LTE and WLAN Wireless Routing (PoE) Switch and IoT Gateway for BUS/Vehicle and Automation

WR329/WR329P/WR329A/WR329PA

LTE and WLAN Wireless 8 (PoE+) Ethernet and 1 GbE WAN Routing Switch for BUS/Vehicle

The cellular LTE and WLAN wireless routing switch WR329 series include **WR329-WLAN-LTE** with 8-Port Ethernet and 1 GbE WAN port, **WR329P-WLAN-LTE** with 8-port PoE+ boost up to 30W/port for bus/vehicle, **WR329A-WLAN-LTE** with 1 RS232/422/485 serial port, 3 DIs and 2 DOs for IoT sensors, DIO applications and **WR329PA-WLAN-LTE** for both PoE and IoT features. The security design includes static routing, IPSec VPN, DMZ, and a stateful firewall inspection in order to segregate networks and protect mission-critical data. With support for Network Address Translation (NAT) and port-forwarding, it isolates the threats from the Internet. The USB port for configuration can help mass installation and site support. The embedded MQTT and RESTful API enables public cloud integration such as AWS®, Azure®, or user-defined cloud. The private cloud platform ThingsMaster® by WoMaster can also be set up for an instant and secured access for video surveillance and IoT control over the cloud.

MQTT Microsoft Azure amazon web services

PoE+ VPN Cyber Security Lte 5GHz 802.11a/n/ac 2.4GHz 802.11b/g/n IEC61000-6-2 IEC61000-6-4 -40~75°C

NetMaster ThingsMaster ThingsMaster OTA

Features & Benefit

Cellular High speed 4G LTE and Wireless LAN

- LTE Cat.4, 2x2 MIMO, 150M downlink and 50M uplink
- LTE Cat.6 with 2CA, 2T2R MIMO provides 300M downlink and 50M uplink
- 4G/3G/2G full cellular network compatibility
- GPS/BDS/GLONASS/Galileo location services
- IEEE 802.11ac compliant & backward compatible with 802.11a/b/g/n
- Selectable 5G/2.4G Wi-Fi for local coverage, up to 866Mbps bandwidth

Ethernet Routing Switch

- 8 Fast Ethernet ports with100M wire-speed switching
- One Gigabit Ethernet WAN port for uplink or NVR

Industrial IoT Gateway (WR329A, WR329PA)

- One RS232/422/485 with Modbus RTU protocol to connect sensors
- Three Digital Inputs for the sensors or push button
- Two Digital Outputs for alarm
- MQTT protocol for serial, DI and DO data to IIoT cloud

Extreme PoE Capability (WR329P, WR329PA)

- Provides 8-port IEEE 802.3af/at compliance PoE+, up to **30W** per port
- 12/24V to 54VDC Booster PoE
- Up to 120W PoE power budget
- Complete PoE management including per-port Power Budget Control, PoE Scheduling and PoE Status

Rugged Design for Bus, Wayside Surveillance, ITS Application

- Railway EMC: EN50121-4 compliance
- IEC61000-6-2/IEC61000-6-4 heavy industrial EMC
- Vehicle: E-mark compliance
- Radio RED for CE Marking
- Emission: FCC part 15 B Class A
- Effective heat dissipation design for operating in -40~75ºC environments

Enhanced Cyber Security for Critical Application

- Firewall for traffic classification, port forwarding
- NAT, DMZ for LAN protection
- OpenVPN, IPsec, L2TP for secure connection
- Port Security
- HTTPs/SSH secure login

Dynamic Routing with Redundancy Protection

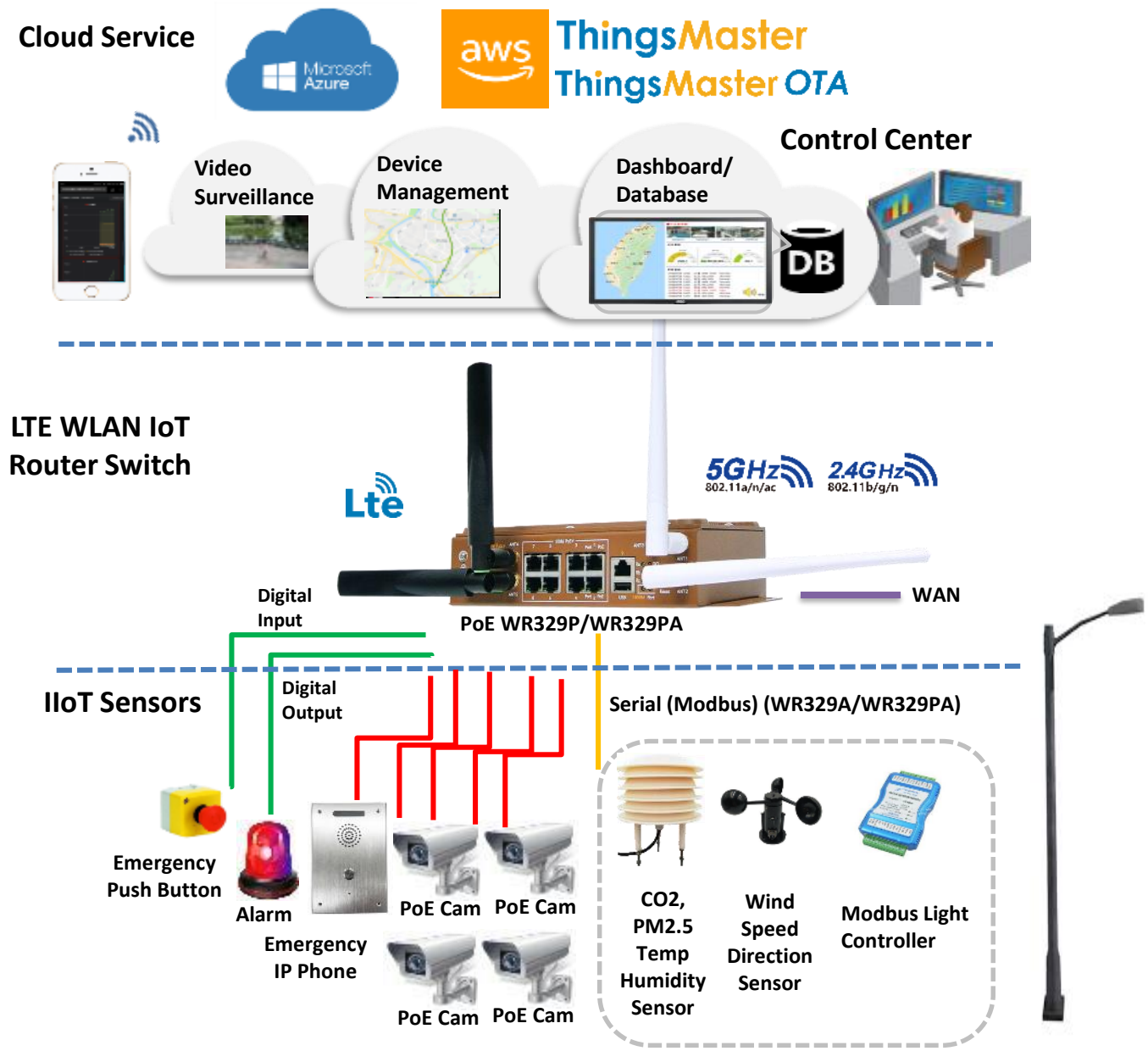
- RIPv1&v2, OSPFv1&v2 for intra-domain routing within an autonomous system
- Efficient unicast/multicast* static routing
- VRRP guarantees sustainable routing in a single point of failure

Industrial IoT LAN & Cloud Management

- Various configuration paths, including CGI WebGUI, CLI, SNMP and RMON*
- WoMaster Software Utilities
  - **-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
- USB for easy field configuration and firmware update
- Diagnostic tool includes Ping, TFTP, SNMP Trap, E-mail Alert and System Log

