





Introduction

ORing's Transporter™ series managed Ethernet switches are designed for industrial applications such as rolling stock, vehicle, and railway. The **TRGPS-9084TG-M12X-BP2-MV**, which is compliant with the EN50155 standard, is a managed 10G/2.5G Redundant Ring Ethernet switch with 8x10/100/1000Base-T(X) P.S.E. ports and 4x10GBase-T ports which is specifically designed for the toughest and fully compliant with EN50155 requirement. The switch support Ethernet Redundancy protocol, **O-Ring** (recovery time < 30ms over 250 units of connection), O-Chain and MSTP (RSTP/STP compatible) can protect your mission-critical applications from network interruptions or temporary malfunctions with its fast recovery technology. It is specifically designed for the toughest industrial environments. **TRGPS-9084TG-M12X-BP2-MV** EN50155 Ethernet switch uses M12 connectors to ensure tight, robust connections, and guarantee reliable operation against environmental disturbances, such as vibration and shock. **TRGPS-9084TG-M12X-BP2-MV** also support Power over Ethernet, a system to transmit electrical power up to 30 watts, along with data, to remote devices over standard twisted-pair cable in an Ethernet network. Each **TRGPS-9084TG-M12X-BP2-MV** switch has 8x10/100/1000Base-T(X) P.S.E. (Power Sourcing Equipment) ports. P.S.E. is a device (switch or hub for instance) that will provide power in a PoE connection. And support wide operating temperature from -40°C to 75°C. **TRGPS-9084TG-M12X-BP2-MV** can also be managed centralized and convenient by Open-Vision, Except the Web-based interface, Telnet and console (CLI) configuration. Therefore, the switch is one of the most reliable choice for highly-managed and Ethernet application.

Package Contents

The device is 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
TRGPS-9084TG-M12X-BP2-MV		1
Rack-mounted kit (L&R)		1
CD		1
QIG		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.

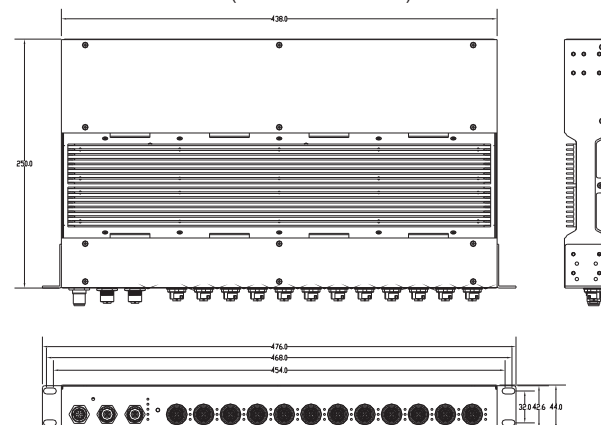


Mechanical Loading: Make sure the mounting of the equipment is not in a hazardous condition due to uneven mechanical loading.

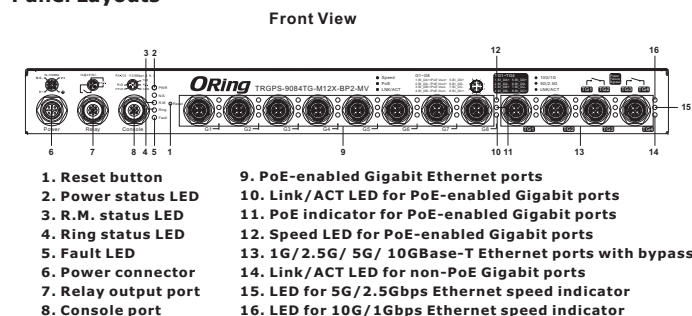


Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this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

Dimension Unit =mm (Tolerance ±0.5mm)



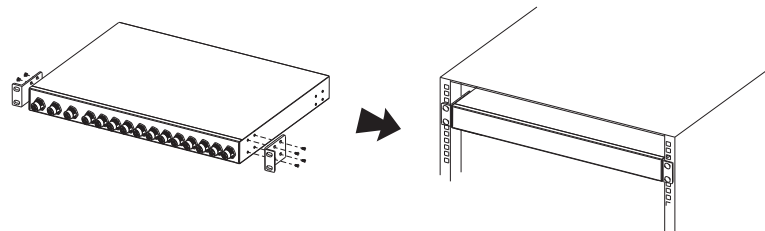
Panel Layouts



Installation

Rack-mounting

- Step 1:** Install left and right front mounting brackets to the switch using 4 M3 screws on each side provided with switch.
- Step 2:** With front brackets orientated in front of the rack, nest front and rear brackets together. Fasten together using remaining M4 screws into counter sunk holes.
- Step 3:** Fasten the front mounting bracket to the front of the rack.



