

# IMR-3002 •

Industrial Multifunction VPN Router w/up to 2 LTE 4G + 2/4 serial ports + 2 Gigabit Ethernet (incl.1 PD) w/Load Balancing\*\*, VPN, Protocol Gateway, Storage\*\*; 24V input

- Up to 2 concurrent modem for 3G/4G LTE Link & GPS(2L model/4 SIMs)
- Built-in 2 Gigabit Ethernet ports incl. 1 PD port (1LAN+1WAN or 2LAN)
- VPN router for Multi-site VPN, OpenVPN, L2TP, IPSec, PPTP\*\*
- Load Balancing\*\* support 8 mechanism
- Support NAT and Firewall
- Support Modbus / DNP3\*\* gateway
- Support 2/4 RS422/485 ports with 2.5KV isolation or 2/4x RS232 ports
  - Wide input range from 9V to 60VDC for vehicle, station and process automation applications
    - LTE graphic signal strength & TX/RX rate display
  - Optional storage microSD\*\* for storage backup or multi-media content suit with load-balancing 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 IMR-3002 series is a next generation industrial multi-function VPN router w/ up to 2x LTE modem + 2x Gigabit Ethernet(1 PD) + 2 or 4 serial ports that supports advanced function of VPN, Load-balancing\*\*(Basic & Full Package), Protocol gateway(Modbus,DNP3\*\*), Storage\*\* 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, TMR-5002 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, 2 SIM card slots, IMR-3002-1L provides redundant link between two service providers.

Both GPS and Russian GLONASS systems are supported.

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

IMR-3002 supports Load Balancing\*\* for LTE/WAN (client mode) 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

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4S model

2S model

		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 or 4 port serial connection, Modbus / DNP3\*\* gateway It builds in 2 or 4 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, IMR-3002 support latest Multi-Site VPN function that is an efficient way for mesh tunneling. The registration is under cloud service and encrypted by SSH makes the connection easy and safe.

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

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

#### DIDO\*\* for alarm & email\*\* notice; Event log; Remote Web/SMS\*\* 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 IMR-3002 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-60VDC; Built-in 2 port Gigabit Ethernet incl. 1PD port

The IMR-3002 is able to work from 9VDC to 60VDC that is particular good for vehicle, rail train, depot etc. application.

### **FEATURES & BENEFITS**

- Built-in two Gigabit ports incl. 1 PD port and 1LAN+1WAN or 2LAN
- HTTP/HTTPS/Telnet/SSH & Administration access
- Support IPv6\*\* & IPv4 protocol
- Support Multi-Site VPN for mesh tunneling as well as Open VPN, L2TP, IPsec and PPTP\*\* fro secured network connection
- The built-in Layer-4 firewall includes DoS\*\*, IP address filter / Mac address filter\* / TCP/UDP port number
- Support SNMP\*v1/v2c/v3
- NAT/DMZ
- Dual concurrent LTE 4G/3G design (2L model)for auto-swap/failover/failback between multiple ISPs for continuous service (four SIM card slots)



Two port Gigabit Ethernet including 1 PD port can be supported as 1LAN+1WAN or 2LAN models.

# 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.

### 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, signal strength, remote configure/upgrade, monitoring/alerting and report function

#### 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.

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

The IMR-3002 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 LTE and E-marking\*\* certificate, the IMR-3002 is best for outdoor community, vehicle, process control automation etc. For more usage flexibilities, IMR-3002 supports wide operating temperature from -20°C to 75°C or -40°C to 75°C(-E)

- One LTE 4G/3G w/ 2 SIM card design(1L model) for mobile redundancy
- GPS & GLONASS 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 or 4 x serial ports(RS232/RS422/485)
- Serial port with 2.5KV isolation on RS422/485

Supports optional 2DI / 2DO(Digital Input / Output)

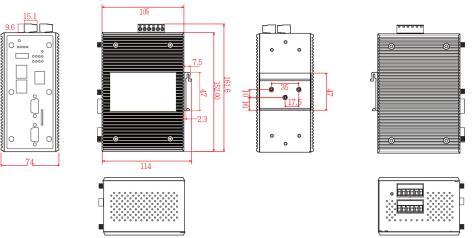
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 Built-in Modbus gateway converting Modbus RTU/ASCII to Modbus/TCP

