



# TGAR-1662-3G-M12

**Industrial EN50155 Dual IEEE 802.11 a/b/g/n 3G Cellular Router With 2x10/100/1000Base-T(X), M12 connector**

## Features

- Leading EN50155-compliant wireless access point for rolling stock application
- High Speed Air Connectivity: **Dual RF in IEEE 802.11 a/b/g/n**  
WLAN interface support up to 300Mbps link speed
- Highly Security Capability: WEP/WPA/WPA-PSK(TKIP,AES)/WPA2/WPA2-PSK(TKIP,AES)/802.1X Authentication supported
- Secured Management by HTTPS
- **Support 3.5G HSDPA dial up**
- Various kind of WAN Connection Type supported: Dynamic/Static IP, PPPoE, Modem Dial Up
- IP table configurable to prevent access from unauthorized IP address
- Support VPN for secured network connection (Open VPN , PPTP VPN)
- Support NAT Setting (Virtual Server , Port Trigger , DMZ , UPnP)
- Support DHCP forwarding through PPTP function
- Dual redundant Ethernet ports support Ethernet redundant mode (Recovery time < 10ms) and switch mode in M12 connector (A-coding)
- Wireless connecting status monitoring
- Provide Digital Input and Digital Output
- Event Warning by Syslog, Email, SNMP Trap and Relay output
- Ultra rugged enclosure for toughest industrial usages
- Wall mounting enabled



## Introduction

ORing's Transporter™ series cellular router is designed for industrial and rolling stock wireless applications, such as vehicle, and railway applications. TGAR-1662-3G-M12 is reliable IEEE802.11 a/b/g/n router with 2 ports LAN which is fully compliant with EN50155 certification. It supports 802.1X and MAC filter for security control. It could be configured to operate in 3 modes of routing function: Dynamic/Static IP route, PPPoE authentication, and Cellular modem dial up. Users can set up WLAN environment to fulfill demands of various applications rapidly by dialing up cellular modem. TGAR-1662-3G-M12 EN50155 cellular VPN router use M-series connectors to ensure tight, robust connections, and guarantee reliable operation against environmental disturbances, such as vibration and shock. TGAR-1662-3G-M12 provides dual Ethernet ports in switch mode, so that you can use Daisy Chain to reduce the usage of Ethernet switch ports. Therefore, TGAR-1662-3G-M12 is one of the most reliable choices for rolling stock applications on the wireless network.

### Application

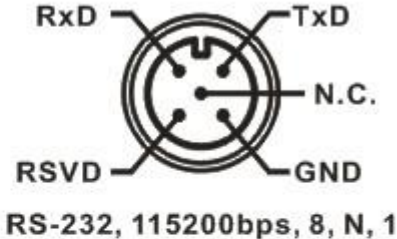
In TGAR-1662-3G-M12 , there are 3 modes of routing functions supported: Dynamic/Static IP route, PPPoE dial up, and Modem dial up. TGAR-1662-3G-M12 also support NAT, VPN and Back up functions. You can build up the wireless network and connect to the Internet easily.