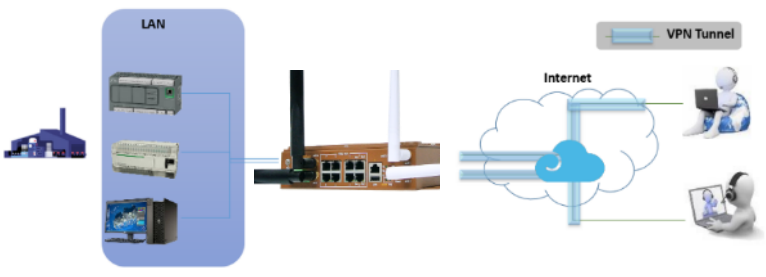
*by request

✓ Ready Total Solution for IoT and Smart City



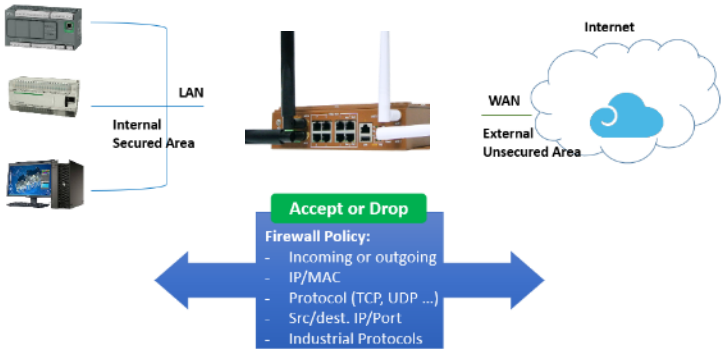
✓ Secured Remote Access by VPN

WR329 can act as VPN server for data encryption and dynamic remote access. Multiple VPN protocols are supported such as IPSec, OpenVPN, GRE, and L2TP. The channels between multiple networks, ex. private/public/hybrid networks are fully secured and with authentication features.



✓ Cyber Security Guard

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

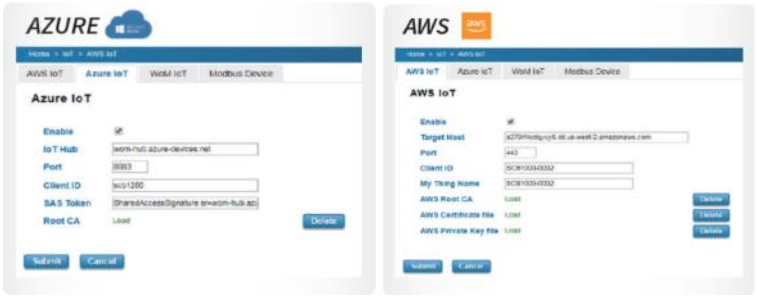


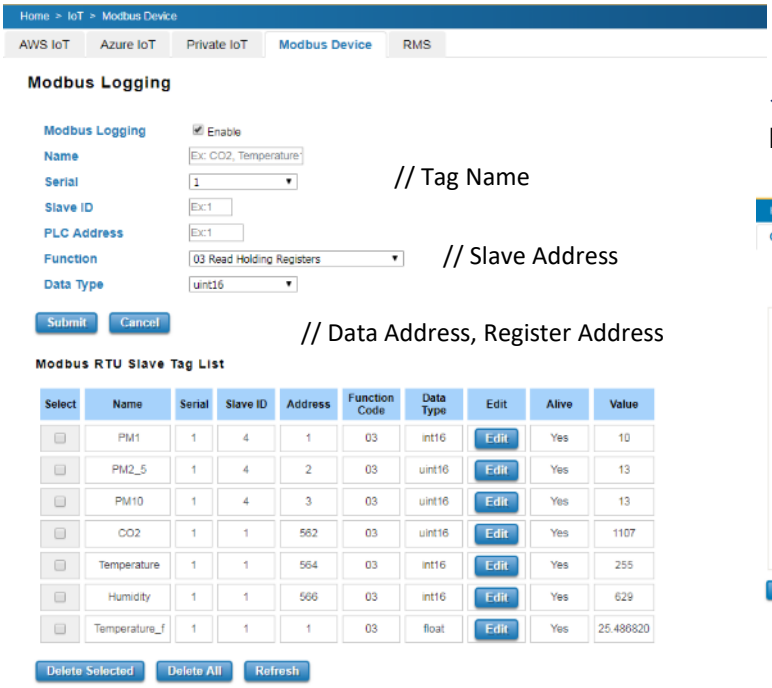
*by request

Secure IoT Modbus Tags

Tag-based data acquisition with MQTT support
MQTT client acting as publisher and subscriber
The latest TLS encryption and X.509 authentication
Selectable serial port and data type. Sensor alive check and display sensor value.

✓ Built-in Microsoft Azure and Amazon AWS agent



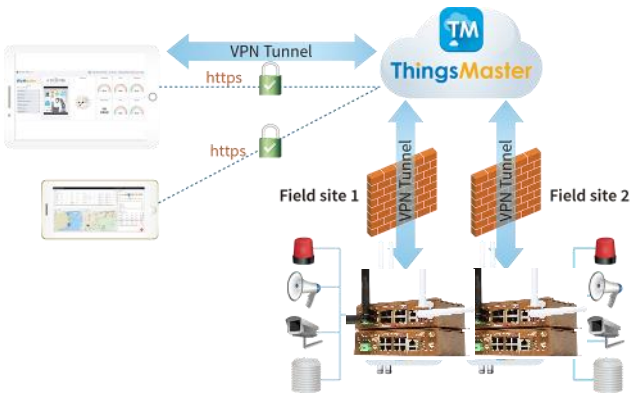


✓ GPS/BDS/GLONASS/Galileo Location Service

Latitude / Longitude / Altitude /Speed

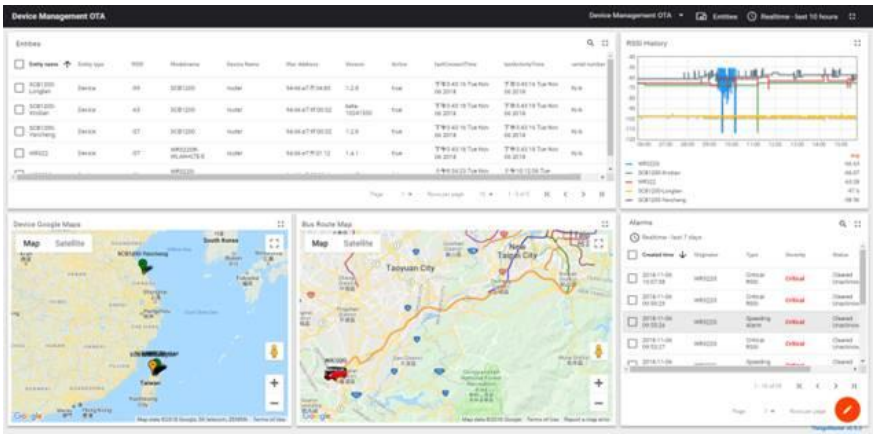
Secured Multi-sites Management

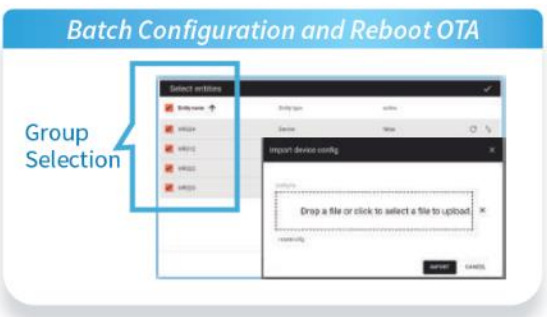
N to N VPN
Latest TLS encryption and X.509 authentication

