



5G Brings Evolutionary Changes to The IIoT



Introduction

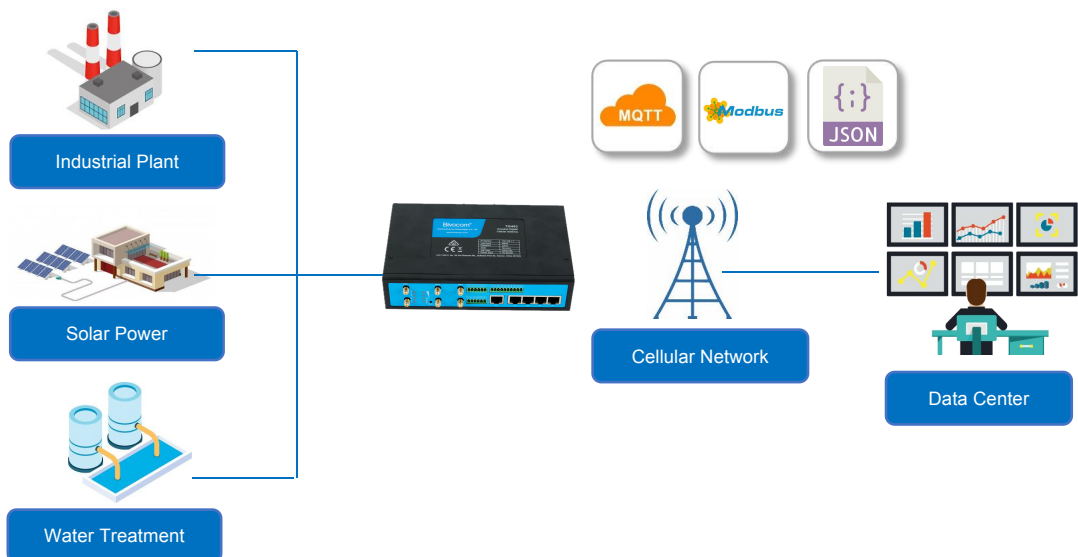
The TG463 series is a 5G NR IoT gateway designed for IoT, M2M, and eMBB applications requiring higher speed, lower latency data transmission, and capacity of edge computing. It provides OpenWrt based Linux OS embedded environment that allows developers and engineers to program and install their own application 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 SDK¹
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

- CPU32-bit, dual core
- Flash32MB
- RAM256MB DDR3

Cellular Interfaces

- Antenna4 × 50 Ω SMA Female(5G Version TG463-NR)
- Connector2 × 50 Ω SMA Female(4G Version TG463-LF)
- SIM Slot1
- ESD Protection15KV

Ethernet Interface

- Ports5-RJ45 (1-WAN, 4-LAN or 5-LAN configurable)
- Data Rates10/100/1000 Mbps (Auto-Sensing), Auto MDI/MDIX
- ESD Protection1.5KV

Serial Interfaces

- ConnectorTerminal block, 3.5 mm female socket with lock
- Ports1-RS232, 1-RS485
- Baud Rate300bps to 230400bps
- ESD protection8KV for RS232, 15KV for RS485

I/O

- ConnectorTerminal block, 3.5 mm female socket with lock
- Digital Input2-DI (0-30V Input)
Status “0”: 0-3V, status “1”: 5-30V
- Relay Output3-Relay (Up to 5A and 30VDC/250VAC switch)
- Analog Input3 × 16-bit ADC, supports 4-20mA current signal input, and 0-5V voltage signal input(Optional)
- Power Output2-channel 12VDC output, current 1A
Built-in overcurrent protection, for external devices DC power input

Wi-Fi(Optional)²

- Antenna Connector2 or 4 × 50 Ω RP-SMA Female
- Standard2.4G/5GHz, IEEE 802.11b/g/n/ac, supporting AP and Client modes
- Transmission RateIEEE802.11b/g: Up to 54Mbps
IEEE802.11n: Up to 300Mbps
IEEE802.11ac: Up to 1.7Gbps
- SecurityOpen, WPA, WPA2, WPA/WPA2 Enterprise, Radius

