TPS-3882GT-M12-BP1 Series

EN50155 18-port managed PoE Ethernet switch with 8x10/100Base-T(X) P.S.E. , 8x10/100Base-T(X) and 2x10/100/1000Base-T(X), M12 connector and 1xbypass included

Features

- Leading EN50155-compliant Ethernet switch for rolling stock application
- 8 ports P.S.E. fully compliant with IEEE802.3af standard, provide up to 15.4 Watts per port
- 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** support applications with multiple redundant rings topology
- STP/RSTP/MSTP supported
- Support **PTP Client** (Precision Time Protocol) clock synchronization
- IGMP v2/v3 (IGMP snooping support) for filtering multicast traffic
- SNMP v1/v2c/v3 support for secured network management
- RMON for traffic monitoring
- Support VLAN and LLDP protocol
- DHCP assign each Equipment IP by each Port
- Provided Relay bypass function with two gigabit ports
- 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)
- M12 connectors to guarantee reliable operation against environmental disturbances
- Wall mounting enabled

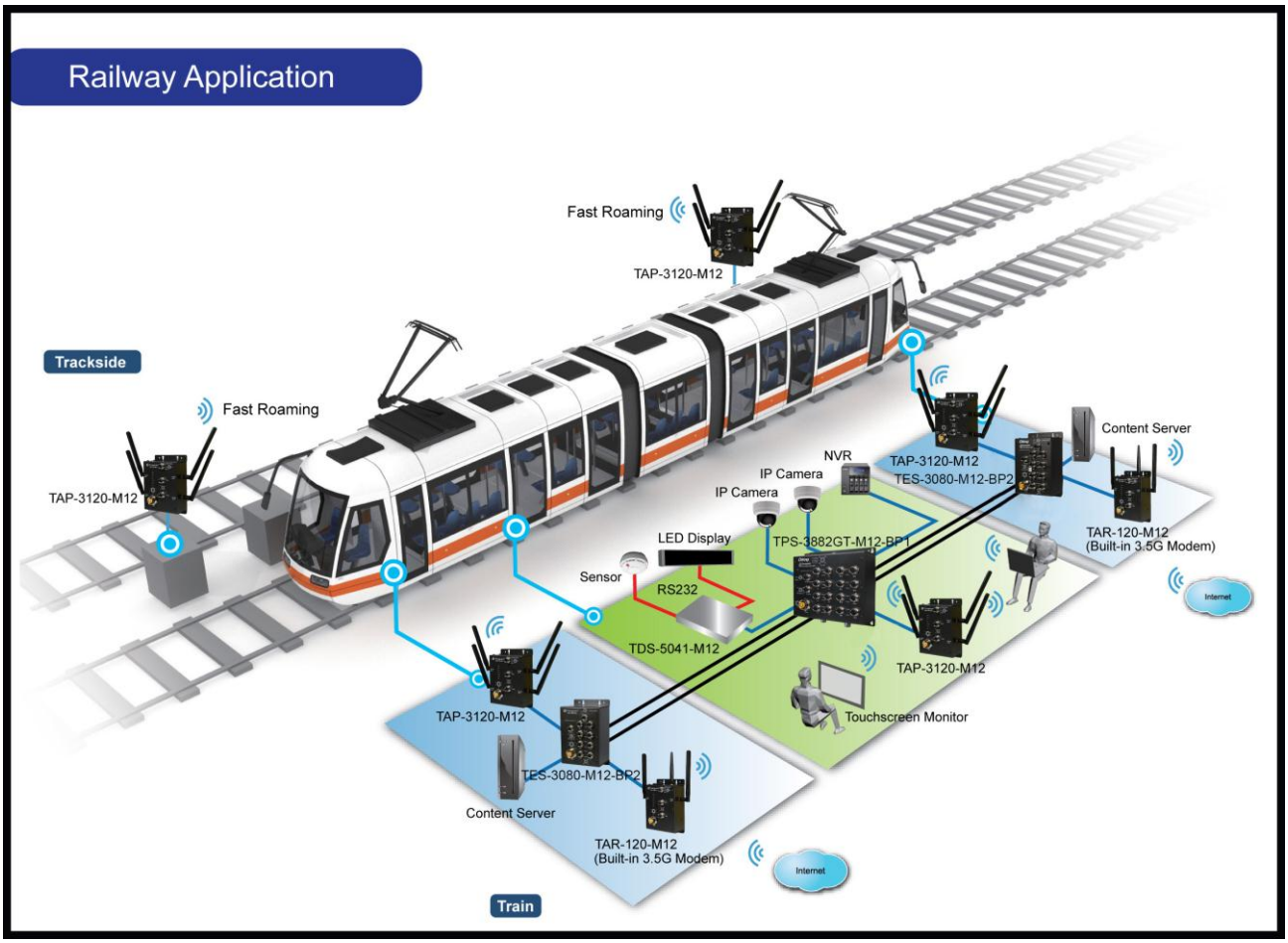
Introduction

ORing's Transporter™ series managed Ethernet switches are designed for industrial applications, such as rolling stock, vehicle, and railway applications. The TPS-3882GT-M12-BP1 is a managed PoE Redundant Ring Ethernet switch with 8x10/100Base-T(X) P.S.E., 8x10/100Base-T(X) and 2x10/100/1000Base-T(X) ports which is specifically designed for the toughest and