

IPWMR-3004DF

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

- Up to 2 concurrent WIFI 11ac and redundancy(1L-2AC model)
- Up to 2 concurrent mobility for 3G/4G LTE Link&GPS (2L-1AC model/4 SIMs)
- Support LTE Cat 6 (APAC & EUNA models) or Cat 12/9/13 (WW model)
- Built-in 4 GigaT + 2 WAN Dual Speed SFP managed switch including 4 PoE at/af w/budget 80W
- Built-in 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)
- WIFI radio for 802.11ac/a/b/g/n with 5GHz or 2.4GHz;
- Support WIFI 802.11e traffic prioritization and WMM
- MIMO technology 3T3R up to 6 antenna(2AC); SMA type external antennas
- Support roaming with 802.11k & v
- Supports AP/Bridge/Client/MESH modes
- Support 802.11s Wireless Mesh Network
- Air-teaming** for WIFI high-sustainability and aggregated bandwidth
- Advanced wireless security WEP64/128bits/ WPA/ WPA-PSK (TKIP,AES)/ WPA2/ WPA2-PSK (TKIP,AES)
- VPN router for Multi-site VPN, OpenVPN, L2TP over IPsec, IPsec, PPTP**, L2 over GRE , IPGRE
- Load Balancing built-in 5 mechanism
- Support NAT and Firewall
- Support Modbus gateway on serial ports
- Support 2 RS422/RS485 ports with 2.5KV isolation or 2x RS232 ports
- Optional EMMC Flash storage on-board**
- Dual DC input, 9~56VDC (24V model)
- Vehicle E-marking** certificate
- ITxPT compliant w/ ignition function**
- Environmental monitoring for router inside info with voltage, current, temperature and total PoE load; WIFI & 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*



OVERVIEW

Lantech IPWMR-3004DF series is a next generation industrial multi-function VPN router w/up to 2x 802.11ac WiFi + up to 2x LTE modem + 4 GigaT + 2 WAN Dual Speed SFP incl. 4 PoE ports + 2 serial ports that supports advanced function of VPN, Load-Balancing (Basic & Full package), EMMC Flash

Storage**, Protocol gateway (Modbus), WiFi 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, IPWMR-3004DF can allow auto-swap, failover & fallback between multiple service providers for real non-stop connection. With concurrent LTE modules, it can also allocate bandwidth by Load Balancing with 8 schemes between multiple WANs.

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

Both GPS and Russian GLONASS systems are supported.

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

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

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

Built-in Wireless Mesh network (WMN)

IPWMR-3004DF 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.

IEEE 802.11ac dual band radio up to 2.6Gbps bandwidth

With IEEE 802.11ac capability, IPWMR-3004DF 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 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 IPWMR-3004DF series adapts MIMO technology with smart antenna transmission and reception for 3T3R. With six external detachable omni connectors and optional antennas, IPWMR-3004DF can have better Wi-Fi & LTE/GPS coverage.

Wireless WMM QoS

IPWMR-3004DF 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 threats. Lantech IPWMR-3004DF support up to 16 SSIDs, each SSID has its independent security and encryption.

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

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

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

2 port serial connection, Modbus gateway

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

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

VPN and firewall

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

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

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

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

2 sets of DIDO function can support additional high/low physical contact for designate applications besides Port / Power events, for example, DIDO function can trigger alarm if the router was moved or stolen. In case of events, the IPWMR-3004DF 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 (24V model); Built-in 6 port PoE at/af switch with 80W budget

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

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

The built-in environmental monitoring can detect router ambient temperature, voltage, current and total PoE load where can

send the syslog, and email** when abnormal.

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.

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.