- Optional DNP3 over Ethernet gateway on 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
- Built-in RTC to keep track of time always
- Support SNTP to synchronize system clock
- Support LLDP discovery protocol
- Support DHCP Server and Client
- Reset button for factory default mode
- Graphic LTE signal strength & TX/RX rate display
- 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
- Cloud/Host based InstaView/AIR\*\* for fixed/fleet router management/configuration/monitoring
- IP 30 housing for industrial environment
- DIN-Rail and Wall-mount\*\* installation
- Operation temperature -20~70°C or -40~70°C(-E)
- Wide range input voltage from 9V-60V

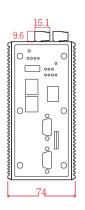
### **DIMENSIONS** (unit=mm)

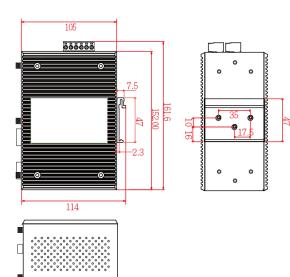
### 1L-2SA model

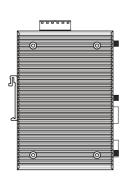




### 2L-1AC-2SA model







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# SPECIFICATION

JPLOI			
Location Solutions	GPS, Glonass (EU/Americas)		DDNS*
	GPS, Glonass, Beidou, Galileo (APAC model only)	Management	SNMP*v1,v2c,v3/ Web/Telnet/CLI
Band Options	APAC & Australia (APAC model)	Load Balancing**	8 schemes for multiple WAN
	LTE:	Fixed	Manually route by traffic type through fixed WAN link.
	2100/1800/850/2600/900/850/850/1500/700/2600/19	Basic Package'	**
	00/2300/2500 MHz (B1/B3/B5/B7/B8/B18/B19/B21/B28/B38/B39/B40/B4	Failover	Routes connections through preferred WAN link while
	1)		others stand-by. Sequentially activate another link if
			preferred link failure occurs.
	EUNA & USA model	Priority	Routes connections through preferred WAN link while
	LTE: 2100/1800/2600/900/800 MHz		others stand-by. Sequentially activate other links if
	(B1/B2/B3/B4/B5/B7/B12/B13/B20/B25/B26/B29/B30		overflow occurs.
	(B1/B2/B3/B4/B3/B1/B12/B13/B20/B23/B20/B23/B30 /B41)	Weighted	Evenly distribute the traffic over all working WAN links
		Round-Robin	in circular order according to the specified weights
	WorldWide (WW model)	Custom Route	Routing through the selected WAN for each specific
	LTE: 2100/1900/1800/1700/850/2600/900/1800/700/700/8/	Ousion Roule	traffic ex: TCP/UDP port number and IP address.
	50/850/800/850/700/2300/1500/2500/3500/3700/520	Full Package in	cl. basic package**
	0/3600/1700	Sticky Session*	Binding all connections in an application session to
	(B1/B2/B3/B4/B5/B7/B8/B9/B12/B13/B18/B19/B20/B		particular WAN link to ensure all connections in the
	26/B28/B29/B30/B32/B41/B42/B43/B46/B48/B66)		session are routed to the same WAN link , that is
	ADAC & Australia (ADAC madel)		
Data Rates – LTE	APAC & Australia (APAC model) Downlink (Cat 6):		suitable for security services like online payment etc. Routes connections through the WAN link with
	FDD: 300 Mbps	Smallest Load*	highest free bandwidth ratio.
	TDD: 222 Mbps		The ratio = 1 - (traffic load / the capability of a WAN
	Uplink (Cat 6):		link).
	FDD: 50 Mbps		The traffic load could be defined by downstream,
	TDD: 26 Mbps		upstream or total traffic
		Fastest*	Routes connections through the WAN link with lowest
	Americas (US model) / EMEA (EU model) Downlink (Category 3):		latency time.
	100 Mbps (20 MHz bandwidth)	Security	SSH/SSL/HTTPS
	50 Mbps (10 MHz bandwidth)	Timer	Built-in Real Time Clock to keep track of time
	Uplink (Category 3):		always(RTC)
	50 Mbps (20 MHz bandwidth)	Discovery	IEEE 802.1ab Link Layer Discovery Protocol (LLDP)
	25 Mbps (10 MHz bandwidth)	SNMP trap	Device cold / warm start
			Port link up / link down DI / DO high / low**
Software		Graphic signal	Graphic LTE signal strength & TX / RX rate display
IPv6/4	Present	display	
Login Security	Supports IEEE802.1x** Authentication/RADIUS	Remote	To reboot or get status of router by WebUI or SMS**
Access Security	HTTP/HTTPS/Telnet/SSH & Administration;	Web/SMS** control	
	SNMP*v1/v2/v3 access for authentication via	Maintenance	Firmware upgradeable through TFTP/FTP/HTTP
Protocol	MD5/SHA(v3) and Encryption via DES/AES(v3) PPPoE Client,DHCP server/client, Adjustable MTU,	Configuration	Supports text configuration file for quick system
	PPPoE Client, DHCP server/client, Adjustable MTO, Port forwarding (NAPT), DMZ; NAT, SNTP,	backup & restore	installation USB port to upload/download configuration by USB
	Firewall(Firewall(DoS**; IP address filter / Mac		dongle**
	address filter* / TCP/UDP port name <del>)</del> ,VRRP**,		InstaView/AIR** for mass configuration/upgrade

