T(P)WAP-5006

EN50155 Multifunction VPN Router w/1x WiFi 11ac + 2 serial ports** + 6 Gigabit X-coded Ethernet switch (incl. 4 PoE ports) w/ Load Balancing, VPN, Protocol Gateway, Storage**; WV input

- *Built-in 6 Gigabit X-coded Ethernet managed switch*
- *PoE model w/4 PoE at/af Switch at 60W budget*
- *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; Detachable antenna connectors with 6 SMA/QMA** type incl. 3 WIFI*
- *Advanced wireless security WEP64/128bits/ WPA/ WPA-PSK (TKIP,AES)/ WPA2/ WPA2-PSK (TKIP,AES)*
- *VPN router for Multi-site VPN, OpenVPN, L2TP over IPsec, IPsec, L2 over GRE , IPGRE*
- *Optional EMMC Flash storage on-board***
- *Load Balancing built-in 5 mechanism*
- *Support NAT and Firewall*
- *Support Client-base roaming*
- *Supports AP/ Bridge/Client/MESH modes*
- *Support 802.11s Wireless Mesh Network*
- *Optional support Modbus gateway on serial ports***
- *Support 2 RS422/RS485 ports with 2.5KV isolation or 2x RS232 ports*
- *Optional 2 GT smart bypass protection*
- *Galvanic isolation on WV model from 16.8V~137.5V input*
- *Environmental monitoring for router inside info with voltage, current, temperature and total PoE load; WI-FI 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*
- *EN50155/EN61373/EN45545-2 verification*

With 2 serial ports

Without 2 serial ports

OVERVIEW

Lantech T(P)WAP-5006 series is a next generation EN50155 multi-function VPN router w/ 1 x 802.11ac Wi-Fi + 6 Gigabit X-coded Ethernet managed switch incl. 4 PoE ports (PoE model) + 2 serial ports** that supports advanced function of VPN, Load-Balancing, EMMC Flash Storage**, Protocol gateway, and Wi-Fi roaming for on-board / onboard-to-ground applications. The dual core CPU with 1.6GHz + 256M flash enables the router to multi-task smoothly.

IEEE 802.11ac one band radio up to 2.6Gbps bandwidth

With IEEE 802.11ac capability, T(P)WAP-5006 can operate either 5GHz or 2.4GHz bands, offering the maximum speed of 2.6Gbps bandwidth (1.3Gbps per 802.11ac module). It is also compatible with 802.11b/g/n that can work with 2.4GHz for longer range transmission.

Support AP/Bridge/Client mode, Mesh roaming

T(P)WAP-5006 supports AP/Bridge/Client mode for different applications.

It also supports client-base roaming to swap between the APs in a network.

Built-in Wireless Mesh network（WMN）

T(P)WAP-5006 supports Mesh network composed of different nodes. The set of SSIDs allow the wireless client to roam freely without the need for complicated account management. With

Mesh protocol, it can provide a reliable, scalable, stable and seamless network topology.

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

MIMO technology with 3T3R and standard SMA / optional QMA type connectors
Lantech T(P)WAP-5006 series adapts MIMO technology with smart antenna transmission and reception for 3T3R. With six external detachable antenna SMA/QMA** connectors and optional antennas, T(P)WAP-5006 can have better Wi-Fi coverage.

Wireless WMM QoS
T(P)WAP-5006 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 T(P)WAP-5006 support up to 16 SSIDs, each SSID has its independent security and encryption.

Load Balancing with 5 mechanisms for multi-WANs
T(P)WAP-5006 supports Load Balancing for WAN connections. There are five schemes for Load Balancing function:

Pack	Algorithm	Description
Basic	Fixed	All traffic will be distributed to a single WAN.
	Failover	Routes connections through preferred WAN link while others stand-by. Sequentially activating another link if the preferred link fails.
	Priority	Select the active WAN according to priority.
	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.