Optional EMMC Flash storage**

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

Editable login page of captive portal

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

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

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

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

FEATURES & BENEFITS

- High Speed Air Connectivity: WLAN interface support up to 2.6Gbps link speed (2AC) or 1.3Gbps (1AC)
- Built-in 4 GigaT + 2 WAN Dual Speed SFP Ethernet managed switch incl. 4 PoE at/af for PoE budget 80W
- 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:
 - 5.180GHz~5.825GHz
- MIMO smart antenna technology with 3T3R
- 6 SMA type connectors for WiFi & LTE, GPS
- Optional Air-teaming** protection(2AC)
 - **High-sustainability:** if one link member is down or severely interfered, the other link will keep the network traffic alive.
 - **Aggregated bandwidth :** The bandwidth of two link members can be aggregated to provide maximum throughput
- Output power : <24Dbm
- Support AP/Bridge/Client/Mesh mode
- Support roaming with 802.11k & v

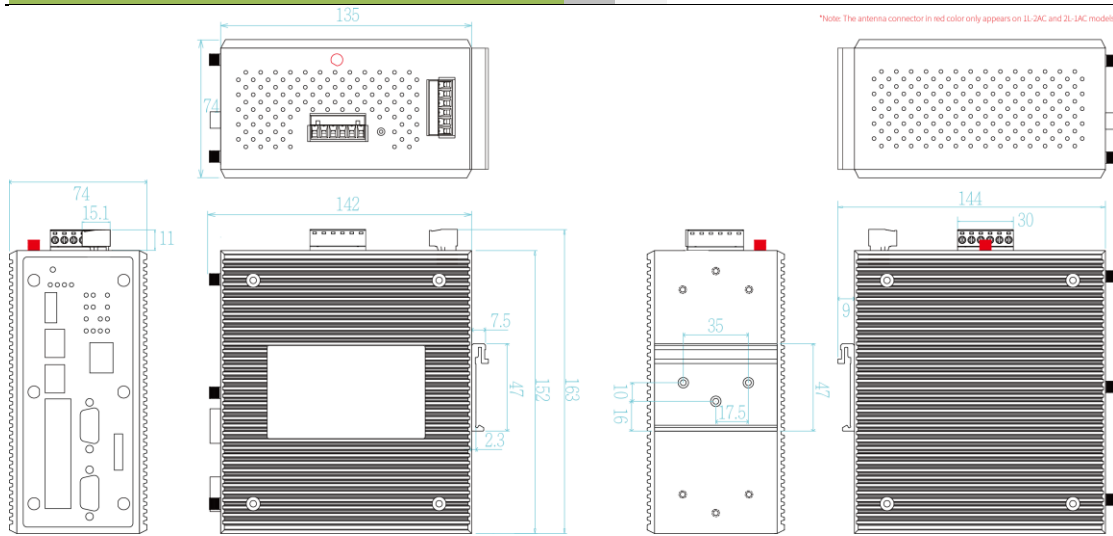
- Support 802.11s Wireless Mesh Network
- Transmit power adjustment
- VAP (virtual access point) support up to 16 SSIDs
- Operation modes : AP/ Bridge/ Client
- IEEE 802.11h DFS and automatic TPC
- Traffic control for each SSID**
- Band preference for same SSID services on dual band**
- Rate selection 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-TLS, EAP-TTLS, PEAP; SSID broadcast disable supported
- Multiple channel bandwidths of 20MHz and 40MHz for 2.4G.
- Multiple channel bandwidths of 20MHz, 40MHz and 80MHz for 5G only.
- Wi-Fi Multimedia (WMM) and 802.11e traffic prioritization
- Support Multi-Site VPN for Mesh tunneling as well as Open VPN, L2TP over IPsec, IPsec, PPTP**, L2 over GRE , IPGRE and NAT for secured network connection
- The built-in Layer-4 firewall includes DDoS, IP address filter / Mac address filter / TCP/UDP port number
- NAT/DMZ/Port Forwarding
- Support SNMP*v1/v2c/v3
- Dual concurrent LTE 4G/3G design (2L model)for auto-swap/failover/failback between multiple ISPs for continuous service (four SIM card slots)
- One LTE 4G/3G w/ 2 SIM card design (1L model) for mobile redundancy
- GPS/ GLONASS (support by LTE module) connection
- Load Balancing supports 8 mechanism between multiple WANs

	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.

