GIGABIT SWITCH MANAGED Rack-Mount

ORing

Quick Installation Guide

RGS-92222GCP-NP Series Managed Gigabit Ethernet Switch

Introduction

The **RGS-92222GCP-NP series** which consist of **RGS-92222GCP-NP**, and **RGS-92222GCP-NP-E**, are managed Ethernet switches designed for industrial applications. Featuring 22 10/100/1000Base-T(X) ports, 2 Gigabit combo ports and 2 100/1000Base-X SFP ports, the series is able to meet the needs for high port density and high-speed, long-distance transmission. The **RGS-92222GCP-NP-E** is an enhanced model with dual DC inputs and relay output. With complete support for Ethernet redundancy protocols such as O-Ring (recovery time < 30ms over 250 units of connection) and MSTP (RSTP/STP compatible), the series can protect your mission-critical applications from network interruptions or temporary malfunctions with its fast recovery technology. Featuring a wide operating temperature from -40°C to 75°C, the device can be managed centrally and conveniently via Open-Vision, web browsers, Telnet and console (CLI) configuration, making it one of the most reliable choice for highly-managed and Fiber Ethernet power substation and rolling stock application.

Package Contents

Contents	Pictures	Number
RGS-92222GCP-NP or RGS-92222GCP-NP-E		X 1
Console Cable		X 1
CD		X 1
QIG		X 1
RGS-92222GCP-NP Rack-mounted kit (L&R)		X 1
RGS-92222GCP-NP-E Rack-mounted kit (L&R)		X 1
Power Cable		X 1

Preparation

Before you begin installing the switch, make sure you have all of the package contents available and a PC with Microsoft Internet Explorer 6.0 or later, for using web-based system management tools.

Safety & Warnings

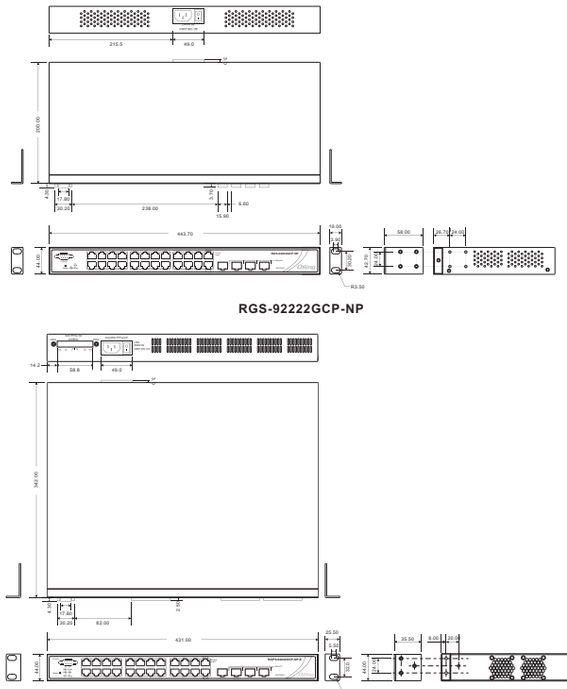
Elevated Operating Ambient: If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

Reduced Air Flow: Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

Mechanical Loading: Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Dimension

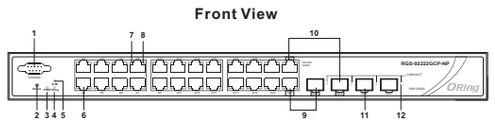


RGS-92222GCP-NP

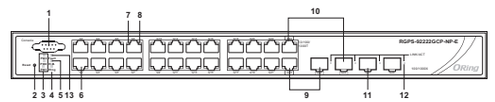
RGS-92222GCP-NP-E

Panel Layouts

Front View



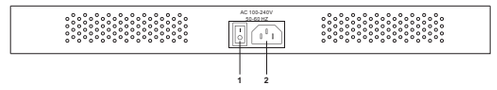
RGS-92222GCP-NP



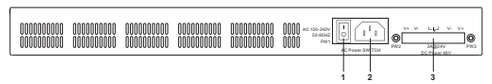
RGS-92222GCP-NP-E

1. Console port
2. Reset button
3. Power indicator
4. Ring status LED
5. RM status LED
6. LAN ports
7. LED for Ethernet ports link/act status
8. LED for Ethernet ports Speed indicator
9. First Gigabit combo port
10. Second Gigabit combo port
11. SFP ports
12. LNK/ACT LED for SFP ports
13. Fault indicator