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

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

VPN and firewall
Besides traditional VPN peer to peer tunneling, T(P)WAP-5006 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, 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.

Support Routing Protocol: Static route / RIPv2 / OSPF / BGP / EIGRP
Lantech router series supports two routing methods: static routing and dynamic routing. Dynamic routing makes use of RIPv2, OSPF, EIGRP and BGP. The user can either choose one routing method to establish the routing table.

Optional 2 GT smart bypass protection
The optional bypass relay is set to bypass the router to the next one when power is off in order to protect the network from crashing. Lantech bypass caters to remain in bypass mode until the router is completely booting up when power is back to avoid another network lost. Also it will be activated when detecting the router is hanged or link down.

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 T(P)WAP-5006 will immediately send email and trap.
The event log can be sent via syslog, emails or trigger the alarm relay. 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 dual input voltage from 16.8-137.5V (WV model)
The T(P)WAP-5006 is able to work from dual 16.8V ~137.5V DC input (WV model) and PoE model built-in PoE at/af with PoE budget 60W that is particular good for vehicle, rail train, depot etc applications.

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.

Environmental monitoring for inside router info& alerting; Graphic WI-FI signal strength
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.

The graphic WI-FI signal strength shows connection status at a

glance.

Dual image firmware

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

Editable login page of captive portal

The T(P)WAP-5006 supports editable captive portal function that allows administrator to force end-users redirect to authentication page.

USB port for back up, restore configuration and upgrade firmware

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

Ruggedized EN50155 design and FCC/CE & E-marking** certificate

The T(P)WAP-5006 series is verified with EN50155, EN61373, EN45545 standard with IP65/54 housing. It passed tests under extensive Industrial EMI and environmental vibration and shocks standards. With E-marking** certificate, the T(P)WAP-5006 is best for outdoor community, vehicle, power substation, process control automation etc application. For more usage flexibilities, T(P)WAP-5006 supports operating temperature from -20°C to 70°C or -40°C to 70°C(-E)

FEATURES & BENEFITS

- **High Speed Air Connectivity: WLAN interface support 1.3Gbps**
- **Built-in 6 Gigabit X-coded Ethernet managed switch**
- **PoE model incl. 4 PoE switch at/af at 60W PoE budget**
- **Dual DC input from 16.8V~137.5VDC power input (WV model)**
- **Optional 2 GT smart bypass relay protection when detecting power lost as well as CPU hang-up or link down. Deferring bypass time until router is completely boot-up.**
- **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**
- **Support AP/Bridge/Client/MESH mode**
- **Support Client-base roaming**
- **Support 802.11s Wireless Mesh Network**
- **6 STANDARD SMA / OPTIONAL QMA type connectors for Wi-Fi**
- **Output power : <24dBM**
- **Transmit power adjustment**
- **VAP (virtual access point) support up to 16 SSIDs**
- **Operation modes : AP/ Bridge / Client / MESH**
- **Traffic control for each SSID**
- **Band preference for same SSID services on dual band**
- **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, L2 over GRE , IPGRE and NAT for secured network connection**
- **Support Routing Protocol: Static route / RIPv2 / OSPF / BGP / EIGRP**
- **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 5 mechanism between multiple WANs**

