IWMR-3002

Industrial Multifunction VPN Router w/up to 2x WiFi 11ac + up to 2 LTE 4G + 2 serial ports + 2 Gigabit Ethernet (incl.1 PD) w/Load Balancing, VPN, Protocol Gateway, Storage**; 24V / HV input

- *Up to 2 concurrent WIFI 11ac and redundancy (1L-2AC model)*
- *Up to 2 concurrent modems 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 2 Gigabit Ethernet ports (1LAN+1WAN or 2LAN) (incl. 1PD)*
- *Dual radio for 802.11ac/a/b/g/n with concurrent 5GHz & 5GHz bands up to 2.6Gbps Wi-Fi bandwidth (2AC model)*
- *MIMO technology 3T3R; SMA type up to 6 external antennas*
- *Air teaming** for Wi-Fi high-sustainability and aggregated bandwidth*
- *VPN router for Multi-site VPN, OpenVPN, L2TP over IPsec, IPsec, PPTP**, L2 over GRE, IPGRE*
- *Load Balancing built-in 5 mechanism*
- *Optional EMMC Flash storage on-board***
- *Support roaming with 802.11k & v*
- *Supports AP/Bridge/Client/MESH modes*
- *Support 802.11s Wireless Mesh Network*
- *Support NAT and Firewall*
- *Support Modbus gateway*
- *Support 2 RS422/RS485 ports with 2.5KV isolation or 2/4x RS232 ports (RJ45 model only)*
- *Dual input range from 9V to 56VDC (24V model); Single input power 90~305VAC/120~430VDC (HV model) (RJ45 model)*
- *Vehicle E-marking* certificate (M12 model)*
- *Wi-Fi & LTE graphic signal strength*
- *Editable login page of captive portal for hot-spot application*
- *USB port to backup, restore the configuration file and upgrade firmware; Dual image firmware**
- *ITxPT compliant w/ ignition function**

RJ45 model

M12 model

OVERVIEW

Lantech IWMR-3002 series is a next generation industrial multi-function VPN router w/up to 2x 802.11ac Wi-Fi + up to 2x LTE modem + 2x Gigabit Ethernet (incl.1 PD) + 2 serial ports (RJ45 model only) that supports advanced function of VPN, Load-Balancing (Basic & Full Package) , EMMC Flash Storage**, Protocol gateway(Modbus) , 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, IWMR-3002 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, 2 SIM card slots, IWMR-3002 provides redundant link between two service providers.

Both GPS and Russian GLONASS systems are supported.

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, IWMR-3002 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 802.11g/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 protection can combine 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 IWMR-3002 series adapts MIMO technology with smart antenna transmission and reception for 3T3R. With six external detachable omni connectors and optional antennas, IWMR-3002 can have better Wi-Fi coverage.

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

IWMR-3002 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 APs in a network.

Built-in Wireless Mesh network（WMN）

IWMR-3002 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.

Wireless WMM QoS

IWMR-3002 supports 802.11e standard which defines a set of Quality of Service for wireless LAN applications as well as WMM (Wi-Fi 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 IWMR-3002 support up to 16 SSIDs, each SSID has its independent security and encryption.

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

IWMR-3002 supports Load Balancing for LTE/WAN (client mode) 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. (RJ45 model only)

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, IWMR-3002 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 optional 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 IWMR-3002 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.

24V/HV input voltage selection: dual 9V-56VDC (24V model) or single 90~305VAC/120~430VDC (HV model)

The IWMR-3002 is able to work from 9VDC to 56VDC (24V model) Or with single high power supply at 90~305VAC / 120~430VDC (HV model).(RJ45 model only)

Built-in 2 port Gigabit Ethernet

2 port Gigabit Ethernet can be supported as 1LAN+1WAN or 2LAN models.

Graphic Wi-Fi & LTE signal strength

The graphic Wi-Fi & LTE signal strength shows connection status at a glance.

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

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

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

Ignition Sensing*

Ignition sense allows you to delay power off the router with a designated time delay.

