SWITCH
IEC 61850-3
MANAGED
Rack-Mount

Quick Installation Guide

RES-P3242GCL Series
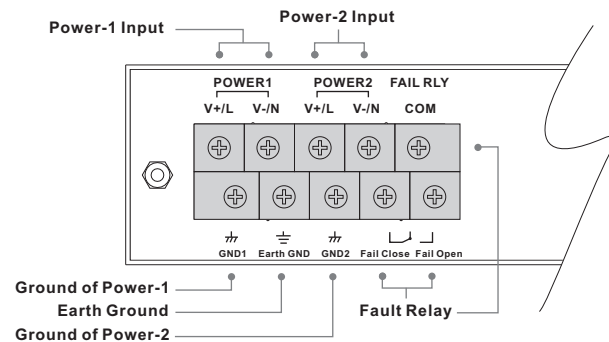
IEC 61850-3 Managed Ethernet Switch

Introduction

RES-P3242GCL series is 26-port rack mount managed Redundant Ring Ethernet switch with 24x10/100Base-T(X) and 2xGigabit Combo ports, SFP socket. These switches are 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 < 10ms over 250 units of connection), Open-Ring, O-RSTP 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. **RES-P3242GCL series** can be managed centralized and convenient by a powerful windows utility: Open-Vision. **RES-P3242GCL series** also supports functions of network management, such as SNMP, RMON, Port Trunking, and Port/Tag-based VLAN security. **RES-P3242GCL series** provided multi power inputs design, such as two DC inputs or two AC inputs, the redundant power inputs guarantee a non-stop operation. And support wide operating temperature from -40℃ to 85℃. One additional relay output is provided for system alarm warning, Therefore, **RES-P3242GCL series** is one of the most reliable choice for highly-managed and Fiber Ethernet power substation and rolling stock application.

Features

> **Designed for power substation application and fully compliant with the requirement of IEC 61850-3 and IEEE 1613**
> **World's fastest Redundant Ethernet Ring: O-Ring(Recovery time < 10ms over 250 units connection)**
> **Open-Ring support the other vender's ring technology in open architecture**
> **O-RSTP support applications with complex topology**
> **MSTP/RSTP/STP (IEEE 802.1s/w/D)**
> **Secured ACL supported**
> **IGMP v2/v3 (IGMP snooping support) for filtering multicast traffic**
> **Port Trunking for easy of bandwidth management**
> **Support LLDP (Link Layer Discovery Protocol)**
> **Port lock to prevent access from unauthorized MAC address**
> **Event notification through Syslog, Email, SNMP trap, and Relay Output**
> **Bundled Windows utility (Open-Vision) support centralization management and configurable by Web-based ,Telnet, Console (CLI)**
> **LED in front and Line in back design**
> **Isolation redundant power inputs with 18 ~ 36VDC or 36 ~ 72VDC or 100 ~ 240VAC power supply range**
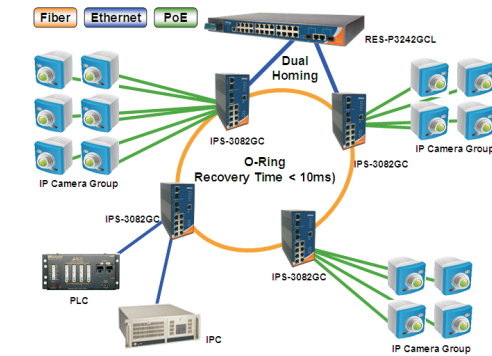> **19 inches rack mountable**

