TES-250-M12

ORing WEB-site

EN50155 5-port lite-managed Ethernet switch with 5x10/100Base-T(X), M12 connector

Features

- Leading EN50155-compliant Ethernet switch for rolling stock application
- Support O-Ring (recovery time < 10ms over 250 units of connection) for Ethernet redundancy
- O-Chain allow multiple redundant network rings
- Provided Fast Recovery Technology for Ethernet multi-redundancy
- Supports STP/RSTP standard redundant protocol
- Supports SNMP v1/v2c/v3 for network management
- Supports LLDP Protocol
- Supports Web-based and Windows utility (Open-Vision) configuration
- Event notification through Syslog, E-mail and SNMP trap
- Ultra-rugged enclosure M12 connector for toughest industrial usages
- Wall mounting enabled



EN50155 | O-Ring | O-Chain | -40~70°C Temperature | RoHS | CE | FC

Introduction

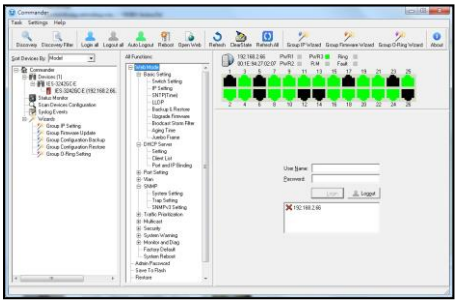
ORing's Transporter™ series Ethernet switches are designed for industrial applications, such as rolling stock, vehicle, and railway applications. TES-250-M12 is a lite-managed redundant ring Ethernet switch with 5x10/100Base-T(X) ports which is compliant with EN50155 request. With completely support of Ethernet redundancy protocol, O-Ring (recovery time < 10ms over 250 units of connection), O-Chain and STP/RSTP (IEEE802.1w/D) can protect your mission-critical applications from network interruptions or temporary malfunctions with its fast recovery technologies. It is specifically designed for the toughest industrial environments. TES-250-M12 EN50155 Ethernet switch use M12 connectors to ensure tight, robust connections, and guarantee reliable operation against environmental disturbances, such as vibration and shock. TES-250-M12 can be managed centralized 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. The TES-250-M12 can be easily adopted in almost all kinds of applications and provides the most rugged solutions for managing your network. Therefore, the switch is one of the most reliable choices for rolling stock and highly-managed Ethernet application.

- **O-Ring:** O-Ring is ORing's proprietary redundant ring technology, with recovery time of less 10 milliseconds and up to 250 nodes. The O-Ring redundant ring technology can protect mission-critical application from network interruptions or temporary malfunction with its fast recover technology.
- **O-Chain: O-Chain is t**he 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.

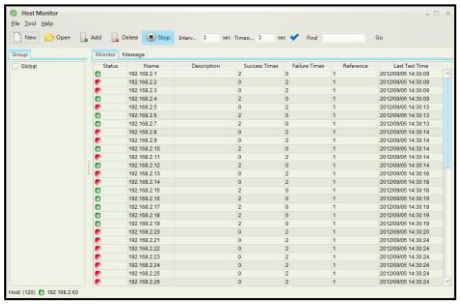
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Open-Vision

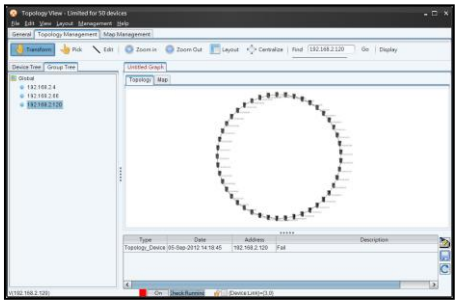
ORing's switches are intelligent switches. Different from other traditional redundant switches, ORing provides a set of Windows Utility (Open-Vision) for user to manage and monitor all of industrial Ethernet switches on the industrial network.