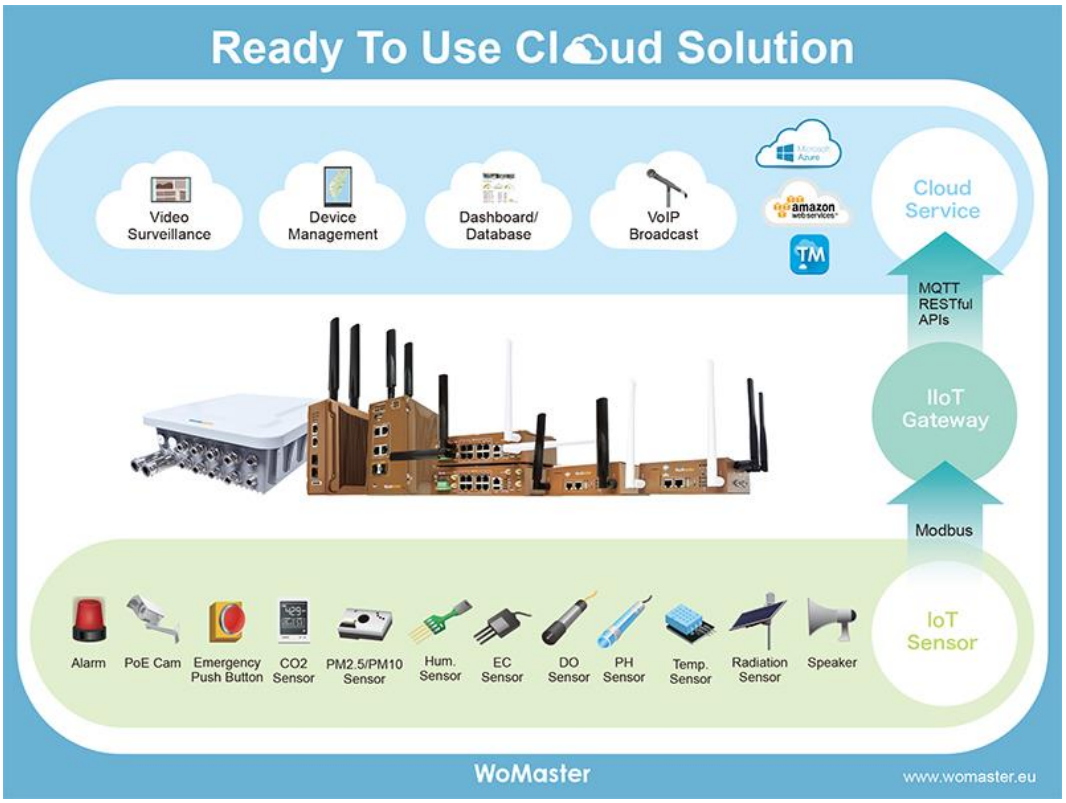


✓ ThingsMaster OTA (device management over the air)

The OTA agent embedded in WR329 upgrades device management over the air, anywhere you are and any time you want over your mobile devices. ThingsMaster OTA is a secured local OTA software that can be installed in a private or public server or even QNAP NAS (network attached storage). With OTA, all device information such as location, warning event can be shown in real time. The maintenance such as configuration reload, or device reboot can also be run by group.







Smart Energy Solution

-Monitor meter voltage, frequency, power, current, energy consumption, etc.

Industrial 4.0 Solution

Monitor machine downtime, speed, utilization rate, yield rate, productivity, etc.

Smart Farming Solution

Monitor silos weights, silos temperature, silos humidity, etc

Smart Bus Tracking Solution

Monitor bus route, speed, passenger count, fuel etc.

Smart Environment Solution

Monitor PM1/2.5/10, CO2, temperature, humidity, radiation, wind speed, etc.

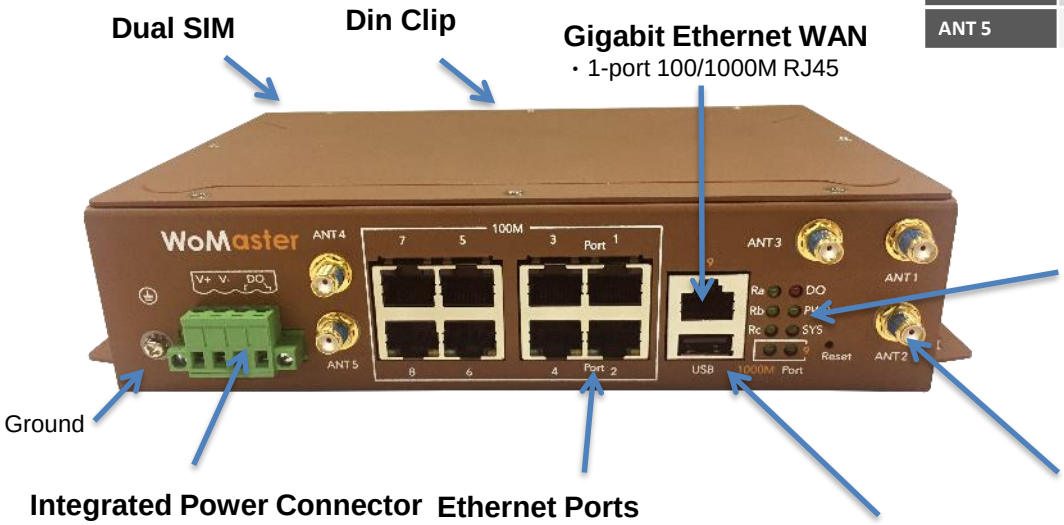
Smart Metering Solution

Monitor district energy consumed, water consumed, etc.

Interfaces

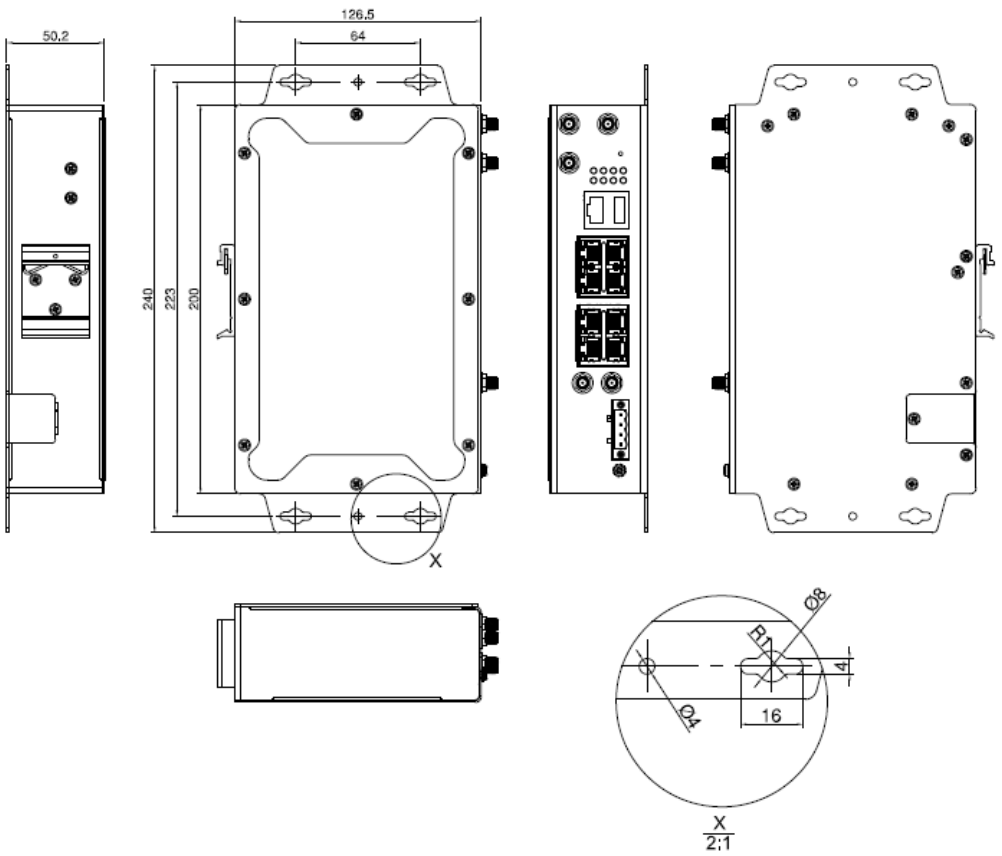
WR329

	WR329-2xWLAN	WR329P-WLAN+LTE
ANT 1	Wi-Fi 1	LTE-Main
ANT 2	Wi-Fi 2	LTE-Aux
ANT 3	-	GPS
ANT 4	Wi-Fi 1	Wi-Fi 1
ANT 5	Wi-Fi 2	Wi-Fi 2



