M2M GATEWAY INDUSTRIAL

ORing

Quick Installation Guide

IMG-4312(+) Series

Industrial Cellular M2M Gateway

Introduction

The **IMG-4312(+)-3G/4G** is an innovative 3G or 4G LTE cellular gateway with one RS-232/422/485 serial port and two 10/100Base-T(X) ports. The device provides an IEEE802.11b/g/n Wi-Fi interface featuring a link speed up to 150Mbps. It can be configured to connect to the Internet by dialing up the embedded 2G/3.5G/LTE cellular modem. In addition, the device can transfer data to five host PCs simultaneously for backup purposes. The **IMG-4312+-3G/4G** provides P.D. function on its ETH1 port which is fully compliant with IEEE802.3af PoE P.D. specification. Therefore, it can receive power via an Ethernet cable to save installation costs and simplify deployment.

Package Contents

The device is shipped with the following items. If any of these items is missing or damaged, please contact your customer service representative for assistance.

Contents	Pictures	Number
IMG-4312(+)-3G/4G		X 1
CD		X 1
LTE Antenna		X 2 (for 4G model)
Celluler Antenna		X 2 (for 3G model)
Wi-Fi Antenna		X 1
QIG		X 1
DIN-rail kit		X 1
Wall-Mount Kit		X 2
4-pin terminal block		X 1
Dust cover		X 2

Preparation

Before installation, make sure you have all of the package contents available and a PC with Microsoft Internet Explorer 6.0 or later, for using web-based system management tools.

Safety & Warnings

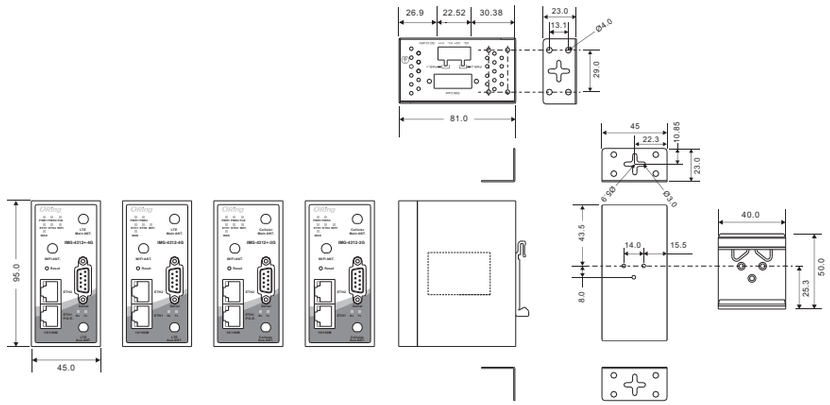
Elevated Operating Ambient: If installed in a closed environment, make sure the operating ambient temperature is compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

Reduced Air Flow: Make sure the amount of air flow required for safe operation of the equipment is not compromised during installation.

Mechanical Loading: Make sure the mounting of the equipment is not in a hazardous condition due to uneven mechanical loading.

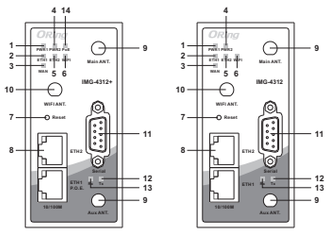
Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Dimension Unit =mm (Tolerance ±0.5mm)



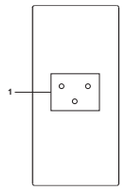
Panel Layouts

Front Panel



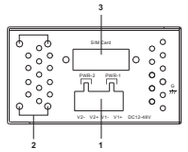
1. LED for Power 1 module
2. LED for ETH1 port
3. LED for WAN status
4. LED for Power 2 module
5. LED for ETH2 port
6. LED for Wi-Fi status
7. Reset button
8. Ethernet ports (ETH1 as LAN port; ETH2 as WAN port)
9. LTE antenna connector
10. Wi-Fi antenna connector
11. Serial port
12. TX status of serial port
13. RX status of serial port
14. PoE indicator (IMG-4312+ Series only)

Rear Panel



1. Din-rail screw holes

Top Panel

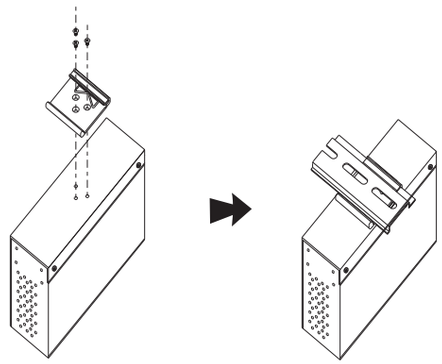


1. Terminal block
2. Wall-mount screw holes
3. SIM card slot

Installation

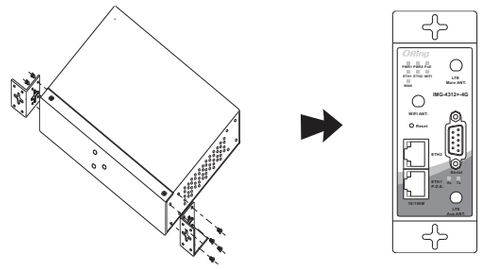
DIN-rail

Step 1 : Slant the device and screw the Din-rail kit onto the back of the device, right in the middle of the back panel.
Step 2 : Slide the device onto a DIN-rail from the Din-rail kit and make sure the device clicks into the rail firmly.



