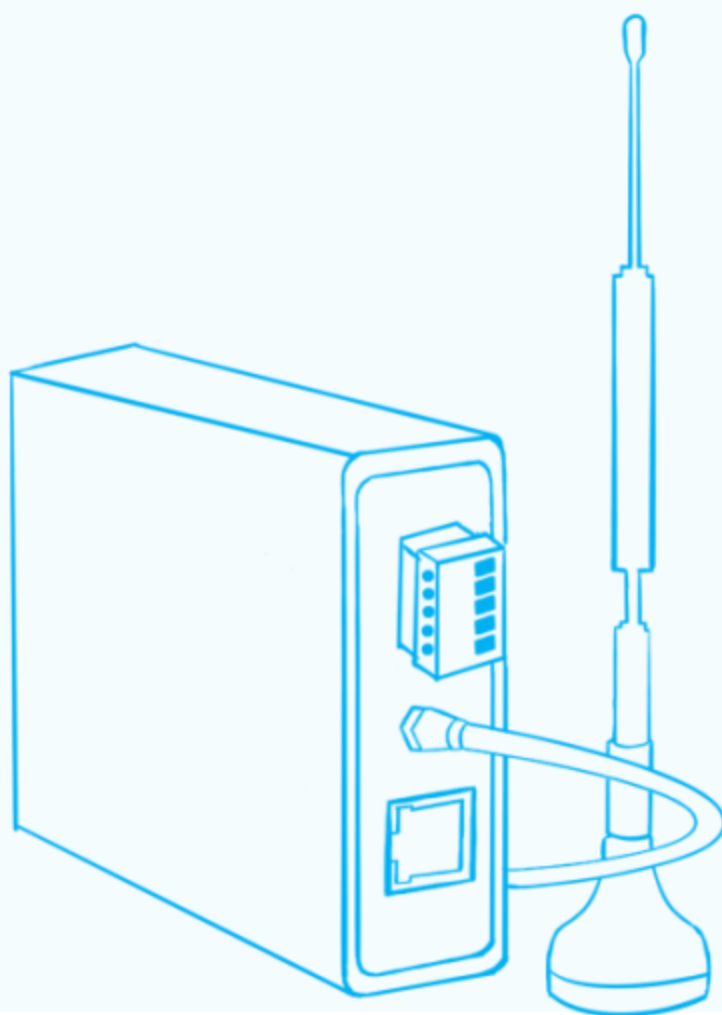


Industrial Router (WR511)



SPECIFICATION

Product Introduction

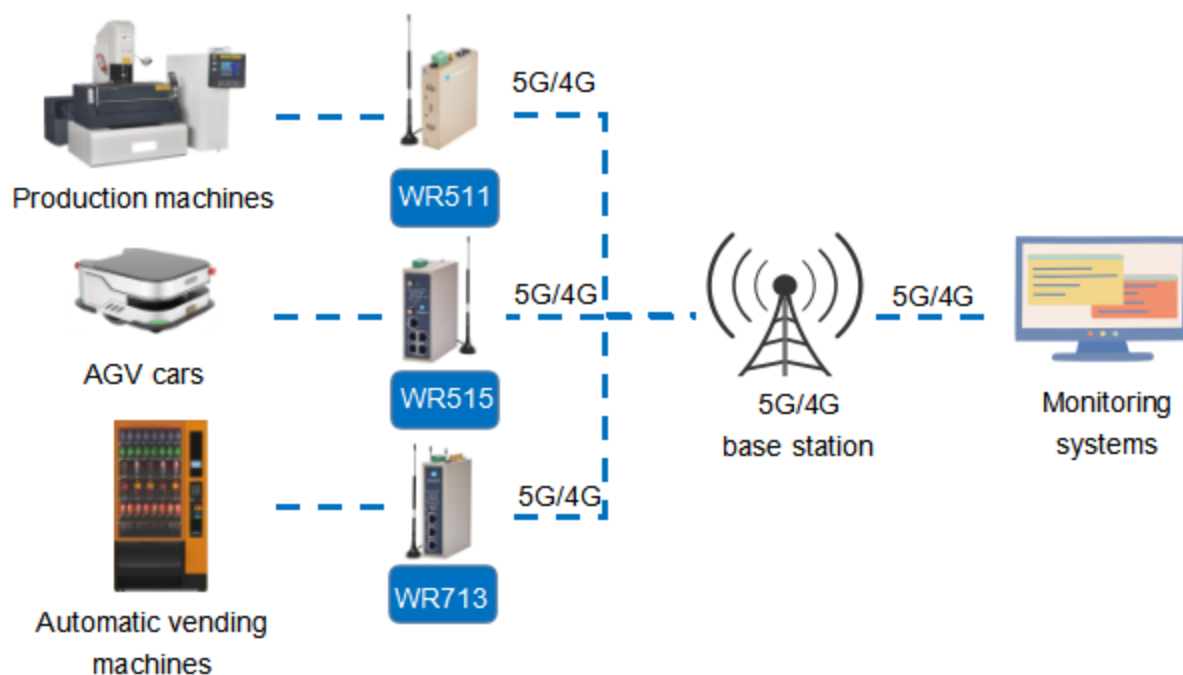
The WR511 series products are high - configuration single - Ethernet - port IoT wireless routers that integrate technologies such as 5G RedCap/4G/3G/WiFi networks, virtual VPN private networks, wireless DTU data transmission, and wireless IO control. They are suitable for large - scale device networking and are widely used in the networking of manufacturing machines, self - service vending machines, multimedia advertising devices, and intelligent medical equipment, as well as in industry informatization construction. With multiple network access methods, easy deployment, and comprehensive management functions, they assist a wide range of industry customers and their projects in informatization construction and industrial upgrading.

