

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

WR319/WR319P/WR319A/WR319PA

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

The cellular LTE or WLAN wireless routing switch WR319 series include **WR319-WLAN** and **WR319-LTE** with 8-Port Ethernet and 1 GbE WAN port, **WR319P-WLAN** and **WR319P-LTE** with 8-port PoE+ boost up to 30W/port for bus/vehicle, **WR319A-WLAN** and **WR319A-LTE** with 1 RS232/422/485 serial port, 3 DIs and 2 DOs for IoT sensors, DIO applications and **WR319PA-WLAN / WR319PA-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.



PoE+

VPN

Cyber Security

Lte

GALILEO

5GHz
802.11a/n/ac

2.4GHz
802.11b/g/n

-40~75°C

MQTT

Microsoft Azure

amazon web services

NetMaster
ThingsMaster
ThingsMaster OTA

Features & Benefit

Cellular High speed 4G LTE or 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 with 100M wire-speed switching
- One Gigabit Ethernet WAN port for uplink or NVR

Industrial IoT Gateway (WR319A, WR319PA)

- 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 (WR319P, WR319PA)

- 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 -40~75°C 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

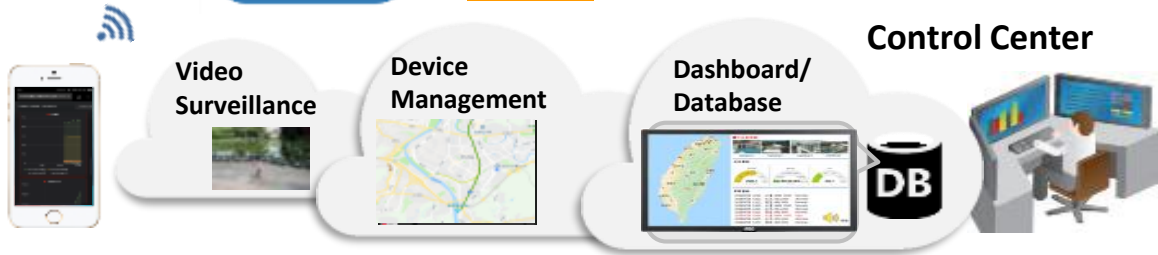


✓ Ready Total Solution for IoT and Smart City

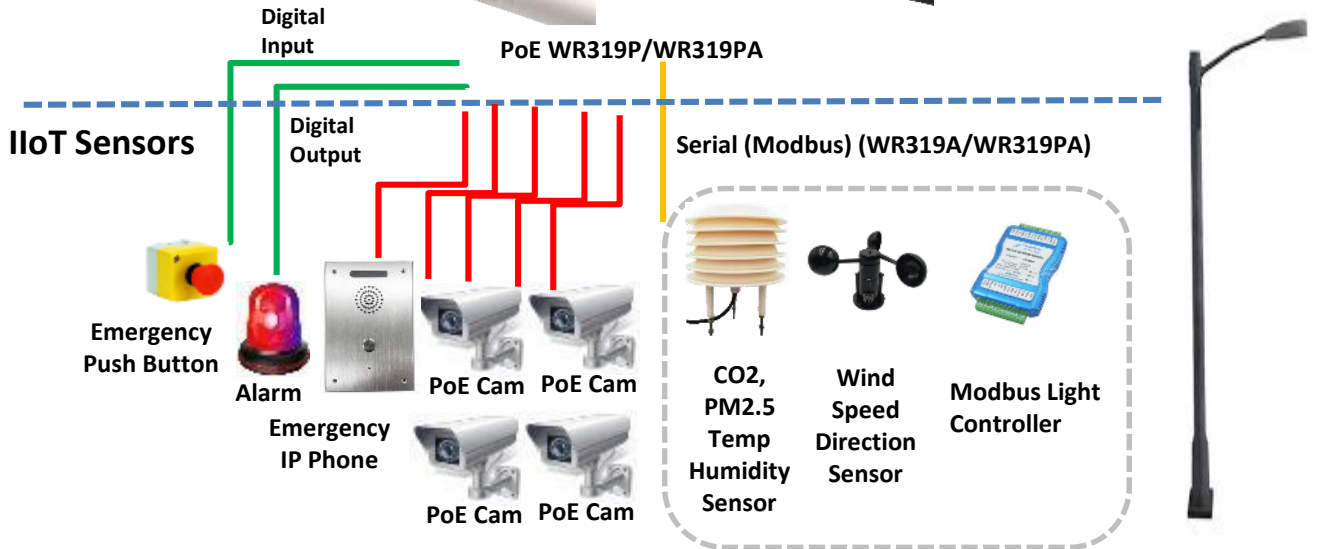
Cloud Service



ThingsMaster
ThingsMaster OTA



LTE or WLAN IoT Router Switch

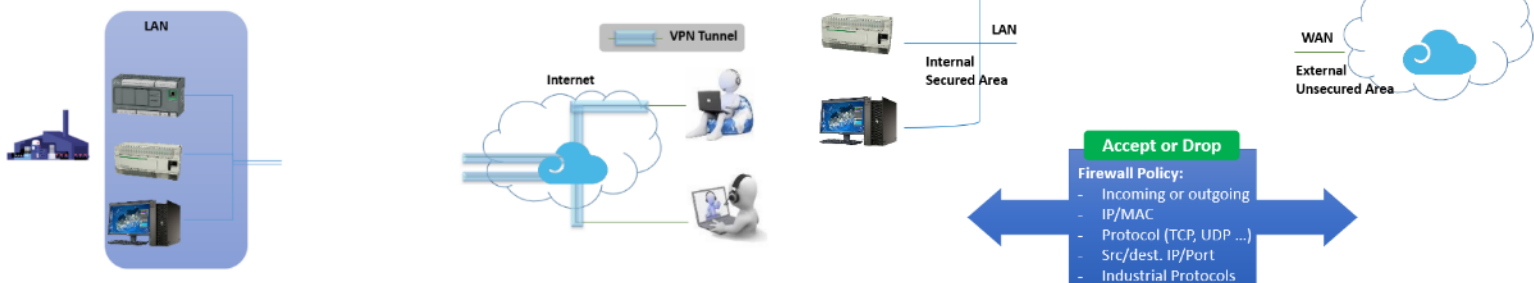


✓ Secured Remote Access by VPN

