WideIOT

Product Specifications



WR511

Industrial Router

1* 100 Mbps Ethernet Port | 5G RedCap/4G | WiFi 4 | Single SIM

Product Overview

The WR511 Series is a high-performance industrial router equipped with a single Ethernet port, integrating 5G RedCap/4G/3G/WiFi connectivity, virtual VPN private networking, and wireless DTU data transmission into one device. It is designed for large-scale device networking and is widely used in applications such as industrial machinery networking, self-service vending machines, digital signage, smart medical devices, and other industry digitalization projects. With multiple network access options, easy deployment, and comprehensive management capabilities, the WR511 Series helps customers accelerate digital transformation and industrial upgrading.



Featuring rich networking functions and high reliability, the WR511 Industrial Router is widely deployed in smart factories, smart cities, electric power, environmental protection, transportation, retail, agriculture, mining, oil and gas, and industrial automation. It provides enterprises with a highly reliable industrial networking solution for a wide range of Industrial IoT (IIoT) applications.

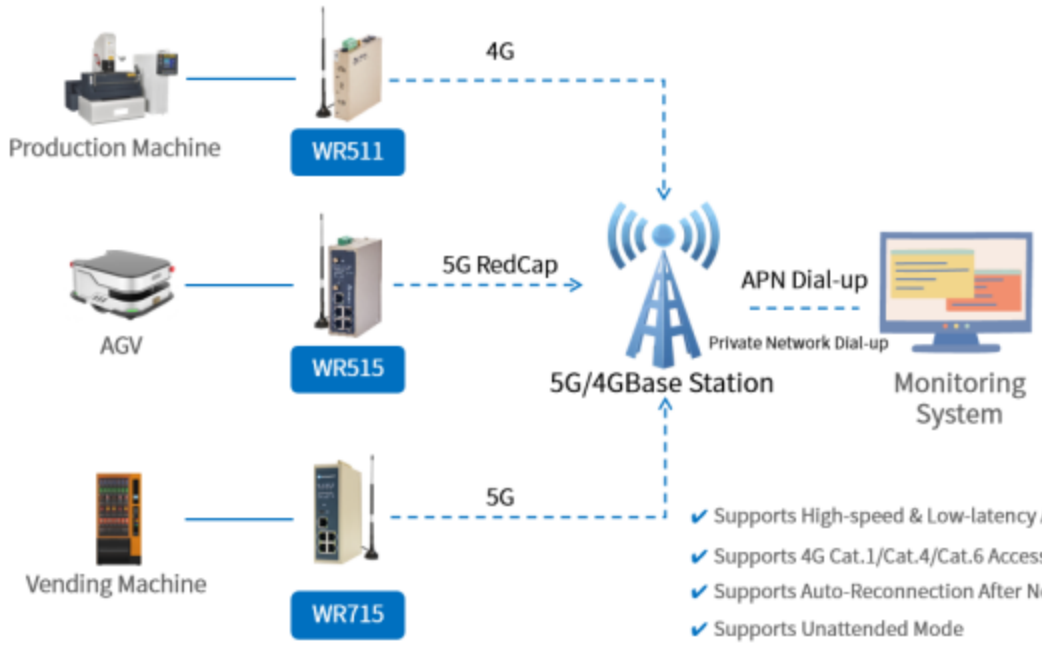
Product features

- ✓ **Easy to Deploy:** Supports multiple network access technologies and interfaces, making it suitable for various application scenarios and device networking requirements. It offers simple deployment, flexible operation, and multiple selectable working modes to meet diverse application needs.
- ✓ **Unattended Operation:** Equipped with firewall protection to ensure network security. Supports multiple link backup mechanisms and automatic reconnection, ensuring continuous device connectivity and enabling reliable unattended operation.

- ✓ **Powerful Features:** Integrates a wide range of network utilities, supports multiple VPN networking technologies, and provides DTU (Data Transfer Unit) functionality to meet diverse industrial communication requirements.
- ✓ **Secure and Reliable:** Designed with a fully industrial-grade architecture to provide reliable, secure, and stable data transmission.
- ✓ **Certified Compliance:** Complies with CE, EMC, high and low temperature, and industrial safety certifications.