Power Connection Guide

Power-1 Input   Power-2 Input

POWER1   POWER2   FAIL RLY
V+/L V-/N   V+/L V-/N   COM

GND1 Earth GND GND2 Fail Close Fail Open

Ground of Power-1
Earth Ground   Fault Relay
Ground of Power-2

Specifications

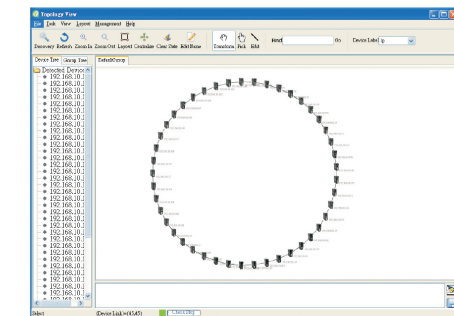| ORing Switch Model	RES-P3242GCL-LV	RES-P3242GCL-MV	RES-P3242GCL-HV
Physical Ports			
10/100 Base-T(X) Ports in RJ45 Auto MDI/MDIX in back	24		
Gigabit combo port with 10/100/1000Base-T(X) and 1000Base-X SFP in back	2		
RS-232 Serial Console Port in back	RS-232 console cable. 9600bps, 8, N, 1		
Technology			
Ethernet Standards	IEEE 802.3 for 10Base-T, IEEE 802.3u for 100Base-TX, 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 802.1D for STP (Spanning Tree Protocol), 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	8192 MAC addresses		
Priority Queues	4		
Processing	Store-and-Forward		
Switch Properties	Switching bandwidth: 8.8Gbps Max. Number of Available VLANs: 4096 IGMP multicast groups: 1024 Port rate limiting: User Define		
Security Features	Enable/disable ports, MAC based port security ACL supported Port based network access control (802.1x) VLAN (802.1Q) to segregate and secure network traffic Radius centralized password management SNMP v1/v2c/v3 encrypted authentication and access security		
Software Features	STP/RSTP/MSTP (IEEE 802.1D/w/s), Redundant Ring (O-Ring) with recovery time less than 20ms over 250 units , TOS/Diffserv supported Quality of Service (802.1p) for real-time traffic, VLAN (802.1Q) with VLAN tagging and GVRP supported IGMP Snooping for multicast filtering, Port configuration, status, statistics, monitoring, security SNTP for synchronizing of clocks over network, Support PTP Client (Precision Time Protocol clock) synchronization DHCP Client/Server, Port Trunk support, MVR (Multicast VLAN Registration) support		
Network Redundancy	O-Ring Open-Ring O-RSTP STP RSTP MSTP		
Warning / Monitoring System	Relay output for fault event alarming Syslog server / client to record and view events Include SMTP for event warning notification via email Event selection support		
LED Indicators in front and back			
Power Indicator	Green: Power LED x 2		
System Ready Indicator	Green : Indicate system ready. Blinking for system is upgrading firmware.		
Ring Master Indicator	Green: Indicate system operated in Ring Master mode		
O-Ring Indicator	Green: Indicate system operated in O-Ring mode Blinking to indicate Ring is broken		
Fault Indicator	Amber: Indicate unexpected event occurred		
10/100Base-T(X) RJ45 port indicator	Green at left for port Link/Act. Amber at right for 100Mbps indicator		
10/100/1000Base-T(X) RJ45 port indicator with combo port	Green at down for port Link/Act		
1000Base-X SFP port indicator with combo port	Green at up for port Link/Act		
Fault Contact			
Relay	Relay output to carry capacity of 3A at 24VDC		
Power			
Input power	Dual 18~36VDC power inputs	Dual 36~72VDC power inputs	Dual 88~300VDC /100~240VAC power inputs
Power consumption (Max)	18 Watts		
Overload current protection	Present	Present	Present on terminal block
Physical Characteristic			
Dimension (W x D x H)	443.7(W) x 262.7 (D) x 44 (H) mm (17.46x10.34x1.73 inch)		
Weight (g)	3890 g		
Environmental			
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		
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		

Open-Vision

ORing's switches are intelligent switches. Being 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.

Network Connection

Fiber Ethernet PoE

RES-P3242GCL
Dual Homing
IPS-3082GC
IP Camera Group
IPS-3082GC
O-Ring Recovery Time < 10ms
IP Camera Group
IPS-3082GC
IPS-3082GC
PLC
IPC
IP Camera Group

Topology View

Monitoring and Configuration interface
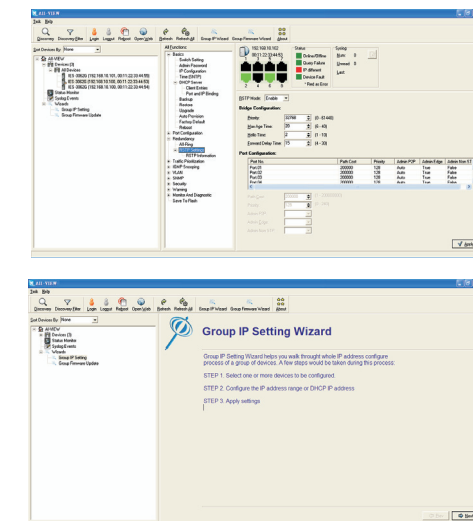
Group IP Setting Wizard

Group IP Setting Wizard helps you walk through whole IP address configure process of a group of devices. A few steps would be taken during this process:

STEP 1. Select one or more devices to be configured.

STEP 2. Configure the IP address range or DHCP IP address

STEP 3. Apply settings

ORing Industrial Networking Corp.

