

# TGXPS-1080-M12-MV SERIES



ORing WEB-site

➤ **EN50155 8-port unmanaged Gigabit PoE Ethernet switch with 8x10/100/500/1000Base-T(X) P.S.E., M12 connector, 110VDC power input**

## Features

- Leading EN50155-compliant Ethernet switch for rolling stock application
- Provide 8x10/100/500/1000Base-T(X) PoE (P.S.E.) ports
- Supports 8xIEEE 802.3af/at compliant PoE with maximum 15.4/30Watts per port
- Provided power isolated protection
- Built-in 2 sets of bypass ports (-BP2 model only)
- Built-in 24VDC@3A relay output for warning system
- Support auto-negotiation and auto-MDI/MDI-X
- Support store and forward transmission
- Support flow control
- M12 connectors to guarantee reliable operation against environmental disturbances
- Rigid IP-30 housing design
- Wall mounting enabled



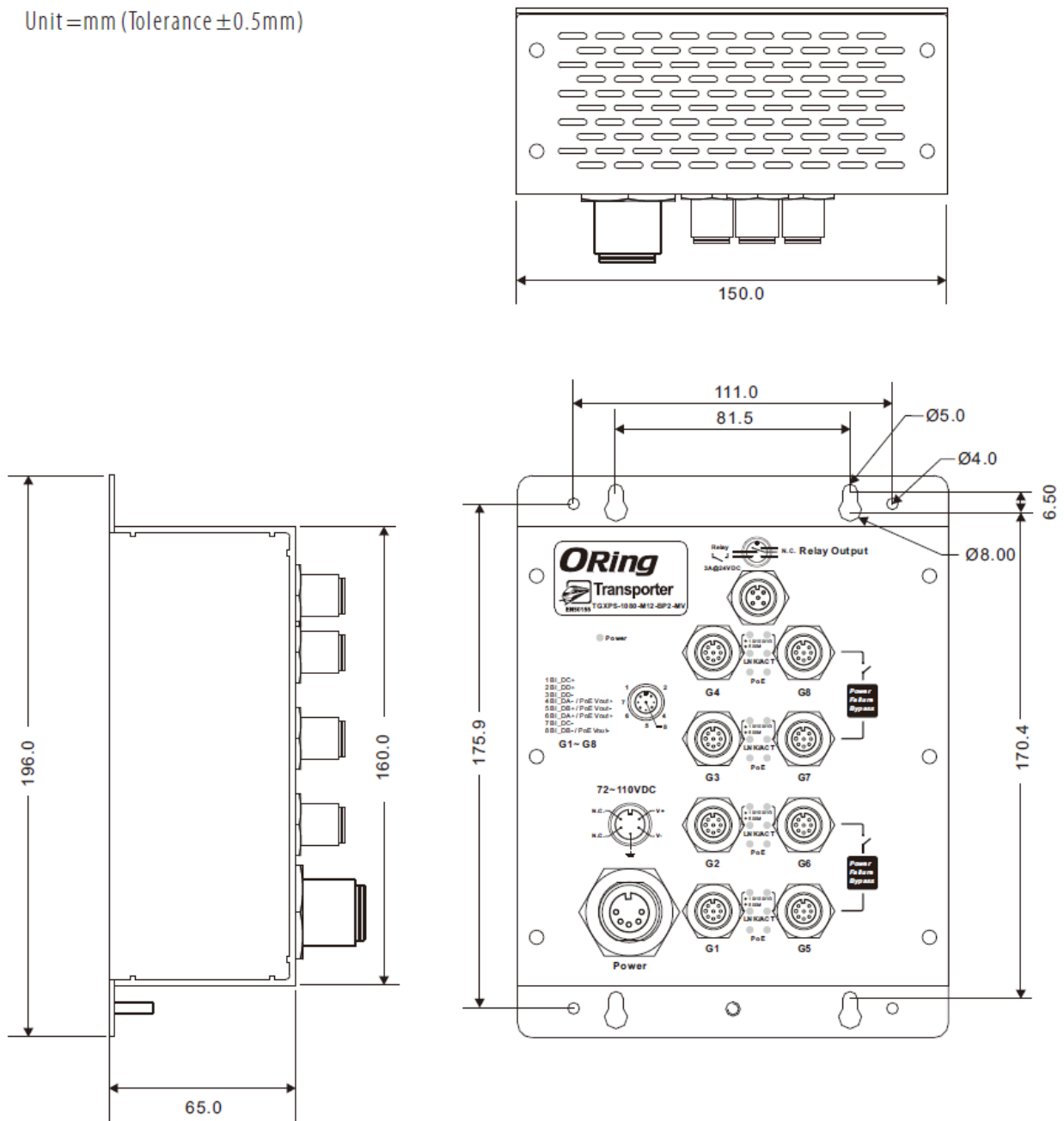
## Introduction

ORing's Transporter™ series un-managed Ethernet switches are designed for industrial applications, such as rolling stock, vehicle, and railway applications. The TGXPS-1080-M12-MV is an un-managed PoE Ethernet switch with 8x10/100/500/1000Base-T(X) P.S.E. which is specifically designed for the toughest and fully compliant with EN50155 requirement. TGXPS-1080-M12-MV also supports Power over Ethernet, a system to transmit electrical power, along with data, to remote devices over standard twisted-pair cable in an Ethernet network. Each TGXPS-1080-M12-MV switch has 