



# RGS-9168GCP Series

**Industrial 24-port rack mount managed Gigabit Ethernet switch with 16xGigabit combo ports and 8x100/1000Base-X, SFP socket**

## Features

- Support **O-Ring** (recovery time < 30ms) and MSTP(RSTP/STP compatible) for Ethernet Redundancy
- **O-Chain** allow multiple redundant network rings
- Support standard IEC 62439-2 **MRP** (Media Redundancy Protocol) function
- Support IPV6 new internet protocol version
- Support Modbus TCP protocol
- Support IEEE 802.3az **Energy-Efficient Ethernet** technology
- Provided HTTPS/SSH protocol to enhance network security
- Support SMTP client and NTP server
- Support IP-based bandwidth management
- Support application-based QoS management
- Support Device Binding security function
- Support DOS/DDOS auto prevention
- IGMP v2/v3 (IGMP snooping support) for filtering multicast traffic
- Support SNMP v1/v2c/v3 & RMON & 802.1Q VLAN Network Management
- Support ACL and 802.1x User Authentication for security
- Support 10K Bytes Jumbo Frame
- SFP socket support DDM function
- Multiple notification for warning of unexpected event
- Web-based ,Telnet, Console (CLI), and Windows utility (**Open-Vision**) configuration
- Support LLDP Protocol
- 19 inches rack mountable design



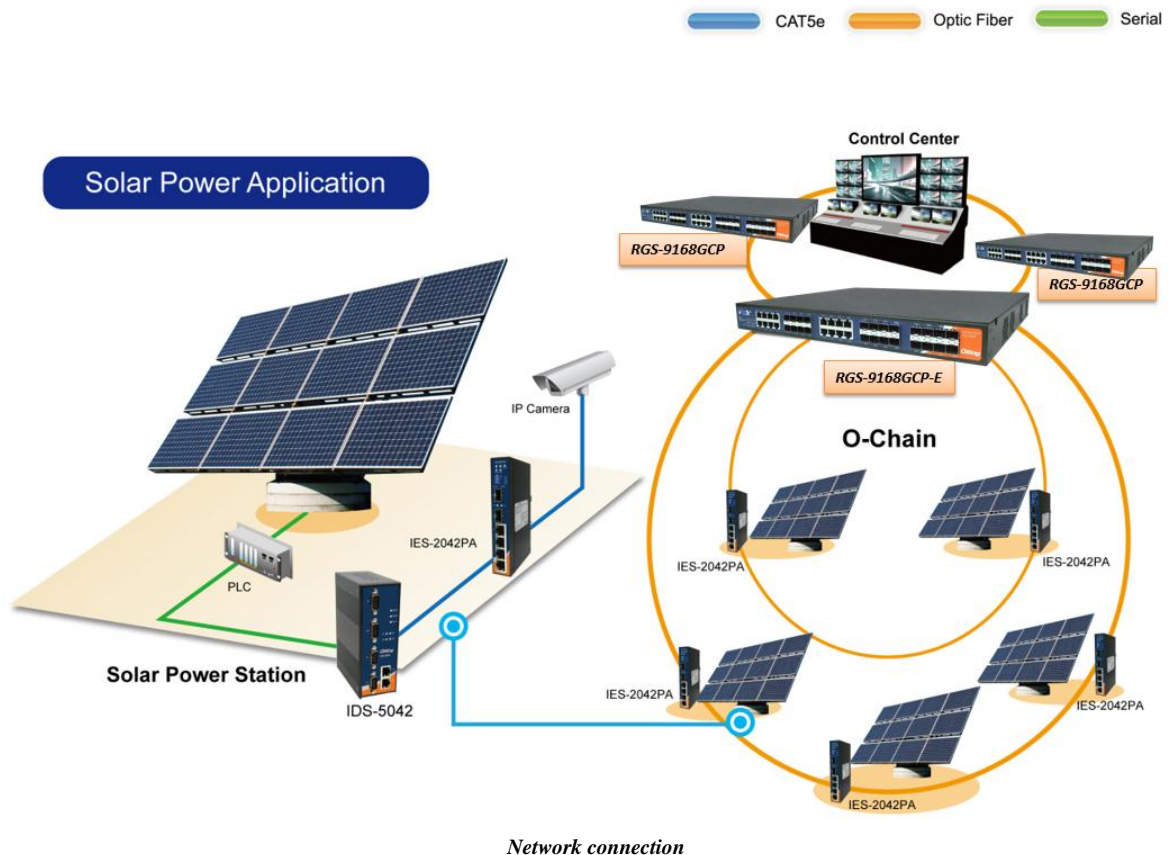
## Introduction

RGS-9168GCP series are Gigabit managed redundant ring Ethernet switch with 16xGigabit combo ports and 8x100/1000Base-X, SFP socket. These switches support Ethernet Redundancy protocol, **O-Ring** (recovery time < 30ms over 250 units of connection) and MSTP (RSTP/STP compatible) can protect your mission-critical applications from network interruptions or temporary malfunctions with its fast recovery technology. And RGS-9168GCP series support wide operating temperature from -40 °C to 75 °C. RGS-9168GCP series can also be managed centralized and convenient by Open-Vision, Except the Web-based interface, Telnet and console (CLI) configuration. 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.
- **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.

