TGAR-1662-4G-M12 series

Industrial EN50155 Dual 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: **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 4G LTE 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)
- GPS support for GPS model
- 1KV isolation for PoE P.D. port for PoE model.
- 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-1662-4G-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-1662-4G-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-1662+-4G-M12 also provides P.D. feature on ETH2 which is fully compliant with IEEE802.3af PoE P.D. specification and TGAR-1662+-4GS-M12 supports GPS

function. Therefore, TGAR-1662-4G-M12 is one of the most reliable choices for rolling stock applications on the wireless network.
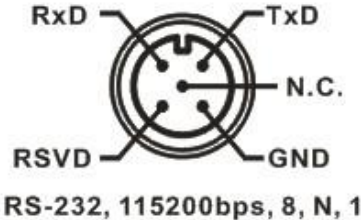
Application

In TGAR-1662-4G-M12 , there are 3 modes of routing functions supported: Dynamic/Static IP route, PPPoE dial up, and Modem dial up.   TGAR-1662-4G-M12 also support NAT, VPN and Back up functions.   You can build up the wireless network and connect to the Internet easily.
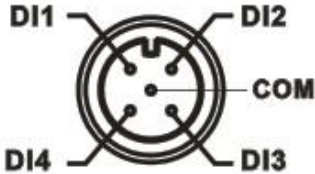
Pin Definition

Relay Output

Relay — N.C.
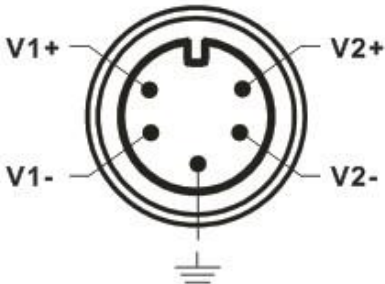
1A@24VDC

Console

RxD — TxD
— N.C.
RSVD — GND

RS-232, 115200bps, 8, N, 1

DI

DI1 — DI2
— COM
DI4 — DI3

DO

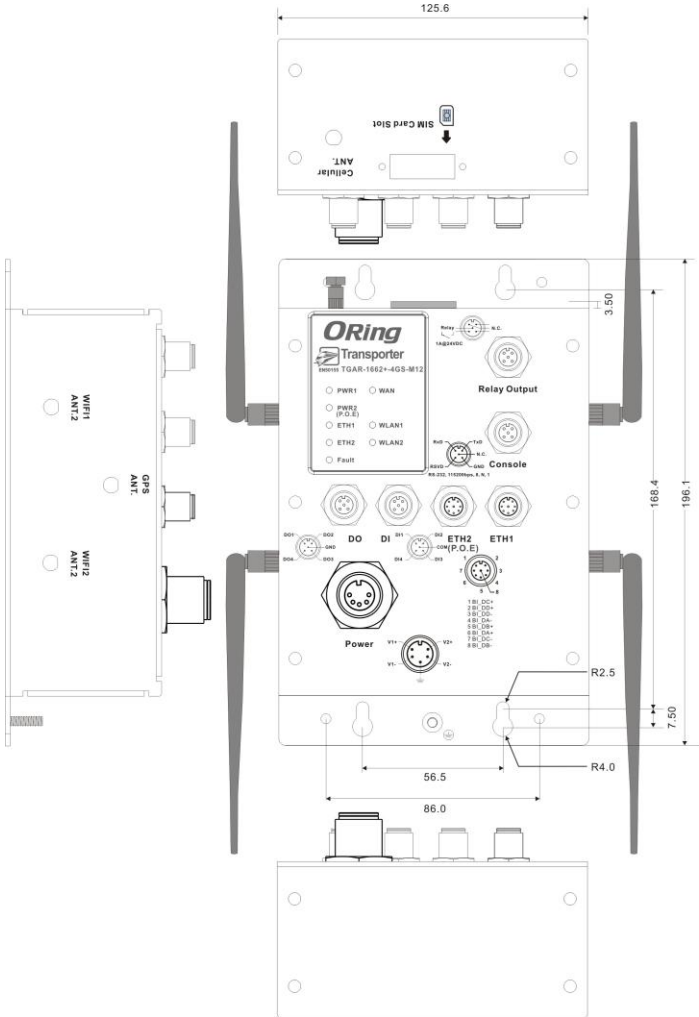DO1 — DO2
— GND
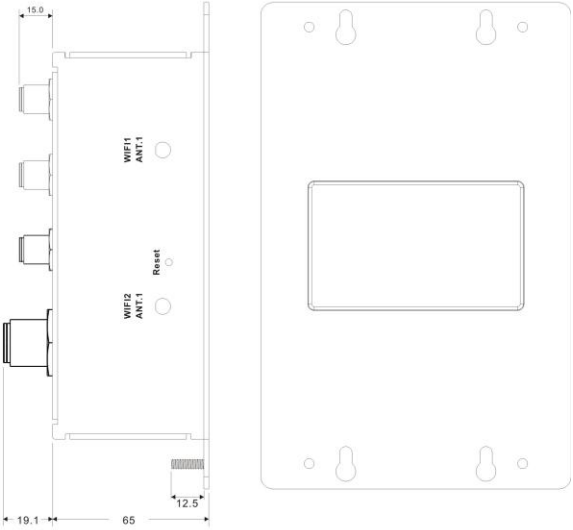DO4 — DO3

