



TG465 Series
Programmable AIoT Gateways

Introduction

The TG465 is a high-performance IoT gateway featuring ARM CPU, GPU and NPU for edge and AI computing. It provides flexible memory and storage options: 2GB DDR4 RAM (8GB optional) and 16GB eMMC flash (128GB optional), with an NVMe M.2 slot for AI accelerator and SSD expansion. Ideal for mission-critical IIoT applications: BESS, Telecom sites, power, smart traffic light, etc.

Preloaded with Bivocom OS (Ubuntu optional), the gateway supports SDK-based secondary development via Node-RED, Python, C/C++ and Docker for flexible custom application deployment.

Equipped with rich industrial interfaces including 4 × GbE RJ45, 1 × RS232, 6 × RS485, 4 × DI, 4 × Relay, 2 × power output, 1 × USB3.0, 1 × USB2.0, 1 × TF slot, HDMI port and Wi-Fi 6, it easily connects to diverse field devices.

It supports 5G/4G LTE and mainstream industrial protocols such as MQTT, Modbus RTU/TCP, JSON, TCP/UDP, OPC UA*, DNP3*, IEC101/104* and SNMP. Combined with VPN encryption, it delivers efficient, stable and secure end-to-end IoT data transmission.

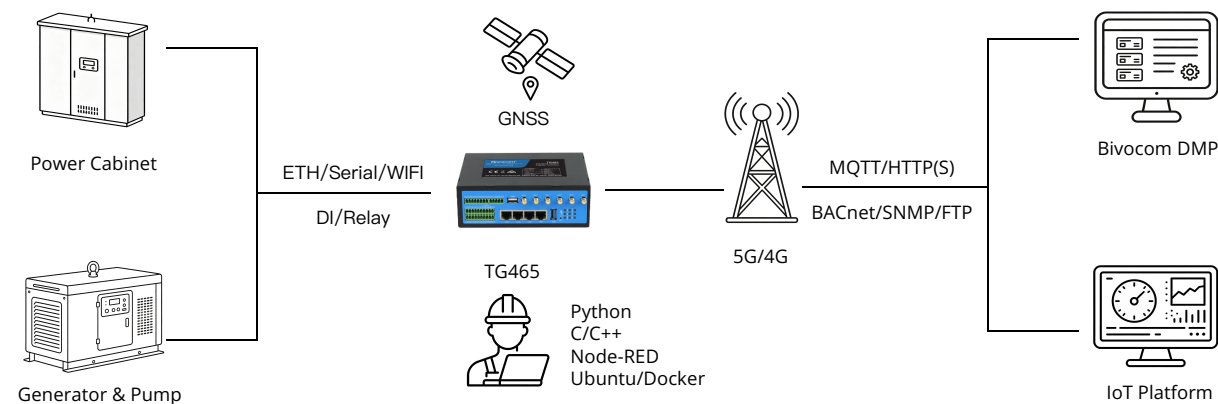
Key Features

- Optional 5G NR, 5G RedCap and 4G LTE
- 4-GbE, 2-RS232 (1 Debug), 6-RS485, 4-DI, 4-Relay, 1-USB3.0, 1-USB2.0, 1-TF Slot, 1-HDMI, 2-DC Power Output, WIFI6, GNSS (Optional)
- Programming Bivocom OS: C/C++, Python, Node-RED, Ubuntu*, Docker*
- Dual SIM for failover (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
- Solar Panel
- BESS
- Industry 4.0
- Water & Waste Water
- Oil & Gas
- ITS
- Flood Alarm

Diagram



Specifications

Systems

CPU	ARM Cortex-A55, 64-bit, Quad-core
RAM	DDR4, 2GB (Up to 8GB, Optional)
Flash	eMMC, 16GB (Up to 128GB, Optional)
NPU	512MAC , up to 1 TOPS
GPU	Mali-G52, OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, Vulkan 1.1

Cellular

Antenna	4 x 50 Ω SMA-K (TG465-NR) 2 x 50 Ω SMA-K (TG465-LF, TG465-RC)
SIM Slot	1 Micro SIM (3FF), or 2 (DSSM, Optional)

