







Introduction

Designed for industrial and rolling stock wireless applications with two LAN ports in M12 connectors and EN50155 compliance, the **TGAR-1062/2062/1662+ series** are IEEE802.11 a/b/g/n routers capable of providing a fast and effective way to communicate with the Internet over wired or wireless LANs. The series includes PoE models and 3G/4G models with GPS functions. The series of devices can be configured to operate in 3 modes of routing function: dynamic/static IP route, PPPoE authentication, and cellular modem dial up. You can set up WLAN environment to fulfill demands of various applications rapidly by dialing up cellular modem. With dual Ethernet ports in switch mode, you can use Daisy Chain to reduce the usage of Ethernet switch ports. The router also provides VPN capabilities which create encrypted virtual tunnels on the Internet, allowing remote or mobile users to connect to the network of your office.

Package Contents




The devices are 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
Router		1
2.4GHz/5GHz Wi-Fi Antenna		2 (TGAR-1062+/2062+) or 4 (TGAR-1662+)
3G or 4G Antenna		1 (TGAR-1062+/1662+) or 2 (TGAR-2062+)
CD		1
QIG		1
Allen Key		1

Preparation

Before you begin installing the device, 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.

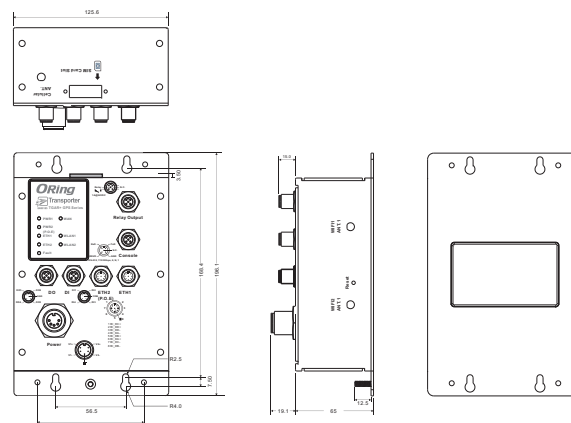
Safety & Warnings

-  **Elevated Operating Ambient:** If installed in a closed environment, make sure the operating ambient temperature is compatible with the maximum ambient temperature (T_{ma}) 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.

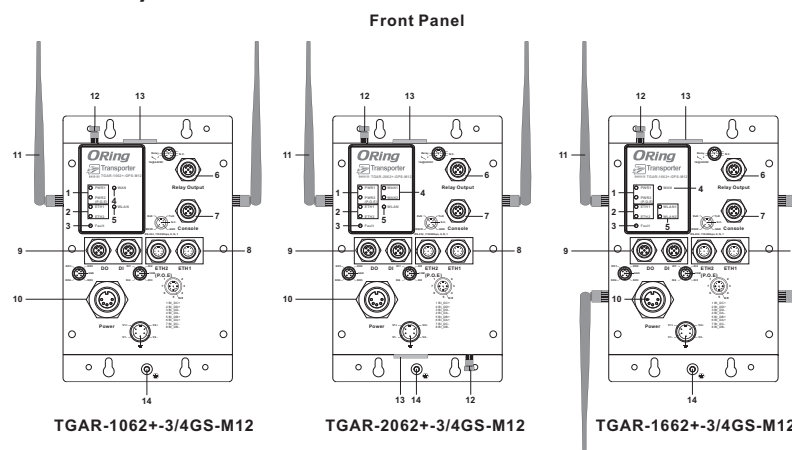


Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this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

Dimension



Panel Layouts

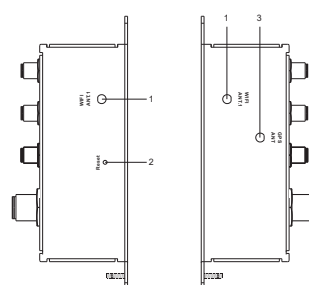


1. PWR status LED (PW2 with PoE indicator)
2. LAN port status LED
3. Fault status LED
4. WAN status LED

5. WLAN status LED
6. Relay output port
7. Console port
8. Ethernet LAN ports (ETH2 with PoE)

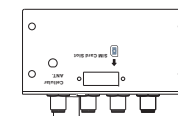
9. DI/DO ports
10. Power connector
11. 2.4/5GHz Wi-Fi antenna
12. Cellular antenna connector
13. SIM card slot
14. Ground

