



# TGXPS-1080-M12-24V Series

**EN50155 8-port unmanaged Gigabit PoE Ethernet switch with 8x10/100/500/1000Base-T(X) P.S.E., M12 connector, 24VDC 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 IEEE 802.3at compliant PoE with maximum 30Watts per port
- Support dual power inputs for power redundancy
- Built-in 2 sets of bypass ports (-BP2)
- 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

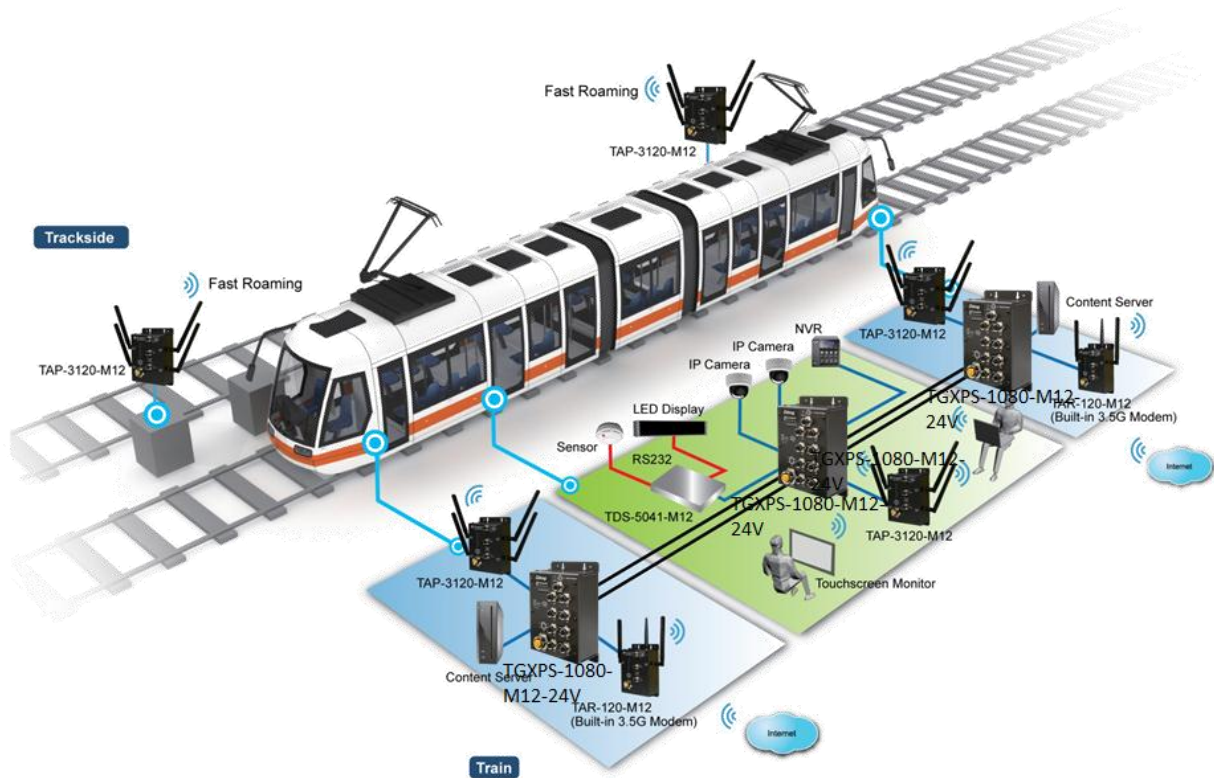
ORing's Transporter™ series un-managed Ethernet switches are designed for industrial applications, such as rolling stock, vehicle, and railway applications. The TGXPS-1080-M12-24V is an un-managed PoE Ethernet switch with 8x10/100/500/1000Base-T(X) P.S.E. which is specifically designed for the toughest and fully compliant with EN50155 requirement. TGXPS-1080-M12-24V 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-M12-24V switch has 8X10/100/500/1000Base-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 setup. TGXPS-1080-M12-24V 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-M12-24V 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-M12-24V 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.

## Practical Operation

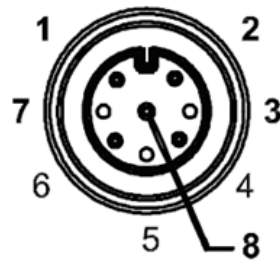
TGXPS-1080-M12-24V can be used in connecting several PoE P.D. Ethernet devices like IP-Camera or other Ethernet devices. In addition, there are two different power inputs to avoid interruption caused by power down. When the primary DC power input fails, the backup power input will take over immediately to guarantee a non-stop operation.

### Railway Application



Connections of Ethernet devices

## Pin Definition

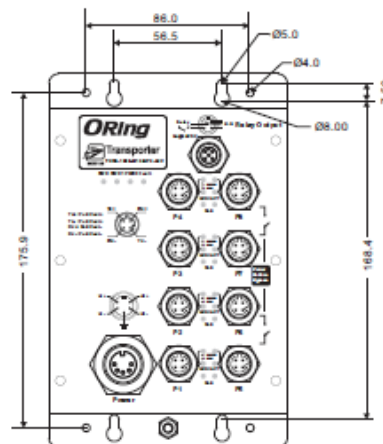
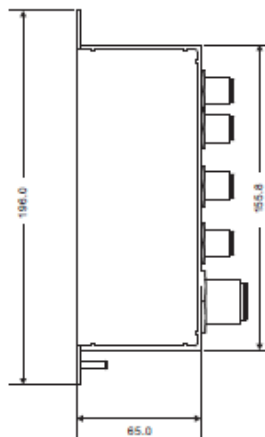
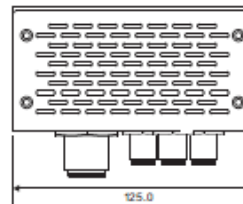