Power

V1+ — V2+
V1- — V2-

Ethernet

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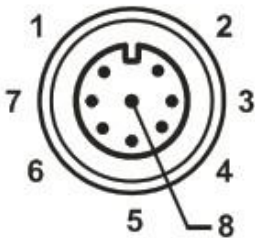
1 BI_DC+
2 BI_DD+
3 BI_DD-
4 BI_DA-
5 BI_DB+
6 BI_DA+
7 BI_DC-
8 BI_DB-

Dimension

Dimension (Unit =mm)

Specifications

ORing EN50155 WLAN Access Point Router Model	TGAR-1662-4G-M12	TGAR-1662+-4G-M12	TGAR-1662+-4GS-M12
Physical Ports			
10/100/1000Base-T(X) Ports in M12 Auto MDI/MDIX (8-pin A-coding)	**2**	**2(**Present at ETH2 Fully compliant with IEEE 802.3af PoE P.D)	
DIDO port in M12 (5-pin A-coding)	2(**DI x 4** and **DO x 4**) : 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)	**115200, 8 ,N ,1**		
Relay port in M12 (5-pin A-coding)	**1A@24VDC**		
SIM Card Slot	**1**		
GPS (-4GS model only)			
Antenna Connector	1 x External reverse SMA antenna connector		
Frequency	1575.42MHz		
WLAN Interface			
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@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	SSID broadcast disable		
Cellular Interface			
Cellular Standard	GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSUPA /HSPA+ /LTE		
Antenna Connector	1 x SMA Female		
Band Option	**America(US)** LTE: 700(B17)/1700(B4)/2100(B1) MHz		

	UMTS/HSDPA/HSUPA/HSPA+/DC-HSPA+:
	    800/850/1900/2100 MHz
	 GSM/GPRS/EDGE:
	    850/900/1800/1900 MHz
	 Europe(EU)
	 LTE:
	    800(B20)/900(B8)/1800(B3)/2100(B1)/2600(B7) 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		
LED Indicators			
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	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		
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.)	14 Watts	15 Watts	15.2 Watts
Overload Current Protection	Present		
Reverse Polarity Protection	Present		
Physical Characteristic			
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	1035g	1035g
Environmental			
Storage Temperature	-40 to 85ºC (-40 to 185ºF)		
Operating Temperature	-25 to 70ºC (-13 to 158ºF)		
Operating Humidity	5% to 95% Non-condensing		
Regulatory Approvals			
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		
Warranty	5 years		

Ordering Information

TGAR-ABCDE-FFG-M12
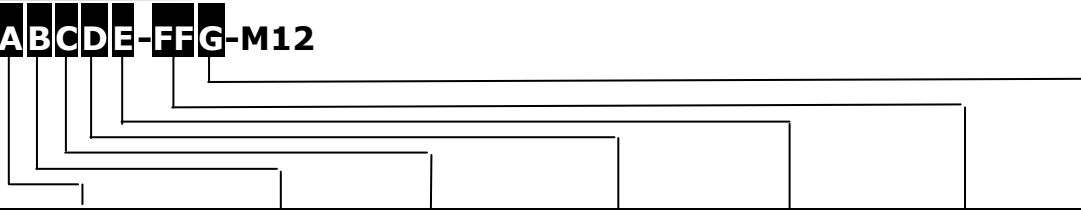
Code Definition	Cellular Module Number	2nd Wireless Mode	1st Wireless Mode	Giga Ethernet Port Number	PoE Identification	Cellular Generation	GPS Function
Option	**1:** One SIM **2:** Dual SIM	**1:** 802.11 b/g **2:** 802.11 a **3:** 802.11 a/b/g **4:** 802.11 b/g/n **5:** 802.11 a/n **6:** 802.11 a/b/g/n	**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
Available Model	**TGAR-1662-4G-M12_US**	Industrial EN50155 Dual IEEE 802.11 a/b/g/n 4G LTE cellular router with 2x10/100/1000Base-T(X), M12 connector, US band
	TGAR-1662+-4G-M12_US	Industrial EN50155 Dual 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
	TGAR-1662+-4GS-M12_US	Industrial EN50155 Dual 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
	TGAR-1662-4G-M12_EU	Industrial EN50155 Dual IEEE 802.11 a/b/g/n 4G LTE cellular router with 2x10/100/1000Base-T(X), M12 connector, EU band
	TGAR-1662+-4G-M12_EU	Industrial EN50155 Dual 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
	TGAR-1662+-4GS-M12_EU	Industrial EN50155 Dual 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-1662(+)-4G(S)-M12 x 1**
- **2.4GHz/5GHz Antenna x 4**
- **CD x 1**
- **LTE Antenna x 1**
- **Quick Installation Guide x 1**

Optional Accessories

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