Outdoor 4G LTE Serial Router for Meter & IIoT Applications

WR210A-LTE

Industrial Wireless IIoT Serial Router, RS232/422/485 to LTE, IP51 Meter-like Housing

The WR210A-LTE industrial wireless serial router facilitates the integration of serial data into the cellular network. Its RS232/422/485 port enables the connection of meters, sensors, or RTUs, allowing the transmission of data to a remote cloud or data center through the cellular network. The RS232/422/485 mode is adaptable through software configuration, or the system Reset. The router supports eUICC for eSIM use, and comprehensive management features such as keep alive, periodic reset, time server synchronization, syslog server, SNMP configuration and Trap, as well as firmware and configuration backup/restore. Specifically designed for meter applications, the system is cognizant of the meter presence control protocol.
Ensuring secure connectivity, the router supports IPSec and AES encryption. Housed in a meter-like casing with IP51 protection, it accommodates both AC and 48-110VDC inputs and operates reliably within a wide temperature range of -25 to 70℃.

Microsoft Azure · amazon web services

LTE · Modbus · VPN · Cyber Security · -25~70°C · MQTT · NetMaster · ThingsMaster · ThingsMaster OTA

Features & Benefits

4G LTE Cellular Network

- LTE Cat.1, provides 10M downlink and 5M uplink, backward compatible 2G network (*3G optional)
- 4G/3G*/2G full cellular network compatibility Frequency bands: 800 MHz (LTE), 900 MHz (2G, 3G*), 1800 MHz (2G, LTE), 2100 MHz (3G*), 2600 MHz (LTE).
- Support Auto(2G/3G*/LTE), PAP and CHAP Authentication and APN setup
- Support eUICC/eSIM and local provisioning
- Supports SMS configuration
- 1-port Ethernet supports high speed LAN to LTE routing

Serial & Meter Communication

- RS232/422/485 full functions for serial over LTE/3G*/2G data transmitting
- Software configurable RS232/422/485 mode
- Reset bottom allows to change RS232 or RS485 mode
- Serial Port Status LED
- Meter Communication accepts circuit switched data calls(CSD), the data call can provide IEC 60870-5-101/102 communication through the serial port.

Enhanced Cellular Watchdog & Cyber Security

- Support Hardware reset to cut the power of whole device while critical events are occurred.
- Supports configurable Periodic Reset of the whole system, allowing 12h/24h periodic resets*.
- Support Keep-alive Ping Watchdog
- HTTPs/SSH secure login
- Support IPSec & AES Encryption

Industrial IoT LAN & Cloud Management

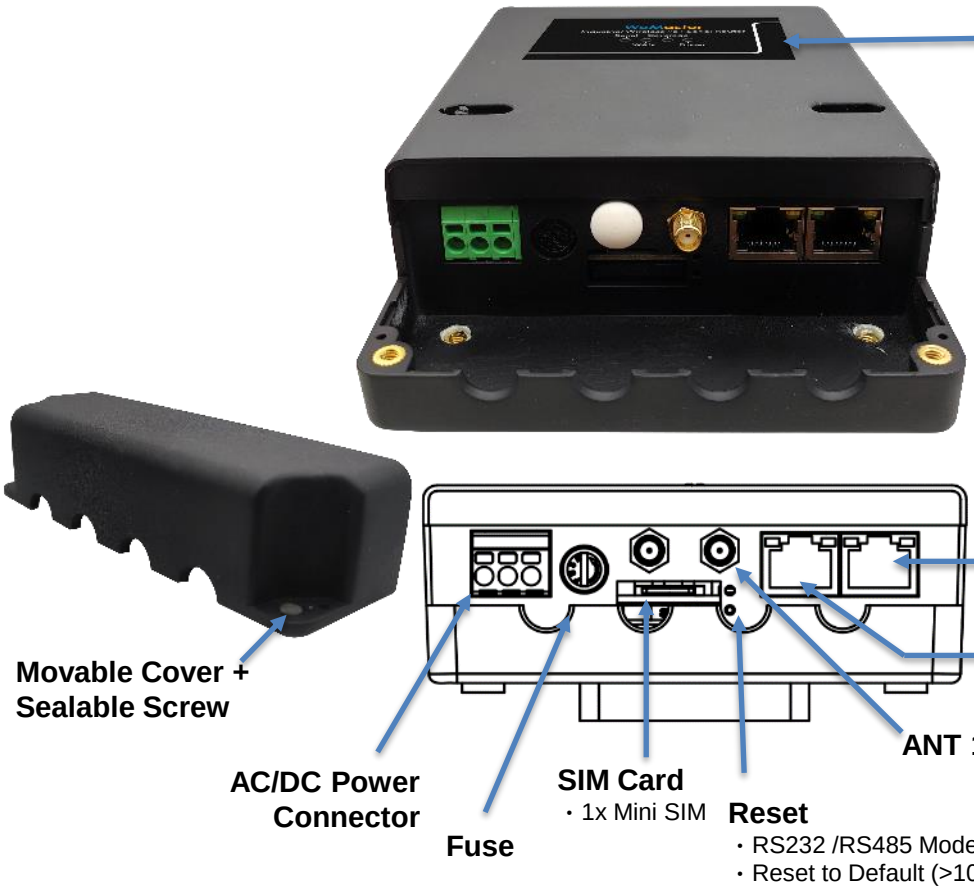
- Various configuration paths, including CGI WebGUI, CLI, SNMP
- Support SNMPv3 and entity-MIB (RFC4133), MIB II (RFC1213)
- NTP v3 time management
- WoMaster Software Utilities
  - **NetMaster:** Network Management System for remote monitoring and SNMP management
  - **ViewMaster:** Utility for firmware update, configuration Bacup&Restore

