IPMR-3004

Industrial Multifunction VPN Router w/up to 2 LTE 4G + 2 serial ports + 4 Gigabit Ethernet PoE Switch + 2WAN/2LAN ports w/ Load Balancing, VPN, Protocol Gateway, Storage**; 24V input

- *Up to 2 concurrent mobility for 3G/4G LTE Link & GPS(2L model/4 SIMs)*
- *Built-in 4 Gigabit PoE at/af Switch with budget 80W@12V/24V/48V*
- *VPN router for Multi-site VPN, OpenVPN, L2TP, IPSec, PPTP**
- *Load Balancing** support 8 mechanism*
- *Support NAT and Firewall*
- *Support Modbus or DNP3** gateway on serial ports*
- *Support 2 RS422/485 ports with 2.5KV isolation or 2x RS232 ports*
- *Optional storage microSD** for storage backup or multi-media content suit with load-balancing route.*
- *Input voltage selection 9~56VDC (24V model)*
- *Environmental monitoring for router inside info with voltage, current temperature and total PoE load; LTE graphic signal strength & TX/RX rate display*
- *Editable login page of captive portal for hot-spot application*
- *USB port to backup, restore the configuration file and upgrade firmware*; Dual image firmware**

OVERVIEW

Lantech IPMR-3004 series is a next generation industrial multi-function VPN router w/up to 2x LTE modem + 4x Gigabit Ethernet PoE switch + 2WAN/2LANs + 2 serial ports that supports advanced function of VPN, Load-balancing** (Basic & Full package), Protocol gateway (Modbus,DNP3**), Storage**, 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, it can allow auto-swap, failover & failback between multiple service providers for real non-stop connection. With concurrent LTE modules, it can also allocate bandwidth by " Load Balancing** with 8 schemes between multiple WANs.

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

Both GPS and Russian GLONASS systems are supported.

Load Balancing** with 8 mechanisms for multi-WANs (premium license)
IPMR-3004 supports Load Balancing** for LTE connections. There are eight schemes for Load Balancing** function:

Pack	Algorithm	Description
Standard	Fixed	Manually route by traffic type through fixed WAN link.
Basic Package	Failover	Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link fail occurs. Once failover will not failback until link loss.
	Priority	Routes connections through preferred WAN link as primary while others follow by. Ex. 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 / DNP3** gateway
It builds in 2 port serial connection for RS232, RS422, 485 in which RS422/485 has 2.5KV isolation protection.

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

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

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

It supports Multi-Site VPN, Open VPN, L2TP, IP sec and PPTP** for various VPN applications.

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

DIDO for alarm & email notice; Event log; Remote Web/SMS** 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 IPMR-3004 will immediately send email and trap.

When the router is at remote area with limited access, Web/SMS** control can help to get router status or remotely reboot.

Wide range input voltage from 9V-56VDC; Built-in 4 port PoE at/af switch with 80W@12V /24V/48V
The IPMR-3004 is able to work from 9VDC to 56VDC for PoE at/af with PoE budget 80W@12V /24V/48V that is particular good for vehicle, rail train, depot etc. application.

Environmental monitoring for inside router info& alerting; Graphic LTE signal strength and TX/RX rate display
The built-in environmental monitoring can detect router ambient temperature, voltage, current and total PoE load where can send the SNMP traps Syslog, email** and SMS** alert when abnormal.

The graphic LTE signal strength and TX/RX rate display shows connection status at a glance

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

USB port for back up, restore configuration and upgrade firmware*; Dual image firmware*
The built-in USB port can upload/download the configuration through USB dongle for router replacement

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

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

Editable login page of captive portal
The IPMR-3004 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 IPMR-3004 is designed to meet with industrial network environment with IP 30 housing. It passed serious tests under extensive Industrial EMI and environmental vibration and shocks standards.

With CE & FCC radio certification for LTE and E-marking** certificate, the IPMR-3004 is best for outdoor community, vehicle, process control automation etc. For more usage flexibilities, IPMR-3004 supports wide operating temperature from -20°C to 75°C or -40°C to 75°C(-E)