Ethernet

Ports	4 x 10/100/1000 Mbps 1 x WAN, 3 x LAN, or 4 x LAN Configurable
-------	---

Serial

Ports	2-RS232 (1-Debug, 1-Shared via RS485), 6-RS485 (or 5-RS485, 1-Shared by RS232)
Baud Rate	1200bps to 230400bps

I/O

Digital Input	4-DI (Isolation, Dry contact), Optional Wet contact (Status "1": 0-3V, Status "0": 5-30V)
Relay Output	4-Relay (Up to 5A and 30VDC/250VAC switch)
Power Output	2 (5-60VDC, controlled via device power input)

Wi-Fi

Antenna	2 × 50 Ω RP-SMA Female
Standard	802.11 a/b/g/n/ac/ax, AP and Client modes
Bands	2.4G & 5.8GHz
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	1x Micro SD Slot, Up to 32GB
M.2 Slot	1, for NVMe M.2 SSD (Optional, up to 2TB), or AI Accelerator (Optional)
USB	1x USB3.0, 1x USB2.0
Usage	Data Storage and Firmware Upgrade
HDMI	1 HDMI 2.0 (Reserved, up to 4K display)

Power

Input	5-60 VDC
Standard Power	12VDC/1.5A
Idle Mode	286 ~ 327mA@12VDC
Working Mode	396 ~ 602mA@12VDC
Super Capacitor (Optional)	Power-off alarm, data&log storage

Physical Characteristics

IP Rating	IP30
Housing & Weight	Metal, 799g (1.76lbs), without accessories
Dimensions	162x125x55mm (6.38 x 4.92 x 2.16in)
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)

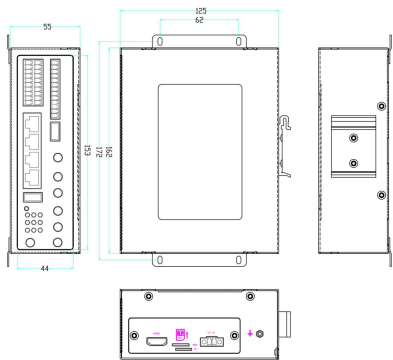
Others

Reset Button	1
LED Indicators	Signal, Alarm, GPS, WIFI, SSD, System, 5G/4G
Built-in	Watchdog, RTC, Timer
Approvals	CE*, RCM*, FCC
Warranty Period ⁶	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	MQTT, HTTP(S), Transparent TCP/UDP, FTP*
VPN	Wireguard/OpenVPN/IPsec/PPTP/L2TP/Tailscale*
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
TG465-NR	TG465 - NR <1><2> - <3>	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. TG465 Unit x 1 2. Cellular Antenna x 4 3. WIFI Antenna x 2 4. DIN-Rail mounting kit x 1 5. Ethernet Cable x 1 6. 2-Pin Terminal Block x 1 7. 10-Pin Terminal Block x 3 8. Power Adapter x 1 (Optional EU/UK/AU/US/CN Type)
TG465-RC	TG465 - RC <1> <2>- <3>	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. TG465 Unit x 1 2. Cellular Antenna x 2 3. WIFI Antenna x 2 4. DIN-Rail mounting kit x 1 5. Ethernet Cable x 1 6. 2-Pin Terminal Block x 1 7. 10-Pin Terminal Block x 3 8. Power Adapter x 1 (Optional EU/UK/AU/US/CN Type)
TG465-LF	TG465 - L <1><2> - <3>	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>: DS=dual SIM on single module, failover only
<3>: W=WIFI, G=GPS (Standalone GPS), GN=GNSS from cellular module

Note:

- 1. Region-specific cellular modules are available; consult Bivocom sales for details.
- 2. Compiler & SDK are provided for secondary development, Ubuntu requires different firmware 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.

HQ: 27-28/F, Building F14, Software Park Phase III, Xiamen, 361022, China

W: [www.bivocom.com](#) P: +86 158 8026 2905
E: [sales@bivocom.com](#) E: [support@bivocom.com](#)

Bivocom 佰沃恩 "Bivocom 佰沃恩" are proprietary registered trademarks of Bivocom. All unapproved exploitation of these marks is forbidden. Any other trade names referenced belong to the trademark holders themselves.