Design for Meter & IIoT Application

- Support AC & 48-110VDC in the same connector
- CE Marking
- IP51 compliant meter-like housing
- Din Rail, Wall Mount Flexible Installation
- Support -25~70ºC environments
- High industrial EMC Protection for AC/DC power input and System
- Tamper detection for the device

*by request

Interfaces



Panel & LED
-LED: Serial, WAN, Coverage, Power

Movable Cover + Sealable Screw

Serial
・RS232/422/485

Ethernet
・1-port 10/100M RJ45

ANT 1

	WR210A-LTE
ANT 1	LTE-Main (LTE Cat.1)

Note: ANT 2 is reserved for LTE-Div. for LTE Cat.4 model.

AC/DC Power Connector

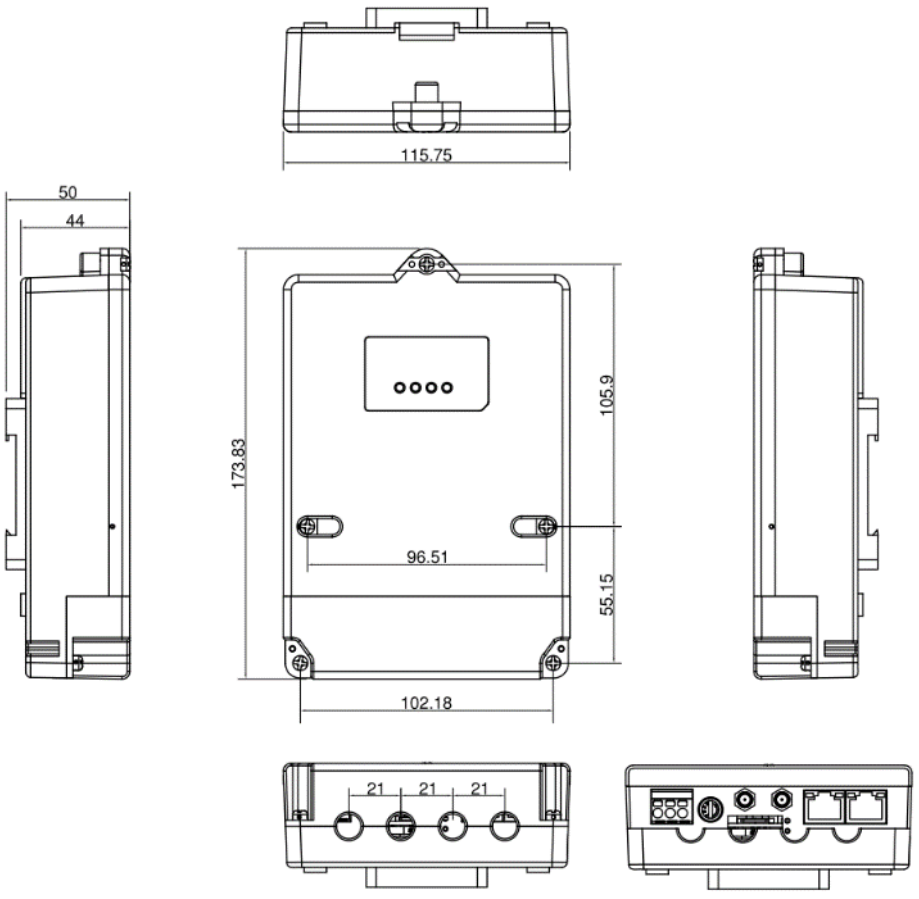
Fuse

SIM Card
・1x Mini SIM

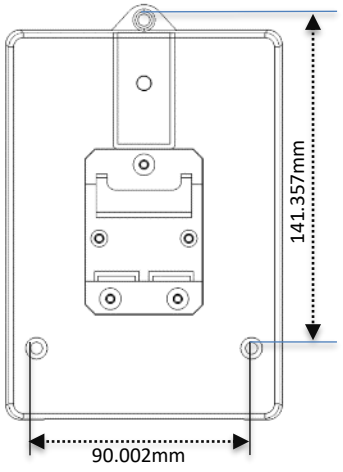
Reset
・RS232 /RS485 Mode
・Reset to Default (>10s)

Dimensions

(mm)



Triangle Mounting



Wall/DIN Mounting

116 x 173.9 x 50mm(W x H x D) with Triangle mounting / Din-Rail mounting Clip

Technology

Standard	3GPP Release 11 Long Term Evolution, fallback 3GPP Release 7,8,9 for HSPA/UMTS
	IEEE 802.3 10Base-T Ethernet
	IEEE 802.3u 100Base-TX Fast Ethernet

Interface

Ethernet Port	1 x 10/100Base-TX RJ45, Auto Negotiation, Auto MDI/MDI-X Default mode: Disabled. RJ45 Connector: Internal/External (TBD)
Serial	1x RS232/422/485, 8-pin RJ45 Connector

Pin	RS232	RS485-4w/422	RS485-2w
1	DSR	-	-
2	RTS	TX+	-
3	GND	GND	GND
4	TxD	Tx-	-
