IPWMR-3004

Industrial Mulifunction VPN Router w/up to 2x WiFi 11ac + up to 2 LTE 4G + 2 serial ports + 4 Gigabit Ethernet PoE Switch + 2WAN ports w/ Load Balancing, VPN, Protocol Gateway, Storage**; 24V input

- *Up to 2 concurrent WIFI 11ac and redundancy(1L-2AC model)*
- *Up to 2 concurrent mobility for 3G/4G LTE Link & GPS(2L-1AC model/4 SIMs)*
- *Support LTE Cat 6 (APAC & EUNA models) or Cat 12/9/13 (WW model)*
- *Built-in 4 Gigabit PoE at/af Switch with budget 80W@12V/24V/48V*
- *Dual radio for 802.11ac/a/b/g/n with concurrent 5GHz & 5GHz bands up to 2.6Gbps Wi-Fi bandwidth(2AC model)*
- *WIFI radio for 802.11ac/a/b/g/n with 5GHz or 2.4GHz;*
- *Support WIFI 802.11e traffic prioritization and WMM*
- *MIMO technology 3T3R up to 6 antenna(2AC); SMA type external antennas*
- *Supports AP/ Bridge/ Client/ MESH modes*
- *Support roaming with 802.11k & v*
- *Support 802.11s Wireless Mesh Network*
- *Air-teaming** for WIFI high-sustainability and aggregated bandwidth*
- *Advanced wireless security WEP64/128bits/ WPA/ WPA-PSK (TKIP,AES)/ WPA2/ WPA2-PSK (TKIP,AES)*
- *VPN router for Multi-site VPN, OpenVPN, L2TP over IPsec, IPsec, PPTP**, L2 over GRE , IPGRE*
- *Load Balancing built-in 5 mechanisms*
- *Optional EMMC Flash storage on-board***
- *Support NAT and Firewall*
- *Support Modbus gateway on serial ports*
- *Support 2 RS422/RS485 ports with 2.5KV isolation or 2x RS232 ports*
- *Input voltage selection 9~56VDC (24V model)*
- *Environmental monitoring for router inside info with voltage, current temperature and total PoE load; WIFI & LTE graphic signal strength*
- *ITxPT compliant w/ ignition function**
- *Editable login page of captive portal for hot-spot application*
- *USB port to backup, restore the configuration file and upgrade firmware; Dual image firmware**

OVERVIEW

Lantech IPWMR-3004 series is a next generation industrial multi-function VPN router w/up to 2x 802.11ac Wi-Fi + up to 2x LTE modem + 4x Gigabit Ethernet PoE switch + 2WAN + 2 serial ports that supports advanced function of VPN, Load-Balancing(Basic & Full package), EMMC Flash Storage**, Protocol gateway(Modbus), Storage**, Wi-Fi roaming and LTE quad SIM fail-over for industrial applications. The dual core CPU with 1.6GHz + 256M flash enables the router to multi-task smoothly.

Dual concurrent LTE design 4G/3G for load-balancing

With dual LTE module design (2L model), 4 SIM card slots, it can allow auto-swap, failover & failback between multiple service providers for real non-stop connection. With concurrent LTE modules, it can also allocate bandwidth by " Load Balancing with 8 schemes between multiple WANs.

With one mobile LTE module (1L model), 2 SIM card slots, IPWMR-3004 provides redundant link between two service providers.

Both GPS and Russian GLONASS systems are supported.

Support AP/Bridge/Client mode, Mesh w/802.11k, v roaming

IPWMR-3004 supports AP/Bridge/Client mode for different applications. Client mode supports PMK** Caching and pre-authentication.

It also supports 802.11k, v roaming to allow encryption keys to be stored on all of the APs in a network.

Built-in Wireless Mesh network（WMN）

IPWMR-3004 supports Mesh network composed of different nodes. The set of SSIDs allow the wireless client to roam freely without the need for complicated account management. With Mesh protocol, it can provide a reliable, scalable, stable and seamless network topology.

Optional EMMC Flash storage**

The optional EMMC flash storage on router can offer 8G/16G/32G capacity.

IEEE 802.11ac dual band radio up to 2.6Gbps bandwidth

With IEEE 802.11ac capability, IPWMR-3004 can operate either 5GHz or 2.4GHz bands, offering the maximum speed of 2.6Gbps bandwidth (1.3Gbps per 1AC). It is also compatible with 802.11b/g/n that can work with 2.4GHz for longer range transmission.

The Wi-Fi 11ac supports AP/Bridge /AP Client modes can be diverse for most of wireless application. Working with load-Balancing “Priority” mode, the AP client can enable router to transmit on Wi-Fi with first priority.

Air-teaming** for wireless high-sustainability and aggregated bandwidth

The innovative Air-teaming** can combines multiple wireless links to achieve both high-sustainability and aggregated bandwidth. High sustainability can keep the network traffic alive even one link is down or severely interfered. Aggregated bandwidth can bind two link channels to provide the maximum throughput.

MIMO technology with 3T3R and SMA type connectors

Lantech IPWMR-3004 series adapts MIMO technology with smart antenna transmission and reception for 3T3R. With six external detachable omni connectors and optional antennas, IPWMR-3004 can have better Wi-Fi & LTE/GPS coverage.

