IMR-3003

Industrial Multifunction VPN Router w/up to 2 LTE 4G + up to 4 serial ports + 3 Gigabit Ethernet (incl.1 PD) w/Load Balancing, VPN, Protocol Gateway, Storage**; 12V/ 24V input

- *Up to 2 concurrent modems for 3G/4G LTE Link & GPS(2L model/4 SIMs)*
- *Built-in 3 Gigabit Ethernet ports (2LAN+1WAN or 3LAN or 3 WAN) (incl. 1PD)*
- *Support LTE Cat 6*
- *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 Modbus gateway*
- *Support 2 RS422/RS485 ports or 2/4x RS232 ports (RJ45 model only)*
- *Dual Input voltage 9~56VDC (12V model); Dual Input voltage 9~36VDC (24V model)*
- *LTE graphic signal strength*
- *Editable login page of captive portal for hot-spot application*
- *Vehicle E-marking** certificate (24V model)*
- *ITxPT design w/ ignition function** (24V-IGN model)*
- *Optional eSIM chip enables router with versatile data plans***
- *USB port to backup, restore the configuration file and upgrade firmware; Dual image firmware*
- *EN50155/61373/45545 verification for railway application (except 24V-IGN model)*

RJ45 model

M12 model

OVERVIEW

Lantech IMR-3003 series is a next generation industrial multi-function VPN router w/ up to 2x LTE modem + 3x Gigabit Ethernet (incl.1 PD) + 4 serial ports (RJ45 model only) that supports advanced function of VPN, Load-Balancing, EMMC Flash Storage**, Protocol gateway(Modbus), 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, IMR-3003 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-3003 provides redundant link between two service providers.

Both GPS and Russian GLONASS systems are supported.

Optional EMMC Flash storage*

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

Optional eSIM*

By replacing physical SIM, optional eSIM chip will allow users to purchase data plans at low prices from local carriers in the world.

Load Balancing with 5 mechanisms for multi-WANs

IMR-3003 supports Load Balancing for LTE/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.

4 port serial connection, Modbus gateway

It builds in 4 port serial connection for RS232, RS422, RS485. (RJ45 model only)

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, IMR-3003 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.

Email notice; Event log; Remote Web control

In case of events, the IMR-3003 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.

Built-in 3 port Gigabit Ethernet

3 port Gigabit Ethernet can be supported as 2LAN+1WAN or 3LAN or 3 WAN 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.

Ignition Sensing** (24V-IGN model)

Ignition sense allows you to delay power off the router with a designated time delay.

12V/24V input voltage selection: dual 9~56VDC (12V model) or dual 9~36VDC (24V model)

The IMR-3003 is able to work at dual 9~56VDC (12V model) or dual 9~36VDC (24V model).

Ruggedized industrial design and FCC, CE certificate

The IMR-3003 is designed to meet with outdoor network environment with IP30 (IP43 for M12 model) housing. It passed serious tests under extensive Industrial EMI and environmental vibration and shocks standards. With CE & FCC radio certification for LTE, the IMR-3003 is best for outdoor community, vehicle, and process control automation applications.

For more usage flexibilities, IMR-3003 supports wide operating temperature from -40°C to 65°C.

EN50155, EN61373 verification; E-marking** certification; ITxPT** design

The IMR-3003 series is also applicable for railway on-board/track side, vehicle and mining applications for more usage flexibilities. The series is verified with EN50155, EN61373, and EN45545 for railway applications (Except 24V-IGN model). The E-marking certificate (24V model) and ITxPT design (24V-IGN model).

