

RGS-P9000-Series

Industrial 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 IEEE 1588v2 for precise clock synchronization
- Supports O-Ring, O-Chain, IEC 62439-2 MRP, ERPS, and RSTP/MSTP redundancy technologies
- Web-based ,Telnet, Console (CLI), and Windows utility (Open-Vision) configuration



IEC 62443-4-2
Secure Device

IEC 61850-3
Power Substation

EN 50121-4
Railway Trackside

Product Description

RGS-PR9000 is Layer-2 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. RGS-PR9000 can also be managed centralized and convenient by Open-Vision, as well as 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.

Specifications

RGS-P9000-Series	
Model Name	RGS-P9000-LV RGS-P9000-HV
Ethernet Interface	
Slot Number	4 (up to 3 slots for 8x1G ports and 1 slot for 4x10G port)
Standard	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 802.3x 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)
Switch Properties	

Processing	Store-and-Forward
Switching Bandwidth	128Gbps
MAC Table	8K
Packet Buffer	32Mbits
Priority Queues	8
Jumbo Frame Size	Up to 10K Bytes
Switching Latency	7 us
Max. No. of VLANs	4095
VLAN ID Range	VID 1 to 4094
Max. IGMP Groups	128 for each VLAN
Ethernet Technologies	
Industrial Protocol	Modbus TCP/ Ethernet IP
Management	IPv4/ IPv6 HTTPS/ SSH/Telnet DBU01 Option Configuration TFTP DHCP Client/Server/Relay Multiple Configuration SNMPv1,v2c,v3/RMON Private MIB DHCP Client/Server/Relay/Option 82/Snooping Open-Vision
System Management	Multiple User Privilege
Port Configuration	Port configuration, status, statistics, monitoring, security
Redundancy Protocol	O-Ring O-Chain MRP MSTP (RSTP/STP compatible) ERPS (Ethernet Ring Protection Switching) HSR/RPR (High-availability Seamless Redundancy - optional module) IEC 62439-3 Clause 4 (PRP) and Clause 5 (HSR) compliant
Security	Device Binding security feature DOS/DDOS auto prevention Access Management IP Source Guard ACL AAA-TACACS+ AAA-RADIUS client Port based network access control (802.1X) MAC-based authentication Port Security Limit Control (Enable/Disable Ports) IEC-62443-4-2
Time Management	NTP Client/Server IEEE 1588v2 clock synchronization
SNMP	SNMP v1/ v2c/ v3, SNMP trap
VLAN	Port based VLAN, 802.1Q VLAN, Q-in-Q, GARP, GVRP, Guest VLAN, Private VLAN
IGMP	IGMP Snooping v2/v3,
QoS	802.1p Queueing, TOS/Diffserv, Application-based QoS, Storm Control
Power Substation	IEC61850 MMS(Manufacturing Message Specification)
Cybersecurity	IEC 62443-4-1, IEC 62443-4-2
Other Interfaces	
Console Port	RS-232 in RJ45 connector with console cable. 115200bps, 8, N, 1

Fault Contact	Relay output to carry capacity of 1A at 24VDC		
Reset Button	< 5 sec: System reboot, > 5 sec: Factory default		
LED Display			
System LED	PWR, PWR1, PWR2, Fault Indicator, DEF, RMT		
O-Ring LED	Ring Status, R.M (Ring Master)		
Port LED	Link/Act(LINK) / Speed(SPD) / Duplex(FDX) / Remote (RMT) green LED indicator x 4 Mode select Button (MODE) : Link/Act(LINK) / Speed(SPD) / Duplex(FDX) / Remote (RMT) mode select button Port 1 ~ 28 Link/Act(LK/ACT) LED show : Green x 28 Port 1 ~ 28 SPD: Green for 1000Mbps, Amber for 10/100Mbps Port 1 ~ 28 FDX: Green for Full Duplex; Amber for Half Duplex		
Power			
Input Voltage	Dual 24/48VDC (24~72VDC) power inputs	Dual 100-240(85~264) VAC /125~300(88~300) VDC power inputs	
Power Connection	Terminal block		
Power consumption (Typ.)	46Watts max.	43.5Watts max.	
Overload current protection	Present		
Physical Characteristic			
Enclosure	IP-30		
Housing	Metal		
Installation	Rackmount		
Dimension	440 (W) x 325 (D) x 44 (H) mm (17.32x12.8x1.73 inch)		
Weight	6,450g	6,600g	
Regulatory Approvals			
EMC	CE EMC (EN 55032, EN 55035), FCC Part 15B, IEC 61850-3, IEEE 1613		
EMI	EN 55032, CISPR32, EN 61000-3-2, EN 61000-3-3, FCC Part 15B class A, EN 61000-6-4		
EMS	EN 55032(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)), EN 61000-6-2		
Railway	EN 50121-4		
ITS Transport	NEMA TS2		
Shock	IEC 60068-2-27		
Free Fall	IEC 60068-2-31		
Vibration	IEC 60068-2-6		
Safety	EN62368-1 , UL 61010-1, EN60950-1, IEC60950-1, UL60950-1		
Environmental Limits			
Operating Temperature	24VDC~36V DC	10G SFP+ module absent : -40 to 75°C 10G SFP+ module used: -20 to 50 °C	10G SFP+ module absent : -40 to 85 °C 10G SFP+ module used: -20 to 60 °C
	36VDC~72V DC	10G SFP+ module absent : -40 to 85°C 10G SFP+ module used: -20 to 60 °C	
Storage Temperature	-40 to 85°C (-40 to 185°F)		
Operating Humidity	5% to 95% (non-condensing)		