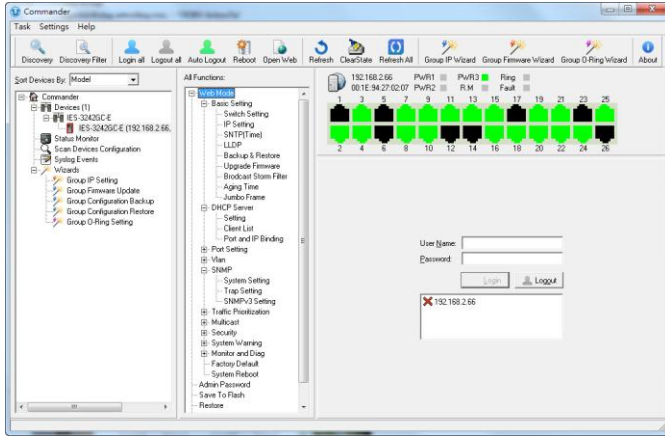
- **MRP : Media Redundancy Protocol (MRP)** is a data network protocol standardized by the IEC 62439-2. It allows rings of Ethernet switches to overcome any single failure with recovery time much faster than achievable with Spanning Tree Protocol.
- **IP-based Bandwidth Management :** The switch provide advanced IP-based bandwidth management which can limit the maximum bandwidth for each IP device. User can configure IP camera and NVR with more bandwidth and limit other device bandwidth.
- **Application-Based QoS :** The switch also support application-based QoS. Application-based QoS can set highest priority for data stream according to TCP/UDP port number.
- **Device Binding Function :** ORing special Device Binding function can only permit allowed IP address with MAC address to access the network. Hacker cannot access the IP surveillance network without permission. It can avoid hacker from stealing video privacy data and attacking IP camera, NVR and controllers.
- **Advanced DOS/DDOS Auto Prevention :** The switch also provided advanced DOS/DDOS auto prevention. If there is any IP flow become big in short time, the switch will lock the source IP address for certain time to prevent the attack. It's hardware based prevention so it can prevent DOS/DDOS attack immediately and completely.
- **Modbus TCP :** This is a Modbus variant used for communications over TCP/IP networks.
- **IEEE 802.3az Energy-Efficient Ethernet :** This is a set of enhancements to the twisted-pair and backplane Ethernet family of networking standards that will allow for less power consumption during periods of low data activity. The intention was to reduce power consumption by 50% or more.



