EN50155 SWITCH INDUSTRIAL

ORing

Quick Installation Guide

TES-3082GT-M12-BP1

EN50155 10-port managed Ethernet switch

Introduction

The **TES-3082GT-M12-BP1** is a managed Ethernet switch designed for industrial applications, such as rolling stock, vehicle, and railway applications. The switch boasts EN50155 compliance and M12 connectors to ensure tight and robust connections, and guarantee reliable operation against environmental disturbances, such as vibration and shock. Besides eight 10/100Base-T(X) ports, the switch also provides one set of bypass ports that ensure constant network connectivity if power outage or node failure occurs. In such situations, the device will bypass the inactive switch and continue to transfer network traffic to the next switch in the relay.

Package Contents

The **TES-3082GT-M12-BP1** series is shipped with the following items. If any of these items is missing or damaged, please contact your customer service representative for assistance.

Contents	Pictures	Number
TES-3082GT-M12-BP1		1
CD		1
QIG		1

Preparation

Before you begin installing the device, make sure you have all of the package contents available and a PC with Microsoft Internet Explorer 6.0 or later, for using web-based system management tools.

Safety & Warnings

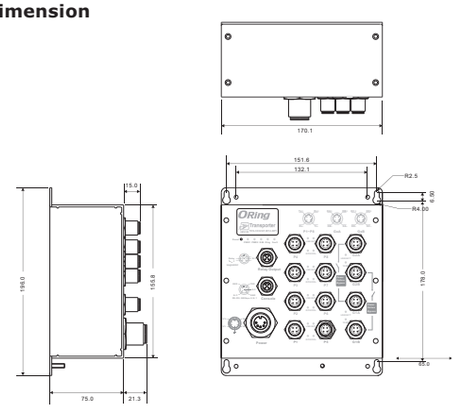
Elevated Operating Ambient: If installed in a closed environment, make sure the operating ambient temperature is compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

Reduced Air Flow: Make sure the amount of air flow required for safe operation of the equipment is not compromised during installation.

Mechanical Loading: Make sure the mounting of the equipment is not in a hazardous condition due to uneven mechanical loading.

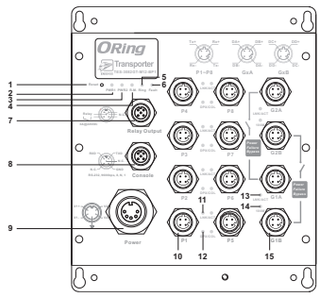
Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Dimension



Panel Layouts

Front View

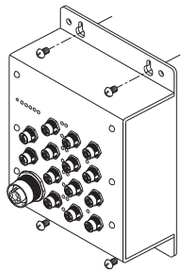


1. Reset button
2. Power1 status LED
3. Power2 status LED
4. R.M. status LED
5. Ring status LED
6. Fault LED
7. Relay output port
8. Console port
9. Power connector
10. Ethernet ports
11. LNK/ACT indicator for Ethernet port
12. Duplex/collision indicator for Ethernet port
13. LNK/ACT indicator for Gigabit Ethernet port
14. Speed indicator for Gigabit Ethernet port
15. Gigabit Ethernet ports

Installation

Wall-mount

The device can be fixed to the wall. Follow the steps below to install the device on the wall.
Step 1: Hold the device upright against the wall
Step 2: Insert four screws through the large opening of the keyhole-shaped apertures at the top and bottom of the unit and fasten the screw to the wall with a screwdriver.
Step 3: Slide the device downwards and tighten the four screws for added stability.



Instead of screwing the screws in all the way, it is advised to leave a space of about 2mm to allow room for sliding the switch between the wall and the screws.

Wiring

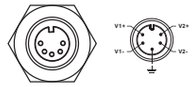
For pin assignments of power, console and relay output ports, please refer to the following tables.

Grounding

Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the grounding pin on the power connector to the grounding surface prior to connecting devices.

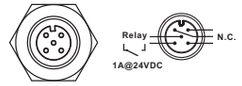
Power port pinouts

The device supports two sets of power supplies and uses the M23 5-pin female connector on the front panel for the dual power inputs.
Step 1: Insert a power cable to the power connector on the device.
Step 2: Rotate the outer ring of the cable connector until a snug fit is achieved. Make sure the connection is tight.



Relay output port pinouts

The switch uses the M12 A-coded 5-pin male connector on the front panel for relay output. Use a power cord with an M12 A-coded 5-pin female connector to connect the relay. The relay contacts will detect user-configured events and form an open circuit when an event is triggered.



