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Industrial Ethernet Switch

TES-3080-M12-BP2

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➤ **EN50155 8-port managed Ethernet switch with 8x10/100Base-T(X), M12 connector and 2xbypass included**
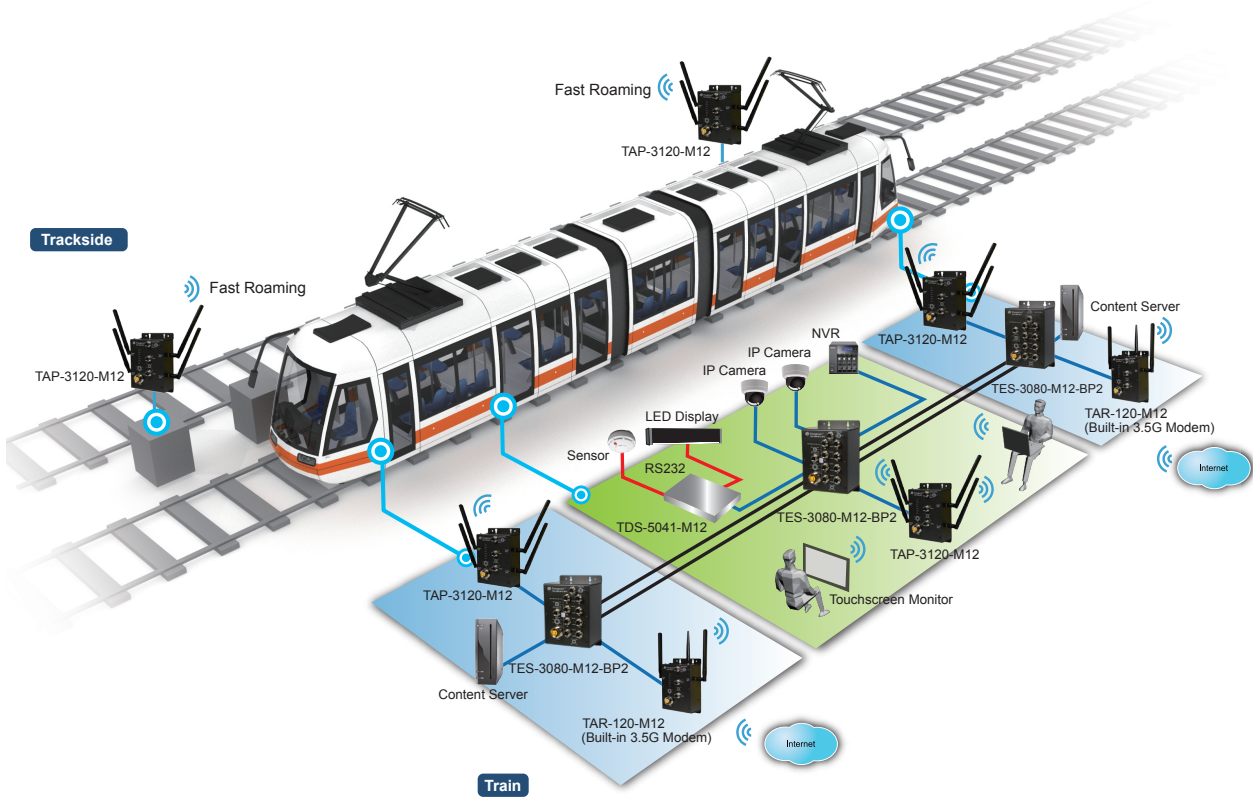
Features

- 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 is configurable by Web-based interface ,Telnet, and Console (CLI)
- M12 connectors to guarantee reliable operation against environmental disturbances
- Built-in 2 sets of bypass ports
- Wall mounting enabled

EN50155   O-Ring   Redundant PWR   Temperature -40~70°C
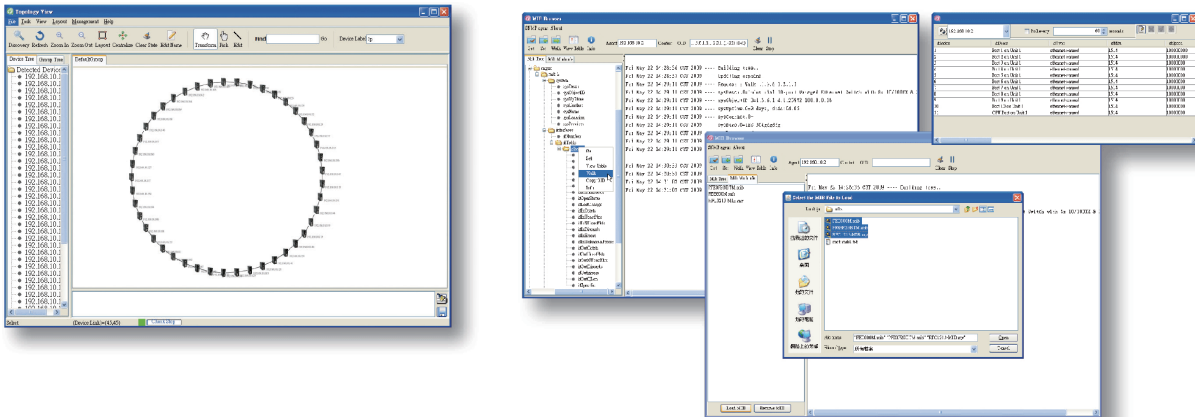
RoHS Lead Free CE FC

