TES-3080-M12-BP2 SERIES

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
- World's 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-Chain** allow multiple redundant network rings
- Support standard IEC 62439-2 **MRP** (Media Redundancy Protocol) function
- STP/RSTP/MSTP supported
- Supports **PTP Client** (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
- 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
- Built-in 2 sets of bypass ports
- Wall mounting enabled

Introduction

ORing's Transporter[TM] 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-Chain 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.   Another Open-Ring technology is also supported which can applied for other vendor's proprietary ring.   O-Chain is the revolutionary network redundancy technology that provides the add-on network redundancy topology for any backbone network, O-Chain allows multiple redundant network rings of different redundancy protocols to join and function together as a larger and more robust compound network topology.   O-Chain providing ease-of-use while maximizing fault-recovery swiftness, flexibility, compatibility, and cost-effectiveness in one set of network redundancy topology.   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.   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.   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 ^{o}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.
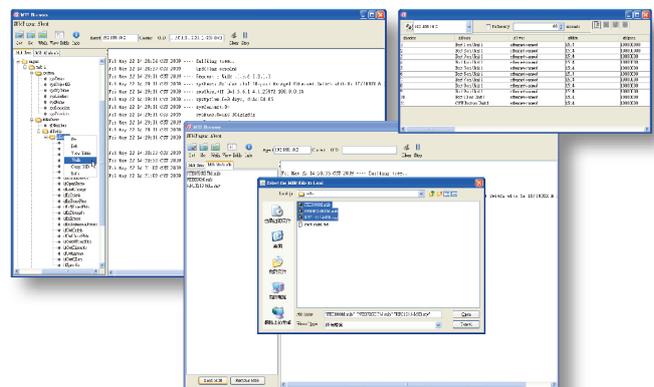
Open-Vision

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.
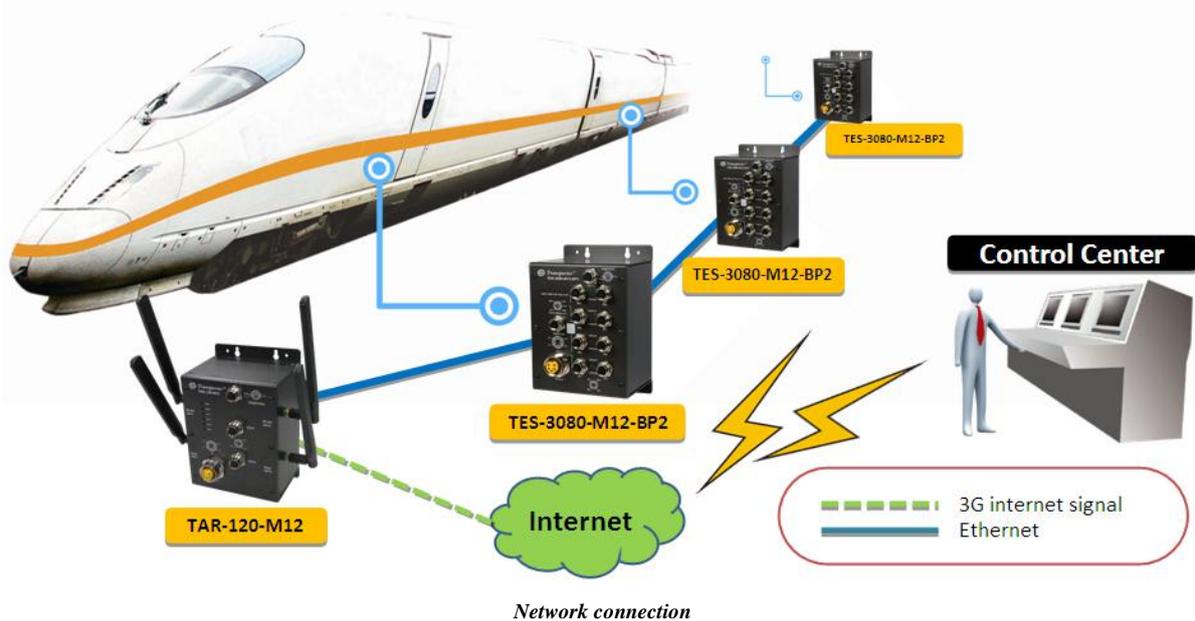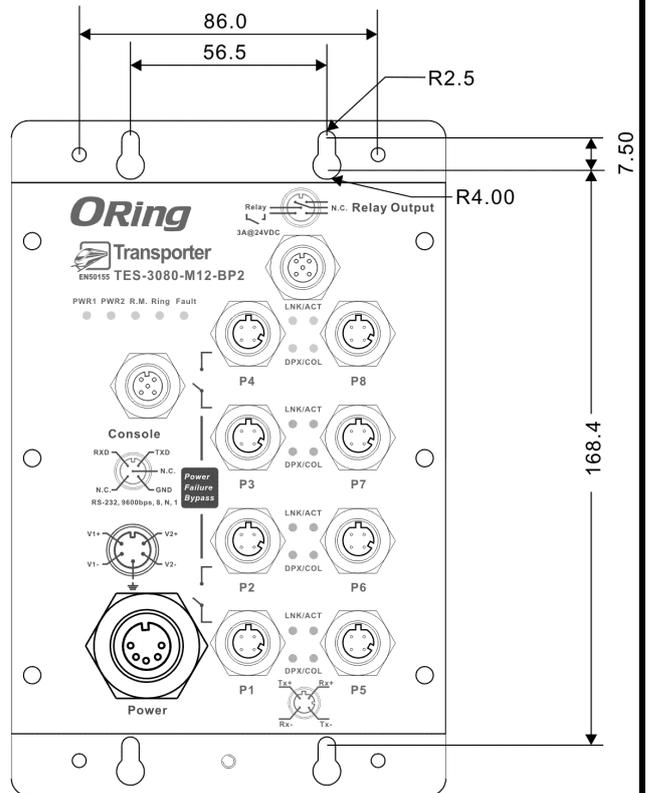