FEATURES & BENEFITS

- **Built-in 3 Gigabit ports and 2LAN+1WAN or 3 LAN or 3 WAN (incl.1 PD)**
- **HTTP/HTTPS/Telnet/SSH & Administration access**
- **Radius Authentication, EAP-TLS, EAP-TTLS, PEAP**
- **Support IPv6 & IPv4 protocol**
- **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**
- **EMMC-FLASH storage**8/16/32G**
- **eSIM** to allow data-plan globally**
- **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**

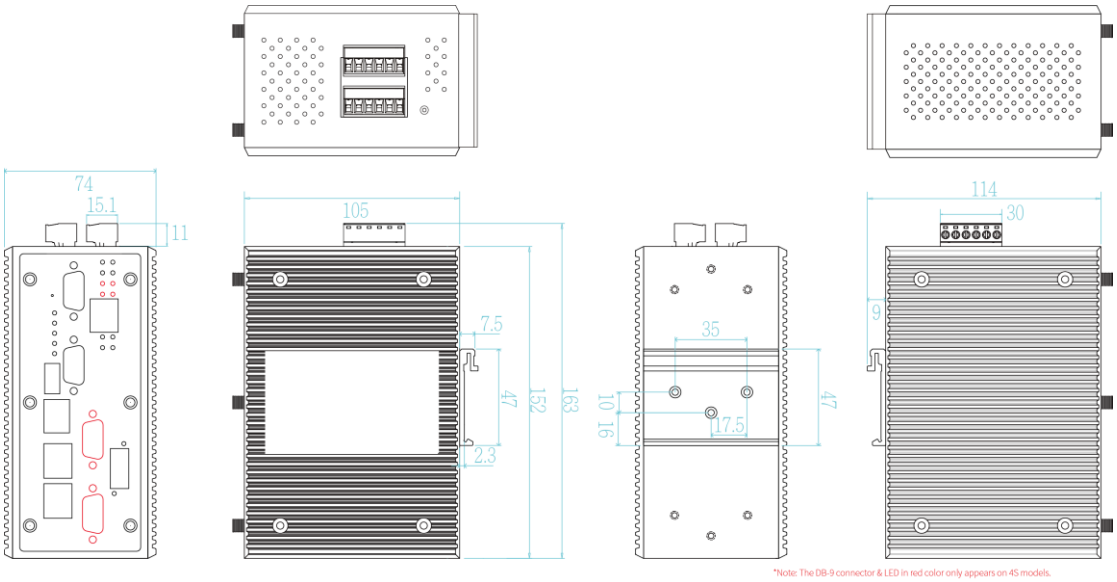
- **GPS & GLONASS connection**
- **Load Balancing supports 5 mechanism between multiple WANs**

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.

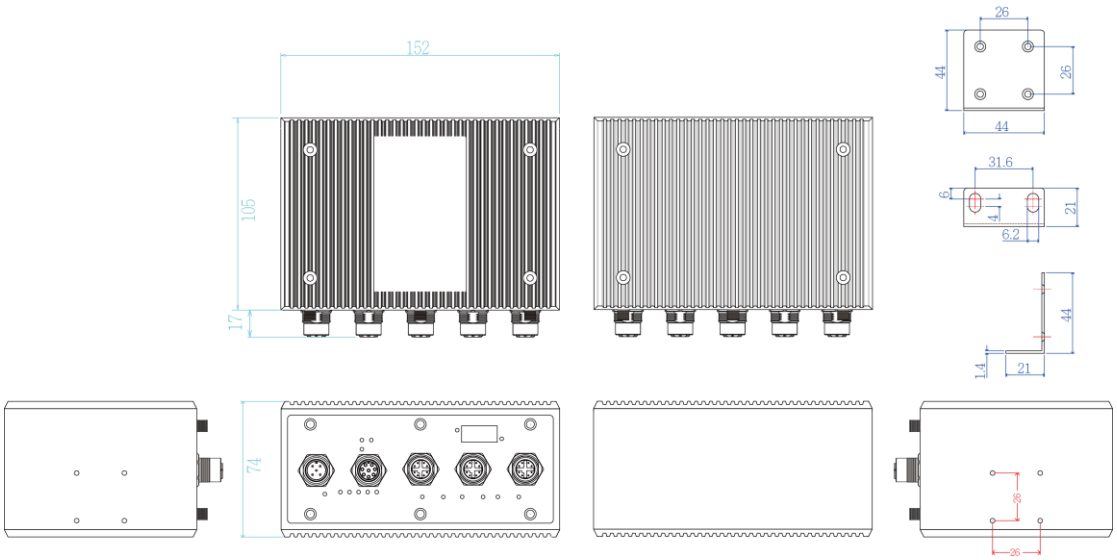
- **Built-in 4 x serial ports (RS232/RS422/RS485) (RJ45 model only)**
- **Built-in Modbus gateway converting Modbus RTU/ASCII to Modbus/TCP**
- **Event alerting by Syslog, SNMP Trap, Email, Relay ; Permanent local log rotation / Maxi 1K records**
- **Remote Web control to get status or re-boot by Web**
- **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**
- **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*
- **IP30 (RJ45 model)/ IP43 (M12 model) housing for industrial environment**
- **RJ45 model: DIN-Rail and Wall-mount** installation**
- **M12 model: Wall-mount installation**
- **Supports 2DI / 2DO (Digital Input / Output) (RJ45 model)**
- **Operation temperature -40~65°C**
- **ITxPT design w/ ignition function** (24V-IGN model)**
- **E-marking** certification (24V model)**
- **EN50155 & EN61373 verification (Except 24V-IGN model)**
- **Wide range power input voltage: Dual 9~56VDC (12V model); Dual 9~36VDC (24V model)**

