# IPWAP-3006

## Industrial Multifunction VPN Router w/up to 2x WiFi 11ac + 2 serial ports + 6 Gigabit Ethernet Switch(incl. 4 PoE) w/ Load Balancing**, TWCC**, VPN, Protocol Gateway, Storage**; 24V input

- *Up to 2 concurrent WIFI 11ac and redundancy(2AC model)*
- *Built-in 6 Gigabit Ethernet switch including4 PoE at/af w/budget 80W*
- *Dual radio for 802.11ac/a/b/g/n with concurrent 5GHz & 5GHz bands up to 2.6GMbps 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 antenna*
- *Unlimited concurrent WIFI users*
- *Fast roaming < 50ms**, 802.11r standard*
- *Supports AP/ BRIDGE/Client modes*
- *Air-teaming** for WIFI high-sustainability and aggregated bandwidth*
- *Advanced wireless security WEP64/128bits/ WPA/ WPA-PSK (TKIP*,AES)/ WPA2/ WPA2-PSK (TKIP*,AES)*
- *Optional TWCC** (Train Wireless Carriage Coupling)for auto wireless coupling*
- *VPN router for Multi-site VPN, OpenVPN, L2TP, IPSec, PPTP***
- *Load Balancing** support 8 mechanism*
- *Support NAT and Firewall*
- *Support Modbus or DNP3** gateway on serial ports*
- *Support 2 RS422/485 ports with 2.5KV isolation or 2x RS232 ports*
- *Optional storage microSD** for storage backup or multi-media content suit with load-balancing route.*
- *Input voltage selection 9~56VDC (24V model)*
- *Environmental monitoring for router inside info with voltage, current, temperature and total PoE load; WIFI graphic signal strength & TX/RX rate display*
- *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 IPWAP-3006 series is a next generation industrial multi-function VPN router w/up to 2x 802.3ac WiFi + 6x Gigabit Ethernet switch incl. 4 PoE ports + 2 serial ports that supports advanced function of VPN, Load-balancing** (Basic & Full package), TWCC**, Protocol gateway (Modbus,DNP3**), Storage**, and WiFi roaming**.The dual core CPU with 1.6GHz + 256M flash enables the router to multi-task smoothly.

***Optional TWCC** (Train Wireless Carriage Coupling) for auto coupling***

IPWAP-3006 supports series supports optional TWCC** (Train Wireless Carriage Coupling) that enables auto wireless coupling to reconnect APs.

***IEEE 802.11ac dual band radio up to 2.6GMbps bandwidth***

With IEEE 802.11ac capability, IPWAP-3006 can operate either 5GHz or 2.4GHz bands, offering the maximum speed of 2.6GMbps bandwidth (1.3GMbps per 1AC). It is also compatible with 802.11g/n that can work with 2.4GHz for longer range transmission.

The WiFi 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 WiFi with first priority.

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

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 IPWAP-3006 series adapts MIMO technology with smart antenna transmission and reception for 3T3R. With six external detachable omni connectors and optional antennas, IPWAP-3006 can have better Wi-Fi coverage. It can support unlimited concurrent WIFI users.
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***802.11r fast roaming <50ms*****

IPWAP-3006 support fast roaming < 50ms** (optional) in coordination with Lantech Wireless Controller to allow encryption keys to be stored on all of the APs in a network. Client mode supports PMK** Caching and pre-authentication.

***Wireless WMM QoS***

IPWAP-3006 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 IPWAP-3006 support up to 16 SSIDs, each SSID has its independent security and encryption.

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

IPWAP-3006 supports Load Balancing** for WAN connections. There are eight schemes for Load Balancing** function:

| Pack | Algorithm | Description |
|---|---|---|
| **Standard** | Fixed | Manually route by traffic type through fixed WAN link. |
| **Basic Package** | 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. WiFi 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.<br>The ratio = 1 - (traffic load / the capability of a WAN link).<br>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 / DNP3** gateway***

It builds in 2 port serial connection for RS232, RS422, 485 in which RS422/485 has 2.5KV isolation protection.

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

It also can support optional DNP3** gateway over serial ports

***VPN and firewall***

Besides traditional VPN peer to peer tunneling, IPWAP-3006 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, Open VPN, L2TP, IPsec and PPTP** for various VPN applications.

The built-in Layer-4 firewall includes DoS**, 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 IPWAP-3006 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 by Web.

