

# Product Specifications



## WG585

## Industrial Intelligent Gateway

Multi-network,  
multi-serial port

Extensive library of  
protocols

Highly secure and  
reliable

Fully remote operations  
and maintenance

## Product Overview

The WG585 Series Industrial Intelligent Gateway is an industrial-grade data acquisition and edge computing intelligent terminal developed by WideIoT for industrial digitalization applications. It focuses on industrial equipment data acquisition, protocol conversion, edge computing, cloud data transmission, and remote maintenance.



The gateway is equipped with 5\*100Mbps Ethernet ports and 2 RS485/RS232 serial ports. It supports multiple network access methods, including 5G RedCap, 4G, WiFi, and wired Ethernet. It can collect data from various industrial devices, including PLC controllers, industrial instruments, and sensors.

The WG585 Series is widely used in various industries, including smart factories, intelligent equipment, energy management, smart cities, water conservancy and utilities, environmental monitoring, smart agriculture, mining, and oil fields. It serves as an important edge node for building Industrial Internet of Things (IIoT) and Industrial Internet platforms.

## Product features

- ✓ **Industrial-grade reliability:** wide temperature and voltage range, multiple layers of electromagnetic isolation, ensuring uninterrupted operation in harsh industrial environments;
- ✓ **Full-scenario protocol compatibility:** Supports a wide range of industrial protocols, covering mainstream industry protocols and industry-specific standards across various sectors. Enables large-scale device data acquisition and data standardization;
- ✓ **Powerful edge computing:** Supports data pre-processing, data processing, data alerts and local decision-making at the edge, significantly reducing the load on central nodes and increasing the number of concurrent device connections they can handle;
- ✓ **Cloud-based data security:** Supports integration with various IoT platforms and

industry-specific applications, and features open APIs to facilitate the development of custom platforms; offers multi-layered data access controls and encryption capabilities, including VPN encryption, TLS data encryption, and a choice of software and hardware encryption options; supports automatic reconnection in the event of a network outage and resume-from-breakpoint functionality;

- ✓ **Convenient operation and maintenance management:** Supports local and remote configuration management, as well as automatic fault diagnosis and recovery. It also supports a dedicated remote maintenance line to facilitate remote operation and maintenance, thereby significantly reducing on-site operational costs.

### Typical topology



## Methods of application

- The gateway collects data from on-site equipment and integrates it with various cloud platforms to enable data visualisation
- The gateway and device link form a remote maintenance system, enabling engineers to carry out remote maintenance on on-site equipment
- The gateway converts various protocols into OPC UA, Modbus, IEC 61850, BACnet, IEC 104 and other protocols
- The gateway incorporates various edge intelligence algorithms to enable real-time control and policy calculations at the field level

## Application scenarios



Smart Factory



Intelligent Equipment



Energy Management



Smart City



Water Resources  
Management



Environmental  
Monitoring



Smart Agriculture



Mining and Oil &  
Gas Fields

## Product specifications

### Hardware Parameters

#### Hardware platform

|                   |                          |
|-------------------|--------------------------|
| CPU Core          | 580MHZ single-core       |
| Runtime storage   | 128MB DDR2               |
| Programme storage | 16MB 32MB SPI-FLASH      |
| Data storage      | 8GB(8192MB)EMMC Optional |

#### Interface specifications

|                   |                                                                                                                                            |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Power socket      | DC 9V-35V (terminal block)                                                                                                                 |
| Ethernet port     | 5*10/100Mbps Ethernet ports,1.5KV Network isolation and transformer protection                                                             |
| Serial port       | 2*RS485 serial ports(RS232 optional),15 kV ESD protection                                                                                  |
| 5G network        | 5G Redcap ,Maximum downlink speed 226 Mbps, Maximum uplink speed 120 Mbps (optional)                                                       |
| 4G network        | LTE Cat4 ,Maximum downlink speed 150Mbps,Maximum uplink speed 50Mbps<br>LTE Cat1 ,Maximum downlink speed 10Mbps,Maximum uplink speed 5Mbps |
| WIFI network      | 2.4GHZ,Maximum speed 300Mbps,802.11b/g/n (optional)                                                                                        |
| GNSS network      | Supports Beidou, GPS ,etc. positioning systems (optional)                                                                                  |
| SIM card slot     | Drawer-type SIM card slot*1 (standard SIM card)                                                                                            |
| Reset button      | Pinhole reset button                                                                                                                       |
| Antenna connector | 5G RedCap:SMA x 2/4G LTE:SMA x 1/WLAN: RP-SMA x 2/GNSS:SMA x 1                                                                             |