Editable login page of captive portal

The IWMR-3002 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 IWMR-3002 is designed to meet with outdoor network environment with IP30/IP43 housing. It passed serious tests under extensive Industrial EMI and environmental vibration and shocks standards. With CE & FCC radio certification for Wi-Fi and LTE and E-marking* certificate, the IWMR-3002 is best for outdoor community, vehicle, process control automation etc. application. (E-marking* is only available on M12 model)

For more usage flexibilities, IWMR-3002 supports wide operating temperature from -40°C to 65°C

EN50155, 61373 verification*;

The IWMR-3002 series is also applicable for railway on-board/track side, vehicle and mining applications for more usage flexibilities.

FEATURES & BENEFITS

- **High Speed Air Connectivity: WLAN interface support up to 2.6Gbps link speed(2AC) or 1.3Gbps (1AC)**
- **Built-in 2 Gigabit ports and 1LAN+1WAN or 2LAN (incl.1 PD)**
- **Support AP/Bridge/Client/MESH mode**
- **Support roaming with 802.11k & v**
- **Support 802.11s Wireless Mesh Network**
- **EMMC-FLASH storage** 8/16/32G**
- **Dual band 2.4G and 5GHz with 802.11ac/a/b/g/n**
- **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 with 6 SMA type connectors and optional antennas**
  - **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–*
- **IEEE 802.11h DFS and automatic TPC**
- **Output power: <24dBM**
- **Transmit power adjustment**
- **VAP (virtual access point) support up to 16 SSIDs**
- **Operation modes: AP / Bridge / Client**
- **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**
- **Support SNMP*v1/v2c/v3**
- **NAT/DMZ/Port Forwarding**
- **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 connection**
- **Load Balancing supports 8 mechanism between multiple WANs**

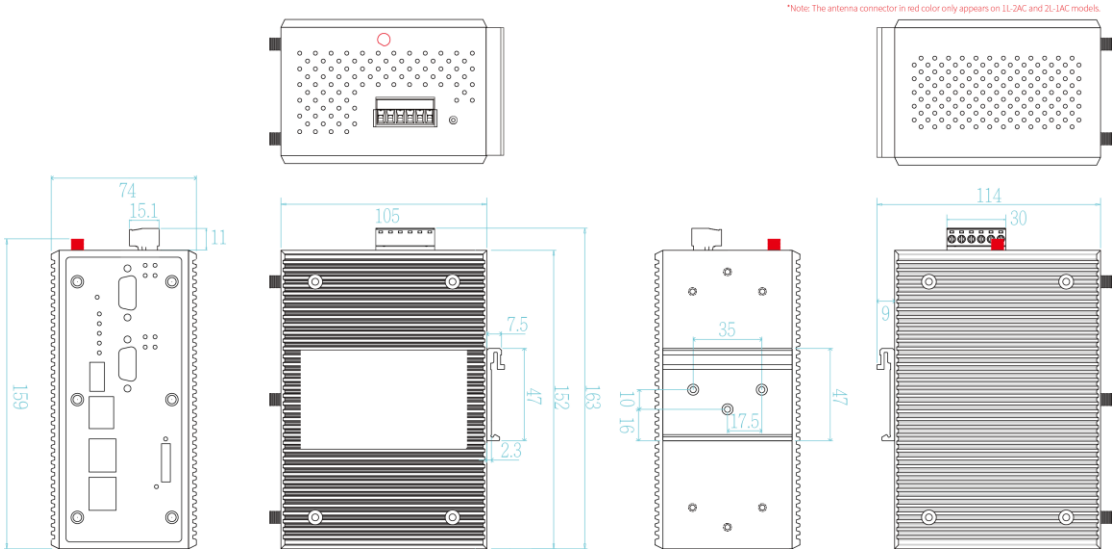
Pack	Algorithm	Description
Basic Package	Fixed	Manually route by traffic type through fixed WAN link.
	Failover	Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link fail occurs. Once failover will not failback until link loss.
	Priority	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 (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.