***Wide range input voltage from 9V-56VDC; Built-in 6 port PoE at/af switch with 80W budget***

The IPWAP-3006 is able to work from 9VDC to 56VDC for PoE at/af with PoE budget 80W@12V /80W@24V&48V that is particular good for vehicle, rail train, depot etc. application.

***Environmental monitoring for inside router info& alerting; Graphic WIFI signal strength and TX/RX rate display***

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

***Cloud/Host based InstaView**/InstaAir** software for router / fleet management and monitoring***

Lantech InstaView** can offer fixed location router central management, configuration, and monitoring via secured Cloud or Host server. InstaAir** can offer fleet router management including remote configuration/upgrade, monitoring/alerting and report function

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

***Optional USB to microSD** for storage backup or multimedia resources***
The optional internal USB to microSD** can have data backup or pre-store the multimedia resources for content application. User can designate the route via load-balancing** scheme to upload/download the data per request.

***Editable login page of captive portal***
The IPWAP-3006 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 IPWAP-3006 is designed to meet with industrial network environment with IP 30 housing. It passed serious tests under extensive Industrial EMI and environmental vibration and shocks standards.

With CE & FCC radio certification for WIFI and E-marking certificate, the IPWAP-3006 is best for outdoor community, vehicle, process control automation etc. For more usage flexibilities, IPWAP-3006 supports wide operating temperature from -20°C to 70°C & -40°C to 70°C(-E model)

## FEATURES & BENEFITS

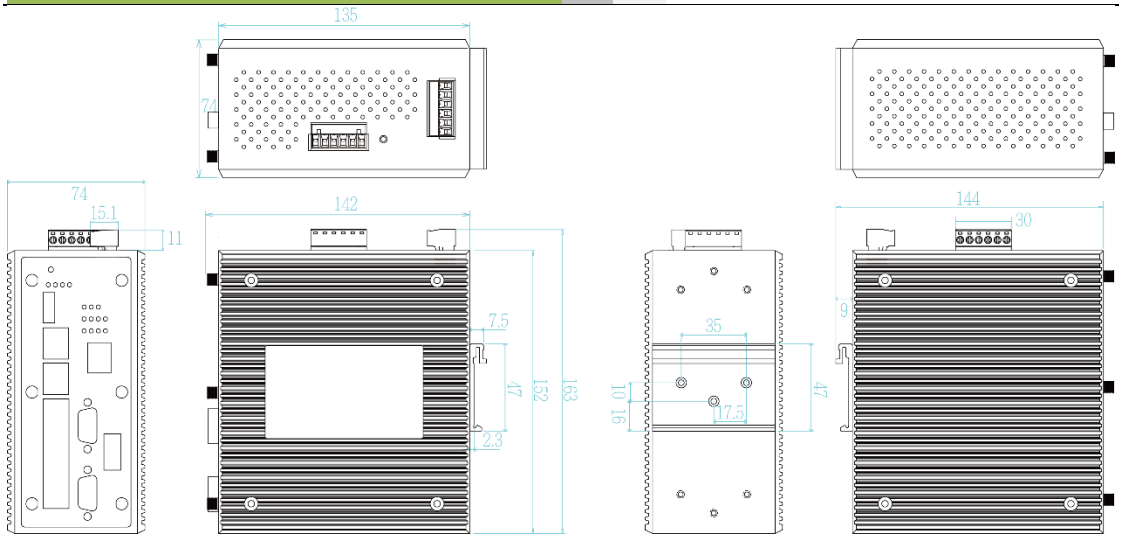
- **High Speed Air Connectivity: WLAN interface support up to 2.6GMbps link speed(2AC) or 1.3GMbps (1AC)**
- **Built-in 6 Gigabit Ethernet switch incl. 4 PoE at/af for PoE budget 80W**
- **Optional TWCC** (Train Wireless Carriage Coupling) for auto wireless coupling**
- **Dual band 2.4G and 5GHz with 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:**
  - ***5.180GHz~5.825GHz***
- **MIMO smart antenna technology with 3T3R**
- **6 SMA type connectors for WiFi**
- **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*
- **Fast roaming** (Optional ) <50ms between APs by Wireless Controller**
- **Unlimited concurrent users**
- **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**
- **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-MD5, 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, IPsec and PPTP** fro secured network connection**
- **The built-in Layer-4 firewall includes DoS**, IP address filter / Mac address filter* / TCP/UDP port number.**
- **Support SNMP*v1/v2c/v3**
- **NAT/DMZ**
- **Load Balancing** supports 8 mechanism between multiple WANs**

