IPWAP-3204DF

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

- *Up to 2 concurrent WI-FI 11ac and redundancy(2AC model)*
- *Built-in 4 Gigabit Ethernet ports + 2 Dual Speed SFP managed switch including 4 PoE at/af w/budget 80W*
- *Managed Switch functions cover port management, QOS, VLAN, multicast, redundant ring and security function*
- *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*
- *Support roaming with 802.11k & v*
- *Supports AP/ Bridge/Client/MESH modes*
- *Support 802.11s Wireless Mesh Network*
- *Load Balancing built-in 5 mechanism*
- *Support NAT and Firewall*
- *Optional EMMC Flash storage on-board***
- *Support 2 RS422/RS485 ports with 2.5KV isolation or 2x RS232 ports*
- *Dual input voltage 9V to 56VDC (24V model) for vehicle, station and process automation applications*
- *Vehicle E-marking** certificate*
- *Editable login page of captive portal for hot-spot application*
- *ITxPT compliant w/ ignition function***
- *USB port to backup, restore the configuration file and upgrade firmware; Dual image firmware**
- *Environmental monitoring for router inside info with voltage, current, temperature and total PoE load; WIFI graphic signal strength*

OVERVIEW

Lantech IPWAP-3204DF series is a next generation industrial multi-function VPN router managed switch w/up to 2x 802.11ac Wi-Fi + 4x Gigabit Ethernet+ 2 dual speed SFP incl. 4 PoE ports + 2 serial ports** that supports advanced function of VPN, Load-Balancing (Basic & Full Package), EMMC Flash storage**, and Wi-Fi roaming. The dual core CPU with 1.6GHz + 256M flash enables the router to multi-task smoothly.

IEEE 802.11ac dual band radio up to 2.6Gbps bandwidth

With IEEE 802.11ac capability, IPWAP-3204DF can operate either 5GHz or 2.4GHz bands, offering the maximum speed of 2.6Gbps bandwidth 1.3GMbps per 802.11ac module). 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.

Optional EMMC Flash storage**

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

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

IPWAP-3204DF 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）

IPWAP-3204DF 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.

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

The innovative Air-teaming protection 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-3204DF series adapts MIMO technology with smart antenna transmission and reception for 3T3R. With six external detachable Omni connectors and optional antennas, IPWAP-3204DF can have better Wi-Fi coverage.

Managed switch Function

W/ port managed functions, QOS, VLAN, Multicast, Redundant protection, security

Wireless WMM QoS

IPWAP-3204DF 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 IPWAP-3204DF support up to 16 SSIDs, each SSID has its independent security and encryption.

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

IPWAP-3204DF supports Load Balancing for 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

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

VPN and firewall

Besides traditional VPN peer to peer tunneling, IPWAP-3204DF 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 IPWAP-3204DF 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 (24V model) ; Built-in 4 port Gigabit Ethernet

The IPWAP-3204DF is able to work from 9VDC to 56VDC (24V model) that is particular good for vehicle, rail train, depot etc. application.

Graphic Wi-Fi signal strength

The graphic Wi-Fi 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 and upgrade firmware 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.

Built-in Managed Switch Function

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

Editable login page of captive portal

The IPWAP-3204DF 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-3204DF is designed to meet with outdoor 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 Wi-Fi and E-marking** certificate. The IPWAP-3204DF is best for outdoor community, vehicle, process control automation etc application.

