# IES-3082GP

> *Industrial 10-port managed Ethernet switch with 8x10/100Base-T(X) and 2x100/1000Base-(F)X, SFP socket*

## Features

- World's fastest Redundant Ethernet Ring: **O-Ring** (recovery time < 10/30ms over 250 units of connection)
- **O-Chain** allow multiple redundant network rings
- Support standard IEC 62439-2 **MRP** (Media Redundancy Protocol) function
- MSTP/RSTP/STP (IEEE 802.1s/w/D)
- Supports Auto-Negotiation Speed
- Support PTP Client (Precision Time Protocol) clock synchronization
- Support Modbus/TCP protocol
- IGMP v2/v3 (IGMP snooping for support) filtering multicast traffic
- Port Trunking for easy bandwidth management
- Event notification through Syslog, Email, SNMP trap, and Relay Output
- RMON for traffic monitoring
- Support LLDP protocol
- Port lock to prevent access from unauthorized MAC address
- Windows utility (Open-Vision) supports centralized management and is configurable by Web-based, Telnet, Console (CLI)
- Support two SFP sockets for 100/1000Base-(F)X speed
- Rigid IP-30 housing design
- DIN-Rail and wall mounting enabled
- Multiple notifications for warning of unexpected events
- Web-based, Telnet, Console (CLI), and Windows Utility (**Open-Vision**) configuration
- Support LLDP Protocol
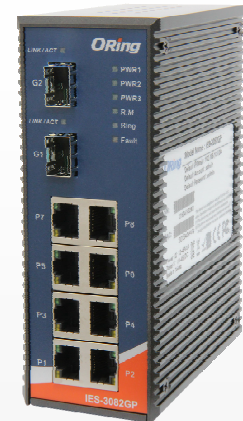
## Introduction

IES-3082GP is managed Redundant Ring Ethernet switch with 8x10/100Base-T(X) ports and 2x100/1000Base-(F)X SFP ports.    With completely support of Ethernet Redundancy protocol, O-Ring (recovery time < 10/30ms over 250 units of connection), O-Chain, MRP 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.    All function of IES-3082GP can be managed centralized and convenient by a powerful windows utility — Open-Vision.    In addition, the wide operating temperature range from -40 to 75°C can satisfy most of operating environment.    Therefore, the switch is one of the most reliable choice for highly-managed and 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.

