SWITCH REDUNDANT INDUSTRIAL

ORing

Quick Installation Guide

IES-3080/3062 Series Industrial Managed Ethernet Switch

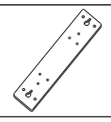
Introduction

IES-3080 / IES-3062 series are managed Redundant Ring Ethernet switches with 6x10/100Base-T(X) and 2x10/100Base-T(X), 100Base-FX, 1000Base-T, 1000Base-SX or 1000Base-LX ports. With completely support of Ethernet Redundancy protocol, O-Ring (recovery time < 10/30ms over 250 units of connection), O-Chain, MRP*NOTE 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. 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. **IES-3080 / IES-3062 series** can be managed centralized and convenient by a powerful windows utility — Open-Vision. In addition, the wide operating temperature range from -40°C to 75°C can satisfy most of operating environment. Therefore, the switch is one of the most reliable choice for highly-managed Fiber Ethernet application.

***NOTE: This function is available by request only**

Package Contents

The series are 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
IES-3080/ IES-3062GT IES-3062FX-MM-SC/ IES-3062FX-SS-SC/ IES-3062GF-MM-SC/ IES-3062GF-SS-SC/		X 1
CD		X 1
DIN-rail Kit		X 1
Wall-mount Kit		X 1
QIG		X 1
Console Cable		X 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

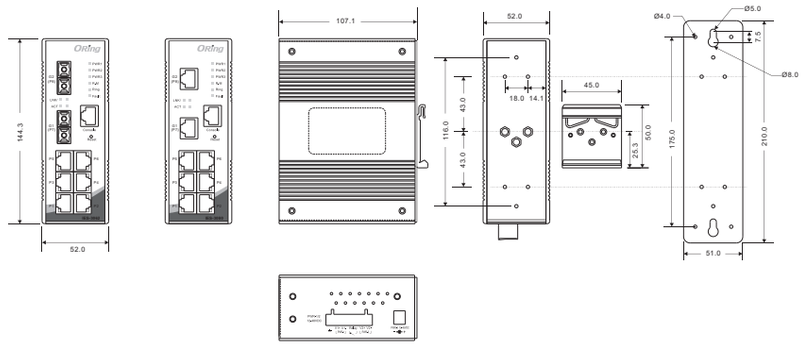
Elevated Operating Ambient: If installed in a closed environment, make sure the operating ambient temperature is compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

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.

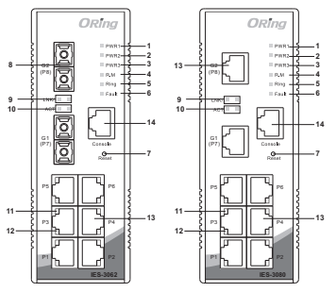
Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this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

Dimension Unit =mm (Tolerance ±0.5mm)



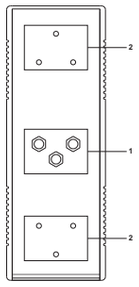
Panel Layouts

Front View



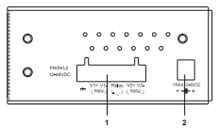
1. PWR1 LED
2. PWR2 LED
3. PWR3 LED
4. R.M status LED
5. Ring status LED
6. Fault indicator
7. Reset button
8. Fiber ports
9. LNK/ACT LED for G1(or P7)
10. LNK/ACT LED for G2(or P8)
11. LNK/ACT for P1 to P6
12. Duplex/Collision LED for P1 to P6
13. LAN ports
14. Console port

Rear View



1. Din-rail screw holes
2. Wall-mount screw holes

Bottom View



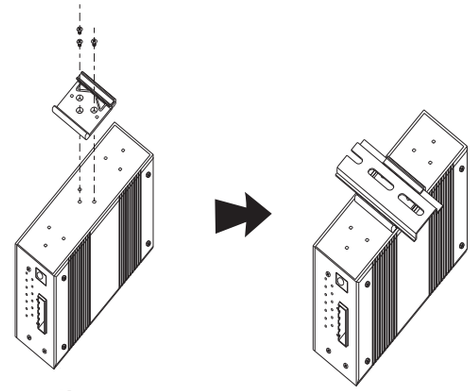
1. Terminal blocks: PWR1, PWR2, Relay, Ground
2. DC jack power input

Installation

Use the mounting kits attached with the package and follow the steps below to install the switch to a rail or to the wall.

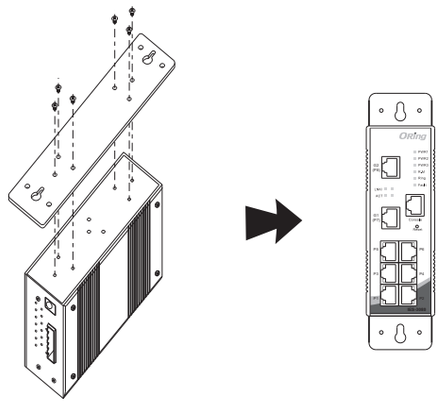
DIN-rail Installation

Step 1: Slant the switch and screw the Din-rail kit onto the back of the switch, right in the middle of the back panel.
Step 2: Slide the switch onto a DIN-rail from the Din-rail kit and make sure the switch clicks into the rail firmly.



