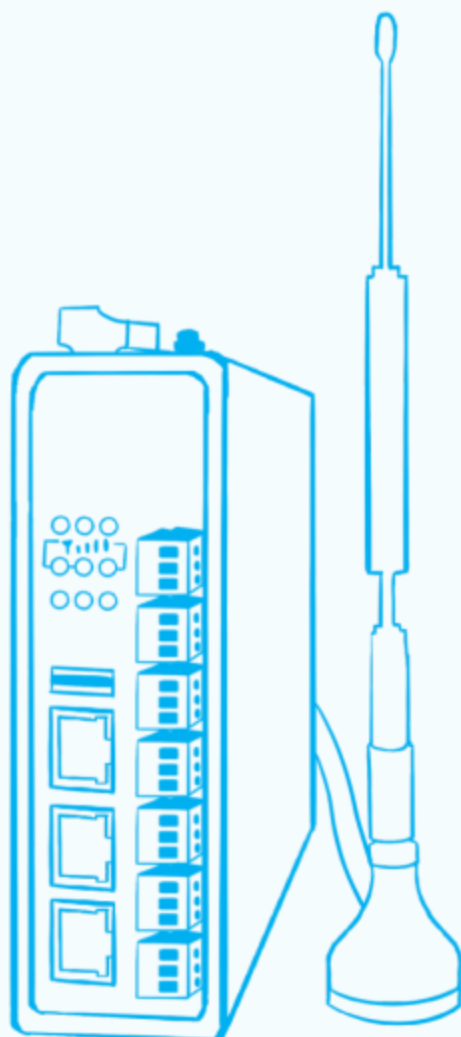


Industrial Intelligence Gateway (WG793)



SPECIFICATION

Product Introduction

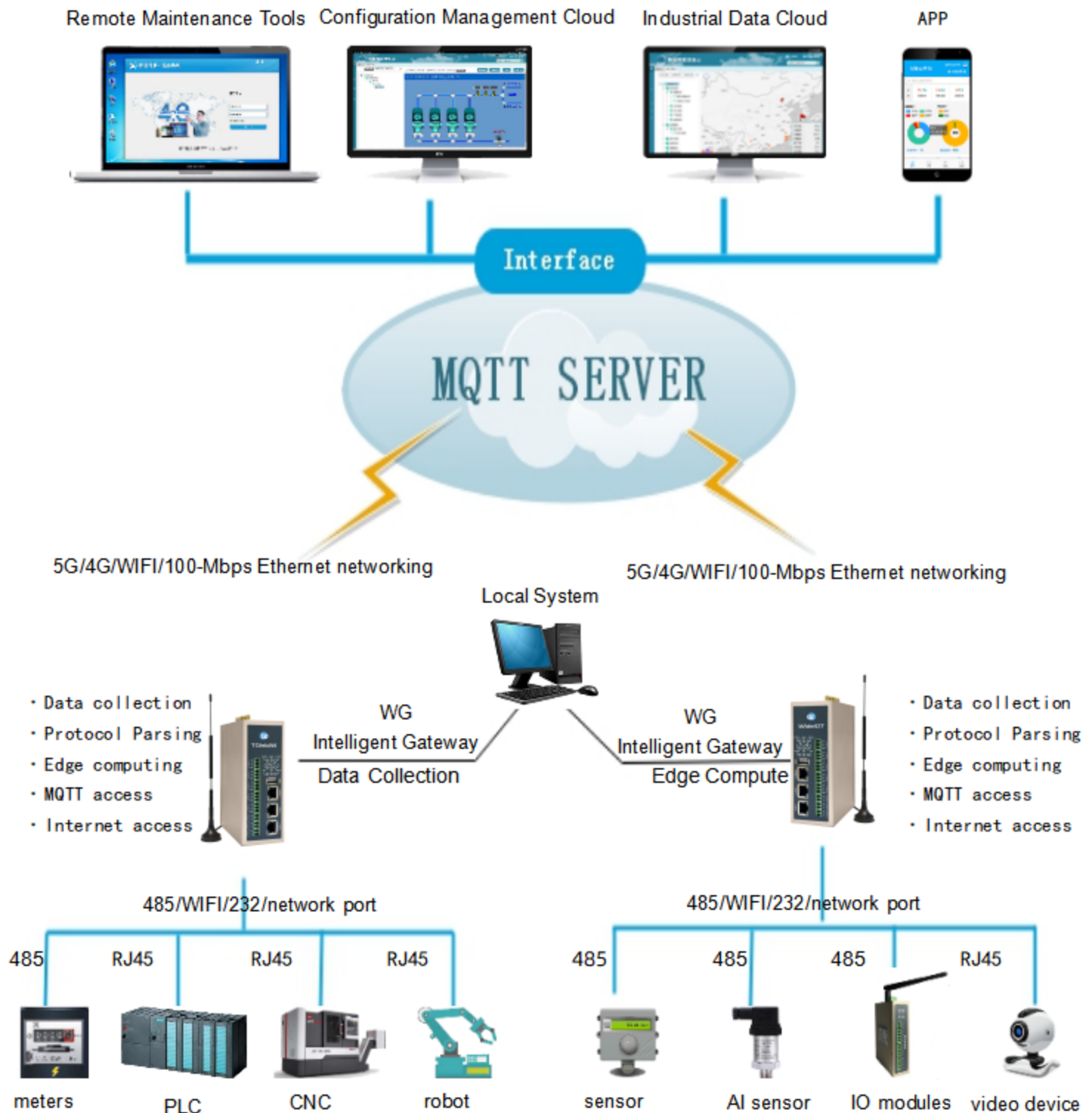
The WG793 series of industrial intelligent gateways is a high-performance, industrial-grade edge computing and high-reliability intelligent gateway for the integration of informatization and industrialization in the industrial Internet field. It can not only provide reliable network access for industrial sites but also offer functions like data collection, edge computing, and cloud adaptation at edge nodes for industrial applications.



