RGS-RP9000

Industrial Layer-3 IEC 61850-3 modular rack mount managed Gigabit Ethernet switch with 4 slots

Features

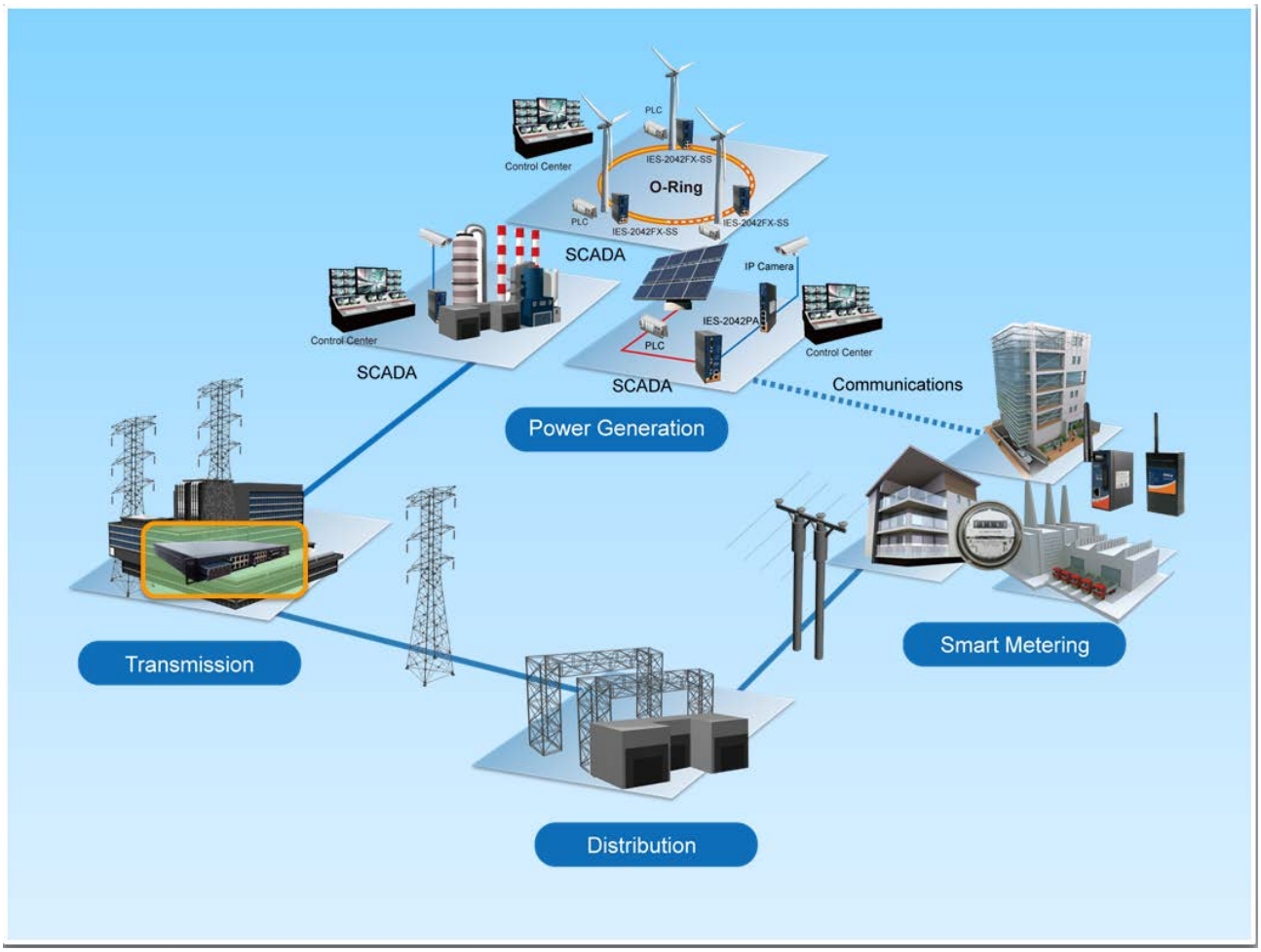
- Designed for power substation / Railway application and fully compliant with the requirement of IEC 61850-3 and IEEE 1613
- Modular designed makes network planning easy
- Supports **O-Ring** (recovery time < 30ms over 250 units of connection) and MSTP (RSTP/STP compatible) for Ethernet Redundancy
- Supports Layer 3 routing, RIP and static routing function
- Support IEEE 1588v2 clock synchronization
- Supports IPV6 new internet protocol version
- VLAN unaware : Supports priority-tagged frames to be received by specific IEDs
- Provided HTTPS/SSH protocol to enhance network security
- Supports SMTP client
- Supports IP-based bandwidth management
- Supports application-based QoS management
- Supports Device Binding security function
- Supports DOS/DDOS auto prevention
- IGMP v2/v3 (IGMP snooping support) for filtering multicast traffic
- Supports SNMP v1/v2c/v3 & RMON & 802.1Q VLAN Network Management
- Support ACL, TACACS+ and 802.1x User Authentication for security
- Supports 9.6K Bytes Jumbo Frame
- Multiple notification for warning of unexpected event
- Web-based ,Telnet, Console (CLI), and Windows utility (**Open-Vision**) configuration
- Support LLDP Protocol
- Supports redundant power inputs with optional voltage range
- 19 inches rack mountable design