WR319 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**



Home > IoT > Modbus Device

Modbus Logging

Modbus Logging Enable

Name: // Tag Name

Serial:

Slave ID: // Slave Address

PLC Address:

Function: // Slave Address

Data Type: // Data Address, Register Address

Modbus RTU Slave Tag List

Select	Name	Serial	Slave ID	Address	Function Code	Data Type	Edit	Alive	Value
<input type="checkbox"/>	PM1	1	4	1	03	int16	<input type="button" value="Edit"/>	Yes	10
<input type="checkbox"/>	PM2_5	1	4	2	03	uint16	<input type="button" value="Edit"/>	Yes	13
<input type="checkbox"/>	PM10	1	4	3	03	uint16	<input type="button" value="Edit"/>	Yes	13
<input type="checkbox"/>	CO2	1	1	562	03	uint16	<input type="button" value="Edit"/>	Yes	1107
<input type="checkbox"/>	Temperature	1	1	564	03	int16	<input type="button" value="Edit"/>	Yes	255
<input type="checkbox"/>	Humidity	1	1	566	03	int16	<input type="button" value="Edit"/>	Yes	629
<input type="checkbox"/>	Temperature_f	1	1	1	03	float	<input type="button" value="Edit"/>	Yes	25.490820

✓ **GPS/BDS/GLONASS/Galileo Location Service**
Latitude / Longitude / Altitude /Speed

Home > GPS > GPS Status

GPS Status

GPS Status

GPS

Status:

Date:

UTC:

Latitude:

Longitude:

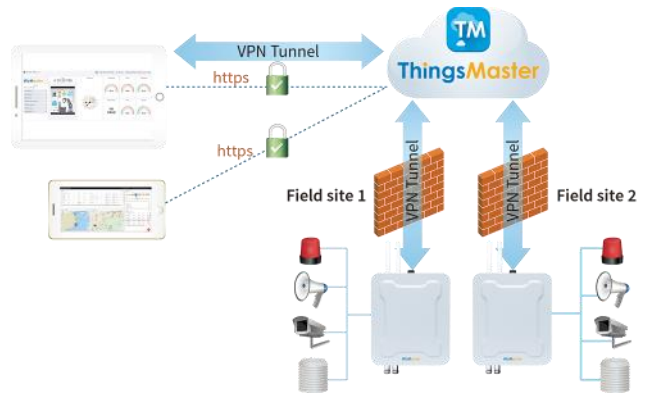
Altitude(m):

Speed over ground(Km/h):

Number of satellites:

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 WR319 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.