Wireless WMM QoS

IPWMR-3004 supports 802.11e standard which defines a set of Quality of Service for wireless LAN applications as well as WMM (WIFI multimedia)

Advanced security & 16 SSIDs

The security support standards including 64/128bits WEP, WPA/WPA2 PSK (TKIP, AES), 802.1x ensures the best security and active defense against security treads. Lantech IPWMR-3004 support up to 16 SSIDs, each SSID has its independent security and encryption.

Load Balancing with 8 mechanisms for multi-WANs (premium license)

IPWMR-3004 supports Load Balancing for LTE/WAN connections. There are eight schemes for Load Balancing function:

Pack	Algorithm	Description
Basic Package	Fixed	Manually route by traffic type through fixed WAN link.
	Failover	Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link fail occurs. Once failover will not failback until link loss.
	Priority	Routes connections through preferred WAN link as primary while others follow by. Ex. Wi-Fi client>LTE>others
	Weighted Round-Robin	Evenly distribute the traffic over all working WAN links in circular order according to the specified weights.
	Custom Route	Routing through the selected WAN for each specific traffic, ex: TCP/UDP port number and IP address.
Full Package (incl. basic package)**	Sticky Session*	Binding all connections in an application session to particular WAN link to ensure all connections in the session are routed to the same WAN link , that is suitable for security services like online payment etc.
	Smallest Load*	Routes connections through the WAN link with highest free bandwidth ratio. The ratio = 1 - (traffic load / the capability of a WAN link). The traffic load could be defined by downstream, upstream or total traffic
	Fastest*	Routes connections through the WAN link with lowest latency time.

2 port serial connection, Modbus gateway

It builds in 2 port serial connection for RS232, RS422, RS485 in which RS422/RS485 has 2.5KV isolation protection.

The built-in Modbus gateway can convert Modbus RTU/ASCII to Modbus TCP for device control.

VPN and firewall

Besides traditional VPN peer to peer tunneling, IPWMR-3004 support latest Multi-Site VPN function that is an efficient way for Mesh tunneling. The registration is under cloud service and encrypted by SSH makes the connection easy and safe.

It supports Multi-Site VPN, OpenVPN, L2TP over IPsec, IPsec, PPTP**, L2 over GRE, IPGRE, and NAT for various VPN applications.

The built-in Layer-4 firewall includes DDoS, IP address filter / Mac address filter / TCP / UDP port number.

DIDO for alarm & email notice; Event log; Remote Web control

2 sets of DIDO function can support additional high/low physical contact for designate applications besides Port / Power events, for example, DIDO function can trigger alarm if the router was moved or stolen. In case of events, the IPWMR-3004 will immediately send email and trap.

When the router is at remote area with limited access, Web control can help to get router status or remotely reboot.

Wide range input voltage from 9V-56VDC; Built-in 4 port PoE at/af switch with 80W@12V /24V/48V

The IPWMR-3004 is able to work from 9VDC to 56VDC for PoE at/af with PoE budget 80W@12V /24V/48V that is particular good for vehicle, rail train, depot etc. application.

Environmental monitoring for inside router info& alerting; Graphic WIFI & LTE signal strength

The built-in environmental monitoring can detect router ambient temperature, voltage, current and total PoE load where can send the SNMP traps Syslog and email** when abnormal.

The graphic WIFI & LTE signal strength shows connection status at a glance

Ignition Sensing*

Ignition sense allows you to delay power off your Ethernet switch with a designated time delay.

Built-in Managed Switch Function

Managed switch function is built-in and provides various L2+ functions for network aggregation deployment. It delivers ports and PoE management, VLAN, QoS, multicast, redundant ring, and security functions.

USB port for back up, restore configuration and upgrade firmware; Dual image firmware*

The built-in USB port can upload/download the firmware through USB dongle for router replacement

It support dual-image firmware* to choose which one to start.

Editable login page of captive portal

The IPWMR-3004 supports editable captive portal function that allows administrator to force end-users redirect to authentication page.

Ruggedized industrial design and FCC*, CE*& E-marking** certificate

The IPWMR-3004 is designed to meet with industrial network environment with IP30 housing. It passed serious tests under extensive Industrial EMI and environmental vibration and shocks standards.

With CE & FCC radio certification for WIFI and LTE and E-marking** certificate, the IPWMR-3004 is best for outdoor community, vehicle, process control automation etc. For more usage flexibilities, IPWMR-3004 supports wide operating temperature from -40°C to 65°C.

