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Communication Expert of Industrial

Industrial Wireless Client

USR-W650



Introduction

The USR-W650 is a WIFI wireless client with high speed, wide connectivity, low latency and high stability. It features a rich set of hardware interfaces: integrating 1*CAN, 1*RS232, 1*RS485, 5* Ethernet port (4*LAN + 1*WAN/LAN) and 2.4G&5.8G dual band WiFi. This product adopts industrial-grade standards, supports wide temperature and voltage ranges, offers robust hardware protection, and has passed multiple stringent environmental tests.

On the software side, the USR-W650 supports wireless roaming, enabling rapid switching between different APs to ensure stable data communication. It also supports AP/STA/AP+STA/bridge modes, providing stable and reliable networking solutions for various scenarios and industries. With support for multiple transmission protocols such as MODBUS, MQTT, TCP, and UDP, it can seamlessly connect to different servers for efficient data transmission.

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Product Features

Stable and Reliable

- Industrial aluminum casing design, with IP30 protection;
- Wide Operating Temp -40℃ ~ 75℃, EMC 433 protection;
- Wide power input designed DC 12-48V, with reverse polarity protection;
- Built-in hardware watchdog, fault self-detection, self-repair, and firmware backup/restore functions to ensure stable system operation without crashes;
- DIN-rail mounting;

Flexible Application

- Supports WiFi5 technology IEEE 802.11a/b/g/n/ac;
- Supports dual band WiFi 2.4G& 5.8G;
- Supports Multiple networking modes including STA, AP, AP+STA, and bridge are supported to meet flexible deployment requirements;
- Enables fast roaming with network handover times as low as 100 ms for uninterrupted communication;
- Equipped with 1*Gigabit WAN/LAN and 4* LAN ports for connecting Ethernet device;
- Comes with 1 *RS232/RS485 serial port, facilitating easy serial data acquisition;
- Supports CANFD protocol for seamless interconnection between CAN devices and Ethernet equipment, while maintaining compatibility with standard CAN2.0A/2.0B;
- Compatible with mainstream communication protocols including TCP/UDP, MODBUS, HTTP, MQTT, SNMP;
- Supports edge computing functions such as active data collection, on-device computation, proactive data reporting, and data read/write operations;
- Support IPv6, including Dual-Stack Lite (RFC6333), IPv6-in-IPv4 (RFC4213), and IPv6-over-IPv4 (6rd) for future-ready network deployment;

Powerful Functions

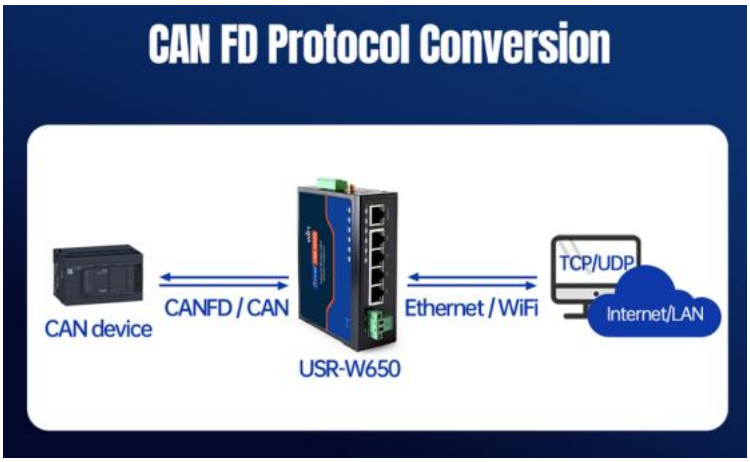
- Supports WiFi signal detection, roaming signal testing, and wireless link testing to facilitate effective on-site device deployment;
- Equipped with a comprehensive anti-disconnect mechanism to ensure stable data transmission;
- Features intelligent wired/STA multi-network backup functionality to maintain continuous link connectivity;
- Includes advanced features such as SNMP support, NTP time synchronization, MAC-IP binding, and access control restrictions.

Typical Networking Diagram

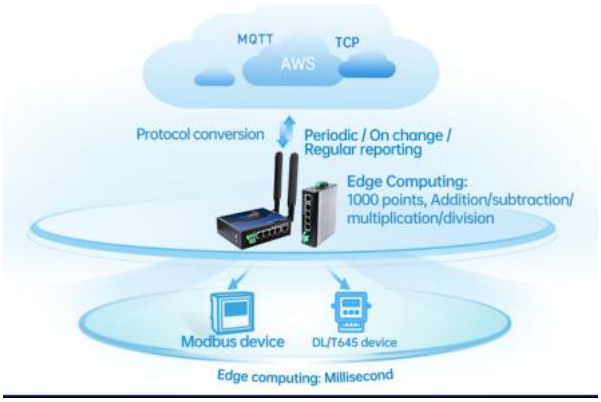
Fast roaming:



Protocol conversion:

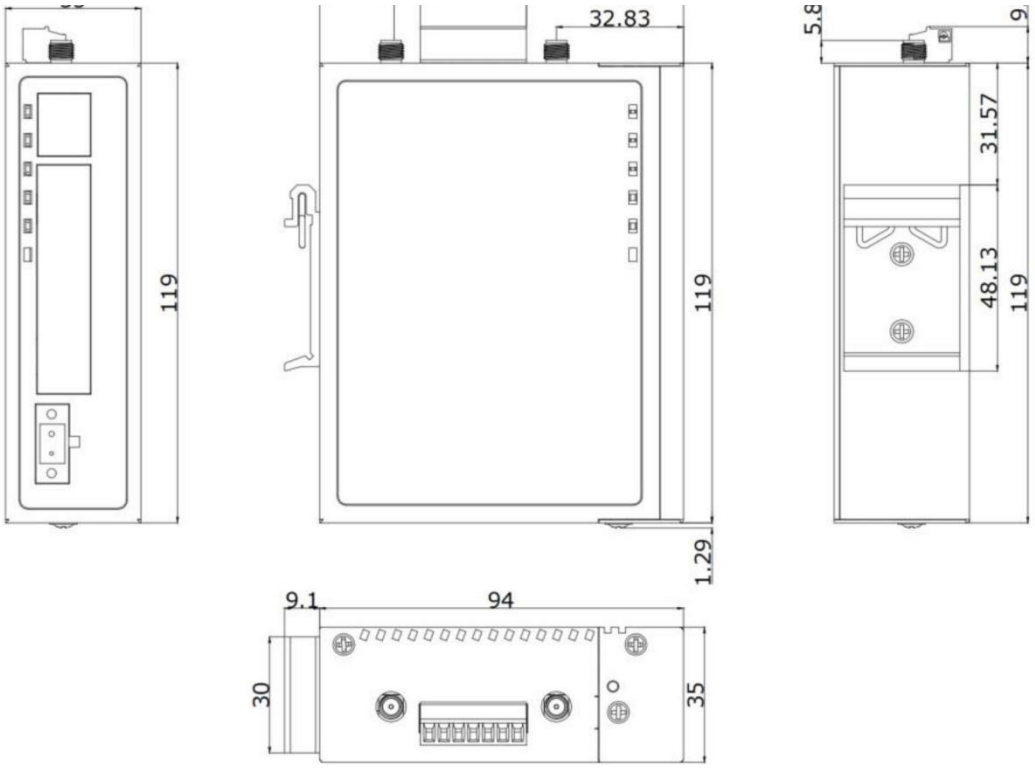


Edge computing:



Dimensions

Unit: mm



Specifications

Items	Description
Power Supply	DC: 12-48V, 2-pin removable terminal block, reverse polarity protection
Working Current	Avg: 700mA@12V Max: 2A@12V
Ethernet port	
Ethernet port	1*WAN/LAN + 4*LAN, RJ45 connector, 10/100/1000 compatible, 1.5KV isolation protection
Wi-Fi	
Standards & Frequency	IEEE 802.11a/b/g/n/ac 2.4G: 2.412GHz-2.484GHz 5.8G: 5.17GHz-5.25GHz, 5.725GHz-5.835GHz
Working Mode	AP/STA/AP+STA/Bridge
MIMO	2 x 2
Wireless Roaming	√, switching time < 100ms
Transmission Rate	2.4G: 300Mbps 5.8G: 867Mbps
Antenna connector	SMA female connector
Cover range	Outdoor (open space, unobstructed): Coverage radius up to 200m Indoor (office environment with obstacles): Coverage radius up to 40m (subject to environmental factors)
Serial port	

No.	1*RS232/RS485
Signal	RS232: Tx, Rx,G(public) RS485: A, B,G(public)
Baud rates	1200/2400/4800/9600/19200/38400/57600/115200/230400 bps
Data bits	7, 8
Stop bits	1, 2
Parity	NONE, ODD, EVEN
Packaging Interval	Range: 0 ~ 1000ms, default: 0ms
Packaging Length	Length: 5-1460bytes, default: 1000bytes
485 collision prevention	√, default: OFF
CAN Port	
No.	1 * CAN port
Terminator	Bulit-in 120Ω
Signals	CAN_H, CAN_L, GND
Physical Property	
Casing material	Aluminum casing, IP30 protection
Dimensions	119*94*35mm (L*W*H, excluding the guide rail, antenna base and installation parts)
Installation	DIN rail mounting
Operating temperature	-40℃ ~ +75℃
Storage temperature	-40℃ ~ +125℃
Operating humidity	5% ~ 95% RH, non-condensing
Storage humidity	1% ~ 95% RH, non-condensing
EMC protection	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV
Software Function	
Work mode	Serial port: TCP Client(SSL), TCP server, UDP client, UDP server, HTTP client(SSL), MQTT client(SSL) CAN port: TCP client, UDP client
Modbus Gateway	Serial: Modbus RTU to Modbus TCP CAN: CAN(FD) to Modbus TCP
IP	DHCP/StaticIP
Registration packet	√
Heartbeat packet	√
WiFi Encryption	WEP/WPA-PSK/WPA2-PSK
Encryption Methods	WEP64/WEP128/TKIP/AES
IOT PLATFORMS	PUSR cloud
User Configuring	Web console(HTTP)
Others	

Reset	Reset button 1>Press and hold for 4~15 to reset to factory settings 2>Quickly ouble-tap to enter SmartAPLink for networking
Indicators	PWR、RUN、WLAN、485、232、CAN
APPROVALS	
Regulatory	CE/RED, RoHS, WEEE

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