Dimensions

(mm)



Interfaces

WR329P

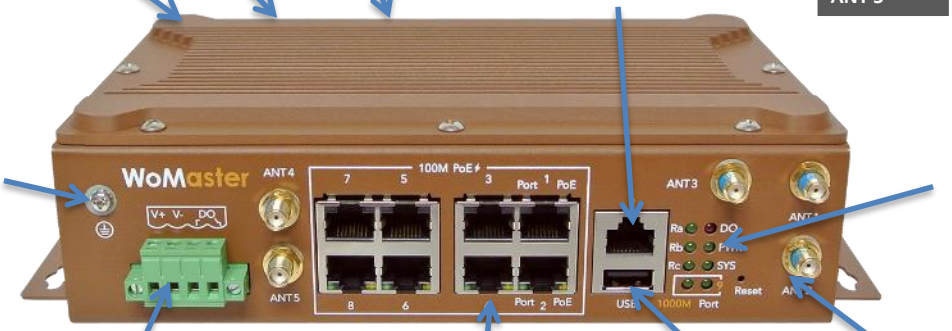
	WR329/329P-2xWLAN	WR329/329P-WLAN+LTE
ANT 1	Wi-Fi 1	LTE-Main
ANT 2	Wi-Fi 2	LTE-Aux
ANT 3	-	GPS
ANT 4	Wi-Fi 1	Wi-Fi 1
ANT 5	Wi-Fi 2	Wi-Fi 2

Outstanding Heat Sink
- Industrial Fin-Type Design

Dual SIM

Din Clip

Gigabit Ethernet WAN
- 1-port 100/1000M RJ45



Ground

System LED
- 1 x DO
- 1 x Power
- 1 x System Status
- 3 x Radio status
- 1 x Ethernet Port (Port 9)
- 1 x Speed (Port 9)

SMA Antenna Socket
- Up to 5 SMA

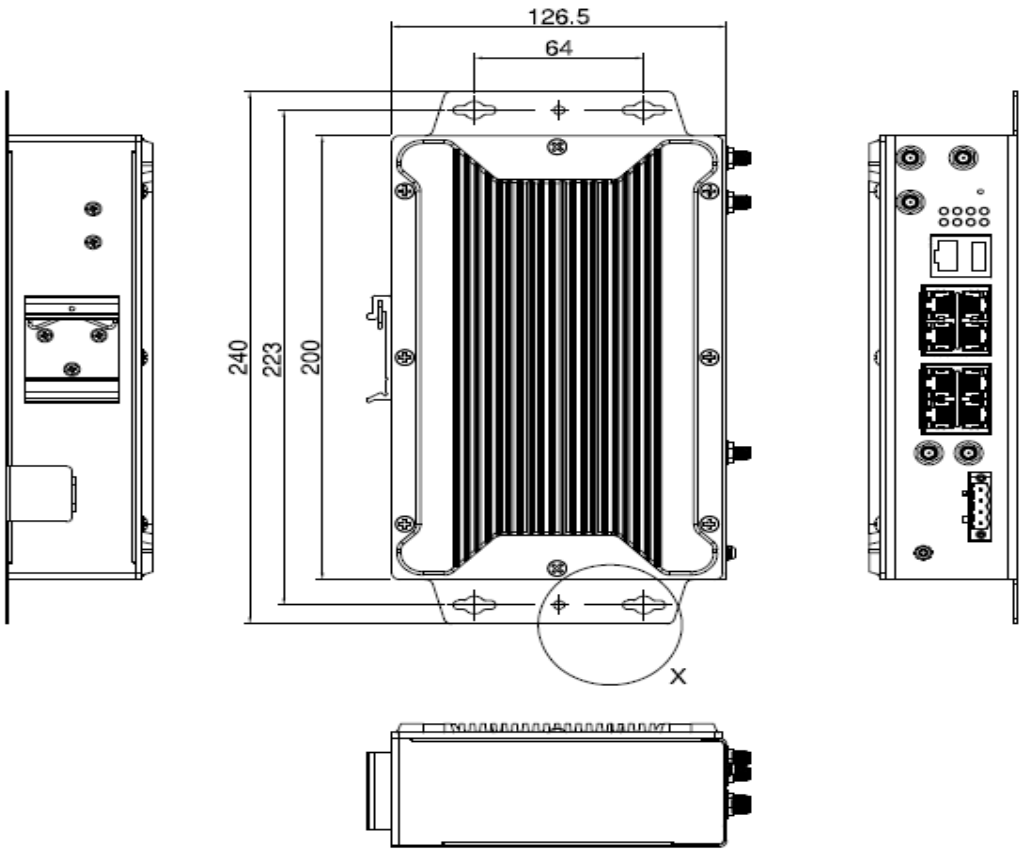
Integrated Power Connector
- 1 x 4-pin terminal block
  2 pin booster power input
  2 pin DO
- Easy installation

Ethernet Ports
- 8-port 10/100M RJ45
- IEEE 802.3af/at PoE (WR329P)

USB Extension Port
- USB for Configuration/Firmware update
- External Storage

Dimensions

(mm)



Interfaces

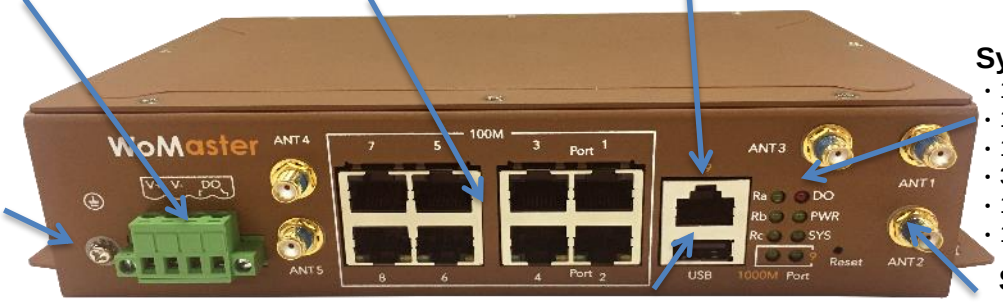
WR329A

	WR329A/ 329PA-2xWLAN	WR329A/ 329PA-WLAN+LTE
ANT 1	Wi-Fi 1	LTE-Main
ANT 2	Wi-Fi 2	LTE-Aux
ANT 3	-	GPS
ANT 4	Wi-Fi 1	Wi-Fi 1
ANT 5	Wi-Fi 2	Wi-Fi 2

Integrated Power Connector
- 1 x 4-pin terminal block
  2 pin booster power input
  2 pin DO
- Easy installation

Ethernet Ports
- 8-port 10/100M RJ45

Gigabit Ethernet WAN
- 1-port 100/1000M RJ45



Ground

System LED
- 1 x DO
- 1 x Power
- 1 x System Status
- 3 x Radio status
- 1 x Ethernet Port (Port 9)
- 1 x Speed (Port 9)