FEATURES & BENEFITS

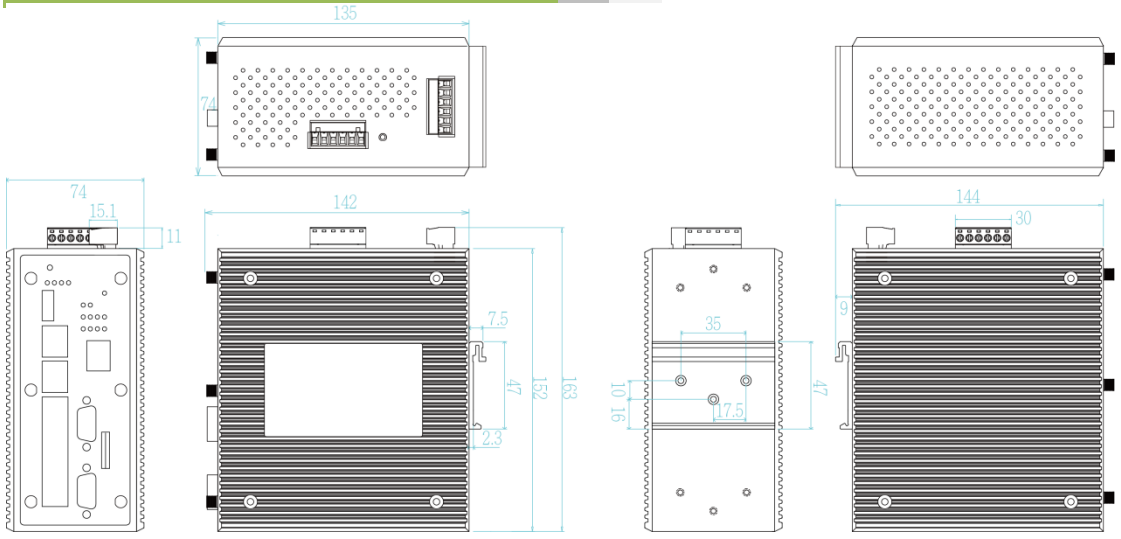
- **Built-in 4 Gigabit PoE switch + 2 WAN/LAN port with 80W@12V /80W@24V&48V PoE budget**
- **6 SMA type connectors for LTE, GPS**
- **HTTP/HTTPS/Telnet/SSH & Administration access**
- **Support IPv6** & IPv4 protocol**
- **Support Multi-Site VPN for mesh tunneling as well as Open VPN, L2TP, IP sec and PPTP** fro secured network connection**
- **The built-in Layer-4 firewall includes DoS**, IP address filter / Mac address filter* / TCP/UDP port number.**
- **Support SNMP* v1/v2c/v3**
- **NAT/DMZ**
- **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**

Pack	Algorithm	Description
Standard	Fixed	Manually route by traffic type through fixed WAN link.
Basic Package	Failover	Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link fail occurs. Once failover will not failback until link loss.
	Priority	Routes connections through preferred WAN link as primary while others follow by. Ex. 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/RS422/485)**
- **Serial port with 2.5KV isolation on RS422/485**
- **Supports 2DI / 2DO (Digital Input / Output)**
- **Built-in Modbus gateway converting Modbus RTU/ASCII to Modbus/TCP for serial ports**
- **Optional DNP3 gateway with serial ports**
- **Event alerting by Syslog, SNMP Trap, Email, SMS** text, Relay ; Permanent local log rotation / Maxi 1K records**
- **Remote Web/SMS** control to get status or re-boot by Web/SMS****
- **Graphic LTE signal strength & TX/RX rate display**
- **Support SNTP to synchronize system clock**
- **Support LLDP discovery protocol**
- **Support DHCP Server and Client**
- **Built-in environmental monitoring for system input voltage, current and ambient temperature; Able to set alert when abnormal**
- **Dual image firmware* to choose which to start**
- **Firmware upgradeable through TFTP/FTP/HTTP**
- **Configuration backup and restoration**
  - *Supports text configuration file for system quick installation*
  - *USB port to upload/download configuration by USB dongle**
  - *InstaView/AIR** for centralized configuration deployment, backup & upgrade*
- **Reset button for factory default mode**
- **Optional built-in USB to microSD** for storage backup or multimedia resource**
- **IP 30 housing for industrial environment**
- **Cloud/Host based InstaView/AIR** for fixed/fleet router management/configuration/monitoring**
- **DIN-Rail and Wall-mount** installation**
- **Operation temperature -20~75°C or -40~75°C(-E)**

DIMENSIONS (unit=mm)



