Queclink | Networks

WR220LEU

LTE Cat-4 Industrial PoE Cellular Router



- **Dual SIM**
- **PoE**
- **BLE**
- **Multiple Interfaces**
- **Nebulink**

- **Industrial-grade Rugged Design**
- **4G LTE Cat 4**
- **IEEE 802.3at (PoE+) Compliant Powered Device (PD)**
- **Dual SIM Auto-failover Link Redundancy**
- **IEEE 802.11 a/b/g/n/ac (Wi-Fi 5)**
- **4 Ethernet Interfaces (1 WAN, 3 LAN)**
- **Embedded BLE 5.2**
- **RS232 and RS485 Serial Port**
- **Real-time GNSS Tracking**
- **VPN Services for Secure Connections**

The WR220 Series Industrial Cellular Router is an industrial-grade LTE networking platform designed to deliver reliable and persistent connectivity for industrial applications. It supports dual SIM cards with automatic failover, PoE for simplified deployment, and offers versatile connectivity options, including 2 configurable RS232/RS485 ports and I/O interfaces for direct communication with PLCs and industrial sensors, 4 Ethernet ports (1 WAN and 3 LAN) and integrated dual-band Wi-Fi (2.4GHz & 5GHz) for establishing local networks. Its built-in BLE 5.2 enables the collection of data from BLE sensors and GNSS for location tracking. With support for multiple VPN services and routing protocols, this model is ideal for maintaining stable network connections for data transmission and equipment communication across diverse industrial sectors.

Public Transportation



Smart Surveillance



Smart Retail



SMB Network Deployment



Industrial Automation

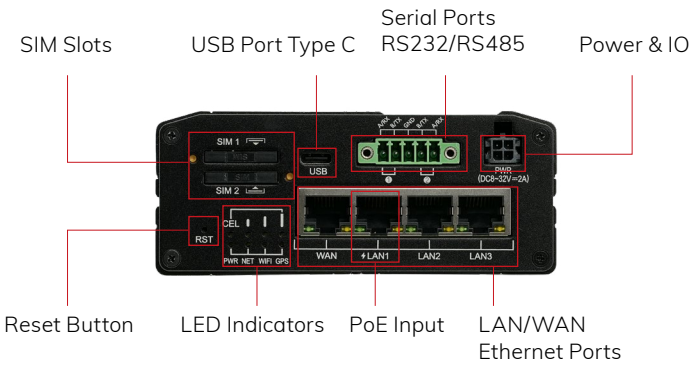


Utilities

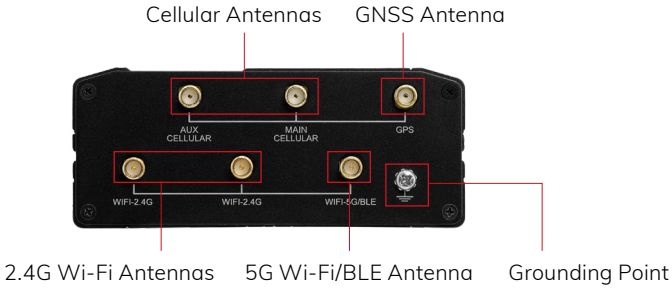


Interfaces

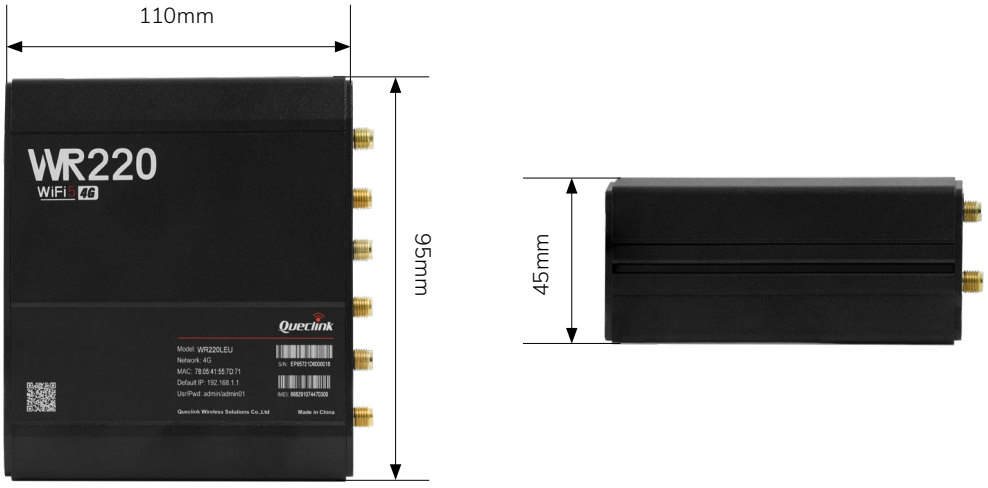
Front View



Rear View



Dimensions



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General Specifications

Casing Material	Anodized aluminium housing and panels
Dimensions	110 (W) x 95 (D) x 45 (H) mm (4.33" x 3.74" x 1.77") (Excluding antenna connectors and mounting bracket)
Weight	408g (0.9 lb)
Mounting Options	DIN rail, wall, and surface mounting
Operating Voltage	8-32V DC, reverse polarity protection, voltage surge/transient protection
Power Consumption	Idle: < 5 W, Max: < 21 W
Operating Temperature	-30 °C to 75 °C
Operating Humidity	10% to 90% non-condensing
IP Rating	IP30