Device ID	Device Name	IP Address	Status	Software Version	Hardware Version	Configuration	Reboot
WR319-001	WR319-001	192.168.1.101	Online	1.0.0	WR319	Reload	Reboot
WR319-002	WR319-002	192.168.1.102	Offline	1.0.0	WR319	Reload	Reboot

Batch Configuration and Reboot OTA

Group Selection

Select entities

Import device config

Drop a file or click to select a file to upload

Ready To Use Cloud Solution



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.

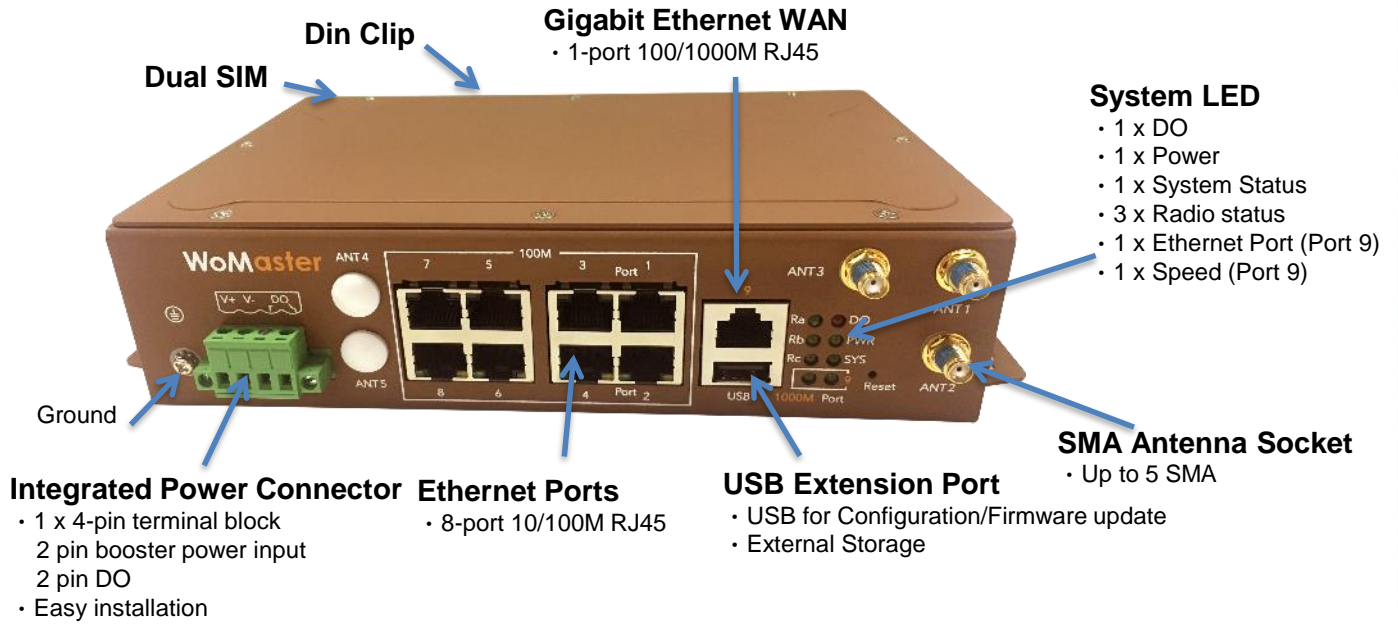




Interfaces

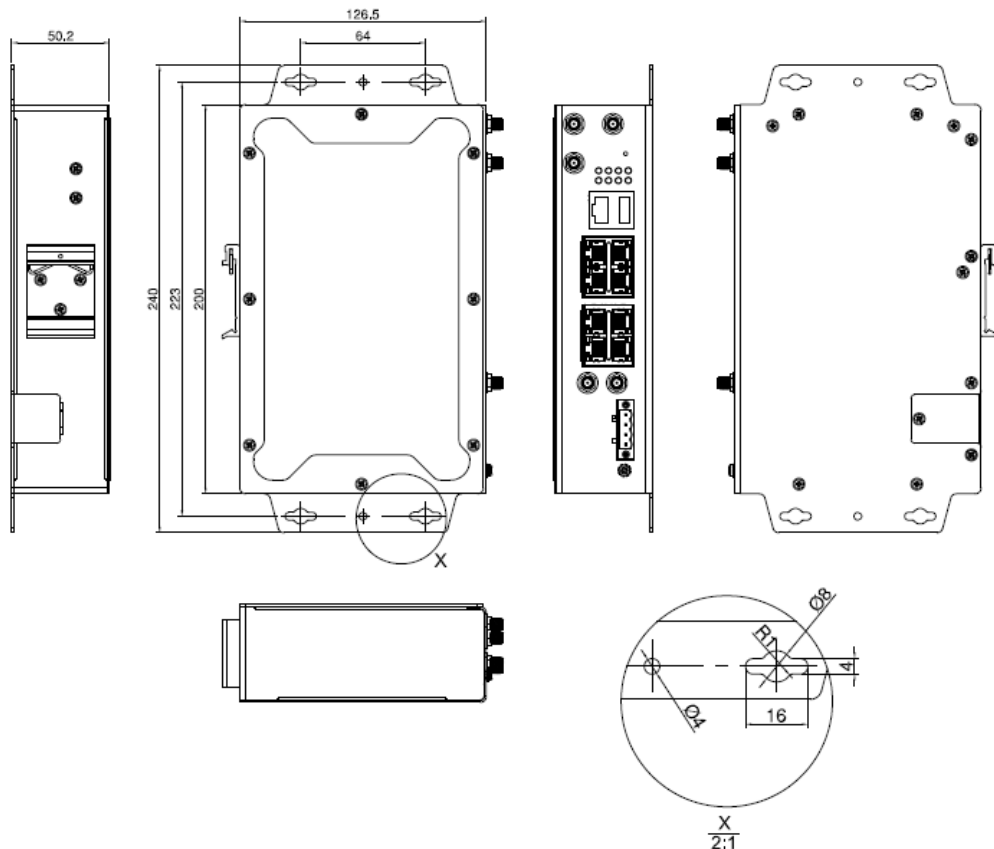
