

# TGXS-1080-M12-MV SERIES



ORing WEB-site

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

## Features

- Leading EN50155-compliant Ethernet switch for rolling stock application
- Provide 8x10/100/500/1000Base-T(X) ports
- 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



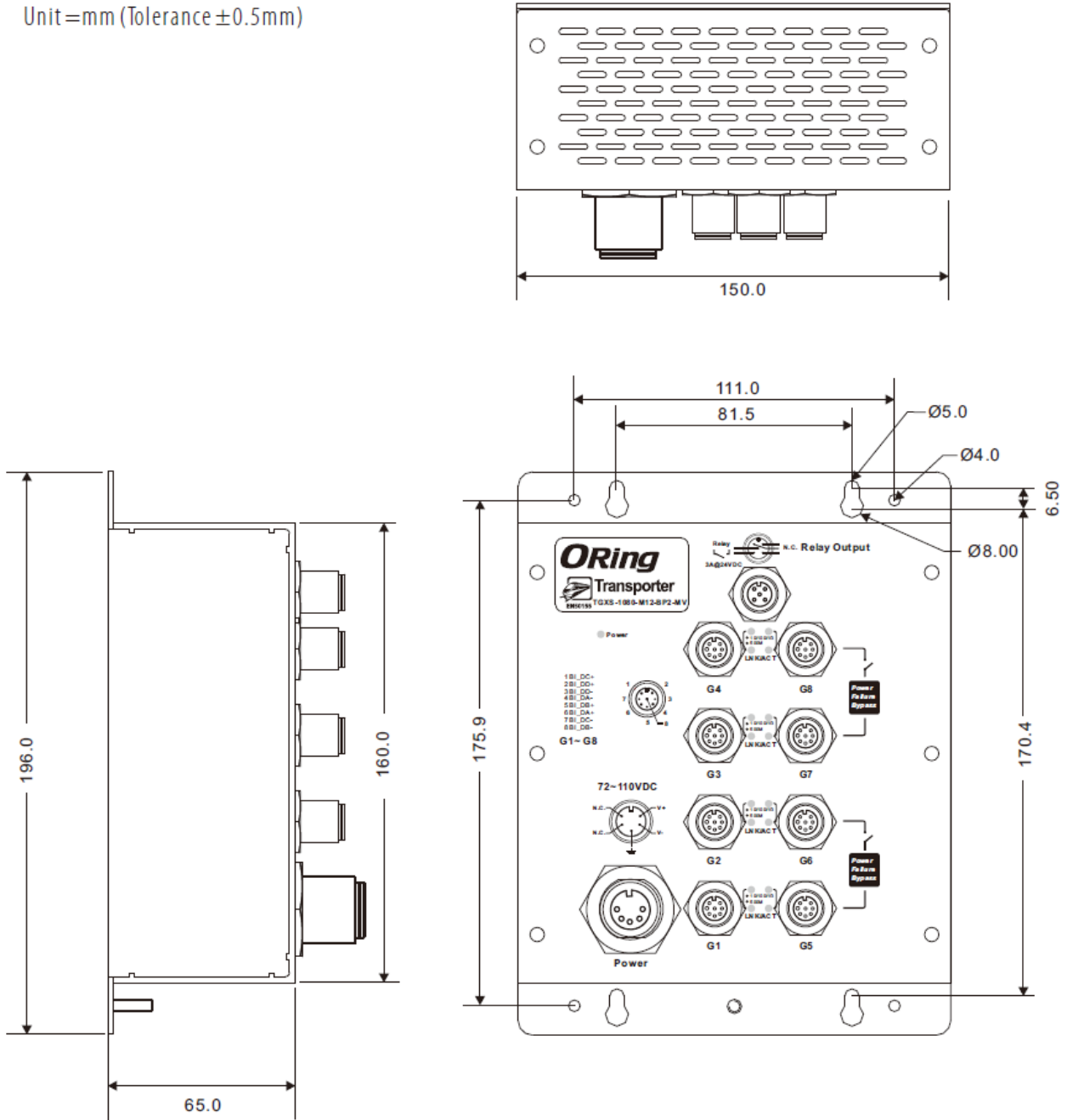
## Introduction

ORing's Transporter™ series un-managed Ethernet switches are designed for industrial applications, such as rolling stock, vehicle, and railway applications. The TGXS-1080-M12-MV is an un-managed Ethernet switch with 8x10/100/500/1000Base-T(X) which is specifically designed for the toughest and fully compliant with EN50155 requirement. TGXS-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 Ethernet application.