The WR511 industrial router, with its rich application functions and high - reliability features, is widely used in IoT application scenarios such as smart factories, smart cities, power, environmental protection, transportation, retail, agriculture, mines, oil and gas, and industrial automation, providing services for enterprises to build highly reliable networking solutions.

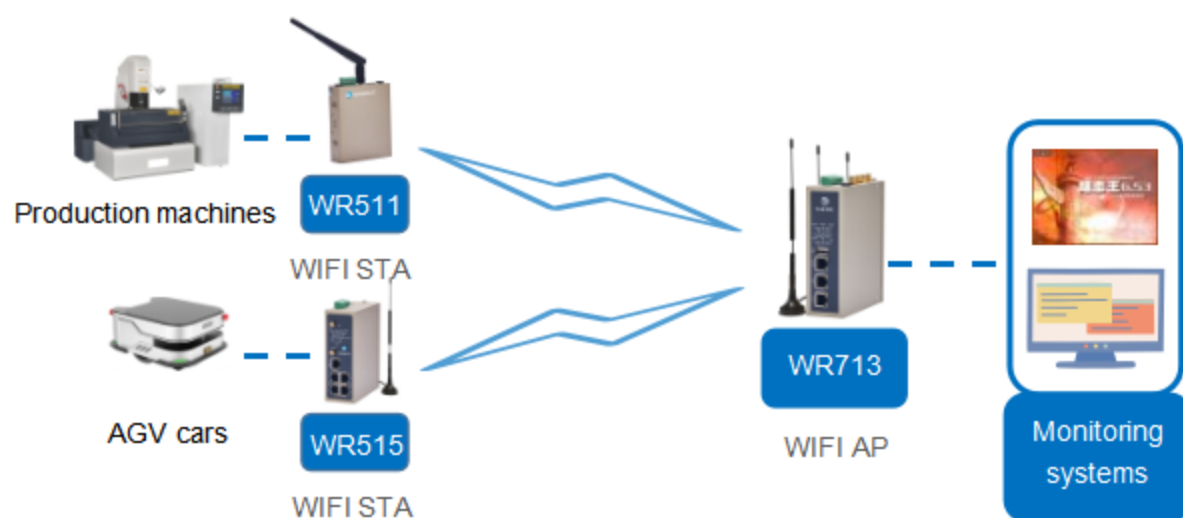


Topological Graph

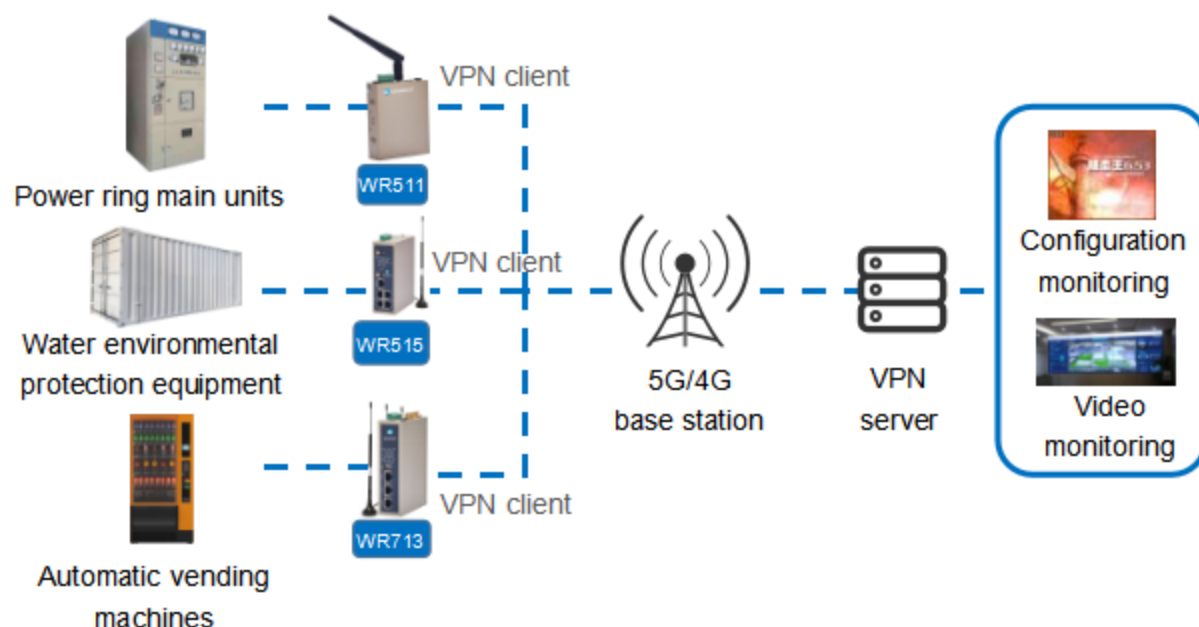
5G/4G Remote Wireless Networking



WIFI Local Wireless Networking



Remote VPN Networking



Topological Graph

Standard and User - friendly :

Multiple networks and interfaces support networking in different scenarios and for different devices. It is convenient and flexible to use, with multiple working modes available for free selection.

Unattended Operation:

The firewall function ensures network security. It supports multiple link backups and automatic reconnection after disconnection, ensuring that devices are always online and enabling unattended operation.

Powerful Functions:

It is embedded with various network tools, supports various VPN networking, and has functions such as DTU.

Safe and Reliable:

The all - industrial - grade design realizes a reliable, safe, and stable data transmission link.

Authoritative Certifications:

It has obtained certifications such as CE, EMC, high and low - temperature tests, and industrial security connection.

Product Features

Convenient and Easy to Deploy:

It supports 5G RedCap, 4G, 3G, PPPoE, Wi-Fi networks, digital IO input and output, and serial port terminal communication, providing different solutions for different application scenarios.