#### Mechanical properties

|                     |                          |
|---------------------|--------------------------|
| Dimensions          | 129x107x45(mm)           |
| Installation method | Rail-mounted             |
| Equipment housing   | Metal casing             |
| Protection rating   | IP30                     |
| Heat dissipation    | Fanless heat dissipation |
| Weight              | 500g                     |

#### Equipment operating environment

|                     |                           |
|---------------------|---------------------------|
| Ambient humidity    | 5% ~ 95% (Non-condensing) |
| Storage temperature | -40 °C ~ 85°C             |

|                                                          |                                                                                                                                                                                   |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating temperature                                    | -30°C ~ 70°C                                                                                                                                                                      |
| <b>Indicator light</b>                                   |                                                                                                                                                                                   |
| 2*4 indicator light                                      | PWR power indicator (red),Status indicator (green),WARN Warning indicator (yellow),ERR Fault indicator (red),3*4G network signal strength indicators (green),WiFi indicator(blue) |
| <b>EMC Standards</b>                                     |                                                                                                                                                                                   |
| Electrostatic discharge immunity                         | GB/T17626.2-2018,level4                                                                                                                                                           |
| Electrical Fast Transient Pulse Immunity                 | GB/T17626.4-2018,level4                                                                                                                                                           |
| Oscillating magnetic field Immunity to interference      | GB/T17626.18-2016,level4                                                                                                                                                          |
| Radio-frequency electromagnetic fields Radiated immunity | GB/T17626.3-2016,level4                                                                                                                                                           |
| Surge (transient) Immunity                               | GB/T17626.5-2019,level4                                                                                                                                                           |
| Power-frequency magnetic field Immunity                  | GB/T17626.8-2006,level4                                                                                                                                                           |
| <b>Physical properties</b>                               |                                                                                                                                                                                   |
| Vibration                                                | GB/T2423.10-2008                                                                                                                                                                  |
| Impact                                                   | GB/T2423.5-2019                                                                                                                                                                   |
| Fall                                                     | GB/T2423.8-1995                                                                                                                                                                   |