IEC61850 EN50155 Full Gigabit O-Ring Redundant PWR -40~85°C Temperature ROHS

Introduction

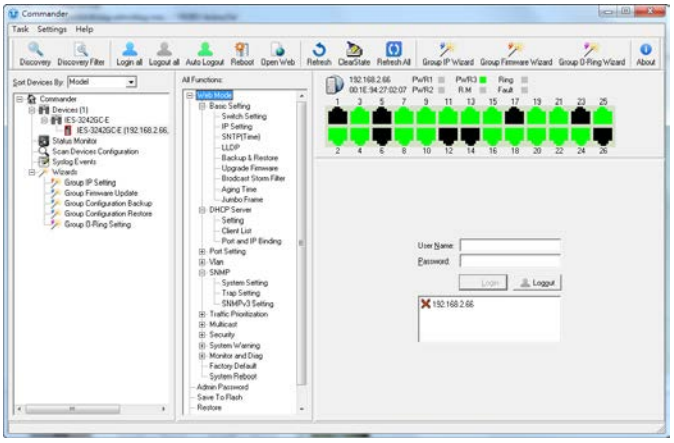
RGS-RP9000 is Layer-3 modular managed redundant ring Ethernet switch with 4 slots. The switch is designed for power substation application and rolling stock application, fully compliant with the requirement of IEC 61850-3 and IEEE 1613. With completely support of Ethernet Redundancy protocol, **O-Ring** (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 support wide operating temperature from -40℃ to 85℃. RGS-RP9000 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 power substation and rolling stock application.

- **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.
- **IEEE 1588 Technology :** The IEEE 1588 technology can fulfill precision time synchronization requirements for protection and control applications.
- **Modular Designed :** Modular designed can makes network planning easy and allow greater flexibility by letting you install other Ethernet/Optical fiber modular.

