ORing

EN50155 WIRELESS ACCESS POINT ROUTER

Quick Installation Guide

TGAR Series

EN50155 Industrial Wireless LAN Access Point Router

Introduction

With two LAN ports in M12 connectors and EN50155 compliance, the **TGAR-1062/2062/1662-M12-3G/4G** industrial access point routers are ideal for rolling stock applications. The IEEE802.11 a/b/g/n routers provide a fast and effective way to communicate with the Internet over wired or wireless LANs. Three operation modes are available, including dynamic/static IP route, PPPoE authentication, and cellular modem dial up. You can set up a WLAN environment based on your requirements 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.

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)
Cellular 3G Antenna		1 (TGAR-1062/1662-M12-3G) or 2 (TGAR-2062-M12-3G)
Cellular LTE Antenna		1 (TGAR-1062/1662-M12-4G) or 2 (TGAR-2062-M12-4G)
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 (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.
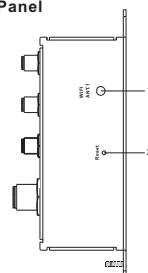
Dimension

Panel Layouts

Front Panel

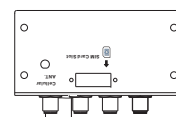**TGAR-1062-M12**   **TGAR-2062-M12**   **TGAR-1662-M12**
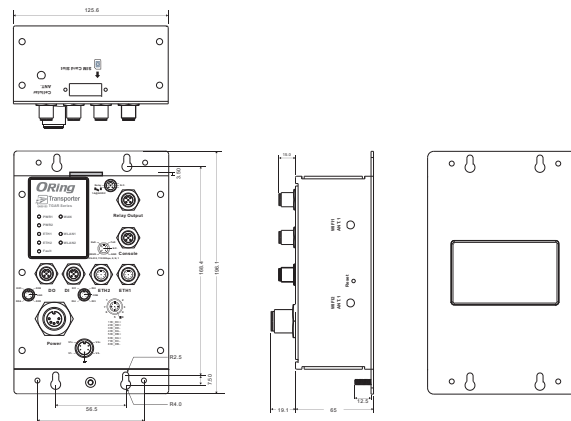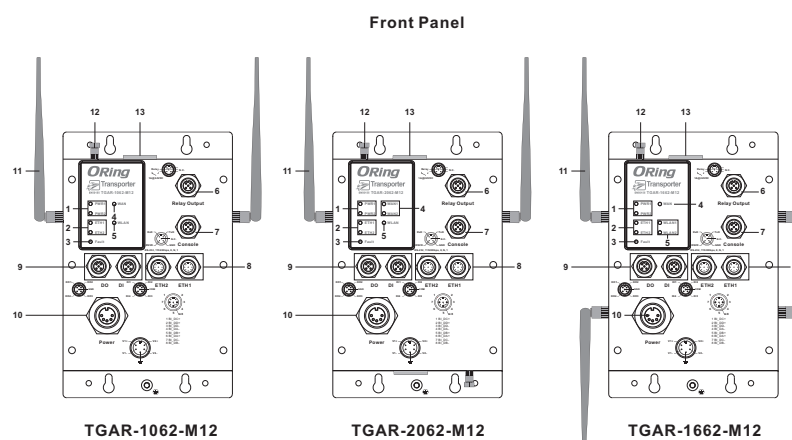
1. PWR status LED
2. LAN port status LED
3. Fault status LED
4. WAN status LED
5. WLAN status LED
6. Relay output port
7. Console port
8. Ethernet LAN ports
9. DI/DO ports
10. Power connector
11. 2.4/5GHz Wi-Fi antenna
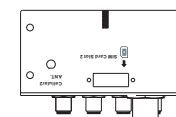12. Cellular antenna connector
13. SIM card slot

Side Panel   **Top Panel**   **Bottom Panel**


TGAR-2062-M12

1. Wi-Fi Antenna connector
2. Reset button

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.
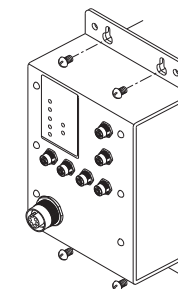
Wiring

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**

Relay 3A@24VDC   N.C.