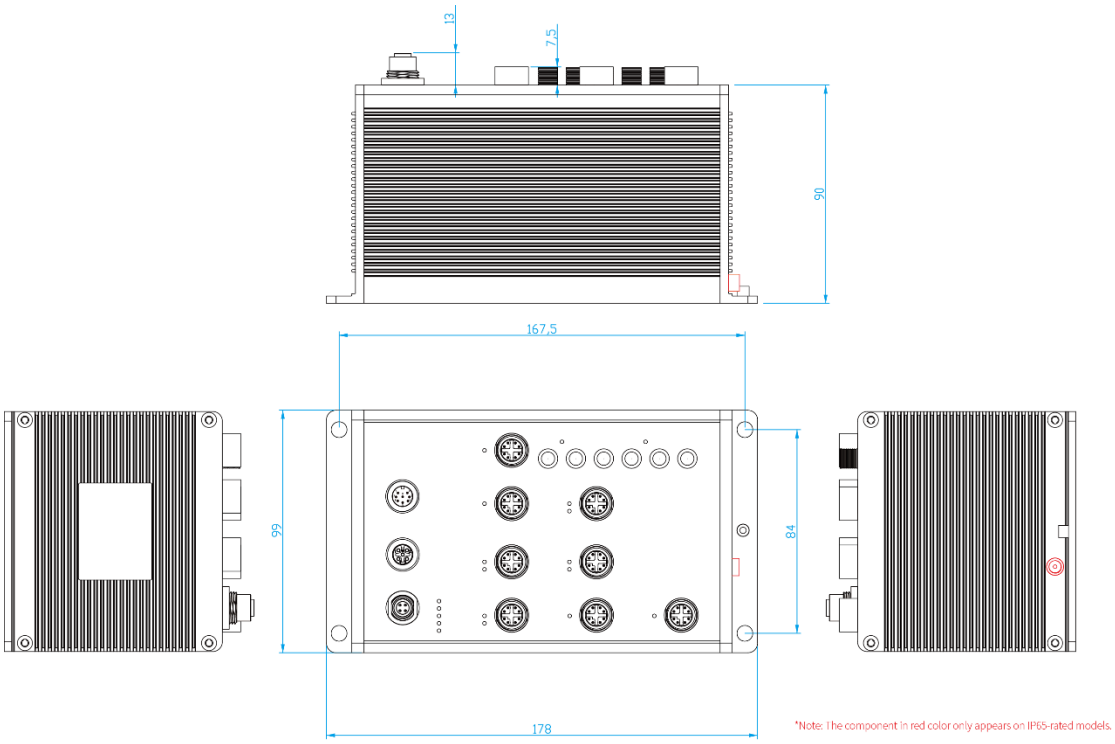
Pack	Algorithm	Description
Basic	Fixed	All traffic will be distributed to a single WAN.
	Failover	Routes connections through preferred WAN link while others stand-by. Sequentially activating another link if the preferred link fails.
	Priority	Select the active WAN according to priority.
	Weighted Round-Robin	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.

- **Optional built-in 2 x serial ports** (RS232/RS422/RS485)**
- **Serial port** with 2.5KV isolation on RS422/RS485**
- **Supports 2DI / 2DO(Digital Input / Output)**
- **Built-in Modbus gateway converting Modbus RTU/ASCII to Modbus/TCP for serial ports****
- **Event alerting by Syslog, Email, Relay ; Permanent local log rotation / Maxi 1K records**
- **Remote Web control to get status or re-boot by Web**

