# IES-2060/2042FX Series

ORing WEB-site

## *Industrial 6-port lite-managed Ethernet switch series*

### Features

- World's fastest Redundant Ethernet Ring: O-Ring (recovery time < 10ms over 250 units of connection)
- O-Chain allow multiple redundant network rings
- Provide Fast recovery technology for Ethernet multi-redundancy
- Support STP/RSTP standard redundant protocol
- SNMP v1/v2c/v3, http server, telnet server support
- Support LLDP protocol
- Web-based interface, telnet server and Windows utility (Open-Vision) configuration
- Event notification through Syslog, Email, SNMP trap and relay
- Two 100Base-FX fiber ports support for long distance connection
- Rigid IP-30 housing design
- DIN-Rail and wall mounting enabled


O-Ring | O-Chain | Redundant PWR | -40~75°C Temperature | ROHS | CE | FC

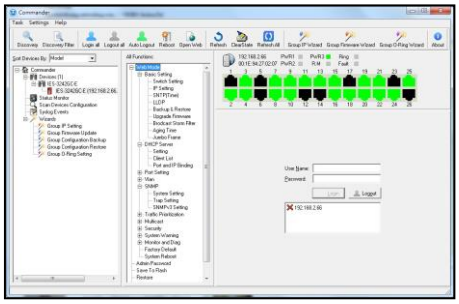
### Introduction

IES-2060/2042FX series are lite-Managed Redundant Ring Ethernet switches with 6x10/100Base-T(X) ports or 4x10/100Base-T(X) and 2x100Base-FX ports. 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 technology. IES-2060/2042FX 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, these switches are one of the most reliable choice for easy managed Fiber Ethernet application.

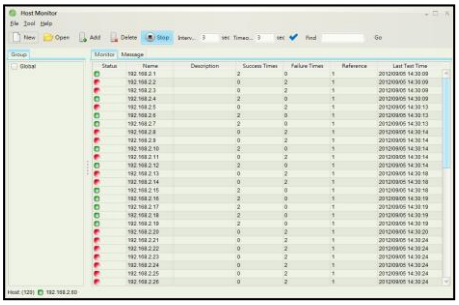
- **O-Ring:** O-Ring is ORing's proprietary redundant ring technology, with recovery time of less 30 milliseconds and up to 250 nodes. The O-Ring redundant ring technology can protect mission-critical application from network interruptions or temporary malfunction with its fast recover technology.
- **O-Chain:** O-Chain is 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.

## Open-Vision

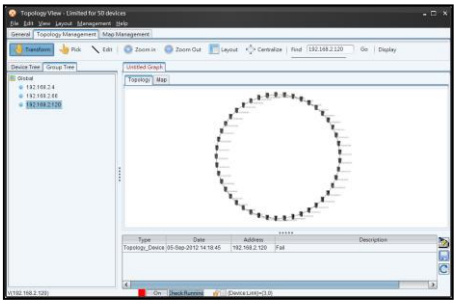
ORing's switches are intelligent switches. Different from other traditional redundant switches, ORing provides a set of Windows Utility (Open-Vision) for user to manage and monitor all industrial Ethernet switches on the industrial network.



