

Introduction

The TGS-1080-M12 and TGS-1080-M12-BP2 unmanaged Ethernet switches are designed for industrial applications, such as rolling stock, vehicle, and railway applications. The switches boast EN50155 compliance and M12 connectors to ensure tight and robust connections, and guarantee reliable operation against environmental disturbances, such as vibration and shock. Both models feature eight 10/100/1000Base-T(X) ports, but the TGS-1080-M12-BP2 model also provides two sets of bypass ports that ensure constant network connectivity during power failure. Even if the switch loses power, traffic will continue to flow unimpeded through the link.

Package Contents

The devices are 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 |
|----------------------------------|----------|--------|
| TGS-1080-M12 or TGS-1080-M12-BP2 | | 1 |
| QIG | | 1 |

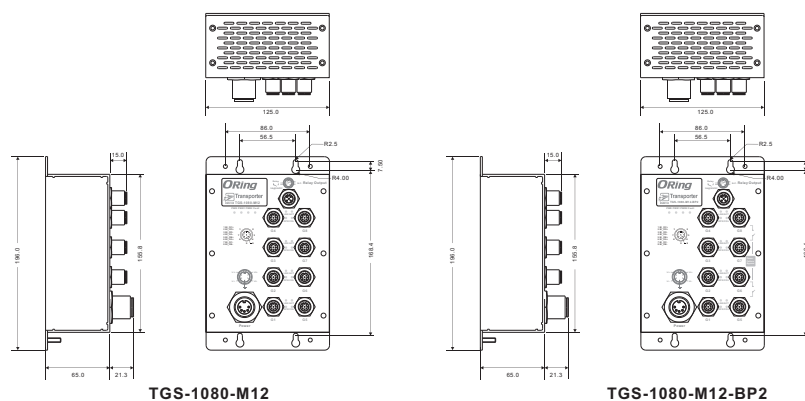
Preparation

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.

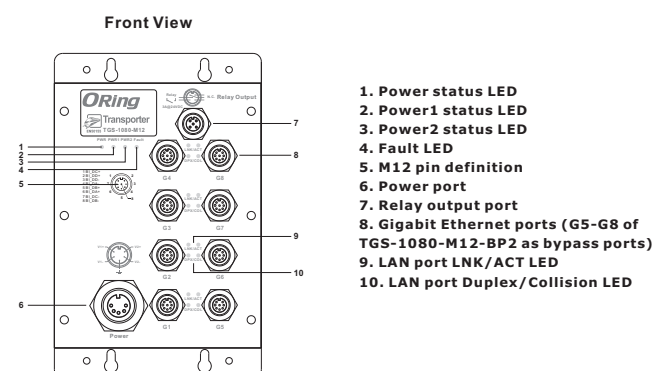
Safety & Warnings

- Elevated Operating Ambient:** If installed in a closed environment, make sure the operating ambient temperature is compatible with the maximum ambient temperature (T_{ma}) 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



Panel Layouts



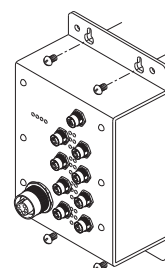
1. Power status LED
2. Power1 status LED
3. Power2 status LED
4. Fault LED
5. M12 pin definition
6. Power port
7. Relay output port
8. Gigabit Ethernet ports (G5-G8 of TGS-1080-M12-BP2 as bypass ports)
9. LAN port LNK/ACT LED
10. LAN port Duplex/Collision LED

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.



Instead of screwing the screws in all the way, it is advised to leave a space of about 2mm to allow room for sliding the switch between the wall and the screws.

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 two sets of power supplies and uses the M23 5-pin female connector on the front panel for the dual power inputs. **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.



Relay output port pinouts

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



Gigabit Ethernet port pinouts

TGS-1080-M12-BP2 has 8 gigabit Ethernet ports includes 2 sets of bypass ports that protect the network from failures by ensuring network integrity during power loss.