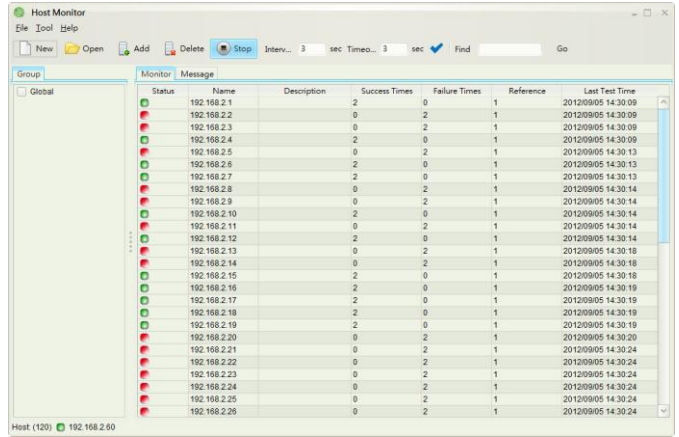
Network connection

## Open-Vision

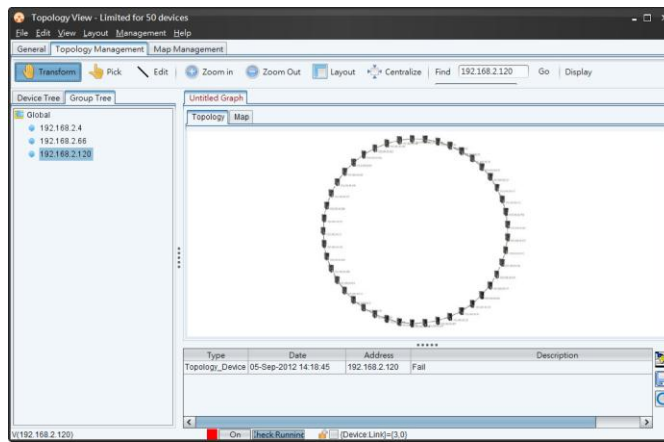
ORing's switches are intelligent switches. Different from other traditional redundant switches, ORing provides a set of Windows utility (Open-Vision) for user to manage and monitor all of industrial Ethernet switches on the industrial network.



Commander



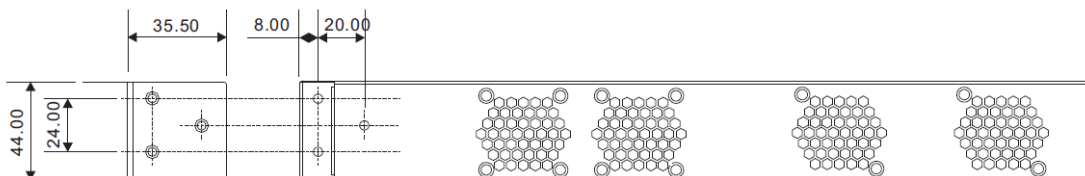
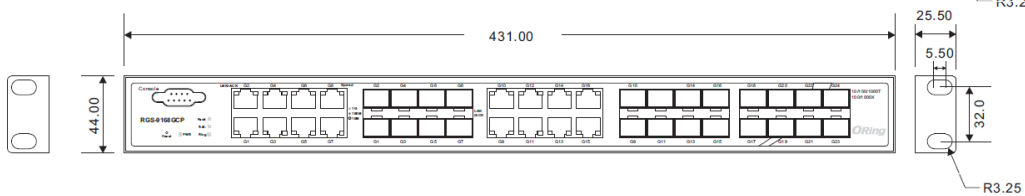
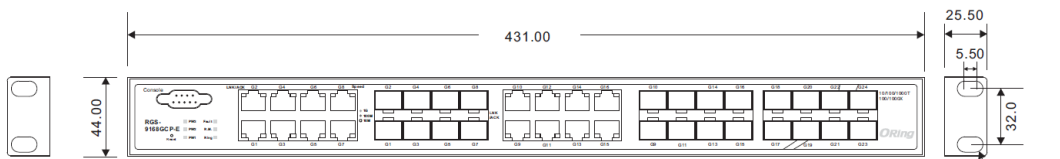
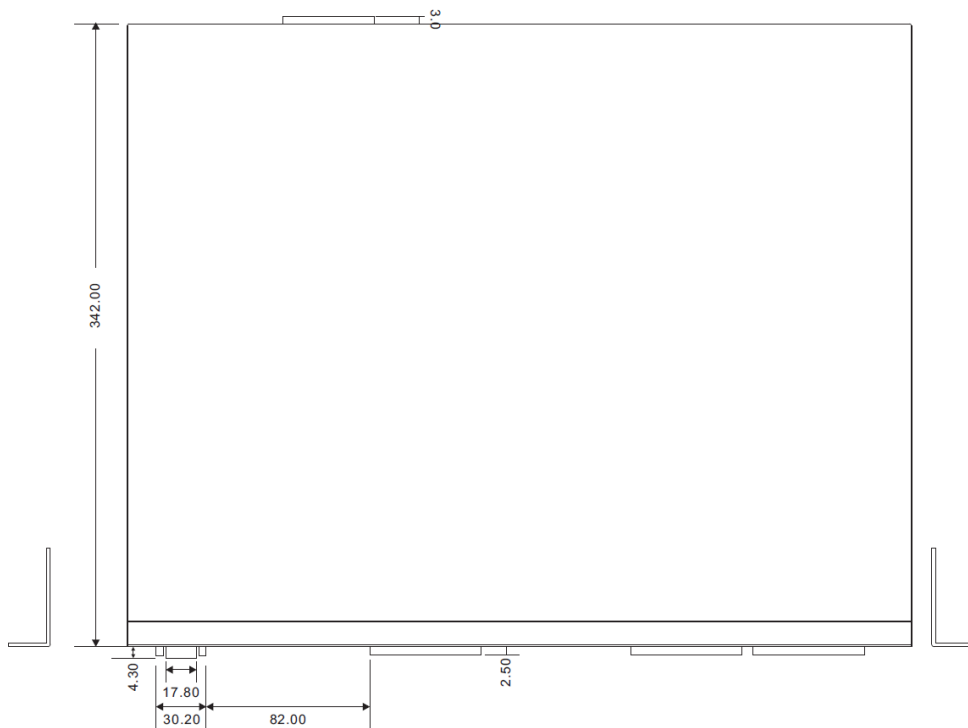
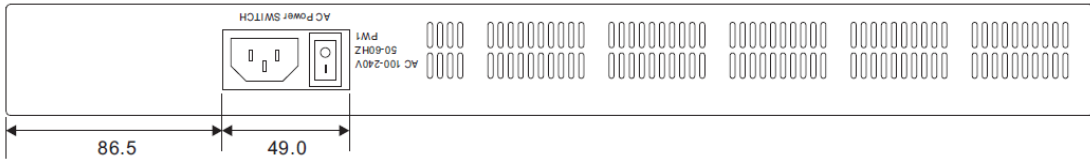
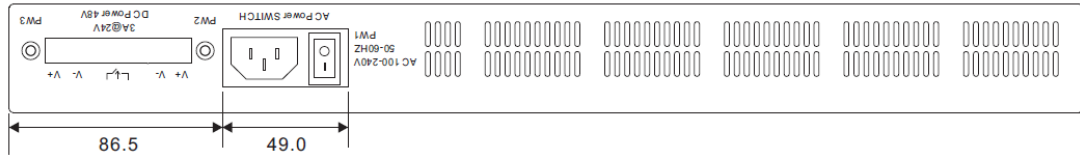
Host Monitor