5	RxD	Rx+	Data+
6	DcD	Rx-	Data-
7	CTS	-	-
8	DTR	-	-

Serial Cable	Standard Accessory: One RJ45 to DB-9(RS232/RS485) Serial Cable, 1.5m RS232 interface: DB9 Female, Pin 2:RX, Pin 3: TX, Pin 5: GND RS485 interface: DB9 Female, Pin 6:RX-, Pin 7: RX+, Pin 8: TX-, Pin 9: TX+
Reset Button /Serial Mode	Default: RS232 mode RS485 Mode: Press 1~5 seconds, Default Settings Reset: over 10 Seconds
SIM Socket	1x Mini SIM Socket with SIM Tray
SMA Socket	1x SMA-Female for Cellular (Main, SMA-Female)
Power Input	3-Pin Removable Terminal Block Connector AC/DC Input (L/V+, N/V-, GND)
Fuse	Fuse can be replaced without opening the case, 10A/250V
Watchdog	Software configurable Hardware Watchdog
Dying gasp	Send trap or syslog within the remaining time while power lost
Tamper detection	Hall-Effect Micro Switch for tamper detection
System LED	**1. Power LED:** ON: Power On & System Ready, Blinking: System Starting or failure booting **2. WAN LED:** ON: LTE Slow Blinking: GPRS **3. Coverage LED:** ON: Good Quality & SIM Ready OFF: SIM undetected or incorrect PIN Slow Blinking: Not enough coverage & SIM Ready Fast blinking: Low Coverage & SIM Ready **4. Serial:** ON: Serial RS232 Mode Slow Blinking: Serial RS485 Mode Fast Blinking: Ongoing Data Transmitting

DB9-1	RS232 function
2	Rx
3	Tx
5	GND
DB9-2	**RS485 function**
6	Rx-
7	Rx+
8	Tx-
9	Tx+

