

Quick Installation Guide

TXES-180-M12-WV

EN50155 8-PORT UNMANAGED
ETHERNET SWITCH

Introduction

ORing's Transporter™ series un-managed Ethernet switches are designed for industrial applications, such as rolling stock, vehicle, and railway applications. The **TXES-180-M12-WV** is an un-managed Ethernet switch with 8x10/100/500Base-T(X) which is specifically designed for the toughest and fully compliant with EN50155 requirement. **TXES-180-M12-WV** 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. The **TXES-180-M12-WV** can be easily adopted in all kinds of applications and provides the most rugged solutions for your network. Therefore, the switch is one of the most reliable choices for rolling stock Ethernet application.

While installing in the train, **TXES-180-M12-WV** is mainly used for in-train monitoring and Entertainment service due to its high-speed Ethernet connection. Devices connected will be IP camera or CCTV for the use of train surveillance. As an unmanaged Ethernet Switch, **TXES-180-M12-WV** 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.

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 |
|-----------------|----------|--------|
| TXES-180-M12-WV | | 1 |
| QIG | | 1 |

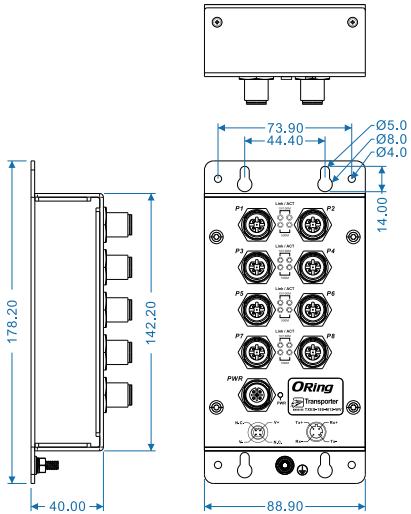
Preparation

Before you begin installing the device, make sure you have all of the package contents available.

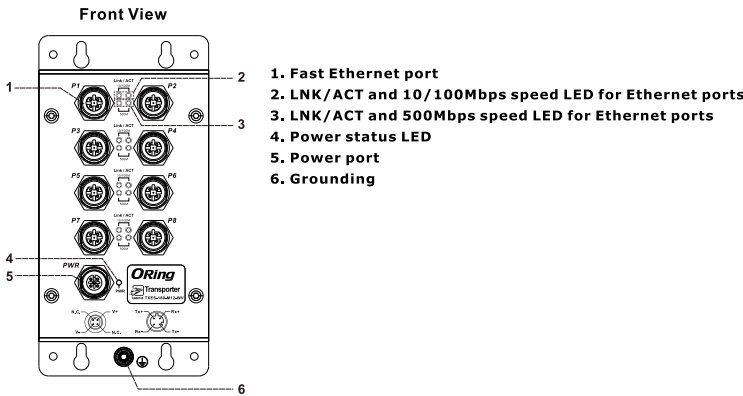
Safety & Warnings

- 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)



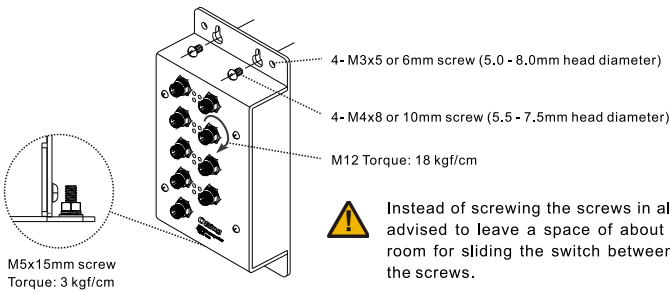
Panel Layouts



Installation

Wall-mount

- The device can be fixed to the wall. Follow the steps below to install the device on the wall.
- Step 1:** Hold the device upright against the wall
- Step 2:** Insert four screws through the large opening of the keyhole-shaped apertures at the top and bottom of the unit and fasten the screw to the wall with a screwdriver.
- Step 3:** Slide the device downwards and tighten the four screws for added stability.



Wiring

For pin assignments of power port, please refer to the following tables.

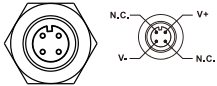
Grounding

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, and please use the green-and-yellow cable type minimum with American Wire Gauge (AWG) 18 for grounding.

NOTE: Equipment intended for installation in Restricted Access Location, only for Instructed person to install and maintenance.

Power port pinouts

The switch provides one set of power supply on a M12 4-pin A-coding connector. Insert the power cable to the power connector on the device and rotate the outer ring of the cable connector until a snug fit is achieved. Make sure the connection is tight.



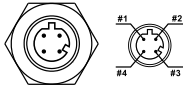
Network Connection

The switch has eight 10/100/500Base-T(X) 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) | M12 D-coding connector |
| 100BASE-TX | Cat. 5 100-ohm UTP | UTP 100 m (328 ft) | M12 D-coding connector |
| 500Base-TX | Cat. 5 100-ohm UTP | UTP 100 m (328 ft) | M12 D-coding connector |

Pin Definition

| M12 D-coding Pin Definition | |
|-----------------------------|-------------|
| Pin No. | Description |
| # 1 | TX+ |
| # 2 | RX+ |
| # 3 | TX- |
| # 4 | RX- |



Configurations

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

| LED | Color | Status | Description |
|---|-------|----------|--------------------------------|
| PWR | Green | On | Power is enabled |
| 10/100/500 Base-T(X) Ethernet ports Link/Act indicators | | | |
| 10/100Mbps (Upper LED) | Green | On | Port is running at 10/100 Mbps |
| | | Off | Port is link-down |
| | | Blinking | Data transmitted |
| 500Mbps (Lower LED) | Green | On | Port is running at 500Mbps |
| | | Off | Port is link-down |
| | | Blinking | Data transmitted |

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EN50155 8-PORT UNMANAGED ETHERNET SWITCH

Specifications

| | |
|---|---|
| ORing Switch Model | TXES-180-M12-WV |
| Physical Ports | |
| 10/100/500 Base-T(X) Ports in M12 Auto MDI/MDIX | 8 (4-pin female D-coding) |
| Technology | |
| Ethernet Standards | IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX IEEE 802.3x for Flow control |
| MAC Table | 4k |
| Packet buffer | 1.5Mbits |
| Processing | Store-and-Forward |
| Switch Properties | Switching latency: <7 μs Switching bandwidth: 1.6Gbps |
| Power | |
| Input Power | 24 ~ 110 VDC on 4-pin M12 A-coded male connector |
| Power Consumption(Typ.) | <1.8 Watts Max. |
| Overload Current Protection | Present |
| Reverse Polarity Protection | Present |
| Physical Characteristic | |
| Enclosure | IP-30 |
| Dimension (W x D x H) | 88.9(W) x40(D) x 178.2(H) mm 3.5(W) x 1.57(D) x 7.02(H) inch |
| Weight (g) | 765 g |
| 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 55035, 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 55035 (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 | IEC 60068-2-27 |
| Free Fall | IEC 60068-2-31 |
| Vibration | IEC 60068-2-6 |
| Safety | EN 62368-1 |
| Other | EN 50155 (IEC 61373) |
| Warranty | 5 years |

ORing

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