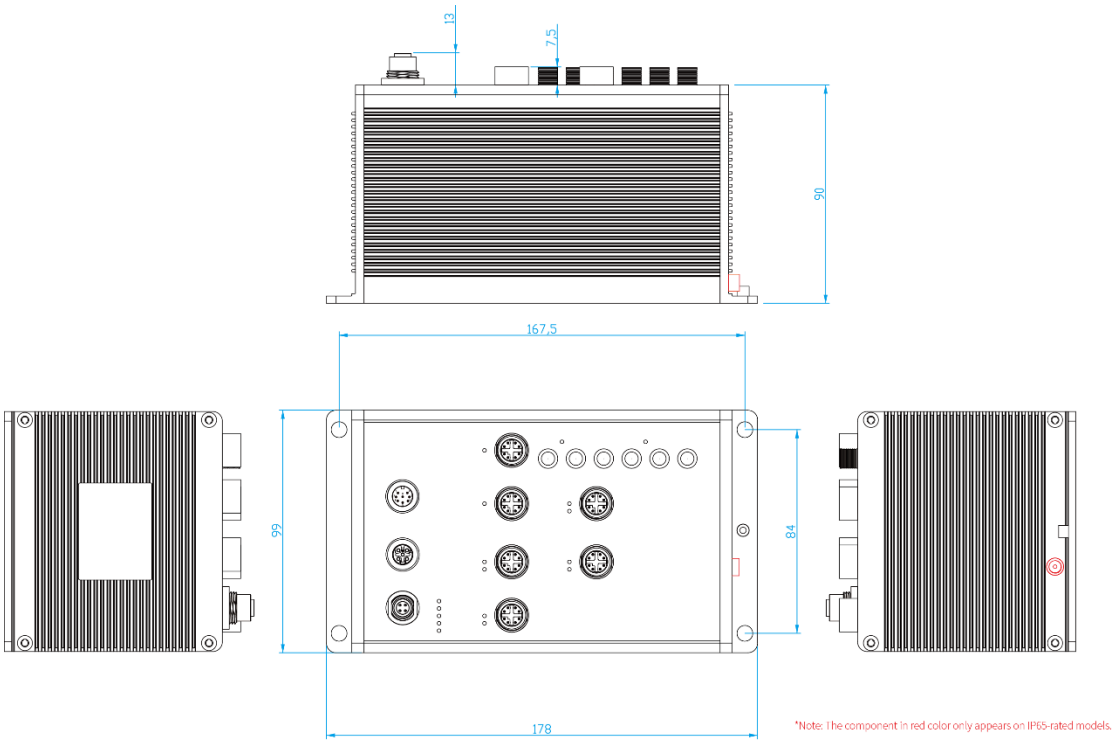
- **Support SNTP to synchronize system clock**
- **Support LLDP discovery protocol**
- **Support DHCP Server and Client**
- **Graphic WI-FI signal strength**
- **Built-in environmental monitoring for system input voltage, current and ambient temperature; Able to set alert when abnormal**
- **Support editable captive portal login page**
- **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*
- **Dual image firmware**
- **IP 65/54 housing for water proof environment**
- **Wall-mount installation**
- **Visible LED to show the power & port link and activity**
- **Operation temperature -20~70C or -40°C to 70°C(-E)**
- **EN45545-2 Fire & Smoke, EN50155 and EN61373 shock/vibration verification**

DIMENSIONS (unit=mm)

With serial ports



Without serial ports



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) 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 number), VRRP, DDNS
Routing	Static route / RIPv2 / OSPF / BGP / EIGRP
Management	SNMP v1,v2c,v3/ Web/Telnet/CLI

Load Balancing	5 schemes for multiple WAN
Basic	
Fixed	All traffic will be distributed to a single WAN.
Failover	Routes connections through preferred WAN link while others stand-by. Sequentially activating another link if the preferred link fails.
Priority	Select the active WAN according to priority.
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.
Roaming	Client-base roaming
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
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
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 Wi-Fi signal strength
Remote Web control	To reboot or get status of router by Web
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 Dual image firmware
Physical Ports & System	
Connectors	10/100/1000T: 6x ports M12 8-pole X-coded(PoE model incl 4 PoE ports) USB/Console connector: 1 x M12 8-pole A-coded DI/DO : 1 x M12 5-pole A-coded Power Input connector : 1 x M12 4-pole A-coded Optional Serial connector : 2 x M12 8-pole X-coded RP-SMA/QMA** connector for Wi-Fi 2AC: 6 (female) RP-SMA/QMA** connector for Wi-Fi 1AC: 3 (female)
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 2.5KV isolation Input power 1.5KVA isolation
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 80 VDC, 50mA
LED Indicators	
Power & System indicator	Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red) , Ring Master(Green), Serial1/Serial2(Green) ,Ready(Green)
10/100/1000Base-T(X) port indicator	Link/Activity (Green), Speed (Yellow), PoE (Green, PoE model)
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, 16.8VDC~137.5VDC for (WV model)
System power	30.5W
PoE Budget (PoE model)	60W
EMMC Storage**	8/16/32 GB
Physical Characteristic	
Enclosure	IP 65/54 aluminum case
Dimension	178 (W) x 99 (D) x 103 (H) mm
Weight	1000g
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)
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, EN61000-6-2
Radio Frequency	EN 301 489-1, EN 301 489-17, EN 301 489-19, EN 301 489-52, EN 300 440, EN 301 893, EN 300 328, EN 62311
Safety	EN60950 (LVD), AS60950 (LVD)
Stability Testing	EN61373 (Shock & Vibration)
Verifications & report	EN50155, EN50121-3-2, EN50121-4 verification EN45545-2 R13/R22/R23/R24/R25 (EN ISO 4589-2, EN ISO 5659-2, NF X70-100-1 & 2) Fire & Smoke verification
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