WR319

	WR319-LTE	WR319-WLAN
ANT 1	LTE-Main	Wi-Fi 1
ANT 2	LTE-Aux	Wi-Fi 2
ANT 3	GPS	-
ANT 4	-	-
ANT 5	-	-



Dimensions

(mm)





Interfaces

WR319P

	WR319P-LTE	WR319P-WLAN
ANT 1	LTE-Main	Wi-Fi 1
ANT 2	LTE-Aux	Wi-Fi 2
ANT 3	GPS	-
ANT 4	-	-
ANT 5	-	-

Outstanding Heat Sink

- Industrial Fin-Type Design

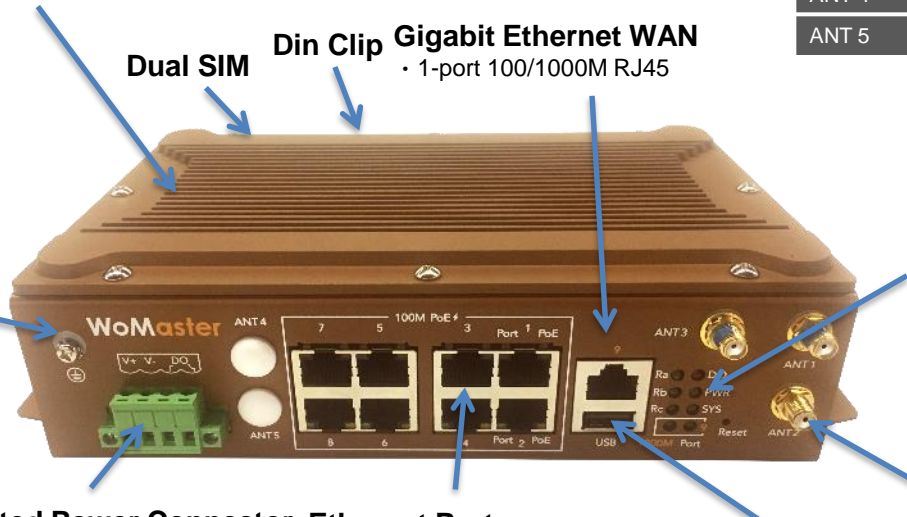
Dual SIM

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 Ethernet Ports

- 1 x 4-pin terminal block
- 2 pin booster power input
- 2 pin DO
- Easy installation
- 8-port 10/100M RJ45
- IEEE 802.3af/at PoE