Side Panel

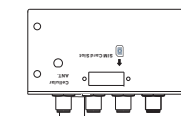


1. 3G/4G Antenna connector
2. Reset button
3. GPS antenna connector

Top Panel

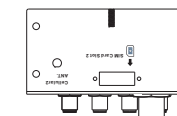


TGAR-1062+/1662+-3/4GS-M12



TGAR-2062+-3/4GS-M12

Bottom Panel



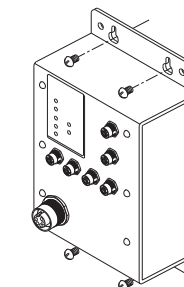
TGAR-2062+-3/4GS-M12

Installation

Wall-mount

The device can be fixed to the wall. Follow the steps below to install the device on the wall.

- Step 1:** Hold the device upright against the wall
- Step 2:** Insert four screws through the large opening of the keyhole-shaped apertures at the top and bottom of the unit and fasten the screw to the wall with a screwdriver.
- Step 3:** Slide the device downwards and tighten the four screws for added stability.



Wiring

For pin assignments of power, console and relay output ports, please refer to the following tables.

Grounding

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

Power port pinouts

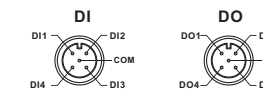
The device supports two sets of power supplies and uses the M23 5-pin female connector on the front panel for the dual power inputs. **Step 1:** Insert a power cable to the power connector on the device. **Step 2:** Rotate the outer ring of the cable connector until a snug fit is achieved. Make sure the connection is tight.



Relay output port pinouts



DI/DO Port Pinouts

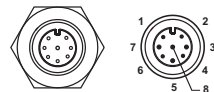


Network Connection

The AP router has two 10/100/1000 Base-T(X) Ethernet ports. According to the link type, the AP router uses CAT 3, 4, 5, 5e, UTP cables to connect to any other network device (PCs, servers, devices, routers, or hubs). Please refer to the following table for cable specifications.

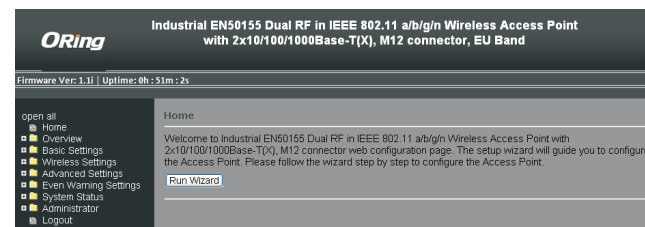
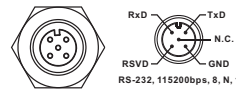
Cable	Type	Max. Length	Connector
10Base-T	Cat. 3, 4, 5 100-ohm	UTP 100 m (328 ft)	M12
100Base-TX	Cat. 5 100-ohm UTP	UTP 100 m (328 ft)	M12
1000Base-T	Cat. 5/Cat. 5e 100-ohm UTP	UTP 100 m (328 ft)	M12

M12/8P Pin Definition



PIN	Definition
1	BI_DC+
2	BI_DD+
3	BI_DD-
4	BI_DA-
5	BI_DB+
6	BI_DA+
7	BI_DC-
8	BI_DB-

Console Port Pin Definition



Resetting

To restore the device configurations back to the factory defaults, press the **Reset** button for a few seconds. Once the power indicator starts to flash, release the button. The device will then reboot and return to factory defaults.