Rear View



RGS-92222GCP-NP



RGS-92222GCP-NP-E

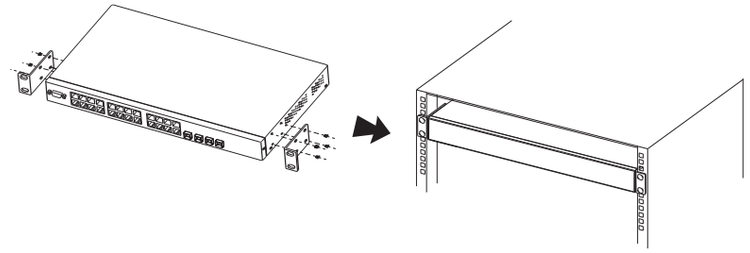
1. Power switch
2. AC power input (100V~240V / 50~60Hz)
3. Dual DC power inputs

Installation

Rack-mounting

Step 1: Install left and right front mounting brackets to the switch using four screws on each side.

Step 2: With front brackets orientated in front of the rack, fasten the brackets to the rack using two more screws.



Network Connection

The switch provides standard Ethernet ports. According to the link type, the switch uses CAT 3,4,5,5e UTP cables to connect to any other network devices (PCs, servers, switches, routers, or hubs). Please refer to the following table for cable specifications.

Cable Types and Specifications:

Cable	Type	Max. Length	Connector
10BASE-T	Cat. 3, 4, 5 100-ohm	UTP 100 m (328 ft)	RJ-45
100BASE-TX	Cat. 5 100-ohm UTP	UTP 100 m (328 ft)	RJ-45
1000BASE-T	Cat. 5 / Cat. 5e 100-ohm UTP	UTP 100 m (328 ft)	RJ-45

With 10/100BASE-T(X) cables, pins 1 and 2 are used for transmitting data, and pins 3 and 6 are used for receiving data. The device also supports auto MDI/MDI-X operation. You can use a cable to connect the switch to a PC

For pin assignments for different types of cables, please refer to the following tables.

10/100Base-T(X) RJ-45 port	
Pin Number	**Assignment**
#1	TD+
#2	TD-
#3	RD+
#6	RD-

1000Base-T RJ-45 port	
Pin Number	**Assignment**
#1	BI_DA+
#2	BI_DA-
#3	BI_DB+
#4	BI_DC+
#5	BI_DC-
#6	BI_DB-
#7	BI_DD+
#8	BI_DD-

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Managed Gigabit PoE Ethernet Switch

10/100 Base-T(X) MDI/MDI-X		
Pin Number	**MDI port**	**MDI-X port**
1	TD+(transmit)	RD+(receive)
2	TD-(transmit)	RD-(receive)
3	RD+(receive)	TD+(transmit)
4	Not used	Not used
5	Not used	Not used
6	RD-(receive)	TD-(transmit)
7	Not used	Not used
8	Not used	Not used

1000Base-T MDI/MDI-X		
Pin Number	**MDI port**	**MDI-X port**
1	BI_DA+	BI_DB+
2	BI_DA-	BI_DB-
3	BI_DB+	BI_DA+
4	BI_DC+	BI_DD+
5	BI_DC-	BI_DD-
6	BI_DB-	BI_DA-
7	BI_DD+	BI_DC+
8	BI_DD-	BI_DC-

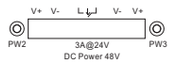
Console cable
Use the provided DB-9 cable (RS-232 cable) to connect the switch to a PC with the DB-9 connector attached to the switch console port and the DB-9 female connector to the PC.

PC pin out (male) assignment	RS-232 with DB9 female connector
Pin #2 RD	Pin #2 TD
Pin #3 TD	Pin #3 RD
Pin #5 GND	Pin #5 GND

Wiring

AC Power Connection
Both RGS-92222GCP-NP and RGS-92222GCP-NP-E can be powered by AC electricity. Simply insert the AC power cable to the power connector at the back of the switch and turn on the power switch. The input voltage is 100V~240V / 50~60Hz.

DC Power Connection
The RGS-92222GCP-NP-E supports dual DC power supplies, Power Supply 1 (PWR1) and Power Supply 2 (PWR2). The connections for PWR1, PWR2 and the RELAY are located on the terminal block. The input voltage is 36V~72VDC.