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

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

DIMENSIONS (unit=mm)



SPECIFICATION

WLAN Interface	
Radio Frequency Type	DSSS, OFDM
Wireless Standard	IEEE 802.11ac/n/a 5GHz IEEE 802.11b/g/n 2.4GHz
Wireless bandwidth	5GHz: Up to 1300Mbps 2.4GHz: Up to 450Mbps
Modulation	802.11b: DSSS 802.11a/g: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11n: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11ac: OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM)
Operating Frequency	IEEE 802.11 a/b/g/n ISM Band, 2.412GHz~2.472GHz, 5150MHz~5850MHz
Transmission Rate	IEEE802.11ac: up to 1300Mbps IEEE802.11b: 1 / 2 / 5.5 / 11 Mbps IEEE802.11a/g: 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE802.11n: up to 450Mbps
IEEE 802.11b/g/n(2.4Gbps)	Output Power Tx +/- 2dB(per chain) 18dBm @ 1~11Mbps 18dBm @ 6~54Mbps 20/20dBm @ MCS0~MCS7 (HT20/40) Receiver Sensitivity Rx +/- 2dB ≤ -95dBm @ 1~11Mbps ≤ -92dBm @ 6~18Mbps ≤ -88dBm @ 24Mbps ≤ -85dBm @ 36Mbps ≤ -81dBm @ 48Mbps ≤ -80dBm @ 54Mbps ≤ -94dBm @ MCS0 (HT20/40) ≤ -76dBm @ MCS7 (HT20/40)
IEEE 802.11a/n/ac(5Gbps)	Output Power Tx +/- 2dB(per chain) 20dBm @ 6~24Mbps 16dBm @ 36~54Mbps 19/18dBm @ MCS0 (HT20/40) 16/16dBm @ MCS7 (HT20/40) 19/18/18dBm @ MCS0 (VHT20/40/80) 13/13/13dBm @ MCS8 (VHT20/40/80) 13/13dBm @ MCS9 (VHT40/80) Receiver Sensitivity Rx +/- 2dB ≤ -92dBm @ 6~18Mbps ≤ -86dBm @ 24Mbps
	<ul style="list-style-type: none"> ≤ -84dBm @ 36Mbps ≤ -81dBm @ 48Mbps ≤ -80dBm @ 54Mbps ≤ -93dBm @ MCS0 (HT20/40) ≤ -71dBm/≤ -80dBm @ MCS7 (HT20/40) ≤ -90dBm @ MCS0 (VHT20/40/80) ≤ -69dBm @ MCS8 (VHT20/40/80) ≤ -66dBm @ MCS9 (VHT40/80)
Encryption Security	WEP : (64-bit ,128-bit key supported) WPA/WPA2 : IEEE802.11i(WEP and AES encryption) WPA-PSK (256-bit key pre-shared key supported) OKC** and 802.11r** EAP-TLS,EAP-TTLS, and PEAP
Wireless Security	SSID broadcast disable
Cellular Interface	
Location Solutions	GPS, Glonass (EUNA/Americas) GPS, Glonass, Beidou, Galileo (APAC model only)
Band Options	Asia-Pacific (APAC model) LTE = B1, B3, B5*, B7, B8, B18*, B19*, B21*, B28, B38 (TDD), B39* (TDD), B40 (TDD), B41* (TDD) DC-HSPA+/ HSPA+/ HSPA/ UMTS = B1, B5*, B6*, B8, B9*, B19* Europe & North America (EUNA model) LTE = B1, B2*, B3, B4*, B5*, B7, B8, B12*, B13*, B20, B25*, B26*, B29*, B30*, B41* (TDD) DC-HSPA+/ HSPA+/ HSPA/ UMTS = B1, B2*, B3, B4*, B5*, B8 World Wide (WW model) LTE = B1, B2*, B3, B4*, B5*, B7, B8, B9*, B12*, B13*, B18*, B19*, B20, B26*, B28, B29*, B30*, B32*, B41* (TDD), B42* (TDD), B43* (TDD), B46* (TDD), B48* (TDD), B66* WCDMA = B1, B2*, B3*, B4*, B5*, B6*, B8, B9*, B19* 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
Data Rates – LTE	

