

# TGAR-1062-4G-M12 series

## Industrial EN50155 IEEE 802.11 a/b/g/n 4G LTE 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: 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
- 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
- 4G LTE Modem dial up included
- Dual redundant Ethernet ports support Ethernet redundant mode (Recovery time < 10ms) and switch mode in M12 connector (A-coding)
- GPS support for GPS model.
- 1KV isolation for PoE P.D. port for PoE model.
- 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-1062-4G-M12 is reliable IEEE802.11 a/b/g/n router with 2 ports LAN which is fully compliant with EN50155 certification. 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-1062-4G-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. In addition, TGAR-1062+-4G-M12 also provides P.D. feature on ETH2 which is fully compliant with IEEE802.3af PoE P.D. specification and TGAR-1062+-4GS-M12 supports GPS function. Therefore, TGAR-1062-4G-M12 is one of the most reliable choices for rolling stock applications on the wireless network.

## Application

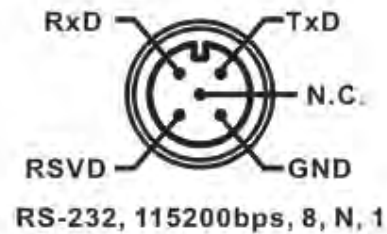
In TGAR-1062-4G-M12, there are 3 modes of routing functions supported: Dynamic/Static IP route, PPPoE dial up, and Modem dial up. TGAR-1062-4G-M12 also support NAT, VPN and Back up functions. You can build up the wireless network and connect to the Internet easily.