Hardware Specifications

System Characteristics	**CPU**	Qualcomm, 650 MHz
	RAM	128MB, DDR2
	FLASH Memory	16MB
Interfaces	**Ethernet Ports**	WAN: 1 × RJ45 10/100 Mbps LAN: 3 × RJ45 10/100 Mbps
	Power & IO	4-PIN connector: 1 x PWR 1 x GND 1 x Digital input (0 - 3.3 VDC: low logic level/4.0-40 VDC: high logic level) 1 x Open collector output (30 VDC, 0.2 A)
	PoE	PoE input through LAN1 port, compatible with IEEE 802.3at
	RS-232/RS-485	2 x Serial ports (RS-232/RS-485 configurable)
	USB	1 x USB 2.0 Type C
	SIM	2 x SIM slots (Mini SIM - 2FF); optional eSIM (MFF2) support
	Antennas	2 x SMA for Cellular 1 x SMA for GNSS 3 x RP-SMA for WiFi 2.4G/5G/BLE antennas
	LED Indicators	1 x Power LED 1 x NET LED 1 x WIFI LED 1 x GPS LED 1 x Cellular connection status LED 3 x Signal strength LEDs 8 x LAN status LEDs
	Reset Button	Reboot/Factory reset
	Grounding Point	1 x Grounding screw

Connectivity Specifications

Cellular	**3GPP Release**	Release 9
	Cellular Bands	LTE-FDD: B1/B3/B5/B7/B8/B20/B28 LTE-TDD: B38/B40/B41 WCDMA: B1/B5/B8 GSM/EDGE: B3/B8
	Peak Rates	LTE-FDD: 150 Mbps DL/50 Mbps UL LTE-TDD: 130 Mbps DL/30 Mbps UL
		DC-HSPA+: 21 Mbps DL/5.76 Mbps UL WCDMA: 384 Kbps DL/384 Kbps UL
		EDGE: 236.8 Kbps DL/236.8 Kbps UL GPRS: 85.6 Kbps DL/85.6 Kbps UL
WLAN	**Wireless Mode**	IEEE 802.11 a/b/g/n/ac (Wi-Fi 5)
	Wi-Fi Data Rate	433 Mbps (5 GHz) and 300 Mbps (2.4 GHz) (MU-MIMO)
	Operating Mode	Access Point (AP), Station (STA)
	Wi-Fi Security	WPA2-PSK, WPA-PSK, AES-CCMP, TKIP
	Wi-Fi Users	Up to 75 simultaneous connections
Ethernet	**WAN**	1 x WAN port 10/100 Mbps, compliant with IEEE 802.3, IEEE 802.3u standards, supports auto MDI/MDIX crossover
	LAN	3 x LAN ports, 10/100 Mbps, compliant with IEEE 802.3, IEEE 802.3u standards, supports auto MDI/MDIX crossover
BLE	**BLE Type**	BLE 5.2

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GNSS Specifications

GNSS Type	All-in-One GNSS receiver
Constellations & Frequency	GPS/GLONASS/BDS/Galileo/QZSS
Protocols	NMEA 0183
Sensitivity	Cold start: -149 dBm Reacquisition: -159 dBm Tracking: -165 dBm
Position Accuracy (CEP)	Autonomous: <2 m
TTFF (Open Sky)	Cold start: 26s average Hot start: 1s average
Coordinates	Displays GNSS coordinates and provides map view via WebUI and Nebulink system
Server Software	Integrated with the Nebulink system