Commander



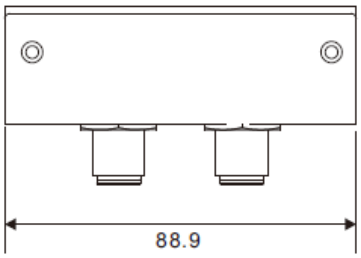
Host Monitor

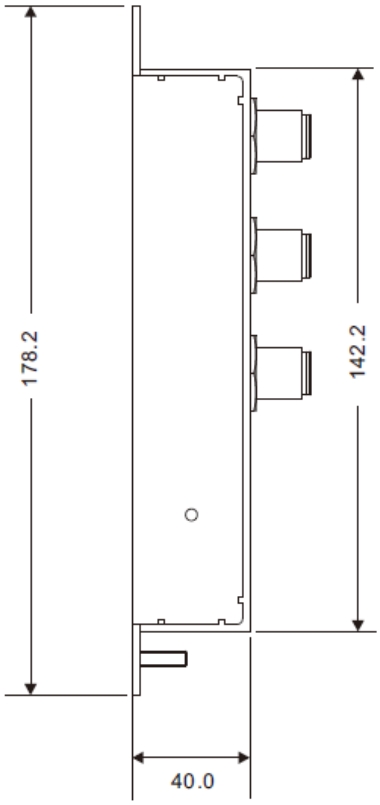


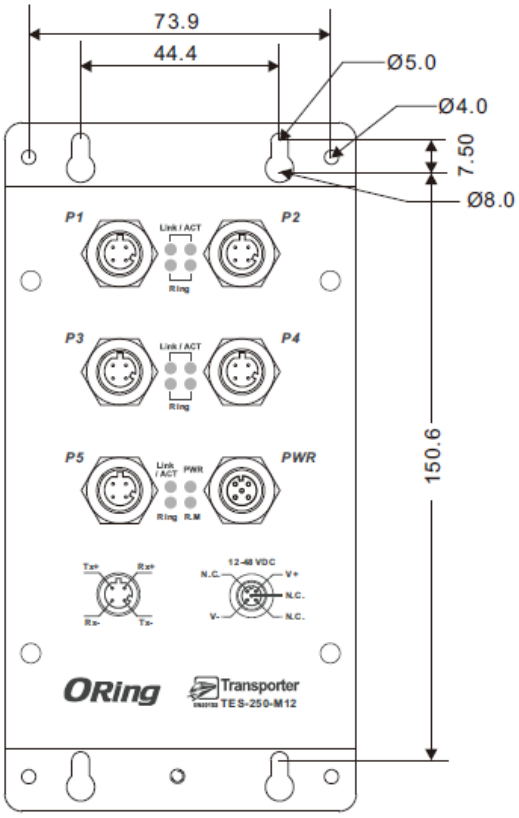
Topology View

Dimensions

Unit=mm (Tolerance ±0.5mm)