The WG793 industrial intelligent gateway has three network ports, ten serial ports, and one USB port. It supports multiple network access methods such as 5G/4G/WIFI (Dual-Band)/Wired Ethernet. It can collect data from various industrial devices including PLCs, instruments, CNC machines, and robotic arms. With built-in industrial protocols and edge computing functions, it can connect to industrial Internet platforms and host computer software through protocols like MQTT/MODBUS/OPC UA/HTTP. It also supports advanced functions like serial port forwarding, data passthrough, remote maintenance, remote configuration management, and data encryption.

The WG793 industrial intelligent gateway, with its rich application functions and high - reliability features, is widely used in the following industries: Intelligent factories, Equipment manufacturers, Environmental monitoring, Energy monitoring, Municipal projects such as water supply, heating, and gas supply, Smart agriculture, Intelligent aquaculture, Intelligent buildings, Industrial automation...

Topological Graph



Application Methods

■ Scenario 1: Self - Developing a Cloud Platform with the Gateway

By using the WideIoT industrial intelligent gateway, users can independently develop and build an Internet of Things platform and an industrial Internet system according to the "Open Platform Format API" (MQTT protocol + JSON message) provided by WideIoT..

■ Scenario 2: Access the public IoT platform via a gateway

Adopt the WideIoT industrial intelligent gateway to directly connect to existing and mature third - party platforms. The WideIoT gateway has been adapted to platforms such as Azure IoT , Amazon IoT , Alibaba IoT , Huawei IoT , and others.

■ Scenario 3: Equipment Remote Maintenance and Management System

Use the WideIoT industrial intelligent gateway and the equipment maintenance express line to achieve remote diagnosis, remote debugging, and remote program uploading/downloading for remote on - site equipment (such as PLCs and intelligent controllers).