### Pin Definition

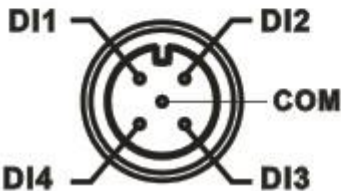
#### Relay Output



#### Console



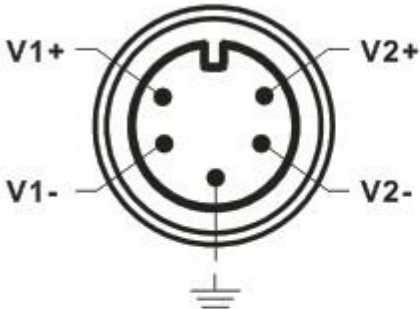
#### DI



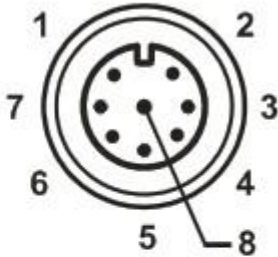
#### DO



#### Power

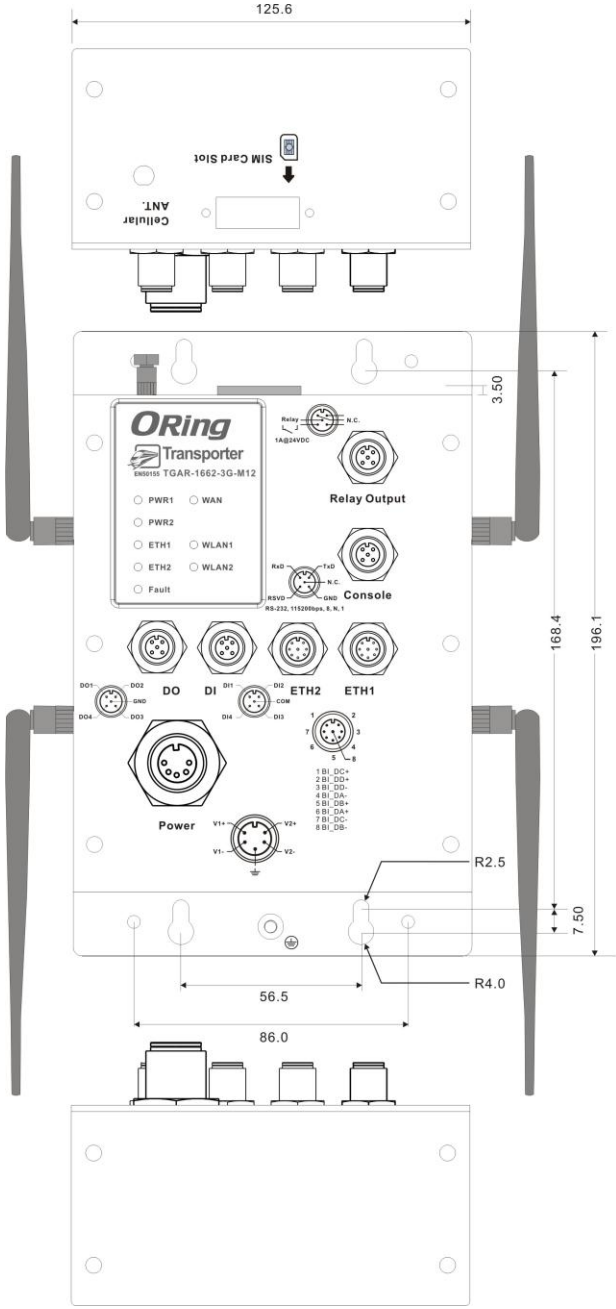


#### Ethernet

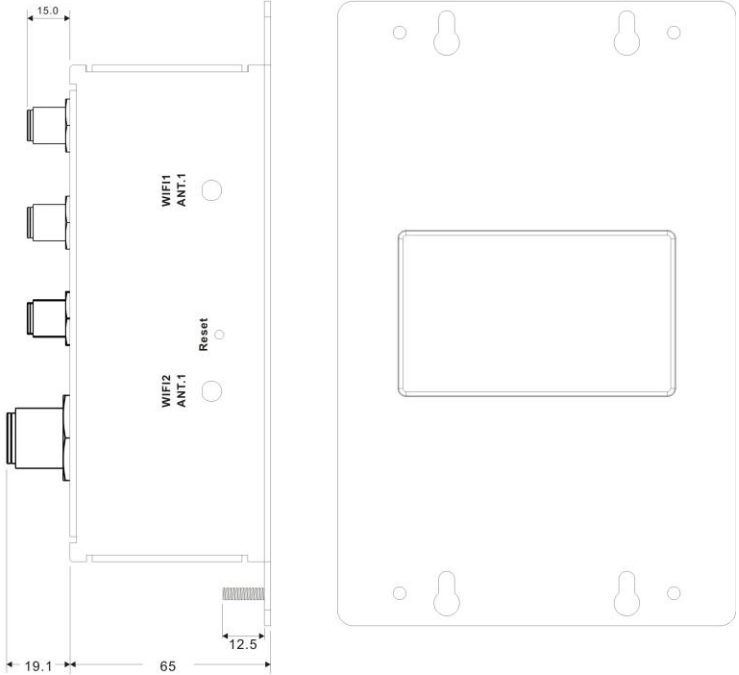


- 1 BI\_DC+
- 2 BI\_DD+
- 3 BI\_DD-
- 4 BI\_DA-
- 5 BI\_DB+
- 6 BI\_DA+
- 7 BI\_DC-
- 8 BI\_DB-

**Dimension**



Dimension (Unit =mm)