For more usage flexibilities, IPWAP-3204DF supports wide operating temperature from -20°C to 70°C or -40°C to 70°C (-E)

FEATURES & BENEFITS

- **High Speed Air Connectivity: WLAN interface support up to 2.6Gbps link speed(2AC) or 1.3GMbps (1AC)**
- **Built-in 4 Gigabit ports + 2 Dual Speed SFP managed switch incl. 4 PoE at/af for PoE budget 80W**
- **Managed switch functions**
- **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**
- **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**
- **EMMC-FLASH storage**8/16/32G**
- **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****
- **Support AP/Bridge/Client/MESH mode**
- **Support roaming with 802.11k & v**
- **Support 802.11s Wireless Mesh Network**
- **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**
- **Load Balancing supports 8 mechanism between multiple WANs**

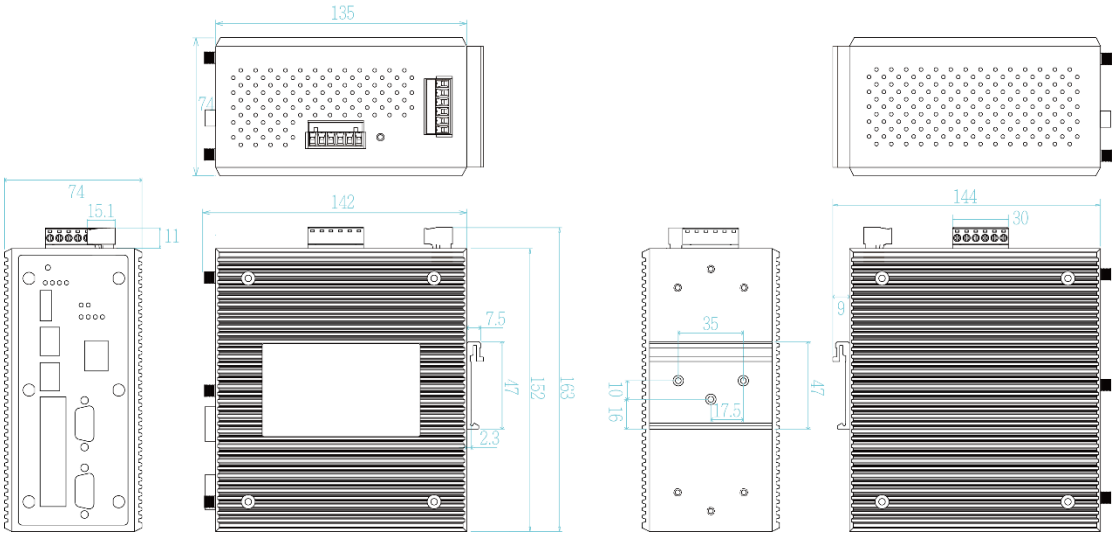
Pack	Algorithm	Description
Basic Package	Fixed	Manually route by traffic type through fixed WAN link.
	Failover	Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link fail occurs. Once failover will not failback until link loss.
	Priority	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)**
- **Serial port** with 2.5KV isolation on RS422/RS485**
- **Supports optional 2DI / 2DO(Digital Input / Output)**
- **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**
- **Support SNTP to synchronize system clock**
- **Support LLDP discovery protocol**
- **Support DHCP Server and Client**
- **Reset button for factory default mode**
- **Graphic WI-FI signal strength**
- **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*
- **Support editable captive portal login page**
- **IP30 housing for industrial environment**
- **DIN-Rail and Wall-mount** installation**
- **Operation temperature -20~70°C or -40°C to 70°C (-E)**
- **ITxPT compliant w/ ignition function****
- **Wide range input voltage from 9V-56V (24V model)**

DIMENSIONS (unit=mm)

2AC-2S 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-TLS,EAP-TTLS, PEAP
Wireless Security	SSID broadcast disable

Software

IPv6/4	Present
Operation Mode	AP/Bridge/Client/MESH mode
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.
Roaming	802.11k & v
MESH	Support 802.11s Wireless Mesh Network
Air-teaming protection(2AC)**	● High sustainability with fail over link ● Aggregated bandwidth
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 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 firmware by USB dongle

Physical Ports & System

Connectors	10/100/1000T: 2x ports RJ 45 with Auto MDI/MDI-X function 10/100/1000T: 4x ports RJ 45 + 2 Dual Speed SFP (incl 4 PoE ports) USB x 1 RS-232 connector: 1 x RJ 45 Serial connector : 2 DB9 RP-SMA connector for Wi-Fi 2AC: 6 (female) RP-SMA connector for Wi-Fi 1AC: 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