DI: DI1 DI2 DI4 DI3 COM
DO: DO1 DO2 DO4 DO3 GND

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, devicees, 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-T(X)	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
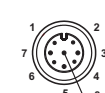
PIN	Definition
1	BI_DC+
2	BI_DD+
3	BI_DD-
4	BI_DA-
5	BI_DB+
6	BI_DA+
7	BI_DC-
8	BI_DB-

Console Port Pin Definition

RxD   TxD
RSVD   N.C.   GND
RS-232, 115200bps, 8, N, 1

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EN50155 Industrial Wireless LAN Access Point
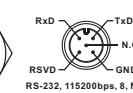
Configurations

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	Green	On	DC power 2 activated.
ETH1	Green	On	Port is linked
		Blinking	Transmitting data
ETH2	Green	On	Port is linked
		Blinking	Transmitting data
WLAN 1 (2)	Green	On	WLAN is activated
		Blinking	Transmitting data
WAN1 (2)	Green	On	Modem is activated
Fault	Amber	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**
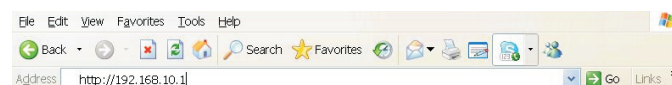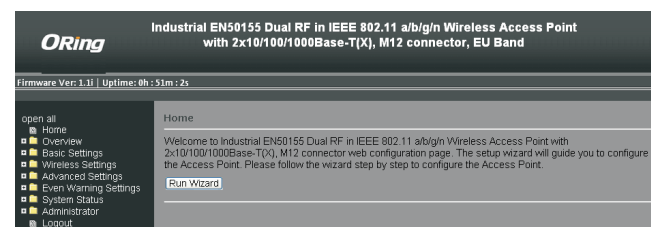
2. Log in with default user name and password (both are **admin**).

Please enter your user ID and password

ID
Password

Apply   Cancel

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.

ORing
Industrial EN50155 Dual RF in IEEE 802.11 a/b/g/n Wireless Access Point with 2x10/100/1000Base-T(X), M12 connector, EU Band

Firmware Ver: 1.1i | Uptime: 0h : 51m : 2s

open all
- Home
- Overview
- Basic Settings
- Wireless Settings
- Advanced Settings
- Even Warning Settings
- System Status
- Administrator
- Logout

Home

Welcome to Industrial EN50155 Dual RF in IEEE 802.11 a/b/g/n Wireless Access Point with 2x10/100/1000Base-T(X), M12 connector web configuration page. The setup wizard will guide you to configure the Access Point. Please follow the wizard step by step to configure the Access Point.

Run Wizard

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.

Specifications

ORing WLAN Access Point Model	TGAR-1062-M12-3G	TGAR-1062-M12-4G	TGAR-2062-M12-3G	TGAR-2062-M12-4G	TGAR-1662-M12-3G	TGAR-1662-M12-4G
Physical Ports						
10/100/1000Base-T(X) Ports in M12 Auto MDI/MDIX (8-pin A-coding)	2					
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)	3A@24VDC					
SIM Card Slot	1		2		1	
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	IEEE801.11b: 1/ 2/ 5.5/ 11 Mbps IEEE801.11a/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: 18dBm ±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 Senstivity	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 /HSPA+ /LTE	GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSUPA	GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSUPA /HSPA+ /LTE	GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSUPA	GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSUPA /HSPA+ /LTE
Antenna Connector	1 x Reverse SMA Female		2 x Reverse SMA Female		1 x Reverse 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

Protocol Support	
Protocol	ARP,BOOTP, DHCP, DNS, HTTP, IP, ICMP, SNTP, TCP, UDP, RADIUS, SNMP, PPPoE, STP (IEEE 802.1D)
LED Indicators	
Power Indicator	2 x LEDs, Green for Power indicator
10/100/1000Base-T(X) Indicator	2 x LEDs, Green for port Link/Act

WLAN LED	1 x LED, Green for WLAN Link/Ack		2 x LED, Green for WLAN Link/Ack
WAN LED	1 x LED, Green for Cellular modem activated	2 x LEDs, Green for Cellular modem activated	1 x LED, Green for Cellular modem activated

Fault Indicator	1 x LED, Amber for Ethernet link down or power down indicator
Fault contact	
Relay	Relay output to carry capacity of 3A 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℃ (-40 to 185℉)
Operating Temperature	-25 to 70℃ (-13 to 158℉)
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

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