Wiring

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

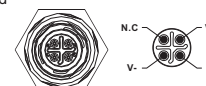
Grounding

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.

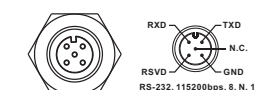
Power port pinouts

The device supports one set of power supply and uses the M12 S-coded 4-pin male connector on the front panel for power input.

- 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.



Console port pinouts



Relay output port pinouts

The switch uses the M12 A-coded 5-pin female connector on the front panel for relay output. Use a cable with an M12 A-coded 5-pin male connector to connect the relay. The relay contacts will detect user-configured events and form an close circuit when an event is triggered.



Network Connection

The switch has eight 10/100/1000Base-T(X) PoE and four 10/100/1000Base-T(X) non-PoE Ethernet ports in the form of M12 connector. Depending on the link type, the switch uses CAT 3, 4, 5, 5e UTP cables to connect to network devices (PCs, servers, switches, 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)	8-pin female M12 X-coding connector
100BASE-TX	Cat. 5 100-ohm UTP	UTP 100 m (328 ft)	8-pin female M12 X-coding connector
1000BASE-T	Cat. 5/Cat. 5e 100-ohm UTP	UTP 100 m (328 ft)	8-pin female M12 X-coding connector

For pin assignments of the Ethernet ports, please refer to the following tables.



1G/2.5G/5G/10GBase-T M12 X-coding		10/100/1000Base-T(X) P.S.E. M12 X-coding	
Pin No.	Pin Definition	Pin No.	Pin Definition
#1	BI_DA+	#1	BI_DA+ with PoE Vout+
#2	BI_DA-	#2	BI_DA- with PoE Vout+
#3	BI_DB+	#3	BI_DB+ with PoE Vout-
#4	BI_DB-	#4	BI_DB- with PoE Vout-
#5	BI_DD+	#5	BI_DD+
#6	BI_DD-	#6	BI_DD-
#7	BI_DC-	#7	BI_DC-
#8	BI_DC+	#8	BI_DC+

Quick Installation Guide

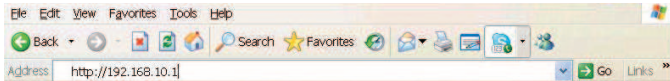
Configurations

After installing the switch and connecting cables, the green power LED should turn on. Please refer to the following tablet for LED indication.

LED	Color	Status	Description
PWR	Green	On	DC power module activated
R.M	Green	On	Device operating in Ring Master mode
Ring	Green	On	Ring enabled
		Blinking	Ring structure is broken
Fault	Amber	On	Errors occur (i.e. power failure or port malfunctioning)
10/100/1000Base-T(X) P.S.E Ethernet ports			
LNK/ACT	Green	On	Port is linked
		Blinking	Transmitting data
PoE	Green	On	Power supplied over Ethernet
Speed	Green	On	Port is running at 1000Mbps
	Amber	On	Port is running at 100Mbps
	Green/Amber	Off	Port is running at 10Mbps
1G/2.5G/5G/10GBase-T Ethernet ports			
LNK/ACT	Green	On	Port is linked
		Blinking	Transmitting data
5G/2.5G	Amber	On	Port is running at 2.5Gbps
	Green	On	Port is running at 5Gbps
10G/1G	Amber	On	Port is running at 1Gbps
	Green	On	Port is running at 10Gbps

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.

Information Message	
System	
Name	TRGPS-9084TG-M12X-BP2-MV
Description	EN50155 12-port managed 10G/2.5G PoE Ethernet switch with 8x10/100/1000Base-T(X) P.S.E. and 4x100/1G/2.5G/10GBase-T(X), M12 connector and 2x bypass included
Location	
Contact	
OID	1.3.6.1.4.1.25072.100.6.5.281
Hardware	
MAC Address	00-1a-94-03-a5-5b
Time	
System Date	1970-01-01 00:24:20+00:00
System Uptime	0d 00:24:20
Software	
Kernel Version	v9.55
Software Version	v1.00
Software Date	2017-01-04T16:47:55+08:00
Auto-refresh <input type="checkbox"/> Refresh	
Enable Location Alert	

TRGPS-9084TG-M12X-BP2-MV

Resetting

To restore the device configurations back to the factory defaults, press the **Reset** button for 5 seconds. Once the power indicator starts to flash, release the button. The device will then reboot and return to factory defaults.