■ Scenario 4: Overall Internet of Things Application and Industrial Digital Solution

Use the WideIoT gateway to connect to the application cloud platform of WideIoT, realizing remote data monitoring, video monitoring, and operation screen monitoring of on - site equipment.

■ Scenario 5: Protocol Conversion for Local Interconnection and Intercommunication

Employ the WideIoT gateway to convert multiple protocols into a standard protocol, such as Modbus TCP or OPC UA, enabling mutual communication among different local devices..

Product Features



Abundant Networking Functions and Interfaces

Support three Gigabit network ports, ten serial ports (485/232), one USB port, and multiple networking access methods including 5G, 4G, dual-band WIFI, and wired Ethernet.



Powerful Protocol Collection Ability

It embeds a professional protocol engine to achieve south - bound data collection of various devices such as PLCs, instruments, machine tools, robotic arms, and power equipment. It also supports personalized protocol customization and development. Through local or cloud platforms, edge collection templates and collection strategies can be adjusted and optimized to achieve efficient data uploading to the cloud. A standardized engine is used to standardize data from different types of devices.



Flexible Cloud Adaptation and Access Capability

Supports simultaneous access to different types of cloud platforms and software. It can access remote software platforms through methods such as MQTT, MODBUS, OPC UA, SQL, and HTTP databases in the northbound direction. The types of platforms include customer - developed cloud platforms, WideIoT equipment maintenance management platforms, WideIoT configuration cloud platforms, Azure IoT , Amazon IoT , Alibaba IoT , Huawei IoT, etc.



Rich Industrial Edge Application Functions

Supports protocol forwarding functions to convert multiple protocols to Modbus and other protocols for rapid access to local systems. It also supports functions such as device time calibration, gateway anti - disassembly, network disconnection reconnection, breakpoint resumption, link encryption, and firewall functions.



Powerful Edge - Computing Function

Supports various edge computing functions such as intelligent collection, data filtering, alarm reporting, jump - change triggering, formula calculation, and grouping strategies. After establishing device models and standardizing data, it can greatly reduce the pressure on the cloud service center, improve the system's robustness and high - concurrency performance. After eliminating device heterogeneity and achieving standardization, it can greatly save project research and development and construction costs.



High reliability embedded system design

It embeds multiple software and hardware watchdogs, which is very suitable for high - reliability applications in harsh industrial environments. Through methods such as watchdogs, network disconnection reconnection, breakpoint resume transmission, and function monitoring, it realizes all - round and multi - dimensional device anomaly monitoring and self - healing function design from the system layer, network layer, and application layer, ensuring the real - time online and always - online status of devices and applications, which is very suitable for unattended distributed site applications.



Convenient Remote Operation and Maintenance Function

The WideIoT industrial intelligent gateway embeds a remote operation and maintenance module. Together with the WideIoT equipment operation and maintenance express line and the equipment maintenance cloud platform, it builds a safe and reliable data channel to the remote device site for users, enabling functions such as remote configuration, remote debugging, remote diagnosis, and remote program update of on - site devices. At the same time, together with the WideIoT gateway management cloud platform, it can realize remote configuration, monitoring, diagnosis, and program update of gateways distributed around the world.



Easy - to - Integrate API Interface

The WideIoT gateway provides rich API interfaces for software developers. Through the open - platform - format API of WideIoT, data collection, two - way control, and remote management of on - site devices can be achieved, allowing users to quickly build advanced and professional industrial application systems.



Powerful Security Function

1) Data Transmission Security: Supports L2TP, PPTP, Open VPN, and CA certificates to ensure secure data transmission.

2) Network Protection Security: It has a powerful firewall function and can customize comprehensive protection strategies according to customer requirements. For example, it supports SPI full - state detection, Secure Shell (SSH), intrusion protection (Ping - prohibited), DDoS defense, attack defense, IP - MAC binding and other firewall functions to protect the network from external attacks.