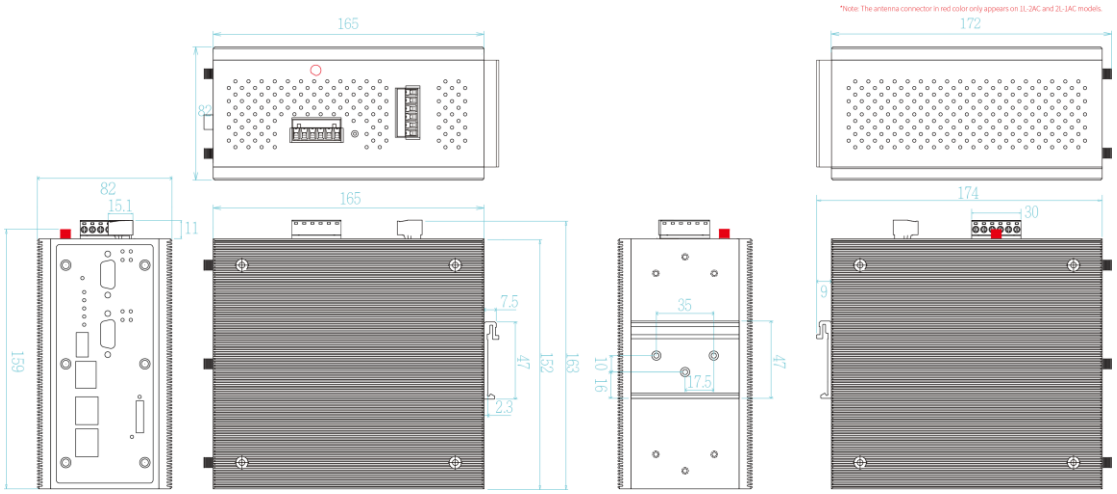
- **Built-in 2 x serial ports (RS232/RS422/RS485) (RJ45 model only)**
- **Serial port with 2.5KV isolation on RS422/RS485 (RJ45 model only)**
- **Supports optional 2DI / 2DO (Digital Input / Output)**
- **Built-in Modbus gateway converting Modbus RTU/ASCII to Modbus/TCP**
- **Event alerting by Syslog, SNMP Trap, Email, Relay; Permanent local log rotation / Maxi 1K records**
- **Remote Web control to get status or re-boot by Web**
- **Built-in RTC to keep track of time always**
- **Support SNTP to synchronize system clock**
- **Support LLDP discovery protocol**
- **Support DHCP Server and Client**
- **Reset button for factory default mode**
- **Graphic LTE & WIFI signal strength**
- **Firmware upgradeable through TFTP/HTTP**
- **Configuration backup and restoration**
  - *Supports text configuration file for system quick installation*
  - *USB port to upload/download configuration by USB dongle*
- **Support editable captive portal login page**
- **IP30 / IP43 housing for industrial environment**
- **DIN-Rail and Wall-mount** installation**
- **Operation temperature -40°C to 65°C**
- **Wide range input voltage from 9V-56V**
- **Single input power 90~305VAC/120~430VDC (HV model) (RJ45 model)**
- **ITxPT compliant w/ ignition function***

DIMENSIONS (unit=mm)

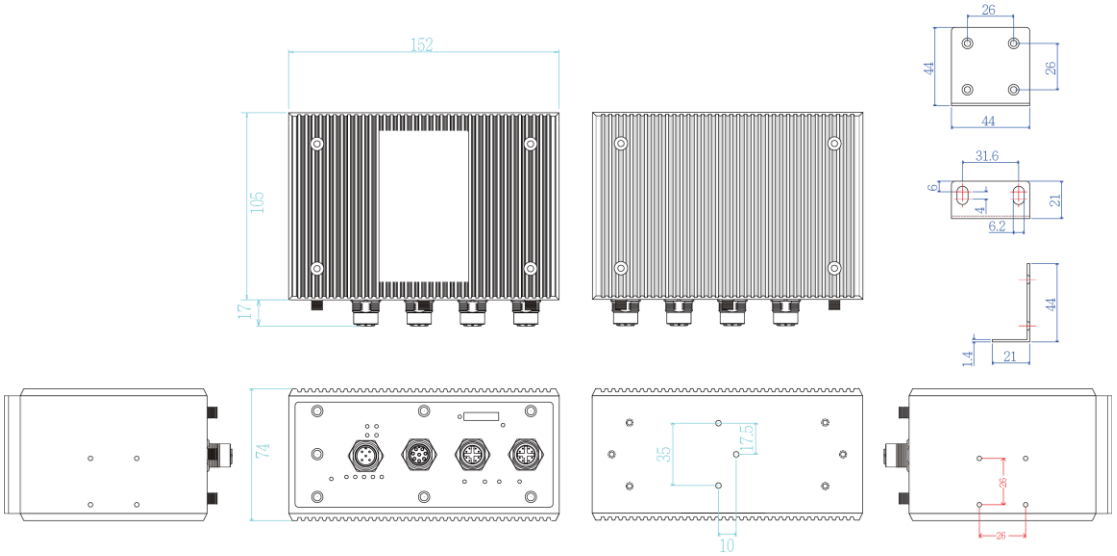
24V model



HV model (RJ45 model)