STEP 1: Insert the negative/positive wires into the V-/V+ terminals, respectively.
STEP 2: To keep the DC wires from pulling loose, use a small flat-blade screwdriver to tighten the wire-clamp screws on the front of the terminal block connector.

Relay contact
The RGS-92222GCP-NP-E provides two sets of relay contacts on the 6-pin terminal block to detect user-configured events. The two wires attached to the fault contacts form an open circuit when a user-configured when an event is triggered. If a user-configured event does not occur, the fault circuit remains closed.

Grounding
The RGS-92222GCP-NP-E provides grounding and wire routing to help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screws to the grounding surface prior to connecting devices.

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FAX: +886-2-2218-1014 E-mail: support@oring-networking.com

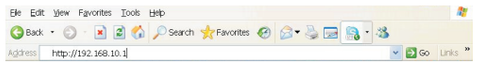
Configurations

After installing the switch and connecting cables, start the switch by turning on power. The green power LED should turn on.

LED indication table

LED	Color	Status	Description
PWR	Green	On	System power on
	Green	Blinking	Upgrading firmware
R.M	Green	On	Ring Master
Ring	Green	On	Ring enabled
		Blinking	Ring structure is broken
Fault	Amber	On	Errors (For port malfunctioning)
10/100/1000Base-T(X) RJ45 port			
Link/Act	Green	On	Port connected
		Blinking	Transmitting data
Speed	Green	On	Port is running at 1000Mbps
	Amber	On	Port is running at 100Mbps
	Green / Amber	Off	Port is running at 10Mbps
100/1000Base-X SFP port			
Link/Act	Green	On	Port connected
		Blinking	Transmitting data

1. Launch the Internet Explorer and type in IP address of the switch. The default static IP address is **192.168.10.1**



2. Log in with default user name and password (both are **admin**). After logging in, you should see the following screen. For more information on configurations, please refer to the user manual. For information on operating the switch using ORing's Open-Vision management utility, please go to ORing website.

Resetting

To reboot the switch, press the **Reset** button for 5 seconds.

To restore the switch configurations back to the factory defaults, press the **Reset** button for 10 seconds.

Specifications

ORing Switch Model	**RGS-92222GCP-NP**	**RGS-92222GCP-NP-E**
Physical Ports		
10/100/1000Base-T(X) with Ports in RJ45 Auto MDI/MDIX	**22**	
Gigabit Combo port with 10/100/1000Base-T(X) and 100/1000Base-X SFP ports	**2**	
100/1000Base-X with SFP port	**2**	
Technology		
Ethernet Standards	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX and 100Base-FX, IEEE 802.3z for 1000Base-X, IEEE 802.3ab for 1000Base-T, 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	8	
Processing	Store-and-Forward	
Switch Properties	Switch latency: 7 us Switch bandwidth: 52Gbps Max. Number of Available VLANs: 4095 VLAN ID Range : VID 1 to 4094 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 an secure network traffic Radius centralized password management SNMPv3 encrypted authentication and access security Https / SSH enhance network security Web and CLI authentication and authorization Authorization (15 levels) IP source guard	
Software Features	IEEE 802.1D Bridge, auto MAC address learning/aging and MAC address (static) Multiple Registration Protocol (MRP) 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 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 DHCP Relay Modbus TCP DNS client proxy SMTP Client NTP server	
Network Redundancy	O-Ring, Open-Ring, O-Chain, MRP, Fast Recovery, MSTP (RST/PSTP compatible)	
RS-232 Serial Console Port	RS-232 in DB-9 connector with console cable. 115200bps, 8, N, 1	
Fault contact		
Relay	None	Relay output to carry capacity of 1A at 24VDC
Power		
Overload current protection	100~240VAC with power socket	100~240VAC with power socke, and dual 48VDC (36 ~72VDC) power inputs at 6-pin terminal block
Power consumption(Typ.)	22 Watts	23 Watts
Overload current protection	Present	
Reverse Polarity Protection on DC input(s)	-	Present
Physical Characteristic		
Enclosure	19 inches rack mountable	
Dimension (W x D x H)	443.7 (W) x 200 (D) x 44 (H) mm (17.47 x 7.87 x 1.73 inches)	441 (W) x 342 (D) x 44 (H) mm (17 x 13.46 x 1.73 inches)
Weight (g)	2850g	4360g
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		
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	
Shock	IEC60068-2-27	
Free Fall	IEC60068-2-32	
Vibration	IEC60068-2-6	
Safety	EN60950-1	
Warranty	5 years	