Commander



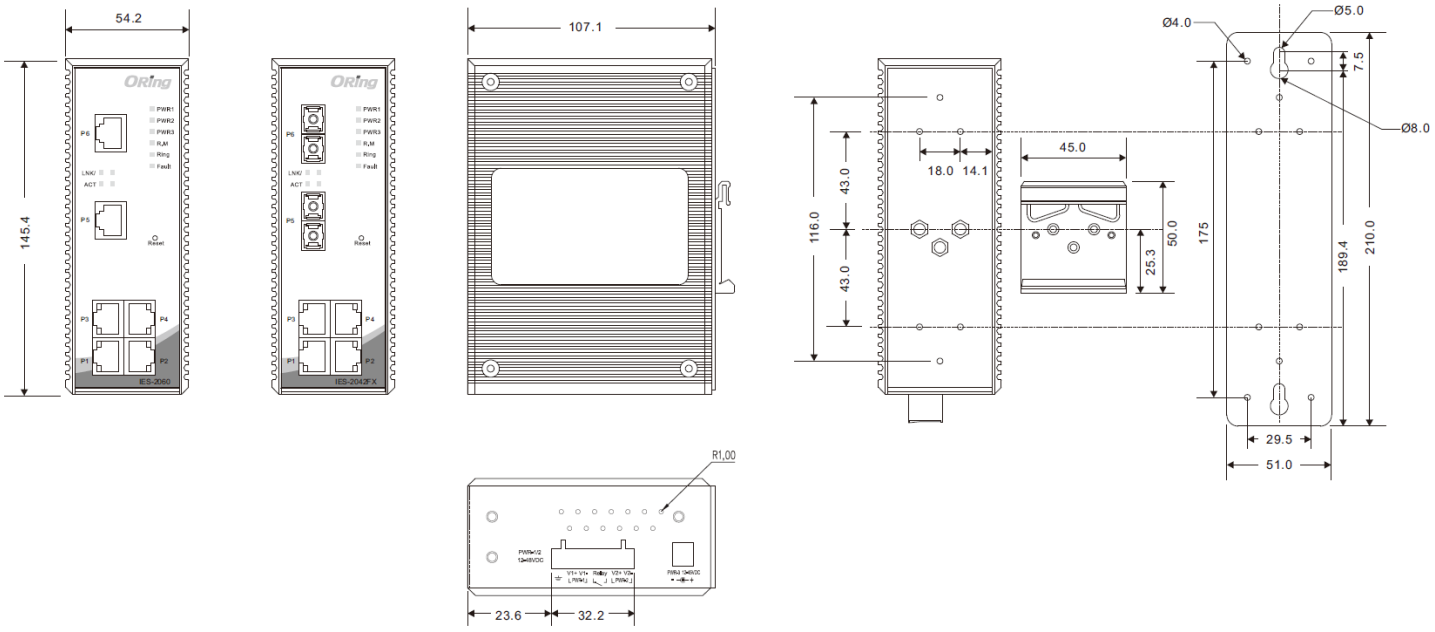
Host Monitor



Topology View

## Dimensions

Unit = mm (Tolerance ±0.5mm)



## Specifications

| ORing Switch Model | | IES-2060 | IES-2042FX-MM-SC | IES-2042FX-SS-SC |
|---|---|---|---|---|
| **Physical Ports** | | | | |
| 10/100Base-T(X) Ports in RJ45 Auto MDI/MDIX | | 6 | 4 | 4 |
| Fiber Ports Specifications | Fiber Ports Number | - | 2 | 2 |
| | Fiber Ports Standard | - | 100Base-FX | 100Base-FX |
| | Fiber Mode | - | Multi-mode | Single-mode |
| | Fiber Diameter (µm) | - | 62.5/125 µm<br>50/125 µm | 9/125 µm |
| | Fiber Optical Connector | - | SC | SC |
| | Typical Distance (km) | - | 2 Km | 30 Km |
| | Wavelength (nm) | - | 1310 nm | 1310 nm |
| | Max. Output Optical Power (dBm) | - | -14 dbm | -8 dbm |
| | Min. Output Optical Power (dBm) | - | -23.5 dbm | -15 dbm |
| | Max. Input Optical Power (Saturation) | - | 0 dbm | 0 dbm |
| | Min. Input Optical Power (Saturation) | - | -31 dbm | -34 dbm |
| | Link Budget (dB) | - | 7.5 db | 19 db |
| **Technology** | | | | |
| Ethernet Standards | | IEEE 802.3 for 10Base-T<br>IEEE 802.3u for 100Base-TX<br>IEEE 802.3x for Flow control<br>IEEE 802.1D for STP (Spanning Tree Protocol)<br>IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol)<br>IEEE 802.1AB for LLDP (Link Layer Discovery Protocol) | | |
| MAC Table | | 1K | | |
| Packet buffer | | 1Mbits | | |
| Priority Queues | | 4 | | |
| Processing | | Store-and-Forward | | |
| Switch Properties | | Switching latency: 7 µs | Switching latency: 5.05 µs | Switching latency: 7.45 µs |
| | | Switching bandwidth: 1.2Gbps | | |
| | | Throughput (packet per second): 76.19Mpps@64Bytes packet | | |
| | | VLAN: Port based | | |
| Security Features | | Enable/disable ports<br>VLAN to segregate and secure network traffic | | |
| Software Features | | STP/RSTP (IEEE 802.1D/w)<br>Redundant Ring (O-Ring) with recovery time less than 10ms over 250 units<br>DHCP Client<br>Port Base VLAN<br>LLDP (Link Layer Discovery Protocol)<br>Port configuration, status, statistics, monitoring, security<br>SNMP v1/v2c/v3 and private MIB support | | |
| Network Redundancy | | O-Ring<br>O-Chain<br>Fast recovery<br>RSTP/STP | | |
| **LED indicators** | | | | |
| Power Indicator (PWR) | | Green: Power LED x3 | | |