LED Indicators

Power & System indicator	Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red) , Ring Master(Green), Storage(Green), Serial1/Serial2/Serial3/Serial4(Green) ,Ready(Green)
10/100/1000Base-T(X) port indicator	Link/Activity (Green), Speed (1000T: Yellow; 10/100TX: off), PoE (Green)
WLAN LEDs	WLAN 1 , WLAN2 Link /ACT : Green
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
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 inputs, 9V~56VDC (24V model) ; 80W@12V /80W@24V
Power consumption (Typ.)	20 Watts

Physical Characteristic

Enclosure	IP 30 Metal case
Dimension	74 (W) x 142 (D) x 152 (H) mm
Weight	900g

Environmental

Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Operating Temperature	-20°C ~70°C (-4°F ~ 158°F) -40°C ~70°C (-40°F ~ 158°F) -E model
Operating Humidity	5% to 95% Non-condensing

Regulatory approvals

Safety	EN 62368*
EMC	FCC Part 15B Class A, EN 55032: 2015, EN 55024: 2010 IEC 61000-6-2, IEC 61000-6-4
EMS	IEC 61000-4-2 (ESD), IEC 61000-4-3 (RS), IEC 61000-4-4 (EFT), IEC 61000-4-5 (Surge), IEC 61000-4-6 (CS), IEC 61000-4-8 (PFMF)
Radio Frequency	EN 301 489-1, EN 301 489-17, EN 301 489-19, EN 301 489-52 EN 302 502, EN 301 893, EN 300 328, EN 62311
Vehicle certificate	E13** ITxPT compliant**
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 -40~70C operational temperature model, the model name will add –E

- **IPWAP-3204DF-1AC-24V…..……..……..…….P/N: 8687-007**
  One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router Managed Ethernet Switch and 4 port Giga ports and 2 dual speed SFP managed Switch (incl. 4 PoE) ; dual input 9V~56VDC; -20~70C
- **IPWAP-3204DF-1AC-2S-24V…..……..……..P/N: 8687-001**
  One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router Managed Ethernet Switch w/ 2 RS232 serial ports and 4 port Giga ports and 2 dual speed SFP managed Switch (incl. 4 PoE) ; dual input 9V~56VDC; -20~70C
- **IPWAP-3204DF-1AC-2SA-24V…..……..……..P/N: 8687-002**
  One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router Managed Ethernet switch w/ 2 RS422serial ports and 4 port Giga ports and 2 dual speed SFP managed Switch (incl. 4 PoE) ; dual input 9V~56VDC; -20~70C
- **IPWAP-3204DF-1AC-2SB-24V…..……..……..P/N: 8687-005**
  One Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router Managed Ethernet switch w/ 2 RS485 serial ports and 4 port Giga ports and 2 dual speed SFP managed Switch (incl. 4 PoE) ; dual input 9V~56VDC; -20~70C
- **IPWAP-3204DF-2AC-24V…..……..……..…….P/N: 8687-008**
  Two Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router Managed Ethernet Switch and 4 port Giga ports and 2 dual speed SFP managed Switch (incl. 4 PoE) ; dual input 9V~56VDC -20~70C

- **IPWAP-3204DF-2AC-2S-24V…..……...…..…....P/N: 8687-003**
  Two Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router Managed Ethernet Switch w/2 RS232 serial ports and 4 port Giga ports and 2 dual speed SFP managed Switch (incl. 4 PoE) ; dual input 9V~56VDC -20~70C
- **IPWAP-3204DF-2AC-2SA-24V…..……...…..…....P/N: 8687-004**
  Two Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router Managed Switch w/2 RS422 serial ports and 4 port Giga ports and 2 dual speed SFP managed Switch (incl. 4 PoE) ; dual input 9V~56VDC; -20~70C
- **IPWAP-3204DF-2AC-2SB-24V…..……...…..…....P/N: 8687-006**
  Two Wi-Fi 11ac/a/b/g/n Load Balancing Multifunction Router Managed Switch w/2 RS485 serial ports and 4 port Giga ports and 2 dual speed SFP managed Switch (incl. 4 PoE) ; dual input 9V~56VDC; -20~70C

