



TG453 Series

Industrial 5G IoT Gateways

Introduction

The TG453 is an industrial 5G/4G IoT gateway built for high-speed, low-latency M2M, IoT and eMBB applications. Powered by Bivocom OS, it supports secondary development with C/C++, Python, and Node-RED (Optional) for customized industrial logic.

It features 5 Gigabit Ethernet ports, 1 RS232 debug port, 2 RS485 ports and 1 DC power output to power on-site peripherals, simplifying field wiring and extra power equipment. It also integrates 2.4GHz Wi-Fi with optional GNSS. It transmits field data to the cloud via cellular networks and fully supports MQTT, Modbus, BACnet IP/MSTP* and OPC UA*. Equipped with WireGuard, OpenVPN, IPsec, PPTP, L2TP VPN and VXLAN, it ensures reliable data security and virtual networking. Paired with Bivocom DMP*, it enables centralized remote device management.

Optional dual-SIM or dual-module redundancy ensures stable and reliable network connections for key industrial projects, and the optional GNSS module supports remote asset positioning and tracking.

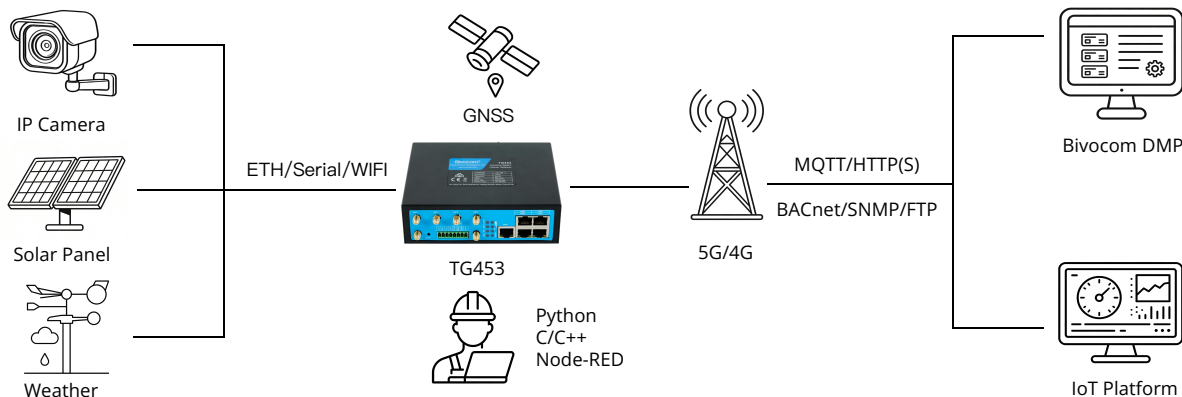
Key Features

- Optional 5G NR, 5G RedCap and 4G LTE
- 5-RJ45 (GbE), 1-RS232 (Debug), 2-RS485, 1-DC Power Output, 1-TF Slot, 2.4G WIFI, GNSS (Optional)
- Programmable Bivocom OS: C/C++, Python*, Node-RED*
- Dual SIM/Dual Module (Optional) for failover/load balance
- Modbus RTU/TCP, JSON, BACnet IP/MSTP*, OPC UA*, IEC 101/104/61850* and customized industrial protocols
- MQTT, FTP*, HTTP(S), VPN, SNMP*, BGP, Telnet, SSH, CLI, Firewall

Applications

- EV Charger
- Solar Panel
- Digital Signage
- Vending
- ATMs
- IP Camera
- PLC
- Weather Station

Diagram



Specifications

Systems

CPU	32-bit, dual core, 880MHz, MIPS
Flash	32MB (Up to 1GB Optional)
RAM	256MB (512MB Optional)

Cellular

Antenna	4 x 50 Ω SMA-K (TG453-NR) 2 x 50 Ω SMA-K (TG453-LF, TG453-RC)
SIM Slot	1 Mini SIM(2FF), or 2 (DSSM, DSDM Optional)

Ethernet

Ports	5 x 10/100/1000 Mbps 1 x WAN, 4 x LAN, or 5 x LAN Configurable
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Serial

Ports	1 x RS232 (Debug), 2 x RS485
Baud Rate	1200bps to 230400bps

Wi-Fi

Antenna	2 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	5-35 VDC
Standard Power	12VDC/1.5A
Idle Mode	451 ~ 509mA@12VDC
Working Mode	483 ~ 625mA@12VDC
Power Output	1 x 12VDC/1A output for powering field sensors & devices

