

Outdoor Satellite/LTE Serial Router

WR210A-LTE/NTN

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

The WR210A-LTE/NTN industrial wireless serial router facilitates the integration of serial data into the satellite/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 or satellite 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°C.



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

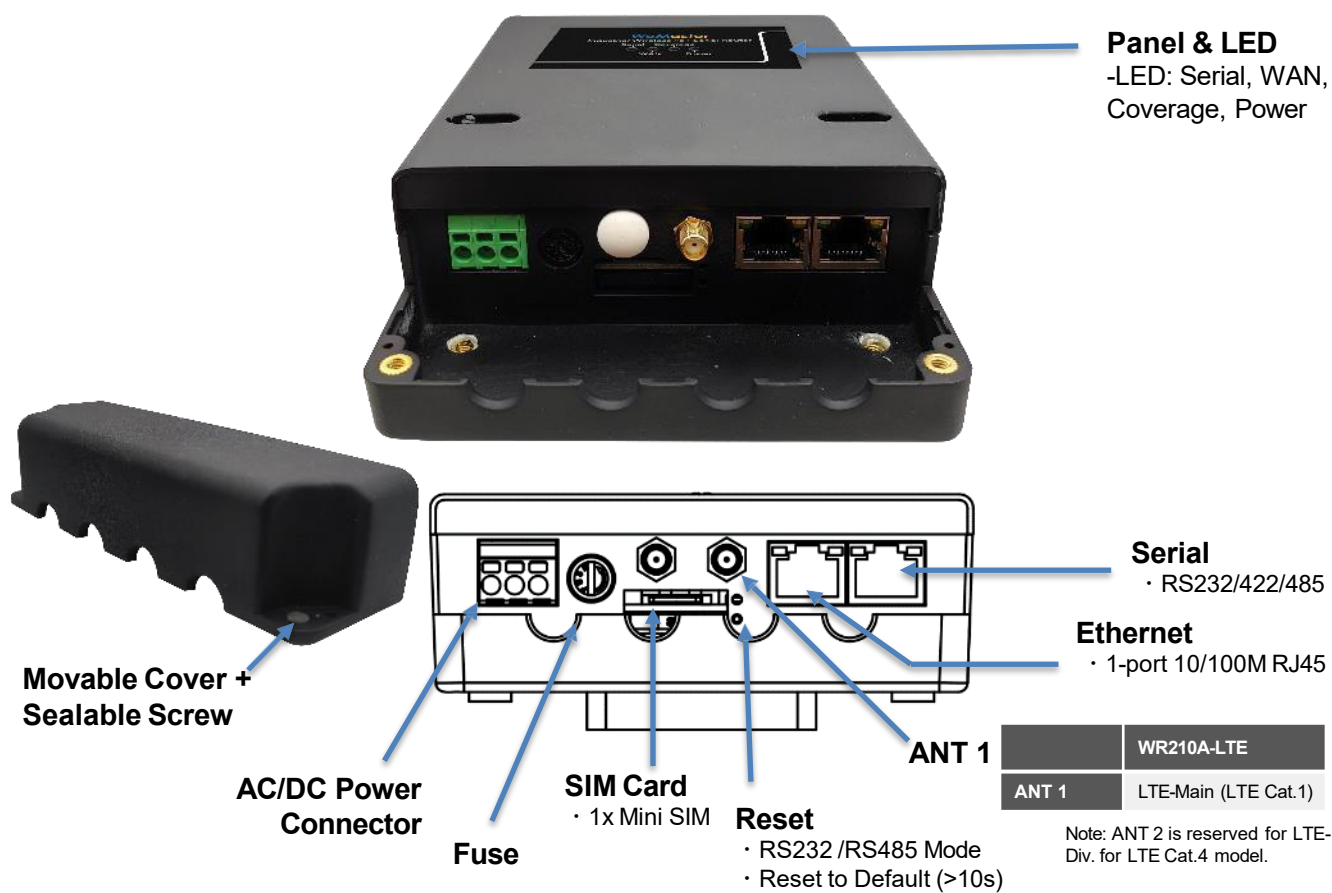
- Various configuration paths, including CGI WebGUI, CLI, SNMP
- Support SNMPv3 and entity-MIB (RFC4133), MIB II (RFC1213)
- NTP v3 time management
- WoMaster Software Utilities
- NetMaster**: Network Management System for remote monitoring and SNMP management
- ViewMaster**: Utility for firmware update,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