SMA Antenna Socket
- Up to 5 SMA

USB Extension Port
- USB for Configuration/Firmware update
- External Storage

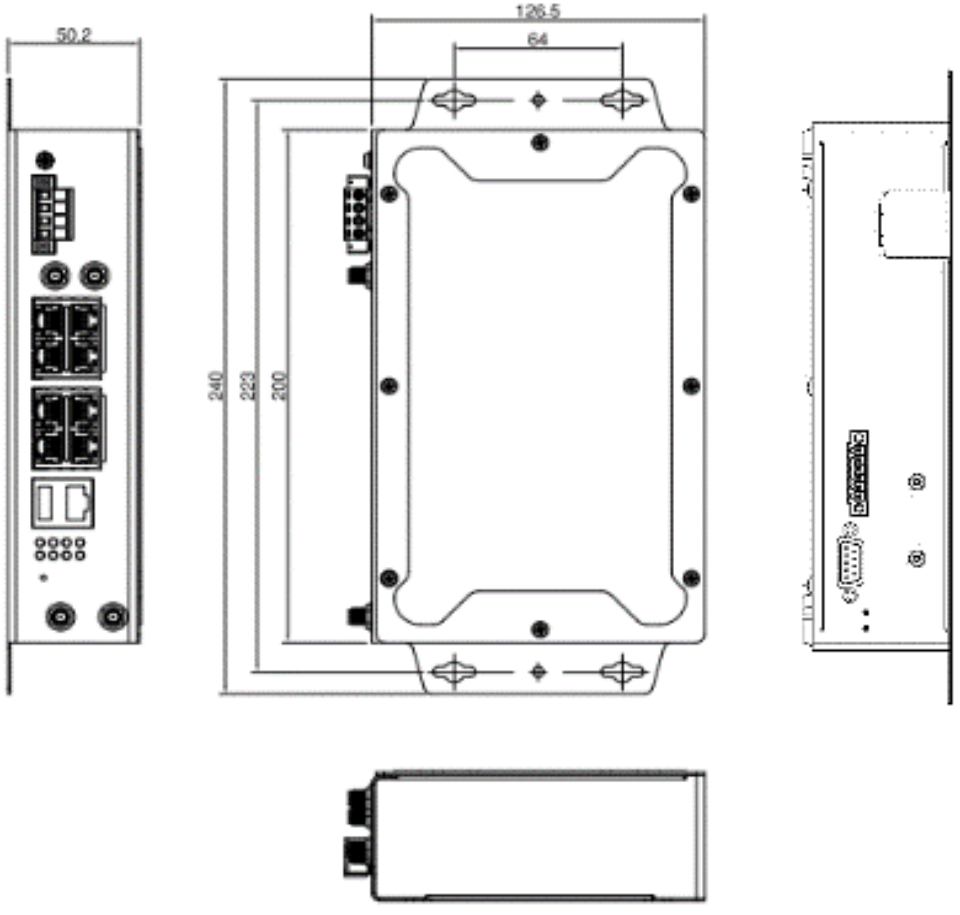
System LED
- 1x Serial
- 1x DO

IIoT Expansion
1x RS232/422/485
- 3x Digital Inputs
- 1x Digital Outputs

Dual SIM

Dimensions

(mm)



Interfaces

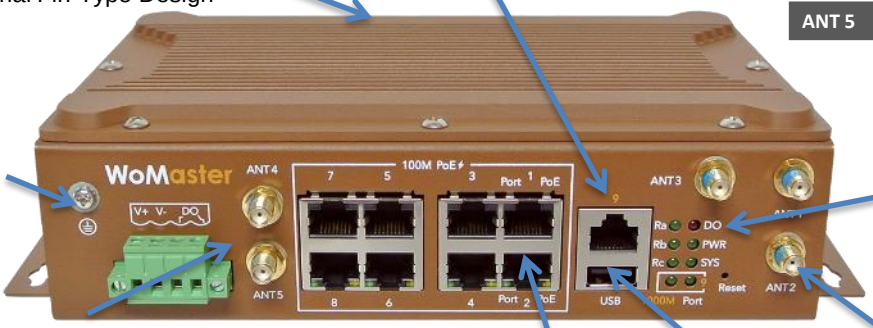
WR329PA

	WR329PA-2xWLAN	WR329PA-WLAN+LTE
ANT 1	Wi-Fi 1	LTE-Main
ANT 2	Wi-Fi 2	LTE-Aux
ANT 3	-	GPS
ANT 4	Wi-Fi 1	Wi-Fi 1
ANT 5	Wi-Fi 2	Wi-Fi 2

Outstanding Heat Sink
- Industrial Fin-Type Design

Gigabit Ethernet WAN
- 1-port 100/1000M RJ45

Ground



System LED
- 1 x DO
- 1 x Power
- 1 x System Status
- 3 x Radio status
- 1 x Ethernet Port (Port 9)
- 1 x Speed (Port 9)

SMA Antenna Socket
- Up to 5 SMA

Integrated Power Connector
- 1 x 4-pin terminal block
  2 pin booster power input
  2 pin DO
- Easy installation

Ethernet Ports
- 8-port 10/100M RJ45
- IEEE 802.3af/at PoE

USB Extension Port
- USB for Configuration/Firmware update
- External Storage

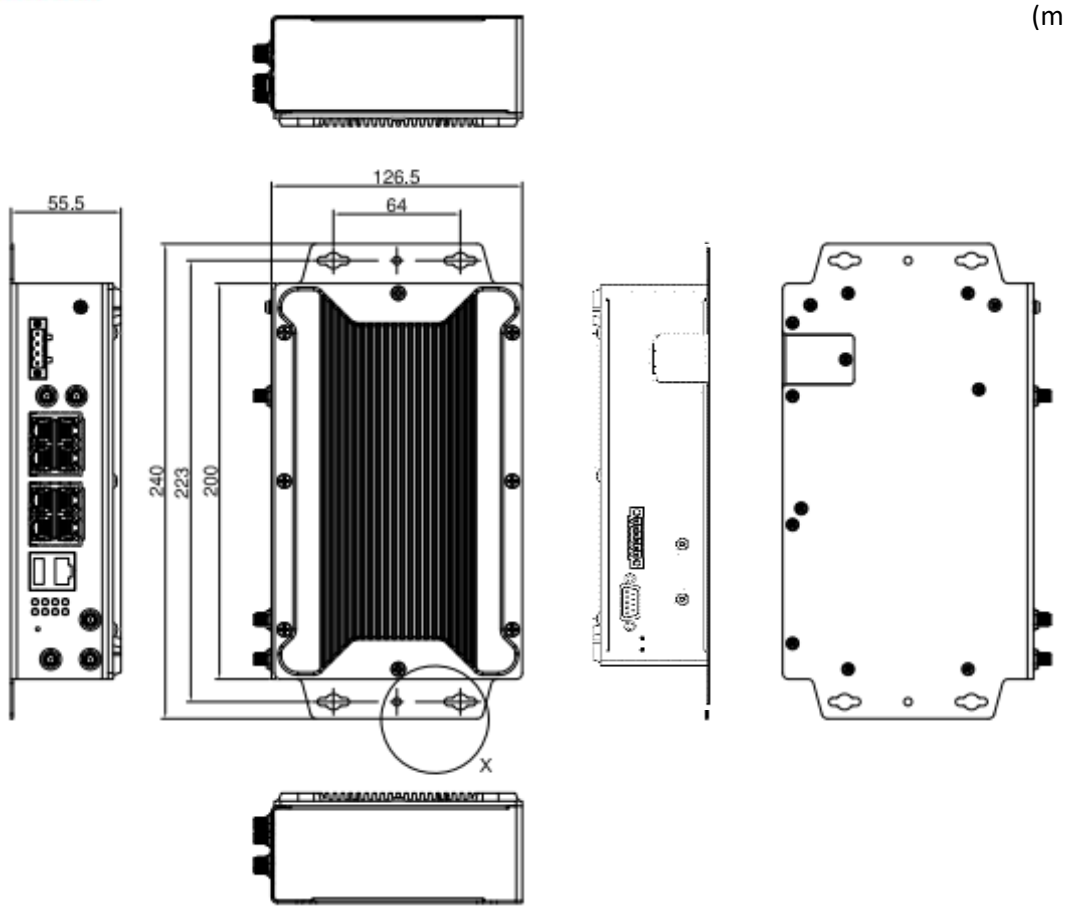
System LED
- 1x Serial
- 1x DO

IIoT Expansion
1x RS232/422/485
- 3x Digital Inputs
- 1x Digital Outputs

Dual SIM

Dimensions

(mm)