Network Connection

The switch has eight 10/100/1000Base-T(X) Ethernet ports in the form of M12 connector. These ports are PoE-enabled, and thus can deliver power over the same Ethernet cable. 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 A-coding connector |
| 100BASE-TX | Cat. 5 100-ohm UTP | UTP 100 m (328 ft) | 8-pin female M12 A-coding connector |
| 1000BASE-T | Cat. 5/Cat. 5e 100-ohm UTP | UTP 100 m (328ft) | 8-pin female M12 A-coding connector |

M12/8P Pin Definition

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



| Pin No. | 1000Base-T M12 ports | | 10/100Base-T(X) M12 ports | |
|---------|----------------------|-------------|---------------------------|-------------|
| | Description | Description | Description | Description |
| #1 | BI_DC+ | N.C. | | |
| #2 | BI_DD+ | N.C. | | |
| #3 | BI_DD- | N.C. | | |
| #4 | BI_DA- | TD- | | |
| #5 | BI_DB+ | RD- | | |
| #6 | BI_DA+ | TD+ | | |
| #7 | BI_DC- | N.C. | | |
| #8 | BI_DB- | RD+ | | |

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 |
|-----------------------------|-------|----------|--|
| Power | Green | On | Power is on |
| PWR1 | Green | On | DC power module 1 activated |
| PWR2 | Green | On | DC power module 2 activated |
| Fault | Amber | On | Errors occur (power failure or port link down) |
| 10/100/1000Base-T(X) | | | |
| LNK/ACT | Green | On | Port running at 1Gbps |
| | | Blinking | Transmitting data |
| DPX/COL | Amber | On | Port running at 10/100Mbps |
| | | Blinking | Collision occurs |

Specifications

| ORing Switch Model | TGS-1080-M12 | TGS-1080-M12-BP2 |
|--------------------------------------|---|---|
| Physical Ports | | |
| 10/100/1000Base-T(X) Ports in M12 | 8 x M12 connector (8 pin A-coding) | 8 x M12 connector (8-pin A-coding, bypass function included on port5~8) |
| Technology | | |
| 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 | |
| MAC Table | 8K MAC addresses | |
| Processing | Store-and-Forward | |
| LED Indicators | | |
| Power Indicator | Green: Power LED x 3 | |
| Fault Indicator | Amber: Indicate PWR1 or PWR2 failure | |
| 10/100/1000-T(X) RJ45 port indicator | Top for port Link/Act indicator. Green for 1Gbps link, Amber for 10/100 Mbps link. Bottom Amber for Duplex / Collision indicator | |
| Fault Contact | | |
| Relay | Relay output to carry capacity of 3A at 24VDC on M12 connector (5-pin M12 A-coding) | |
| Power | | |
| Redundant Input Power | Dual DC inputs. 12~48VDC on 5-pin M23 connector | |
| Power Consumption(Typ.) | 2.88 Watts | 6.24 Watts |
| Overload Current Protection | Present | |
| Reverse Polarity Protection | Present | |
| Physical Characteristic | | |
| Enclosure | IP-30 | |
| Dimension (W x D x H) | 125(W) x 65(D) x 196(H) mm (4.92 x 2.56 x 7.66 inch.) | |
| Weight (g) | 967 g | 1007 g |
| Environmental | | |
| Storage Temperature | -40 to 85°C (-40 to 185°F) | |
| Operating Temperature | -40 to 70°C (-40 to 158°F) | |
| Operating Humidity | 5% to 95% Non-condensing | |
| Regulatory Approvals | | |
| EMI | FCC Part 15, CISPR (EN55022) class A, EN50155 (EN50121-3-2, EN55011, EN50121-4) | |
| EMS | EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge), EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11 | |
| Shock | IEC60068-2-27 | |
| Free Fall | IEC60068-2-32 | |
| Vibration | IEC60068-2-6 | |
| Warranty | 5 years | |

ORing

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