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Physical Por	ts & System		Level 0: -30~2V / Level 1: 10~30V
Physical Ports & System			Max. input current:8mA
Connectors	10/100/1000T: 2x ports RJ 45 with Auto MDI/MDI-X		2 Digital Output(DO): Open collector to 40 VDC,
	function		200mA
	USB x 1 RS-232 connector: 1 x RJ 45	Fault	Red: Ethernet link down or power down
	Serial connector : 2 or 4 DB9	Fault contac	;t
	SIM card slots : 4(2L) or 2(1L)	Relay	Relay output to carry capacity of 1A at 24VDC
	SMA connector : 6 female	Power	
	Power & P-Fail connector: 1 x 6-pole terminal block	Input power	Dual DC inputs, 9V~60VDC
	DIDO **: 1 x 5-pole terminal block	Power consumption	20 Watts
Serial Baud Rate	1000Kbps high data rate,250kbps normal for RS232;	(Тур.)	
	20Mbps high data rate,250kbps normal for RS422/485	Physical Ch	aracteristic
Serial Data Bits		Enclosure	IP 30 aluminum case
	5, 6, 7, 8	Dimension	74 (W) x 114 (D) x 152 (H) mm
Serial Parity	odd, even, none, mark, space	Weight	900g
Serial Stop Bits	1, 1.5, 2	Environmental	
RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND	Storage	-40°C ~ 85°C (-40°F ~ 185°F)
RS-422	Tx+,Tx-, Rx+, Rx-,GND	Temperature	
RS-485 (2-wire)	Data+, Data-,GND	Operating	-20°C ~75°C (-4°F ~ 167°F)
Micro SD	128G or 256G(MSD model)	Temperature	-40°C ~75°C (-40°F ~ 167°F)-E model
Isolation protection	RS422/485 2.5KV isolation; 8KV contact & 15KV air RS232 8KV contact and 15KV air ESD	Operating Humidity	5% to 95% Non-condensing
		Regulatory approvals	
	DIDO** 3KV isolation	EMC	FCC* Part 15 Class A, EN55032*
	Input power 1.5KVA isolation	EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS),
LED Indicators			EN61000-4-4 (EFT), EN61000-4-5 (Surge),
Power & System	Per unit: Power 1 (Green), Power 2 (Green), P-Fail		EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11
indicator	(Red), Ring Master(Green), Storage(Green),	E-marking**	E13**
	Serial1/Serial2/Serial3/Serial4(Green)	MTBF	NA
10/100/1000Base-T	Link/Activity (Green), Speed (Yellow)	Warranty	5 years
(X) port indicator			*Future Release
SIM	Green for Link/Act		**Optional
GPS	Green for Link/Act		Optional
WLAN LEDs	Link /ACT : Green		
DI/DO**	2 Digital Input (DI) :		

