

## Introduction

ORing's Transporter™ series managed Ethernet switches are designed for industrial applications, such as rolling stock, vehicle, and railway applications. **TES-3080-M12 Series** is a managed Redundant Ring Ethernet switch with 8x10/100Base-T(X) ports which is compliant with EN50155 requirement. With completely support of Ethernet Redundancy protocol, O-Ring (recovery time < 10ms over 250 units of connection), Open-Ring, 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. It is specifically designed for the toughest industrial environments. **TES-3080-M12 Series** EN50155 Ethernet switch use M12 connectors to ensure tight, robust connections, and guarantee reliable operation against environmental disturbances, such as vibration and shock. Another Open-Ring technology is also supported which is compatible with other vendor's proprietary ring technology. **TES-3080-M12-BP2** included dual bypass ports, these bypass ports can protect the network from failures and ensure network integrity during power loss. Each of these bypass ports are used for connection to main-network and provide protection mechanism. When the power is on, the operating mode is set to normal, and the local networking device is connected with main-network. When power failure occurs, the Bypass ports is swiftly set to bypass mode to isolate the main-network from the local networking device. **TES-3080-M12 Series** can be managed centralized and convenient by a powerful windows utility – Open-Vision. In addition, the wide operating temperature range from -40°C to 70°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.



## Specifications

ORing Switch Model	TES-3080-M12	TES-3080-M12-BP2	TES-3080-M12-BP2-MV	TES-3080-M12-BP2-HV
<b>Physical Ports</b>				
10/100 Base-T(X) Ports in M12 Auto MDI/MDIX	8 x M12 connector (4 pin M12 D-coding)			
Bypass Function	-	2 sets, P1 and P2, P3 and P4		
RS-232 Serial Console Port	RS-232 in M12 connector (5-pin A-coding). Baud rate setting: 9600bps, 8, N, 1			
<b>Technology</b>				
Ethernet Standards	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX IEEE 802.3x for Flow control IEEE 802.3ad for LACP (Link Aggregation Control Protocol) IEEE 802.1D for STP (Spanning Tree Protocol) IEEE 802.1p for COS (Class of Service) IEEE 802.1Q for VLAN Tagging IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol) IEEE 802.1s for MSTP (Multiple Spanning Tree Protocol) IEEE 802.1x for Authentication IEEE 802.1AB for LLDP (Link Layer Discovery Protocol)			

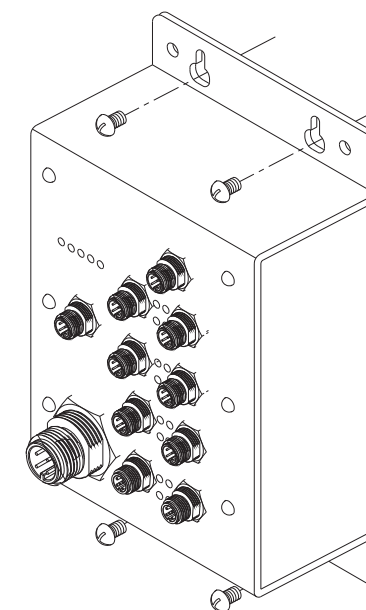
MAC Table	8192 MAC addresses		
Priority Queues	4		
Processing	Store-and-Forward		
Switch Properties	Switching latency: 7 μs Switching bandwidth: 1.6Gbps Max. Number of Available VLANs: 4096 IGMP multicast groups: 1024 Port rate limiting: User Define		
Security Features	Enable/disable ports, MAC based port security Port based network access control (802.1x) VLAN (802.1Q) to segregate and secure network traffic Supports Q-in-Q VLAN for performance & security to expand the VLAN space Radius centralized password management SNMPv3 encrypted authentication and access security		
Software Features	STP/RSTP/MSTP (IEEE 802.1D/w/s) Redundant Ring with recovery time less than 10ms over 250 units TOS/Diffserv supported Quality of Service (802.1p) for real-time traffic VLAN (802.1Q) with VLAN tagging and GVRP supported IGMP Snooping for multicast filtering Port configuration, status, statistics, monitoring, security SMTP for synchronizing of clocks over network Support PTP Client (Precision Time Protocol) clock synchronization DHCP Server / Client support Port Trunk support MVR (Multicast VLAN Registration) support		
Network Redundancy	O-Ring, Open-Ring, STP, RSTP, MSTP		
Warning / Monitoring System	Relay output for fault event alarming Syslog server / client to record and view events Include SMTP for event warning notification via email Event selection support		
<b>LED Indicators</b>			
Power Indicator	Green: Power LED x 2		
R.M. Indicator	Green: Indicate system operated in O-Ring Master mode		
O-Ring Indicator	Green: Indicate system operated in O-Ring mode		
Fault Indicator	Amber: Indicate 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 on M12 connector (5-pin M12 A-coding)		
<b>Power</b>			
Redundant Input Power	Dual 12~48 VDC on 5-pin M23 connector	Dual 72~144VDC on 5-pin M23 connector	Dual 88~373VDC / 85~264VAC on 5-pin M23 connector
Power Consumption (Typ.)	5 Watts		
Overload Current Protection	Present		
Reverse Polarity Protection	Present		
<b>Physical Characteristic</b>			
Enclosure	IP-40		
Dimension (W x D x H)	125(W) x 65(D) x 196(H) mm (4.92 x 2.56 x 7.72 inch.)	155(W) x 65(D) x 196(H) mm (6.10 x 2.56 x 7.72 inch.)	
Weight (g)	876 g	894 g	1304 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		
<b>Regulatory Approvals</b>			
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		
Safety	EN60950-1		
Warranty	5 years		