Wall-mounting

Step 1: Screw the wall-mount kit (in the package) onto the back of the switch. A total of six screws are required, as shown below.
Step 2: Use the switch, with wall mount plates attached, as a guide to mark the correct locations of the wall-mounting screws.
Step 3: Insert a screw head through the large part of the keyhole-shaped aperture on the plate, and then slide the switch downwards. Tighten the screw 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.

Network Connection

The series have standard Ethernet ports. 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 Types and Specifications:

Cable	Type	Max. Length	Connector
10BASE-T	Cat. 3, 4, 5 100-ohm	UTP 100 m (328 ft)	RJ-45
100BASE-TX	Cat. 5 100-ohm UTP	UTP 100 m (328 ft)	RJ-45
1000BASE-T	Cat. 5 / Cat. 5e 100-ohm UTP	UTP 100 m (328 ft)	RJ-45

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For pin assignments for different types of cables, please refer to the following tables.

10/100 Base-T(X) RJ-45 Port	
Pin Number	Assignments
1	TD+
2	TD-
3	RD+
4	Not used
5	Not used
6	RD-
7	Not used
8	Not used

1000Base-T RJ-45 Port	
Pin Number	Assignment
1	BI_DA+
2	BI_DA-
3	BI_DB+
4	BI_DC+
5	BI_DC-
6	BI_DB-
7	BI_DD+
8	BI_DD-

10/100 Base-T(X) MDI/MDI-X		
Pin Number	MDI port	MDI-X port
1	TD+(transmit)	RD+(receive)
2	TD-(transmit)	RD-(receive)
3	RD+(receive)	TD+(transmit)
4	Not used	Not used
5	Not used	Not used
6	RD-(receive)	TD-(transmit)
7	Not used	Not used
8	Not used	Not used

1000Base-T MDI/MDI-X		
Pin Number	MDI port	MDI-X port
1	BI_DA+	BI_DB+
2	BI_DA-	BI_DB-
3	BI_DB+	BI_DA+
4	BI_DC+	BI_DD+
5	BI_DC-	BI_DD-
6	BI_DB-	BI_DA-
7	BI_DD+	BI_DC+
8	BI_DD-	BI_DC-

Note: "+" and "-" signs represent the polarity of the wires that make up each wire pair.

Console Port Pin Definition

To connect the console port to an external management device, you need an RJ-45 to DB-9 cable, which is also supplied in the package. Below is the console port pin assignment information.

PC (male) pin assignment	RS-232 with DB9 (female) pin assignment (RJ45-DB9 cable)	RJ45 pin assignment
PIN#2 RxD	PIN#2 RxD	PIN#2 RxD
PIN#3 TxD	PIN#3 TxD	PIN#3 TxD
PIN#5 GND	PIN#5 GND	PIN#5 GND

Wiring

Power inputs

The switch provides three DC inputs. The 12~48VDC power supply is on 7-pin terminal block, along with the grounding screw and relay output, and the 12~45VDC is on a power jack. Follow the steps below to wire power cables on the terminal block.

STEP 1: Insert the negative/positive wires into the V-/V+ terminals, respectively.
STEP 2: To keep the wires from pulling loose, use a small flat-blade screwdriver to tighten the wire-clamp screws on the front of the connector.

Relay contact

The relay contact on the terminal block allow you to form fail close circuits. The relay contact will respond to user-configured events according to the setting.

Grounding

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

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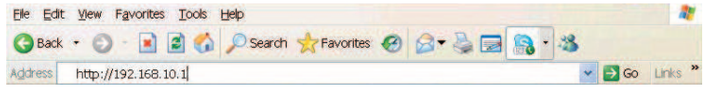
Configurations

After installing the switch, the green power LED should turn on. Please refer to the following tablet for LED indication.

LED	Color	Status	Description
PW1	Green	On	Power module 1 activated
PW2	Green	On	Power module 2 activated
PW3	Green	On	Power module 3 activated
R.M	Green	On	System running in Ring Master mode
Ring	Green	On	System running in Ring mode
		Blinking	Ring structure is broken (i.e. part of the ring is disconnected)
Fault	Amber	On	Faulty relay (power failure or port malfunctioning)
10/100Base-T(X) Fast Ethernet ports			
LNK/ACT	Green	On	Links are connected
		Off	Links are dis-connected
		Blinking	Transmitting data
Duplex/ Collision	Amber	On	Full-duplex
		Off	Half-duplex
		Blinking	Half-duplex and collision occurred
10/100/1000Base-T(X) Ports			
LNK/ACT	Green	On	Links are connected
		Off	Links are dis-connected
		Blinking	Transmitting data
Speed	Amber	On	Port link at 100Mbps
		Off	Port link at 10/1000Mbps
Fiber ports			
LNK/ACT	Green	On	Links are connected
		Off	Links are dis-connected
		Blinking	Transmitting data
LNK	Amber	On	Links are connected
		Off	Links are dis-connected

Follow the steps to set up the card:

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



2. Log in with default user name and password (both are **admin**). 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 switch using ORing's Open-Vision management utility, please go to ORing website.