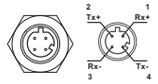
Network Connection

The switch has eight 10/100Base-T(X) and two 10/100/1000Base-T(X) Ethernet ports in the form of M12 connector. Depending on the link type, the switch uses CAT 3, 4, 5,5e UTP cables to connect to network devices (PCs, servers, switches, routers, or hubs). Please refer to the following table for cable specifications.

Cable	Type	Max. Length	Connector
10BASE-T	Cat. 3, 4, 5 100-ohm	UTP 100 m (328 ft)	4-pin female M12 D-coding connector
100BASE-TX	Cat. 5 100-ohm UTP	UTP 100 m (328 ft)	4-pin female M12 D-coding connector
1000BASE-T	Cat. 5/Cat. 5e 100-ohm UTP	UTP 100 m (328ft)	4-pin female M12 D-coding connector *2 (GxA & GxB)

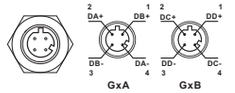
4-Pin Fast Ethernet Port Definition

For pin assignments of the LAN ports, please refer to the following tables.



Pin No.	Description
#1	RD+
#2	TD+
#3	RD-
#4	TD-

4-Pin Gigabit Port Definition



Pin No.	GxA Description
#1	DB+
#2	DA+
#3	DB-
#4	DA-

Pin No.	GxB Description
#1	DD+
#2	DC+
#3	DD-
#4	DC-

Configurations

After installing the router and connecting cables, start the device by turning on power. The green power LED should turn on. Please refer to the following tablet for LED indication.

EN50155 SWITCH INDUSTRIAL

ORing

Quick Installation Guide

TES-3082GT-M12-BP1

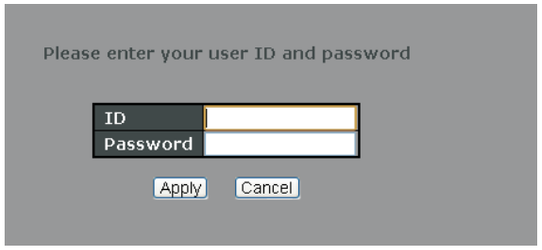
EN50155 10-port managed Ethernet switch

LED	Color	Status	Description
PWR1	Green	On	DC power module 1 activated
PWR2	Green	On	DC power module 2 activated
R.M	Green	On	System running in Ring Master mode
Ring	Green	On	System running in Ring mode
		Blinking	Ring is broken
Fault	Amber	On	Errors occur (power failure or port link down)
10/100Base-T(X) Ports			
LNK/ACT	Green	On	Port is linked
		Blinking	Transmitting data
DPX/COL	Amber	On	Port running in full-duplex mode
		Blinking	Collision occurs
10/100/1000Base-T Ports			
LNK/ACT	Green	On	Port is linked
		Blinking	Transmitting data
100M	Amber	On	Port speed at 100M

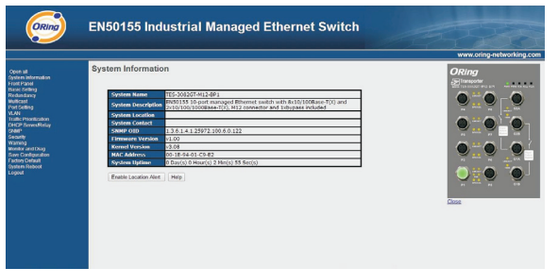
Follow the steps below to log in and access the system:

1. Launch the Internet Explorer and type in IP address of the device. The default static IP address is **192.168.10.1**

2. Log in with default user name and password (both are **admin**).



3. After logging in, you should see the following screen. For more information on configurations, please refer to the user manual. For information on operating the device using ORing's Open-Vision management utility, please go to ORing website.



Resetting

To restore the device configurations back to the factory defaults, press the **Reset** button for a few seconds. Once the power indicator starts to flash, release the button. The device will then reboot and return to factory defaults.

Specifications

ORing Switch Model	TES-3082GT-M12-BP1
Physical Ports	
10/100 Base-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 (combinig 2 x M12 connectors 4-pin D-coding for 1 Gigabit port)**
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)
MAC Table	2K MAC addresses
Priority Queues	4
Processing	Store-and-Forward
Switch Properties	Switching latency: 7 us Switching bandwidth: 5.6 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 250units 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 Modbus TCP
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 Collision/Duplex 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 M12 A-coding)
Power	
Redundant Input Power	Dual DC inputs. 12~48VDC on 5-pin M23 connector
Power Consumption(Typ.)	11 Watts
Overload Current Protection	Present
Reverse Polarity Protection	Present

Physical Characteristic	
Enclosure	IP-30
Dimension (W x D x H)	125(W) x 65(D) x 196(H) mm (4.92 x 2.56 x 7.66 inch.)
Weight (g)	1338 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	
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

ORing

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