Wall-mount

Step 1: Screw the two pieces of wall-mount kits to the top and bottom panels of the device. A total of eight screws are required, as shown below.
Step 2: Use the device, with wall mount plates attached, as a guide to mark the correct locations of the four screws.
Step 3: Insert a screw head through middle of the keyhole-shaped aperture on the plate, and then slide the device downwards. Tighten the screw head for added stability.



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Network Connection

The device has two 10/100Base-T(X) Ethernet ports. According to the link type, the AP uses CAT 3, 4, 5, 5e, 6 UTP cables to connect to any other network device (PCs, servers, switches, routers, or hubs).

Cable Types and Specifications.

Cable	Type	Max. Length	Connector
10Base-T	Cat. 3, 4, 5 100-ohm	UTP 100 m (328 ft)	RJ45
100Base-TX	Cat. 5 100-ohm UTP	UTP 100 m (328 ft)	RJ45

For pin assignments for different types of cables, please refer to the following tables.

10/100 Base-T(X) RJ-45 Pin Assignments

Pin Number	Assignment
1	TD+
2	TD-
3	RD+
4	Not used
5	Not used
6	RD-
7	Not used
8	Not used

10/100 Base-T MDI/MDI-X Pin Assignments

Pin Number	MDI port	MDI-X port
1	TD+(transmit)	RD+(receive)
2	TD-(transmit)	RD-(receive)
3	RD+(receive)	TD+(transmit)
4	Not used	Not used
5	Not used	Not used
6	RD-(receive)	TD-(transmit)
7	Not used	Not used
8	Not used	Not used

Wiring

Power inputs

This device supports dual redundant power supplies, Power Supply 1 (PWR1) and Power Supply 2 (PWR2). The connectors for PWR1 and PWR2 are located on the terminal block.

STEP 1: Insert the negative/positive DC wires into the V-/V+ terminals, respectively.

STEP 2: To keep the DC wires from pulling loose, use a small flat-blade screwdriver to tighten the wire-clamp screws on the front of the terminal block connector.

Grounding

Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screws to the grounding surface prior to connecting devices.

Configurations

After installing the device and connecting cables, the green power LED should turn on. Please refer to the following tablet for LED indication.

LED	Color	Status	Description
PW1	Green	On	DC power module 1 activated
PW2	Green	On	DC power module 2 activated
PoE	Green	On	PoE enabled
10/100Base-T(X) RJ45 Port			
LNK/ACT	Green	On	Port is linked and transmitting data
Serial Port			
Rx	Red	On	Port is receiving data
Tx	Green	On	Port is transmitting data
WiFi Connection			
LNK/ACT	Green	On	Wireless network is linked
WAN Connection			
LNK/ACT	Green	On	Power is on and functioning normally