M12 Model



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, MD5, EAP, TLS, EAP, TTLS, EAP PEAP
Wireless Security	SSID broadcast disable

Cellular Interface

Location Solutions	GPS, Glonass (EU/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
Operating Mode	AP/Bridge/Client/MESH modes
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*
Management	SNMP*v1,v2c,v3/ Web/Telnet/CLI
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.
Air-teaming protection(2AC)**	● High sustainability with fail over link ● Aggregated bandwidth
Roaming	802.11k & v
MESH	Support 802.11s Wireless Mesh Network
WMM	Wi-Fi multimedia and 802.11e traffic prioritization
Security	WEP64/128bits/ WPA/ WPA-PSK (TKIP, AES)/ WPA2/ WPA2-PSK (TKIP, AES)/SSH/SSL/HTTPS
Authentication	Radius Authentication, EAP-TLS, EAP-TTLS, PEAP; SSID broadcast disable supported
SSID	16 sets
Client mode	PMK** Caching and pre-authentication.
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**
Graphic signal display	Graphic LTE & Wi-Fi signal strength
Remote Web control	To reboot or get status of router by WebUI
Captive portal	Editable captive portal login page
Maintenance	Firmware upgradeable through TFTP/HTTP
Configuration backup & restore	Supports text configuration file for quick system installation USB port to upload/download configuration by USB dongle

Physical Ports & System

Connectors	10/100/1000T: 2x ports RJ 45 with Auto MDI/MDI-X function (2 x10/100/1000T; 8 pin X coded-M12 model) (one port PD) USB x 1 RS-232 connector: 1 x RJ 45 (RJ45 model only) Serial connector: 2 DB9 (RJ45 model only) SIM card slots: 4(2L) or 2(1L) SMA connector: 6 (Wi-Fi male, LTE female) Power & P-Fail connector: 1 x 6-pole terminal block (M12, 5-pole A-coded, Male – M12 model) Reset/Console/USB: 1 x M12 8-pole A-coded – M12 model DIDO **: 1 x 5-pole terminal block
Serial Band Rate	1000Kbps high data rate,250kbps normal for RS232 ; 20Mbps high data rate,250kbps normal for RS422/RS485 (RJ45 model only)
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
EMMC Storage**	8/16/32 GB
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

LED Indicators

Power & System indicator	Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Storage (Green), Serial1/Serial2 (Green) (RJ45 model only), Ready (Green)

10/100/1000Base-T(X) port indicator	Link/Activity (Green), Speed (1000T: Yellow; 10/100TX: off)
SIM	Green for Link/Act
GPS	Green for Link/Act
WLAN LEDs	WLAN 1, WLAN2 Link /ACT: Green
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
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, 9V~56VDC (24V model) Single HV input, 90~305VAC/120~430VDC (HV model) (RJ45 model)
Power consumption (Typ.)	20 Watts
Physical Characteristic	
Enclosure	IP30 Metal case (24V & HV models) IP43 Metal case (M12 model)
Dimension	74 (W) x 114 (D) x 152 (H) mm (24V, 1L-1AC model) 74 (W) x 114 (D) x 159 (H) mm (24V, 1L-2AC / 2L-1AC model)
	74(W) x 114(D) X 152 (H)mm (M12 model) 82 (W) x 172 (D) x 152 (H) mm (HV, 1L-1AC model) 82 (W) x 172 (D) x 159 (H) mm (HV, 1L-2AC / 2L-1AC model)
Weight	900g
Environmental	
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Operating Temperature	-40°C ~65°C (-40°F ~ 149°F)
Operating Humidity	5% to 95% Non-condensing
Regulatory approvals	
EMC	FCC Part 15 Class A, EN55032, EN55024
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* (M12 model) ITxPT compliant*
Railway	EN50155* EN61373*
MTBF	NA
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
M12 models are available with –M12 model names (-2S/-4S/-2SA/-2SB/-2S2SA/-2S2SB for RJ45 models only)
2 RS422 models are available with -2SA; 2 RS485 models are available with -2SB
2 RS232+ 2 RS422 models are available with -2S2SA; 2 RS232+ 2 RS485 models are available with -2S2SB