8X10/100/500/1000Base-T(X) IEEE 802.3af/at P.S.E. (Power Sourcing Equipment) ports, but the PoE total power budget is 60Watts Max. P.S.E. is a device (switch or hub for instance) that will provide power in a PoE setup. TGXPS-1080-M12-MV EN50155 Ethernet switch use M12 connectors to ensure tight, robust connections, and guarantee reliable operation against environmental disturbances, such as vibration and shock. In addition, the wide operating temperature range from -40°C to 75°C can satisfy most of operating environment. Therefore, the switch is one of the most reliable choices for rolling stock and highly-managed PoE Ethernet application.

While installing in the train, TGXPS-1080-M12-MV is mainly used for in-train monitoring and Entertainment service due to its high-speed Gigabit Ethernet connection and PoE capability. Devices connected will be IP camera or CCTV for the use of train surveillance. As an unmanaged Ethernet Switch, TGXPS-1080-M12-MV is not able and will not be used for any control related application. Its main function is simply forwarding the Ethernet packet from one Ethernet based device to another Ethernet device which are all connected to the Switch.

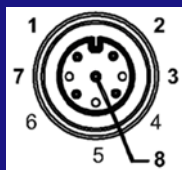
## Dimensions

Unit = mm (Tolerance ±0.5mm)



## Pin Definition

10/100/500/1000Base-T(X) P.S.E. M12 port	
Pin No.	Description
#1	BI_DC+
#2	BI_DD+
#3	BI_DD-
#4	BI_DA- / PoE Vout+
#5	BI_DB+ / PoE Vout-