FEATURES & BENEFITS

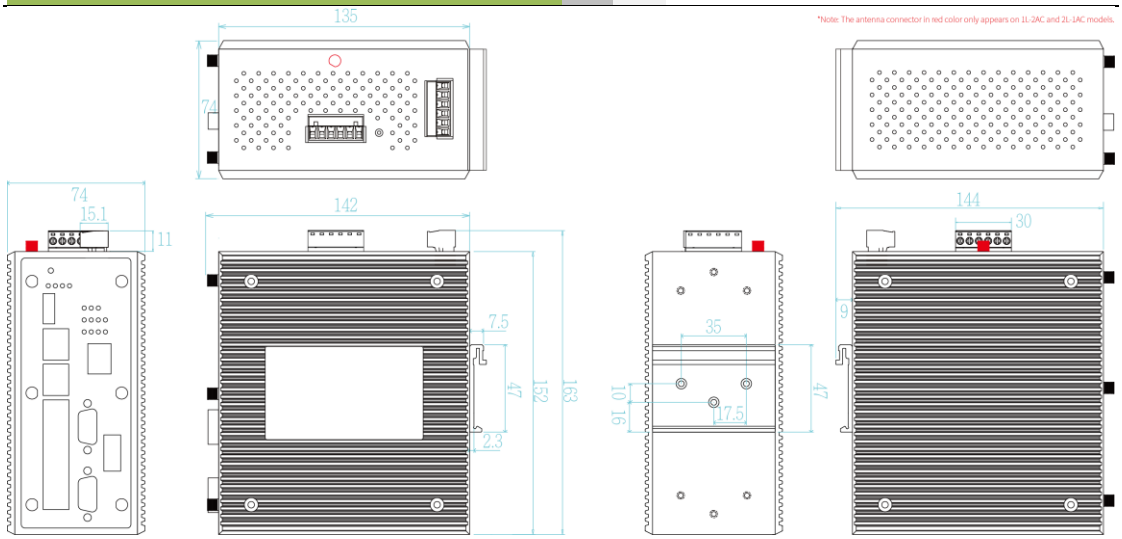
- **High Speed Air Connectivity: WLAN interface support up to 2.6Gbps link speed(2AC) or 1.3Gbps (1AC)**
- **Built-in 4 Gigabit PoE switch + 2 WAN port with 80W@12V /80W@24V&48V PoE budget**
- **Dual band 2.4G and 5GHz with 802.11ac/a/b/g/n**
- **EMMC-FLASH storage**8/16/32G**
- **Support 2.4Ghz operating within the following frequency bands:**
  - ***2.412~2.472 GHz***
- **Support 5Ghz operating within the following frequency bands:**
  - ***5.180~5.825 GHz***
- **MIMO smart antenna technology with 3T3R**
- **6 SMA type connectors for Wi-Fi & LTE, GPS**
- **Optional Air-teaming** protection (2AC)**
  - ***High-sustainability****: if one link member is down or severely interfered, the other link will keep the network traffic alive.*
  - ***Aggregated bandwidth*** *: The bandwidth of two link members can be aggregated to provide maximum throughput*
- **Output power : <24dBM Transmit power adjustment**
- **VAP (virtual access point) support up to 16 SSIDs**
- **Operation modes : AP/ Bridge / Client**
- **IEEE 802.11h DFS and automatic TPC**
- **Support AP/Bridge/Client/Mesh mode**
- **Support roaming with 802.11k & v**
- **Support 802.11s Wireless Mesh Network**
- **Traffic control for each SSID****
- **Band preference for same SSID services on dual band****
- **Rate selection to disable low data rate access****
- **Highly Security Capability: WEP64/128bits/ WPA/ WPA-PSK (TKIP,AES)/ WPA2/ WPA2-PSK (TKIP,AES)**
- **HTTP/HTTPS/Telnet/SSH & Administration access**
- **Support IPv6 & IPv4 protocol**
- **Radius Authentication, EAP-TLS, EAP-TTLS, PEAP; SSID broadcast disable supported**

- **Multiple channel bandwidths of 20MHz and 40MHz for 2.4G.**
- **Multiple channel bandwidths of 20MHz, 40MHz and 80MHz for 5G only.**
- **Wi-Fi Multimedia (WMM) and 802.11e traffic prioritization**
- **Support Multi-Site VPN for Mesh tunneling as well as Open VPN, L2TP over IPsec, IPsec, PPTP**, L2 over GRE , IPGRE and NAT for secured network connection**
- **The built-in Layer-4 firewall includes DDoS, IP address filter / Mac address filter / TCP/ UDP port number**
- **NAT/DMZ/Port Forwarding**
- **Support SNMP*v1/v2c/v3**
- **Dual concurrent LTE 4G/3G design (2L model)for auto-swap/failover/failback between multiple ISPs for continuous service (four SIM card slots)**
- **One LTE 4G/3G w/ 2 SIM card design (1L model) for mobile redundancy**
- **GPS/ GLONASS (support by LTE module) connection**
- **Load Balancing supports 8 mechanism between multiple WANs**

Pack	Algorithm	Description
Basic Package	Fixed	Manually route by traffic type through fixed WAN link.
	Failover	Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link fail occurs. Once failover will not failback until link loss.
	Priority	Routes connections through preferred WAN link as primary while others follow by. Ex. Wi-Fi client>LTE>others
	Weighted Round-Robin	Evenly distribute the traffic over all working WAN links in circular order according to the specified weights.
	Custom Route	Routing through the selected WAN for each specific traffic, ex: TCP/UDP port number and IP address.
Full Package**	Sticky Session*	Binding all connections in an application session to particular WAN link to ensure all connections in the session are routed to the same WAN link , that is suitable for security services like online payment etc.
(incl. basic package)	Smallest Load*	Routes connections through the WAN link with highest free bandwidth ratio. The ratio = 1 - (traffic load / the capability of a WAN link). The traffic load could be defined by downstream, upstream or total traffic
	Fastest*	Routes connections through the WAN link with lowest latency time.