DIMENSIONS (unit=mm)

RJ45, 12V/24V model



M12, 12V/24V Model



SPECIFICATION

Location Solutions	GPS, Glonass
Band Options	**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
Data Rates – LTE	**Europe & North America (EUNA model)** Downlink (Cat 6): FDD: 300 Mbps TDD: 222 Mbps Uplink (Cat 6): FDD: 50 Mbps TDD: 26 Mbps

Software

IPv6/4	Present
Login Security	Supports IEEE802.1x Authentication/RADIUS
Access Security	HTTP/HTTPS/Telnet/SSH & Administration; SNMP v1/v2/v3 access for authentication via MD5/SHA(v3) and Encryption via DES/AES(v3)
Protocol	PPPoE Client, DHCP server/client, Adjustable MTU, Port forwarding (NAPT), DMZ; NAT, SNTP, Firewall(Firewall(DDoS; IP address filter / Mac address filter / TCP/UDP port name},VRRP, DDNS
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.
Security	SSH/SSL/HTTPS
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
Graphic signal display	Graphic LTE signal strength & TX / RX rate display
Remote Web control	To reboot or get status of router by WebUI
Maintenance	Firmware upgradeable through TFTP/HTTP
Configuration backup & restore	Supports text configuration file for quick system installation USB port to upload/download configuration by USB dongle

Physical Ports & System

Connectors	**RJ45 model** 10/100/1000T: 3x ports RJ 45 with Auto MDI/MDI-X function (one port PD) USB x 1 Console connector: 1 x RJ 45 Serial connector : 2 or 4 x DB9 Power & P-Fail connector: 1 x 6-pole terminal block SIM card slots : 4(2L) or 2(1L) **M12 model** 10/100/1000T: 3x M12 8-pole X-coded Female with Auto MDI/MDI-X function (one port PD) Power & P-Fail connector: M12 5-pole A-coded Male Reset/ Console/ USB connector: M12 8-pole A-coded Female SIM card slots : 4(2L) or 2(1L)
Antenna Connectors	**2L model** SMA connector for LTE: 4 (female) SMA connector for GPS: 2 (female) **1L model** SMA connector for LTE: 2 (female) SMA connector for GPS: 1 (female)
Serial Baud Rate	1000Kbps high data rate,250kbps normal for RS232 ; 20Mbps high data rate,250kbps normal for RS422/485 (RJ45 model only)
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	Input power to I/O: 1.5KV isolation Input power to Ethernet 1.5KV isolation
EMMC Storage**	8/16/32 GB
DI/DO	2 Digital Input (DI) : Level 0: -30~2V / Level 1: 10~30V Max. input current:8mA 2 Digital Output(DO): Open collector to 40 VDC, 200mA