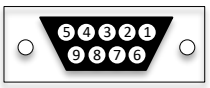


Technology

Standard	3GPP Release 11 Long Term Evolution (LTE), fallback 3GPP Release 7,8,9 for HSPA/UMTS
	IEEE 802.11ac wireless local area network (WLAN), Backward support 802.11a/b/g/n Wireless LAN
	IEEE 802.3 10Base-TX Ethernet
	IEEE 802.3u 100Base-TX Fast Ethernet
	IEEE 802.3ab 1000Base-T Gigabit Ethernet Copper
	IEEE 802.3af/at Power-over-Ethernet (WR329P, WR329PA)
	IEEE 802.1Q for VLAN

Interface

Ethernet Port	**WR329/WR329A** LAN: 8 x 10/100Base-TX RJ45, Auto Negotiation, Auto MDI/MDI-X WAN: 1 x 100/1000Base-T RJ45, Auto Negotiation, Auto MDI/MDI-X **WR329P/WR329PA** LAN: 8 x 10/100Base-TX RJ45, Auto Negotiation, Auto MDI/MDI-X, IEEE 802.3af/at PoE/PoE+ WAN: 1 x 100/1000Base-T RJ45, Auto Negotiation, Auto MDI/MDI-X
System LED (Front Panel)	1x DO: Red On 1x Power: Green On 1x SYS: Ready: Green On, Firmware Updating: Green Blinking 1x WAN: Link: Green On, Activity: Green Blinking 1x 1000M: WAN port speed, 1000M: Green On, Not 1000M: Off **WR329-2xWLAN Series** 3x Radio (Ra, Rb, Rc): Radio status Ra: Reserved Rb: AP mode: Green On, Station mode connected: Green Blinking, Station mode/radio disable: Off Rc: AP mode: Green On, Station mode connected: Green Blinking, Station mode/radio disable: Off **WR329-WLAN+LTE series:** 3x Radio (Ra, Rb, Rc): Radio status Ra: SIM detected: Green On, SIM not inserted: Off Rb: 4G connection: Green On, 2/3G connection: Green blinking, Disconnected: Off Rc: AP mode: Green On, Station mode connected: Green Blinking, Station mode/radio disable: Off (Note: WR319-WLAN series use Rc only, WR319-LTE series use Ra/Rb only)
Ethernet Port LED	Link: Green On, Activity: Green Blinking **WR329P/WR329PA** PoE power feeding: Amber on, PoE power not feeding: Off
USB	1 USB for Configuration/Firmware Update
Reset	System Reset(2~6 Seconds) / Default Settings Reset(over 7 Seconds)
SMA Connector	Up to 5 LTE/GPS: SMA Female; Wi-Fi: RP-SMA Female
SIM Socket	2 Nano SIM (Cellular Models Only)
Power Input, Digital Output	4-Pin Removable Terminal Block Connector 2 Pin for Power Input 2 Pin for DO (Relay Alarm) DO: Dry Relay Output with 0.5A/24V DC
IIoT Expansion (Back Panel) **WR329A/ WR329PA**	**LED:** 1x DO: Red On 1x Serial: Green Blinking, Packets transmitting/receiving
	Serial: 1x RS232/422/485, DB9 female



Pin	RS232	RS485-4w/RS422	RS485-2w
1	DCD	TX-	Data-
2	TXD	RX+	-
3	RXD	TX+	Data+
4	DSR	-	-
5	GND	GND	GND
6	DTR	RX-	-
7	CTS	-	-
8	RTS	-	-
9	RI	-	-

	Digital Input/Output: 1x 6-Pin Removable Terminal Block Connector 4 pin for 3x Digital Input, High: 2-30V, Low: 0-1V, 2-pin for 1x Digital Output: max. 30V/100mA

Cellular Properties	(LTE Cat. 4)
Standard	GSM/GPRS/EDGE 3GPP Release 6 UMTS/HSPA 3GPP Release 8 LTE 3GPP Release 11
Data Rate	GPRS: DL: max. 85.6 kbps, UL: max. 85.6 kbps EDGE: DL: max. 236.8 kbps, UL: max. 236.8 kbps HSPA: DL: max. 42 Mbps, UL: max. 5.76 Mbps LTE-FDD Cat.4: DL: max. 150 Mbps, UL: max. 50 Mbps, 2x2 DL MIMO LTE-TDD Cat.4: DL: max. 130 Mbps, UL: max. 35 Mbps, 2x2 DL MIMO
Band Information: LTE-E	LTE: FDD B1/B3/B5/B7/B8/B20 (2100/1800/850/2600/900/800MHz) LTE: TDD B38/B40/B41 (2600/2300/2500MHz) WCDMA: FDD B1/B5/B8 (2100/850/900MHz) GSM: B3/B8 (1800/900MHz)
Band Information: LTE-AU	LTE: FDD B1/B2/B3/B4/B5/B7/B8/B28 (2100/1900/1800/1700/850/2600/900/700MHz) LTE: TDD B40 (2300MHz) WCDMA: FDD B1/B2/B5/B8 (2100/1900/850/900MHz) GSM: B2/B3/B5/B8 (1900/1800/850/900MHz)
Band Information: LTE-U	FDD LTE: B2/B4/B12 (1900/1700/700MHz) WCDMA: B2/B4/B5 (1900/1700/850MHz)
Band Information: LTE-CN	LTE FDD: B1/B3/B5/B8 (2100/1800/850/900MHz) LTE TDD: B38/B39/B40/B41 (2600/1900/2300/2500MHz) TD-SCDMA: B34/B39 (2000/1900MHz) WCDMA: B1/B8 (2100/900MHz) CDMA: BC0 GSM: 900/1800MHz
Band Information: LTE-V (Verizon Certified)	FDD LTE: B4/B13 (1700/700MHz)

Cellular Properties	(LTE Cat. 6)
Standard	UMTS/HSPA 3GPP Release 8 LTE 3GPP Release 12 (LTE Cat.6)
Data Rate	TD-SCDMA: DL Max 4.2Mbps, UL: Max 2.2Mbps HSPA: DL: Max. 42 Mbps, UL: Max. 5.76 Mbps WCDMA: DL: Max 384Kbps, UL: Max 384Kbps LTE-FDD: DL: Max. 300 Mbps, UL: Max. 50 Mbps, 2x2 DL MIMO LTE-TDD: DL: Max. 226 Mbps, UL: Max. 28 Mbps, 2x2 DL MIMO
Band Information: LTE-E	LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 (2100/1800/850/2600/900/800/700/1500MHz) LTE-TDD: B38/B40/B41 (2600/2300/2500MHz) WCDMA: B1/B3/B5/B8 (2100/1800/850/900MHz)
Band Information: LTE-U	LTE-FDD: B2/B4/B5/B7/B12/B13/B17/B25/B26/B29/B30/B66 (1900/1700/700/2600/700/700/700/1900/850/700/2300/1700MHz) LTE-TDD: B41 (2500MHz) WCDMA: B2/B4/B5 (1900/1700/850MHz)
Band Information: LTE-AP	LTE-FDD: B1/B3/B5/B7/B8/B18/B19/B21/B26 (2100/1800/850/2600/900/850/850/1500/850MHz) LTE-TDD: B38/B39/B40/B41 (2600/1900/2300/2500MHz) WCDMA: B1/B5/B6/B8/B9/B19 (2100/850/UMTS only/900/1800/850MHz) TD-SCDMA: B39 (1900MHz)

GPS Properties	
GNSS	GPS/GLONASS/BeiDou/Galileo
Performance	Cold start: 18s, Warm start: 2.2s, Hot start: 1.8s
Sensitivity	Cold start: -146dBm, Reacquisition: -157dBm, Tracking: -157dBm
Accuracy	<1.5M
GNSS Frequency	GPS/Galileo: 1575.42±1.023 MHz GLONASS: 1597.5~1605.8 MHz BeiDou: 1561.098±2.046 MHz
Antenna (Optional Accessory-A-GPS-27-RSM-3M)	Frequency range: 1561~1615MHz Polarization: RHCP or linear VSWR: <2 (Typ.) Passive antenna gain: >0dBi