| | | | |
|---|---|---|---|
| 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<br>Green Blinking: Indicates that the Ring is broken. | | |
| Fault Indicator (Fault) | Amber: Indicate unexpected event occurred | | |
| 10/100Base-T(X) RJ45 Port Indicator | Green for Link/Act indicator. On for link-up, Off for link-down, Blinking for act.<br>Amber for Link indicator. On for link-up, Off for link-down. | | |
| 100Base-FX Fiber Port Indicator | Green for Link/Act indicator. On for link-up, Off for link-down, Blinking for act.<br>Amber for Link indicator. On for link-up, Off for link-down. | | |
| **Fault contact** | | | |
| Relay | Relay output to carry capacity of 1A at 24VDC | | |
| **Reset Function** | | | |
| Reset Button | < 5 sec: System reboot, > 5 sec: Factory default | | |
| **Power** | | | |
| Redundant Input power | Triple DC inputs. 12~48VDC on 7-pin terminal block, 12~45VDC on power jack | | |
| Power consumption (Typ.) | ≤6Watts, 12VDC/0.48A (6W), 24VDC/0.24A (6W), 48VDC/0.14A (6W) | ≤7Watts, 12VDC/0.55A (7W), 24VDC/0.27A (6W), 48VDC/0.16A (7W) | ≤6Watts, 12VDC/0.48A (6W), 24VDC/0.24A (6W), 48VDC/0.14A (6W) |
| Overload current protection | Present | | |
| Reverse Polarity Protection | Present on terminal block | | |
| **Physical Characteristic** | | | |
| Enclosure | IP-30 Aluminum | | |
| Dimension (W x D x H) | 54.2 (W) x 107.1 (D) x 145.4 (H)mm<br>2.13 (W) x 4.22 (D) x 5.72 (H) inch | | |
| Weight (g) | 657 g | 670 g | 670 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 1KV, Signal 0.5KV), IEC/EN 61000-4-5 (Surge: Power 1KV, 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 | EN 60950-1 (LVD) | | |
| MTBF | 1411775.2460 hrs | 595597.3384 hrs. | 1060513.9495 hrs |
| Warranty | 5 years | | |

## Ordering Information

IES-2AABCC-DD-EE

| Code Definition | 10/100Base-T(X) Port Number | Additional Port Number | Additional Port Type | Fiber Optical Mode | Fiber Optical Connector |
|---|---|---|---|---|---|
| **Option** | **- 06:** 6 ports<br>**- 04:** 4 ports | **- 0:** 0 ports<br>**- 2:** 2 ports | **-FX:** 100Base-FX | **-MM:** Multi-mode<br>**-SS:** Single-mode | **-SC:** SC Connector |

| | Model Name | Description |
|---|---|---|
| Available Model | IES-2060 | Industrial 6-port lite-managed Ethernet switch with 6x10/100Base-T(X) |
| | IES-2062FX-MM-SC | Industrial 6-port lite-managed Ethernet switch with 4x10/100Base-T(X) and 2x100Base-FX, multi-mode, 2Km/1310nm, SC connector |
| | IES-2062FX-SS-SC | Industrial 6-port lite-managed Ethernet switch with 4x10/100Base-T(X) and 2x100Base-FX, single-mode, 30Km/1310nm, SC connector |

**Packing List**

- IES-2060/IES-2042FX Series x 1
- DIN-Rail Kit x 1
- Wall-mount Kit x 2
- ORing Tool CD x 1
- Quick Installation Guide x 1

**Optional Accessories**

- Open-Vision M500: Powerful Network Management Windows Utility Suit, 500 IP devices
- DR/SDR/DRP Series DIN-Rail power supply

# Mouser Electronics

Authorized Distributor

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ORing:

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