3) Identity Authentication and Encryption: Provide identity authentication and end-to-end encryption services for all nodes, including the device side and various cloud services. The IoT suite also provides device-level permission granularity services to ensure that only devices or applications with corresponding access rights can operate certain resources.

Product Specifications

Software Specifications

Network Function	Network Access	Support 5G RedCap, 4G, WIFI, and Ethernet access
	Network Authentication	Supports CHAP/PAP authentication and APN access
	Network Standards	GSM/GPRS/EDGE UMTS/HSPA+/CDMA2000-EVDO/TD-SCDMA/TDD-LTE/FDD LTE/NR 5G (specific frequency band information please refer to the order information table)
	LAN Protocols	Supports ARP
	WAN Protocols	Supports PPP
	IP Application	Support Ping, Tracer, DHCP Server, DHCP Relay, DHCP Client, DNS relay, DDNS, ROUTE, NAT, DMZ
	IP Routing	Support static routing
WIFI function (optional)	Protocol Standard	Support IEEE 802.11b/g/n or IEEE 802.11ac/b/g/n
	Working Mode	Support FAT AP, FIT AP, STA, Relay, etc.
	Band Rate	Support 2.4G/5.8G dual-band, with selectable rates from 300Mbps to 1300Mbps.
	Security Features	Support open system, shared key, WPA/WPA2 authentication
		Support WEP/TKIP/AES encryption
	Transmission Distance	100 - 300m (the actual transmission distance depends on the site environment)
Security	Protection Security	Support full-state packet inspection (SPI), prevent denial-of-service (DoS) attacks, filter multicast/Ping probe packets, source port mapping, destination port mapping, DMZ, access control function (ACL), and IP-MAC binding
	Data Security	Support L2TP VPN/PPTP VPN/OPEN VPN/IPSec VPN (optional)
	Security Authentication	TLS security encryption, username - password, and certificate - based access authentication
	Firewall	Built-in firewall function for comprehensive network isolation and protection

Reliability	Link Detection	Support sending heartbeat detection packets for detection and automatic reconnection in case of disconnection
	Watchdog Protection	Software and hardware watchdogs support device operation self-inspection technology, and the device can self-repair in case of operation failures
	Function Security Guard	Real-time monitors various function modules, predicts and handles possible errors, and self-heals
Intelligence	Intelligent Collection	Patented fast and stable collection algorithms ensure stable, reliable, and efficient data collection. One gateway can collect data from multiple different types of devices
	Protocol Parsing	Supports the protocol parsing of mainstream PLC controllers, instruments, collectors, and various controllers (Siemens, Schneider, Omron, Mitsubishi, Delta, Modbus, etc.)
	Edge Computing	Can realize functions such as data filtering, grouped collection, alarm calculation, and time-series error correction
	Standardization	Standardizes data of various protocols and builds device models for standardized applications
	Cloud Access	Supports simultaneous connection to multiple different or the same type of data centers (WidelOT Cloud, Azure IoT, Amazon IoT, Alibaba IoT, Huawei IoT, etc.)
	Data Penetration	Supports data penetration function, and realizes data passthrough applications in conjunction with the equipment express line
	Remote Maintenance	In conjunction with the equipment maintenance express line, it can realize remote diagnosis, remote debugging, and upgrade of on-site devices
	Protocol Forwarding	Converts different protocols into a unified protocol, such as Modbus TCP
	Serial - Port Forwarding	Forward serial-port data to another serial port to achieve multi-master-to-one-slave architecture data
	Sub device Model	Divides real master devices into multiple virtual sub-devices according to business needs through virtual sub-devices
	Breakpoint Resume	Support breakpoint resumption, and storage media include memory/EMMC/SSD.
	Data Storage	Historical data can be stored in memory or EMMC
	Bidirectional control	Supports various controls such as data timed reporting, immediate read, immediate write, batch read, and batch write
	Channel Monitoring	Supports reporting the online status and heartbeat of devices and gateways to monitor the link status