All standard models are non-conformal coating, optional conformal coating are with –C model name; Optional bypass models are available with –BT model name; QMA connector models are with –Q model name; -40~70C operational model are with –E model name

- **TPWAP-5006-1AC-WV-65…..……..……..P/N: 8655-002**
  EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 6 Gigabit X-coded Ethernet Managed Switch incl.4 PoE at/af with Load Balancing, VPN, Protocol Gateway; dual 16.8~137.5VDC; IP65; -20~70C
- **TPWAP-5006-2AC-WV-65…..……..……..P/N: 8655-004**
  EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 6 Gigabit X-coded Ethernet Managed Switch incl.4 PoE at/af with Load Balancing, VPN, Protocol Gateway; dual 16.8~137.5VDC; IP65; -20~70C
- **TPWAP-5006-1AC-WV-54…..……..……..P/N: 8655-006**
  EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 6 Gigabit X-coded Ethernet Managed Switch incl.4 PoE at/af with Load Balancing, VPN, Protocol Gateway; dual 16.8~137.5VDC; IP65; -20~70C
- **TPWAP-5006-2AC-WV-54…..……..……..P/N: 8655-008**
  EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 6 Gigabit X-coded Ethernet Managed Switch incl.4 PoE at/af with Load Balancing, VPN, Protocol Gateway; dual 16.8~137.5VDC; IP65; -20~70C
- **TPWAP-5006-1AC-2S-WV-65…..……..……..P/N: 8655-013**
  EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 2 serial RS232 ports + 6 Gigabit X-coded Ethernet Managed Switch incl.4 PoE at/af with Load Balancing, VPN, Protocol Gateway; dual 16.8~137.5VDC; IP65; -20~70C
- **TPWAP-5006-1AC-2SA-WV-65…..……..……..P/N:8655-014**
  EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 2 serial RS422 ports + 6 Gigabit X-coded Ethernet Managed Switch

incl.4 PoE at/af with Load Balancing, VPN, Protocol Gateway; dual 16.8~137.5VDC; IP65; -20~70C

