# G405 Edge Computing Gateway



## Product Overview

Vantron G405 industrial edge computing gateway is an Arm®-based high-performance solution built for industrial applications. The gateway features dual-SIM 4G connectivity, Wi-Fi, bluetooth, five Ethernet jacks, while supporting virtual private network (VPN) to address diversified networking requirements. It also offers multiple DI, DO, and AI channels for status monitoring, control, and data visualization.

G405 features edge computing capabilities, enabling data processing and analysis directly at the edge for faster decision-making. It supports various southbound protocols, including Modbus TCP, Modbus RTU, EtherNet/IP, ISO-on-TCP, and CC-Link, ensuring seamless communication with industrial devices. The MQTT northbound protocol allows for flexible transfer of edge data to cloud servers. Meanwhile it supports interfacing with prevailing cloud platforms, including the self-developed BlueSphere GWM platform, for remote management to ease the efforts of users by real-time monitoring, OTA updates, remote maintenance, and task assignment.

Optional industrial interfaces such as RS232, RS485, DI, DO, AI, and CAN FD enable communication with a wide range of peripherals, while the DIN rail mount offers compact and efficient space utilization in cabinets, automation systems, and industrial control panels. G405 is an ideal solution for industrial applications such as industrial automation, grid infrastructure, and water management.

## Exterior and Features
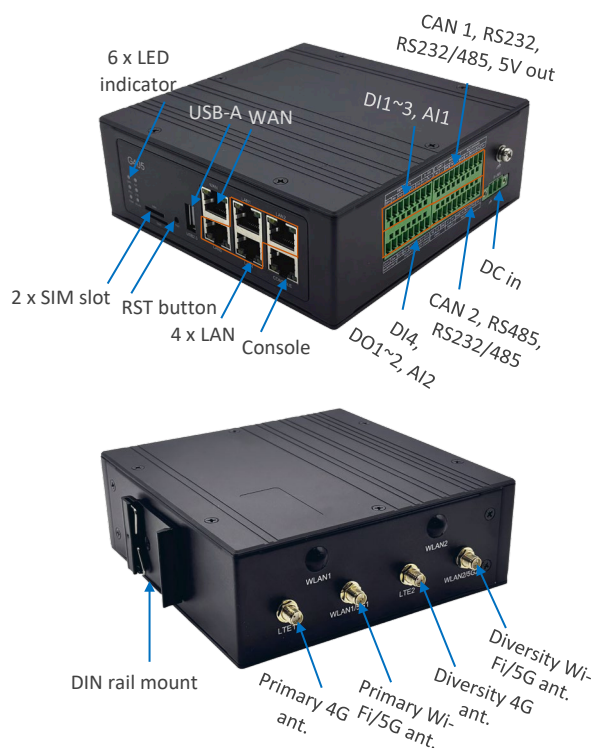


- Low power, complete industrial design
- DI/DO/AI, isolated CAN buses & RS232/RS485
- Five Gigabit ETH, dual SIM backup, Wi-Fi, Bluetooth
- Southbound and northbound protocols for data transfer
- Local edge computing support
- SDK available with system-level API
- Optional BlueSphere GWM support for remote control
- Industrial extended temperature and input voltage
- Space-efficient design for flexible installation