    **NOTE 1.** Fast Ethernet ports supports less 10 milliseconds recovery time.

    **NOTE 2.** Gigabit Ethernet ports supports less 30 milliseconds recovery time.

- **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.
- **MRP: Media Redundancy Protocol** (**MRP**) is a data network protocol standardized by the IEC 62439-2. It allows rings of Ethernet switches to overcome any single failure with recovery time much faster than achievable with Spanning Tree Protocol.
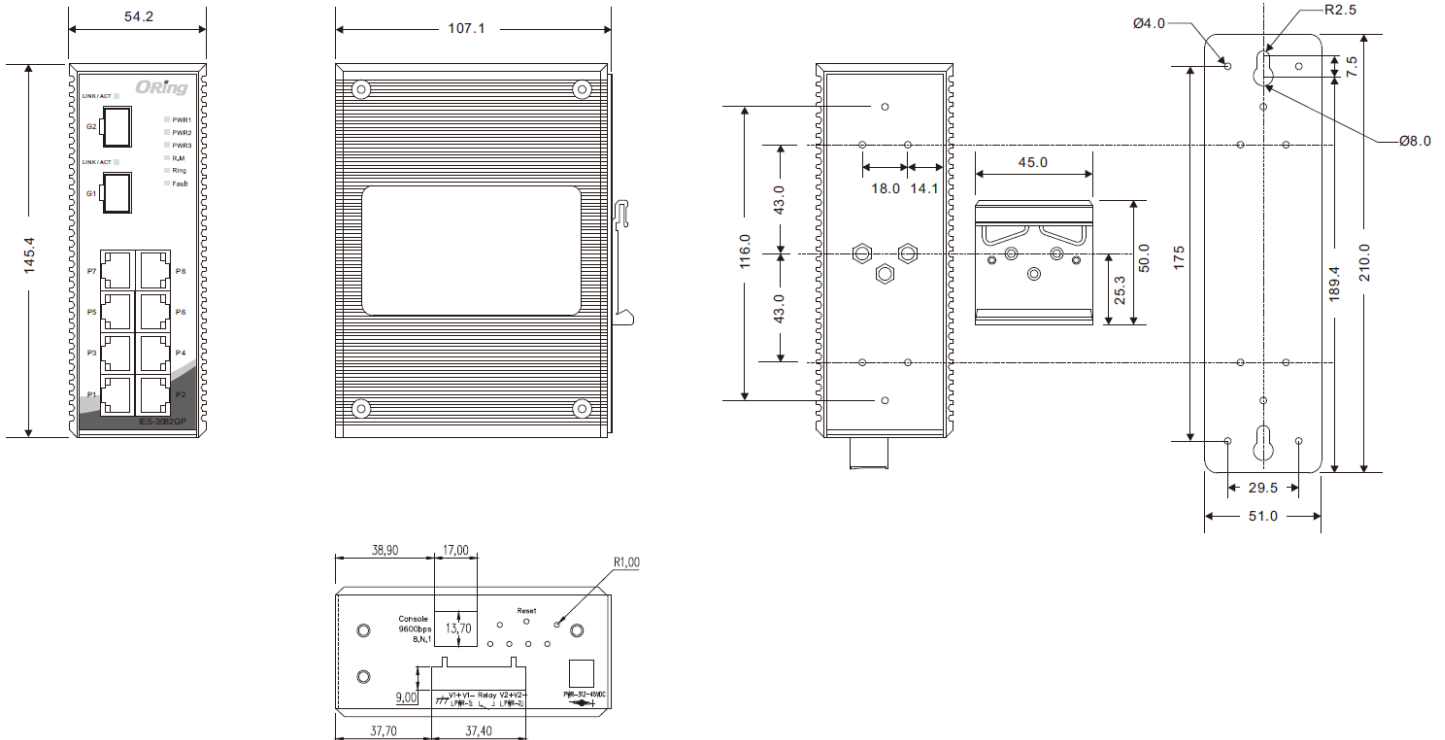- **Modbus TCP:** This is a Modbus variant used for communications over TCP/IP networks.

## 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 |
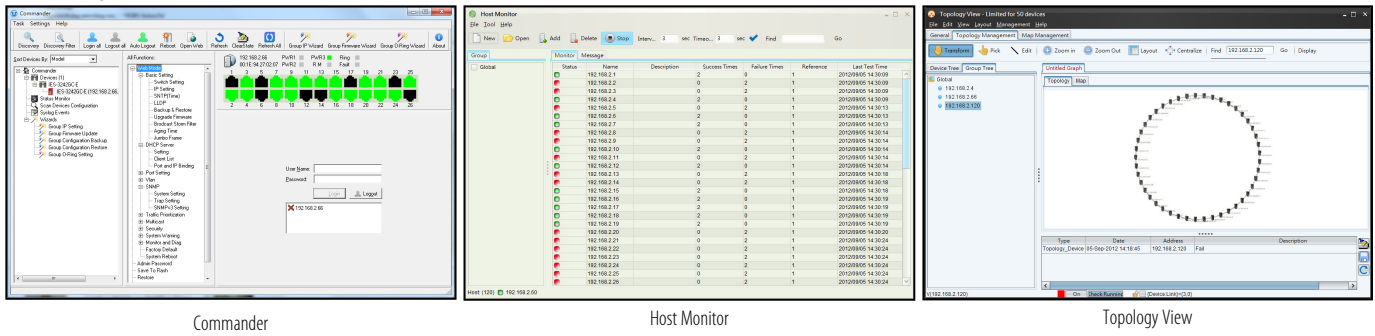
## Dimensions

Unit＝mm (Tolerance±0.5mm)