Specifications

ORing Switch Model	TRGPS-9084TG-M12X-BP2-MV
Physical Ports	
10/100/1000 Base-T(X) Ports in M12 Auto MDI/MDIX with P.S.E.	8 x M12 connector (8 pin X-coding, female connector)
1G/2.5G/ 5G/10GBase-T Ports in M12 Auto MDI/MDIX	4 x M12 connector (8-pin X-coding, female connector)
Technology	
Ethernet Standards	IEEE 802.3i for 10Base-T IEEE 802.3u for 100Base-TX IEEE 802.3ab for 1000Base-T IEEE 802.3bz for 2.5GBase-T IEEE 802.3an for 10GBase-T IEEE 802.3x for Flow control IEEE 802.3ad for LACP (Link Aggregation Control Protocol) IEEE 802.1p for COS (Class of Service) IEEE 802.1Q for VLAN Tagging IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol) IEEE 802.1s for MSTP (Multiple Spanning Tree Protocol) IEEE 802.1x for Authentication IEEE 802.1AB for LLDP (Link Layer Discovery Protocol) IEEE 802.3at PoE specification (up to 30 Watts per port for P.S.E.) IEEE 802.3af PoE specification (up to 15.4 Watts per port for P.S.E.)
MAC Table	32K
Jumbo frame	Up to 10.2K Bytes
Priority Queues	8
Processing	Store-and-Forward
Switch Properties	Switching latency: 7 us Switching bandwidth: 96 Gbps Max. Number of Available VLANs: 4095 IGMP multicast groups: 128 for each VLAN Port rate limiting: User Define
Security Features	Device Binding security feature Enable/disable ports, MAC based port security Port based network access control (802.1x) VLAN (802.1Q) to segregate and secure network traffic Radius centralized password management SNMPv3 encrypted authentication and access security Https / SSH enhance network security
Software Features	STP/RSTP/MSTP (IEEE 802.1D/w/s) Redundant Ring (O-Ring) with recovery time less than 30ms TOS/Diffserv supported Quality of Service (802.1p) for real-time traffic VLAN (802.1Q) with VLAN tagging and GVRP supported IGMP Snooping IP-based bandwidth management Application based QoS management DOS/DDOS auto prevention Port configuration, status, statistics, monitoring, security DHCP Server / Client support SMTP Client Modbus TCP
Network Redundancy	O-Ring O-Chain MSTP (RSTP/STP compatible)
RS-232 Serial Console Port	RS-232 in 5-pin M12 connector with optional console cable which can be purchased separately. 115200bps, 8, N, 1
Fault Contact	
Relay	Relay output to carry capacity of 3A at 24VDC on M12 connector (5-pin M12 A-coding, female connector)
Power	
Redundant Input Power	110 (50.4-154) VDC on 4-pin 5-coding, male connector
Power Consumption(Typ.)	41 Watts (power consumption of P.S.E. is not included)
Overload Current Protection	Present
Reverse Polarity Protection	Present
Physical Characteristic	
Enclosure	IP-30
Dimension (W x D x H)	438 (W) x 250 (D) x 44 (H) mm (17.24x9.84x1.73 inch)
Weight (g)	3919g

EN50155 Rack-mount managed 10G/2.5G PoE Ethernet switch

Environmental	
Storage Temperature	-40 to 85°C (-40 to 185°F)
Operating Temperature	-40 to 75°C (-40 to 167°F)
Operating Humidity	5% to 95% Non-condensing
Regulatory Approvals	
EMC	CE EMC (EN 55024, EN 55032), FCC Part 15 B, EN50155 (EN50121-3-2, EN55011)
EMI	EN 55032, CISPR32, EN 6100-3-2, EN 6100-3-3, FCC Part 15B class A
EMS	EN 55024 (IEC 61000-4-2 (ESD), IEC 61000-4-3 (RS), IEC 61000-4-4 (EFT), IEC 61000-4-5 (Surge), IEC 61000-4-6 (CS), IEC 61000-4-8 (PFMF), IEC 61000-4-11 (DIP))
Shock	IEC60068-2-27
Free Fall	IEC60068-2-31
Vibration	IEC60068-2-6
Other	EN60950-1
MTBF	150865 hrs
Warranty	5 years

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