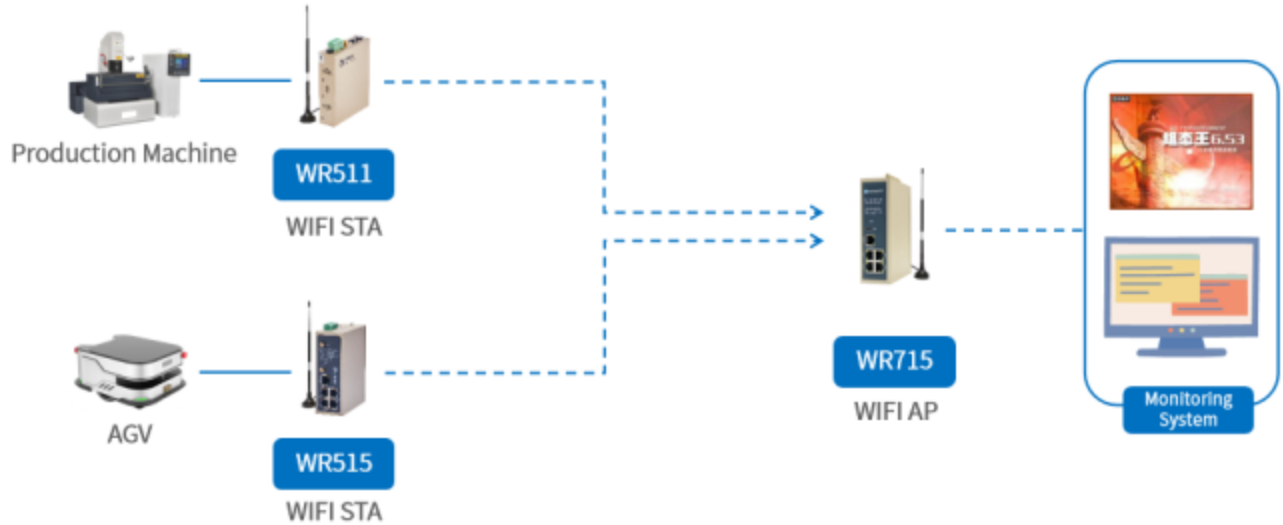
Methods of application

➢ 5G/4G Connectivity



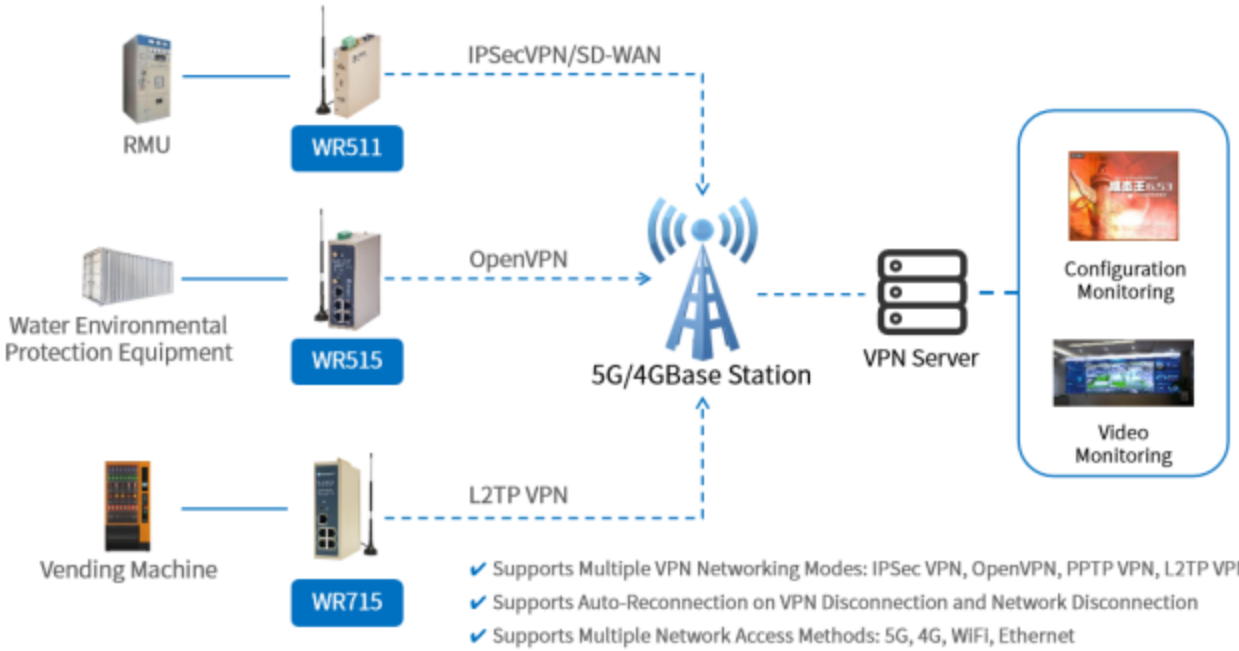
- ✔ Supports High-speed & Low-latency Access via 5G/5G RedCap
- ✔ Supports 4G Cat.1/Cat.4/Cat.6 Access
- ✔ Supports Auto-Reconnection After Network Disconnection
- ✔ Supports Unattended Mode
- ✔ Industrial-grade High-reliability Design