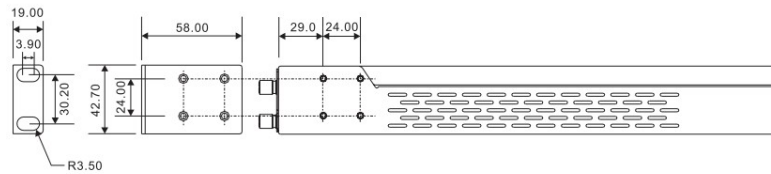
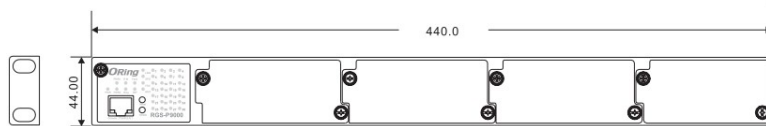
MTBF and Warranty		
MTBF Time	246,537hours	316,958hours
Warranty	5 years	

Packing List

Device	1 x RGS-P9000 x 1
Others	1 x Quick Installation Guide 1 x Rackmount Kit 1 x Console Cable

Dimensions

Unit: mm [inch]



Ordering Information

RGS-P9000-LV	Industrial IEC 61850-3 modular rack mount managed Gigabit Ethernet switch with 4 slots, low-voltage power input
RGS-P9000-HV_US	Industrial IEC 61850-3 modular rack mount managed Gigabit Ethernet switch with 4 slots, high-voltage power input, US power cord
RGS-P9000-HV_UK	Industrial IEC 61850-3 modular rack mount managed Gigabit Ethernet switch with 4 slots, high-voltage power input, UK power cord
RGS-P9000-HV_EU	Industrial IEC 61850-3 modular rack mount managed Gigabit Ethernet switch with 4 slots, high-voltage power input, EU power cord
RGS-P9000-HV_JP	Industrial IEC 61850-3 modular rack mount managed Gigabit Ethernet switch with 4 slots, high-voltage power input, JP power cord
RGS-P9000-HV_AU	Industrial IEC 61850-3 modular rack mount managed Gigabit Ethernet switch with 4 slots, high-voltage power input, AU power cord

Optional Module

For 10G slot	
SWM-02GP+_4	Industrial 2-port 10G SFP+ module with 2x10GBase-X, SFP+ socket
SWM-04GP+_4	Industrial 4-port 10G SFP+ module with 4x10GBase-X SFP+ ports
SWM-04GP_4	Industrial 4-port Gigabit fiber module with 4x1GBase-X SFP ports
SWM-04GF-MM/SS-SC_4	Industrial 4-port Gigabit fiber module with 4x1000Base-FX SC Fiber ports
SWM-04GF-MM/SS-ST_4	Industrial 4-port Gigabit fiber module with 4x1000Base-FX ST Fiber ports
For 1G slot	
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-04GF-MM/SS-SC	Industrial 4-port fiber module with 4x100Base-FX SC Fiber ports
SWM-04FX-MM/SS-SC	Industrial 4-port fiber module with 4x100Base-FX SC Fiber ports
SWM-04GF-MM/SS-ST	Industrial 4-port Gigabit fiber module with 4x1000Base-FX ST Fiber ports
SWM-04FX-MM/SS-ST	Industrial 4-port fiber module with 4x100Base-FX ST Fiber ports
SWM-20GT-HSR	Industrial 2-port 100/1000 SFP combo HSR /PRP modular IEC 62439-3 Clause 4 (PRP) and Clause 5 (HSR) compliant