## G405 Edge Computing Gateway Specifications (Hardware)

| G405 | | | |
|---|---|---|---|
| **System** | CPU | Single-core 64-bit Arm Cortex-A53 microprocessor, 1.0GHz (Max.) | |
| | | Dual-core Arm Cortex-R5F MCU, 800MHz (Max.) | |
| | | Single-core Arm Cortex-M4F MCU, 400MHz (Max.) | |
| | Memory | 1GB DDR4 | |
| | Storage | 16GB eMMC | |
| **Cellular** | Modem | 4G LTE, CAT 4 | Optional: 5G |
| | SIM | 2 x Micro SIM slot | |
| | Antenna | 2 x Antenna (SMA-K connector) | |
| **Ethernet** | Port | 5 x RJ45, 10/100/1000Mbps | |
| | Configuration | 1 x WAN + 4 x LAN | |
| **Wi-Fi** | Standard | IEEE 802.11 b/g/n/ac | |
| | Frequency band | 2.4GHz, 5GHz | |
| | Working mode | AP, Station | |
| | Antenna | 2 x Antenna (RPSMA-K connector) | |
| | Security | AES, WPS | |
| **Bluetooth** | Bluetooth | Bluetooth 5.2 | |
| **I/O** | Serial port | 1 x RS232 (isolated), Max. 200kbps | 1 x RS485 (isolated), Max. 500kbps |
| | | 2 x RS232/RS485 (isolated), Max. 250kbps | 1 x 5V output |
| | USB | 1 x USB 2.0 Type-A | |
| | DI | 4 x DI (dry / wet contact) | |
| | DO | 2 x DO, 5A @30V DC | |
| | AI | 2 x AI (measurement signal: 0~20mA or 4~20mA / 0~10V or 0~5V) | |
| | CAN | 2 x CAN FD (isolated) | |
| | Debug | 1 x RJ45 console port (Baud rate: 115200) | |
| **System Control** | Button | 1 x Reset button ([2, 6s): Restart; [6, 12s): Configuration clear; [12, 20s): Factory reset; [20s,+∞): Initial state) | |
| | LED indicator | 1 x Power indicator | 1 x Internet indicator |
| | | 1 x Status indicator | 1 x 4G LTE indicator |
| | | 1 x Error indicator | 1 x WLAN indicator |
| | Watchdog timer | Hardware watchdog | |
| | RTC | Supported | |
| **Power** | Input | 9V~36V DC | |
| | Socket | 1 x 3-pin x 3.81mm | |
| | Protection | Over-current protection, Reverse polarity protection | |
| **Physical Characteristics** | Dimensions | 149mm x 140mm x 50.5mm | |
| | Enclosure | Metal | |
| | Weight | 841g (not including accessories) | |
| | Installation | DIN rail mounting | |
| | IP rating | IP40 | |
| | Cooling mode | Heat sink | |
| | Mechanical test | Drop: IEC60068-2-32 | Shock: IEC60068-2-27 |
| | | Vibration: IEC60068-2-6 | |
| **EMC** | ESD | IEC 61000-4-2 (Contact: 6kV, Air: 8kV) | |
| **Environmental Condition** | Temperature | Operating: -40℃ ~ +80℃ | Storage: -40℃ ~ +85℃ |
| | Humidity | 5%-95% RH (non-condensing) | |
| **Certification** | Compliance | FCC, ISED, CE | |
| | Carrier certification | AT & T, Verizon, T-Mobile | |

## G405 Edge Computing Gateway Specifications (Software)

| G405 | | | |
|---|---|---|---|
| **Edge Computing** | Edge computing script | JavaScript, MicroPython | |
| | Southbound protocol | Modbus TCP, Modbus RTU, EtherNet/IP, ISO-on-TCP, CC-link, etc. | |
| | Northbound protocol | MQTT | |
| **Custom Development** | IPK import | Supported | |
| | Documentation support | SDK available, API documentation | |
| **Device Management** | Operating system | Web-based VantronOS | |
| | Configuration | VantronOS, SSH, console port, cloud-based BlueSphere GWM (Optional) | |
| | Remote management | BlueSphere GWM (Optional) | |
| | Upgrade | VantronOS, BlueSphere GWM (Optional) | |
| **Routing & Network Reliability** | Network protocol | IPV4, HTTPS, TCP & UPD, NTP client and server, ARP, TLS | |
| | Link detection & report | Address: IP, URL | Protocol: ICMP, TCP, HTTP |
| | Failover | Auto routing, Auto reconnection | Network priority: Ethernet > Wi-Fi client > Cellular (def.) |
| | Dual SIM | Dual SIM failover, automatic switch | |
| | NAT | Dynamic, Static | |
| | WAN protocol | DHCP client, PPPoE, Static IP | |
| | Network management | SNMP v1/v2c/v3 | |
| | IP application | Ping, Traceroute, Nslookup, DHCP Server/Client, DDNS | |
| | IP routing | Static routing | |
| **Network Diagnostics** | Network capture | By time or packet count | |
| | Statistics | Traffic data and up time at Ethernet WAN, Wi-Fi client WAN, cellular WAN | |
| | | Cellular and Wi-Fi signal strength; SIM card switch frequency | |
| | Health check | Usage of CPU, memory, disk | |
| | | Service running status | |
| | | Alarm on Ethernet/Wi-Fi/cellular hardware abnormality | |
| | Log | System log, diagnostic log | Log export supported |
| **Security** | Firewall | Stateful, whitelist control, port mapping | |
| | Access control | MAC address filtering, IP address filtering | |
| | VPN | PPTP, L2TP, GRE, IPSec, OpenVPN | |
| | Firmware validation | SHA256 checksum | |

