Industrial Wireless IIoT Router

Compact Wi-Fi Gateway for Smart Meter/Sensor Applications

WESTWARD SALES

WR212-WLAN Industrial Compact WLAN Serial Router

The WR212-WLAN is a smart wireless LAN router for serial devices. It's RS232/422/485 port connects to meters, sensors, or Modbus RTU devices to send data to the remote cloud center over the WLAN network by Modbus TCP or Secured MQTT (MQTTS). To safeguard cybersecurity, security features such as Firewall, OpenVPN, GRE tunnel are supported. The embedded MQTTS and RESTful API enables instant public cloud integration such as AWS or Azure. The private cloud platform ThingsMaster and ThingsMaster OTA can also be set up for an instant and secured access to receive data or manage devices remotely.

Modbus · **2.4G** 802.11b/g/n · **Cyber Security** · **ThingsMaster** · **Microsoft Azure**

-40~70°C · **RS232/422/485** · **MQTT** · **ThingsMaster OTA** · **NetMaster** · **amazon** webservices™
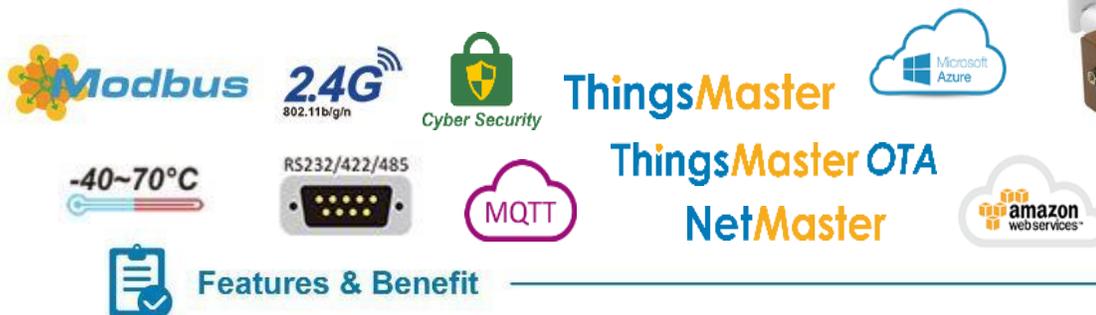
Features & Benefit

Serial Communication & High Throughput Data Switching

- RS232/422/485 full functions for serial over Wi-Fi/Ethernet data switching
- 2-port Ethernet supports routing and bridging mode Modbus RTU to Modbus TCP Conversion
- Modbus Log to collect sensor data
- Modbus Write Single Coil, Register to configure sensor parameters
- Connect up to 25 sensors in one RS485 chain
- DLMS/COSEM protocol to connect power meters

Enhanced Cyber Security & Redundancy

- Firewall for inbound/outbound traffic
- OpenVPN (server/client)
- L2TP with PPP, PAP, CHAP(LCP, IPCP), GRE tunnel
- HTTPs/SSH secure login
- MQTTS with TLS encryption and X.509 authentication
- TACACS+ multi-user authentication for privileged user management

Industrial IoT LAN & Cloud Management

- Various configuration paths, including CGI WebGUI, CLI, SNMP and RMON*
- **NetMaster:** Network Management System with VLAN visualization* and ERPS* Ring
- **ViewMaster:** Configuration Management
- **ThingMaster**: Interactive monitoring dashboard by Modbus Tag to collect data from Modbus devices
- **ThingMaster OTA**: Realtime map showing the status, signal strength, location of the remote devices, over-the air batch device registration, configuration and firmware upgrade*, alerts on critical events to prevent downtime
- Support MQTT protocol, ready to use AWS/Azure and Private Cloud Agent for cloud management
- LLDP* for topology control, auto-topology drawing
- Diagnostic tool includes Ping, TFTP, SNMP Trap, E-mail

Rugged Design for Smart Meter, Smart Environment Monitor

- Operate in -40~70oC environments
- IEC61000-6-2/IEC61000-6-4 heavy industrial EMC compliance
- Optional Outdoor Junction Box for connecting Sensors

Cloud Service

ThingsMaster
ThingsMaster OTA

Microsoft Azure
aws

Control Center

Video Surveillance

Device Management

Dashboard/ Database

DB
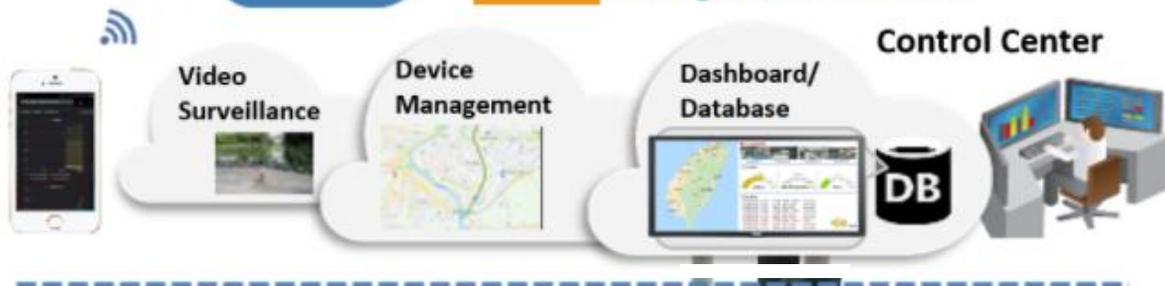
IoT Router

WAN

2.4G
802.11b/g/n

Digital Input

Digital Output

IIoT Sensors

Serial (Modbus), up to 25 Sensors, meters

Emergency Push Button

Alarm

IP Camera

CO2, PM2.5 Temp Humidity Sensor

Wind Speed Direction Sensor

Air Quality, Noise Sensor

DLMS/COSEM Power Meter

Modbus Meter

✓ Secured Remote Access by VPN

WR224/214 can act as VPN server for data encryption and dynamic remote access. Multiple VPN protocols are supported such as OpenVPN, GRE, and L2TP. The channels between multiple networks, ex. private/public/hybrid networks are fully secured and with authentication features.