Design for Meter & IIoT Application

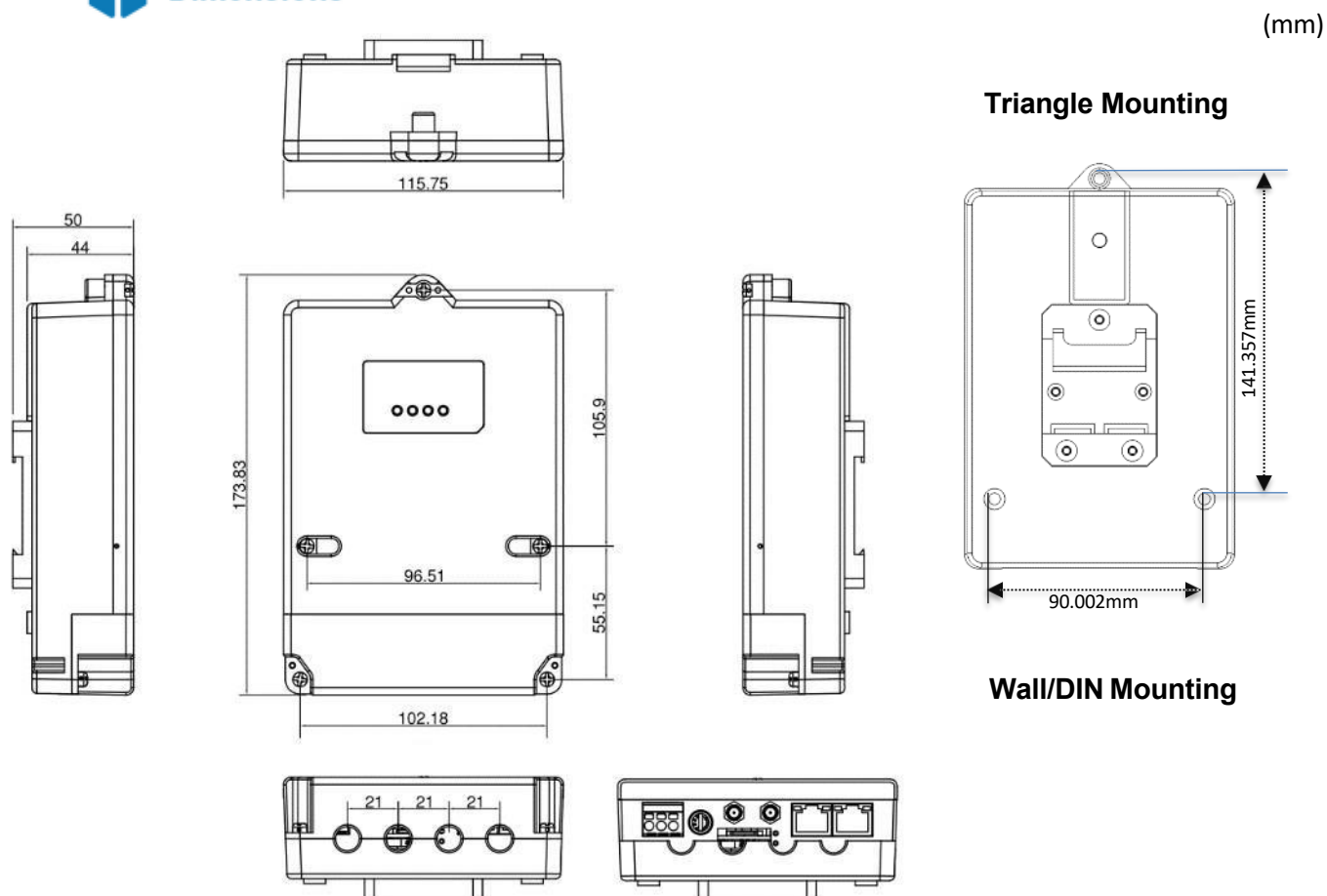
- Support AC & 48-110VDC in the same connector
- CE Marking
- IP51 compliant meter-like housing
- Din Rail, Wall Mount Flexible Installation
- Support -25~70°C environments
- High industrial EMC Protection for AC/DC power input and System
- Tamper detection for the device