## Pin Definition

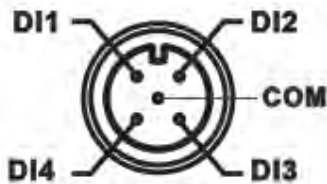
### Relay Output



### Console



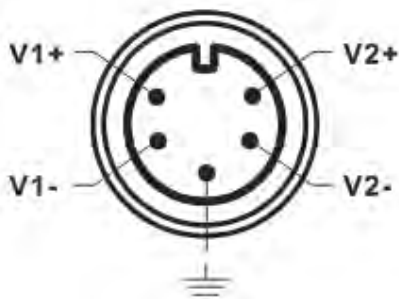
### DI



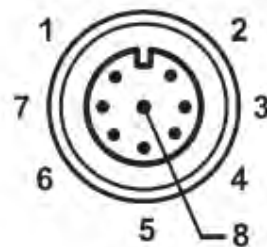
### DO



### Power

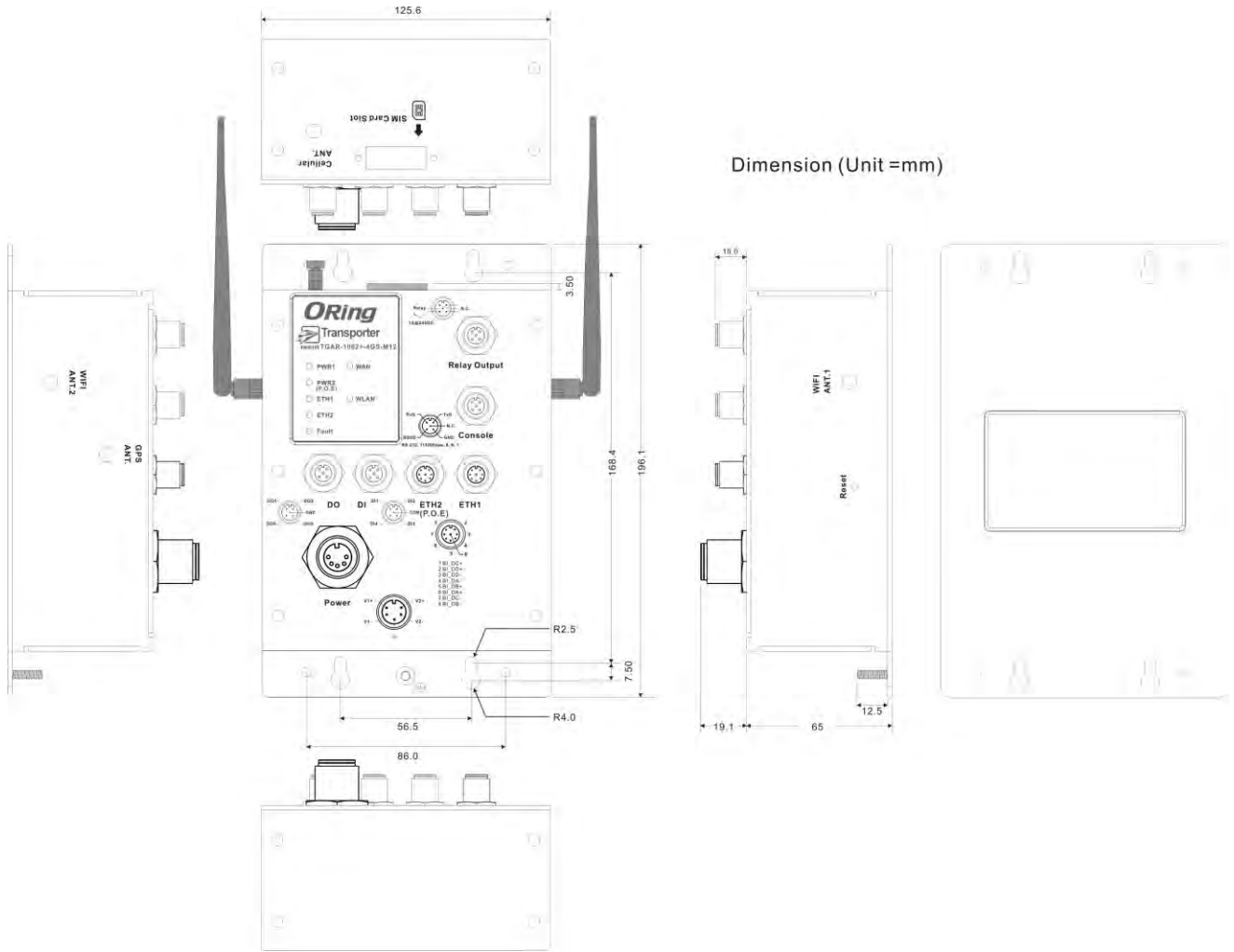


### Ethernet



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



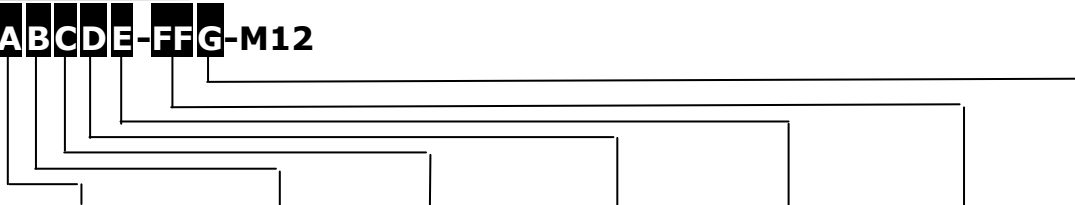
# Specifications

ORing EN50155 WLAN Access Point Router Model	TGAR-1062-4G-M12	TGAR-1062+-4G-M12	TGAR-1062+-4GS-M12
<b>Physical Ports</b>			
10/100/1000Base-T(X) Ports in M12 Auto MDI/MDIX (8-pin A-coding)	<b>2</b>	<b>2</b> (Present at ETH2 Fully compliant with IEEE 802.3af PoE P.D )	
DIDO port in M12 (5-pin A-coding)	<b>2(DI x 4 and DO x 4) :</b> Dry Contact: On: short to GND, Off: open Wet Contact (DI to COM/GND): On: 0 to 3VDC, Off: 10 to 30VDC		
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>GPS (-4GS model only)</b>			
Antenna Connector	1 x External reverse SMA antenna connector		
Frequency	1575.42MHz		
<b>WLAN Interface</b>			
Antenna Connector	2 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@54Mbps 802.11b: 17dBm ± 1.5dBm@11Mbps 802.11g: 16dBm ± 1.5dBm@54Mbps 802.11gn HT20: 15dBm ± 1.5dBm @MCS7 802.11gn HT40: 14dBm ± 1.5dBm @MCS7 802.11an HT20: 12dBm ± 1.5dBm @MCS7 802.11an HT40: 11dBm ± 1.5dBm @MCS7		
Receiver Sensitivity	802.11a : -76dBm ± 2dBm@54Mbps 802.11b : -85dBm ± 2dBm@11Mbps 802.11g : -76dBm ± 2dBm@54Mbps 802.11gn HT20: -75dBm ± 2dBm@MCS7 802.11gn HT40: -72dBm ± 2dBm@MCS7 802.11an HT20: -74dBm ± 2dBm@MCS7 802.11an HT40: -71dBm ± 2dBm@MCS7		
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	<b>SSID broadcast disable</b>		
<b>Cellular Interface</b>			
Cellular Standard	GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSUPA /HSPA+ /LTE		
Antenna Connector	1 x SMA Female		
Band Option	<b>America(US)</b> LTE: 1900(B2)/1700(B4)/850(B5)/700(B13)/700(B17)/1900(B25) MHz		