- **IWMR-3002-2L-1AC-2S-24V-EUNA…..……...…….....P/N: 8610-101**
  Industrial Dual LTE (Quad SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 2 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); EU and US band; dual input 9V~56VDC; -40~65C
- **IWMR-3002-2L-1AC-2S-24V-WW…..……...…….....P/N: 8610-102**
  Industrial Dual LTE (Quad SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 2 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); worldwide band; dual input 9V~56VDC; -40~65C
- **IWMR-3002-2L-1AC-2S-24V-APAC…..……...……...P/N: 8610-103**
  Industrial Dual LTE (Quad SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 2 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); APAC band; dual input 9V~56VDC; -40~65C
- **IWMR-3002-2L-1AC-4S-24V-EUNA…..……...…….....P/N: 8610-120**
  Industrial Dual LTE (Quad SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 4 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); EU and US band; dual input 9V~56VDC; -40~65C
- **IWMR-3002-2L-1AC-4S-24V-WW…..……...…….....P/N: 8610-121**
  Industrial Dual LTE (Quad SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 4 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); worldwide band; dual input 9V~56VDC; -40~65C

- **IWMR-3002-2L-1AC-4S-24V-APAC…..……...……...P/N: 8610-122**
  Industrial Dual LTE (Quad SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 4 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); APAC band; dual input 9V~56VDC; -40~65C
- **IWMR-3002-1L-1AC-2S-24V-EUNA…..……...……...P/N: 8610-1073**
  Industrial One LTE (Dual SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 2 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); EU and US band; dual input 9V~56VDC; -40~65C
- **IWMR-3002-1L-1AC-2S-24V-WW…..……...……...P/N: 8610-1083**
  Industrial One LTE (Dual SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 2 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); worldwide band; dual input 9V~56VDC; -40~65C
- **IWMR-3002-1L-1AC-2S-24V-APAC…..……...……...P/N: 8610-1093**
  Industrial One LTE (Dual SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 2 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); APAC band; dual input 9V~56VDC; -40~65C
- **IWMR-3002-1L-1AC-4S-24V-EUNA…..……...……...P/N: 8610-123**
  Industrial One LTE (Dual SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 4 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); EU and US band; dual input 9V~56VDC; -40~65C
- **IWMR-3002-1L-1AC-4S-24V-WW…..……...……...P/N: 8610-124**
  Industrial One LTE (Dual SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 4 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); worldwide band; dual input 9V~56VDC; -40~65C
- **IWMR-3002-1L-1AC-4S-24V-APAC…..……...……...P/N: 8610-125**
  Industrial One LTE (Dual SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 4 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); APAC band; dual input 9V~56VDC; -40~65C
- **IWMR-3002-1L-2AC-2S-24V-EUNA…..……...……...P/N: 8610-104**
  Industrial One LTE (Dual SIM) Two Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); EU and US band; dual input 9V~56VDC -40~65C
- **IWMR-3002-1L-2AC-2S-24V-WW …..……...……...P/N: 8610-105**
  Industrial One LTE (Dual SIM) Two Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); worldwide band; dual input 9V~56VDC; -40~65C
- **IWMR-3002-1L-2AC-2S-24V-APAC …..……...……...P/N: 8610-106**
  Industrial One LTE (Dual SIM) Two Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); APAC band; dual input 9V~56VDC; -40~65C
- **IWMR-3002-1L-2AC-4S-24V-EUNA…..……...……...P/N: 8610-126**
  Industrial One LTE (Dual SIM) Two Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/4 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); EU and US band; dual input 9V~56VDC -40~65C
- **IWMR-3002-1L-2AC-4S-24V-WW …..……...……...P/N: 8610-127**
  Industrial One LTE (Dual SIM) Two Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/4 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); worldwide band; dual input 9V~56VDC; -40~65C
- **IWMR-3002-1L-2AC-4S-24V-APAC …..……...……...P/N: 8610-128**
  Industrial One LTE (Dual SIM) Two Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/4 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); APAC band; dual input 9V~56VDC; -40~65C
- **IWMR-3002-2L-1AC-2S-HV-EUNA…..……...……...P/N: 8610-110**
  Industrial Dual LTE (Quad SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 2 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); EU and US band; single high power 90~305VAC / 120~430VDC; -40~65C
- **IWMR-3002-2L-1AC-2S-HV-WW…..……...……...P/N: 8610-111**
  Industrial Dual LTE (Quad SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 2 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); worldwide band; single high power 90~305VAC / 120~430VDC; -40~65C
- **IWMR-3002-2L-1AC-2S-HV-APAC…..……...……...P/N: 8610-112**
  Industrial Dual LTE (Quad SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 2 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); APAC band; single high power 90~305VAC / 120~430VDC; -40~65C
- **IWMR-3002-2L-1AC-4S-HV-EUNA…..……...……...P/N: 8610-129**
  Industrial Dual LTE (Quad SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 4 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); EU and US band; single high power 90~305VAC / 120~430VDC; -40~65C
- **IWMR-3002-2L-1AC-4S-HV-WW…..……...……...P/N: 8610-130**
  Industrial Dual LTE (Quad SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 4 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); worldwide band; single high power 90~305VAC / 120~430VDC; -40~65C
- **IWMR-3002-2L-1AC-4S-HV-APAC…..……...……...P/N: 8610-138**
  Industrial Dual LTE (Quad SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 4 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); APAC band; single high power 90~305VAC / 120~430VDC; -40~65C
- **IWMR-3002-1L-1AC-2S-HV-EUNA…..……...……...P/N: 8610-114**
  Industrial One LTE (Dual SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 2 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); EU and US band; single high power 90~305VAC / 120~430VDC; -40~65C
- **IWMR-3002-1L-1AC-2S-HV-WW…..……...……...P/N: 8610-115**
  Industrial One LTE (Dual SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 2 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); worldwide band; single high power 90~305VAC / 120~430VDC; -40~65C
- **IWMR-3002-1L-1AC-2S-HV-APAC…..……...……...P/N: 8610-116**
  Industrial One LTE (Dual SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 2 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); APAC band; single high power 90~305VAC / 120~430VDC; -40~65C
- **IWMR-3002-1L-1AC-4S-HV-EUNA…..……...……...P/N: 8610-132**
  Industrial One LTE (Dual SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 4 RS232 serial ports and 2 port