| Pack | Algorithm | Description |
|---|---|---|
| **Standard** | Fixed | Manually route by traffic type through fixed WAN link. |
| **Basic Package** | 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. WiFi 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.<br>The ratio = 1 - (traffic load / the capability of a WAN link).<br>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/RS422/485)**
- **Serial port with 2.5KV isolation on RS422/485**
- **Supports 2DI / 2DO (Digital Input / Output)**
- **Built-in Modbus gateway converting Modbus RTU/ASCII to Modbus/TCP for serial ports**
- **Optional DNP3 gateway with serial ports**
- **Event alerting by Syslog, SNMP Trap, Email**, text, Relay ; Permanent local log rotation / Maxi 1K records**
- **Remote Web control to get status or re-boot by Web**
- **Graphic WIFI signal strength & TX/RX rate display**
- **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/FTP/HTTP**
- **Configuration backup and restoration**
  - *Supports text configuration file for system quick installation*
  - *USB port to upload/download firmware by USB dongle*
  - *InstaView**/InstaAir** for centralized configuration deployment, backup & upgrade*
- **Reset button for factory default mode**
- **Support editable captive portal login page**
- **Optional built-in USB to microSD** for storage backup or multimedia resource**
- **IP 30 housing for industrial environment**
- **Cloud/Host based InstaView/AIR** for fixed/fleet router management/configuration/monitoring**
- **DIN-Rail and Wall-mount** installation**
- **Operation temperature -20~60C or -40~60C(-E model)**

## DIMENSIONS (unit=mm)




## SPECIFICATION

| WLAN Interface | |
|---|---|
| Operating Mode | AP/BRIDGE/Client modes |
| Radio Frequency Type | DSSS, OFDM |
| Wireless Standard | IEEE 802.11ac/n/a 5GHz<br>IEEE 802.11b/g/n 2.4GHz |
| Wireless bandwidth | 5GHz: Up to 1300Mbps<br>2.4GHz: Up to 450Mbps |
| Modulation | **802.11b: DSSS**<br>**802.11a/g:**<br>OFDM (BPSK, QPSK, 16-QAM, 64-QAM)<br>**802.11n:**<br>OFDM (BPSK, QPSK, 16-QAM, 64-QAM)<br>**802.11ac:**<br>OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM) |
| Operating Frequency | IEEE 802.11 a/b/g/n ISM Band,<br>2.412GHz~2.472GHz, 5150MHz~5850MHz |
| Transmission Rate | IEEE802.11ac: up to 1300Mbps<br>IEEE802.11b: 1 / 2 / 5.5 / 11 Mbps<br>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)**<br>18dBm @ 1~11Mbps<br>18dBm @ 6~54Mbps<br>20/20dBm @ MCS0~MCS7 (HT20/40)<br>**Receiver Sensitivity Rx +/- 2dB**<br>≦-95dBm @ 1~11Mbps<br>≦-92dBm @ 6~18Mbps<br>≦-88dBm @ 24Mbps<br>≦-85dBm @ 36Mbps<br>≦-81dBm @ 48Mbps<br>≦-80dBm @ 54Mbps<br>≦-94dBm @ MCS0 (HT20/40)<br>≦-76dBm @ MCS7 (HT20/40) |
| IEEE 802.11a/n/ac(5Gbps) | **Output Power Tx +/- 2dB(per chain)**<br>20dBm @ 6~24Mbps<br>16dBm @ 36~54Mbps<br>19/18dBm @ MCS0 (HT20/40)<br>16/16dBm @ MCS7 (HT20/40)<br>19/18/18dBm @ MCS0 (VHT20/40/80)<br>13/13/13dBm @ MCS8 (VHT20/40/80)<br>13/13dBm @ MCS9 (VHT40/80)<br>**Receiver Sensitivity Rx +/- 2dB**<br>≦-92dBm @ 6~18Mbps<br>≦-86dBm @ 24Mbps<br>≦-84dBm @ 36Mbps<br>≦-81dBm @ 48Mbps<br>≦-80dBm @ 54Mbps<br>≦-93dBm @ MCS0 (HT20/40)<br>≦-71dBm/≦-80dBm @ MCS7 (HT20/40)<br>≦-90dBm @ MCS0 (VHT20/40/80)<br>≦-69dBm @ MCS8 (VHT20/40/80)<br>≦-66dBm @ MCS9 (VHT40/80) |
| Encryption Security | WEP : (64-bit ,128-bit key supported)<br>WPA /WPA2 : IEEE802.11i(WEP and AES encryption)<br>WPA-PSK (256-bit key pre-shared key supported)<br>OKC** and 802.11r**<br>EAP,MD5,EAP,TLS,EAP,TTLS,EAP MsCHAPv3 and PEAP ** |
| Wireless Security | SSID broadcast disable** |