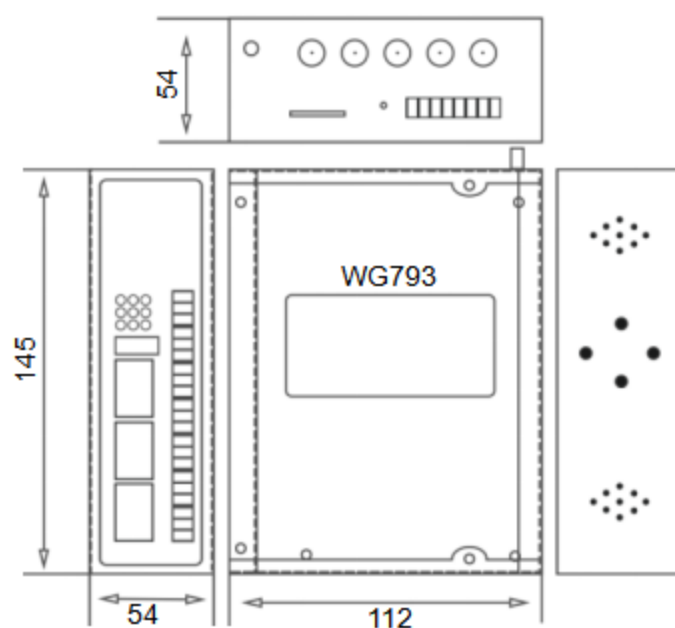
	Status Reporting	Supports reporting of online/offline status, device status, and gateway heartbeat mechanism
	Bus Adaptation	Supports adapting different algorithms according to different buses to ensure stable and reliable transmission
Management and Maintenance	Configuration Project	Supports local and remote configuration of data collection projects
	Application Upgrade	Supports local and remote program upgrades for rapid product function release and iteration
	Remote Diagnosis	Supports remote diagnosis and recovery of gateway failures
	Log Function	Supports complete and detailed log functions for easy troubleshooting and diagnosis
	Import/Export	Supports import and export of project files for easy diagnosis and batch configuration
	Diagnostic Command	Supports rich diagnostic command interfaces for local self - diagnosis
	Status Query	System status, module status, network connection status, application status, etc.
Application Development	Custom Development	WideIoT supports custom edge application development on gateways according to user requirements.
	Edge Development	Support users' engineers to develop edge - computing application programs on the gateway
	Cloud Development	Provide rich API interfaces for upper - computer software development by development engineers

Hardware specifications

Hardware Platform	CPU Core	880MHZ Dual-Core
	Running Memory	256MB (2Gb)
	Program Memory	16MB (128Mb)
	Data Storage	8GB (8192Mb) EMMC storage
Interface Characteristics	Power Interface	DC 9V - 35V (terminal block), commonly used 12V or 24V
	Ethernet Port	3 * 10/100/1000Mbps high-speed Ethernet ports with 1.5KV network isolation transformer protection. The 3 network ports have data exchange functions, and FEO supports WAN/LAN settings
	Serial Port	10 selectable RS-232/485 interfaces (terminal block) with 15KV ESD protection. Each 485 interface can theoretically mount up to 31 slave stations
	5G Network Standard (Choose One)	5G Sub-6 GHZ, supports 5G NSA and 5G SA modes 5G NSA: Downlink max 2.5Gbps, Uplink max 650Mbps 5G SA: Downlink max 2.1Gbps, Uplink max 900Mbps LTE: Downlink max 1.0Gbps, Uplink max 200Mbps WCDMA: Downlink max 42Mbps, Uplink max 5.76Mbps
	4G Network Standard (Choose One)	LTE Cat4, max downlink rate 150Mbps, max uplink rate 50Mbps LTE-TDD/LTE-FDD/DC-HSDPA+/HSPA/HSDPA/HSUPA/WCDMA/CDMA, etc
	SIM Card Holder	1 straight-in card slot (medium card)
	Reset Button	Pin - hole - type reset button
	Real-time Clock	RTC real-time clock (with built-in battery)
	Antenna Connector	5G network: SMAx4; 4G network: SMAx2; MLAN: RP-SMAx2 (5 in total)
Mechanical Characteristics	Dimensions	145x112x54(mm)
	Installation Method	Rail - mounted
	Shell	Metal shell (gold - colored)
	Protection Level	IP30