Gigabit Ethernet (incl. 1PD); EU and US band; single high power 90~305VAC / 120~430VDC; -40~65C

- **IWMR-3002-1L-1AC-4S-HV-WW…..……..……..P/N: 8610-133**
  Industrial One LTE (Dual SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 4 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); worldwide band; single high power 90~305VAC / 120~430VDC; -40~65C
- **IWMR-3002-1L-1AC-4S-HV-APAC…..……..……..P/N: 8610-134**
  Industrial One LTE (Dual SIM) One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/ 4 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); APAC band; single high power 90~305VAC / 120~430VDC; -40~65C
- **IWMR-3002-1L-2AC-2S-HV-EUNA…..……..……..P/N: 8610-117**
  Industrial One LTE (Dual SIM) Two Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); EU and US band; single high power 90~305VAC / 120~430VDC; -40~65C
- **IWMR-3002-1L-2AC-2S-HV-WW …..……..……..P/N: 8610-118**
  Industrial One LTE (Dual SIM) Two Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); worldwide band; single high power 90~305VAC / 120~430VDC; -40~65C
- **IWMR-3002-1L-2AC-2S-HV-APAC …..……..……..P/N: 8610-119**
  Industrial One LTE (Dual SIM) Two Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); APAC band; single high power 90~305VAC / 120~430VDC; -40~65C
- **IWMR-3002-1L-2AC-4S-HV-EUNA…..……..……..P/N: 8610-135**
  Industrial One LTE (Dual SIM) Two Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/4 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); EU and US band; single high power 90~305VAC / 120~430VDC; -40~65C
- **IWMR-3002-1L-2AC-4S-HV-WW …..……..……..P/N: 8610-136**
  Industrial One LTE (Dual SIM) Two Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/4 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); worldwide band; single high power 90~305VAC / 120~430VDC; -40~65C
- **IWMR-3002-1L-2AC-4S-HV-APAC …..……..……..P/N: 8610-137**
  Industrial One LTE (Dual SIM) Two Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router w/4 RS232 serial ports and 2 port Gigabit Ethernet (incl. 1PD); APAC band; single high power 90~305VAC / 120~430VDC; -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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