## Software

| | |
|---|---|
| IPv6/4 | Present |
| Fast Roaming ** | 802.11r <50ms(optional) |
| TWCC** | Optional Train Wireless Carriage Coupling for Auto wireless Coupling |
| Air-teaming**(2AC) | ● High sustainability with fail over link<br>● Aggregated bandwidth |
| WMM | WIFI multimedia and 802.11e traffic prioritization |
| VPN | Multi-site VPN, Open VPN, PPTP**, L2TP, IPSec |
| Firewall | DoS**, IP address filter / Mac address filter* / TCP/UDP port number |
| Load Balancing** | 8 schemes for multiple WAN(client mode) |
| Fixed(standard) | Manually route by traffic type through fixed WAN link. |
| **Basic Package**** | |
| 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.<br>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 |
| Authentication | Radius Authentication, EAP-MD5, 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(DoS**; IP address filter / Mac address filter* / TCP/UDP port name ),VRRP**, DDNS* |
| Protocol Gateway | Modbus / DNP3** 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 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 Protocal (LLDP) |
| SNMP trap | Device cold / warm start<br>Port link up / link down<br>DI/DO high / low |
| Remote Web control | To reboot router by WebUI |
| Captive portal | Editable captive portal login page |
| Maintenance | Firmware upgradeable through TFTP/FTP/HTTP |
| Configuration backup & restore | Supports text configuration file for system quick installation<br>USB port to upload/download firmware by USB dongle<br>InstaView**/InstaAir** for mass configuration/upgrade |

## Physical Ports & System

| | |
|---|---|
| Connectors | 10/100/1000T: 6x ports RJ 45 (incl 4 PoE ports)<br>USB x 1<br>RS-232 connector: 1 x RJ 45<br>Serial connector : 2 DB9<br>SMA connector : 6<br>Power & P-Fail connector: 1 x 6-pole terminal block<br>DIDO : 1 x 5-pole terminal block |
| Serial Baud Rate | 1000Kbps for RS232 ; 12Mbps for RS422/485 |
| 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 | RS422/485 2.5KV isolation; 8KV contact & 15KV air<br>RS232 8KV contact and 15KV air ESD<br>DIDO 3KV isolation<br>Input power 1.5KVA isolation |
| Micro SD | 128G or 256G(MSD model) |
| DI/DO | 2 Digital Input (DI) :<br>Level 0: -30~2V / Level 1: 10~30V<br>Max. input current:8mA<br>2 Digital Output(DO): Open collector to 40 VDC, 200mA |

## LED Indicators

| | |
|---|---|
| Power & System indicator | Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red) , Ring Master(Green), Storage(Green), Serial1/Serial2(Green) |
| 10/100/1000Base-T (X) port indicator | Link/Activity (Green), Speed (Yellow), PoE (Green) |
| Fault | Red: Ethernet link down or power down |

## Fault contact

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

## Power

| | |
|---|---|
| Input power | Single DC input, 9~56VDC (24V model) |
| PoE Budget | 80W@12V /80W@24V&48V |

| | |
|---|---|
| Power consumption (Typ.) | 30.5 Watts |

## Physical Characteristic

| | |
|---|---|
| Enclosure | IP 30 aluminum case |
| Dimension | 74 (W) x 142 (D) x 152 (H) mm |
| Weight | 1000g |