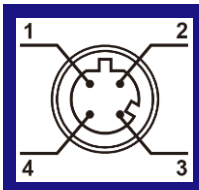






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Pin Definition



D-Coding M12

10/100Base-T(X) M12 port	
Pin No.	Description
#1	Tx+
#2	Rx+
#3	Tx-
#4	Rx-

Specifications

ORing Switch Model	TES-250-M12
Physical Ports	
10/100Base-T(X) Ports in M12 Auto MDI/MDIX	5 (4-pin female D-coding)
Technology	
Ethernet Standards	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX IEEE 802.3x for Flow control IEEE 802.1D for STP (Spanning Tree Protocol) IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol) IEEE 802.1AB for LLDP (Link Layer Discovery Protocol)
MAC Table	2K
Packet Buffer Size	1Mbits
Processing	Store-and-Forward
Switch Properties	Switching latency: <7 µs Switching bandwidth: 1Gbps Throughput (packet per second): 744Kpps@64Bytes packet VLAN: port-based
Security Features	Enable/Disable ports VLAN to segregate and secure network traffic SNMP v3 encrypted authentication and access security
Software Features	STP/RSTP (IEEE 802.1D/w) Redundant Ring (O-Ring) with recovery time less than 10ms over 250 units Port configuration, status, statistics, monitoring, security
Network Redundancy	O-Ring O-Chain Fast recovery STP RSTP
LED Indicators	
Power Indicator (PWR)	Green: Power LED x 1
Ring Master Indicator (R.M.)	Green: Indicates that the system is operating in O-Ring Master mode
O-Ring Indicator (Ring)	Green: Indicates that the system operating in O-Ring mode Green Blinking: Indicates that the Ring is broken.
10/100Base-T(X) M12 Port Indicator	Top Green LED for Link/Act indicator. Green for link-up, Off for link-down, Blinking for Act. Bottom Green LED for O-Ring function indicator: Green for O-Ring enabled, Off for O-Ring disabled
Reset Function	
Reset Button	< 5 sec: System reboot, > 5 sec: Factory default
Power	
Input Power	12-48VDC on 5-pin female A-coding M12 connector
Power Consumption (Typ.)	3Watts@12VDC/0.25A, 48VDC/0.062A

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Overload Current Protection	Present
Reverse Polarity Protection	Present
Physical Characteristic	
Enclosure	IP-30
Dimension (W x D x H)	88.9 (W) x 40 (D) x 178.2 (H) mm 3.5 (W) x 1.575 (D) x 7.106 (H) inch
Weight (g)	454 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	
EMC	CE EMC (EN 55024, EN 55022), FCC Part 15 B, EN 50155(EN 50121-1, EN 50121-3-2)
EMI	EN 55032, CISPR32, EN 61000-3-2, EN 61000-3-3, FCC Part 15 B class A
EMS	EN 55024 (IEC/EN 61000-4-2 (ESD: Contact 4KV), IEC/EN 61000-4-3 (RS 80MHz to 1GHz: 3V/m 1kHz 80% AM), IEC/EN 61000-4-4 (EFT Power 0.5KV, Signal 0.5KV), IEC/EN 61000-4-5 (Surge: Power 0.5KV, RJ45 1KV), IEC/EN 61000-4-6 (CS 150K-80MHz: 3Vrms 1kHz 80% AM), IEC/EN 61000-4-8(PFMF), IEC/EN 61000-4-11 (DIP)) EN 50121-3-2 (IEC/EN 61000-4-2 (ESD: Contact 6KV), IEC/EN 61000-4-3 (RS 80MHz to 1G/2.1G/2.5GHz: 20V/10V/5V/m 1kHz 80% AM), IEC/EN 61000-4-4 (EFT Power 2KV, Signal 2KV), IEC/EN 61000-4-5 (Surge: Power 1KV), IEC/EN 61000-4-6 (CS 150K-80MHz: 10Vrms 1kHz 80% AM), IEC/EN 61000-4-8(PFMF), IEC/EN 61000-4-11 (DIP))
Shock	IEC60068-2-27
Free Fall	IEC60068-2-31
Vibration	IEC60068-2-6
Safety	EN 60950-1 compliant
Other	EN 50155 (IEC 61373)
MTBF	1,437,990 hrs.
Warranty	5 years

Ordering Information

TES-2A B-M12

Code Definition	10/100/Base-T(X) Port Number	Additional Port Number
Option	**-5:** 5 ports	**-0:** 0 port

Available Model	Model Name	Description
	TES-250-M12	EN50155 5-port lite-managed Ethernet switch with 5x10/100Base-T(X), M12 connector

Packing List
- TES-250-M12x 1
- ORing Tool CD x 1
- Quick Installation Guide x 1

Optional Accessories
- Open-Vision M500: Powerful Network Management Windows Utility Suit, 500 IP devices
- M12 cable series

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