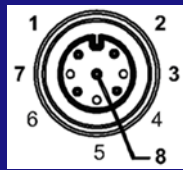
While installing in the train, TGXS-1080-M12-MV is mainly used for in-train monitoring and Entertainment service due to its high-speed Gigabit Ethernet connection. Devices connected will be IP camera or CCTV for the use of train surveillance. As an unmanaged Ethernet Switch, TGXS-1080-M12-MV is not able 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



A-Coding M12

### 10/100/500/1000Base-T(X) M12 port

| Pin No. | Description |
|---------|-------------|
| #1      | BI_DC+      |
| #2      | BI_DD+      |
| #3      | BI_DD-      |
| #4      | BI_DA-      |
| #5      | BI_DB+      |

|    |        |
|----|--------|
| #6 | BI_DA+ |
| #7 | BI_DC- |
| #8 | BI_DB- |

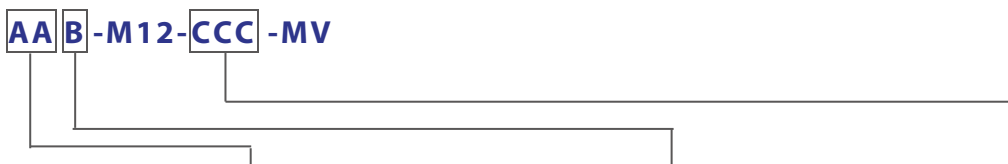
## Specifications

| ORing Switch Model                                  | TGXS-1080-M12-MV                                                                                                                                                                                                                                                    | TGXS-1080-M12-BP2-MV                                          |
|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| <b>Physical Ports</b>                               |                                                                                                                                                                                                                                                                     |                                                               |
| 10/100/500/1000Base-T(X) 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<br>IEEE 802.3u for 100Base-TX<br>IEEE 802.3ab for 1000Base-T<br>IEEE 802.3x for Flow control                                                                                                                                                |                                                               |
| MAC Table                                           | 4k                                                                                                                                                                                                                                                                  |                                                               |
| Packet buffer                                       | 1.5Mbits                                                                                                                                                                                                                                                            |                                                               |
| Processing                                          | Store-and-Forward                                                                                                                                                                                                                                                   |                                                               |
| Switch Properties                                   | Switching latency: <2.5 $\mu$ s<br>Switching bandwidth: 16Gbps<br>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 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.            |                                                               |
| <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.)                            | ≤13 Watts, 72VDC/0.16A (11W), 96VDC/0.13A (12W), 110VDC/0.12A (13W)                                                                                                                                                                                                 |                                                               |
| 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) x196 (H) mm<br>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

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



| Code Definition | 10/100/500/1000Base-T(X) 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                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                    | TGXS-1080-M12-BP2-MV | EN50155 8-port unmanaged Gigabit Ethernet switch with 8x10/100/500/1000Base-T(X), M12 connector and 2xbypass included, 110VDC power input |
|                                                                                                                    | TGXS-1080-M12-MV     | EN50155 8-port unmanaged Gigabit Ethernet switch with 8x10/100/500/1000Base-T(X), M12 connector, 110VDC power input                       |
| <b>Packing List</b>                                                                                                |                      | <b>Optional Accessories</b>                                                                                                               |
| <ul style="list-style-type: none"> <li>TGXS-1080-M12(-BP2)-MV x 1</li> <li>Quick Installation Guide x 1</li> </ul> |                      | <ul style="list-style-type: none"> <li>M12 cable series</li> </ul>                                                                        |