# IES-3164GP-LA

ORing WEB-site

## *Industrial 20-port managed Ethernet switch with 16x10/100Base-T(X) and 4x100/1000Base-(F)X， SFP socket*

## Features

- World's fastest Redundant Ethernet Ring: O-Ring (recovery time < 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
- Supports IPV6 new internet protocol version
- Supports Auto Negotiation Speed
- Support Modbus TCP protocol
- Provided HTTPS/SSH protocol to enhance network security
- IGMP v2/v3 (IGMP snooping for support) filtering multicast traffic
- Supports SNMP v1/v2c/v3 & RMON & 802.1Q VLAN Network Management
- Supports ACL, TACACS+ and 802.1x User Authentication for security
- Port Trunking for easy of bandwidth management
- Event notification through Syslog server / client, Email and SNMP trap
- RMON for traffic monitoring
- Support LLDP protocol
- Rigid IP-30 housing design
- DIN-Rail mounting enabled
- Web-based, Telnet and Console (CLI) configuration




O-Ring | O-Chain | Redundant PWR | -40~75°C Temperature | IPv6 Ready | RoHS | CE | FC

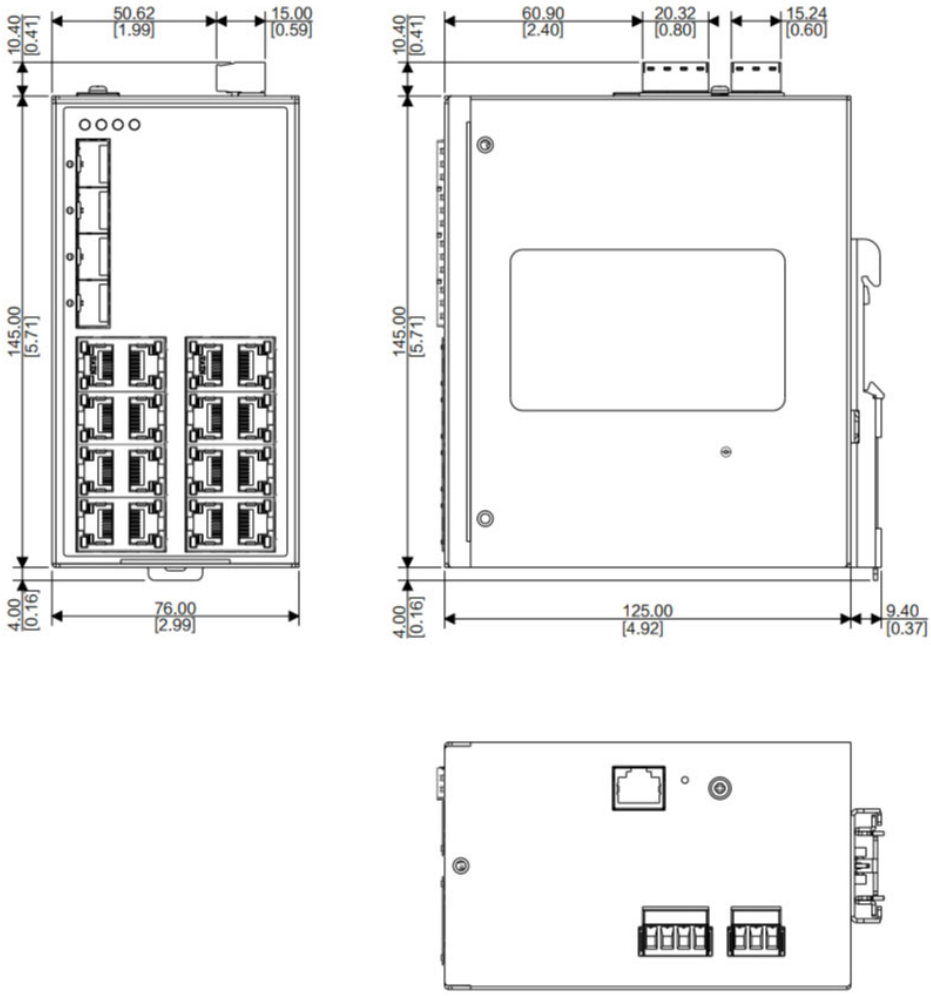
## Introduction

IES-3164GP-LA is managed Redundant Ring Ethernet switch with 16x10/100Base-T(X) ports and 4x100/1000Base-X，SFP socket. With completely support of Ethernet Redundancy protocol, O-Ring (recovery time < 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. 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 choices for highly-managed 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.
- **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.