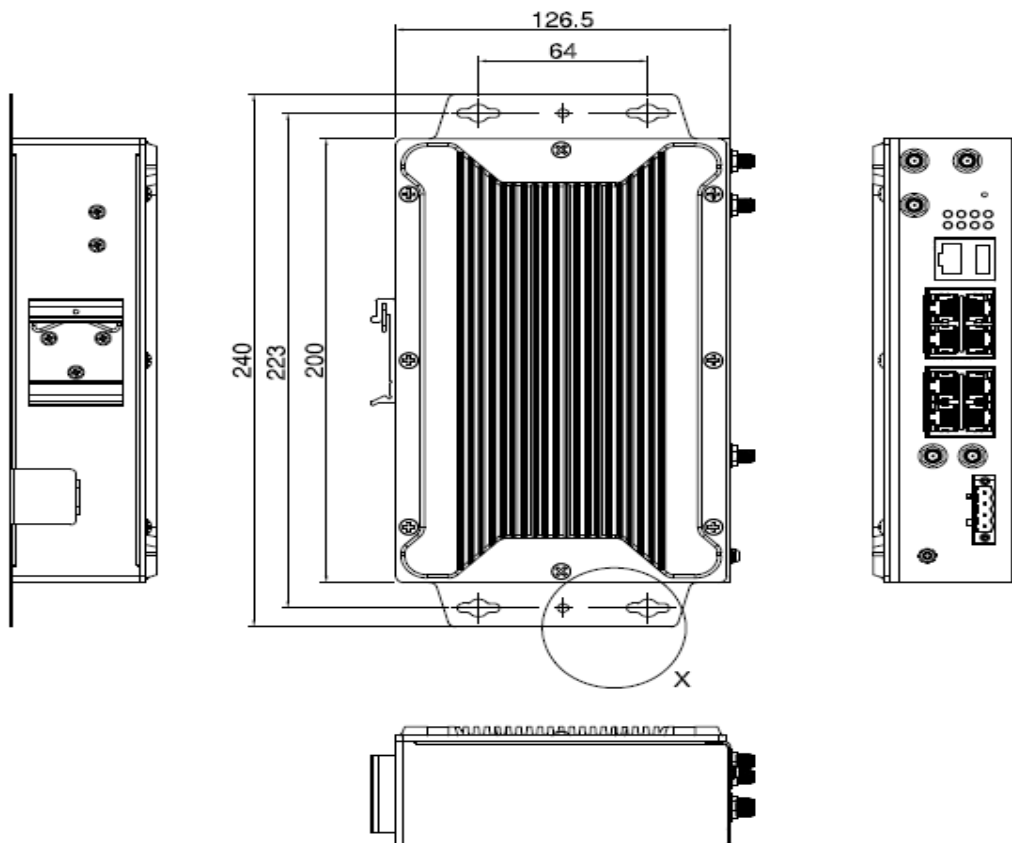
USB Extension Port

- USB for Configuration/Firmware update
- External Storage



Dimensions

(mm)





Interfaces

WR319A

	WR319A-LTE	WR319A-WLAN
ANT 1	LTE-Main	Wi-Fi 1
ANT 2	LTE-Aux	Wi-Fi 2
ANT 3	GPS	-
ANT 4	-	-
ANT 5	-	-

Integrated Power Connector

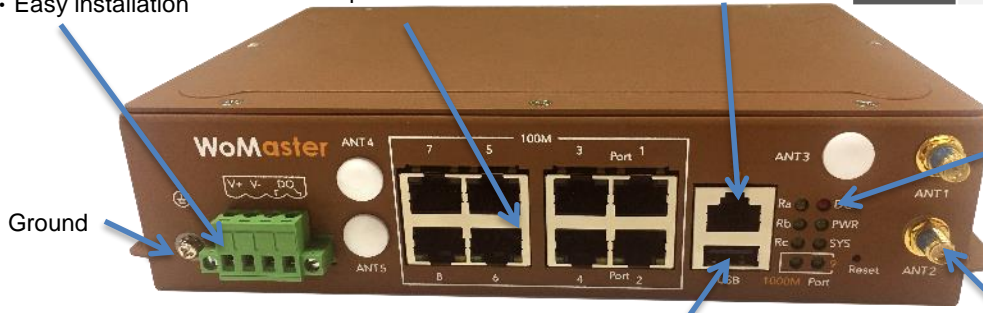
- 1 x 4-pin terminal block
- 2 pin booster power input
- 2 pin DO
- Easy installation