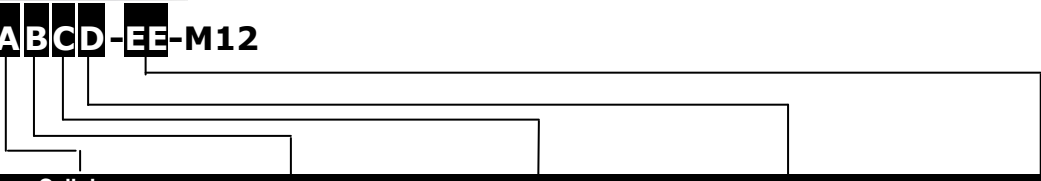
## Specifications

<b>ORing EN50155 WLAN Access Point Router Model</b>	<b>TGAR-1662-3G-M12</b>
<b>Physical Ports</b>	
10/100/1000Base-T(X) Ports in M12 Auto MDI/MDIX (8-pin A-coding)	<b>2</b>
DIDO port in M12 (5-pin A-coding)	<b>2(DI x 4 and DO x 4)</b>
RS-232 Console port in M12 (5-pin A-coding)	<b>115200, 8 ,N ,1</b>
Relay port in M12 (5-pin A-coding)	<b>1A@24VDC</b>
SIM Card Slot	<b>1</b>
<b>WLAN Interface</b>	
Antenna Connector	4 x Reverse SMA Female
Radio Frequency Type	DSSS, OFDM
Modulation	IEEE802.11a : OFDM with BPSK, QPSK, QAM, 64QAM IEEE802.11b: CCK, DQPSK, DBPSK IEEE802.11g: 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 IEEE801.11n: up to 300Mbps
Transmit Power	802.11a: 12dBm ± 1.5dBm 802.11b: 18dBm ± 1.5dBm 802.11g: 15dBm ± 1.5dBm 802.11gn HT20: 13dBm ± 1.5dBm@150Mbps 802.11gn HT40: 12dBm ± 1.5dBm@300Mbps 802.11an HT20: 12dBm ± 1.5dBm@150Mbps 802.11an HT40: 12dBm ± 1.5dBm@300Mbps
Receiver Sensitivity	802.11a: -68dBm ±2dBm@54Mbps 802.11b: -85dBm ±2dBm@11Mbps 802.11g: -68dBm ±2dBm@54Mbps 802.11gn HT20: -68dBm ±2dBm@150Mbps 802.11gn HT40: -68dBm ±2dBm@300Mbps 802.11an HT20: -68dBm ±2dBm@150Mbps 802.11an HT40: -68dBm ±2dBm@300Mbps
Encryption Security	WEP: (64-bit ,128-bit key supported) WPA/WPA2 :802.11i(WEP and AES encryption) WPAPSK (256-bit key pre-shared key supported) 802.1X Authentication supported TKIP encryption
Wireless Security	SSID broadcast disable
<b>Cellular Interface</b>	
Cellular Standard	GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSUPA /HSPA+
Antenna Connector	1 x Reverse SMA Female
Band Option	Dual-band : HSUPA 1900/2100 MHz Quad-band : GSM/GPRS/EDGE 850/900/1800/1900 MHz WCDMA/HSDPA 850/900/1900/2100 MHz
<b>Protocol Support</b>	
Protocol	ARP,BOOTP, DHCP, DNS, HTTP, IP, ICMP, SNTP, TCP, UDP, RADIUS, SNMP, PPPoE
<b>LED Indicators</b>	
Power Indicator	2 x LEDs, Green for Power on
10/100/1000Base-T(X) port Indicator	2 x LEDs, Green for port Link/Act
WLAN LED	2 x LED, Green for WLAN Link/Act

WAN LED	1 x LEDs, Green for functioning normal
Fault Indicator	1 x LED, Red for Ethernet link down or power down indicator
<b>Fault Contact</b>	
Relay	Relay output to carry capacity of 1A at 24VDC
<b>Power</b>	
Redundant Input Power	Dual Power Inputs. 12~48 VDC on M23 connector (24 VDC Typ.)
Power Consumption (Typ.)	13 Wait
Overload Current Protection	Present
Reverse Polarity Protection	Present
<b>Physical Characteristic</b>	
Enclosure	IP-40
Dimension (W x D x H)	125.6(W) x 65(D) x 196.1(H) mm (4.94 x 2.55 x 7.72 inch.)
Weight (g)	1030g
<b>Environmental</b>	
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
<b>Regulatory Approvals</b>	
EMI	FCC Part 15, CISPR (EN55022) class A, EN50155 (EN50121-3-2)
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, EN61373
Rail Traffic	EN50155
Cooling	EN60068-2-1
Dry Heat	EN60068-2-2
Safety	EN60950-1
<b>Warranty</b>	5 years

## Ordering Information

TGAR-**ABCD**-**EE**-M12



Code Definition	Cellular Module Number	2 <sup>nd</sup> Wireless Mode	1 <sup>st</sup> Wireless Mode	Giga Ethernet Port Number	Cellular Generation
Option	1: One SIM 2: Dual SIM	1: 802.11 b/g 2: 802.11 a 3: 802.11 a/b/g 4: 802.11 b/g/n 5: 802.11 a/n 6: 802.11 a/b/g/n	1: 802.11 b/g 2: 802.11 a 3: 802.11 a/b/g 4: 802.11 b/g/n 5: 802.11 a/n 6: 802.11 a/b/g/n	2: 2 ports	4G :LTE

Model Name	Description
Available Model	TGAR-1662-3G-M12_US Industrial EN50155 Dual IEEE 802.11 a/b/g/n 3G cellular router with 2x10/100/1000Base-T(X), M12 connector, US band
	TGAR-1662-3G-M12_EU Industrial EN50155 Dual IEEE 802.11 a/b/g/n 3G cellular router with 2x10/100/1000Base-T(X), M12 connector, EU band

## Packing List

- TGAR-1662-3G-M12 x 1
- CD x 1
- Quick Installation Guide x 1
- 2.4GHz/5GHz Antenna x 4
- 3G Antenna x 1

## Optional Accessories

- DR-45 series : 45 Watts power supply
- DR-75 series : 75 Watts power supply
- DR-120 series : 120 Watts power supply
- WLAN RF Antenna series
- RF Antenna Base series
- RF Cable series