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## Dimensions




## Specifications

| ORing Switch Model | IES-3164GP-LA |
|---|---|
| **Physical Ports** | |
| 10/100Base-T(X) Ports in RJ45 Auto MDI/MDIX | **16** |
| 100/1000Base-(F)X, SFP socket | **4** |
| **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 802.3x 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 Size | 4.1Mbits |

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| | |
|---|---|
| Priority Queues | 4 |
| Processing | Store-and-Forward |
| Switch Properties | Switching latency: 10 µs<br>Switching bandwidth: 11.2Gbps<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 | HTTPS/SSH enhance network security<br>TACACS+ centralized authentication, authorization, and accounting for network devices<br>RADIUS client forwards user authentication requests to a RADIUS server<br>Access Management controls access to organizational resources<br>IP source guard prevents IP spoofing<br>Port based network access control (802.1x)<br>Port security limit control the number of MAC addresses on a port<br>VLAN (802.1Q) to segregate and secure network traffic<br>SNMP V1/V2c/V3 manages and collects data from network devices.<br>RMON enables remote monitoring and analysis of network traffic and performance.<br>MIB organizes and stores data for managing network devices |
| Software Features | STP/RSTP/MSTP (IEEE 802.1D/w/s)<br>Redundant Ring (O-Ring) with recovery time less than 30ms over 250 units<br>Quality of Service (802.1p) for real-time traffic<br>VLAN (802.1Q) with VLAN tagging and GVRP/GARP supported<br>MVR (Multicast VLAN Registration) supported<br>Q-in-Q supported<br>IGMP v2/v3 Snooping for multicast filtering<br>Port configuration, status, statistics, monitoring, security<br>SNTP client synchronizes the system clock with an NTP server<br>NTP server/client for synchronizes the system clock<br>DHCP Server/Client/Relay/Option-82 supports<br>Port Trunk/LACP supports<br>Port mirror for monitoring<br>Modbus TCP enables device communication over TCP/IP networks |
| Network Redundancy | O-Ring<br>O-Chain<br>MRP<br>MSTP/RSTP/STP<br>ORing fast recovery |
| RS-232 Serial Console Port | RS-232 in RJ45 connector with console cable. 115200bps, 8, N, 1 |
| **LED Indicators** | |
| Power Indicator (PWR) | Green: Power LED x 2 |
| 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. |
| 10/100Base-T(X) RJ45 Port Indicator | Green for Link/Act indicator: On for link-up, Off for link-down, Blinking for act.<br>Green for Speed indicator: On for 100Mbps, Off for 10Mbps |
| 100/1000Base-(F)X SFP | Green for Link/Act indicator: On for link-up, Off for link-down, Blinking for act. |
| **Fault Contact** | |
| Relay | Relay output (NC/NO) to carry capacity of 1A at 24VDC |
| **Reset Function** | |
| Reset Button | < 5 sec: System reboot, > 5 sec: Factory default |
| **Power** | |
| Redundant Input Power | Dual DC inputs, 12~48VDC on 4-pin terminal block |
| Power Consumption (Typ.) | 10Watts |
| Overload Current Protection | Present |
| Reverse Polarity Protection | Present (not working) |
| **Physical Characteristic** | |
| Enclosure | IP-30 |
| Dimension (W x D x H) | 76 (W) x 125 (D) x 145 (H)mm<br>2.992 (W) x 4.921 (D) x 5.709 (H) inch |

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|---|---|
| Weight (g) | 1073 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 55035, EN 55032), FCC Part 15 B |
| EMI | EN 55032, EN 61000-6-4, CISPR32, EN 61000-3-2, EN 61000-3-3, FCC Part 15 B class A |
| EMS | EN 55035 (IEC/EN 61000-4-2 (ESD), IEC/EN 61000-4-3 (RS), IEC/EN 61000-4-4 (EFT), IEC/EN 61000-4-5 (Surge), IEC/EN 61000-4-6 (CS), 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 62368-1 |
| Warranty | 5 years |

## Ordering Information

| Available Model | Model Name | Description |
|---|---|---|
| | IES-3164GP-LA | Industrial 20-port managed Ethernet switch with 16x10/100Base-T(X) ports and 4x100/1000Base-(F)X， SFP socket |

**Packing List**
- IES-3164GP-LA (DIN-Rail Kit included) x 1
- ORing Tool CD Card x 1
- Quick Installation Guide x 1
- Console Cable x 1

**Optional Accessories**
- SDR/NDR Series DIN-Rail power supply

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