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

DIN Rail Power

- **NDR-480 Series** 480W Single Output Industrial Din Rail Power; 90-264VAC / 127-370VDC Input Range; Cooling by free air convection; RoHS2 ; Operating Temp. -20°C~70°C (ambient, derating each output at 2.5% per degree from 50°C ~ 70°C)
- **NDR-240 Series** 240W Single Output Industrial Din Rail Power; 90-264VAC / 127-370VDC Input Range; Cooling by free air convection; RoHS2 ; Operating Temp. -20°C~70°C (ambient, derating each output at 2.5% per degree from 50°C ~ 70°C)
- **NDR-120 Series** 120W Single Output Industrial Din Rail Power; 90-264VAC / 127-370VDC Input Range; Cooling by free air convection; RoHS2 ; Operating Temp. -20°C~70°C (ambient, derating each output at 2.5% per degree from 50°C ~ 70°C; For 115VAC, please refer to derating curve on NDR-120 Series datasheet)
- **NDR-75 Series** 75W Single Output Industrial Din Rail Power; 90-264VAC / 127-370VDC Input Range; Cooling by free air convection; RoHS2 ; Operating Temp. -20°C~70°C (ambient, derating each output at 2.5% per degree from 50°C ~ 70°C; For 115VAC, please refer to derating curve on NDR-120 Series datasheet)

Mini GBIC (SFP)

- **8330-162X** MINI GBIC 1000SX (LC/0.5km) Transceiver
- **8330-163X** MINI GBIC 1000SX2 (LC/2km) Transceiver
- **8330-165X** MINI GBIC 1000LX (LC/10km) Transceiver
- **8340-0591** MINI GBIC 1000LHX (LC/40km) Transceiver
- **8330-166** MINI GBIC 1000XD (LC/50km) Transceiver
- **8330-169** MINI GBIC 1000XD (LC/60km) Transceiver
- **8330-167** MINI GBIC 1000ZX (LC/80km) Transceiver
- **8330-170** MINI GBIC 1000EZX (120km) Transceiver
- **8330-168** MINI GBIC 1000T (100m) Transceiver
- **8330-188** LTSFP-1000BX-10KM Transceiver (WDM 1310)
- **8330-189** LTSFP-1000BX-10KM Transceiver (WDM 1550)
- **8330-186** LTSFP-1000BX-20KM Transceiver (WDM 1310)
- **8330-187** LTSFP-1000BX-20KM Transceiver (WDM 1550)
- **8330-180** LTSFP-1000BX-40KM Transceiver (WDM 1310)
- **8330-182** LTSFP-1000BX-40KM Transceiver (WDM 1550)
- **8330-181** LTSFP-1000BX-60KM Transceiver (WDM 1310)
- **8330-183** LTSFP-1000BX-60KM Transceiver (WDM 1550)
- **8330-184** LTSFP-1000BX-80KM Transceiver (WDM 1490)
- **8330-185** LTSFP-1000BX-80KM Transceiver (WDM 1550)
- **8330-262** MINI GBIC 2.5G 850nm VCSEL (LC/0.3km) Transceiver
- **8330-263** MINI GBIC 2.5G 1310nm FP (LC/2km) Transceiver
- **8330-265** MINI GBIC 2.5G 1310nm DFB (LC/15km) Transceiver

All SFP ended with D are with Diagnostic function

Management System

- **InstaAir…….…….....P/N: 9000-121**
  Cloud Based Fleet Management System for Routers

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, cable length: 3M

Antenna Base

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

Lantech Communications Global Inc.

www.lantechcom.tw
info@lantechcom.tw