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)

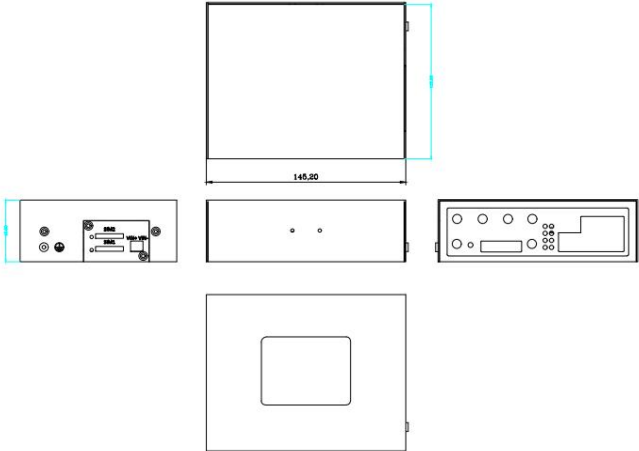
Others

Reset Button	1
LED Indicators	Signal, WIFI, System, Online, Power, Alarm
Built-in	Watchdog, RTC, Timer
Approvals ⁵	CE*, RCM*, FCC*
Warranty Period ⁶	Standard: 2-Year limited warranty Extended: 3-5 Years

Software

Programming	Bivocom OS (OpenWrt based Linux OS) C/C++, Python*, Node-RED*, LUA* and SDK Available Flash (32MB Version): 20MB (FW with C/C++ Only); 4MB (FW with C/C++, Python)
Data Protocols	Modbus RTU/TCP, SMS, SNMP*, IEC101/104*, IEC61850*, 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	MQTT, HTTP(S), Transparent TCP/UDP, FTP*
VPN	Wireguard/OpenVPN/IPsec/PPTP/L2TP
Firewall	ACL/DMZ/Port Mapping/MAC Binding
Management	Web, CLI, SMS, Bivocom DMP (Device Management Platform)*
Reliability	Dual SIM*, WWAN and WAN Failover, Hardware & Software Watchdog

Dimensions



Ordering Information

Model	Part Number	Cellular	Frequency Bands	Package Contents
TG453-NR	TG453 - NR <1> - <2>	5G NR	5G NR Sub-6 SA* (Optional Global or Regional Version) - 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	1. TG453 Unit x 1 2. Cellular Antenna x 4 3. DIN-Rail mounting kit x 1 4. 8-Pin Terminal Block x 1 5. Ethernet Cable x 1 6. Power Adapter x 1 (Optional EU/UK/AU/US/CN Type)
TG453-RC	TG453 - RC <1> - <2>	5G RedCap	5G NR Sub-6 SA* (Optional Global or Regional Version) - n1/2/3/5/7/8/12/13/14/18/20/25/26/28/30/38/40/41/48/66/70/71/77/78/79 - LTE FDD B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/30/66/70/71 - LTE TDD B34/38/39/40/41/42/43/48	1. TG453 x 1 2. Cellular Antenna x 2 3. DIN-Rail Mounting Kit x 1 4. 8-Pin Terminal Block x 1 5. Ethernet Cable x 1 6. Power Adapter x 1 (Optional EU/UK/AU/US/CN Type)
TG453-LF	TG453 - L <1> - <2>	4G LTE	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	
Part Number: <1>: 5G or 4G module for different countries and regions <2>: W=2.4G WIFI, GN=GNSS from cellular module				

- Note:**
- Region-specific cellular modules are available; consult Bivocom sales for details.
 - Compiler & SDK are provided for secondary development. Python/LUA/Node-RED require dedicated hardware&firmware; Node-RED requires 64MB Flash or larger version.
 - DSSM: Dual-SIM single-module design with automatic network failover; DSDM: Dual-SIM dual-module design supporting load balancing. TG453-NR doesn't support dual module.
 - Bivocom DMP (Device Management Platform) requires a license fee.
 - *Optional functions rely on matching hardware/firmware versions; not all features supported on one device.
 - Power consumption is measured under laboratory conditions and is for reference only.
 - *Listed certifications are pending.
 - Extended warranty pricing varies.
 - 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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