## Features

- Leading EN50155-compliant Ethernet switch rolling stock application
- World's fastest Redundant Ethernet Ring: (O-Ring recovery time < 10ms over 250 units of connection)
- Open-Ring support the other vendor's ring technology in open architecture
- O-Chain allow multiple redundant network rings
- Support standard IEC 62439-2 MRP (Media Redundancy Protocol) function
- STP/ RSTP/ MSTP supported
- Support PTP (Precision Time Protocol) clock synchronization
- Support Modbus/TCP protocol
- 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
- Support 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) support centralized management and configurable by Web-based, Telnet, and Console (CLI)
- Optional built-in 2 sets of bypass ports
- M12 connectors to guarantee reliable operation against environmental disturbances
- Wall mounting enabled

## Installation

### Wall-mounted Install Step



# Quick Installation Guide

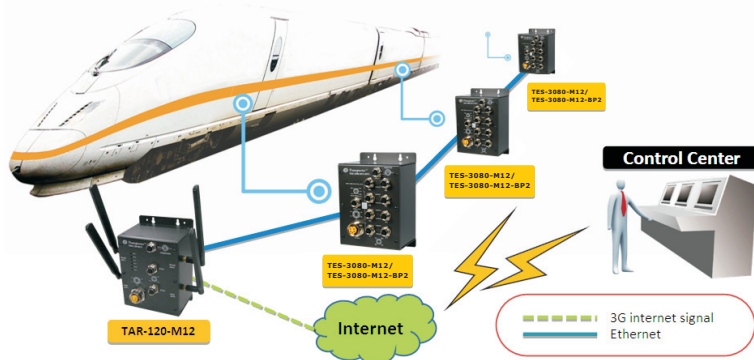
## TES-3080-M12 Series

## EN50155 8-port managed Ethernet switch

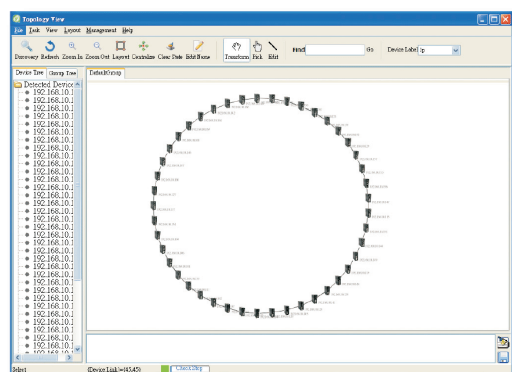