➢ WiFi Networking



- ✔ 2.4 GHz/5.8 GHz Dual-band Optional
- ✔ Supports STA, AP (Fat AP/Fit AP) and Relay Modes
- ✔ Supports WiFi 4/WiFi 5/WiFi 6
- ✔ Industrial-grade Stability and Reliability

➢ VPN Networking



- ✔ Supports Multiple VPN Networking Modes: IPSec VPN, OpenVPN, PPTP VPN, L2TP VPN
- ✔ Supports Auto-Reconnection on VPN Disconnection and Network Disconnection
- ✔ Supports Multiple Network Access Methods: 5G, 4G, WiFi, Ethernet

Application scenarios


Smart Manufacturing


Smart retail


Smart gridc


Smart City


Intelligent Transport


Renewable energy


Utilities


Smart Healthcare


Industrial Internet of Things


Water Resources and Environmental Protection


Smart Agriculture


Mines and oilfields

Product specifications

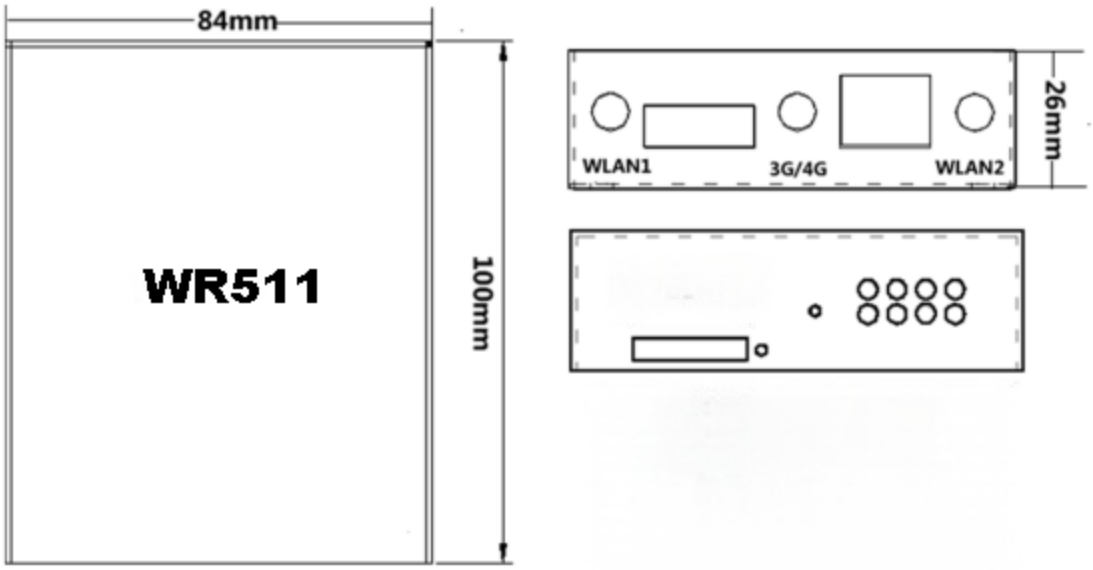
Hardware Parameters	
Hardware platform	
CPU Core	580MHZ single-core
Runtime storage	128MB DDR2
Programme storage	16MB|32MB SPI-FLASH
Interface specifications	
Power socket	DC 9V-35V (terminal block)
Ethernet port	1 *10/100 Mbps Ethernet Port (LAN), with 1.5 kV Ethernet isolation transformer protection; FE0 (LAN).
Serial port	1*RS485 serial ports(RS232 optional),15 kV ESD protection
5G network	5G Redcap ,Maximum downlink speed 226Mbps,Maximum uplink speed 120 Mbps (optional)
4G network	LTE Cat4 ,Maximum downlink speed 150Mbps,Maximum uplink speed 50Mbps LTE Cat1 ,Maximum downlink speed 10Mbps, Maximum uplink speed 5Mbps
WIFI network	2.4GHZ,Maximum speed 300Mbps,802.11b/g/n (optional)
GNSS network	Drawer-type SIM card slot*1 (standard SIM card)
SIM card slot	Pinhole reset button
Reset button	5G RedCap:SMA x 2/4G LTE:SMA x 1/WLAN: RP-SMA x 2/GNSS:SMA x 1
Mechanical properties	
Dimensions	84x100x26(mm)
Installation method	Panel / DIN Rail
Equipment housing	Metal casing
Protection rating	IP30
Heat dissipation	Fanless heat dissipation
Weight	280g
Equipment operating environment	
Ambient humidity	5% ~ 95% (Non-condensing)
Storage temperature	-40 °C~ 85°C
Operating temperature	-30°C ~ 70°C