High - speed Access and Full - network Deployment:

Supports 5G RedCap, 4G (TDD LTE/FDD LTE), 3G (HSPA+/CDMA2000 - EVDO/TDSCDMA), GPRS and other networks, covering all domestic and international 4G/3G networks. It supports communication standards of 802.11b/g/n, meeting users' requirements for WLAN wireless access. It can easily build a wireless local area network with a maximum rate of up to 300Mbps.

Industrial - grade Design:

It supports a wide voltage supply range of 6V - 35V and an industrial - grade wide - temperature design of - 20 ° C - 70 ° C, adapting to more application sites with specific power supply and temperature requirements. It has an IO control function, enabling easy remote control. It also has built - in RS - 232/RS - 485 serial port wireless data terminal communication functions, which are more in line with the needs of industrial customers. Additionally, it has the following features:

- 1) The metal shell has a protection level of IP30.
- 2) Each EMC grade index reaches level 3.
- 3) The Ethernet port supports 1.5KV isolation transformer protection.
- 4) The serial port supports 15KV ESD protection.

High - reliability Design:

1) Link detection design: It supports real - time link detection and realizes automatic redialing after disconnection to maintain a long - term connection.

2) Device failure self - healing design: It is embedded with hardware watchdog and software watchdog technologies. The device can self - repair when running into failures, ensuring high availability.