GNSS/GPS (Option)

- ModuleBuilt-in independent GPS Module, or GNSS from cellular module
- Antenna Connector1 × 50 Ω SMA Female

External Storage

- SD Card Slot1x Micro SD interface, Up to 32G
- UsageUser Program, Data Storage and Firmware Upgrade

Power Supply and Consumption

- Connector2-pin with 3.5 mm terminal block
- Standard PowerDC 12V/1.5A
- Input Voltage5-60 VDC
- Idle Mode253~360mA@12VDC
- Working Mode318~425mA@12VDC

Software

- Network ProtocolsPPP, PPPoE, SNMP v1/v2c/v3, TCP, UDP, DHCP, RIPv1/v2, OSPF, BGP, DNS, DDNS, HTTP, ARP, QoS, SNTP, Telnet, SSH
- Serial PortMQTT, Transparent (TCP Client/Server, UDP Client/Server), Modbus Gateway (Modbus RTU to Modbus TCP)
- VPN TunnelIPsec/PPTP/L2TP/GRE/OpenVPN
- FirewallACL/DMZ/Port Mapping/MAC Binding
- ManagementWeb, CLI, SMS, Cloud DMP (Device Management Platform)³
- ReliabilityWWAN and WAN Failover, Hardware & Software Watchdog
- Secondary DevelopmentOpenWrt based Linux OS, C/C++, Python, LUA and SDK

Physical Characteristics

- Ingress ProtectionIP30
- Housing & WeightMetal
1,000g(2.2lbs), without accessories
- Dimensions207*124*47mm(8.15*4.88*1.85in)
- MountingDesktop, 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 Humidity5% to 95% (non-condensing)
- Ethernet Isolation1.5 kV RMS

Others

- Reset Button1
- LED IndicatorsSignal strength, WIFI, System, Online, Power, Alarm
- Built-inWatchdog, RTC, Timer
- Approvals⁴CE*, RCM*, FCC*
- Warranty Period⁵Standard: 12 Months
Extended: 2-5 Years

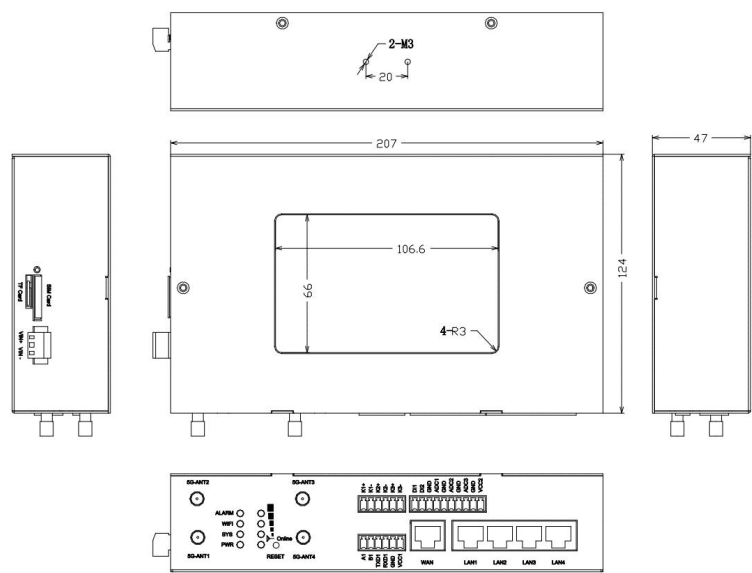
Standard Package Content

- | | | |
|----|---|--|
| 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 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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			

Dimension(mm)



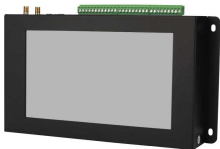
Related Products

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



Note:

1. Bivocom provides compiler 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](#).