Wi-Fi Properties

Standard	IEEE 802.11ac/a/b/g/n (2T2R) 802.11ac: OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM)
Data Rate	802.11ac: MCS0 ~ 9, max. 866Mbps 802.11b: 11Mbps / 802.11a/g: 54Mbps / 802.11n: MCS0 ~ 15, max. 300Mbps
Frequency	IISM Band, 2.412GHz ~ 2.472GHz, 5.180MHz ~ 5.825MHz(Band 1,4)
MIMO	2T2R, 2xAntennas (Optional Accessory)
RSSI	≦20db, compliant with CE request

Output Power & Receive Sensitivity TX/RX Tolerance: ±2dB

Operating Frequency: 2.412~2.472GHz, Max. MIMO: 2T2R

Standard	Bandwidth	TX (dBm)		RX (dBm)
		1 Channel	2 Channels	
802.11b	1Mbps	20	23	-95
	11Mbps	20	23	-90
802.11g	6Mbps	21	24	-94
	54Mbps	18	21	-80
802.11n HT20	MCS0	21	24	-93
	MCS7	16	19	-76
802.11n HT40	MCS0	20	23	-92
	MCS7	16	19	-73

Operating Frequency: 5.180G~5.825GHz Max. MIMO: 2T2R

Standard	Bandwidth	TX (dBm)		RX (dBm)
		1 Channel	2 Channels	
802.11a	6Mbps	20	23	-94
	54Mbps	15	18	-80
802.11an/ac HT20	MCS0	19	22	-93
	MCS8	13	16	-71
802.11an/ac HT40	MCS0	18	21	-90
	MCS9	13	16	-66
802.11an/ac HT80	MCS0	18	21	-88
	MCS9	13	16	-65

Software

Management	CGI WebGUI, Command Line Interface (CLI), IPv4/IPv6*, Telnet, SNMP v1/v2c/v3, DDNS, DHCP server/client, DHCP Relay, TFTP, System Log, SMTP, ARP response over 802.2 LLC SNAP, Proxy ARP, DNS (client/proxy)
Traffic Management	Flow Control, Traffic shaping
Filter	IEEE802.1Q VLAN
Security	IEEE 802.1X/RADIUS, TLS v1.2, HTTPs/SSH, First login password management WLAN AP Security: Share Key, WPA/WPA2-PSK(Pre-Shared Key), WPA/WPA2 Enterprise Encryption: 64/128-bit WEP(Wired Equivalent Privacy), TKIP(WPA-PSK), AES(WPA2-PSK)
Advanced Security	TACACS+, Mutli-user authentication
Time Management	NTP, SNTP, Cellular Time
Redundancy Protocol	WAN/LTE Redundancy
WAN / Routing / NAT/ Firewall / VPN	Routing: RIPv2, OSPFv2, VRRPv2 NAT: 1-1 NAT, NAPT(SNAT/DNAT), DMZ Firewall: Stateful Inspection firewall, IP/Port Filter, MAC Filter* VPN: IPSec, OpenVPN, L2TP, GRE, PPTP*
IIoT Industrial Protocol	Modbus RTU, MQTT, RESTful API
Private Cloud	ThingsMaster, ThingMaster OTA
Public Cloud	AWS Agent, Azure Agent
Location	Google map, Baidu map
MIB	MIB-II, Entity MIB, WoMaster Private MIB
Utility	ViewMaster, NetMaster, Ping, Traceroute
Serial communication (WR329A/ WR329PA)	TCP Server/TCP Client/UDP mode, TCP Alive check, Force TX Delimiter/Timeout/interval/length, Long Distance Termination
Cellular Configuration (By Optional module)	Radio on/off, 4G LTE/3G HSPA Configuration, SIM Security, Connection Status, Cellular to Eth-WAN Redundancy, GPS positioning, Backup SIM Retry (1-10 times)
WLAN Configuration (By Optional module)	WLAN Basic Settings: Radio on/off, 2.4G 11n/5G 11ac Band and Frequency selection, SSID/Multi-SSID configuration, SSID broadcast, Cellular to WLAN Auto Offload and advanced WLAN settings, 802.1X

PoE(WR329P,WR329PA)

Power forwarding mode	Alternative A
PoE Power Budget	System: Max. 120W@70°C/12VDC, Max.60W@70°C/8VDC Per Port: Max. 30W
PoE Standard	IEEE 802.3af/at
Management	PoE Enable/Disable, System/Port Power Budget Control, PoE Scheduling, PoE Status

*by request

Power Requirement	
Input Voltage	**WR329P/WR329PA:** 12/24VDC (8~54VDC with booster to 54V) min. 8V low-peak auxiliary voltage **WR329/WR329A:** 12/24VDC (8~32VDC)
Reverse Polarity Protect	Yes
Input Current	WR329: 0.2A@24VDC, 0.58A@8VDC WR329A: 0.21A@24VDC, 0.6A@8VDC WR329P/329PA: 5.67A@24VDC with 120W PD Loading, 10.76A@8VDC with 60W PD loading
Power Consumption	WR329: Max. 4.8W@24VDC full traffic, suggest to reserve 15% tolerance. WR329A: Max. 5W@24VDC full traffic, suggest to reserve 15% tolerance. WR329P/WR329PA: Max. 138.08W@24VDC with 120W PD loading, Max. 86.08W@8VDC with 60W PD loading, suggest to reserve 15% tolerance.
Mechanical	
Installation	Wall mount / DIN Rail kit
Enclosure Material	Steel Metal with Aluminum
Dimension	**WR329P/WR329PA** 200x 55 x 126 (W x H x D) / without Mounting Clip **WR329/WR329A** 200x 51 x 126 (W x H x D) / without Mounting Clip
Ingress Protection	IP30
Weight	~1350g without package
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
Radio	RED Compliance Safety: EN 62368-1 EN 50385/EN62311 MPE assessment EN 301 489-1/17/19/52, EN 55032/55024 EN 300 328/EN 301 893 EN 301 908-1 FCC Part 15B
Railway	EN50121-4 Compliance

Product Selection Guide

Model Name	Radio 1	Radio 2	Eth-WAN	Eth-LAN	Serial	USB	SIM	eSIM (Optional)	GPS	Power Input	Dimension (W x H x D)
WR329-2xWLAN	802.11ac	802.11ac	1xGbE	8xFE	-	1	2	1	Yes	8-54V	200x 51 x 126
WR329A-2xWLAN	802.11ac	802.11ac	1xGbE	8xFE	1	1	2	1	Yes	8-54V	200x 51 x 126
WR329P-2xWLAN	802.11ac	802.11ac	1xGbE	8xFE PoE	-	1	2	1	Yes	8-54V	200x 55 x 126
WR329PA-2xWLAN	802.11ac	802.11ac	1xGbE	8xFE PoE	1	1	2	1	Yes	8-54V	200x 55 x 126
WR329-WLAN+LTE	802.11ac	LTE	1xGbE	8xFE	-	1	2	1	Yes	8-54V	200x 51 x 126
WR329A-WLAN+LTE	802.11ac	LTE	1xGbE	8xFE	1	1	2	1	Yes	8-54V	200x 51 x 126
WR329P-WLAN+LTE	802.11ac	LTE	1xGbE	8xFE PoE	-	1	2	1	Yes	8-54V	200x 55 x 126
WR329PA-WLAN+LTE	802.11ac	LTE	1xGbE	8xFE PoE	1	1	2	1	Yes	8-54V	200x 55 x 126