Ethernet Ports

- 8-port 10/100M RJ45

Gigabit Ethernet WAN

- 1-port 100/1000M RJ45



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

- 1 x Serial
- 1 x DO

IIoT Expansion

1x RS232/422/485

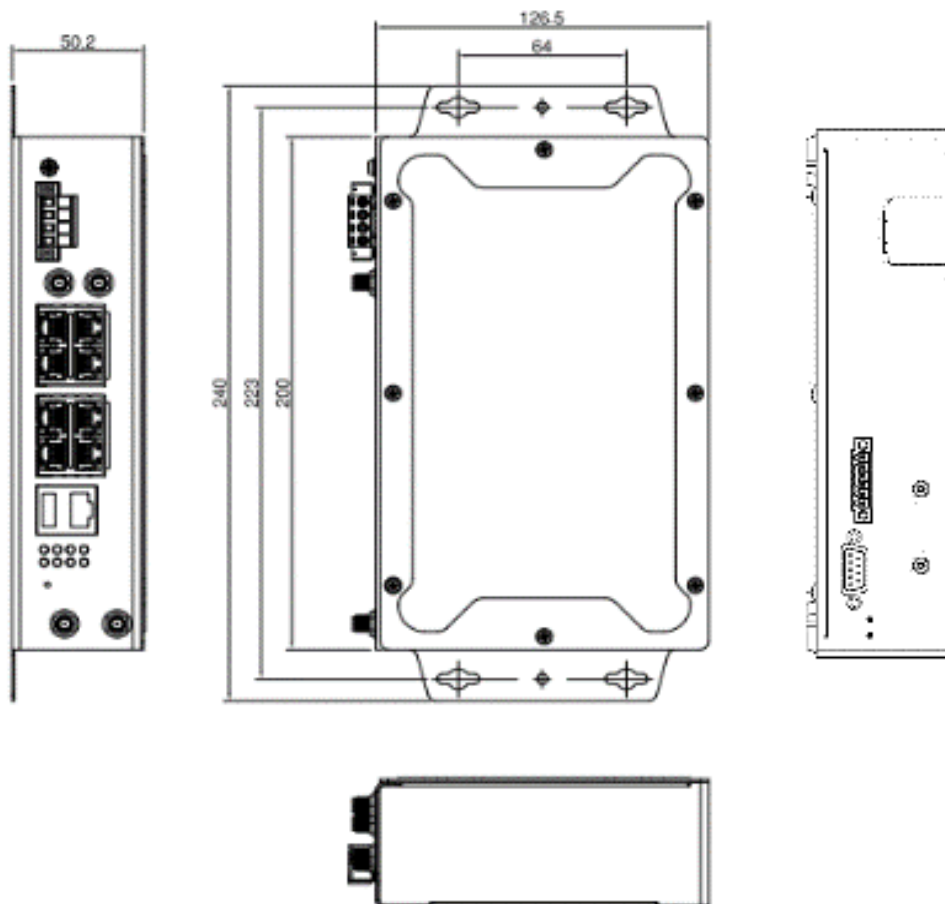
- 3x Digital Inputs
- 1x Digital Outputs

Dual SIM



Dimensions

(mm)





Interfaces

WR319PA

	WR319PA-LTE	WR319PA-WLAN
ANT 1	LTE-Main	Wi-Fi 1
ANT 2	LTE-Aux	Wi-Fi 2
ANT 3	GPS	-
ANT 4	-	-
ANT 5	-	-

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)

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

SMA Antenna Socket

- Up to 5 SMA

System LED

- 1x Serial
- 1x DO

IIoT Expansion

1x RS232/422/485

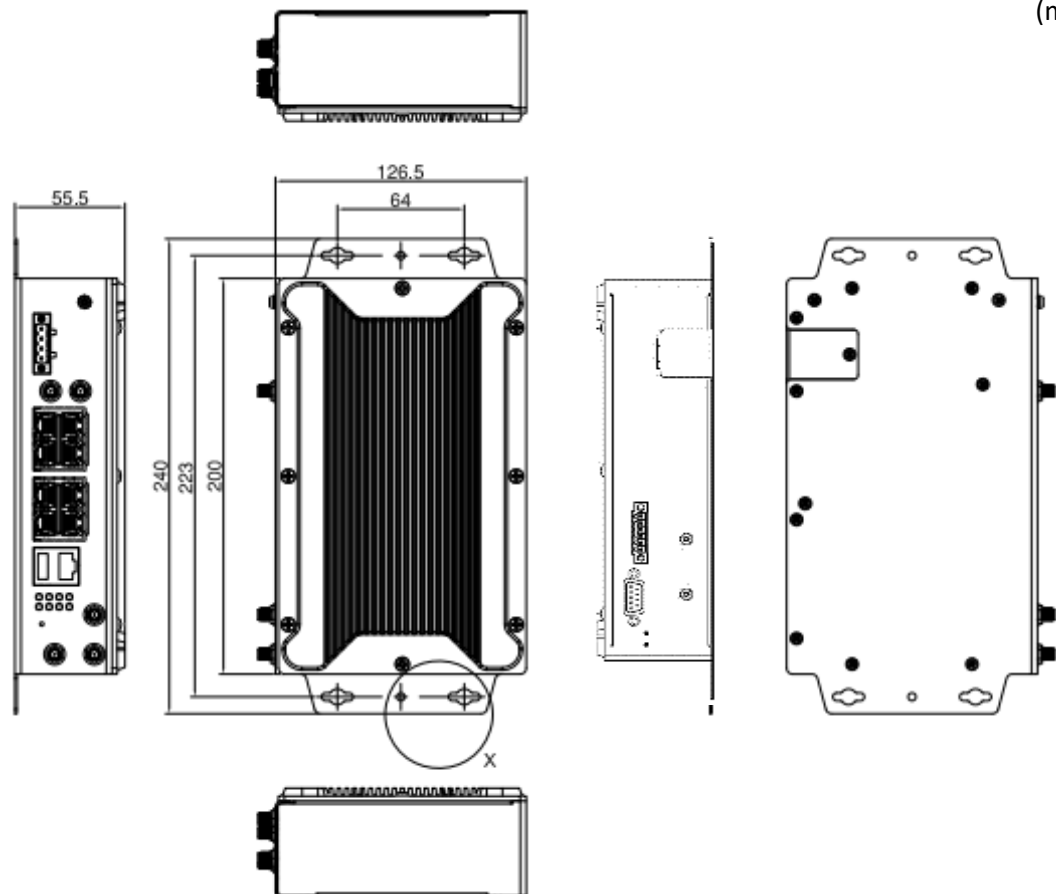
- 3x Digital Inputs
- 1x Digital Outputs


