WidelOT

Product Specifications



WG282

Industrial Intelligent Gateway

Multi-network, multi-serial port | Extensive library of protocols | Highly secure and reliable | Fully remote operations and maintenance

Product Overview

The WG282 Series Industrial Intelligent Gateway is an industrial-grade smart terminal for data acquisition and edge computing developed by WidelOT for industrial digitalization applications. Designed specifically for data acquisition, protocol parsing, edge computing, cloud data transmission, and remote maintenance of industrial equipment, it features two 100 Mbps Ethernet ports and two RS-485/RS-232 serial ports. It supports multiple network access methods, including 5G RedCap, 4G, Wi-Fi, wired Ethernet, and LoRa, and can collect data from various PLCs, instruments, and sensors. It is widely used in numerous industries, including smart factories, smart equipment, energy management, smart cities, water conservancy and water services, environmental monitoring, smart agriculture, mining, and oil fields, serving as a critical edge node for building industrial IoT and industrial internet networks.



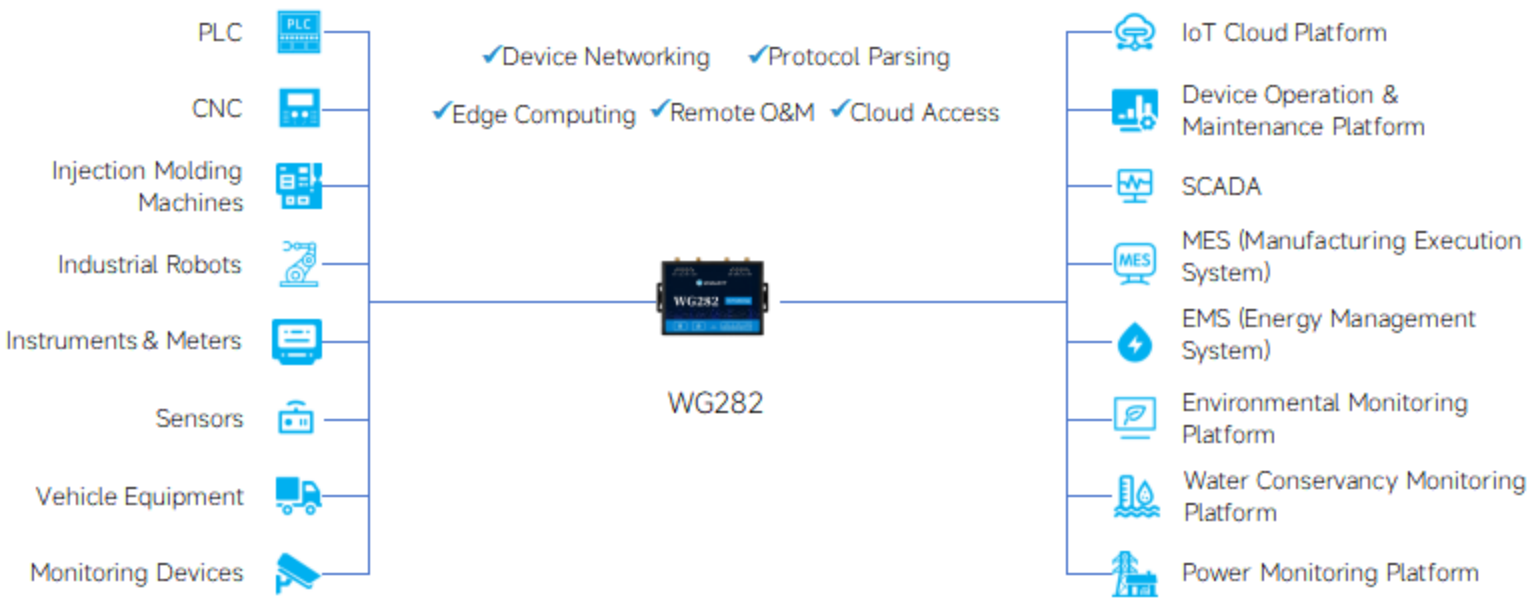
Product features

- ✓ **Industrial-grade reliable design:** Wide temperature and wide voltage design with multiple electromagnetic isolation protections for continuous operation in harsh industrial environments.
- ✓ **Full-scenario protocol compatibility:** Supports a wide range of industrial protocols, covering mainstream protocols and industry-specific specifications, enabling data collection from large numbers of devices and data standardization.
- ✓ **Powerful edge computing:** Supports data preprocessing, data processing, alarms, and local decision-making at the edge, greatly reducing the load on central nodes and