## Product Outlines
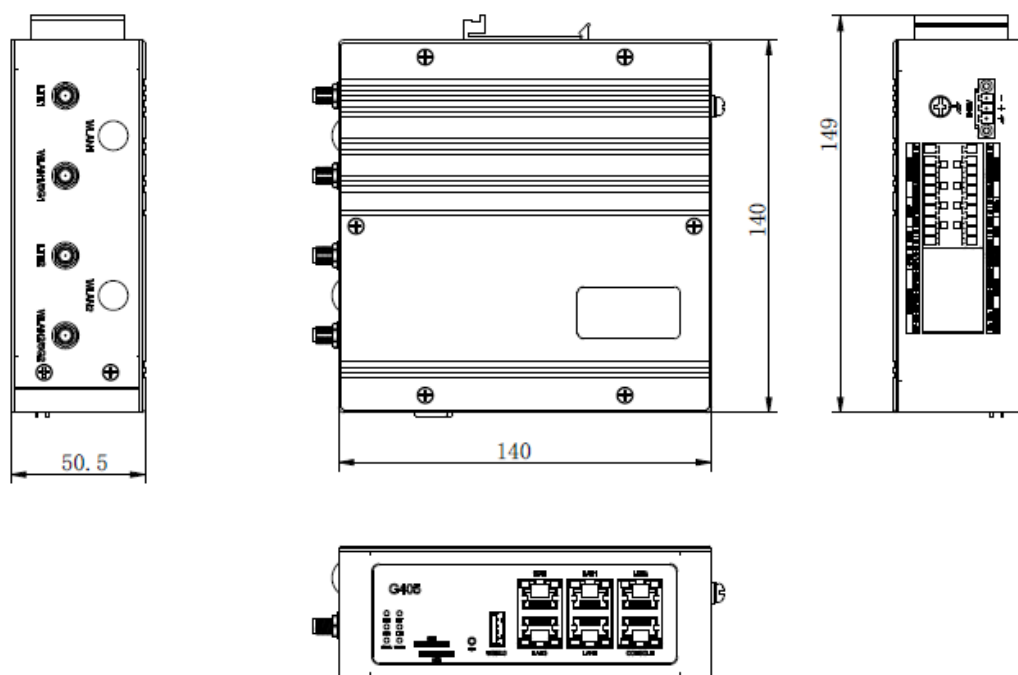


## Ordering Information

| Ordering No. | Ethernet | Wi-Fi | Cellular | I/O |
|---|---|---|---|---|
| G405 | 1 x WAN, 4 x LAN | IEEE 802.11 b/g/n/ac | 4G LTE | RS232/RS485, 5V output, CAN, DI, DO, AI |
| G402-LI | 1 x WAN, 1 x LAN | IEEE 802.11 b/g/n/ac | 4G LTE | RS232/RS485, 5V output, CAN |
| G402-5G | 1 x WAN, 1 x LAN | IEEE 802.11 b/g/n/ac | 5G | RS232/RS485, 5V output, CAN, DI, DO, AI |

| Packing List | |
|---|---|
| G405 Edge computing gateway | 1 |
| Wi-Fi antenna | 2 |
| Cellular antenna (4G) | 2 |
| Mating connector for CAN, COM, 5V out | 2 |
| DC power connector | 1 |

| Optional Accessories | |
|---|---|
| 12V DC Power adapter | 1 |
| Power cord | 1 |
| 5G antenna | 2 |
| Mating connector for DI, DO, AI | 2 |