## Specifications

| ORing Switch Model | IES-3082GP |
|---|---|
| **Physical Ports** | |
| 10/100Base-T(X) Ports in RJ45 Auto MDI/MDIX | 8 |
| 100/1000Basde-(F)X SFP Port | 2 |
| **Technology** | |
| Ethernet Standards | IEEE 802.3 for 10Base-T<br>IEEE 802.3u for 100Base-TX and 100Base-FX<br>IEEE 802.3z for 1000Base-X<br>IEEE 802.3ab for 1000Base-T<br>IEEE 802.3x for Flow control<br>IEEE 802.3ad for LACP (Link Aggregation Control Protocol)<br>IEEE 802.1D for STP (Spanning Tree Protocol)<br>IEEE 802.1p for COS (Class of Service)<br>IEEE 802.1Q for VLAN Tagging<br>IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol)<br>IEEE 802.1s for MSTP (Multiple Spanning Tree Protocol)<br>IEEE 802.1x for Authentication<br>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: 2.128 µs<br>Switching bandwidth: 5.6Gbps<br>Throughput (packet per second):<br>    Fast Ethernet ports: 76.19Mpps@64Bytes packet<br>    Gigabit Ethernet ports: 761.91Mpps@64Bytes packet<br>Max. Number of Available VLANs: 4096<br>VLAN ID Range: VID 1 to 4095<br>IGMP multicast groups: 1024<br>Port rate limiting: User Define |
| Security Features | Enable/disable ports, MAC based port security<br>Port based network access control (802.1x)<br>VLAN (802.1Q) to segregate and secure network traffic<br>Supports Q-in-Q VLAN for performance & security to expand the VLAN space<br>Radius centralized password management<br>SNMP V1/V2c/V3 encrypted authentication and access security |
| Software Features | STP/RSTP/MSTP (IEEE 802.1D/w/s)<br>Redundant Ring (O-Ring) with recovery time less than 10/30ms over 250 units<br>    **NOTE 1.** Fast Ethernet ports supports less 10 milliseconds recovery time.<br>    **NOTE 2.** Gigabit Ethernet ports supports less 30 milliseconds recovery time.<br>TOS/Diffserv supported<br>Quality of Service (802.1p) for real-time traffic<br>VLAN (802.1Q) with VLAN tagging and GVRP supported<br>IGMP Snooping for multicast filtering<br>Port configuration, status, statistics, monitoring, security<br>SNTP for synchronizing of clocks over network<br>Support PTP Client (Precision Time Protocol) clock synchronization<br>DHCP Server / Client support<br>Port Trunk support<br>MVR (Multicast VLAN Registration) support<br>Modbus TCP |
| Network Redundancy | O-Ring<br>O-Chain<br>MRP<br>MSTP/RSTP/STP |
| RS-232 Serial Console Port | RS-232 in RJ45 connector with console cable.     9600bps, 8, N, 1 |
| **LED indicators** | |
| Power Indicator (PWR) | Green: Power LED x 3 |
| 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. |

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

| 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 Duplex/Collision indicator: On for full-duplex, Off for half-duplex, Blinking for half-duplex and collision occurred. |
| 100/1000Base-(F)X SFP Port Indicator | Green for Link/Act indicator: On for link-up, Off for link-down, Blinking for act. |

| 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.) | ≤8Watts, 12VDC/0.62A (7W), 24VDC/0.3A (7W), 48VDC/0.17A (8W) |
| 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 4.24 (D) x 5.72 (H) inch |
| Weight (g) | 750 g |

| Environmental | |
|---|---|
| Storage Temperature | –40 to 85ºC (–40 to 185ºF) |
| Operating Temperature | –40 to 75ºC (–40 to 167ºF) |
| Operating Humidity | 5% to 95% Non-condensing |

| Regulatory approvals | |
|---|---|
| EMC | CE EMC (EN 55035, 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 55035 (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 |
| MTBF | 770345.9824 hrs. |
| Warranty | 5 years |

## Ordering Information

**IES-3AA B CC**

| Code<br>Definition | 10/100Base-T(X) Port Number | Additional Port Number | Additional Port Type |
|---|---|---|---|
| **Option** | **- 08:** 08 ports | **- 2:** 2 ports | **-GP:** 100/1000Base-(F)X SFP port |

| Available Model | Model Name | Description |
|---|---|---|
| | IES-3082GP | Industrial 10-port managed Ethernet switch with 8x10/100Base-T(X) and 2x100/1000Base-(F)X, SFP socket |

**Packing List**
- IES-3082GPx 1
- DIN-Rail Kit x 1
- Wall-mount Kit x 2
- ORing Tool CD Card x 1
- Quick Installation Guide x 1
- Console Cable x 1

**Optional Accessories**
- Open-Vision M500: Powerful Network Management Windows Utility Suit, 500 IP devices
- SFP100 series: 100Mbps SFP optical transceiver
- SFP 1G series: 1Gbps SFP optical transceiver
- SDR/NDR Series DIN-Rail power supply