LAN

VPN Tunnel

Internet

✓ Cyber Security Guard

The stateful firewall can monitor the status of connection at all time. Multiple industrial fieldbus protocols, ex. Modbus TCP*, EtherNet/IP* are also supported for factory automation applications.

Internet

LAN

WAN

Internal Secured Area

External Unsecured Area

Accept or Drop

Firewall Policy:
- Incoming or outgoing
- IP/MAC
- Protocol (TCP, UDP ...)
- Src/dest. IP/Port
- Industrial Protocols

Specifications

Technology

	IEEE 802.11b/g/n for Wireless LAN
	IEEE 802.11i for Wireless Security
	IEEE 802.3 10Base-T Ethernet
	IEEE 802.3u 100Base-TX Fast Ethernet

Interface

Ethernet Port	2 x 10/100Base-TX RJ45, Auto-Negotiation, Auto MDI/MDI-X Router Mode: 1 WAN + 1 LAN, Bridge Mode: 2 LAN
System LED	1 x Power: Green ON 1 x SYS: Ready: Green On, Firmware Updating: Green Blinking 1 x Ra: Reserved 1 x Rb: AP mode: Green On, Station mode connected: Green Blinking, Station mode/radio disable: Off 1 x Serial Port: Activity: Green Blinking
Reset	System Reset(2~6 Seconds) / Default Settings Reset(over 7 Seconds)
SMA Socket	2 for Wi-Fi, 2 Reserved
Micro SD	1x for field diagnostic data logging

Power Input	6-Pin Removable Terminal Block Connector
	 2 Pin for Power (V+,V-)
	 2 Pins for DI with isolation
	  High: DC 2~30V
	  Low: DC 0~1V
	 2 Pins for 1x DO: 0.1A/30V with isolation

Serial	1x RS232/422/485, DB9 Female

WiFi Properties

Standard	IEEE 802.11b/g/n, Up to 2T2R MIMO
Data Rate	802.11b: 11Mbps / 802.11g: 54Mbps / 802.11n: MCS0 ~ 15, max. 300Mbps
Frequency	ISM Band, 2.412GHz ~ 2.462GHz (CH1~11), programmable by regional regulation
RSSI	≦20db, compliant with CE request

Software

Management Interface	CGI WebGUI, Command Line Interface (CLI), Telnet, SNMP
User Management	Radius client, TACACS+, local database
Time Management	NTPv3, SNTP, Cellular Time
IoT	AWS Agent, Azure Agent, ThingsMaster Agent
Network Management	IPv4, SNMP v1/v2c/v3/Trap, MIB II, Entity MIB, DHCP server/client, DHCP relay, TFTP, ARP response over 802.2 LLC SNAP, Proxy ARP, DNS (client/proxy), private MIB
Traffic Management	1:1 NAT, NAPT(SNAT/DNAT), Port Forwarding
Routing	Static Route
Security	Firewall, DMZ, HTTPs, SSH, IEEE 802.1X/RADIUS
VPN	OpenVPN (server/client), L2TP, GRE
WLAN Configuration	WLAN Basic Settings: Radio on/off, AP/client mode, 2.4G 11n Band and Frequency selection, SSID/Multi-SSID configuration, SSID broadcast, Advanced WLAN settings, 802.1X
Utility	ViewMaster, NetMaster, Ping, Traceroute
Wi-Fi Max. Client	Up to 20

Power Requirement

Input Voltage	24V (9~30VDC)
Reverse Polarity Protect	Yes
Input Current	WR224-WLAN+LTE: 0.18A@24V
Power Consumption	WR224-WLAN+LTE: Max 4.32W@24VDC full traffic, suggest to reserve 15% tolerance

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Mechanical

Installation	Wall Mount/DIN Rail (DIN bracket not included)
Enclosure Material	Steel Metal
Dimension	86 x 105 x 29mm(W x D x H) / without mounting Clip
Ingress Protection	IP30
Weight	Around 350g without package/antenna

Environmental

Operating Temperature & Humidity	-40°C~70°C , 5%~95% Non-Condensing
Storage Temperature	-40°C~85°C
MTBF	>200,000 hours
Warranty	5 years

Approval

Safety	EN60950-1 Compliance
EMC	EN61000-6-2/EN61000-6-4
EMI	CISPR 22, FCC part 15B Class A
EMS	EN61000-4-2 ESD, EN61000-4-3 RS, EN61000-4-4 EFT, EN61000-4-5, EN61000-4-6 CS, EN61000-4-8 Magnetic Field
Radio	RED Compliance Safety: EN 62368-1 EN 50385/EN62311 MPE assessment EN 301 489-1/17/19, EN 55032/55024 EN 300 328 EN 301 908-1 FCC Part 15B

Ordering Information

Model Name	
WR212-WLAN	Industrial Wireless IIoT Field Router, 2FE+1COM, SD, 802.11b/g/n WLAN (antennas not included)
	Package List
	1 x Product Unit
	1 x 2-pin Removable Terminal Block Connector
	NOTE: Antennas are not included in the package. **Please order the antennas from the optional accessories.**
	1 x Quick Installation Guide

Dimensions (mm)