Firmware Features

Operating System		OpenWRT (Linux based)
Cellular	**SIM Switch**	2 SIM cards, auto-switch cases: Weak signal, Data limit, Network fail, Data connection fail
	Idle SIM Protection	The inactive SIM of dual-SIM is maintained in an idle state without any data traffic until activated
	SMS	Reboot, Restore factory settings, Upgrade firmware; Switch SIM, Set APN, Set SSID; Get device status (hardware/software version, SN, MAC, Nebulink connection status, cellular status); Set/Get device output status
	APN	Auto APN
	Multiple PDN	Support different PDNs for multiple network access and services
	Bridge	Directly forwards the public WAN IP to a single connected device
	Passthrough	Shares the public WAN IP to a designated LAN client
Network	**Routing**	Static routing, Dynamic routing (RIP v1/v2)
	Network Protocols	TCP, UDP, IPv4, ICMP, NTP, DNS, HTTP, HTTPS, SFTP, FTP, SSL/TLS, ARP, PPP, PPPoE, SSH, DHCP, Telnet, SNMP, MQTT
	VLAN	Port and tag-based VLAN separation
	Connection Monitoring	Ping Reboot, Periodic Reboot, LCP and ICMP for link inspection
	Firewall	Port forward, Traffic rules, Website filter, MAC filter
	DHCP	Static and dynamic IP allocation, DHCP server configuration, status, static leases
	QoS	Traffic priority queuing by source/destination, service, protocol or port
	DDNS	18 pre-defined service providers and manual configuration supported
	Link Management	Wi-Fi WAN, Mobile, Wired options, each of which can be used as an automatic Failover
	Load Balancing	Balance Internet traffic over multiple WAN connections
	Hotspot	Captive portal (hotspot), internal/external Radius server, Radius MAC authentication, SMS authorisation,internal/external landing page, walled garden, URL parameters, user management, Editable portal themes, remote configuration and management via Nebulink
	Traffic Management	Mobile traffic monitoring on a daily, weekly, and monthly basis

Firmware Features

VPN	**OpenVPN**	Multiple clients and a server can run simultaneously, 12 encryption methods
	OpenVPN Encryption	DES-CBC 64, RC2-CBC 128, DES-EDE-CBC 128, DES-EDE3-CBC 192, DESX-CBC 192, BF-CBC 128, RC2-40-CBC 40, CAST5-CBC 128, RC2-64-CBC 64, AES-128-CBC 128, AES-192-CBC 192, AES-256-CBC 256
	IPsec	IKEv1, IKEv2, with 5 encryption methods for IPsec (DES, 3DES, AES128, AES192, AES256)
	GRE	GRE tunnel, GRE tunnel over IPsec support
	PPTP/L2TP	Client/Server instances can run simultaneously, L2TP over IPsec support
Security	**Authentication**	Pre-shared key, digital certificates, Internal & External RADIUS users authentication, IP & login attempts block
	Firewall	NAT, Domain filter, IP/MAC filter, DMZ, DDOS
	DDOS Prevention	SYN flood protection, Remote ICMP requests, SSH attack prevention, HTTP attack prevention
	Data Quota Mangement	Mobile data limit, customizable period, start time
	Domain Filter	Blacklist for blocking out unwanted websites, Whitelist for specifying allowed sites only
	Access Control	Flexible access control of SSH, Web interface, CLI and Telnet
DATA TO SERVER	**Protocol**	HTTP(S), MQTT
MODBUS	**Supported Modes**	Client
	Supported Connection Types	TCP, RTU
	Supported Data Formats	8-bit: INT, UINT; 16-bit: INT, UINT (MSB or LSB first); 32-bit: float, INT, UINT (ABCD (big-endian), DCBA (little-endian), CDAB, BADC), HEX, BOOL
MQTT Gateway	**Modbus MQTT Gateway**	Allows sending commands and receiving data from MODBUS Server through MQTT broker
Serial	**Serial Types**	Console, Serial over IP, MODBUS
Input / Output	**Events**	Supports I/O event reporting to the MQTT/TCP server
	I/O Control	Set I/O conditions to initiate event
USB	**Applications**	USB-to-serial
	External Devices	Supports external HDD and flash drive to expand USB storage
	Storage Formats	FAT, FAT32, ext2, ext3, ext4

Firmware Features

Device Monitoring & Management	**WEB UI**	HTTP/HTTPS, status, configuration, FW update, CLI, troubleshoot, firmware update availability notifications, system log, kernel log, Internet status
	FOTA	Firmware update from server, automatic notification
	SSH	SSH (v1, v2)
	SMS	SMS status, SMS configuration
	TR-069	EasyCwmp
	MQTT	MQTT publisher
	SNMP	SNMP (v1, v2), SNMP Trap, Brute force protection
	Remote Management Platform	Nebulink System
Firmware / Configuration	**WebUI Upgrade**	Update FW from file, check FW on server, configuration backup
	FOTA	Update FW
	Nebulink	Update FW/configuration for multiple devices via Nebulink system
	Preserve Configuration	Update FW without losing current configuration
	Factory Default Restoration	A full factory reset restores all system settings, including the IP address, PIN, and user data to the default manufacturer's configuration

Compliance Specifications

Reliability	**Standards**	Vibration: ISO16750-3 Shock: IEC 60068-2-27
Regulatory & Type Approvals	**Regulatory**	CE*, RED EN18031*, RoHS*
Safety	**Standards**	EN IEC 62368-1:2020 + A11:2020 EN IEC 62311:2020