- **Built-in 2 x serial ports (RS232/RS422/RS485)**
- **Serial port with 2.5KV isolation on RS422/RS485**
- **Supports 2DI / 2DO (Digital Input / Output)**
- **Built-in Modbus gateway converting Modbus RTU/ASCII to Modbus/TCP for serial ports**
- **Event alerting by Syslog, SNMP Trap, Email, Relay ; Permanent local log rotation / Maxi 1K records**
- **Remote Web control to get status or re-boot by Web**
- **Graphic LTE & WIFI signal strength**
- **Support SNTP to synchronize system clock**
- **Support LLDP discovery protocol**
- **Support DHCP Server and Client**
- **Built-in environmental monitoring for system input voltage, current and ambient temperature; Able to set alert when abnormal**
- **Dual image firmware* to choose which to start**
- **Firmware upgradeable through TFTP/HTTP**
- **Configuration backup and restoration**
  - *Supports text configuration file for system quick installation*
  - *USB port to upload/download firmware by USB dongle*
- **Reset button for factory default mode**
- **Support editable captive portal login page**
- **IP30 housing for industrial environment**
- **DIN-Rail and Wall-mount** installation**
- **ITxPT compliant w/ ignition function***
- **Operation temperature -40°C to 65°C**

DIMENSIONS (unit=mm)



SPECIFICATION

WLAN Interface

Radio Frequency Type	DSSS, OFDM
Wireless Standard	IEEE 802.11ac/n/a 5GHz IEEE 802.11b/g/n 2.4GHz
Wireless bandwidth	5GHz: Up to 1300Mbps 2.4GHz: Up to 450Mbps
Modulation	**802.11b: DSSS** **802.11a/g:** OFDM (BPSK, QPSK, 16-QAM, 64-QAM) **802.11n:** OFDM (BPSK, QPSK, 16-QAM, 64-QAM) **802.11ac:** OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM)
Operating Frequency	IEEE 802.11 a/b/g/n ISM Band, 2.412GHz~2.472GHz, 5150MHz~5850MHz
Transmission Rate	IEEE802.11ac: up to 1300Mbps IEEE802.11b: 1 / 2 / 5.5 / 11 Mbps IEEE802.11a/g: 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE802.11n: up to 450Mbps
IEEE 802.11b/g/n(2.4Gbps)	**Output Power Tx +/- 2dB(per chain)** 18dBm @ 1~11Mbps 18dBm @ 6~54Mbps 20/20dBm @ MCS0~MCS7 (HT20/40) **Receiver Sensitivity Rx +/- 2dB** ≦-95dBm @ 1~11Mbps ≦-92dBm @ 6~18Mbps ≦-88dBm @ 24Mbps ≦-85dBm @ 36Mbps ≦-81dBm @ 48Mbps ≦-80dBm @ 54Mbps ≦-94dBm @ MCS0 (HT20/40) ≦-76dBm @ MCS7 (HT20/40)
IEEE 802.11a/n/ac(5Gbps)	**Output Power Tx +/- 2dB(per chain)** 20dBm @ 6~24Mbps 16dBm @ 36~54Mbps 19/18dBm @ MCS0 (HT20/40) 16/16dBm @ MCS7 (HT20/40) 19/18/18dBm @ MCS0 (VHT20/40/80) 13/13/13dBm @ MCS8 (VHT20/40/80) 13/13dBm @ MCS9 (VHT40/80) **Receiver Sensitivity Rx +/- 2dB** ≦-92dBm @ 6~18Mbps ≦-86dBm @ 24Mbps ≦-84dBm @ 36Mbps ≦-81dBm @ 48Mbps
	≦-80dBm @ 54Mbps ≦-93dBm @ MCS0 (HT20/40) ≦-71dBm/≦-80dBm @ MCS7 (HT20/40) ≦-90dBm @ MCS0 (VHT20/40/80) ≦-69dBm @ MCS8 (VHT20/40/80) ≦-66dBm @ MCS9 (VHT40/80)
Encryption Security	WEP : (64-bit ,128-bit key supported) WPA /WPA2 : IEEE802.11i(WEP and AES encryption) WPA-PSK (256-bit key pre-shared key supported) OKC** and 802.11r** EAP-TLS,EAP-TTLS, and PEAP
Wireless Security	SSID broadcast disable

LED Indicators

System & Power	Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red) , Ring Master(Green), Storage(Green), Serial1/Serial2(Green) ,Ready(Green)
10/100/1000Base-T(X) port indicator	Link/Activity (Green), Speed (Yellow), PoE (Green)
SIM	Green for Link/Act
GPS	Green for Link/Act
Fault	Red: Ethernet link down or power down
Fault contact	IEEE 802.11 a/b/g/n ISM Band, 2.412GHz~2.472GHz, 5150MHz~5850MHz
Relay	Relay output to carry capacity of 1A at 24VDC
Power	**Output Power Tx +/- 2dB(per chain)** 18dBm @ 1~11Mbps 18dBm @ 6~54Mbps 20/20dBm @ MCS0~MCS7 (HT20/40) **Receiver Sensitivity Rx +/- 2dB** ≦-95dBm @ 1~11Mbps ≦-92dBm @ 6~18Mbps ≦-88dBm @ 24Mbps ≦-85dBm @ 36Mbps ≦-81dBm @ 48Mbps ≦-80dBm @ 54Mbps ≦-94dBm @ MCS0 (HT20/40) ≦-76dBm @ MCS7 (HT20/40)
Input power	Dual DC input, 9~56VDC (24V model)
PoE Budget	80W@12V/24V/48V
Power consumption (Typ.)	30.5W (1L1AC)