Network connection
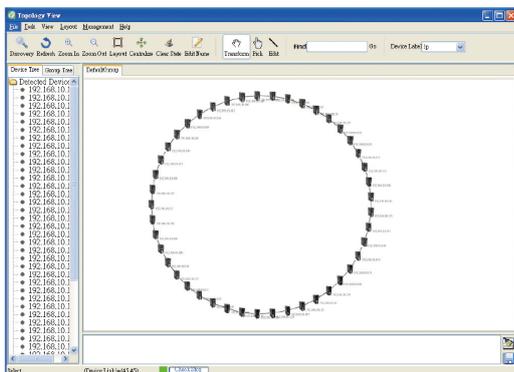
Topology View

Monitoring and Configuration interface

Dimensions

Model : TES-3080-M12-BP2
Unit =mm

125.0

86.0

56.5

R2.5

7.50

R4.00

168.4

15.0

196.0

155.8

65.0

21.3

ORing

Relay — N.C. Relay Output
3A@24VDC

Transporter
EN50155 TES-3080-M12-BP2

PWR1 PWR2 R.M. Ring Fault

LNK/ACT
DPX/COL
P4   P8

Console
RXD   TXD
N.C.   N.C.
N.C.   GND
RS-232, 9600bps, 8, N, 1

Power
Failure
Bypass

LNK/ACT
DPX/COL
P3   P7

V1+   V2+
V1-   V2-

LNK/ACT
DPX/COL
P2   P6

LNK/ACT
DPX/COL
P1   P5

Tx+   Rx+
Rx-   Tx-

Power
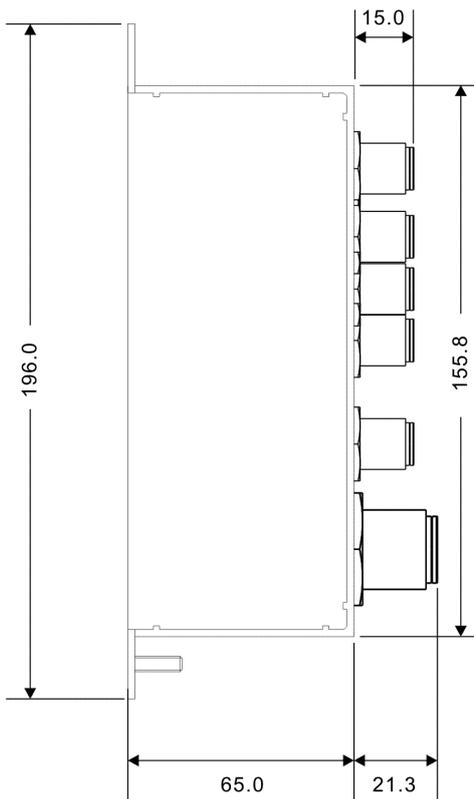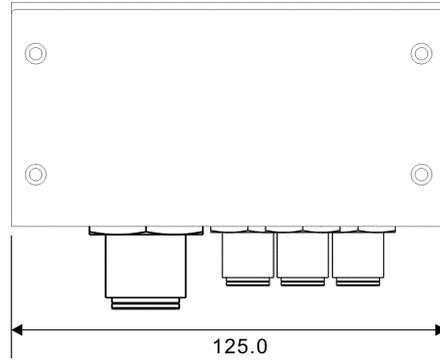
Model : TES-3080-M12-BP2-MV/HV
Unit =mm