fully compliant with EN50155 requirement. With completely 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. And O-Chain technology is supported which can applied for multiple redundant Ethernet rings. TPS-3882GT-M12-BP1 also supports Power over Ethernet, a system to transmit electrical power, along with data, to remote devices over standard twisted-pair cable in an Ethernet network. Each TPS-3882GT-M12-BP1 switch has 8X10/100Base-T(X) P.S.E. (Power Sourcing Equipment) ports. P.S.E. is a device (switch or hub for instance) that will provide power in a PoE setup. TPS-3882GT-M12-BP1 EN50155 Ethernet switch use M12 connectors to ensure tight, robust connections, and guarantee

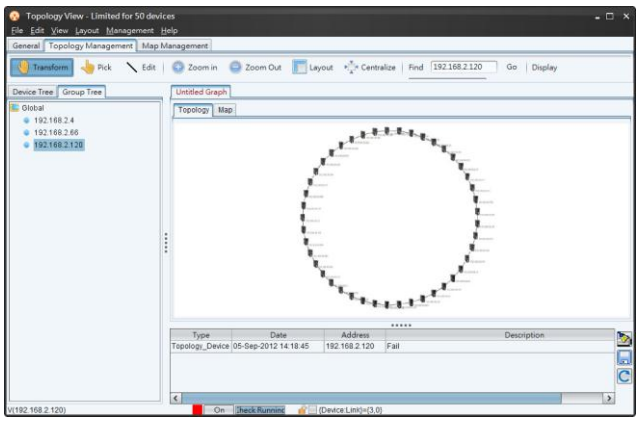
reliable operation against environmental disturbances, such as vibration and shock. TPS-3882GT-M12-BP1 can be managed centralized and convenient by a powerful windows utility ~ Open-Vision. In addition, the wide operating temperature range from -40 °C to 70°C can satisfy most of operating environment. Therefore, the switch is one of the most reliable choices for rolling stock and highly-managed PoE Ethernet application.

Open-Vision

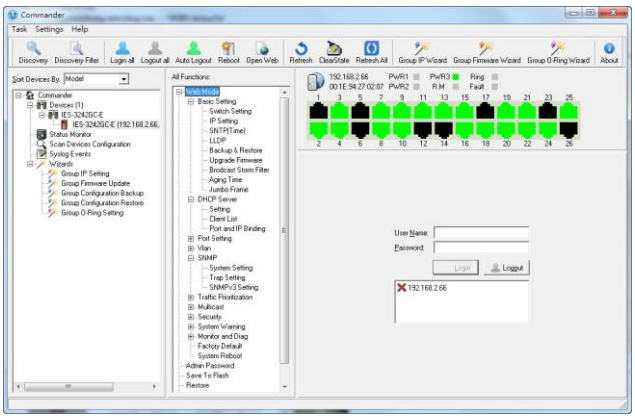
ORing's switches are intelligent switches. Different form other traditional redundant switches, ORing provides a set of Windows utility (Open-Vision) for user to manage and monitor all of industrial Ethernet switches on the industrial network.