Topology View

**Dimension**

Unit = mm



## Specifications

| ORing Switch Model  | RGS-9168GCP   | RGS-9168GCP-E |
|---|---|---------------|
| <b>Physical Ports</b>   |   |               |
| Gigabit Combo port with 10/100/1000Base-T(X) and 100/1000Base-X SFP ports |   | <b>16</b>     |
| 100/1000Base-X with SFP port  |   | <b>8</b>      |
| <b>Technology</b>   |   |               |
| Ethernet Standards  | IEEE 802.3 for 10Base-T<br>IEEE 802.3u for 100Base-TX<br>IEEE 802.3ab for 1000Base-T<br>IEEE 802.z for 1000Base-X<br>IEEE 802.3x for Flow control<br>IEEE 802.3ad for LACP (Link Aggregation Control 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  |               |
| Priority Queues   | 8   |               |
| Processing  | Store-and-Forward   |               |
| Switch Properties   | Switching latency: 7 us<br>Switching bandwidth: 128Gbps<br>Max. Number of Available VLANs: 4095<br>VLAN ID Range : VID 1 to 4094<br>IGMP multicast groups: 256 for each VLAN<br>Port rate limiting: User Define   |               |
| Jumbo frame   | Up to 10K Bytes   |               |
| Security Features   | Device Binding security feature<br>Enable/disable ports, MAC based port security<br>Port based network access control (802.1x)<br>Single 802.1x and Multiple 802.1x<br>MAC-based authentication<br>MAC address limit<br>VLAN (802.1Q ) to segregate and secure network traffic<br>Radius centralized password management<br>SNMPv3 encrypted authentication and access security<br>Https / SSH enhance network security<br>Web and CLI authentication and authorization<br>IP source guard  |               |
| Software Features   | IEEE 802.1D Bridge, auto MAC address learning/aging and MAC address (static)<br>Multiple Registration Protocol (MRP)<br>MSTP (RSTP/STP compatible)<br>Redundant Ring (O-Ring) with recovery time less than 30ms over 250 units<br>TOS/Diffserv supported<br>Quality of Service (802.1p) for real-time traffic<br>VLAN (802.1Q) with VLAN tagging<br>IGMP v2/v3 Snooping<br>IP-based bandwidth management<br>Application-based QoS management<br>DOS/DDOS auto prevention<br>Port configuration, status, statistics, monitoring, security<br>DHCP Server/Client<br>DHCP Relay<br>Modbus TCP<br>SMTP Client<br>NTP server |               |
| Network Redundancy  | O-Ring<br>O-Chain<br>MRP  |               |