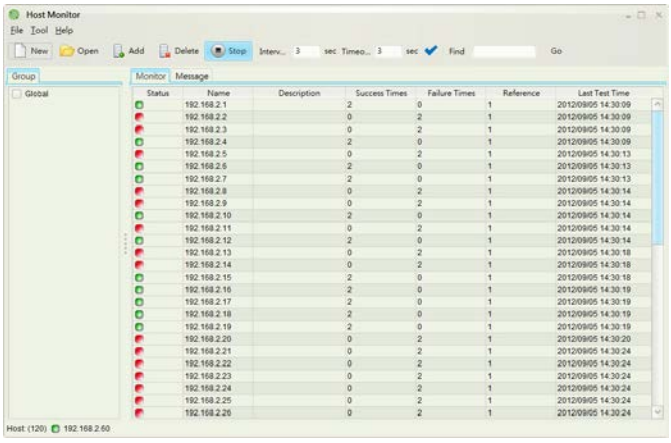


Open-Vision

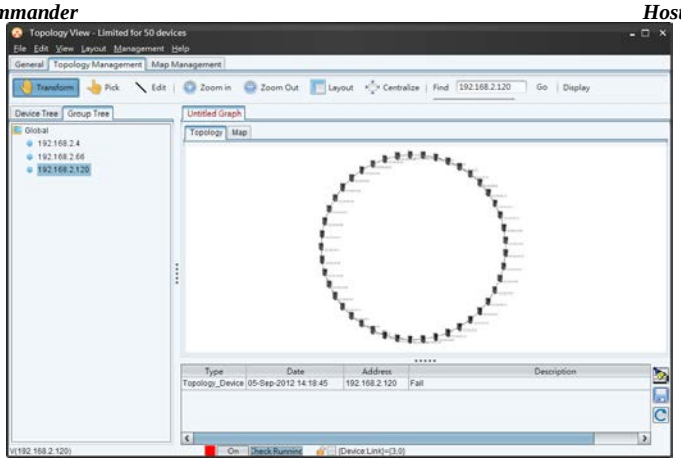
ORing's switches are intelligent switches. Different from other traditional redundant switches, ORing provides a set of Windows utility (Open-Vision) for user to manage and monitor all of industrial Ethernet switches on the industrial network.



Commander



Host Monitor



Topology View

Dimension

Specifications

ORing Switch Model	RGS-RP9000-LV	RGS-RP9000-MV	RGS-RP9000-HV
Physical Ports			
Slot Number	**4 (up to 3 slots for 8x1G ports and 1 slot for 4x10G port)**		
Technology			
Ethernet Standards	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX and 100Base-FX IEEE 802.3ab for 1000Base-T IEEE 802.z for 1000Base-X IEEE 802.3ae for 10Gigabit Ethernet IEEE 802.3x for Flow control IEEE 802.3ad for LACP (Link Aggregation Control 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 802.1s for MSTP (Multiple Spanning Tree Protocol) IEEE 802.1x for Authentication IEEE 802.1AB for LLDP (Link Layer Discovery Protocol)		
MAC Table	8k		
Priority Queues	4		
Processing	Store-and-Forward		
Switch Properties	Switching latency: 7 us Max. Number of Available VLANs: 256 IGMP multicast groups: 128 for each VLAN Port rate limiting: User Define		
Jumbo frame	Up to 9.6K Bytes		
Security Features	Device Binding security feature Enable/disable ports, MAC based port security Port based network access control (802.1x) Single 802.1x and Multiple 802.1x MAC-based authentication QoS assignment Guest VLAN MAC address limit TACACS+ VLAN (802.1Q) to segregate and secure network traffic Radius centralized password management SNMPv3 encrypted authentication and access security Web and CLI authentication and authorization Authorization (15 levels) IP source guard		
Software Features	Hardware routing, RIP and static routing IEEE 1588v2 clock synchronization IEEE 802.1D Bridge, auto MAC address learning/aging and MAC address (static) Multiple Registration Protocol (MRP) Multiple VLAN Registration Protocol (MVRP) MSTP (RSTP/STP compatible) Redundant Ring (O-Ring) with recovery time less than 30ms over 250 units TOS/Diffserv supported Quality of Service (802.1p) for real-time traffic VLAN (802.1Q) with VLAN tagging and GVRP supported Voice VLAN IGMP v2/v3 Snooping IP-based bandwidth management Application-based QoS management DOS/DDOS auto prevention Port configuration, status, statistics, monitoring, security DHCP Server/Client/snooping DHCP Relay Modbus TCP DNS client proxy ARP inspection SMTP Client		
Network Redundancy	O-Ring		