Network connection

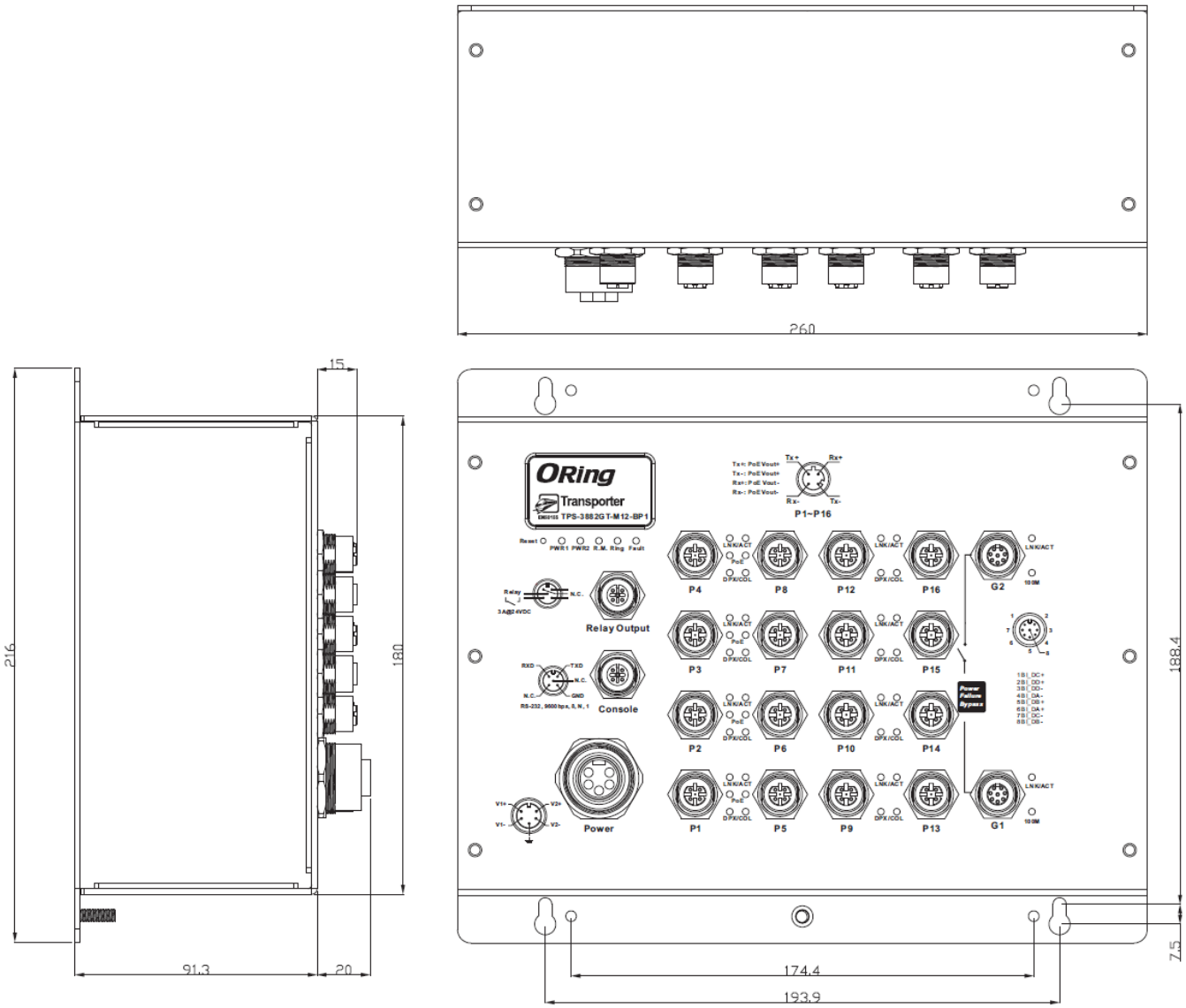


Topology View



Monitoring and Configuration interface

Dimension



Pin Definition

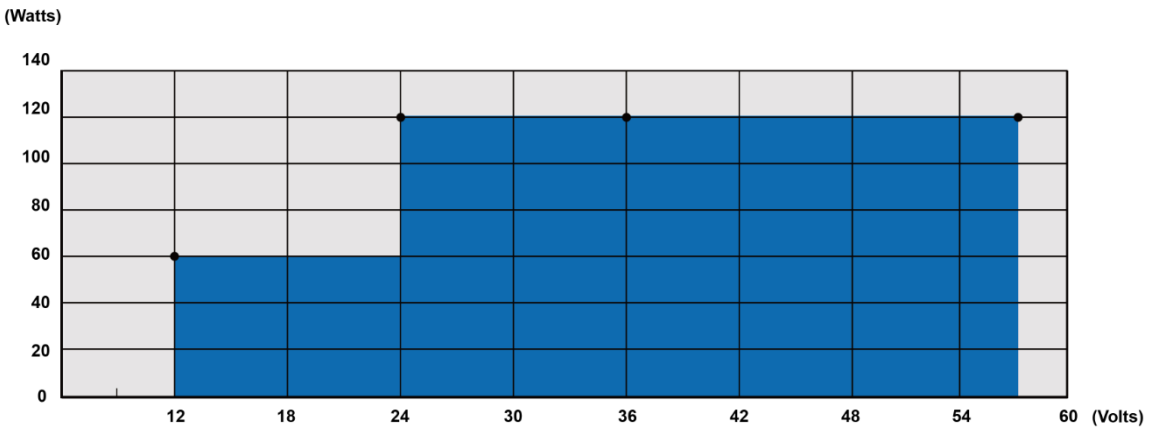
- 10/100Base-T(X) P.S.E. M12 port

M12 D-coding Pin Definition	
Pin No.	Description
#1	TD+ with PoE Vout+
#2	TD- with PoE Vout+
#3	RD+ with PoE Vout-
#4	RD- with PoE Vout-

- 10/100/1000Base-T(X) M12 port

M12 Pin Definition	
Pin No.	Description
#1	BI_DC+
#2	BI_DD+
#3	BI_DD-
#4	BI_DA-
#5	BI_DB+
#6	BI_DA+
#7	BI_DC-
#8	BI_DB-

PoE Power Distribution



P1~P8 PoE Power Distribution

Specifications

ORing Switch Model	TPS-3882GT-M12-BP1	TPS-3882GT-M12-BP1-24V
Physical Ports		
10/100Base-T(X) Ports in M12 Auto MDI/MDIX with P.S.E.	**8 x M12 connector (4-pin D-coding)**	
10/100Base-T(X) Ports in M12 Auto MDI/MDIX	**8 x M12 connector (4-pin D-coding)**	
10/100/1000Base-T(X) ports in M12	**2 x M12 connector (8-pin A-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 802.3ab for 1000Base-T 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) IEEE 802.3af PoE specification (up to 15.4 Watts per port for P.S.E.)	
MAC Table	8192 MAC addresses	
Priority Queues	4	
Processing	Store-and-Forward	
Switch Properties	Switching latency: 7 us Switching bandwidth: 7.2Gbps 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 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 PoE Port Indicator	Top Green for port Link/Act. Middle Green for PoE indicator. Bottom Amber for Collision/Duplex indicator.	
10/100Base-T(X) M12 Port Indicator	Green for Link/Act. Amber for duplex/collision indicator	
10/100/1000Base-T(X) M12 Port Indicator	Green for Link/Act. Amber for 100Mbps indicator	
Fault contact		
Relay	Relay output to carry capacity of 3A at 24VDC on M12 connector (5-pin A-coding)	