## Environmental

| | |
|---|---|
| Storage Temperature | -40°C ~ 85°C (-40°F ~ 185°F) |
| Operating Temperature | -20°C ~ 60°C (-4°F ~ 140°F)<br>-40°C ~ 60°C (-40°F ~ 140°F) for E model |
| 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 |
| E-marking** | E13** |
| 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 | -92dBm | ±2dB |
| | 18Mbps | 21dBm | 26dBm | ±2dB | -90dBm | ±2dB |
| | 24Mbps | 21dBm | 26dBm | ±2dB | -88dBm | ±2dB |
| | 36Mbps | 20dBm | 25dBm | ±2dB | -85dBm | ±2dB |
| | 48Mbps | 19dBm | 24dBm | ±2dB | -81dBm | ±2dB |
| | 54Mbps | 18dBm | 23dBm | ±2dB | -80dBm | ±2dB |
| 2.4GHz 802.11n HT20 | MCS 0 | 21dBm | 26dBm | ±2dB | -94dBm | ±2dB |
| | MCS 1 | 21dBm | 26dBm | ±2dB | -91dBm | ±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 | -78dBm | ±2dB |
| | MCS 6 | 18dBm | 23dBm | ±2dB | -78dBm | ±2dB |
| | MCS 7 | 16dBm | 21dBm | ±2dB | -76dBm | ±2dB |
| 2.4GHz 802.11n HT40 | MCS 0 | 20dBm | 25dBm | ±2dB | -92dBm | ±2dB |
| | MCS 1 | 20dBm | 25dBm | ±2dB | -89dBm | ±2dB |
| | MCS 2 | 20dBm | 25dBm | ±2dB | -87dBm | ±2dB |
| | MCS 3 | 19dBm | 24dBm | ±2dB | -82dBm | ±2dB |
| | MCS 4 | 19dBm | 24dBm | ±2dB | -80dBm | ±2dB |
| | MCS 5 | 19dBm | 24dBm | ±2dB | -78dBm | ±2dB |
| | MCS 6 | 18dBm | 23dBm | ±2dB | -77dBm | ±2dB |
| | MCS 7 | 16dBm | 21dBm | ±2dB | -73dBm | ±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 | -90dBm | ±2dB |
| | 24Mbps | 20dBm | 25dBm | ±2dB | -86dBm | ±2dB |
| | 36Mbps | 18dBm | 23dBm | ±2dB | -84dBm | ±2dB |
| | 48Mbps | 16dBm | 21dBm | ±2dB | -81dBm | ±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 |
| | MCS 0 | 18dBm | 23dBm | ±2dB | -89dBm | ±2dB |
| 5GHz 802.11ac VHT80 | 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 INFOMATION

For -40~60C operational temperature model, the model name will add -E

- **IPWAP-3006-1AC-2S-24V…….....P/N: 8625-011**
  One WIFI 11ac/a/b/g/n Load Balancing** AP VPN Mobile Router w/ 2 RS232 serial ports and 6 Giga Port Switch incl.4 PoE; single 9~56VDC; -20~60C
- **IPWAP-3006-1AC-2SA-24V…….....P/N:8625-012**
  One WIFI 11ac/a/b/g/n Load Balancing** AP VPN Mobile Router w/2 RS422/485 serial isolated ports and 6 Giga Port Switch incl.4 PoE; dual 9~56VDC; -20~60C
- **IPWAP-3006-2AC-2S-24V…….....P/N: 8625-013**
  Two WIFI 11ac/a/b/g/n Load Balancing** AP VPN Mobile Router w/2 RS232 serial ports and 6 Giga Port Switch incl.4 PoE; single 9~56VDC; -20~60C
- **IPWAP-3006-2AC-2SA-24V…….....P/N:8625-014**
  Two WIFI 11ac/a/b/g/n Load Balancing** AP VPN Mobile Router w/2 RS422/485 serial isolated ports and 6 Giga Port Switch incl.4 PoE; dual 9~56VDC; -20~60C

**Built-in Micro SD series**

- **Built-in USB to MicroSD 128GB Module…….....P/N:8850-210**
- **Built-in USB to MicroSD 256GB Module…….....P/N:8850-213**

**Software License**

- **LOAD BALANCING Basic Package…….....P/N: 9000-101**
- **LOAD BALANCING Full Package…….....P/N: 9000-102**
- **TWCC…….....P/N: 9000-103**
- **DNP3 GATEWAY…….....P/N: 9000-106**
- **WIRELESS ROAMING…….....P/N: 9000-107**

## OPTIONAL ACCESSORIES

**Wireless Connector Adapter**

- **ADA11000052** RP SMA Jack Base, Length : 1M

### Wireless Antenna

- **ANT11000050** 2.4G&5.8GHz SMA Omni-directional / dipole antenna, 2dBi or 5.8GHz 3dBi
- **ANT11000051** 2.4G&5.8GHz SMA Omni-directional / dipole antenna, 5dBi

**Lantech Communications Global Inc.**

www.lantechcom.tw
info@lantechcom.tw