3) System security guard: Through the system security guard, it can detect the status of the system and applications in real - time, and prevent and restore insecure and unstable nodes in the system.

Powerful Security Functions:

1) Data transmission security: It supports L2TP, PPTP, IPSec VPN, Open VPN, and CA certificates to ensure secure data transmission.

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

Simple and User - friendly, Easy to Operate and Maintain:

The WEB interface has a user - friendly design with a clear logic, which greatly improves user configuration efficiency.

1) It supports local or remote log reading. Whether using the management platform, WEB, or CLI method, the read logs are easy to understand. Engineers can quickly locate problems through the logs, improving work efficiency.

2) It can query the status information of the device router, such as CPU load, memory usage, network status, and device port status, through remote or local access, which is of great importance for troubleshooting.

3) It supports the engineer's advanced diagnostic function, facilitating the rapid identification and repair of fault points during project construction.

Supports Serial Port DTU Transmission Function:

It supports DTU serial port transmission protocols such as WDTCP, WDUUDP, TCP, and UDP, and can customize professional intelligent conversion protocols according to different industry requirements.

Open Platform and Customizable Development:

With a computing power of up to 580x1.6DMIPs, it can handle various complex calculations. Its rich system resources are suitable for developing various complex applications. Adopting the design concept of an open platform, customers can develop corresponding APPs by themselves or with the development team of WideIoT according to specific application scenarios and requirements, and then load them into the routing system.

Product Specifications

Software Specifications

Network Function	Network Access	Supports APN, VPDN
	Network Authentication	Supports CHAP/PAP authentication
	CAT1 Network	TDD - LTE/FDD LTE. (For specific frequency band information, please refer to the order information table)
	CAT4 Network	GSM/GPRS/EDGE UMTS/HSPA+/CDMA2000-EVDO/TD-SCDMA/TDD-LTE/FDD LTE. (For specific frequency band information, please refer to the order information table)
	LAN Protocols	Supports ARP
	WAN Protocols	Supports PPP
	IP Application	Supports Ping, Tracer, DHCP Server, DHCP Relay, DHCP Client, DNS relay, DDNS, Telnet
	IP Routing	Support static routing
WLAN (optional)	Protocol Standard	Support IEEE 802.11b/g/n
	Working Mode	Supports AP, Client, WDS and other work modes
	Band Rate	Supports 300Mbps
	Safety Features	Supports open system, shared key, WPA/WPA2 authentication
		Supports WEP/TKIP/AES encryption
	Transmission Distance	100m (the actual transmission distance depends on the site environment)
Safety	Protection security	Supports full - state packet inspection (SPI), prevention of denial - of - service (DoS) attacks, filtering of multicast/Ping probe packets, source port mapping, destination port mapping, DMZ, access control function (ACL), IP - MAC binding
	Data Security	Supports L2TP VPN/PPTP VPN/OPEN VPN/IPSec VPN (optional)
Reliability	Link detection	Supports sending heartbeat detection packets for detection, and automatic connection after disconnection
	Watchdog	Supports device operation self - inspection technology, and device operation failure self - repair
	Safety guard	Monitors all functional modules in real - time, and predicts and handles

		possible errors
Intelligence	Integrated DTU	Supports various protocol transmissions such as WDTCP, WDUUDP, transparent TCP, and transparent UDP
Service, management and maintenance	Traffic management	Supports bandwidth statistics, control, and IP speed limit
	Configuration method	Supports telnet, web, ssh, and remote platform configuration methods
	Upgrade mode	Supports web upgrade and remote upgrade methods
	Log function	Supports local system logs and remote logs. Important logs are saved during power failure
	Network management function	Supports the cloud network management platform for batch management
	Maintenance tools	Ping, DNS resolution, route tracking, network interface status display, AT command testing, etc.
	Status query	System status, module status, network connection status, route status, etc.