Introduction

ORing's Transporter series managed Ethernet switches are designed for industrial applications such as rolling stock, vehicle, and railway. The TES-3080-M12-BP2, which is compliant with the EN50155 standard, is a managed Redundant Ring Ethernet switch with 8x10/100Base-T(X) ports (4 of these ports also double as 2 sets of bypass ports). 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. It is specifically designed for the toughest industrial environments. TES-3080-M12-BP2 EN50155 Ethernet switch uses 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 can applied for other vendor's proprietary ring. TES-3080-M12-BP2 includes 2 sets of bypass ports that protect the network from failures and Network maintenance by ensuring network integrity during power loss. Each set of these bypass ports includes Network ports and Monitor ports. The Network ports are used for connection to main-network connections and provide protection mechanism, and the Monitor ports are used for down-linking local networking device. When the power is on, the operating mode of the Bypass ports is set to Normal, and the local networking device is connected with main-network. When power failure occurs, the Bypass port(s) is/are swiftly set to bypass mode to isolate the main-network from the local networking device. TES-3080-M12-BP2 can be managed centralized and convenient by a powerful windows utility ~ Open-Vision. In addition, the wide operating temperature range from -40 ~ 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.
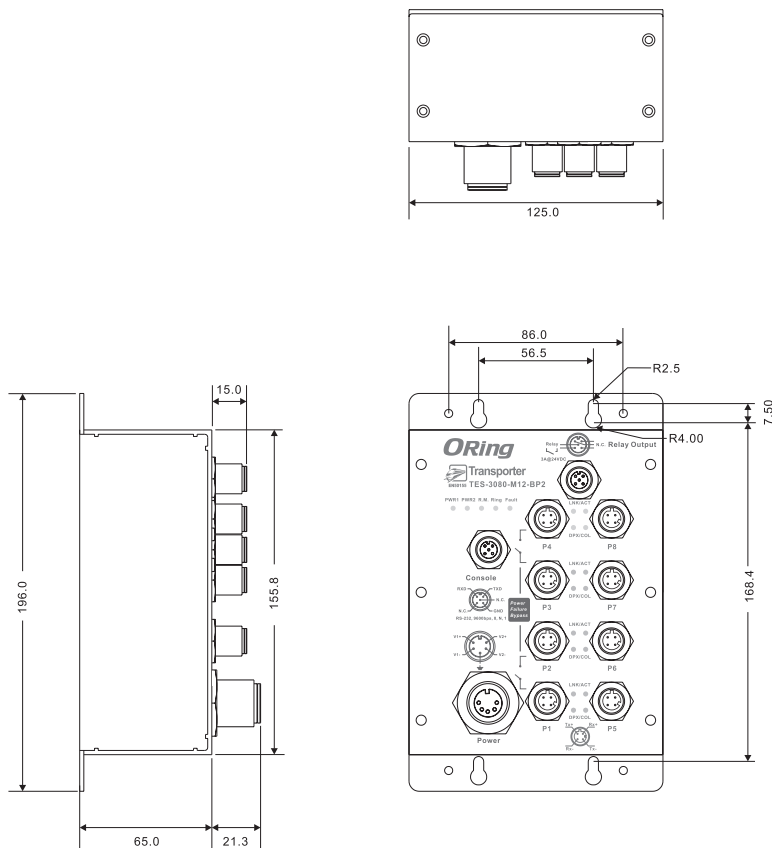
Practical Operation

Open-Vision

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

Industrial
Media Converter

Industrial
Device Server

Industrial Wireless
Access Point

Industrial Cellular
VPN Router

Accessories

Network
Management Software

Dimensions

(Unit=mm)

Specifications

ORing Switch Model	TES-3080-M12-BP2
Physical Ports	
10/100 Base-T(X) Ports in M12 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 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 SNMP v1/v2c/v3 encrypted authentication and access security
Software Features	STP/RSTP/MSTP (IEEE 802.1D/w/s) Redundant Ring (O-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 SNTP 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 O-RSTP 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

LED Indicators

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

Fault Contact

Relay	Relay output to carry capacity of 3A at 24VDC on M12 connector (A-coding)

Power

Redundant Input Power	Dual 12~48VDC on 5-pin M23 connector
Power Consumption (Typ.)	5 Watts
Overload Current Protection	Present
Reverse Polarity Protection	Present

Physical Characteristics

Enclosure	IP-40
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

Environmental

Storage Temperature	-40 to 85℃ (-40 to 185℉)
Operating Temperature	-40 to 70℃ (-40 to 158℉)
Operating Humidity	5% to 95% Non-condensing

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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
MTBF (Hours) (MIL-HDBK-217F2, GB, GC, 25℃)	75,574
Warranty	5 years

Ordering Information

TES-3 AA B -M12-BP2

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-BP2	EN50155 8-port managed Ethernet switch with 8x10/100Base-T(X), M12 connector and 2xbypass included

Packing List
- TES-3080-M12-BP2
- ORing Tool CD
- Quick Installation Guide

Optional Accessories
- Open-Vision M500 : Powerful Network Management Windows utility Suit, 500 IP devices
- DR-45 series : 45 Watts DIN-Rail power supply
- DR-75 series : 75 Watts DIN-Rail power supply
- DR-120 series : 120 Watts DIN-Rail power supply
- SDR-240-48, 240W DIN-Rail power supply
- SDR-480-48, 480W DIN-Rail power supply
- M12C : M12 cable accessories