- 10/100/500/1000Base-T(X) P.S.E. M12 port

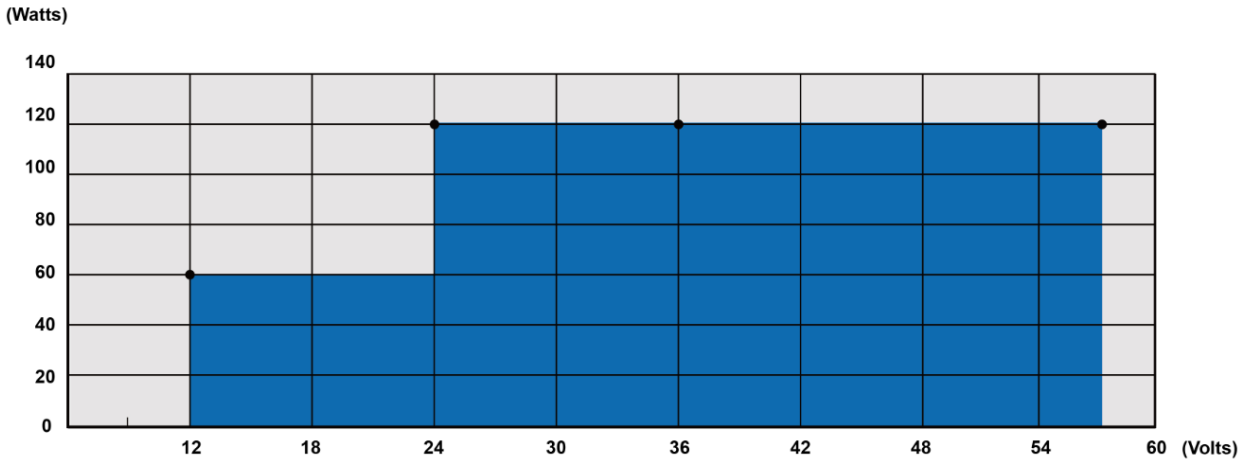
M12 Pin Definition	
Pin No.	Description
#1	BI_DC+
#2	BI_DD+
#3	BI_DD-
#4	BI_DA- / PoE Vout+
#5	BI_DB+ / PoE Vout-
#6	BI_DA+ / PoE Vout+
#7	BI_DC-
#8	BI_DB- / PoE Vout-

## Dimension

Unit =mm (Tolerance  $\pm 0.5\text{mm}$ )



## PoE Power Distribution



TGXPS-1080-M12(-BP2)-24V model PoE Power Distribution

## Specifications

ORing Switch Model	TGXPS-1080-M12-24V	TGXPS-1080-M12-BP2-24V
<b>Physical Ports</b>		
10/100/500/1000Base-T(X) Ports in M12 With P.S.E.	8 x M12 connector (8-pin A-coding)	8 x M12 connector (8-pin A-coding, bypass function included by last 4 ports)
<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 compliant PoE specification (Maximum 30Watts per port)	
MAC Table	4K MAC addresses	
Processing	Store-and-Forward	
<b>LED indicators</b>		
Power indicator	Green : Power LED x 3	
Fault indicator	Amber : Indicate PWR1 or PWR2 failure	
10/100/500/1000Base-T(X) M12 port indicator and PoE indicator	Top for 10/100/1000Mbps port Link/Act indicator. Green for 1Gbps link, Amber for 10/100 Mbps link Middle Amber for 500Mbps port Link/Act indicator Bottom blue for PoE Injected indicator	
<b>Fault contact</b>		
Relay	Relay output to carry capacity of 3A at 24VDC on M12 connector (5-pin A-coding)	
<b>Power</b>		
Redundant Input power	Dual DC inputs. 24 (12~57VDC) VDC on 5-pin M23 connector	
Power consumption (Typ.)	8 Watts (power consumption of P.S.E. is not included)	
PoE Output Power	60 Watts (12~24VDC) / 120 Watts (24~57VDC)	
Overload current protection	Present	
Reverse polarity protection	Present	
<b>Physical Characteristic</b>		
Enclosure	IP-30	

Dimension (W x D x H)	125 (W) x 65 (D) x196 (H) mm	
Weight (g)	979 g	1001 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 15B, EN 50121-3-2 (EN 50155)	
EMI	EN 55032, CISPR32, EN 61000-3-2, EN 61000-3-3, FCC Part 15B class A	
EMS	EN 55024 (IEC/EN 61000-4-2 (ESD), IEC/EN 61000-4-3 (RS),IEC/EN 61000-4-4 (EFT), IEC/EN 61000-4-5 (Surge), IEC/EN 61000-4-6 (CS), 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	
Other	EN 50155	
<b>MTBF</b>	442602 hrs	273770 hrs
<b>Warranty</b>	5 years	

## Ordering Information

**TGXPS-1AAB-M12-BP2-24V**

Code Definition	10/100/500/1000Base-T(X) P.S.E.	Port Number	Additional Port Number
<b>Option</b>	- 08: 8 ports	- 0: 0 port	

Available Model	Model Name	Description
	<b>TGXPS-1080-M12-24V</b>	EN50155 8-port unmanaged Gigabit PoE Ethernet switch with 8x10/100/500/1000Base-T(X) P.S.E., M12 connector, 24VDC power inputs
	<b>TGXPS-1080-M12-BP2-24V</b>	EN50155 8-port unmanaged Gigabit PoE Ethernet switch with 8x10/100/500/1000Base-T(X) P.S.E., M12 connector and 2xbypass included, 24VDC power inputs

## Packing List

- TGXPS-1080-M12-24V x 1
- Quick Installation Guide x 1

## Optional Accessories

- M12C : M12 cable accessories