



TES-3080-M12

# TES-3080-M12

## ➤ Industrial EN50155 8-port managed Ethernet switch with 8x10/100Base-T(X), M12 connector

### Features

- Leading EN50155-compliant Ethernet switch for rolling stock application
- Fastest Redundant Ethernet Ring: **O-Ring** (recovery time < 10ms over 250 units of connection)
- **Open-Ring** supports the other vendor's ring technology in open architecture
- **O-RSTP** supports applications with complex topology
- STP/RSTP/MSTP supported
- Supports **PTP Client** (Precision Time Protocol) clock synchronization
- IGMP v2/v3 (IGMP snooping support) for filtering multicast traffic
- Port Trunking for easy of bandwidth management
- SNMP v1/v2c/v3 support for secured network management
- RMON for traffic monitoring
- Supports LLDP protocol
- Port lock to prevent access from unauthorized MAC address
- Event notification through Syslog, Email, SNMP trap, and Relay Output
- Windows utility (**Open-Vision**) supports centralized management and configurable by Web-based, Telnet, and Console (CLI)
- M12 connectors to guarantee reliable operation against environmental disturbances
- Wall mounting enabled

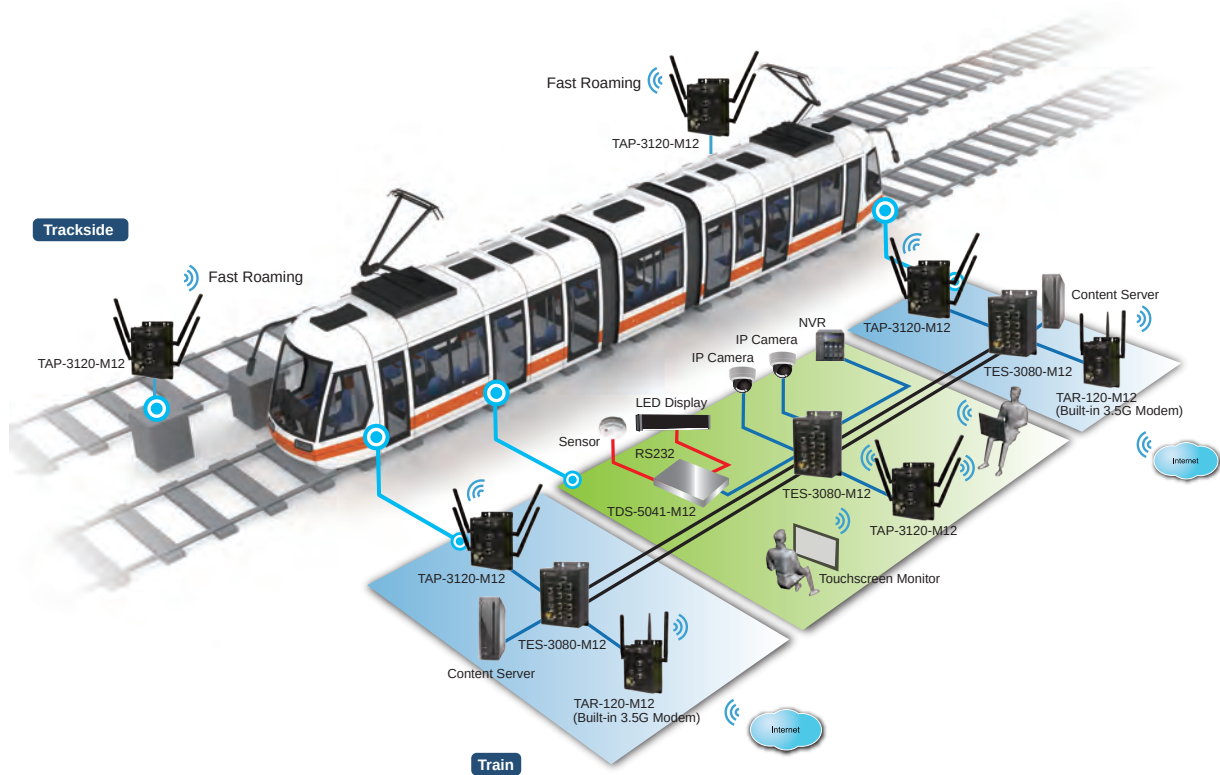


### Introduction

ORing's Transporter series managed Ethernet switches are designed for industrial applications, such as rolling stock, vehicle, and railway applications. The TES-3080-M12 is the managed Redundant Ring Ethernet switch with 8x10/100Base-T(X) ports which is compliant with EN50155 standard. With complete support of Ethernet Redundancy protocol, **O-Ring** (recovery time < 10ms over 250 units of connection), **Open-Ring**, **O-RSTP**, and MSTP/RSTP/STP (IEEE 802.1s/w/D) can protect your mission-critical applications from network interruptions or temporary malfunctions with its fast recovery technology.