TDD: 222 Mbps Uplink (Cat 6): FDD: 50 Mbps TDD: 26 Mbps	Remote Web control To reboot router by WebUI	
World Wide (WW model) Downlink: Cat 12: 600 Mbps Cat 9: 450 Mbps Uplink: Cat 13: 150 Mbps	Captive portal Editable captive portal login page	
Software	Maintenance Firmware upgradeable through TFTP/HTTP	
IPv6/4 Present	Configuration backup & restore Supports text configuration file for system quick installation USB port to upload/download configuration by USB dongle	
Operation Mode AP/Bridge/Client/MESH mode	Physical Ports & System	
Air-teaming**(2AC) ● High sustainability with fail over link ● Aggregated bandwidth	Connectors 10/100/1000T: 4x ports RJ 45 + 2 WAN Dual Speed SFP (incl 4 PoE ports) USB x 1 RS-232 connector: 1 x RJ 45 Serial connector : 2 DB9 SIM card slots : 4(2L) or 2(1L) 2L-1AC model SMA connector for LTE: 4 (female) SMA connector for GPS: 1 (female) RP-SMA connector for Wi-Fi: 2 (female) 1L-2AC model SMA connector for LTE: 2 (female) SMA connector for GPS: 1 (female) RP-SMA connector for Wi-Fi: 4 (female) 1L-1AC model SMA connector for LTE: 2 (female) SMA connector for GPS: 1 (female) RP-SMA connector for Wi-Fi: 3 (female) Power & P-Fail connector: 1 x 6-pole terminal block DIDO : 1 x 5-pole terminal block	
WMM WIFI multimedia and 802.11e traffic prioritization	Serial Baud Rate 1000Kbps for RS232 ; 12Mbps for RS422/RS485	
VPN Multi-site VPN, Open VPN, PPTP**, L2TP over IPSec, IPSec, L2 over GRE, IPGRE and NAT	Serial Data Bits 5, 6, 7, 8	
Firewall DDoS, IP address filter / Mac address filter / TCP/UDP port number	Serial Parity odd, even, none, mark, space	
Load Balancing 8 schemes for multiple WAN	Serial Stop Bits 1, 1.5, 2	
Basic Package	RS-232 TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND	
Fixed Manually route by traffic type through fixed WAN link.	RS-422 Tx+, Tx-, Rx+, Rx-, GND	
Failover Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs.	RS-485 (2-wire) Data+, Data-, GND	
Priority Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs.	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	
Weighted Round-Robin Evenly distribute the traffic over all working WAN links in circular order according to the specified weights	EMMC Storage** 8/16/32 GB	
Custom Route Routing through the selected WAN for each specific traffic ex: TCP/UDP port number and IP address.	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	
Full Package** incl. basic package	LED Indicators	
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.	Power & System indicator Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red) , Ring Master(Green), Storage(Green), Serial1/Serial2(Green) ,Ready(Green)	
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	10/100/1000Base-T(X) port indicator Link/Activity (Green), Speed (1000T: Yellow; 10/100TX: off), PoE (Green)	
Fastest* Routes connections through the WAN link with lowest latency time.	SIM Green for Link/Act	
Security WEP64/128bits/ WPA/ WPA-PSK (TKIP,AES)/ WPA2/ WPA2-PSK (TKIP,AES)/SSH/SSL/HTTPS	GPS Green for Link/Act	
Roaming 802.11k & v	Fault Red: Ethernet link down or power down	
MESH Support 802.11s Wireless Mesh Network	Fault contact	
Authentication Radius Authentication, EAP-TLS, EAP-TTLS, PEAP; SSID broadcast disable supported	Relay Relay output to carry capacity of 1A at 24VDC	
SSID 16 sets	Power	
Login Security Supports IEEE802.1x Authentication/RADIUS	Input power Dual DC input, 9~56VDC (24V model)	
Access Security HTTP/HTTPS/Telnet/SSH & Administration; SNMP*v1/v2/v3 access for authentication via MD5/SHA(v3) and Encryption via DES/AES(v3)	PoE Budget 80W @12V /80W @24V	
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*	Power consumption (Typ.) 30.5 Watts	
Protocol Gateway Modbus on serial ports	Physical Characteristic	
Management SNMP*v1,v2c,v3/ Web/Telnet/CLI	Enclosure IP 30 Metal case	
Client mode PMK** Caching and pre-authentication.	Dimension 74 (W) x 142 (D) x 152 (H) mm (1L-1AC model) 74 (W) x 142 (D) x 159 (H) mm (1L-2AC / 2L-1AC model)	
Environmental Monitoring System status for input voltage, current , ambient temperature to be shown in GUI and sent alerting if any abnormal status	Weight 900g	
Graphic signal display Graphic WIFI & LTE signal strength	Environmental	
Timer Built-in Real Time Clock to keep track of time always(RTC)	Storage Temperature -40°C ~ 85°C (-40°F ~ 185°F)	
Discovery IEEE 802.1ab Link Layer Discovery Protocol (LLDP)	Operating Temperature -40°C ~ 65°C (-40°F ~ 149°F)	
SNMP trap Device cold / warm start Port link up / link down DI/DO high / low	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,	