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 (WR319P, WR319PA) IEEE 802.1Q for VLAN																																								
Interface																																									
Ethernet Port	WR319/WR319A 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 WR319P/WR319PA 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 WR319-WLAN Series Radio (Rc): Radio status Ra: reserved Rb: reserved Rc: AP mode: Green On, Station mode connected: Green Blinking, Station mode/radio disable: Off WR319-LTE series: Radio (Ra, Rb): Radio status Ra: SIM detected: Green On, SIM not inserted: Off Rb: 4G connection: Green On, 2/3G connection: Green blinking, Disconnected: Off Rc: reserved																																								
Ethernet Port LED	Link: Green On, Activity: Green Blinking WR319P/WR319PA 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) WR319A/ WR319PA	<p>LED: 1x DO: Red On 1x Serial: Green Blinking, Packets transmitting/receiving</p> <p>Serial: 1x RS232/422/485, DB9 female</p> <div style="display: flex; align-items: center;">  <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Pin</th> <th>RS232</th> <th>RS485-4w/RS422</th> <th>RS485-2w</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>DCD</td> <td>TX-</td> <td>Data-</td> </tr> <tr> <td>2</td> <td>TXD</td> <td>RX+</td> <td>-</td> </tr> <tr> <td>3</td> <td>RXD</td> <td>TX+</td> <td>Data+</td> </tr> <tr> <td>4</td> <td>DSR</td> <td>-</td> <td>-</td> </tr> <tr> <td>5</td> <td>GND</td> <td>GND</td> <td>GND</td> </tr> <tr> <td>6</td> <td>DTR</td> <td>RX-</td> <td>-</td> </tr> <tr> <td>7</td> <td>CTS</td> <td>-</td> <td>-</td> </tr> <tr> <td>8</td> <td>RTS</td> <td>-</td> <td>-</td> </tr> <tr> <td>9</td> <td>RI</td> <td>-</td> <td>-</td> </tr> </tbody> </table> </div> <p>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</p>	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	-	-
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	-	-																																						

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 (1900/1700/700/2600/700/700/1900/850/700/2300/1700MHz) 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					Operating Frequency: 5.180G~5.825GHz Max. MIMO: 2T2R				
Standard	Bandwidth	TX (dBm)		RX (dBm)	Standard	Bandwidth	TX (dBm)		RX (dBm)
		1 Channel	2 Channels				1 Channel	2 Channels	
802.11b	1Mbps	20	23	-95	802.11a	6Mbps	20	23	-94
	11Mbps	20	23	-90		54Mbps	15	18	-80
802.11g	6Mbps	21	24	-94	802.11an/ac HT20	MCS0	19	22	-93
	54Mbps	18	21	-80		MCS8	13	16	-71
802.11n HT20	MCS0	21	24	-93	802.11an/ac HT40	MCS0	18	21	-90
	MCS7	16	19	-76		MCS9	13	16	-66
802.11n HT40	MCS0	20	23	-92	802.11an/ac HT80	MCS0	18	21	-88
	MCS7	16	19	-73		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+, Multi-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 (WR319A/ WR319PA)	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(WR319P,WR319PA)