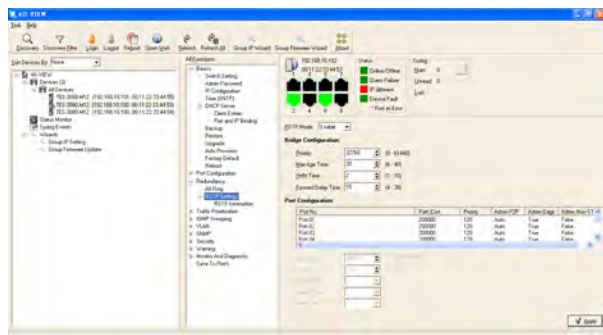
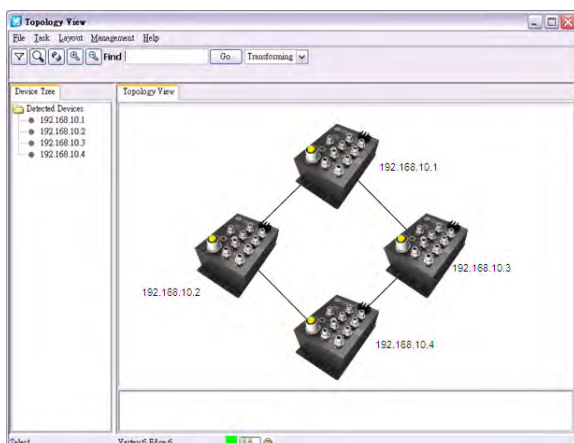
TES-3080-M12 EN50155 Ethernet Switch is specifically designed for the toughest industrial environments. It uses M12 connectors to ensure tight and robust connections, plus it guarantees reliable operation against environmental disturbances, such as vibration and shock. Additionally, the **Open-Ring** technology is also supported which can be applied for other vendor's proprietary ring. Network management on TES-3080-M12 is centralized and convenient via the powerful windows utility ~ **Open-Vision**. In addition, the wide operating temperature range from -40°C to 70°C can satisfy most of operating environments. Therefore, the TES-3080-M12 Ethernet switch is one of the most reliable choices for rolling stock and highly-managed Ethernet applications.

## Practical Operation

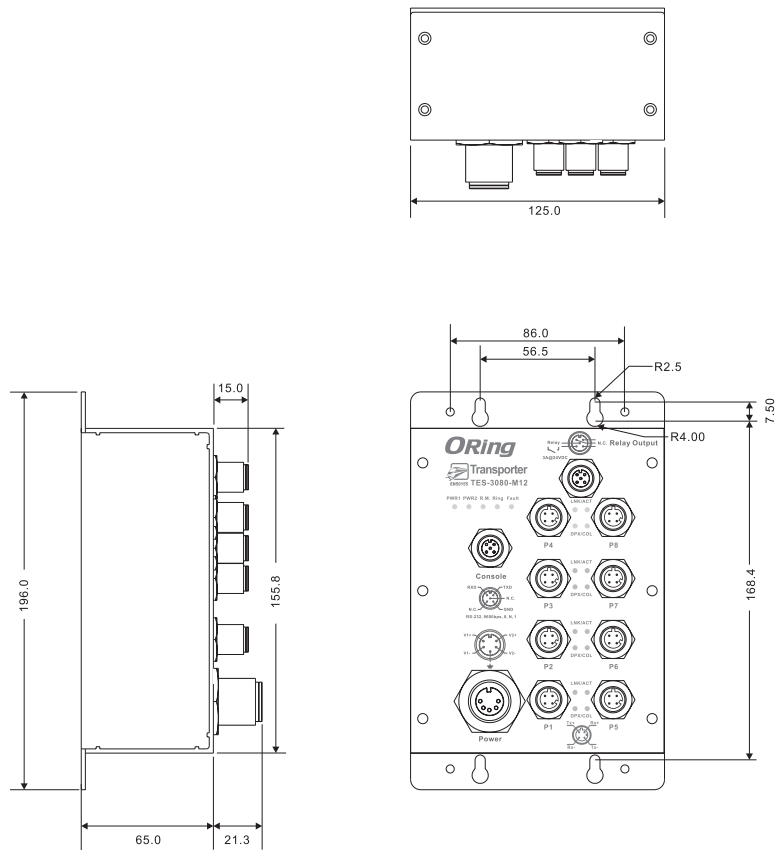


## Open-Vision

ORing's switches are intelligent switches. Being different from other traditional redundant switches, ORing provides a set of Windows utility (**Open-Vision**) for users to manage and monitor all of industrial Ethernet switches on the industrial network.