- **TPWAP-5006-1AC-2SB-WV-65…..……..P/N:8655-015**
  EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 2 serial RS485 ports + 6 Gigabit X-coded Ethernet Managed Switch incl.4 PoE at/af with Load Balancing, VPN, Protocol Gateway; dual 16.8~137.5VDC; IP65; -20~70C
- **TPWAP-5006-2AC-2S-WV-65…..……..P/N: 8655-017**
  EN50155 Multifunction VPN Router w/2x Wi-Fi 11ac + 2 serial RS232 ports + 6 Gigabit X-coded Ethernet Managed Switch incl.4 PoE at/af with Load Balancing, VPN, Protocol Gateway; dual 16.8~137.5VDC; IP65; -20~70C
- **TPWAP-5006-2AC-2SA-WV-65…..……..P/N:8655-018**
  EN50155 Multifunction VPN Router w/2x Wi-Fi 11ac + 2 serial RS422 ports + 6 Gigabit X-coded Ethernet Managed Switch incl.4 PoE at/af with Load Balancing, VPN, Protocol Gateway; dual 16.8~137.5VDC; IP65; -20~70C
- **TPWAP-5006-2AC-2SB-WV-65…..……..P/N:8655-019**
  EN50155 Multifunction VPN Router w/2x Wi-Fi 11ac + 2 serial RS485 ports + 6 Gigabit X-coded Ethernet Managed Switch incl.4 PoE at/af with Load Balancing, VPN, Protocol Gateway; dual 16.8~137.5VDC; IP65; -20~70C
- **TPWAP-5006-1AC-2S-WV-54…..……..P/N: 8655-023**
  EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 2 serial RS232 ports + 6 Gigabit X-coded Ethernet Managed Switch incl.4 PoE at/af with Load Balancing, VPN, Protocol Gateway; dual 16.8~137.5VDC; IP54; -20~70C
- **TPWAP-5006-1AC-2SA-WV-54…..……..P/N:8655-024**
  EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 2 serial RS422 ports + 6 Gigabit X-coded Ethernet Managed Switch incl.4 PoE at/af with Load Balancing, VPN, Protocol Gateway; dual 16.8~137.5VDC; IP54; -20~70C
- **TPWAP-5006-1AC-2SB-WV-54…..……..P/N:8655-025**
  EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 2 serial RS485 ports + 6 Gigabit X-coded Ethernet Managed Switch incl.4 PoE at/af with Load Balancing, VPN, Protocol Gateway; dual 16.8~137.5VDC; IP54; -20~70C
- **TPWAP-5006-2AC-2S-WV-54…..……..P/N: 8655-027**
  EN50155 Multifunction VPN Router w/2x Wi-Fi 11ac + 2 serial RS232 ports + 6 Gigabit X-coded Ethernet Managed Switch incl.4 PoE at/af with Load Balancing, VPN, Protocol Gateway; dual 16.8~137.5VDC; IP54; -20~70C
- **TPWAP-5006-2AC-2SA-WV-54…..……..P/N:8655-028**
  EN50155 Multifunction VPN Router w/2x Wi-Fi 11ac + 2 serial RS422 ports + 6 Gigabit X-coded Ethernet Managed Switch incl.4 PoE at/af with Load Balancing, VPN, Protocol Gateway; dual 16.8~137.5VDC; IP54; -20~70C
- **TPWAP-5006-2AC-2SB-WV-54…..……..P/N:8655-029**
  EN50155 Multifunction VPN Router w/2x Wi-Fi 11ac + 2 serial RS485 ports + 6 Gigabit X-coded Ethernet Managed Switch incl.4 PoE at/af with Load Balancing, VPN, Protocol Gateway; dual 16.8~137.5VDC; IP54; -20~70C
- **TWAP-5006-1AC-WV-65…..……..P/N:8652-021**
  EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 6 Gigabit X-coded Ethernet managed switch for Load Balancing, VPN, dual 16.8V~137.5VDC; IP65; -20~70C
- **TWAP-5006-2AC-WV-65…..……..P/N: 8652-022**
  EN50155 Multifunction VPN Router w/2x Wi-Fi 11ac + 6 Gigabit X-coded Ethernet managed switch for Load Balancing, VPN, dual 16.8V~137.5VDC; IP65; -20~70C
- **TWAP-5006-1AC-2S-WV-65…..……..P/N: 8652-023**
  EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 2 serial RS232 ports + 6 Gigabit X-coded Ethernet managed switch for Load Balancing, VPN, dual 16.8V~137.5VDC; IP65; -20~70C
- **TWAP-5006-1AC-2SA-WV-65…..……..P/N: 8652-024**
  EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 2 serial RS422 ports + 6 Gigabit X-coded Ethernet managed switch for Load Balancing, VPN, dual 16.8V~137.5VDC; IP65; -20~70C
- **TWAP-5006-1AC-2SB-WV-65…..……..P/N: 8652-027**
  EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 2 serial RS485 ports + 6 Gigabit X-coded Ethernet managed switch for Load Balancing, VPN, dual 16.8V~137.5VDC; IP65; -20~70C