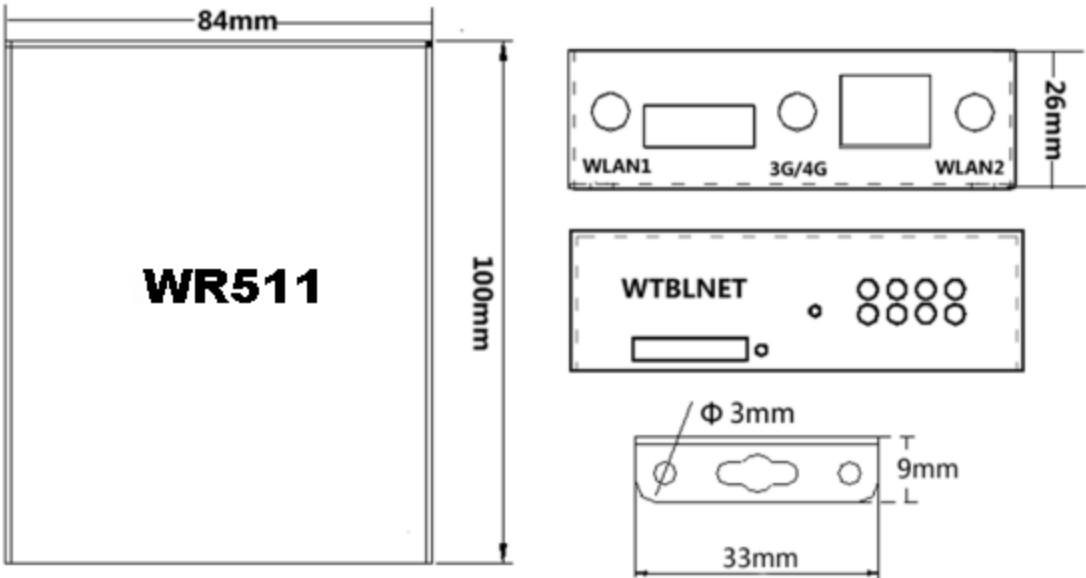
Hardware Specifications

Interface Characteristics	Power Interface	DC 6V - 35V (terminal block)
	Ethernet Port	1*10/100Mbps Fast Ethernet port, LAN port, 1.5KV network isolation transformer protection, FEO (LAN)
	Serial Port	1*RS - 232/485 interface (terminal block), 15KV ESD protection
	5G RedCap	5G NR bands N1/N3/N5/N8/N28/N41/N78/N79 LTE - FDD bands B1/B3/B5/B8 LTE - TDD bands B34/B38/B39/B40/B41 Transmission rate: Downlink 226Mbps / Uplink 120Mbps
	4G Network Standard	LTE Cat4, maximum downlink rate 150Mbps, maximum uplink rate 50Mbps LTE Cat1, maximum downlink rate 10Mbps, maximum uplink rate 5Mbps
	SIM Card Holder	Drawer - type card holder * 1 (large - format card)
	Reset Button	Pin - hole - type reset button
	Antenna Connector	4G/3G network: SMA x1, WLAN: RP - SMAx 2
Mechanical	Dimensions	84x100x26(mm)

Characteristics	Installation Method	Rail - mounted
	Shell	Metal shell (gold - colored)
	Protection Level	IP30
	Heat - Dissipation Method	Fan-less heat dissipation
	Weight	280g
Equipment power	Standby power	80mA-120mA@12V
	Working power	200mA-220mA@12V
	Peak power	240mA@12.0V
Environment humidity	Environment humidity	5% ~ 95% (No condensation)
	Storage temperature	-40 °C~ 85 °C
	Operating temperature	-20 °C ~ 70 °C
Indicator light	1*6 indicator lights	POWER light (red), STATUS light (green), WARN light (yellow), ERR light (red), WiFi indicator light (blue), 4G signal - strength light (green)*3
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	GB/T17626.8 - 2006, level4

	Immunity	
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	WR511 - <N> - <M> - <S>
N (Network Type)	L: LTE, WLAN: WiFi; N:5G RedCap
M (Wireless Module)	L07: 4G CAT4 (TDD - LTE and FDD - LTE, etc.), Chinese version; L09: 4G CAT4 (TDD - LTE and FDD - LTE, etc.), Overseas version; Q2S: 4G CAT1 (only supports TDD - LTE and FDD - LTE), Chinese version; T57: 5G RedCap
S (Serial Port Interface)	485: RS485 serial port; 232: RS232 serial port
Example	WR511 - LL07 - 232 (single - Ethernet - port, 4G CAT4, 232 serial port); WR511 - LQ2S - 485 (single - Ethernet - port, 4G CAT1, 485 serial port); WR511 - LL07 - WLAN - 485 (single - Ethernet - port, 4G CAT4, 2.4G WiFi, 485 serial port)

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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