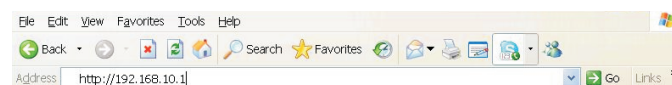
Configurations

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

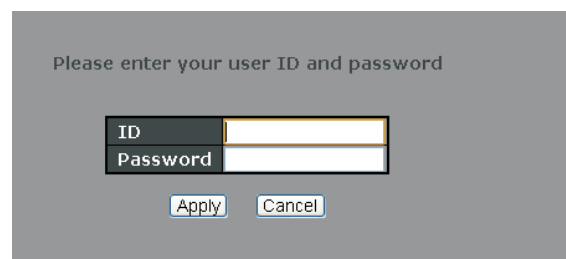
LED	Color	Status	Description
PWR1	Green	On	DC power 1 activated.
PWR2 (PoE)	Green	On	DC power 2 activated or PoE enabled (when device is not connected to power supply)
ETH1	Green	On	Port is linked
		Blinking	Data transmitted.
ETH2	Green	On	Port is linked
		Blinking	Data transmitted.
WLAN 1 (2)	Green	On	WLAN is activated
		Blinking	Transmitting data
WAN1 (2)	Green	On	Modem is connected
Fault	Red	On	Error occurs (power fails or port disconnected)

Follow the steps below to log in and access the system:

1. Launch the Internet Explorer and type in IP address of the device. The default static IP address is **192.168.10.1**



2. Log in with default user name and password (both are **admin**).



3. After logging in, you should see the following screen. For more information on configurations, please refer to the user manual. For information on operating the device using ORing's Open-Vision management utility, please go to ORing website.