Indicator light	
1*8 indicator light	3*4G network signal strength indicators (green),WLAN WiFi indicator(blue),PWR power indicator (red),WARN Warning indicator (yellow),Status indicator (green),ERR Fault indicator (red)
Power Consumption	
Standby Power Consumption	80mA-120mA@12V
Operating Power Consumption	200mA-220mA@12V
Peak Power Consumption	240mA@12.0V
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,LoRa,WIFI(AP|STA|Relay,Ethernet access
Network certification	Supports CHAP/PAP authentication,Supports APN and VPDN access
CAT1 network	TDD-LTE/FDD-LTE: **For detailed frequency band information, please refer to the Ordering Information table.**
CAT4 network	GSM/GPRS/EDGEUMTS/HSPA+/CDMA2000-EVDO/TD-SCDMA/ TDD-LTE/FDD LTE:For detailed frequency band information, please refer to the Ordering Information table.
5G RedCap	5G NR Frequency Band N1/N3/N5/N8/N28/N41/N78/N79 LTE-FDD Frequency Band B1/B3/B5/B8 LTE-TDD Frequency Band B34/B38/B39/B40/B41 Data Rate:Downlink 226Mbps/Uplink 120Mbps
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
WLAN	
Protocol Standard	Supports IEEE 802.11 b/g/n
Operating Mode	Supports AP, Client, WDS, and other operating modes
Rate	Supports 300Mbps
Security Features	Supports Open System, Shared Key, and WPA/WPA2 authentication Supports WEP, TKIP, and AES encryption
Transmission Distance	100m(Actual transmission distance depends on the installation environment.)
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
Intelligent	
Integrated DTU	Supports various protocol transmission modes, including WDTCP, WDUDP, transparent TCP, and transparent UDP
Management and Maintenance	
Traffic Management	Supports bandwidth monitoring, bandwidth control, and IP-based bandwidth limiting
Configuration Method	Supports Telnet, Web, SSH, and remote platform-based configuration
Upgrade Method	Supports Web-based firmware upgrade and remote upgrade methods
Log Function	Supports local system logs and remote logs. Important logs are retained after power loss
Network Management	Supports cloud network management platforms and batch device management
Maintenance Tool	Supports Ping, DNS resolution, route tracing, network interface status display, AT command testing, and other network diagnostic tools
Status Query	Supports system status, module status, network connection status, routing status, and other status information

Product dimensions



Order details

Hardware Selection	
Order number	WR511-<N>-<M>
N(Network Type)	LL07: 4G CAT4, 7-mode (TDD-LTE, FDD-LTE, etc.), China version; LL02: 4G CAT1, all-network compatible (supports TDD-LTE and FDD-LTE only), China version; NF02:5G RedCap
M (Module)	W: WiFi G: GNSS
Example	WR511-LL07-W (1 Ethernet ports, 4G CAT4 universal connectivity, WiFi) WR511-LL07-WG (1 Ethernet ports, 4G CAT4 universal connectivity,WiFi, GNSS) .....

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

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

Alternatively, please contact us via the following methods:

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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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