Power		
Redundant Input Power	Dual DC inputs. 48VDC on 5-pin M23 connector	Dual DC inputs. 24 (12~57VDC) VDC on 5-pin M23 connector
Power Consumption (Typ.)	8.88 Watts (power consumption of P.S.E. is not included)	14.88 Watts (power consumption of P.S.E. is not included)
PoE Output Power	120 Watts	60 Watts (12~24VDC) / 120 Watts (24~57VDC)
Overload Current Protection	Present	

Reverse Polarity Protection	Present	
Physical Characteristic		
Enclosure	IP-40	
Dimension (W x D x H)	260(W)x91.3(D)x216(H)mm	
Weight (g)	2082	2140
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		
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	

Ordering Information

TPS-3ABCDD-M12-EEE

Code Definition	10/100Base-T(X) P.S.E. Port Number	10/100Base-T(X) Port Number	Additional Port Number	Additional Port Type	Bypass Function
Option	**- 8:** 8 ports	**- 8:** 8 ports	**- 2:** 2 ports	**- GT:** 10/100/1000Base-T(X) port	- **BP1:** 1xbypass function included

	Model Name	Description
Available Model	**TPS-3882GT-M12-BP1**	EN50155 18-port managed PoE Ethernet switch with 8x10/100Base-T(X) P.S.E., 8x10/100Base-T(X) and 2x10/100/1000Base-T(X), M12 connector and 1xbypass included
	TPS-3882GT-M12-BP1-24V	EN50155 18-port managed PoE Ethernet switch with 8x10/100Base-T(X) P.S.E., 8x10/100Base-T(X) and 2x10/100/1000Base-T(X), M12 connector and 1xbypass included, 24VDC power inputs

Packing List

- TPS-3882GT-M12-BP1 x 1
- ORing Tool CD x 1
- Quick Installation Guide x 1
- Console cable

Optional Accessories

- Open-Vision M500 : Powerful Network Management Windows utility Suit, 500 IP devices
- M12C : M12 cable accessories
- DR-75-48 : 75 Watts DIN-Rail power supply
- DR-120-48 : 120 Watts DIN-Rail power supply