Cellular Interface

Location Solutions	GPS, Glonass (EUNA/Americas) GPS, Glonass, Beidou, Galileo (APAC model only)
Band Options	**Asia-Pacific (APAC model)**

	LTE = B1, B3, B5, B7, B8, B18, B19, B21, B28, B38 (TDD), B39 (TDD), B40 (TDD), B41 (TDD) **DC-HSPA+/ HSPA+/ HSPA/ UMTS** = B1, B5, B6, B8, B9, B19 **Europe & North America (EUNA model)** **LTE** = B1, B2, B3, B4, B5, B7, B8, B12, B13, B20, B25, B26, B29, B30, B41 (TDD) **DC-HSPA+/ HSPA+/ HSPA/ UMTS** = B1, B2, B3, B4, B5, B8 **World Wide (WW model)** **LTE** = B1, B2, B3, B4, B5, B7, B8, B9, B12, B13, B18, B19, B20, B26, B28, B29, B30, B32, B41 (TDD), B42 (TDD), B43 (TDD), B46 (TDD), B48 (TDD), B66 **WCDMA** = B1, B2, B3, B4, B5, B6, B8, B9, B19
Data Rates – LTE	**Asia-Pacific (APAC model)** Downlink (Cat 6): FDD: 300 Mbps TDD: 222 Mbps Uplink (Cat 6): FDD: 50 Mbps TDD: 26 Mbps **Europe & North America (EUNA model)** Downlink (Cat 6): FDD: 300 Mbps TDD: 222 Mbps Uplink (Cat 6): FDD: 50 Mbps TDD: 26 Mbps **World Wide (WW model)** Downlink: Cat 12: 600 Mbps Cat 9: 450 Mbps Uplink: Cat 13: 150 Mbps

Software

IPv6/4	Present
Operation Mode	Supports AP/ Bridge/ Client/ MESH modes
Air-teaming**(2AC)	● High sustainability with fail over link ● Aggregated bandwidth
WMM	WIFI multimedia and 802.11e traffic prioritization
VPN	Multi-site VPN, Open VPN, PPTP**, L2TP over IPSec, IPSec, L2 over GRE, IPGRE and NAT
Firewall	DDoS, IP address filter / Mac address filter / TCP/UDP port number.
Load Balancing	8 schemes for multiple WAN
Basic Package	
Fixed	Manually route by traffic type through fixed WAN link.
Failover	Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs.
Priority	Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs.
Weighted Round-Robin	Evenly distribute the traffic over all working WAN links in circular order according to the specified weights
Custom Route	Routing through the selected WAN for each specific traffic ex: TCP/UDP port number and IP address.
Full Package incl. basic package**	
Sticky Session*	Binding all connections in an application session to particular WAN link to ensure all connections in the session are routed to the same WAN link , that is suitable for security services like online payment etc.
Smallest Load*	Routes connections through the WAN link with highest free bandwidth ratio. The ratio = 1 - (traffic load / the capability of a WAN link). The traffic load could be defined by downstream, upstream or total traffic
Fastest*	Routes connections through the WAN link with lowest latency time.
Security	WEP64/128bits/ WPA/ WPA-PSK (TKIP,AES)/ WPA2/ WPA2-PSK (TKIP,AES)/SSH/SSL/HTTPS
Roaming	802.11k & v
MESH	Support 802.11s Wireless Mesh Network
Authentication	Radius Authentication, EAP-TLS, EAP-TTLS, PEAP; SSID broadcast disable supported
SSID	16 sets
Login Security	Supports IEEE802.1x Authentication/RADIUS
Access Security	HTTP/HTTPS/Telnet/SSH & Administration; SNMP*v1/v2/v3 access for authentication via MD5/SHA(v3) and Encryption via DES/AES(v3)
Protocol	PPPoE Client, DHCP server/client, Adjustable MTU, Port forwarding (NAPT), DMZ; NAT, SNTP, Firewall(Firewall(DDoS/ IP address filter / Mac address filter / TCP/UDP port name),VRRP**, DDNS*
Protocol Gateway	Modbus on serial ports
Management	SNMP*v1,v2c,v3/ Web/Telnet/CLI
Client mode	PMK** Caching and pre-authentication.
Environmental Monitoring	System status for input voltage, current , ambient temperature to be shown in GUI and sent alerting if any abnormal status
Graphic signal display	Graphic WIFI & LTE signal strength & TX/RX rate display
Timer	Built-in Real Time Clock to keep track of time always(RTC)
Discovery	IEEE 802.1ab Link Layer Discovery Protocol (LLDP)
SNMP trap	Device cold / warm start Port link up / link down DI/DO high / low
Remote Web control	To reboot or get status of router by Web UI
Captive portal	Editable captive portal login page
Maintenance	Firmware upgradeable through TFTP/ HTTP
Configuration backup & restore	Supports text configuration file for system quick installation USB port to upload/download firmware by USB dongle