EMS	IEC 61000-6-4	EN 62311
	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)	Vehicle certificate E13** ITxPT compliant**
		MTBF 564,950hrs (IEC62380 standards)
		Warranty 5 years
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 301 908-1**, EN 303 413,	*Future Release **Optional **Standard test of the following bands are not listed in EN 301 908-1 report: (APAC not listed bands) LTE = B5, B18, B19, B21, B39, B41 WCDMA = B5, B6, B9, B19; (EUNA not listed bands) LTE = B2, B4, B5, B12, B13, B25, B26, B29, B30, B41 WCDMA = B2, B4, B5; (WW not listed bands) LTE = B2, B4, B5, B9, B12, B13, B18, B19, B26, B29, B30, B32, B41, B42, B43, B46, B48, B66 WCDMA = B2, B3, B4, B5, B6, B9, B19

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
5GHz 802.11ac VHT80	MCS 0	18dBm	23dBm	±2dB	-89dBm	±2dB
	MCS 1	18dBm	23dBm	±2dB	-87dBm	±2dB
	MCS 2	18dBm	23dBm	±2dB	-85dBm	±2dB
	MCS 3	17dBm	22dBm	±2dB	-83dBm	±2dB
	MCS 4	17dBm	22dBm	±2dB	-80dBm	±2dB
	MCS 5	16dBm	21dBm	±2dB	-78dBm	±2dB
	MCS 6	15dBm	20dBm	±2dB	-75dBm	±2dB
	MCS 7	14dBm	19dBm	±2dB	-72dBm	±2dB
	MCS 8	13dBm	18dBm	±2dB	-70dBm	±2dB
MCS 9	13dBm	18dBm	±2dB	-68dBm	±2dB	

ORDERING INFORMATION

For -40~65C operational temperature model

- **IPWMR-3004DF-2L-1AC-2S-24V-EUNA.....P/N: 8690-001**
Industrial Dual LTE (Quad SIM) One WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/ 2 RS232 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; EU and US band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-2L-1AC-2S-24V-WW.....P/N: 8690-002**
Industrial Dual LTE (Quad SIM) One WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/ 2 RS232 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; worldwide band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-2L-1AC-2S-24V-APAC..... P/N: 8690-003**
Industrial Dual LTE (Quad SIM) One WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/ 2 RS232 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; APAC band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-2L-1AC-2SA-24V-EUNA.....P/N: 8690-0011**
Industrial Dual LTE (Quad SIM) One WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS422 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; EU and US band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-2L-1AC-2SA-24V-APAC.....P/N: 8690-0031**
Industrial Dual LTE (Quad SIM) One WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS422 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; APAC band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-2L-1AC-2SA-24V-WW.....P/N: 8690-0021**
Industrial Dual LTE (Quad SIM) One WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS422 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; Worldwide band; dual input 9~56VDC; -40~65C

