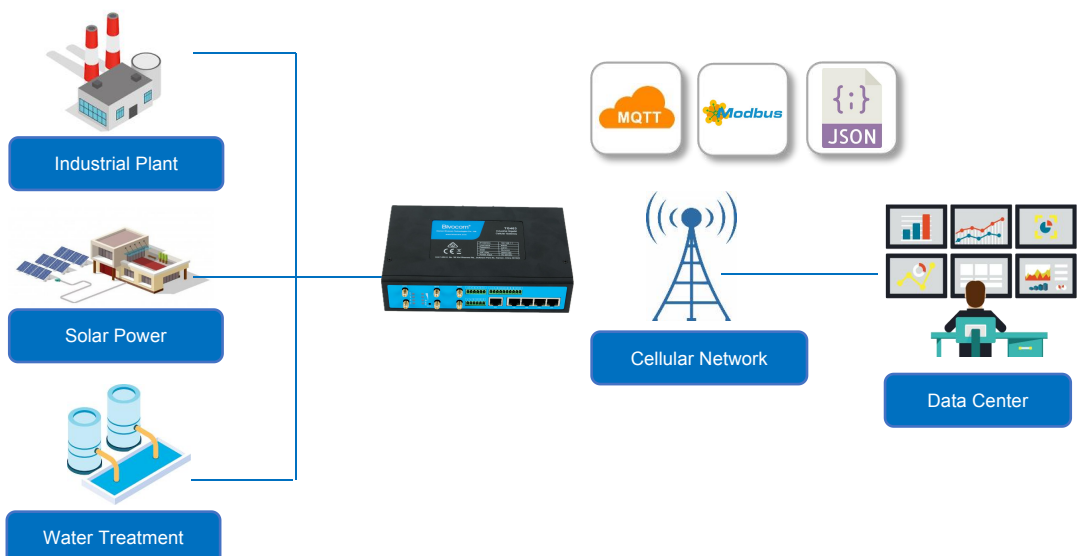

Introduction

The TG463 series is a 5G NR IoT gateway designed for IoT, M2M, and eMBB applications requiring higher speed, lower latency data transmission, and capacity of edge computing. It provides OpenWrt based Linux OS embedded environment that allows developers and engineers to program and install their own application based on Python, C/C++ to the hardware themselves. In addition, its rich I/O is ideal for connecting with diverse field equipment and sensors and transferring the data to the cloud server via 5G/4G LTE cellular network.

The TG463 series IoT gateway can be used for a wide variety of applications, such as smart pole, smart cities, smart office, smart buildings, smart traffic light, digital signage advertising, vending machines, ATM, etc.

Key Features

1. OpenWrt based Linux OS programmable environment for C/C++, Python, LUA via SDK[1]
2. 5G NR Sub-6 bands with SA and NSA dual modes, supports up to DL: 3.4Gbps, UL: 250Mbps, ideal for IoT, M2M and eMBB applications
3. Global 5G and LTE-A coverage, back support 3G
4. WWAN and WAN failover
5. 2.4G and 5G WIFI (802.11b/n/g/ac, Option)
6. 5x Gigabit Ethernet port
7. 1-RS232, 1-RS485, 2-DI, 3-ADC, 3-DO(Relay), 3-Power Output
8. Up to 32G(via Micro SD card) local data storage and backup
9. MQTT, Modbus RTU/TCP, TCP/UDP, HTTP, SNMP protocols
10. Multiple VPN protocols, IPsec, L2TP, PPTP, GRE and OpenVPN

Applications

Specifications

System

- **CPU** — 32-bit, dual core
- **Flash** — 32MB
- **RAM** — 256MB DDR3

Cellular Interfaces

- **Antenna Connector** — 4 × 50 Ω SMA Female(5G Version TG463-NR)
  2 × 50 Ω SMA Female(4G Version TG463-LF)
- **SIM Slot** — 1
- **ESD Protection** — 15KV

Ethernet Interface

- **Ports** — 5-RJ45 (1-WAN, 4-LAN or 5-LAN configurable)
- **Data Rates** — 10/100/1000 Mbps (Auto-Sensing), Auto MDI/MDIX
- **ESD Protection** — 1.5KV

Serial Interfaces

- **Connector** — Terminal block, 3.5 mm female socket with lock
- **Ports** — 1-RS232, 1-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
- **Digital Input** — 2-DI (0-30V Input)
  Status "0": 0-3V, status "1": 5-30V
- **Relay Output** — 3-Relay (Up to 5A and 30VDC/250VAC switch)
- **Analog Input** — 3 x 16-bit ADC, supports 4-20mA current signal input, and 0-5V voltage signal input(Option)
- **Power Output** — 2-channel 12VDC output, current 1A
  Built-in overcurrent protection, for external devices DC power input

Wi-Fi(Option)[2]

- **Antenna Connector** — 2 or 4 × 50 Ω RP-SMA Female
- **Standard** — 2.4G/5GHz, IEEE 802.11b/g/n/ac, supporting AP and Client modes
- **Transmission Rate** — IEEE802.11b/g: Up to 54Mbps
  IEEE802.11n: Up to 300Mbps
  IEEE802.11ac: Up to 1.7Gbps
- **Security** — Open, WPA, WPA2, WPA/WPA2 Enterprise, Radius

GNSS/GPS (Option)

- **Module** — Built-in independent GPS Module, or GNSS from cellular module
- **Antenna Connector** — 1 × 50 Ω SMA Female