	Heat - Dissipation Method	Fan-less heat dissipation
	Weight	682g
Device Power	Standby Power	150mA - 250mA@12V
	Operating Power	250mA - 350mA@12V (4G)/250mA - 1200mA@12V (5G)
	Peak Power	350mA@12V (4G)/625mA@12V (WIFI)/875mA@12V (WIFI + 4G)/1200mA@12V (5G + WIFI)
Environment Humidity	Environment Humidity	5% ~ 95% (no condensation)
	Storage Temperature	-40℃~ 85℃
	Operating Temperature	-20℃ ~ 70℃
EMC Index	Electrostatic Discharge Immunity	GB/T17626.2 - 2018, level4
	Electrical Fast Transient Pulse Group Immunity	GB/T17626.4 - 2018, level4
	Oscillatory Wave Magnetic Field Immunity	GB/T17626.18 - 2016, level4
	Radio - Frequency Electromagnetic Field Radiation Immunity	GB/T17626.3 - 2016, level4
	Surge (Impact) Immunity	GB/T17626.5 - 2019, level4
	Power - Frequency Magnetic Field Immunity	GB/T17626.8 - 2006, level4
Physical Characteristics	Vibration	GB/T2423.10 - 2008
	Shock	GB/T2423.5 - 2019
	Drop	GB/T2423.8 - 1995

Product Size



Product Selection

Hardware Selection

Order number	WG793 - <N> - <P> - <S>
N (Network Type)	NF15: NR (5G for overseas), NF65: NR (5G for domestic), LQ05: LTE (4G), AP/STA: WiFi
P (Platform and Protocol)	WMQTT (WidelOT platform), MMQTT (Modbus version), MQTT (general MQTT), WCONN (Equipment Express Line)
S (Serial Port Type)	485: 485 serial port, 232: 232 serial port
Example	WG793 - NF65 - MQTT - 485: Supports 5G network (domestic chip), has 10*RS485 ports, and is applicable to the general MQTT platform. WG793 - NF15 - WMQTT - 485: Supports 5G network (Qualcomm chip), has 10*RS485 ports, and is applicable to the WidelOT cloud platform. WG793 - LQ05 - MQTT - 485: Supports 4G network, has 10*RS485 ports, and supports the general MQTT platform. WG793 - MQTT - 232: Connects to the Internet via Ethernet, has 10*RS232 ports, and supports the general MQTT platform. WG793 - LQ05 - WMQTT - 485: Supports 4G full - network access, has 10*RS485 ports, and supports the WidelOT cloud platform.

Company Introduction

Established in 2011, WideIoT is a leading provider of industrial Internet of Things products and industrial digital solutions. It focuses on offering products and solutions such as wireless data terminals, industrial intelligent gateways, equipment remote systems, and industrial application cloud platforms for equipment manufacturers, smart factories, and industry projects. It helps customers achieve digital operation management and tap new values in the industrial Internet.

The products of WideIoT are widely used in various industrial fields, including smart factories, equipment manufacturers, the environmental protection industry, the energy industry, municipal engineering, industrial automation, smart agriculture, and building intelligence. They are favored by top - tier domestic and foreign customers such as BOE, Foxconn, ASD, TCL, Schneider, Shanghai Electric, Shougang Group, Water Affairs Group, and Southern Power, as well as a large number of small and medium - sized enterprises.

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