Resetting

To reboot the switch, press the **Reset** button for 2-3 seconds.

To restore the switch configurations back to the factory defaults, press the **Reset** button for 5 seconds.

Specifications

ORing Switch Model		IES-3080	IES-3062GT	IES-3062FX-MM	IES-3062FX-SS	IES-3062GF-MM	IES-3062GF-SS
Physical Ports							
10/100 Base-T(X) Ports in RJ45 Auto MDI/MDIX		8	6	6	6	6	6
10/100/1000 Base-T(X) Ports in RJ45 Auto MDI/MDIX		-	2	-	-	-	-
Fiber Port Specification	Fiber Ports Number	-	-	2	2	2	2
	Fiber Ports Standard	-	-	100Base-FX	100Base-FX	1000Base-SX	1000Base-LX
	Fiber Mode	-	-	Multi-mode	Single-mode	Multi-mode	Single-mode
	Fiber Diameter (μm)	-	-	62.5/125 μm 50/125 μm	9/125 μm	62.5/125 μm 50/125 μm	9/125 μm
	Fiber Optical Connector	-	-	SC	SC	SC	SC
	Typical Distance (Km)	-	-	2 Km	30 Km	0.55 Km	10 Km
	Wavelength (nm)	-	-	1310 nm	1310 nm	850 nm	1310 nm
	Max. Output Optical Power (dbm)	-	-	-14 dbm	-8 dbm	-4 dbm	-3 dbm
	Min. Output Optical Power (dbm)	-	-	-23.5 dbm	-15 dbm	-9.5 dbm	-9.5 dbm
	Max. Input Optical Power (Saturation)	-	-	0 dbm	0 dbm	0 dbm	-3 dbm
	Min. Input Optical Power (Sensitivity)	-	-	-31 dbm	-34 dbm	-18 dbm	-20 dbm
	Link Budget (db)	-	-	7.5 db	19 db	8.5 db	10.5 db
Technology							
Ethernet Standards		IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX and 100Base-FX IEEE 802.3z for 1000Base-X IEEE 802.3ab for 1000Base-T IEEE 802.3ad for LACP (Link Aggregation Control Protocol) IEEE 802.3x for Flow control 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 802.1AB for MSTP (Multiple Spanning Tree Protocol) IEEE 802.1x for Authentication IEEE 802.1AB for LLDP (Link Layer Discovery Protocol)					
MAC Table		8K					
Packet buffer		1Mbits					
Priority Queues		4					
Processing		Store-and-Forward					
Switch Properties		Switching latency: 2.03 μs Switching bandwidth: IES-3080/IES-3062FX Series: 1.6Gbps IES-3062GT/IES-3062GF Series: 5.6Gbps Throughput (packet per second): IES-3080/IES-3062FX Series: 76.19Mpps@64Bytes packet IES-3062GT/IES-3062GF Series: 761.91 Mpps@64Bytes packet Max. Number of Available VLANs: 4096 VLAN ID Range: VID 1 to 4095 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 10/30ms over 250 units **NOTE 1.** Fast Ethernet ports supports less 10 milliseconds recovery time. **NOTE 2.** Gigabit Ethernet ports supports less 30 milliseconds recovery time 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, O-Chain, MRP***NOTE**, STP / RSTP / MSTP					
RS-232 Serial Console Port		RS-232 in RJ45 connector with console cable. Baud rate setting: 9600bps, 8, N, 1					
Fault Contact							
Relay		Relay output to carry capacity of 1A at 24 VDC					
Power							
Redundant Input power		Triple DC inputs. 12~48VDC on 7-pin terminal block, 12~45VDC on power jack					
Power consumption(Typ.)		5 Watts	8 Watts	9 Watts	9 Watts	7 Watts	7 Watts
Overload current protection		Present					
Reverse polarity protection		Present on terminal block					
Physical Characteristic							
Enclosure		IP-30 Aluminum					
Dimension (W x D x H)		52(W)x107.1(D)x144.3(H) mm (2.05x4.21x5.68 inch.)					
Weight (g)		710 g	722 g	735 g	735 g	740 g	740 g
Environmental							
Storage Temperature		-40 to 85°C (-40 to 185°F)					
Operating Temperature		-40 to 75°C (-40 to 167°F)					
Operating Humidity		5% to 95% Non-condensing					
Regulatory Approvals							
EMC		CE EMC (EN 55024, EN 55032), FCC Part 15 B					
EMI		EN 55032, CISPR32, EN 61000-3-2, EN 61000-3-3, VCCI class A, C-Tick class A, FCC Part 15 B class A					
EMS		EN 55024 (IEC/EN 61000-4-2 (ESD: Contact 4KV, Air 8KV), IEC/EN 61000-4-3 (RS: 3V), 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: 3V), 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		EN60950-1(LVD)					
MTBF		841,599 hrs	798,350 hrs	550,165 hrs	479,542 hrs	432,000 hrs	503,318 hrs
Warranty		5 years					

***NOTE : This function is available by request only**