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	WR319P/WR319PA: 12/24VDC (8~54VDC with booster to 54V) min. 8V low-peak auxiliary voltage WR319/WR319A: 12/24VDC (8~32VDC)
Reverse Polarity Protect	Yes
Input Current	WR319: 0.2A@24VDC, 0.58A@8VDC WR319A: 0.21A@24VDC, 0.6A@8VDC WR319P/319PA: 5.67A@24VDC with 120W PD Loading, 10.76A@8VDC with 60W PD loading
Power Consumption	WR319: Max. 4.8W@24VDC full traffic, suggest to reserve 15% tolerance. WR319A: Max. 5W@24VDC full traffic, suggest to reserve 15% tolerance. WR319P/WR319PA: 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	WR319P/WR319PA 200x 55 x 126 (W x H x D) / without Mounting Clip WR319/WR319A 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	Eth-WAN	Eth-LAN	Serial	USB	SIM	eSIM (Optional)	GPS	Power Input	Dimension (W x H x D)
WR319-WLAN	802.11ac	1xGbE	8xFE	-	1	2	1	Yes	8-54V	200x 51 x 126
WR319A-WLAN	802.11ac	1xGbE	8xFE	1	1	2	1	Yes	8-54V	200x 51 x 126
WR319P-WLAN	802.11ac	1xGbE	8xFE PoE	-	1	2	1	Yes	8-54V	200x 55 x 126
WR319PA-WLAN	802.11ac	1xGbE	8xFE PoE	1	1	2	1	Yes	8-54V	200x 55 x 126
WR319-LTE	LTE	1xGbE	8xFE	-	1	2	1	Yes	8-54V	200x 51 x 126
WR319A-LTE	LTE	1xGbE	8xFE	1	1	2	1	Yes	8-54V	200x 51 x 126
WR319P-LTE	LTE	1xGbE	8xFE PoE	-	1	2	1	Yes	8-54V	200x 55 x 126
WR319PA-LTE	LTE	1xGbE	8xFE PoE	1	1	2	1	Yes	8-54V	200x 55 x 126

Model Name	Description
WR319-WLAN	Industrial 8+1G port Wireless AP/Client, USB, 802.11ac/n WLAN
WR319A-WLAN	Industrial 8+1G port Wireless AP/Client, USB, 1xSerial+3DI+2DO, 802.11ac/n WLAN
WR319P-WLAN	Industrial 8+1G port PoE Wireless AP/Client, USB, 802.11ac/n WLAN
WR319PA-WLAN	Industrial 8+1G port PoE Wireless AP/Client, USB, 1xSerial+3DI+2DO, 802.11ac/n WLAN
WR319-LTE-E/AU/U/CN/V	Industrial 8+1G port Cellular Ethernet Routing Switch, USB, LTE, 2SIM, GPS
WR319A-LTE-E/AU/U/CN/V	Industrial 8+1G port Cellular Ethernet Routing Switch, USB, 1xSerial+3DI+2DO, LTE, 2SIM, GPS
WR319P-LTE-E/AU/U/CN/V	Industrial 8+1G port Cellular PoE Routing Switch, USB, LTE-E, 2SIM, GPS
WR319PA-LTE-E/AU/U/CN/V	Industrial 8+1G port Cellular PoE Routing Switch, USB, 1xSerial+3DI+2DO LTE, 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

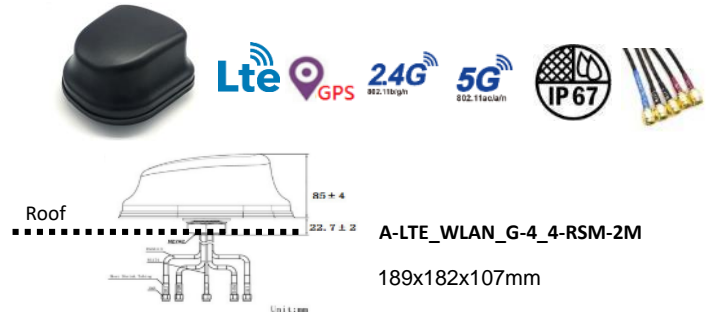
1 x Product Unit
1 x 4-pin Removable Terminal Block Connector
1 x 6-pin Removable Terminal Block Connector (WR319A/ WR319PA)
1 x Quick Installation Guide
1 x Din Clip
Default Enclosed Antennas: WR319,WR319A,WR319P,WR319PA- WLAN : 2x Wi-Fi Antennas, White WR319,WR319A,WR319P,WR319PA- LTE : 2 x LTE Antennas, Black

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-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



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