Version 1.0

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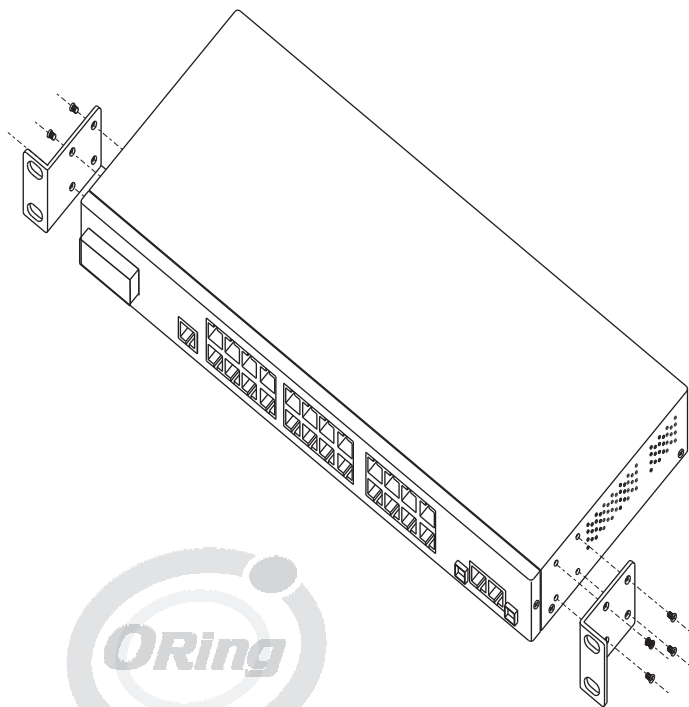## RES-P3242GCL Series

IEC 61850-3 Managed Ethernet Switch

⚙ Front Panel

○ **RES-3242GC**

Power Connector | Power 1~2 LED | LNK/ACK LED | 100Mbps LED | 10/100/1000Base-T(X) Port

ORing
RES-P3242GCL
R.M P1
Ring P2
Fault Status

LINK/ACT
Console

Ring Master LED
Ring Enabled LED
Fault LED

LINK/ACT
1000X
10/100/
1000T
1000X   10/100/1000T   1000X

LINK/ACT
1000X
10/100/
1000T

G1   G2

2 4 6 8   10 12 14 16   18 20 22 24   100M
1 3 5 7   9 11 13 15   17 19 21 23

Switch Status LED | Serial Console Port 9600, 8, N, 1 | 10/100 LAN Port | LINK / ACT LED | 1000Base-X SFP port

10/100 LAN Port LED

ORing
RES-P3242GCL
R.M P1
Ring P2
Fault Status
LNK/ACT
1000X
10/100/
1000T
G2 G1

24 22 20 18   16 14 12 10   8 6 4 2
23 21 19 17   15 13 11 9   7 5 3 1

LNK/ACT
100M
LNK/ACT
100M

⚙ Installation

○ **Rack-mounted Install Step**

⚙ Accessory

① Rack-mounted kit (L&R)   ② CD   ③ QIG

ORing Industrial Networking Corp.
Designed for Rugged Excellence
ORing Tool CD

④ Console Cable   ⑤ Screw (M3 X4)   ⑥ Power Cord

⑦ Dust Cover (RJ-45)   ⑧ Dust Cover (SFP)

⚙ Packing list

Model name	Model Description	Accessory
RES-P3242GCL-LV	Industrial IEC 61850-3 26-port rack mount managed Ethernet switch with 24x10/100Base-T(X) and 2xGigabit combo ports, SFP socket, dual 18 ~ 36VDC power inputs	①X 1, ②X 1, ③X 1, ④X 1, ⑤X 8, ⑦X 26, ⑧X 2
RES-P3242GCL-MV	Industrial IEC 61850-3 26-port rack mount managed Ethernet switch with 24x10/100Base-T(X) and 2xGigabit combo ports, SFP socket, dual 36 ~ 72VDC power inputs	①X 1, ②X 1, ③X 1, ④X 1, ⑤X 8, ⑦X 26, ⑧X 2
RES-P3242GCL-HV_US	Industrial IEC 61850-3 26-port rack mount managed Ethernet switch with 24x10/100Base-T(X) and 2xGigabit combo ports, SFP socket, dual 88 ~ 300VDC / 100 ~ 240VAC power inputs, US power cord	①X 1, ②X 1, ③X 1, ④X 1, ⑤X 8, ⑥X 2, ⑦X 26, ⑧X 2
RES-P3242GCL-HV_EU	Industrial IEC 61850-3 26-port rack mount managed Ethernet switch with 24x10/100Base-T(X) and 2xGigabit combo ports, SFP socket, dual 88 ~ 300VDC / 100 ~ 240VAC power inputs, EU power cord	①X 1, ②X 1, ③X 1, ④X 1, ⑤X 8, ⑥X 2, ⑦X 26, ⑧X 2

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