LED Indicators

Power & System indicator	Per unit: Power 1 (Green), Power 2 (Green), P-Fail (Red), Storage (Green), Serial (Green), Ready (Green)
10/100/1000Base-T(X) port indicator	Link/Activity (Green), Speed (1000T: Yellow; 10/100TX: off)
LTE	Green: Link/Act
GPS	Green: 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 (12V model) Dual DC input, 9~36VDC (24V model)
Power consumption (Typ.)	20 Watts
Physical Characteristic	
Enclosure	IP 30 Metal case (RJ45 model) IP 43 Metal case (M12 model)
Dimension	**RJ45, 12V/ 24V model:** 74 (W) x 114 (D) x 152 (H) mm **M12 model:** 74 (W) x 122 (D) x 152 (H) mm
Weight	900g
Installation	RJ45 model: DIN-Rail and Wall-mount** installation M12 model: Wall-mount installation
Environmental	
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Operating Temperature	-40°C ~65°C (-40°F ~ 149°F)
Operating Humidity	5% to 95% Non-condensing
Regulatory approvals	
Safety	EN 62368-1
EMC	FCC Part 15B Class A, ICES-003 ISSUE7, EN 55032: 2015, EN 55024: 2015 IEC 61000-6-2, IEC 61000-6-4 BS EN55032, BS EN55024
EMS	IEC 61000-4-2 (ESD), IEC 61000-4-3 (RS), IEC 61000-4-4 (EFT), IEC 61000-4-5 (Surge), IEC 61000-4-6 (CS), IEC 61000-4-8 (PFMF) BS EN61000-4-2, BS EN61000-4-3, BS EN61000-4-4, BS EN61000-4-5, BS EN61000-4-6, BS EN61000-4-8,
Radio Frequency	EN 301 489-1, EN 301 489-17, EN 301 489-19, EN 301 489-52, EN 301 908-1※, EN 303 413, EN 62311
Stability Testing	IEC 60068-2-27 (Shock) IEC 60068-2-31 (Shock) IEC 60068-2-64 (Vibration) IEC 60068-2-80 (Vibration)
Vehicle Certificate (24V model)	E13 marking** (UN ECE R10)
Vehicle Compliance (24V model)	UN ECE R118, ITxPT design** (ITxPT design is IGN model only)
Railway Compliance (Except -IGN model)	EN50155 EN61373 EN45545 IEC 60571
MTBF	1,161,227hrs (standards: IEC 62380)
Warranty	5 years

*Future Release

**Optional

※Standard test of the following bands are not listed in EN 301 908-1 report:
(EUNA not listed bands) LTE = B2, B4, B5, B12, B13, B25, B26, B29, B30, B41
WCDMA = B2, B4, B5;

ORDERING INFORMATION

1. M12 models are available with -M12 model names (-2S/-4S/-2SA/-2SB/-2S2SA/-2S2SB are RJ45 models only)
2. 2 RS422 models are available with -2SA; 2 RS485 models are available with -2SB; 2 RS232+ 2 RS422 models are available with -2S2SA; 2 RS232+ 2 RS485 models are available with -2S2SB (RJ45 models only)
3. For 24V model are all available with -IGN model name (w/ ignition)