A-Coding M12

#6	BI_DA+ / PoE Vout+
#7	BI_DC-
#8	BI_DB- / PoE Vout-

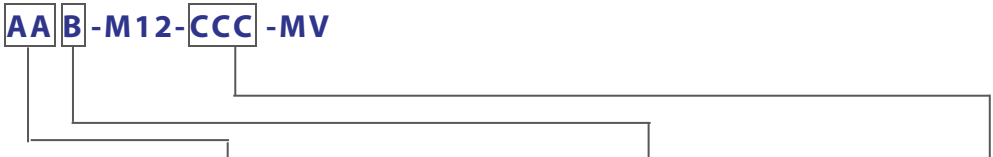
## Specifications

ORing Switch Model	TGXPS-1080-M12-MV	TGXPS-1080-M12-BP2-MV
<b>Physical Ports</b>		
10/100/500/1000Base-T(X) with P.S.E. Ports in M12 Auto MDI/MDIX	8 (8-pin female A-coding)	8 (8-pin female A-coding and 2-sets bypass function included)
<b>Technology</b>		
Ethernet Standards	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX IEEE 802.3ab for 1000Base-T IEEE 802.3x for Flow control 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	4k	
Packet buffer	1.5Mbits	
Processing	Store-and-Forward	
Switch Properties	Switching latency: <2.5 $\mu$ s Switching bandwidth: 16Gbps Throughput (packet per second):11.905Mpps@64Bytes packet	
Jumbo frame	Up to 9216 Bytes	
<b>LED indicators</b>		
Power Indicator (Power)	Green: Power LED x 1	
10/100/500/1000Base-T(X) M12 P.S.E. Port Indicator	Top dual color LED for 10/100/1000Mbps port Link/Act indicator: Green on for 1Gbps link-up/active, Amber on for 10/100Mbps link-up/active. Middle Amber LED for 500Mbps port Link/Act indicator: On for link-up, Off for link-down, Blinking for active. Bottom blue LED for PoE Injected indicator: On for enabled, Off for disabled.	
<b>Fault contact</b>		
Relay	Relay output to carry capacity of 3A at 24VDC on M12 connector (5-pin A-coding, female connector)	
<b>Power</b>		
Input power	72/110 (50.4-137.5) VDC on 5-pin 7/8-inch male connector	
Power consumption (Typ.)	$\leq$ 13 Watts, 72VDC/0.16A (11W), 96VDC/0.13A (12W), 110VDC/0.12A (13W) <b>NOTE.</b> PoE output not include.	
Total PoE Output Power	60 watts	
Overload current protection	Present	
Reverse Polarity Protection	Present	
<b>Physical Characteristic</b>		
Enclosure	IP-30	
Dimension (W x D x H)	150 (W) x 65 (D) x 196 (H) mm 5.91 (W) x 2.56 (D) x 7.72 (H) inch	
Weight (g)	1320 g	1350 g
<b>Environmental</b>		
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	
<b>Regulatory approvals</b>		

EMC	CE EMC (EN 55024, EN 55032), FCC Part 15 B, EN 50155(EN 50121-1, EN 50121-3-2)	
EMI	EN 55032, CISPR32, EN 61000-3-2, EN 61000-3-3, FCC Part 15 B class A	
EMS	EN 55024 (IEC/EN 61000-4-2 (ESD: Contact 4KV, Air 8KV), IEC/EN 61000-4-3 (RS 80MHz to 1GHz: 3V/m 1kHz 80% AM), IEC/EN 61000-4-4 (EFT Power 0.5KV, Signal 0.5KV), IEC/EN 61000-4-5 (Surge: Power 0.5KV), IEC/EN 61000-4-6 (CS 150K-80MHz: 3Vrms 1kHz 80% AM), IEC/EN 61000-4-8(PFMF), IEC/EN 61000-4-11 (DIP))	
Shock	IEC60068-2-27	
Free Fall	IEC60068-2-31	
Vibration	IEC60068-2-6	
Safety	EN 60950-1 (LVD) - Pending	
Other	EN 50155 (IEC 61373) – Pending	
MTBF	229,943 hrs.	172,182 hrs.
Warranty	5 years	

## Ordering Information

TGXPS-1 **AA** **B** -M12- **CCC** -MV



Code Definition	10/100/500/1000Base-T(X) P.S.E. Port Number	Additional Port Number	Additional Function
<b>Option</b>	<b>- 08:</b> 8 ports	<b>- 0:</b> 0 ports	<b>-BP2:</b> 2-sets bypass function included

Available Model	Model Name	Description
	TGXPS-1080-M12-BP2-MV	EN50155 8-port unmanaged Gigabit PoE Ethernet switch with 8x10/100/500/1000Base-T(X) P.S.E., M12 connector and 2xbypass included, 110VDC power input
	TGXPS-1080-M12-MV	EN50155 8-port unmanaged Gigabit PoE Ethernet switch with 8x10/100/500/1000Base-T(X) P.S.E., M12 connector, 110VDC power input
<b>Packing List</b>	<ul style="list-style-type: none"> <li>TGXPS-1080-M12(-BP2)-MV x 1</li> <li>Quick Installation Guide x 1</li> </ul>	<b>Optional Accessories</b> <ul style="list-style-type: none"> <li>M12 cable series</li> </ul>