	CDMA/EVDO rev. a/b: 800/1900 UMTS/HSDPA/HSUPA/HSPA+/DC-HSPA+: 850/900/1700/1900/2100 MHz GSM/GPRS/EDGE: 850/900/1800/1900 MHz <b>Europe(EU)</b> LTE: 2100(B1)/1800(B3)/2600(B7)/900(B8)/800(B20) MHz UMTS/HSDPA/HSUPA/HSPA+/DC-HSPA+: 800/850/900/1900/2100 MHz GSM/GPRS/EDGE: 850/900/1800/1900 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, PW1: Green for DC Power on PW2: Green for DC Power on or power by PoE		
10/100/1000Base-T(X) port Indicator	2 x LEDs, Green for port Link/Act		
WLAN LED	1 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 3A at 24VDC		
<b>Power</b>			
Redundant Input Power	Dual Power Inputs. 12~48 VDC on M23 connector (24 VDC Typ.)		
Power Consumption (Typ.)	9.5W	10.5 Watts	10.7 Watts
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)	968g	977g	977g
<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	IEC60068-2-31		
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-ABCDE-FFG-M12**



Code Definition	Cellular Module Number	2 <sup>nd</sup> Wireless Mode	1 <sup>st</sup> Wireless Mode	Giga Ethernet Port Number	PoE Identification	Cellular Generation	GPS Function
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	- "+" : PoE P.D. present at ETH2	4G :LTE	S:GPS

Model Name	Description
<b>TGAR-1062-4G-M12_US</b>	Industrial EN50155 IEEE 802.11 a/b/g/n 4G LTE cellular router with 2x10/100/1000Base-T(X), M12 connector, US band
<b>TGAR-1062+-4G-M12_US</b>	Industrial EN50155 IEEE 802.11 a/b/g/n 4G LTE cellular router with 2x10/100/1000Base-T(X), M12 connector, 1-port PoE P.D, US band
<b>TGAR-1062+-4GS-M12_US</b>	Industrial EN50155 IEEE 802.11 a/b/g/n 4G LTE cellular GPS router with 2x10/100/1000Base-T(X), M12 connector, 1-port PoE P.D, US band
<b>TGAR-1062-4G-M12_EU</b>	Industrial EN50155 IEEE 802.11 a/b/g/n 4G LTE cellular router with 2x10/100/1000Base-T(X), M12 connector, EU band
<b>TGAR-1062+-4G-M12_EU</b>	Industrial EN50155 IEEE 802.11 a/b/g/n 4G LTE cellular router with 2x10/100/1000Base-T(X), M12 connector, 1-port PoE P.D, EU band
<b>TGAR-1062+-4GS-M12_EU</b>	Industrial EN50155 IEEE 802.11 a/b/g/n 4G LTE cellular GPS router with 2x10/100/1000Base-T(X), M12 connector, 1-port PoE P.D, EU band

## Packing List

- **TGAR-1062(+)-4G(S)-M12 x 1**
- **CD x 1**
- **Quick Installation Guide x 1**
- **2.4GHz/5GHz Antenna x 2**
- **Cellular LTE 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**