Physical Ports & System

Connectors	10/100/1000T: 6x ports RJ 45 with 2 WAN ports and 4 PoE ports USB x 1 RS-232 connector: 1 x RJ 45 Serial connector : 2 DB9 SIM card slots : 4(2L) or 2(1L) 2L-1AC model SMA connector for LTE: 4 (female) SMA connector for GPS: 1 (female) RP-SMA connector for Wi-Fi: 2 (female) 1L-2AC model SMA connector for LTE: 2 (female) SMA connector for GPS: 1 (female) RP-SMA connector for Wi-Fi: 4 (female) 1L-1AC model SMA connector for LTE: 2 (female) SMA connector for GPS: 1 (female) RP-SMA connector for Wi-Fi: 3 (female) Power & P-Fail connector: 1 x 6-pole terminal block DIDO: 1 x 5-pole terminal block
Serial Baud Rate	1000Kbps high data rate,250kbps normal for RS232 ; 20Mbps high data rate,250kbps normal for RS422/RS485
Serial Data Bits	5, 6, 7, 8
Serial Parity	odd, even, none, mark, space
Serial Stop Bits	1, 1.5, 2
RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422	Tx+,Tx-, Rx+, Rx-,GND
RS-485 (2-wire)	Data+, Data-,GND
Isolation protection	RS422/RS485 2.5KV isolation; 8KV contact & 15KV air RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation
EMMC Storage**	8/16/32 GB
DI/DO	2 Digital Input (DI) : Level 0: -30~2V / Level 1: 10~30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA

LED Indicators

System & Power	Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red) , Ring Master(Green), Storage(Green), Serial1/Serial2(Green) ,Ready(Green)
10/100/1000Base-T(X) port indicator	Link/Activity (Green), Speed (1000T: Yellow; 10/100TX: off), PoE (Green)
SIM	Green for Link/Act

GPS	Green for Link/Act
Fault	Red: Ethernet link down or power down

Fault contact

Relay	Relay output to carry capacity of 1A at 24VDC

Power

Input power	Dual DC input, 9~56VDC (24V model)
PoE Budget	80W@12V/24V/48V
Power consumption (Typ.)	30.5W (1L1AC)

Physical Characteristic

Enclosure	IP30 Metal case
Dimension	74 (W) x 142 (D) x 152 (H) mm (1L-1AC model) 74 (W) x 142 (D) x 159 (H) mm (1L-2AC / 2L-1AC model)
Weight	900g

Environmental

Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Operating Temperature	-40°C ~ 65°C (-4°F ~ 149°F)
Operating Humidity	5% to 95% Non-condensing

Regulatory approvals

EMC	FCC* Part 15 Class A, EN55032*
EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge), EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11
Vehicle certificate	E13** ITxPT compliant*
MTBF	1,361,618hrs (IEC-62380)
Warranty	5 years

*Future Release

**Optional

RF Performance Table

	Data Rate	TX Power (per chain)	TX Power (3 chains)	Tolerance	RX Specifications Sensitivity	Tolerance
2.4GHz 802.11b	1Mbps	20dBm	25dBm	±2dB	-95dBm	±2dB
	2Mbps	20dBm	25dBm	±2dB	-94dBm	±2dB
	5.5Mbps	20dBm	25dBm	±2dB	-92dBm	±2dB
	11Mbps	20dBm	25dBm	±2dB	-90dBm	±2dB
2.4GHz 802.11g	6Mbps	21dBm	26dBm	±2dB	-94dBm	±2dB
	9Mbps	21dBm	26dBm	±2dB	-93dBm	±2dB
	12Mbps	21dBm	26dBm	±2dB	-93dBm	±2dB
	18Mbps	21dBm	26dBm	±2dB	-90dBm	±2dB
	24Mbps	21dBm	26dBm	±2dB	-90dBm	±2dB
	36Mbps	20dBm	25dBm	±2dB	-85dBm	±2dB
	48Mbps	19dBm	24dBm	±2dB	-82dBm	±2dB
	54Mbps	18dBm	23dBm	±2dB	-80dBm	±2dB
2.4GHz 802.11n HT20	MCS 0	21dBm	26dBm	±2dB	-94dBm	±2dB
	MCS 1	21dBm	26dBm	±2dB	-92dBm	±2dB
	MCS 2	21dBm	26dBm	±2dB	-89dBm	±2dB
	MCS 3	20dBm	25dBm	±2dB	-84dBm	±2dB
	MCS 4	20dBm	25dBm	±2dB	-83dBm	±2dB
	MCS 5	20dBm	25dBm	±2dB	-80dBm	±2dB
	MCS 6	18dBm	23dBm	±2dB	-79dBm	±2dB
	MCS 7	16dBm	21dBm	±2dB	-77dBm	±2dB
2.4GHz 802.11n HT40	MCS 0	20dBm	25dBm	±2dB	-93dBm	±2dB
	MCS 1	20dBm	25dBm	±2dB	-91dBm	±2dB
	MCS 2	20dBm	25dBm	±2dB	-89dBm	±2dB
	MCS 3	19dBm	24dBm	±2dB	-84dBm	±2dB
	MCS 4	19dBm	24dBm	±2dB	-82dBm	±2dB
	MCS 5	19dBm	24dBm	±2dB	-80dBm	±2dB
	MCS 6	18dBm	23dBm	±2dB	-79dBm	±2dB
	MCS 7	16dBm	21dBm	±2dB	-75dBm	±2dB