increasing their concurrent device access capacity.

- ✓ **Secure cloud connectivity:** Supports connection to various IoT platforms and industry application software, with open APIs for customized platform development. Provides multiple data access control and encryption functions, including VPN and TLS encryption, optional software and hardware encryption, automatic reconnection after network outages, and resumable data transmission.
- ✓ **Convenient O&M management:** Supports local and remote configuration, fault self-diagnosis and self-recovery, and remote device maintenance through the Equipment Express service, significantly reducing on-site O&M costs.

Typical Topology



Application Methods

- The gateway collects field device data and connects it to various cloud platforms for device data visualization.
- The gateway and Equipment Express form a remote maintenance system, enabling engineers to remotely maintain field devices.
- The gateway converts various protocols into OPC UA, Modbus, IEC 61850, BACnet, IEC 104, and other protocols.
- The gateway can run various edge intelligence algorithms to perform real-time control and strategy calculations at the field level.
- The gateway works with LoRa terminals to build local LoRa networks (point-to-point and point-to-multipoint).

Application Scenarios


Smart Factory


Intelligent Equipment


Energy Management


Smart City


Water Resources Management


Environmental Monitoring


Smart Agriculture


Mining and Oil & Gas Fields

Product specifications

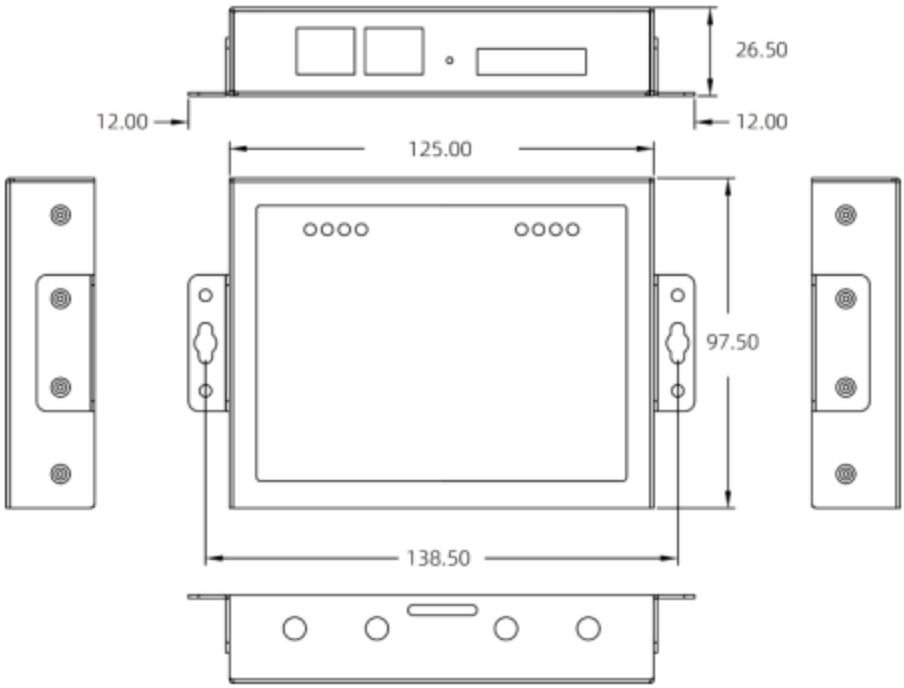
Hardware Parameters	
Hardware platform	
CPU Core	580MHZ single-core
Operating Memory	128MB DDR2
Programme storage	32MB SPI-FLASH
Interface specifications	
Power Supply	DC 9V-35V (terminal block)
Ethernet Port	2*10/100Mbps Ethernet ports, with 1.5 kV network isolation transformer protection
Serial Port	2 × RS485 serial ports (RS232 optional), 15 kV ESD protection
5G Network	5G RedCap, maximum downlink 226 Mbps / uplink 120 Mbps (optional)
4G Network	LTE Cat 4, maximum downlink 150 Mbps, maximum uplink 50 Mbps LTE Cat 1, maximum downlink 10 Mbps, maximum uplink 5 Mbps
Wi-Fi Network	2.4 GHz, up to 300 Mbps, 802.11b/g/n (optional)
GNSS	Supports BeiDou|GPS and other positioning systems (optional)
SIM card slot	Nano-SIM * 2 (eSIM optional)
Reset Button	Pinhole reset button
Antenna Connectors	5G RedCap:SMA x 2/4G LTE:SMA x 1/WLAN: RP-SMA x 2/GNSS:SMA x 1
Power Supply	DC 9V-35V (terminal block)
Mechanical properties	
Dimensions	125*97.5*26.5(mm)
Installation	Desktop
Equipment housing	Metal casing
Protection rating	IP30
Heat dissipation	Fanless heat dissipation
Weight	380g (Weights vary depending on the configuration)
Equipment operating environment	
Ambient humidity	5% ~ 95% (Non-condensing)
Storage temperature	-40 °C~ 85°C
Operating	-30°C ~ 70°C