Cellular Properties	LTE Cat 1
Region: LTE1-E	Standard: LTE 3GPP Release 11 Data Rate: LTE-TDD: DL: Max. 10 Mbps, UL: Max. 5 Mbps Band Information: LTE: FDD B1/3/7/8/20 (2100/1800/2600/900/800MHz) WCDMA: FDD B1/B8 (2100/900MHz) GSM/EDGE/GPRS: B3/B8 (1800/900MHz) *Other LTE Band/ TDD Band by request
Power Requirement	
Input Voltage	AC: 100-240VAC ± 10% DC: 48-110VDC ± 10%
Reverse Polarity Protect	Yes
Input Current	0.12A@48V, 0.05A@110V, 0.063A@85VAC, 0.042A@264VAC
Power Consumption	Max 5.76W@48VDC, Max.11.01W@264VAC, suggest to reserve 15% tolerance
Software	
Management Interface	CGI WebGUI, Command Line Interface (CLI), Telnet/SSH, HTTPS, SNMP TLS (TCP)* and DTLS (UDP)*
User Management	Radius client, TACACS+, local database
WAN Connectivity	Radio on/off, network selection supports Auto(2G/3G*/LTE), Auto24(2G/LTE), Available Auto, PAP and CHAP Authentication, APN setup, SIM Security, Connection Status, GPS positioning (Static) AT command console allows by Ethernet or Remote Telnet/SSH. Supports SMS configuration mode, access allow to filter 10 allowed data phone number, allow to disable*
eUICC international	Compliant with the eUICC international standard published by GSMA, (SGP.02) 1oT eUICC/eSIM compliant and support provisioning.
Keep-Alive	Support Keep-alive ICMP Ping, includes Server, Ping wait time*, Number of pings and keep alive period settings.
Watchdog	Support Hardware reset to cut the power of whole device while critical events are occurred. Supports configurable Periodic Reset of the whole system*, allowing 12h/24h periodic resets
Serial communication	Support RS232/422/485 in one connector, allows remote software configurable and Reset bottom to change the mode (RS422 by web GUI only). Support Modbus RTU/TCP Server/TCP Client/UDP mode, TCP Alive check, Force TX Delimiter/Timeout/interval/length, Long Distance Termination. Support different baud rates from 1200 to 115200bps. Default: 9600, 8E1(8 data bit, even parity, 1 stop bit) * Support FT1.2 frame encapsulation for IEC-60870-5-101 and IEC-60870-5-102 protocol
Meter communication	Support the IEC 60870-5-101/102 FT1.2 frame encapsulation. The WAN interface allow incoming GSM(4G/3G*/2G fallback) data call, accepts circuit switched data calls(CSD), the data call shall provide IEC 60870-5-101/102 communication through the serial port. Provide a configurable Main and Secondary TCP port to use for IEC 60870-5-101/102 communication to meter*. Support meter presence control routine which can periodically send certain IEC 60870-5-101/102 frames to be answered by the meter*.
Tamper detection	Send trap or syslog once tamper detection is ON
Time Management	NTPv3, SNTP, Cellular Time
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	NAPT(SNAT/DNAT), Port Forwarding
Security	Firewall, DMZ, HTTPs, SSH
VPN	IPSec V2 & AES Encryption IPSec supports Internet Key Exchange version 2 (IKEv2) to negotiate, update, maintain IPsec connections and create security associations (SA)
Diagnostic	Restore Default: Restore configuration to ENDESA factory configuration*(Not define yet). Reset bottom allows to reset factory default(press >10s), ICMP Ping Syslog system: RFC5424 complaint, accessible through configuration interface, syslog shall be saved into SD (non-volatile memory), syslog file downloadable, two syslog server can be configured (Check detail syslog facility in manual)* Configuration Update: Import/Export configuration file through configuration interface. SFTP for configuration download and update, protected from non-specific command
Utility	ViewMaster for firmware update, configuration backup/restore

Mechanical	
Installation	Wall Mount: fastening triangle, DIN Rail (35mm) Mount by Din Rail clip
Enclosure Material	PC+ABS Alloy Plastic, UL94V0 compliant, insulating, fire-retardant, low CIH, EN 60695-2-11 compliant material
Dimension	116 x 173.9 x 50mm(W x H x D) with Triangle mounting/Din-Rail mounting Clip
Ingress Protection	IP51, IEC60529 compliant, IEC61140 class II compliant
Weight	Around 350g without package/antenna (TBD)
Environmental	
Temperature	Operating: -25°C~70°C, Limit range of operation: -40°C~85°C, Storage: -40°C~85°C
Humidity	Operating: 5-98% RH@50°C non-condensing, Storage: 98% RH@50°C non-condensing
Environment	WEEE: Directive 2012/19/EU compliant, RD 110/2015 compliant Material: Directive 2011/65/EU, 2004/107/EC compliant
MTBF	>200,000 hours
Warranty	3 years
Approval	
CE Marking	CE RED Directive 2014/53/EU Compliance Safety: EN62368-1, EN301489-1/52, RF: EN301 908-1, EN62311 EMI: EN 55032 (55022) class B EMC: EN61000-4-2 ESD EN61000-4-3 RS EN61000-4-4 EFT EN61000-4-5 Surge EN61000-4-6 CS EN61000-4-8 Magnetic Field EN61000-4-11 Dips (AC power) EN61000-4-13 Harmonics EN61000-4-16 Conducted common disturbances EN61000-4-17 Ripple on DC power supply EN61000-4-18 Damped oscillatory wave EN61000-4-29 Voltage Dips (DC power)
Other Complaint Standard	IEC60255-27 Impulse Voltage Test, 8kV peak, ≥1s interval AC or DC dielectric voltage test, 4kVrms Insulation resistance, Insulation value >100MΩ, ≥2 times test period IEC 60695-2-11 for Enclosure IEC 60529 IP51
Environment Test	IEC60068-2-1 Cold, -25±3℃, 0% humidity, 24+24+24(h) IEC60068-2-2 Dry Heat, +70±2℃, 50% humidity, 72(h) IEC60068-2-14 Change of temperature, -25±3℃ ~ +70±3℃, 0% humidity, 5 Cycles IEC60068-2-78 Damp Heat, +55±2℃, 93±3% humidity, 96(h)