## Software specifications

### Network functions

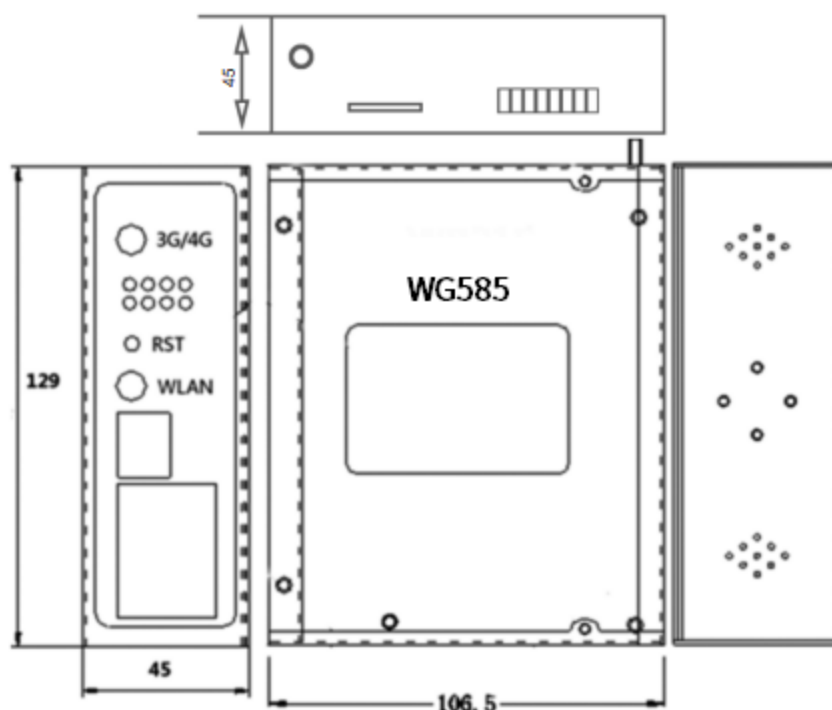
|                       |                                                                                                                                                                        |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Network access        | Supports 5G-RedCap/4G-Cat1/4G-Cat4,WIFI(AP STA Relay),Ethernet access                                                                                                  |
| Network certification | Supports CHAP/PAP authentication,Supports APN and VPDN access                                                                                                          |
| Cellular network      | GSM/GPRS/EDGEUMTS/HSPA+/CDMA2000-EVDO/TD-SCDMA/<br>TDD-LTE/FDD-LTE/5G-RedCap <a href="#">For further details, please refer to the 'List of Cellular Network Bands'</a> |
| LAN protocol          | Supports ARP and Ethernet                                                                                                                                              |
| WAN protocol          | Supports PPP, PPPoE, DHCP and static IP                                                                                                                                |
| IP Application        | Supports Ping,Trace,DHCP Server,DHCP Relay,DHCP Client,DNS relay                                                                                                       |
| IP routing            | Supports static routing                                                                                                                                                |
| NAT                   | Source NAT, Destination NAT, DMZ                                                                                                                                       |

### Data acquisition functions

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Smart data collection | Supports a single gateway collecting data from multiple devices of different types, with the flexibility to define data acquisition projects                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Protocol parsing      | Supports protocol parsing for mainstream PLC controllers, instruments, sensors, and various industrial controllers; <a href="#">for further details, please refer to the 'Gateway Protocol Support List'</a><br>Supports data acquisition from major PLC brands, including Siemens, Schneider, Omron, Mitsubishi, Delta, Beckhoff, Allen-Bradley (AB), Keyence, and other commonly used PLCs;<br>Supports data acquisition from various water meters, electricity meters, heat meters, gas meters, as well as sensors, frequency converters, and photovoltaic inverters |
| Edge computing        | It supports data filtering, grouped data collection, alarm calculations, formula calculations, local programming and data storage, amongst other functions                                                                                                                                                                                                                                                                                                                                                                                                              |
| Data standardisation  | Supports merging multiple devices and splitting sub-devices;Supports various standardisation processes, including data format conversion                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Cloud access          | Supports simultaneous integration with multiple data centres of different types or of the same type<br>Supports integration with WidelIoT Cloud, Alibaba Cloud, Huawei Cloud, Microsoft Azure, MES, EMS, SCADA systems, as well as environmental monitoring platforms, water conservancy platforms, power management platforms, and other cloud platforms and monitoring software                                                                                                                                                                                       |
| Data forwarding       | Conversion of southbound data from multiple protocols into a single northbound protocol, such as OPC UA, Modbus TCP, IEC 104, IEC 61850, BACnet, etc.<br>Supports hydrology and water conservancy protocols such as SL651, SZY206, SL427, and others<br>Supports HJ212 environmental monitoring protocol<br>Supports integration with MySQL and SQL Server databases                                                                                                                                                                                                    |