temperature	
Indicator light	
2*4 indicator light	PWR power Indicator , LIVE status Indicator, WARN warning Indicator , ERR error Indicator , 3 × cellular signal strength Indicators, or NET network Indicator
EMC Standards	
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
Physical properties	
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/ TDD-LTE/FDD-LTE/5G-RedCap **For further details, please refer to the 'List of Cellular Network Bands'**
LAN protocol	Supports ARP and Ethernet
WAN protocol	Supports PPP, PPPoE, DHCP and static IP
LoRa Networking	W-LoRaLink protocol for point-to-point and point-to-multipoint networking
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,;**for further details, please refer to the 'Gateway Protocol Support List'** Supports data acquisition from major PLC brands, including Siemens, Schneider, Omron, Mitsubishi, Delta, Beckhoff, Allen-Bradley (AB), Keyence, and other commonly used PLCs; 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 connection to multiple data centers of different or the same types. Supports connection to WidelOT Cloud, Alibaba Cloud, Huawei Cloud, Microsoft Cloud, MES, EMS, SCADA, environmental protection platforms, water conservancy platforms, power 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. Supports hydrology and water conservancy protocols such as SL651, SZY206, SL427, and others

	Supports HJ212 environmental monitoring protocol Supports integration with MySQL and SQL Server databases
Remote maintenance	In conjunction with the WidelOT 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
Security	
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
Reliability	
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
Management and maintenance	
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 WidelOT 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	WG282-<CELL>-<Module>-<SoftWare>
CELL (Cellular network)	LL02: 4G Cat1; LL07: 4G Cat4; NF02: 5G Redcap
Module (Hardware module)	W: WIFI Network; G: GNSS Positioning
SoftWare (Software functions)	MQTT（IoT gateway），CNC （CNC gateway），WCONN（Equipment express），EMS（Energy gateway）.....
Example	WG282-LL07-MQTT:Supports 4G CAT4 universal compatibility, IoT gateway WG282-LL02-W-MQTT: Supports 4G CAT1 and 2.4G WIFI, IoT gateway WG282-NF02-MQTT: Supports 5GRedCap, IoT gateway .....

* This table is for model selection reference only. The exact model is subject to engineering confirmation.

For further information, please visit the WidelOT website: https://www.wideiot.com.

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About WidelOT

Founded in 2011 and headquartered in Xiamen, China, WidelOT 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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