Interfaces



Dimensions



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	
		4	TxD	Tx-	
		5	RxD	Rx+	
		6	DcD	Rx-	
		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+	DB9-1	RS232 function		
		2	Rx		
		3	Tx		
		5	GND		
		DB9-2	RS485 function		
Reset Button /Serial Mode	Default: RS232 mode RS485 Mode: Press 1~5 seconds, Default Settings Reset: over 10 Seconds	6	Rx-		
		7	Rx+		
		8	Tx-		
SIM Socket	1x Mini SIM Socket with SIM Tray	9	Tx+		
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				
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				

Cellular Properties BG95-S5 (Qualcomm MDM9205S)	
IoT NTN (Skylo)	L: B255 S: B256, B23 250kbps DL/200kbps UL
LTE CatM1	B1/2/3/4/5/8/12/13/18/19/20/25/26/27/28/66/85 Max.589kbps DL, 1119kbps UL
LTE NB2	B1/2/3/4/5/8/12/13/18/19/20/25/28/66/71/85 NB2: Max.127kbps DL, 158.5kbs UL
EGPRS	GSM 850/EGSM900/DCS1800/PCS1800
GNSS	GPS/GLONASS/BeiDou/Gallileo/QZSS
Cellular Properties SIM7070G-HP-S (Qualcomm MDM9205S)	
IoT NTN (Skylo)	L: B255 S: B256, B23 250kbps DL/200kbps UL
LTE CatM1	B1/2/3/4/5/8/12/13/18/19/20/25/26/27/28/66 Max.589kbps DL, 1119kbps UL
LTE NB2	B1/2/3/4/5/8/12/13/18/19/20/25/26/28/66 NB2: Max.127kbps DL, 158.5kbs UL
EGPRS	-
GNSS	GPS/GLONASS/BeiDou/Gallileo/QZSS
Power Requirement	
Input Voltage	AC: 100-240VAC \pm 10% DC: 48-110VDC \pm 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
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. SMS*
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, 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.
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 & 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 specific factory configuration*(Customized Request). Reset bottom allows to reset factory default(press >10s), ICMP Ping, Download Cellular log *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 Plastic, UL94V0 compliant
Dimension	116 x 173.9 x 50mm(W x H x D) with Triangle mounting/Din-Rail mounting Clip
Ingress Protection	IP51
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	
EMC	EN61850-3:2014 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 EN61000-4-11 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
Environment Test	IEC60068-2-1 Cold, -25±3°C, 0% humidity, 24+24+24(h) IEC60068-2-2 Dry Heat, +70±2°C, 50% humidity, 72(h) IEC60068-2-14 Change of temperature, -25±3°C ~ +70±3°C, 0% humidity, 5 Cycles IEC60068-2-78 Damp Heat, +55±2°C, 93±3% humidity, 96(h)



Model Name	Description
WR210A-LTE1-E	Industrial Wireless IIoT Serial Router, 1FE+1COM, 1SIM, AC+48-110VDC, 2G GPRS, 3G, 4G LTE Cat1, Europe
WR210A-NTN-B	Industrial Wireless IIoT Serial Router, 1FE+1COM, 1SIM, AC+48-110VDC, IoT NTN, LTE CAT M1, LTE NB2, EGPRS, GNSS, Quectel BG95-S5
WR210A-NTN-S	Industrial Wireless IIoT Serial Router, 1FE+1COM, 1SIM, AC+48-110VDC, IoT NTN, LTE CAT M1, LTE NB2, GNSS, SIMCOM SIM7070G-HP-S
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	