116.0

86.5

R2.5

15.0

R4.00

7.50

196.0

155.8

168.4

65.0

21.3

155.0

ORing

Transporter
EN50155 TES-3080-M12-BP2-MV

PWR1 PWR2 R.M. Ring Fault

Relay   N.C. **Relay Output**
3A@24VDC

LNK/ACT

P4   P8
DPX/COL

LNK/ACT

Console
RXD   TXD
N.C.
N.C.   GND
RS-232, 9600bps, 8, N, 1

P3   P7
DPX/COL

Power Failure Bypass

LNK/ACT

V1+   V2+
V1-   V2-

P2   P6
DPX/COL

LNK/ACT

Power

Tx+   Rx+
Rx-   Tx-

P1   P5
DPX/COL

Reset
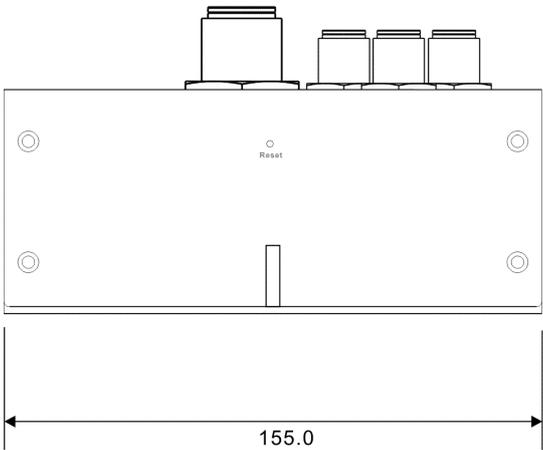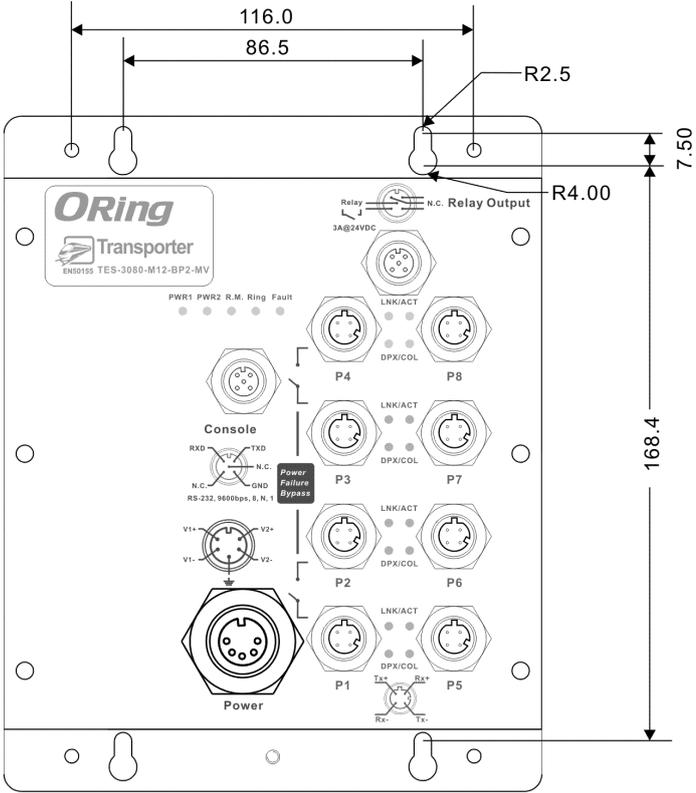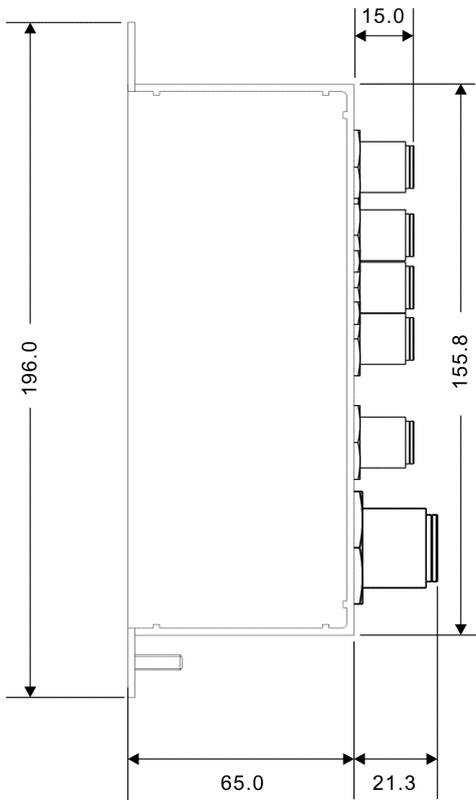
Specifications

ORing Switch Model	TES-3080-M12-BP2	TES-3080-M12-BP2-MV	TES-3080-M12-BP2-HV
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: 1.6 Gbps 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-Chain MRP 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 : 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

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	Dual 72~144VDC on 5-pin M23 connector	Dual 88~373VDC / 85~264VAC on 5-pin M23 connector
Power Consumption (Typ.)	5 Watts	7.68W	7.68W

Overload Current Protection	Present		
Reverse Polarity Protection	Present		
Physical Characteristic			
Enclosure	IP-40		