|                                   |                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Remote maintenance                | In conjunction with the WideIoT Equipment Management Platform and the Equipment Maintenance Express, this enables remote diagnostics, remote debugging and upgrades of on-site gateways or equipment                                                                                                             |
| Open API                          | Data interface supporting MQTT (JSON format), easy integration with various platforms                                                                                                                                                                                                                            |
| <b>Security</b>                   |                                                                                                                                                                                                                                                                                                                  |
| Safety and Security               | Built-in firewall functionality, providing comprehensive network isolation and protection: supports stateful packet inspection (SPI), protection against denial-of-service (DoS) attacks, ping probe packets, source port mapping, destination port mapping, DMZ, access control lists (ACLs) and IP-MAC binding |
| Data security                     | Supports L2TP VPN, PPTP VPN, Open VPN, IPSec VPN, ZeroTier VPN, etc.                                                                                                                                                                                                                                             |
| Security certification            | TLS encryption, with access via username and password or certificate authentication                                                                                                                                                                                                                              |
| <b>Reliability</b>                |                                                                                                                                                                                                                                                                                                                  |
| Link detection                    | Supports sending ping packets for network monitoring and automatically reconnects if the connection is lost                                                                                                                                                                                                      |
| Multi-network redundancy          | Supports automatic switching between multiple networks, including Ethernet, Wi-Fi, 4G and 5G Redcap                                                                                                                                                                                                              |
| Watchdog protection               | Software and hardware watchdogs support the device's self-test technology and enable self-repair in the event of operational faults                                                                                                                                                                              |
| Application care                  | Monitor all application modules in real time, anticipate and handle potential errors, and perform self-healing                                                                                                                                                                                                   |
| <b>Management and maintenance</b> |                                                                                                                                                                                                                                                                                                                  |
| Configuration Engineering         | Supports both local and remote configuration of data acquisition projects                                                                                                                                                                                                                                        |
| App update                        | Supports local and remote software updates, as well as rapid product feature releases and iterations                                                                                                                                                                                                             |
| Remote maintenance                | Supports remote O&M gateways and devices connected to the gateways (such as PLCs) via Device Express and WideIoT Cloud                                                                                                                                                                                           |
| Logging function                  | Supports comprehensive and detailed logging functionality, facilitating rapid troubleshooting and diagnosis                                                                                                                                                                                                      |
| Import and Export                 | Supports the import and export of engineering files, facilitating diagnostics and batch configuration                                                                                                                                                                                                            |
| Diagnostic commands               | Supports a comprehensive diagnostic command interface, enabling local self-diagnosis                                                                                                                                                                                                                             |
| Status Enquiry                    | System status, module status, network connection status, application status, etc.                                                                                                                                                                                                                                |

## Product dimensions



## Order details

### Hardware Selection

|              |                                                                                                                                                                                                                           |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Order number | WG585-<CELL>-<Module>-<SoftWare>                                                                                                                                                                                          |
| CELL         | LL02:4G Cat1;<br>LL07:4G Cat4;<br>NF02:5G Redcap                                                                                                                                                                          |
| Module       | W:WIFI Network;<br>E:EMMC Storage;<br>G:GNSS Positioning;                                                                                                                                                                 |
| SoftWare     | MQTT(Universal version),CNC(CNC version),WCONN(Device Express),EMS(Energy version),etc.                                                                                                                                   |
| Example      | WG585-LL07-MQTT:Supports 4G CAT4 with full network compatibility,Universal gateway<br>WG585-LL02-W-MQTT:Supports 4G CAT1 and 2.4G Wi-F,Universal gateway<br>WG585-NF02-MQTT:Supports 5G RedCap,Universal Gateway<br>..... |

\*This table is for reference only. The exact model selection shall be determined by the engineering team

For further information, please visit the WideIoT website: <https://www.wideiot.com>.

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## About WideIoT

Founded in 2011 and headquartered in Xiamen, China, WideIoT is a specialist provider of industrial IoT products and digital solutions, focusing on sectors such as smart factories, smart equipment, energy management, hydrology and water resources, smart water management, and smart cities; The company offers a comprehensive range of products, including industrial wireless routers, industrial switches, industrial smart gateways, industrial data terminals, smart I/O modules, industrial converters, AI edge computers and IoT data cloud platforms. It is a high-tech enterprise integrating R&D, production, sales and service.



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