Specifications

ORing WLAN Access Point Model	TGAR-1062+ -3GS-M12	TGAR-1062+ -4GS-M12	TGAR-2062+ -3GS-M12	TGAR-2062+ -4GS-M12	TGAR-1662+ -3GS-M12	TGAR-1662+ -4GS-M12
Physical Ports	10/100/1000Base-T(X) Ports in M12 Auto MDI/MDIX (8-pin A-coding) 2 (PoE P.D. present at ETH2 Fully compliant with IEEE 802.3af)					
DI/DO port in M12 (5-pin A-coding)	2 (DI x 4 and DO x 4)					
RS-232 Console port in M12 (5-pin A-coding)	115200, 8, N, 1					
Relay port in M12 (5-pin A-coding)	1A@24VDC					
SIM Card Slot	1	2	1			
GPS						
Antenna and Connector	1 x External SMA antenna connector	1 x External SMA antenna connector	1 x External SMA antenna connector			
Frequency	1575.42MHz					
WLAN Interface						
Antenna and Connector	2 x External reverse SMA type antenna connector			4 x External reverse SMA type antenna connector		
Radio Frequency Type	DSSS, OFDM					
Modulation	IEEE802.11b: CCK, DQPSK, DBPSK IEEE802.11g: OFDM with BPSK, QPSK, 16QAM, 64QAM IEEE802.11a: OFDM with BPSK, QPSK, 16QAM, 64QAM IEEE802.11n: BPSK, QPSK, 16-QAM, 64-QAM					
Frequency Band	America / FCC : 2.412~2.462 GHz (11 channels) 5.180~5.240 GHz & 5.745~5.825 GHz (9 channels) Europe CE / ETSI : 2.412~2.472 GHz (13 channels) 5.180~5.240 GHz (4 channels)					
Transmission Rate	IEEE802.11b: 1/ 2/ 5.5/ 11 Mbps IEEE802.11a/g: 6/ 9/ 12/ 18/ 24/ 36/ 48/ 54 Mbps IEEE802.11n: up to 300Mbps					
Transmit Power	802.11a: 12dBm ±1.5 dBm 802.11b: 16dBm ±1.5 dBm 802.11g: 15dBm ±1.5 dBm 802.11gn HT20: 13dBm ±1.5 dBm@150Mbps 802.11gn HT40: 12dBm ±1.5 dBm@300Mbps 802.11an HT20: 12dBm ±1.5 dBm@150Mbps 802.11an HT40: 12dBm ±1.5 dBm@300Mbps					
Receiver Sensitivity	802.11a: -68dBm±2.0dB @ 54 Mbps 802.11b: -82dBm±2.0dB @ 11Mbps 802.11g: -68dBm±2.0dB @ 54Mbps 802.11gn HT20: -64dBm±2.0dB @ 150Mbps 802.11gn HT40: -60dBm±2.0dB @ 300Mbps 802.11an HT20: -64dBm±2.0dB @ 150Mbps 802.11an HT40: -60dBm±2.0dB @ 300Mbps					
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						
Cellular Interface							
Cellular Standard	GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSUPA	GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSUPA / LTE	GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSUPA	GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSUPA / LTE	GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSUPA	GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSUPA / LTE	
Antenna Connector	1 x Reverse SMA Female	1 x SMA Female	2 x Reverse SMA Female	2 x SMA Female	1 x Reverse SMA Female	1 x SMA Female	
Band Option	Dual-band: HSUPA 1900/ 2100 MHz Quad-band: GSM/ GPRS/ EDGE 850/900/ 1800/1900 Hz WCDMA/HSDPA 850/900/1900/ 2100 MHz	America (US) LTE: 700/1700/ 2100 MHz UMTS/HSDPA/ HSUPA/HSPA+/ DC-HSPA+: 800 /850/1900/2100 MHz GSM/GPRS/ EDGE: 850/900/ 1800/1900 MHz Europe (EU) LTE: 800/900/ 1900/2100/2600 MHz UMTS/HSDPA/ HSUPA/HSPA+/ DC-HSPA+: 900 /2100 MHz GSM/GPRS/ EDGE: 900/1800 /1900 MHz	Dual-band: HSUPA 1900/ 2100 MHz Quad-band: GSM/ GPRS/ EDGE 850/900/ 1800/1900 Hz WCDMA/HSDPA 850/900/1900/ 2100 MHz	America (US) LTE: 700/1700/ 2100 MHz UMTS/HSDPA/ HSUPA/HSPA+/ DC-HSPA+: 800 /850/1900/2100 MHz GSM/GPRS/ EDGE: 850/900/ 1800/1900 MHz Europe (EU) LTE: 800/900/ 1900/2100/ 2600 MHz UMTS/HSDPA/ HSUPA/HSPA+/ DC-HSPA+: 900 /2100 MHz GSM/GPRS/ EDGE: 900/1800 /1900 MHz	Dual-band: HSUPA 1900/ 2100 MHz Quad-band: GSM/ GPRS/ EDGE 850/900/ 1800/1900 Hz WCDMA/HSDPA 850/900/1900/ 2100 MHz	America (US) LTE: 700/1700/ 2100 MHz UMTS/HSDPA/ HSUPA/HSPA+/ DC-HSPA+: 800 /850/1900/2100 MHz GSM/GPRS/ EDGE: 850/900/ 1800/1900 MHz Europe (EU) LTE: 800/900/ 1900/2100/ 2600 MHz UMTS/HSDPA/ HSUPA/HSPA+/ DC-HSPA+: 900 /2100 MHz GSM/GPRS/ EDGE: 900/1800 /1900 MHz	Dual-band: HSUPA 1900/ 2100 MHz Quad-band: GSM/ GPRS/ EDGE 850/900/ 1800/1900 Hz WCDMA/HSDPA 850/900/1900/ 2100 MHz
Protocol Support							
Protocol	ARP, BOOTP, DHCP, DNS, HTTP, IP, ICMP, SNMP, TCR, UDP, RADIUS, SNMP, PPPoE, STP (IEEE 802.1D)						
Fault Contact							
Relay	Relay output to carry capacity of 1A at 24VDC						
Power							
Redundant Input Power	Dual Power Inputs. 12~48 VDC on M23 connector (24 VDC Typ.)						
Power Consumption (Typ.)	9 Watts	9.5 Watts	13 Watts	15 Watts	13 Watts	14 Watts	
Overload Current Protection	Present						
Reverse Polarity Protection	Present						
Physical Characteristic							
Enclosure	IP-40						
Dimension (W x D x H)	125(W) x 65(D) x 196(H) mm (4.92 x 2.56 x 7.72 inch.)						
Weight (g)	985 g	968 g	1030 g	1033 g	1098 g	1114 g	
Environmental							
Storage Temperature	-40 to 85°C (-40 to 185°F)						
Operating Temperature	-25 to 70°C (-13 to 158°F)						
Operating Humidity	5% to 95% Non-condensing						
Regulatory Approvals							
EMI	FCC Part 15, CISPR (EN55022) class A, EN50155 (EN50121-3-2, EN55011, EN50121-4)						
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						
Shock	IEC60068-2-27, EN61373						
Free Fall	IEC60068-2-32						
Vibration	IEC60068-2-6						
Safety	EN60950-1						
Warranty	5 years						

ORing

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