- **TWAP-5006-2AC-2S-WV-65…..……..P/N: 8652-025**
  EN50155 Multifunction VPN Router w/2x Wi-Fi 11ac + 2 serial RS232 ports + 6 Gigabit X-coded Ethernet managed switch for Load Balancing, VPN, dual 16.8V~137.5VDC; IP65; -20~70C
- **TWAP-5006-2AC-2SA-WV-65…..……..P/N: 8652-026**
  EN50155 Multifunction VPN Router w/2x Wi-Fi 11ac + 2 serial RS422 ports + 6 Gigabit X-coded Ethernet managed switch for Load Balancing, VPN, dual 16.8V~137.5VDC; IP65; -20~70C
- **TWAP-5006-2AC-2SB-WV-65…..……..P/N: 8652-028**
  EN50155 Multifunction VPN Router w/2x Wi-Fi 11ac + 2 serial RS485 ports + 6 Gigabit X-coded Ethernet managed switch for Load Balancing, VPN, dual 16.8V~137.5VDC; IP65; -20~70C
- **TWAP-5006-1AC-WV-54…..……..P/N:8652-041**
  EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 6 Gigabit X-coded Ethernet managed switch for Load Balancing, VPN, dual 16.8V~137.5VDC; IP54; -20~70C
- **TWAP-5006-2AC-WV-54…..……..P/N: 8652-042**
  EN50155 Multifunction VPN Router w/2x Wi-Fi 11ac + 6 Gigabit X-coded Ethernet managed switch for Load Balancing, VPN, dual 16.8V~137.5VDC; IP54; -20~70C
- **TWAP-5006-1AC-2S-WV-54…..……..P/N:8652-043**
  EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 2 serial RS232 ports + 6 Gigabit X-coded Ethernet managed switch for Load Balancing, VPN, dual 16.8V~137.5VDC; IP54; -20~70C
- **TWAP-5006-1AC-2SA-WV-54…..……..P/N:8652-044**
  EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 2 serial RS422 ports + 6 Gigabit X-coded Ethernet managed switch for Load Balancing, VPN, dual 16.8V~137.5VDC; IP54; -20~70C

- **TWAP-5006-1AC-2SB-WV-54…..……..…….…….....P/N:8652-047**
  EN50155 Multifunction VPN Router w/1x Wi-Fi 11ac + 2 serial RS485 ports + 6 Gigabit X-coded Ethernet managed switch for Load Balancing, VPN, dual 16.8V~137.5VDC; IP54; -20~70C
- **TWAP-5006-2AC-2S-WV-54…..……..…….…….....P/N: 8652-045**
  EN50155 Multifunction VPN Router w/2x Wi-Fi 11ac + 2 serial RS232 ports + 6 Gigabit X-coded Ethernet managed switch for Load Balancing, VPN, dual 16.8V~137.5VDC; IP54; -20~70C
- **TWAP-5006-2AC-2SA-WV-54…..……..…….…….....P/N: 8652-046**
  EN50155 Multifunction VPN Router w/2x Wi-Fi 11ac + 2 serial RS422 ports + 6 Gigabit X-coded Ethernet managed switch for Load Balancing, VPN, dual 16.8V~137.5VDC; IP54; -20~70C
- **TWAP-5006-2AC-2SB-WV-54…..……..…….…….....P/N: 8652-048**
  EN50155 Multifunction VPN Router w/2x Wi-Fi 11ac + 2 serial RS485 ports + 6 Gigabit X-coded Ethernet managed switch for Load Balancing, VPN, dual 16.8V~137.5VDC; IP54; -20~70C

OPTIONAL ACCESSORIES

Management System

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

Wi-Fi Antenna

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

Antenna Base

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

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