### **ORDERING INFOMATION**

For -40~75C operational temperature model, the model name will add -E

- IMR-3002-2L-2S-EUNA......P/N: 8611-101 Industrial Dual LTE (Quad SIM) Load Balancing\*\* VPN Mobile Router w/ 2 RS232 serial ports and 2 port Gigabit Ethernet (incl.1 PD port); EU and US band; dual 9V~60VDC; -20~75C
   IMR-3002-2L-2S-WW......P/N: 8611-102
- Industrial Dual LTE (Quad SIM) Load Balancing\*\* VPN Mobile Router w/ 2 RS232 serial ports and 2 port Gigabit Ethernet (incl.1 PD port); worldwide band; dual 9V~60VDC; -20~75C
- IMR-3002-2L-2S-APAC......P/N: 8611-103 Industrial Dual LTE (Quad SIM) Load Balancing\*\* VPN Mobile Router w/ 2 RS232 serial ports and 2 port Gigabit Ethernet (incl.1 PD port); APAC band; dual 9V~60VDC; -20~75C
- IMR-3002-2L-2SA-EUNA......P/N: 8611-104 Industrial Dual LTE (Quad SIM) Load Balancing\*\* VPN Mobile Router w/ 2 RS422/485 serial isolated ports and 2 port Gigabit Ethernet (incl.1 PD port); EU and US band; dual 9V~60VDC; -20~75C
- IMR-3002-2L-2SA-WW......P/N: 8611-105 Industrial Dual LTE (Quad SIM) Load Balancing\*\* VPN Mobile Router w/ 2 RS422/485 serial isolated ports and 2 port Gigabit Ethernet (incl.1 PD port); worldwide band; dual 9V~60VDC; -20~75C
- IMR-3002-2L-2SA-APAC......P/N: 8611-106 Industrial Dual LTE (Quad SIM) Load Balancing\*\* VPN Mobile Router w/ 2 RS422/485 serial isolated ports and 2 port Gigabit Ethernet (incl. 1 PD port); APAC band; dual 9V~60VDC; -20~75C
- IMR-3002-1L-2S-EUNA......P/N: 8611-107
  Industrial One LTE (Dual SIM) Load Balancing\*\* VPN Mobile Router w/ 2 RS232 serial ports and 2 port Gigabit Ethernet (incl.1 PD port); EU and US band; dual 9V~60VDC; -20~75C
  IMR-3002-11 -2S-WW
- IMR-3002-1L-2S-WW.......P/N: 8611-108
  Industrial One LTE (Dual SIM) Load Balancing\*\* VPN Mobile Router w/ 2 RS232 serial ports and 2 port Gigabit Ethernet (incl.1 PD port); worldwide band; dual 9V~60VDC; -20~75C

- IMR-3002-1L-2SA-WW.......P/N: 8611-1102
  Industrial One LTE (Dual SIM) Load Balancing\*\* VPN Mobile Router w/ 2 RS422/485 serial isolated ports and 2 port Gigabit Ethernet (incl.1 PD port); worldwide band; dual 9V~60VDC; -20~75C

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Ethernet (incl.1 PD port); APAC band; dual 9V~60VDC; -20~75C

- IMR-3002-2L-4S-EUNA......P/N: 8611-114 Industrial Dual LTE (Quad SIM) Load Balancing\*\* VPN Mobile Router w/ 4 RS232 serial ports and 2 port Gigabit Ethernet (incl.1 PD port); EU and US band; dual 9V~60VDC; -20~75C
- IMR-3002-2L-4S-WW.......P/N: 8611-115 Industrial Dual LTE (Quad SIM) Load Balancing\*\* VPN Mobile Router w/ 4 RS232 serial ports and 2 port Gigabit Ethernet (incl.1 PD port); worldwide band; dual 9V~60VDC; -20~75C
- IMR-3002-2L-4S-APAC
  Industrial Dual LTE (Quad SIM) Load Balancing\*\* VPN Mobile Router w/ 4 RS232 serial ports and 2 port Gigabit Ethernet (incl.1 PD port); APAC band; dual 9V~60VDC; -20~75C

- IMR-3002-1L-4S-APAC......P/N: 8611-123
  Industrial One LTE (Dual SIM) Load Balancing\*\* VPN Mobile Router w/ 4 RS232 serial ports and 2 port Gigabit Ethernet (incl.1 PD port); APAC band; dual 9V~60VDC; -20~75C

- IMR-3002-1L-4SA-APAC......P/N: 8611-126 Industrial One LTE (Dual SIM) Load Balancing\*\* VPN Mobile Router w/ 4 RS422/485 serial isolated ports and 2 port Gigabit Ethernet (incl.1 PD port); APAC band; dual 9V~60VDC; -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

### Lantech Communications Global Inc.

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