	Data Rate	TX Power (per chain)	TX Power (3 chains)	Tolerance	RX Specifications Sensitivity	Tolerance
5GHz 802.11a	6Mbps	20dBm	25dBm	±2dB	-94dBm	±2dB
	9Mbps	20dBm	25dBm	±2dB	-94dBm	±2dB
	12Mbps	20dBm	25dBm	±2dB	-92dBm	±2dB
	18Mbps	20dBm	25dBm	±2dB	-91dBm	±2dB
	24Mbps	20dBm	25dBm	±2dB	-90dBm	±2dB
	36Mbps	18dBm	23dBm	±2dB	-86dBm	±2dB
	48Mbps	16dBm	21dBm	±2dB	-83dBm	±2dB
	54Mbps	15dBm	20dBm	±2dB	-80dBm	±2dB
5GHz 802.11n/ac VHT20	MCS 0	19dBm	24dBm	±2dB	-93dBm	±2dB
	MCS 1	19dBm	24dBm	±2dB	-90dBm	±2dB
	MCS 2	19dBm	24dBm	±2dB	-87dBm	±2dB
	MCS 3	18dBm	23dBm	±2dB	-83dBm	±2dB
	MCS 4	18dBm	23dBm	±2dB	-80dBm	±2dB
	MCS 5	17dBm	22dBm	±2dB	-77dBm	±2dB
	MCS 6	16dBm	21dBm	±2dB	-74dBm	±2dB
	MCS 7	14dBm	19dBm	±2dB	-73dBm	±2dB
	MCS 8	13dBm	18dBm	±2dB	-71dBm	±2dB
5GHz 802.11n/ac VHT40	MCS 0	18dBm	23dBm	±2dB	-90dBm	±2dB
	MCS 1	18dBm	23dBm	±2dB	-88dBm	±2dB
	MCS 2	18dBm	23dBm	±2dB	-85dBm	±2dB
	MCS 3	17dBm	22dBm	±2dB	-82dBm	±2dB
	MCS 4	17dBm	22dBm	±2dB	-80dBm	±2dB
	MCS 5	16dBm	21dBm	±2dB	-75dBm	±2dB
	MCS 6	15dBm	20dBm	±2dB	-73dBm	±2dB
	MCS 7	14dBm	19dBm	±2dB	-73dBm	±2dB
	MCS 8	13dBm	18dBm	±2dB	-70dBm	±2dB
	MCS 9	13dBm	18dBm	±2dB	-68dBm	±2dB
5GHz 802.11ac VHT80	MCS 0	18dBm	23dBm	±2dB	-89dBm	±2dB
	MCS 1	18dBm	23dBm	±2dB	-87dBm	±2dB
	MCS 2	18dBm	23dBm	±2dB	-85dBm	±2dB
	MCS 3	17dBm	22dBm	±2dB	-83dBm	±2dB
	MCS 4	17dBm	22dBm	±2dB	-80dBm	±2dB
	MCS 5	16dBm	21dBm	±2dB	-78dBm	±2dB
	MCS 6	15dBm	20dBm	±2dB	-75dBm	±2dB
	MCS 7	14dBm	19dBm	±2dB	-72dBm	±2dB
	MCS 8	13dBm	18dBm	±2dB	-70dBm	±2dB
	MCS 9	13dBm	18dBm	±2dB	-68dBm	±2dB

ORDERING INFORMATION

For -40~65C operational temperature model

- **IPWMR-3004-2L-1AC-2S-24V-EUNA…..……..…….....P/N: 8663-011**
  Industrial Dual LTE (Quad SIM) One WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/ 2 RS232 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; EU and US band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-2L-1AC-2S-24V-WW…..……..…….....P/N: 8663-012**
  Industrial Dual LTE (Quad SIM) One WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/ 2 RS232 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; Worldwide band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-2L-1AC-2S-24V-APAC…..……..……...P/N: 8663-013**
  Industrial Dual LTE (Quad SIM) One WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/ 2 RS232 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; APAC band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-2L-1AC-2SA-24V-EUNA…..……..……...P/N:8663-0111**
  Industrial Dual LTE (Quad SIM) One WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS422 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; EU and US band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-2L-1AC-2SA-24V-WW…..……..…….....P/N: 8663-0121**
  Industrial Dual LTE (Quad SIM) One WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS422 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; Worldwide band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-2L-1AC-2SA-24V-APAC…..……..……P/N: 8663-0131**
  Industrial Dual LTE (Quad SIM) One WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS422 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; APAC band; dual 9V~56VDC input; -40~65C