Dimension (W x D x H)	125 (W) x 65 (D) x196 (H) mm	155 (W) x 65 (D) x 196 (H)	155 (W) x 65 (D) x 196 (H)
Weight (g)	894 g	1304 g	1304 g
Environmental			
Storage Temperature	-40 to 85ºC (-40 to 185ºF)		
Operating Temperature	-40 to 70ºC (-40 to 158ºF)		
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-3AAB−M12−BP2−CC

Code Definition	10/100Base-T(X) Port Number	Additional Port Number	Power Input Type
Option	- 08: 8 ports	- 0: 0 port	- MV: middle-voltage power input - HV: high-voltage power input

	Model Name	Description
Available Model	TES-3080-M12-BP2	EN50155 8-port managed Ethernet switch with 8x10/100Base-T(X), M12 connector and 2xbypass included
	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
	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

Packing List

- TES-3080-M12-BP2 x 1
- ORing Tool CD x 1
- Quick Installation Guide x 1
- Console Cable x 1

Optional Accessories

- **Open-Vision M500 : Powerful Network Management Windows utility Suit, 500 IP devices**
- **DR-120 series : 120 Watts DIN-Rail power supply**
- **M12C : M12 cable accessories**

- **DR-45 series : 45 Watts DIN-Rail power supply**
- **DR-75 series : 75 Watts DIN-Rail power supply**
- **Console cable**