12V models

- **IMR-3003-2L-2S-12V-EUNA…..……...…….....P/N: 8611-201**
  Industrial Dual LTE (Quad SIM) Load Balancing Multifunction Router w/ 2 RS232 serial ports and 3 port Gigabit Ethernet (incl. 1PD); EU and US band; dual input 9V~56VDC; -40~65C
- **IMR-3003-2L-4S-12V-EUNA…..……...…….....P/N: 8611-204**
  Industrial Dual LTE (Quad SIM) Load Balancing Multifunction Router w/ 4 RS232 serial ports and 3 port Gigabit Ethernet (incl. 1PD); EU and US band; dual input 9V~56VDC; -40~65C
- **IMR-3003-1L-2S-12V-EUNA…..……...…….....P/N: 8611-207**
  Industrial One LTE (Dual SIM) Load Balancing Multifunction Router w/ 2 RS232 serial ports and 3 port Gigabit Ethernet (incl. 1PD); EU and US band; dual input 9V~56VDC; -40~65C
- **IMR-3003-1L-4S-12V-EUNA…..……...…….....P/N: 8611-210**
  Industrial One LTE (Dual SIM) Load Balancing Multifunction Router w/ 4 RS232 serial ports and 3 port Gigabit Ethernet (incl. 1PD); EU and US band; dual input 9V~56VDC; -40~65C
- **IMR-3003-M12-2L-12V-EUNA…..……...…….....P/N: 8611-301**
  Industrial Dual LTE (Quad SIM) Load Balancing Multifunction Router w/ 3 port M12 Gigabit Ethernet (incl. 1PD); EU and US band; dual input 9V~56VDC; -40~65C
- **IMR-3003-M12-1L-12V-EUNA…..……...…….....P/N: 8611-302**
  Industrial One LTE (Dual SIM) Load Balancing Multifunction Router w/ 3 port M12 Gigabit Ethernet (incl. 1PD); EU and US band; dual input 9V~56VDC; -40~65C

24V models

- **IMR-3003-2L-2S-24V-EUNA…..……...…….....P/N: 8611-213**
  Industrial Dual LTE (Quad SIM) Load Balancing Multifunction Router w/ 2 RS232 serial ports and 3 port Gigabit Ethernet (incl. 1PD); EU and US band; dual input 9V~36VDC; -40~65C
- **IMR-3003-2L-4S-24V-EUNA…..……...…….....P/N: 8611-216**
  Industrial Dual LTE (Quad SIM) Load Balancing Multifunction Router w/ 4 RS232 serial ports and 3 port Gigabit Ethernet (incl. 1PD); EU and US band; dual input 9V~36VDC; -40~65C

- **IMR-3003-1L-2S-24V-EUNA…..…..…..…..…….....P/N: 8611-219**
  Industrial One LTE (Dual SIM) Load Balancing Multifunction Router w/ 2 RS232 serial ports and 3 port Gigabit Ethernet (incl. 1PD); EU and US band; dual input 9V~36VDC; -40~65C
- **IMR-3003-1L-4S-24V-EUNA…..…..…..…..…….....P/N: 8611-222**
  Industrial One LTE (Dual SIM) Load Balancing Multifunction Router w/ 4 RS232 serial ports and 3 port Gigabit Ethernet (incl. 1PD); EU and US band; dual input 9V~36VDC; -40~65C
- **IMR-3003-M12-2L-24V-EUNA…..…..…..…..…….....P/N: 8611-303**
  Industrial Dual LTE (Quad SIM) Load Balancing Multifunction Router w/ 3 port M12 Gigabit Ethernet (incl. 1PD); EU and US band; dual input 9V~36VDC; -40~65C
- **IMR-3003-M12-1L-24V-EUNA…..…..…..…..…….....P/N: 8611-304**
  Industrial One LTE (Dual SIM) Load Balancing Multifunction Router w/ 3 port M12 Gigabit Ethernet (incl. 1PD); EU and US band; dual input 9V~36VDC; -40~65C

EMMC Flash Storage

- **8G…….…..…….....…….....P/N: 8850-113**
- **16G…….…..…….....…….....P/N: 8850-114**
- **32G…….…….P/N: 8850-115**

OPTIONAL ACCESSORIES

Management System

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

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

- **ANT11000046** LTE hinge rotatable antenna, 698-960MHz, 1710-2690MHz, Diameter 10mm, Length 108mm, SMA Connector

GPS Antenna

- **ANT12000001** SMA GPS antenna, 28dB, 300m

Antenna Base

- **ADA11000053** Magnetic antenna base for 3G/4G, RP SMA Jack Base, Length : 1M

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