	Open-Ring O-Chain MRP Fast Recovery Mode MSTP (RSTP/STP compatible)		
RS-232 Serial Console Port	RS-232 in RJ-45 connector with console cable. 115200bps, 8, N, 1		
LED indicators			
Power Indicator (PWR1 / PWR2)	Green : Power LED x 2		
System Ready Indicator (PWR)	Green : Indicates that the system ready. The LED is blinking when the system is upgrading firmware		
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 Green Blinking : Indicates that the Ring is broken.		
Fault Indicator (Fault)	Amber : Indicate unexpected event occurred		
Reset To Default Running Indicator (DEF)	Green : System resets to default configuration		
Supervisor Login Indicator (RMT)	Green : System is accessed remotely		
Smart LED Display system	Link/Act(LK/ACT) / Speed(SPD) / Duplex(FDX) green LED indicator x 3 Mode select(MODE) : Link/Act(LK/ACT) / Speed(SPD) / Duplex(FDX) mode select button Port Link/Act(LK/ACT) / Speed(SPD) / Duplex(FDX) LED show : Green x 28		
Fault contact			
Relay	Relay output to carry capacity of 1A at 24VDC		
Power			
Redundant power input modular	Dual 24VDC power inputs at terminal block	Dual 48VDC (20~72VDC) power inputs at terminal block	Dual 110/220VDC/AC (88~264VAC / 100~370VDC) power inputs at terminal block
Power consumption (Typ.)	TBD	TBD	TBD
Overload current protection	Present		
Physical Characteristic			
Enclosure	19 inches rack mountable		
Dimension (W x D x H)	TBD	TBD	TBD
Weight (g)	TBD	TBD	TBD
Environmental			
Storage Temperature	-40 to 85°C (-40 to 185°F)		
Operating Temperature	-40 to 85°C (-40 to 185°F)		
Operating Humidity	5% to 95% Non-condensing		
Regulatory approvals			
Power Automation	IEC 61850-3, IEEE 1613		
EMI	FCC Part 15, CISPR (EN55022) class A, EN50155 (EN50121-3-2, EN55011, EN50121-4)		
EMS	EN61000-4-2 (ESD) EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge), EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11		
Warranty	5 years		

Ordering Information

	Model Name	Description
Available Model	RGS-RP9000-LV	Industrial Layer-3 modular 28-port rack mount managed Gigabit Ethernet switch with 24x10/100/1000Base-T(X) ports and 4x100/1000Base-X, SFP socket, dual 24VDC power inputs
	RGS-RP9000-MV	Industrial Layer-3 modular 28-port rack mount managed Gigabit Ethernet switch with 24x10/100/1000Base-T(X) ports and 4x100/1000Base-X, SFP socket, dual 48VDC power inputs
	RGS-RP9000-HV	Industrial Layer-3 modular 28-port rack mount managed Gigabit Ethernet switch with 24x10/100/1000Base-T(X) ports and 4x100/1000Base-X, SFP socket, dual 110/220V DC/AC power inputs

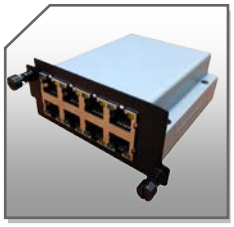
Packing List

- **RGS-RP9000 x 1**
- **ORing Tool CD x 1**
- **Quick Installation Guide x 1**
- **Rack-mount Kit x 1**
- **Console Cable x 1**

Optional Accessories

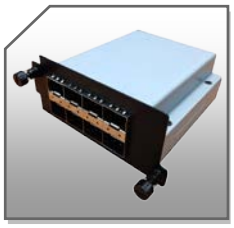
- **Open-Vision M500 : Powerful Network Management Windows Utility Suit, 500 IP devices**
- **DR-75 series : 75 Watts DIN-Rail power supply**
- **SFP100 series : 100Mbps SFP optical transceiver**
- **SFP 1G series : 1Gbps SFP optical transceiver**
- **DR-120 series : 120 Watts DIN-Rail power supply**

Optional Modular



SWM-80GT

Industrial 8-port Gigabit Ethernet switch module with 8x10/100/1000Base-T(X) ports