|  |   |  |
|--|---|--|
|  | MSTP (RSTP/STP compatible)  |  |
| RS-232 Serial Console Port               | RS-232 in DB-9 connector with console cable. 115200bps, 8, N, 1   |  |
| <b>LED indicators</b>                    |   |  |
| Power Indicator (PWR)                    | Green : Power indicator   | Green LED x 3 : Power-1/2/3 indicator  |
| 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  |  |
| 10/100/1000Base-T(X) RJ45 Port Indicator | Green for Link/Act indicator.<br>Dual color LED for speed indicator ~ Green for 1000Mbps / Amber for 100Mbps / Off-light for 10Mbps       |  |
| 1000Base-X SFP Port Indicator            | Green for port Link/Act.  |  |
| <b>Fault contact</b>                     |   |  |
| Relay                                    | None  | Relay output to carry capacity of 1A at 24VDC                                      |
| <b>Power</b>                             |   |  |
| Power Input                              | 100 ~ 240VAC with power socket  | 100 ~ 240VAC with power socket and dual 48VDC (36 ~ 72VDC) at 6-pin terminal block |
| Power consumption (Typ.)                 | 28.2W   | 28.2W  |
| Overload current protection              | NOT Present   | Present with terminal block  |
| Reverse Polarity Protection              | Present   | Present  |
| <b>Physical Characteristic</b>           |   |  |
| Enclosure                                | 19 inches rack mountable  |  |
| Dimension (W x D x H)                    | 431 (W) x 342 (D) x 44 (H)mm (16.97 x 13.46 x 1.73 inch)  |  |
| Weight (g)                               | 4117 g  | 4437 g   |
| <b>Environmental</b>                     |   |  |
| 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  |  |
| <b>Regulatory approvals</b>              |   |  |
| EMI                                      | FCC Part 15, CISPR (EN55022) class A  |  |
| EMS                                      | EN61000-4-2 (ESD)<br>EN61000-4-3 (RS),<br>EN61000-4-4 (EFT),<br>EN61000-4-5 (Surge),<br>EN61000-4-6 (CS),<br>EN61000-4-8,<br>EN61000-4-11 |  |
| Shock                                    | IEC60068-2-27   |  |
| Free Fall                                | IEC60068-2-32   |  |
| Vibration                                | IEC60068-2-6  |  |
| Safety                                   | EN60950-1   |  |
| <b>Warranty</b>                          | 5 years   |  |

## Ordering Information

**RGS-9AABCCC-D**



| Code Definition | Gigabit Combo Port Number | Gigabit SFP Port Number | Additional Port Type                            | Additional Type   |
|-----------------|---------------------------|-------------------------|---|---|
| Option          | - 16: 16 ports            | - 8: 8 ports            | -GCP: Gigabit Combo ports and Gigabit SFP ports | -E: enhanced model with dual DC inputs and Relay output |

| Model Name       | Description   |
|------------------|---|
| RGS-9168GCP_US   | Industrial 24-port rack mount managed Gigabit Ethernet switch with 16xGigabit combo ports and 8x100/1000Base-X, SFP socket, US power cord                   |
| RGS-9168GCP_UK   | Industrial 24-port rack mount managed Gigabit Ethernet switch with 16xGigabit combo ports and 8x100/1000Base-X, SFP socket, UK power cord                   |
| RGS-9168GCP_EU   | Industrial 24-port rack mount managed Gigabit Ethernet switch with 16xGigabit combo ports and 8x100/1000Base-X, SFP socket, EU power cord                   |
| RGS-9168GCP_JP   | Industrial 24-port rack mount managed Gigabit Ethernet switch with 16xGigabit combo ports and 8x100/1000Base-X, SFP socket, JP power cord                   |
| RGS-9168GCP-E_US | Industrial 24-port rack mount managed Gigabit Ethernet switch with 16xGigabit combo ports and 8x100/1000Base-X, SFP socket, enhanced version, US power cord |
| RGS-9168GCP-E_UK | Industrial 24-port rack mount managed Gigabit Ethernet switch with 16xGigabit combo ports and 8x100/1000Base-X, SFP socket, enhanced version, UK power cord |
| RGS-9168GCP-E_EU | Industrial 24-port rack mount managed Gigabit Ethernet switch with 16xGigabit combo ports and 8x100/1000Base-X, SFP socket, enhanced version, EU power cord |
| RGS-9168GCP-E_JP | Industrial 24-port rack mount managed Gigabit Ethernet switch with 16xGigabit combo ports and 8x100/1000Base-X, SFP socket, enhanced version, JP power cord |

## Packing List

- RGS-9168GCP / -E x 1
- Rack-mount Kit x 1
- ORing Tool CD x 1
- Power Cable 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
- DR-120-48 : 48V/120Watts DIN-Rail power supply (Only for -E)
- SFP100 series : 100Mbps SFP optical transceiver
- SFP1G series : 1GMbps SFP optical transceiver
- DR-75-48 : 48V/75Watts DIN-Rail power supply (Only for -E)