Ordering Information

Model Name	Description
WR210A-LTE1-E	Industrial Wireless IIoT Serial Router, 1FE+1COM, 1SIM, AC+48-110VDC, 2G GPRS, 3G, 4G LTE Cat1, Europe
	***Other Country/Band by request**
	Package List
	1 x Product Unit
	1 x 2-pin Removable Terminal Connector
	1 x Din-Rail mounting Kit
	1 x Triangle mounting kit
	1 x Quick Installation Guide
	1x RJ45 to DB9(RS232) Serial Cable, 1.5m 1x RJ45 to DB9(RS485) Serial Cable, 1.5m 1x LTE antenna 1x Power cable, 1m

Optional Antenna

Model Name	Ant. Type	Location	Mounting	Impedance	Gain	Coaxial cable type	Coaxial cable Length
A-LTE-OMIN-MGN-3-SM-RG174-3M	Omni-Directional	Indoor	Magnetic	50Ω	3dBi	RG174	3m
A-LTE-OMIN-MGN-3-SM-RG174-5M	Omni-Directional	Indoor	Magnetic	50Ω	3dBi	RG174	5m
A-LTE-OMIN-MGN-3-SM-RG58-10M	Omni-Directional	Indoor	Magnetic	50Ω	3dBi	RG174	10m
A-LTE-OMEX-POLE-3-SM-RG58-15M	Omni-Directional	Outdoor	Wall/Pole	50Ω	3dBi	RG58/U	15m
A-LTE-OMEX-POLE-3-SM-RG58-15Mx2	Omni-Directional	Outdoor	Wall/Pole	50Ω	3dBi	RG58/U	15mx2
A-LTE-OMEX-POLE-3-SM-RG58-20M	Omni-Directional	Outdoor	Wall/Pole	50Ω	3dBi	RG58/U	20m
A-LTE-OMEX-POLE-3-SM-RG58-20Mx2	Omni-Directional	Outdoor	Wall/Pole	50Ω	3dBi	RG58/U	20mx2
A-LTE-PNLEX-POLE-10-SM-RG58-10M	Patch Panel	Outdoor	Wall/Pole	50Ω	10dBi	RG58/U	10m
A-LTE-PNLEX-POLE-10-SM-RG58-10Mx2	Patch Panel	Outdoor	Wall/Pole	50Ω	10dBi	RG58/U	10mx2
A-LTE-OMEX-POLE-8-SM-RG58-10M	Omni-Directional	Outdoor	Wall/Pole	50Ω	8dBi	RG58/U	10m
A-LTE-OMEX-POLE-8-SM-RG58-10Mx2	Omni-Directional	Outdoor	Wall/Pole	50Ω	8dBi	RG58/U	10mx2
A-LTE-YAGI-POLE-11-SM-RG58-20M	Directional-YAGI	Outdoor	Wall/Pole	50Ω	11dBi	RG58/U	20m
A-LTE-YAGI-POLE-11-SM-RG58-20Mx2	Directional-YAGI	Outdoor	Wall/Pole	50Ω	11dBi	RG58/U	20mx2
A-LTE-PNLEX-POLE-10-SM-RG58-15M	Patch Panel	Outdoor	Wall/Pole	50Ω	10dBi	RG58/U	15m
A-LTE-PNLEX-POLE-10-SM-RG58-15Mx2	Patch Panel	Outdoor	Wall/Pole	50Ω	10dBi	RG58/U	15mx2