- **IPWMR-3004DF-2L-1AC-2SB-24V-EUNA.....P/N: 8690-0012**
Industrial Dual LTE (Quad SIM) One WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS485 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; EU and US band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-2L-1AC-2SB-24V-APAC.....P/N: 8690-0032**
Industrial Dual LTE (Quad SIM) One WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS485 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; APAC band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-2L-1AC-2SB-24V-WW.....P/N: 8690-0022**
Industrial Dual LTE (Quad SIM) One WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS485 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; Worldwide band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-1L-1AC-2S-24V-EUNA.....P/N: 8690-004**
Industrial One LTE (Dual SIM) One WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS232 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; EU and US band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-1L-1AC-2S-24V-APAC.....P/N: 8690-005**
Industrial One LTE (Dual SIM) One WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS232 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; APAC band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-1L-1AC-2S-24V-WW.....P/N: 8690-006**
Industrial One LTE (Dual SIM) One WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS232 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; Worldwide band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-1L-1AC-2SA-24V-EUNA.....P/N: 8690-0041**
Industrial One LTE (Dual SIM) One WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS422 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; EU and US band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-1L-1AC-2SA-24V-APAC.....P/N: 8690-0051**
Industrial One LTE (Dual SIM) One WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS422 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; APAC band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-1L-1AC-2SA-24V-WW.....P/N: 8690-0061**
Industrial One LTE (Dual SIM) One WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS422 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; Worldwide band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-1L-1AC-2SB-24V-EUNA.....P/N: 8690-0042**
Industrial One LTE (Dual SIM) One WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS485 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; EU and US band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-1L-1AC-2SB-24V-APAC.....P/N: 8690-0052**
Industrial One LTE (Dual SIM) One WIFI 11ac/a/b/g/n Load Balancing AP VPN Mobile Router w/2 RS485 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; APAC band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-1L-1AC-2SB-24V-WW.....P/N: 8690-0062**
Industrial One LTE (Dual SIM) One WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS485 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; Worldwide band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-1L-2AC-2S-24V-EUNA.....P/N: 8690-007**
Industrial One LTE (Dual SIM) Two WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/ 2 RS232 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed switch EU and US band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-1L-2AC-2S-24V-APAC.....P/N: 8690-008**
Industrial One LTE (Dual SIM) Two WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/ 2 RS232 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; APAC band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-1L-2AC-2S-24V-WW.....P/N: 8690-009**
Industrial One LTE (Dual SIM) Two WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/ 2 RS232 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; Worldwide band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-1L-2AC-2SA-24V-EUNA.....P/N: 8690-0071**
Industrial One LTE (Dual SIM) Two WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS422 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed switch EU and US band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-1L-2AC-2SA-24V-APAC.....P/N: 8690-0081**
Industrial One LTE (Dual SIM) Two WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS422 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; APAC band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-1L-2AC-2SA-24V-WW.....P/N: 8690-0091**
Industrial One LTE (Dual SIM) Two WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS422 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; Worldwide band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-1L-2AC-2SB-24V-EUNA.....P/N: 8690-0072**
Industrial One LTE (Dual SIM) Two WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS485 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed switch EU and US band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-1L-2AC-2SB-24V-APAC.....P/N: 8690-0082**
Industrial One LTE (Dual SIM) Two WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS485 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; APAC band; dual input 9~56VDC; -40~65C
- **IPWMR-3004DF-1L-2AC-2SB-24V-WW.....P/N: 8690-0092**
Industrial One LTE (Dual SIM) Two WIFI 11ac/a/b/g/n Load Balancing Multifunction Router w/2 RS485 serial ports and 4 GigaT + 2 WAN Dual Speed SFP Managed Switch incl.4 PoE; Worldwide band; dual input 9~56VDC; -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

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

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, cable length: 3M



- **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, cable length: 30cm, cable length: 30cm



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, cable length: 3M



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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