External Storage

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

Power Supply and Consumption

- **Connector** — 2-pin with 3.5 mm terminal block
- **Standard Power** — DC 12V/1.5A
- **Input Voltage** — 5-60 VDC
- **Idle Mode** — 253～360mA@12VDC
- **Working Mode** — 318～425mA@12VDC

Software

- **Network Protocols** — PPP, PPPoE, SNMP v1/v2c/v3, TCP, UDP, DHCP, RIPv1/v2, OSPF, BGP, DNS, DDNS, HTTP, ARP, QoS, SNTP, Telnet, SSH
- **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)[3]
- **Reliability** — WWAN and WAN Failover, Hardware & Software Watchdog
- **Secondary Development** — OpenWrt based Linux OS, C/C++, Python, LUA and SDK

Physical Characteristics

- **Ingress Protection** — IP30
- **Housing & Weight** — Metal
  1,000g(2.2lbs), without accessories
- **Dimensions** — 207*124*47mm(8.15*4.88*1.85in)
- **Mounting** — Desktop, DIN-Rail

Environmental

- **Operating Temperature** — -35°C to +75°C (-31℉ to +167℉)
- **Storage Temperature** — -40°C to +80°C (-40℉ to +176℉)
- **Relative Humidity** — 5% to 95% (non-condensing)
- **Ethernet Isolation** — 1.5 kV RMS

Others

- **Reset Button** — 1
- **LED Indicators** — Signal strength, WIFI, System, Online, Power, Alarm
- **Built-in** — Watchdog, RTC, Timer
- **Approvals[4]** — CE*, RCM*, FCC*
- **Warranty Period[5]** — Standard: 12 Months
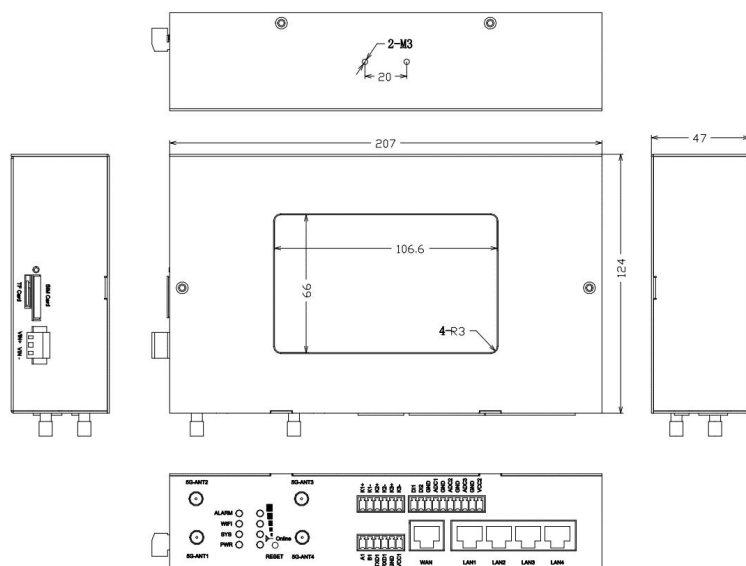 Extended: 2-5 Years

Standard Package Content

#	Item	Qty
1.	TG463 Gateway	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)	5G Version: 4 PCS 4G Version: 2 PCS
4.	RS232 Cable (DB9 Female, 1 meter)	1 PCS
5.	Ethernet Cable(1 meter)	1 PCS
6.	10-Pin Terminal Block	1 PCS
7.	6-Pin Terminal Block	2 PCS
8.	DIN-Rail Mount Kits	1 PCS

Order Information

Model	Part Number	Description	Frequency Band[6]
TG463-NR	TG463 - N<1><2> - <3>	5G Gateway, 5-GE, 1-RS232, 1-RS485, 2-DI, 3-ADC, 3-Relay, 3-Power Output	5G NR Sub-6 • n1/n2/n3/n5/n7/n8/n12/n20/n28/n41/n66/n71/n77/n78/n79 • LTE FDD:B1/B2/B3/B4/B5/B7/B8/B9/B12/B13/B14/B17/B18/B19/B20/B21(TBD)/B25/B26/B28/B29/B30/B32/B66/B71 • LTE TDD: B34/B38/39/B40/B41/B42/B43/B48
TG463-LF	TG463 - L<1><2>- <3>	4G Gateway, 5-GE, 1-RS232, 1-RS485, 2-DI, 3-ADC, 3-Relay, 3-Power Output	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

<1>: 5G or 4G module for different countries and regions
<2>: DS=dual SIM on single module, failover only
DM=dual SIM on dual module, load balance
<3>: W=2.4G Single band WIFI
DW=2.4G/5G dual band WIFI
G=GPS(standalone GPS)
GN=GNSS from cellular module

2-M3
20
207
106.6
66
124
47
4-R3

5G-ANT2 5G-ANT3
ALARM
WIFI
SYS   Online
PWR
5G-ANT1   RESET 5G-ANT4
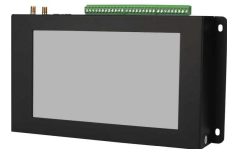WAN LAN1 LAN2 LAN3 LAN4

Related Products

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 Edge Gateway ▶
TG462S Series

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

Success Cases

5G AGV

Note:
1. Bivocom provides complier and SDK for customer to do their second development.
2. Standard version comes with 2.4G WIFI, while 5G WIFI is an optional feature.
3. There has a license fee for DMP.
4. * Under progress
5. Price of the extended warranty will be different.
6. If you couldn't find the frequency band for your regions or have any questions, please contact Bivocom sales representatives for more information.
7. To save the earth, Bivocom doesn't print the user guide, if you need it, please go to Bivocom website to download.