Specifications

ORing Device Server Model	IMG-4312-3G	IMG-4312+-3G	IMG-4312-4G	IMG-4312+-4G
Physical Ports				
10/100Base-T(X) Ports in Auto MDI/MDIX	2			
PoE P.D. port Power Device (IEEE 802.3af): IEEE 802.3af compliant input interface Over load & short circuit protection Isolation Voltage: 1000 VDC min. Isolation Resistance: 10^8 ohms min	-	Present at ETH1	-	Present at ETH1
Sim Card Slot	1			
Cellular Interface				
Antenna Connector	2 x RP-SMA Female		2 x SMA Female	
Cellular Standard	GSM / GPRS/ EGPRS/ EDGE/ WCDMA/ HSDPA/ HSUPA		GSM / GPRS/ EGPRS/ EDGE/ WCDMA/ HSDPA/ HSUPA/LTE	
Band Option	Dual-band : HSUPA 1900/2100 MHZ Quad-band : GSM/ GPRS/ EDGE 850/ 900/ 1800/ 1900MHz WCDMA/ HSDPA 850/ 900/ 1900/ 2100 MHz		**America (US grade)** LTE: FDD:1900(B2)/1700(B4)/850(B5)/700(B12)/ 700(B13)/700(B14)/1700(B66)/600(B71) MHz UMTS/HSDPA/HSUPA/HSPA+: 1900/1700/850 MHz **Europe (EU grade)** LTE: FDD:2100(B1)/1800(B3)/2600(B7)/900(B8)/ 800(B20) MHz TDD:TDD:2600(B38)/2300(B40)/2500(B41) MHz UMTS/HSDPA/HSUPA/HSPA+: 2100(B1)/900(B8) MHz GSM/GPRS/EDGE: 900/850 MHz **Taiwan (TW grade)** LTE: FDD:2100(B1)/1900(B2)/1800(B3)/1700(B4)/ 850(B5)/2600(B7)/900(B8)/700(B28) MHz TDD:2300(B40) UMTS/HSDPA/HSUPA/HSPA+/DC-HSPA+: 2100(B1)/1900(B2)/850(B5)/900(B8) MHz GSM/GPRS/EDGE: B2/B3/B5/B8 **China (CN grade)** LTE: FDD:2100(B1)/1800(B3)/900(B8) MHZ TDD:2600(B38)/1900(B39)/2300(B40)/ 2500(B41) MHz TDSCDMA: B34/B39 WCDMA: 900/2100 MHz CDMA 1x/EVDO: 800(BC0) MHz GSM: 900/1800 MHz	
Wifi Interface				
Antenna and Connector	1 x RP-SMA Female			
Modulation	IEEE802.11b: CCK, DQPSK, DBPSK IEEE802.11g: OFDM IEEE802.11n: BPSK, QPSK, 16-QAM, 64-QAM			
Frequency Band	America / FCC : 2.412~2.462 GHz (11 channels) Europe CE / ETSI : 2.412~2.472 GHz (13 channel) Taiwan / NCC : 2.412~2.472 GHz (13 channel)			
Transmission Rate	801.11b: 1/ 2/ 5.5/ 11 Mbps 801.11g: 6/ 9/ 12/ 18/ 24/ 36/ 48/ 54 Mbps 802.11n(MHz): UP to 150 Mbps			
Transmit Power	802.11b: 19dBm ±1.5 dBm 802.11g: 17dBm ±1.5 dBm 802.11n(2.4G@20MHz): 16dBm ±1.5dBm 802.11n(2.4G@40MHz): 14dBm ±1.5dBm			
Receiver Senstivity	802.11b: -90dBm±2.0dB @ 11Mbps 802.11g: -72dBm±2.0dB @ 54Mbps 802.11n(2.4G@40MHz, MCS7): -68dBm ±2dBm			
Encryption Security	WEP: (64-bit, 128-bit key supported) WPA/WPA2: (WEP and AES encryption) 802.11i WPA-PSK (256-bit key pre-shared key supported) 802.1X Authentication supported TKIP encryption			
Wireless Security	SSID broadcast disable			
Serial Port				
Connector	DB9 x1			
Operation Mode	RS-232/422/485			

Serial Baud Rate	110 bps to 115.2 Kbps			
Data Bits	7, 8			
Parity	odd, even, none, mark, space			
Stop Bits	1, 1.5, 2			
RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND			
Flow Control	XON/XOFF, RTS/CTS, DTR/DSR			
Network Protocol				
Protocol	ICMP, IP, TCP, UDP, DHCP, BOOTP, SSH, DNS, SNMP V1/ V2c, HTTPS, SMTP, DDNS, PPPoE			
Power				
Redundant Input power	Dual DC inputs. 12~48VDC on 4 pin terminal block			
Power Consumption(Typ.)	4.8 Watts	5.3 Watts	3 Watts	3.5 Watts
Overload current protection	Present			
Reverse polarity protection	Present			
Physical Characteristic				
Enclosure	IP-30			
Dimension (W x D x H)	45(W)x81(D)x95(H) mm (1.77 x 3.19 x 3.74 inch.)			
Weight (g)	368g	372g	368g	372g
Environmental				
Storage Temperature	-40 to 85°C (-40 to 185°F)			
Operating Temperature	-10 to 60°C (14 to 140°F)			
Operating Humidity	5% to 95% Non-condensing			
Regulatory Approvals				
EMI	CE EMC (EN 55024, EN 55032), FCC Part 15 B			
EMC	EN 55032, CISPR32, EN 61000-3-2, EN 61000-3-3,FCC Part 15 B class A			
EMS	EN 55024 (IEC/EN 61000-4-2 (ESD), IEC/EN 61000-4-3 (RS), IEC/EN 61000-4-4 (EFT), IEC/EN 61000-4-5 (Surge), IEC/EN 61000-4-6 (CS), IEC/EN 61000-4-8 (PFMF), IEC/EN61000-4-11(DIP))			
Shock	IEC60068-2-27			
Free Fall	IEC60068-2-31			
Vibration	IEC60068-2-6			
Safety	UL60950-1 ; IEC60950-1 ;EN60950-1			
Hazardous Areas	ATEX, C1D2			
Warranty	5 years			

ORing Industrial Networking Corp.
TEL: +886-2-2218-1066 Website: www.oring-networking.com
FAX: +886-2-2218-1014 E-mail: support@oring-networking.com