Ordering Information

Model Name	Description
WR329-2xWLAN	Industrial 8+1G port Wireless AP/Client, USB, Dual 802.11ac/n WLAN
WR329A-2xWLAN	Industrial 8+1G port Wireless AP/Client, USB, 1xSerial+3DI+2DO, Dual 802.11ac/n WLAN
WR329P-2xWLAN	Industrial 8+1G port PoE Wireless AP/Client, USB, Dual 802.11ac/n WLAN
WR329PA-2xWLAN	Industrial 8+1G port PoE Wireless AP/Client, USB, 1xSerial+3DI+2DO, Dual 802.11ac/n WLAN
WR329-WLAN+LTE-E/AU/U/CN/V	Industrial 8+1G port Cellular Ethernet Routing Switch, USB, 802.11ac/n WLAN, LTE-E, 2SIM, GPS
WR329A-WLAN+LTE-E/AU/U/CN/V	Industrial 8+1G port Cellular Ethernet Routing Switch, USB, 1xSerial+3DI+2DO, 802.11ac/n WLAN, LTE-E, 2SIM, GPS
WR329P-WLAN+LTE-E/AU/U/CN/V	Industrial 8+1G port Cellular PoE Routing Switch, USB, 802.11ac/n WLAN, LTE-E, 2SIM, GPS
WR329PA-WLAN+LTE-E/AU/U/CN/V	Industrial 8+1G port Cellular PoE Routing Switch, USB, 1xSerial+3DI+2DO, 802.11ac/n WLAN, LTE-E, 2SIM, GPS

Band Information: LTE-E	LTE: FDD B1/B3/B5/B7/B8/B20 (2100/1800/850/2600/900/800MHz) LTE: TDD B38/B40/B41 (2600/2300/2500MHz) WCDMA: FDD B1/B5/B8 (2100/850/900MHz) GSM: B3/B8 (1800/900MHz)
Band Information: LTE-AU	LTE: FDD B1/B2/B3/B4/B5/B7/B8/B28 (2100/1900/1800/1700/850/2600/900/700MHz) LTE: TDD B40 (2300MHz) WCDMA: FDD B1/B2/B5/B8 (2100/1900/850/900MHz) GSM: B2/B3/B5/B8 (1900/1800/850/900MHz)
Band Information: LTE-U	FDD LTE: B2/B4/B12 (1900/1700/700MHz) WCDMA: B2/B4/B5 (1900/1700/850MHz)
Band Information: LTE-CN	LTE FDD: B1/B3/B5/B8 (2100/1800/850/900MHz) LTE TDD: B38/B39/B40/B41 (2600/1900/2300/2500MHz) TD-SCDMA: B34/B39 (2000/1900MHz) WCDMA: B1/B8 (2100/900MHz) CDMA: BC0 GSM: 900/1800MHz
Band Information: LTE-V (Verizon Certified)	FDD LTE: B4/B13 (1700/700MHz)

Package List
1 x Product Unit
1 x 4-pin Removable Terminal Block Connector
1 x 6-pin Removable Terminal Block Connector (WR329**A/** WR329P**A** Series Only)
1 x Quick Installation Guide
1 x Din Clip
Default Enclosed Antennas: WR329,WR329A,WR329P,WR329PA-**2xWLAN**: 4 x Wi-Fi Antennas, White WR329,WR329A,WR329P,WR329PA-**WLAN+LTE**: 2 x LTE Antennas, Black + 2 x Wi-Fi Antennas, White

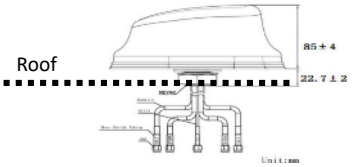
Ordering Information

A-LTE_WLAN_G-4_4-RSM-2M	Combo IP67 Antenna, LTE WW 4dBi, Wi-Fi 2.4/5GHz dual band Omni-directional 4/4dBi, GPS 1561-1670MHz 28dBi, SMA male (LTE/GPS), RP-SMA male (Wi-Fi), 2M
A-LTE_WLAN_G-3_2-RSM-2M	Combo IP67 Antenna, LTE WW 3dBi, Wi-Fi 2.4/5GHz dual band Omni-directional 2/2dBi, GPS 1575-1610MHz 28dBi, SMA male (LTE/GPS), RP-SMA male (Wi-Fi), 2M
A-LTE-3-NM	LTE Antenna, LTE WW 3dBi, N-type male
A-WLAN-6-NM	Wi-Fi Antenna, Wi-Fi 2.4/5GHz dual band Omni-directional 4/6dBi, N-type male
A-GPS-27-SM-3M	GPS Antenna, GPS 1575MHz 27dBi, SMA male, 3M
C-RF-RG58-RSF_RSM-1M	RF cable, RP-SMA female to RP-SMA male, RG-58, 1M
C-RF-RG58-SF_SM-1M	RF cable, SMA female to SMA male, RG-58, 1M
C-RF-CFD200-NF_RSM-2M	RF cable, N-type female to RP-SMA male, CFD200, 2M
C-RF-CFD200-NF_SM-2M	RF cable, N-type female to SMA male, CFD200, 2M

Outdoor Vehicle Combo Antenna

A-LTE_WLAN_G-4_4-RSM-2M

- 5 RF cables, LTE MIMO, Wi-Fi MIMO, GPS/GLONASS/GALILEO/BEIDOU
- 4dBi gain for LTE and 4dBi gain for 2.4G/5G Wi-Fi RF
- High WLAN gain is perfect for train to ground vehicle application
- 5 x 2-meter cables in RP SMA / SMA male connector
- Outdoor high gain, IP67 waterproof and -40˚~85˚C wide temperature design
- 189x182x107mm



A-LTE_WLAN_G-4_4-RSM-2M

189x182x107mm

A-LTE_WLAN_G-3_2-RSM-2M

- 5 RF cables, LTE MIMO, Wi-Fi MIMO, GPS&GLONASS
- 3dBi gain for LTE and 2dBi gain for 2.4G/5G Wi-Fi
- Suitable for in-vehicle, roadside box and short-range coverage WLAN to LTE communication environment
- 5 x 2-meter cables in RP SMA / SMA male connector
- Outdoor IP67 waterproof and -40˚~85˚C wide temperature
- 110x110x80mm slim size

110x110x80mm

A-LTE_WLAN_G-3_2-RSM-2M

Combo Antenna	Model	Type	Frequency (MHz)	Gain (dBi)	Connector	Dimension (mm)	Cable (M)	Operating Temp.	Application
	A-LTE_WLAN_G-4_4-RSM-2M (optional)	Omni	LTE: 698~960/1710~2690/2900~3600 WLAN: 2400~2483.5/4900~5825 GNSS: 1561.1~1610 (GPS/GLONASS/GALILEO/BEIDOU)	4 4 28	3x SMA Male 2x RP SMA Male	189x182x107	2	-40˚C~85˚C	Outdoor
	A-LTE_WLAN_G-3_2-RSM-2M (optional)	Omni	LTE: 698~960/1710~2690 WLAN: 2400~2483.5/4900~5825 GNSS: 1575.42~1610 (GPS/GLONASS)	3 2 28	3x SMA Male 2x RP SMA Male	110x110x80	2	-40˚C~85˚C	Outdoor

LTE Antenna	Model	Type	Frequency (MHz)	Gain (dBi)	Connector	Dimension (mm)	Cable (M)	Operating Temp.	Application
	A-LTE-2-SM (Default)	Omni	704~960/1710~2690	2	SMA Male	161xΦ13	-	-20˚C~ 65˚C	Indoor
	A-LTE-3-NM (optional) (require RF cable)	Omni	704~960 1710~2700	2 3	N-Type Male	187xΦ20	-	-20˚C~ 65˚C	Outdoor

Wi-Fi Antenna	Model	Type	Frequency (MHz)	Gain (dBi)	Connector	Dimension (mm)	Cable (M)	Operating Temp.	Application
	A-WLAN-3-RSM (Default)	Omni	2400~2500 4900~5900	2.5 3	RP SMA Male	196xΦ13	-	-40˚C~ 65˚C	Indoor
	A-WLAN-6-NM (optional) (require RF cable)	Omni	2400~2500 5150~5850	4 6	N-Type Male	187xΦ20	-	-20˚C~ 65˚C	Outdoor

GPS Antenna	Model	Type	Frequency (MHz)	Gain (dBi)	Connector	Dimension (mm)	Cable (M)	Operating Temp.	Application
	A-GPS-27-SM-3M	Omni	1575.42	27	SMA Male	36x36x13.9	3	-20˚C~ 65˚C	Indoor
	A-GPS-2-NM (optional) (require RF cable)	Omni	1575.42	2	N-Type Male	187xΦ20	-	-20˚C~ 65˚C	Outdoor