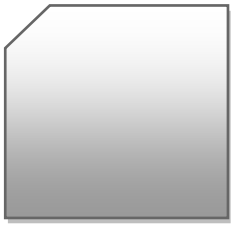


SWM-08GP

Industrial 8-port Gigabit fiber module with 8x100/1000Base-X, SFP socket

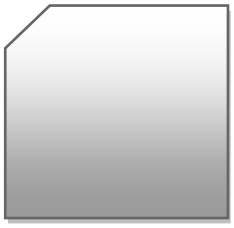
SWM-22GTP+

Industrial 4-port 10Gigabit module with 2x10/100/1000/10GBase-T(X) ports and 2x1000/10GBase-F(X) SFP ports



SWM-40GT+

Industrial 4-port 10Gigabit module with 4x10/100/1000/10GBase-T(X) ports

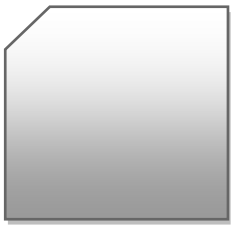


SWM-02GP+

Industrial 2-port 10G fiber module with 2x1000/10GBase-F(X), SFP socket

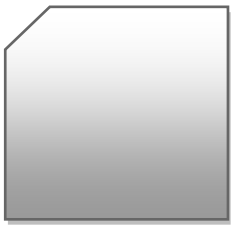
SWM-04GP+

Industrial 4-port 10Gigabit module with 4x1000/10GBase-F(X) SFP ports



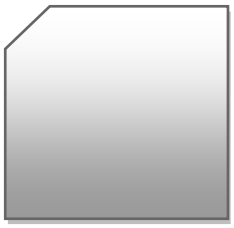
SWM-06GF-MM/SS-LC

Industrial 6-port Gigabit module with 6x1000Base-F(X) LC Fiber ports



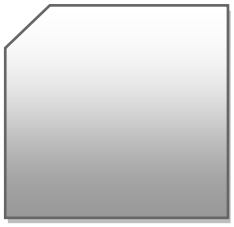
SWM-06FX-MM/SS-LC

Industrial 6-port module with 6x100Base-FX LC Fiber ports



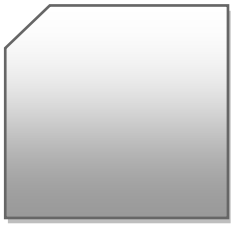
SWM-04GF-MM/SS-SC

Industrial 4-port Gigabit module with 4x1000Base-F(X) SC Fiber ports



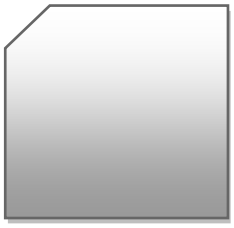
SWM-04FX-MM/SS-SC

Industrial 4-port module with 4x100Base-FX SC Fiber ports



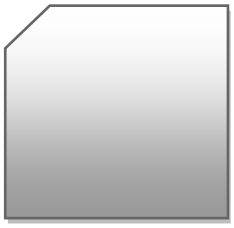
SWM-04GF-MM/SS-ST

Industrial 4-port Gigabit module with 4x1000Base-F(X) ST Fiber ports



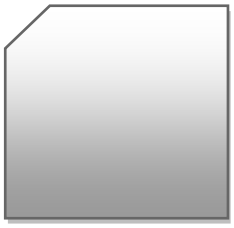
SWM-04FX-MM/SS-ST

Industrial 4-port module with 4x100Base-FX ST Fiber ports



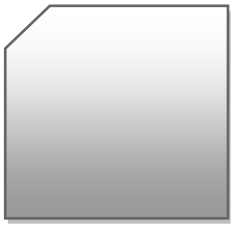
SWM-06GF-MM/SS-MTRJ

Industrial 6-port Gigabit module with 6x1000Base-F(X) MTRJ Fiber ports



SWM-06FX-MM/SS-MTRJ

Industrial 6-port module with 6x100Base-FX MTRJ Fiber ports



SWM-STK

Industrial 2-port 12Gibabit stacking SFP module