SPECIFICATION

Location Solutions	GPS, Glonass (EU/Americas) GPS, Glonass, Beidou, Galileo (APAC model only)
Band Options	**APAC & Australia (APAC model)** **LTE:** 2100/1800/850/2600/900/850/850/1500/700/2600/1900/2300/2500 MHz (B1/B3/B5/B7/B8/B18/B19/B21/B28/B38/B39/B40/B41) **EU & USA model** **LTE:** 2100/1800/2600/900/800 MHz (B1/B2/B3/B4/B5/B7/B12/B13/B20/B25/B26/B29/B30/B41) **WorldWide (WW model)** **LTE:** 2100/1900/1800/1700/850/2600/900/1800/700/700/8/50/850/800/850/700/2300/1500/2500/3500/3700/5200/3600/1700 (B1/B2/B3/B4/B5/B7/B8/B9/B12/B13/B18/B19/B20/B26/B28/B29/B30/B32/B41/B42/B43/B46/B48/B66)
Data Rates – LTE	**APAC & Australia (APAC model)** **Downlink (Cat 6):** FDD: 300 Mbps TDD: 222 Mbps **Uplink (Cat 6):** FDD: 50 Mbps TDD: 26 Mbps **Americas (US model) / EMEA (EU model)** **Downlink (Category 3):** 100 Mbps (20 MHz bandwidth) 50 Mbps (10 MHz bandwidth) **Uplink (Category 3):** 50 Mbps (20 MHz bandwidth) 25 Mbps (10 MHz bandwidth)

Software

IPv6/4	Present
VPN	Multi-site VPN, Open VPN, PPTP**, L2TP, IPSec
Firewall	DoS**, IP address filter / Mac address filter* / TCP/UDP port number.
Load Balancing**	8 schemes for multiple WAN
Fixed(standard)	Manually route by traffic type through fixed WAN link.
Basic Package**	
Failover	Routes connections through preferred WAN link while others stand-by. Sequentially activate another link if preferred link failure occurs.
Priority	Routes connections through preferred WAN link while others stand-by. Sequentially activate other links if overflow occurs.
Weighted	Evenly distribute the traffic over all working WAN links
Round-Robin	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.
Login Security	Supports IEEE802.1x**** Authentication/RADIUS
Access Security	HTTP/HTTPS/Telnet/SSH & Administration; SNMP* v1/v2c/v3 access for authentication via MD5/SHA(v3) and Encryption via DES/AES(v3)
Protocol	PPPoE Client,DHCP server/client, Adjustable MTU, Port forwarding (NAPT), DMZ; NAT, SNTP, Firewall(Firewall(DoS**/ IP address filter / Mac address filter* / TCP/UDP port name),VRRP**, DDNS*
Protocol Gateway	Modbus / DNP3** on serial ports
Management	SNMP v1,v2c,v3/ Web/Telnet/CLI
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 LTE signal strength & TX/RX rate display
Timer	Built-in Real Time Clock to keep track of time always(RTC)
Discovery	IEEE 802.1ab Link Layer Discovery Protocol (LLDP)
SNMP trap	Device cold / warm start Port link up / link down DI/DO high / low
Remote Web/SMS** control	To reboot or get status of router by Web UI or SMS**
Maintenance	Firmware upgradeable through TFTP/FTP/HTTP
Configuration backup & restore	Supports text configuration file for system quick installation USB port to upload/download configuration by USB dongle* InstaView/AIR** for mass configuration/upgrade

Physical Ports & System

Connectors	10/100/1000T: 6x ports RJ 45 with 2 WAN/LAN ports and 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) SMA connector : 6 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 RS422/485
Serial Data Bits	5, 6, 7, 8
Serial Parity	odd, even, none, mark, space
Serial Stop Bits	1, 1.5, 2
RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
RS-422	Tx+,Tx-, Rx+, Rx-,GND
RS-485 (2-wire)	Data+, Data-,GND
Isolation protection	RS422/485 2.5KV isolation; 8KV contact & 15KV air RS232 8KV contact and 15KV air ESD DIDO 3KV isolation Input power 1.5KVA isolation
Micro SD	128G or 256G(MSD model)
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

LED Indicators

System & Power	Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red) , Ring Master(Green), Storage(Green), Serial1/Serial2(Green)
10/100/1000Base-T (X) port indicator	Link/Activity (Green), Speed (Yellow), PoE (Green)
SIM	Green for Link/Act
GPS	Green for Link/Act
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, 9~56VDC (24V model)
PoE Budget	80W@12V/24V/48V
Power consumption (Typ.)	30.5W

Physical Characteristic

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

Environmental

Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Operating Temperature	-20°C ~ 75°C (-4°F ~ 167°F) -40°C ~ 75°C (-4°F ~ 167°F) –E model
Operating Humidity	5% to 95% Non-condensing

Regulatory approvals

EMC	FCC* Part 15 Class A, EN55032*
EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS),

	EN61000-4-4 (EFT), EN61000-4-5 (Surge), EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11
E-marking**	E13
MTBF	NA
Warranty	5 years