- **IPWMR-3004-2L-1AC-2SB-24V-EUNA…..……...…….....P/N:8663-0112**
  Industrial Dual LTE (Quad SIM) One WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS485 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; EU and US band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-2L-1AC-2SB-24V-WW…..……...…….....P/N: 8663-0122**
  Industrial Dual LTE (Quad SIM) One WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS485 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; Worldwide band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-2L-1AC-2SB-24V-APAC…..……...…….P/N: 8663-0132**
  Industrial Dual LTE (Quad SIM) One WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS485 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; APAC band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-1L-1AC-2S-24V-EUNA…..……...…….....P/N: 8663-021**
  Industrial One LTE (Dual SIM) One WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS232 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; EU and US band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-1L-1AC-2S-24V-WW…..……...…….....P/N: 8663-022**
  Industrial One LTE (Dual SIM) One WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS232 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; Worldwide band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-1L-1AC-2S-24V-APAC…..……...…….P/N: 8663-023**
  Industrial One LTE (Dual SIM) One WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS232 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; APAC band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-1L-1AC-2SA-24V-EUNA…..……...…….....P/N:8663-0211**
  Industrial One LTE (Dual SIM) One WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS422 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; EU and US band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-1L-1AC-2SA-24V-WW…..……...…….....P/N:8663-0221**
  Industrial One LTE (Dual SIM) One WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS422 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; Worldwide band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-1L-1AC-2SA-24V-APAC…..……...…….....P/N:8663-0231**
  Industrial One LTE (Dual SIM) One WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS422 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; APAC band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-1L-1AC-2SB-24V-EUNA…..……...…….....P/N:8663-0212**
  Industrial One LTE (Dual SIM) One WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS485 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; EU and US band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-1L-1AC-2SB-24V-WW…..……...…….....P/N:8663-0222**
  Industrial One LTE (Dual SIM) One WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS485 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; Worldwide band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-1L-1AC-2SB-24V-APAC…..……...…….....P/N:8663-0232**
  Industrial One LTE (Dual SIM) One WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS485 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; APAC band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-1L-2AC-2S-24V-EUNA…..……...…….....P/N: 8663-031**
  Industrial One LTE (Dual SIM) Two WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/ 2 RS232 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; EU and US band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-1L-2AC-2S-24V-WW…..……...…….....P/N: 8663-032**
  Industrial One LTE (Dual SIM) Two WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/ 2 RS232 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; Worldwide band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-1L-2AC-2S-24V-APAC…..……...…….....P/N: 8663-033**
  Industrial One LTE (Dual SIM) Two WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/ 2 RS232 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; APAC band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-1L-2AC-2SA-24V-EUNA…..……...…….....P/N:8663-0311**
  Industrial One LTE (Dual SIM) Two WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS422 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; EU and US band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-1L-2AC-2SA-24V-WW…..……...…….....P/N:8663-0321**
  Industrial One LTE (Dual SIM) Two WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS422 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; Worldwide band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-1L-2AC-2SA-24V-APAC…..……...…….P/N:8663-0331**
  Industrial One LTE (Dual SIM) Two WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS422 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; APAC band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-1L-2AC-2SB-24V-EUNA…..……...…….....P/N:8663-0312**
  Industrial One LTE (Dual SIM) Two WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS485 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; EU and US band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-1L-2AC-2SB-24V-WW…..……...…….....P/N:8663-0322**
  Industrial One LTE (Dual SIM) Two WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS485 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; Worldwide band; dual 9V~56VDC input; -40~65C
- **IPWMR-3004-1L-2AC-2SB-24V-APAC…..……...…….P/N:8663-0332**
  Industrial One LTE (Dual SIM) Two WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS485 serial ports and 4 Giga PoE at/af Switch + 2WAN ports; APAC band; dual 9V~56VDC input; -40~65C

EMMC Flash Storage

- **8G……..…..……..…….....P/N: 8850-113**
- **16G……..…..……..…….....P/N: 8850-114**
- **32G……P/N: 8850-115**

Software License

- **LOAD BALANCING Full Package……..…….....P/N: 9000-102**

OPTIONAL ACCESSORIES

Multifunction Antenna

- **ANT11000091** 5-in-1 omnidirectional antenna – 2G/3G/4G (698-960/1710~2170/2300~2700MHz) MIMO x2 + Wi-Fi 2.4/5GHz MIMO x2 + GPS/GLONASS/GALILEO (1575.42/1602MHz) x1, 3dBi, IP67

- **ANT11000092** 6-in-1 omnidirectional antenna – 2G/3G/4G (698-960/1710~2170/2300~2700MHz) MIMO x2 + Wi-Fi 2.4/5GHz MIMO x1 + GPS/GLONASS/GALILEO/BeiDou (1561/1575.42/1602MHz) x1 + AM/FM x1 + DSRC x1, 6dBi, IP67

GPS Antenna

- **ANT12000001** SMA GPS antenna, 28dB, 300m

Cellular Antenna

- **ANT11000041** 2G/3G/4G dipole antenna, 791-960/1710~2170/2500~2700MHz, 3dBi, SMA plug, EU

- **ANT11000042** 2G/3G/4G dipole antenna, 704-960/1710~2170MHz, 3dBi, SMA plug, US

- **ANT11000044** 2G/3G/4G dipole antenna, 704-960/1710~2690MHz, 1.6dBi, SMA plug, EU

- **ANT11000045** 2G/3G/4G dipole antenna, 698-960/1710~2690MHZ, 3dBi, SMA plug, US

Wi-Fi Antenna

- **ANT11000051** 2.4/5GHz SMA dipole Wi-Fi antenna, 3dBi (2.4GHz), 4dBi (5GHz)

- **ANT11000055** 2.4/5GHz SMA dipole Wi-Fi antenna, 6dBi (2.4GHz), 4dBi (5GHz)

- **ANT11000090** 2.4/5GHz omnidirectional Wi-Fi antenna, 802.11ac 3x3 MIMO, 5dBi, IP67

Antenna Base

- **ADA11000052** Magnetic antenna base for Wi-Fi, RP SMA Jack Base, Length : 1M

- **ADA11000053** Magnetic antenna base for 3G/4G, RP SMA Jack Base, Length : 1M

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