Dimensions



(Unit=mm)

Specifications

| ORing Switch Model                                     | TES-3080-M12                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Physical Ports                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 10/100 Base-T(X) Ports in M12 (D-coding) Auto MDI/MDIX | 8 x M12 connector (D-coding)                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| RS-232 Serial Console Port                             | RS-232 in M12 connector (A-coding). Baud rate setting: 9600bps, 8, N, 1                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Technology                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Ethernet Standards                                     | IEEE 802.3 for 10Base-T<br>IEEE 802.3u for 100Base-TX<br>IEEE 802.3x for Flow control<br>IEEE 802.3ad for LACP (Link Aggregation Control Protocol)<br>IEEE 802.1D for STP (Spanning Tree Protocol)<br>IEEE 802.1p for COS (Class of Service)<br>IEEE 802.1Q for VLAN Tagging<br>IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol)<br>IEEE 802.1s for MSTP (Multiple Spanning Tree Protocol)<br>IEEE 802.1x for Authentication<br>IEEE 802.1AB for LLDP (Link Layer Discovery Protocol) |
| MAC Table                                              | 8192 MAC addresses                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Priority Queues                                        | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Processing                                             | Store-and-Forward                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Switch Properties                                      | Switching latency: 7 $\mu$ s<br>Switching bandwidth: 1.6Gbps<br>Max. Number of Available VLANs: 4096<br>IGMP multicast groups: 1024<br>Port rate limiting: User Define                                                                                                                                                                                                                                                                                                                   |

|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Security Features                  | Enable/disable ports, MAC based port security<br>Port based network access control (802.1x)<br>VLAN (802.1Q ) to segregate and secure network traffic<br>Supports Q-in-Q VLAN for performance & security to expand the VLAN space<br>Radius centralized password management<br>SNMP v1/v2c/v3 encrypted authentication and access security                                                                                                                                                                                                                                                  |
| Software Features                  | STP/RSTP/MSTP (IEEE 802.1D/w/s)<br>Redundant Ring (O-Ring) with recovery time less than 10ms over 250 units<br>TOS/Diffserv supported<br>Quality of Service (802.1p) for real-time traffic<br>VLAN (802.1Q) with VLAN tagging and GVRP supported<br>IGMP Snooping for multicast filtering<br>Port configuration, status, statistics, monitoring, security<br>SNMP for synchronizing of clocks over network<br>Supports <b>PTP Client</b> (Precision Time Protocol) clock synchronization<br>DHCP Server / Client support<br>Port Trunk support<br>MVR (Multicast VLAN Registration) support |
| Network Redundancy                 | O-Ring<br>Open-Ring<br>O-RSTP<br>STP<br>RSTP<br>MSTP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Warning / Monitoring System        | Relay output for fault event alarming<br>Syslog server / client to record and view events<br>Include SMTP for event warning notification via email<br>Event selection support                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>LED Indicators</b>              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Power Indicator                    | Green : Power LED x 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| R.M. Indicator                     | Green : Indicates that the system is operating in O-Ring Master mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| O-Ring Indicator                   | Green : Indicates that the system is operating in O-Ring mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Fault Indicator                    | Amber : Indicates unexpected event occurred                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 10/100Base-T(X) M12 Port Indicator | Green for port Link/Act. Amber for Duplex/Collision                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Fault Contact</b>               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Relay                              | Relay output to carry capacity of 3A at 24VDC(M12 connector with A-coding)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Power</b>                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Redundant Input Power              | Dual 12~48VDC on 5-pin M23 connector                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Power Consumption (Typ.)           | 5 Watts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Overload Current Protection        | Present                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Reverse Polarity Protection        | Present                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Physical Characteristics</b>    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Enclosure                          | IP-30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Dimensions (W x D x H)             | 125 (W) x 65 (D) x 196 (H)mm (4.92 x 2.56 x 7.72 inch)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Weight (g)                         | 896 g                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Environmental</b>               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 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, EN61373                                                                                                   |
| Free Fall            | IEC60068-2-32                                                                                                            |
| Vibration            | IEC60068-2-6, EN61373                                                                                                    |
| Safety               | EN60950-1                                                                                                                |
| Warranty             | 5 years                                                                                                                  |

## Ordering Information

TES-3 **AA** **B** -M12

| Code Definition | 10/100Base-T(X) Port Number | Additional Port Number |
|-----------------|-----------------------------|------------------------|
| Option          | - 08: 8 ports               | - 0: 0 port            |

| Available Model                                                                                                                             | Model Name   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                             | TES-3080-M12 | EN50155 8-port managed Ethernet switch with 8x10/100Base-T(X), M12 connector                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Packing List</b> <ul style="list-style-type: none"> <li>TES-3080-M12</li> <li>ORing Tool CD</li> <li>Quick Installation Guide</li> </ul> |              | <b>Optional Accessories (Can be purchased separately)</b> <ul style="list-style-type: none"> <li>Open-Vision M500, Powerful Network Management Windows Utility Suite, 500 IP devices</li> <li>DR-45 series : 45 Watts DIN-Rail power supply</li> <li>DR-75 series : 75 Watts DIN-Rail power supply</li> <li>DR-120 series : 120 Watts DIN-Rail power supply</li> <li>SDR-240-48, 240W DIN-Rail power supply</li> <li>SDR-480-48, 480W DIN-Rail power supply</li> <li>M12C : M12 cable accessories</li> </ul> |