*Future Release

**Optional

ORDERING INFOMATION

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

- **IPMR-3004-2L-2S-24V-EUNA…….P/N: 8664-011**
  Industrial Dual LTE (Quad SIM) Load Balancing** VPN Mobile Router w/ 2 RS232 serial ports and 4 Giga PoE at/af Switch + 2WAN/2LAN ports; EU and US band; dual 9V~56VDC; -20~75C
- **IPMR-3004-2L-2S-24V-WW…….P/N: 8664-012**
  Industrial Dual LTE (Quad SIM) Load Balancing** VPN Mobile Router w/ 2 RS232 serial ports and 4 Giga PoE at/af Switch + 2WAN/2LAN ports; Worldwide band; dual 9V~56VDC; -20~75C
- **IPMR-3004-2L-2S-24V-APAC…….P/N: 8664-013**
  Industrial Dual LTE (Quad SIM) Load Balancing** VPN Mobile Router w/ 2 RS232 serial ports and 4 Giga PoE at/af Switch + 2WAN/2LAN ports; APAC band; dual 9V~56VDC; -20~75C
- **IPMR-3004-2L-2SA-24V-EUNA…….P/N:8664-0111**
  Industrial Dual LTE (Quad SIM) Load Balancing** VPN Mobile Router w/2 RS422/485 serial isolated ports and Giga ports incl. 4 PoE at/af ports + 2WAN/2LAN ports switch; EU and US band; dual 9V~56VDC; -20~75C
- **IPMR-3004-2L-2SA-24V-WW…….P/N: 8664-0121**
  Industrial Dual LTE (Quad SIM) Load Balancing** VPN Mobile Router w/2 RS422/485 serial isolated ports and Giga ports incl. 4 PoE at/af ports + 2WAN/2LAN ports switch; Worldwide band; dual 9V~56VDC; -20~75C
- **IPMR-3004-2L-2SA--24V-APAC…….P/N: 8664-0131**
  Industrial Dual LTE (Quad SIM) Load Balancing** VPN Mobile Router w/2 RS422/485 serial isolated ports and Giga ports incl. 4 PoE at/af ports + 2WAN/2LAN ports switch; APAC band; dual 9V~56VDC; -20~75C
- **IPMR-3004-1L-2S-24V-EUNA…….P/N: 8664-021**
  Industrial One LTE (Dual SIM) Load Balancing** VPN Mobile Router w/2 RS232 serial ports and 4 Giga PoE at/af Switch + 2WAN/2LAN ports; EU and US band; dual 9V~56VDC; -20~75C
- **IPMR-3004-1L-2S-24V-WW…….P/N: 8664-022**
  Industrial One LTE (Dual SIM) Load Balancing** VPN Mobile Router w/2 RS232 serial ports and 4 Giga PoE at/af Switch + 2WAN/2LAN ports; Worldwide band; dual 9V~56VDC; -20~75C
- **IPMR-3004-1L-2S-24V-APAC…….P/N: 8664-023**
  Industrial One LTE (Dual SIM) Load Balancing** VPN Mobile Router w/2 RS232 serial ports and 4 Giga PoE at/af Switch + 2WAN/2LAN ports; APAC band; dual 9V~56VDC; -20~75C
- **IPMR-3004-1L-2SA-24V-EUNA…….P/N:8664-0211**
  Industrial One LTE (Dual SIM) Load Balancing** VPN Mobile Router w/2 RS422/485 serial isolated ports and 4 Giga PoE at/af Switch + 2WAN/2LAN ports; EU and US band; dual 9V~56VDC; -20~75C
- **IPMR-3004-1L-2SA-24V-WW…….P/N:8664-0221**
  Industrial One LTE (Dual SIM) Load Balancing** VPN Mobile Router w/2 RS422/485 serial isolated ports and 4 Giga PoE at/af Switch + 2WAN/2LAN ports; Worldwide band; dual 9V~56VDC; -20~75C
- **IPMR-3004-1L-2SA-24V-APAC…….P/N:8664-0231**
  Industrial One LTE (Dual SIM) Load Balancing** VPN Mobile Router w/2 RS422/485 serial isolated ports and 4 Giga PoE at/af Switch + 2WAN/2LAN ports; APAC band; dual 9V~56VDC; -20~75C

Built-in MSD for Router 3000 Series

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

Software License

- **LOAD BALANCING Basic Package…….P/N: 9000-101**
- **LOAD BALANCING Full Package…….P/N: 9000-102**
- **DNP3 GATEWAY…….P/N: 9000-106**

OPTIONAL ACCESSORIES

LTE Antenna

- **ANT11000041** 791-960/1710~2170/2500~2700MHZ, SMA plug, EU
- **ANT11000042** 704-960/1710~2170MHZ, SMA plug, US

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