### Open-Vision

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

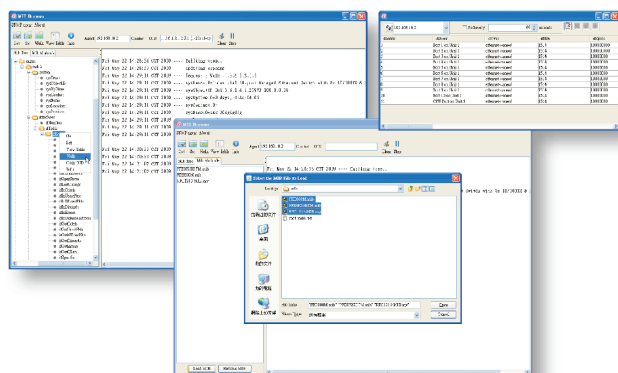
### Network connection



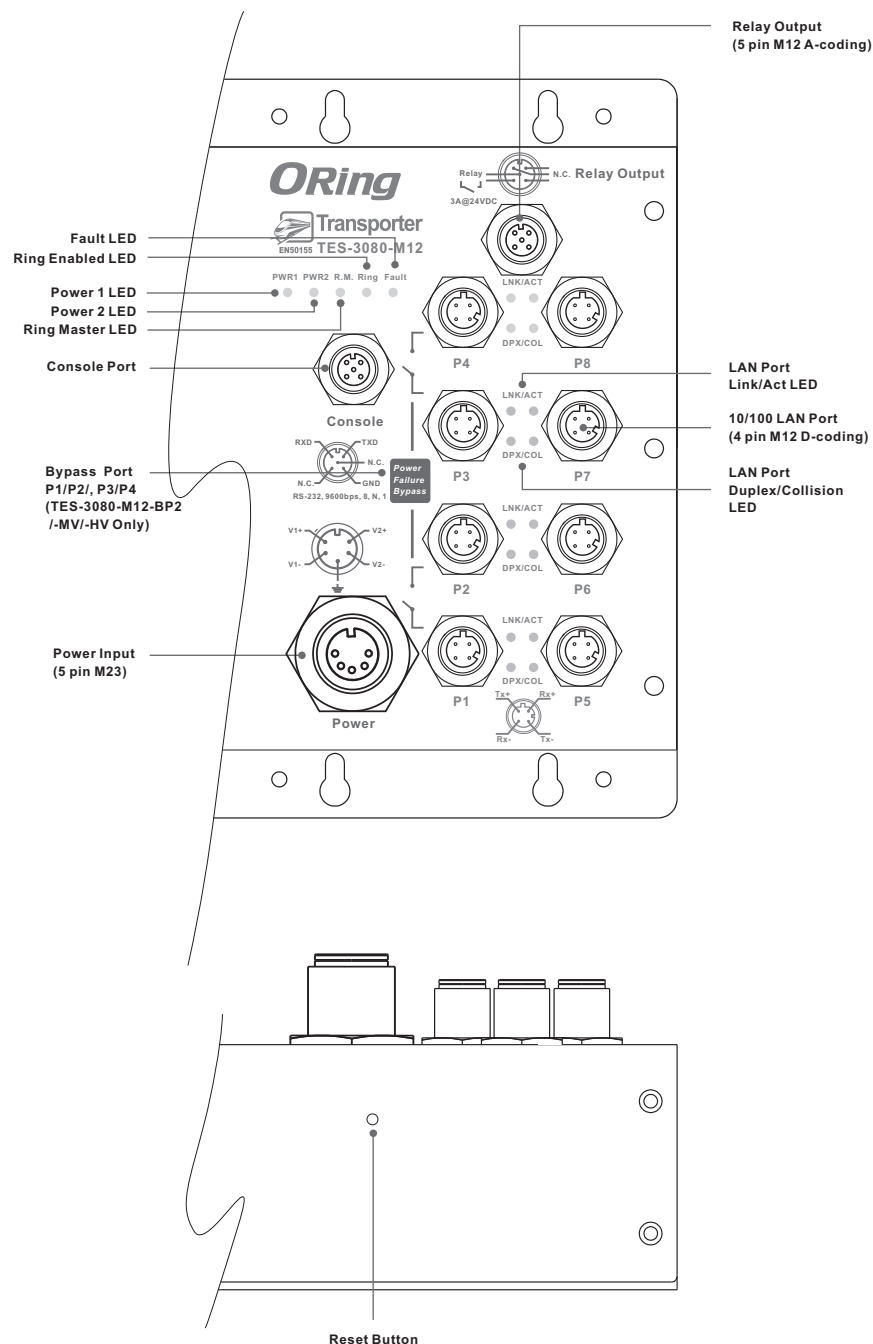
### Topology View



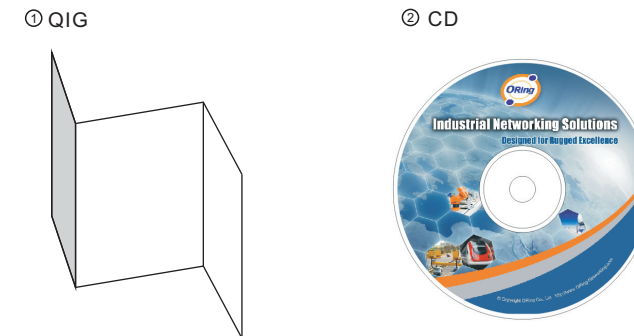
### Monitoring and Configuration interface



### Front Panel



### Accessory



### Packing list

Model name	Description	Accessory
TES-3080-M12	EN50155 8-port managed Ethernet switch with 8x10/100Base-T(X), M12 connector	① X 1, ② X 1
TES-3080-M12-BP2	EN50155 8-port managed Ethernet switch with 8x10/100Base-T(X), M12 connector and 2xbypass included	① X 1, ② X 1
TES-3080-M12-BP2 -MV	EN50155 8-port managed Ethernet switch with 8x10/100Base-T(X), M12 connector and 2xbypass included, middle-voltage power input	① X 1, ② X 1
TES-3080-M12-BP2 -HV	EN50155 8-port managed Ethernet switch with 8x10/100Base-T(X), M12 connector and 2xbypass included, high-voltage power input	① X 1, ② X 1

**ORing**

Copyright© 2011 ORing  
All rights reserved.



**ORing Industrial Networking Corp.**  
 TEL: +886-2-2218-1066 Website: www.oring-networking.com  
 FAX: +886-2-2218-1014 E-mail: support@oring-networking.com