SWITCH CARD INDUSTRIAL

Quick Installation Guide

CPGS-9120-C

Industrial CompactPCI Managed Ethernet Switch

Introduction

Oring's **CPGS-9120-C** series are managed Ethernet switch cards on a highly integrated 3U Compact PCI card form factor. Featuring 12 10/100/1000Base-T(X) ports, the **CPGS-9120-C** series are fully compliant with the EN50155 standard, and are ideal for harsh industrial applications, such as factory automation, vehicle, and railway applications. Since the switch card is hot swappable, you do not need to turn off the system power during installation.

Package Contents

The **CPGS-9120-C** series are shipped with the following items. If any of these items is missing or damaged, please contact your customer service representative for assistance.

Contents	Pictures	Number
CPGS-9120-C		X 1
Console Cable		X 1
CD		X 1
QIG		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.
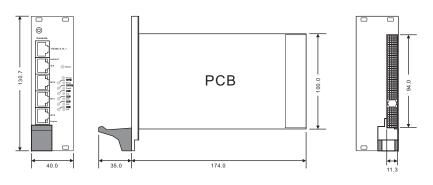
Mechanical Loading: Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
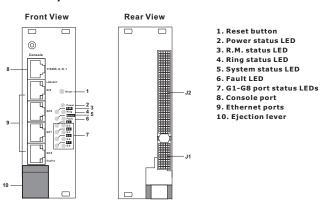
Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Dimension

PCB

130.7   100.0   94.0

40.0   35.0   174.0   11.3

Panel Layouts

Front View   Rear View

8   9   10   J2   J1

1. Reset button
2. Power status LED
3. R.M. status LED
4. Ring status LED
5. System status LED
6. Fault LED
7. G1~G8 port status LEDs
8. Console port
9. Ethernet ports
10. Ejection lever

Network Connection

The switch card uses the CPCI and RJ45 connector for network connection. Please refer to the tablet below for cable types and specifications.

Cable	Type	Max. Length	Connector
10Base-T	Cat. 3, 4, 5 100-ohm	UTP 100 m (328 ft)	8-pin Female CPCI and RJ45 A-coding connector
100Base-TX	Cat. 5 100-ohm UTP	UTP 100 m (328 ft)	8-pin Female CPCI and RJ45 A-coding connector
1000Base-T	Cat. 5e,6	UTP 100 m (328 ft)	8-pin Female CPCI and RJ45 A-coding connector

Console Port Pin Definition

To connect the console port to an external management device, you need an RJ-45 to DB-9 cable, which is also supplied in the package. Below is the console port pin assignment information.

PC (male) pin assignment	RS-232 with DB9 (female) pin assignment (RJ45-DB9 cable)	RJ45 pin assignment
PIN#2 RxD	PIN#2 RxD	PIN#2 RxD
PIN#3 TxD	PIN#3 TxD	PIN#3 TxD
PIN#5 GND	PIN#5 GND	PIN#5 GND

Backplane Pin Definition

The tablet below provides information of each pin on the backplane of the card. Please refer to the table for the pin assignment of each serial port.

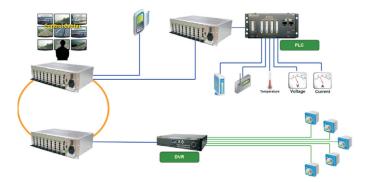| Pin	Z	A	B	C	D	E	F	
22	GND	NC	STxD	NC	NC	SRxD	GND	
21	GND	NC	NC	NC	NC	NC	GND	
20	GND	LED5_0	LED5_1	GND	LED7_0	LED7_1	GND	
19	GND	LED4_0	LED4_1	GND	LED6_0	LED6_1	GND	
18	GND	LED1_0	LED1_1	GND	LED3_0	LED3_1	GND	
17	GND	LED0_0	LED0_1	GND	LED2_0	LED2_1	GND	
16	GND	P8_RX+	P8_RX-	GND	NC	NC	GND	
15	GND	P8_TX+	P8_TX-	GND	NC	NC	GND	
14	GND	P7_RX+	P7_RX-	GND	NC	NC	GND	
13	GND	P7_TX+	P7_TX-	GND	NC	NC	GND	
12	GND	P6_RX+	P6_RX-	GND	NC	NC	GND	J2/P2
11	GND	P6_TX+	P6_TX-	GND	NC	NC	GND	
10	GND	P5_RX+	P5_RX-	GND	NC	NC	GND	
9	GND	P5_TX+	P5_TX-	GND	NC	NC	GND	
8	GND	P4_RX+	P4_RX-	GND	NC	NC	GND	
7	GND	P4_TX+	P4_TX-	GND	NC	NC	GND	
6	GND	P3_RX+	P3_RX-	GND	NC	NC	GND	
5	GND	P3_TX+	P3_TX-	GND	NC	NC	GND	
4	GND	P2_RX+	P2_RX-	GND	NC	NC	GND	
3	GND	P2_TX+	P2_TX-	GND	NC	NC	GND	
2	GND	P1_RX+	P1_RX-	GND	NC	NC	GND	
1	GND	P1_TX+	P1_TX-	GND	NC	NC	GND	
25	GND	+5V	NC	NC	+3.3V	+5V	GND	
24	GND	NC	+5V	5V(VIO)	NC	NC	GND	
23	GND	+3.3V	NC	NC	+5V	NC	GND	
22	GND	NC	GND	+3.3V	NC	NC	GND	
21	GND	+3.3V	NC	NC	NC	NC	GND	
20	GND	NC	GND	5V(VIO)	NC	NC	GND	
19	GND	+3.3V	NC	NC	GND	NC	GND	J1/P1
18	GND	NC	GND	+3.3V	NC	NC	GND	
17	GND	+3.3V	NC	NC	GND	NC	GND	
16	GND	NC	GND	5V(VIO)	NC	NC	GND	
15	GND	+3.3V	NC	NC	GND	NC	GND	
14								
13								
12								

SWITCH CARD INDUSTRIAL

Quick Installation Guide

CPGS-9120-C

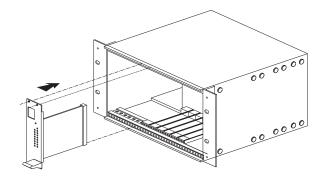## Industrial CompactPCI Managed Ethernet Switch

● **Application**

⊹ Installation

Follow the steps below to install the card to the CPCI chassis.

1. Remove the metal cover plate on the back of an available CPCI slot.
2. Insert the card into the slot and use the bracket screws to secure it firmly in place.
3. Fasten the card with the chassis.
4. Connect the card to the desired network devices.

⊹ Configurations

After installing the switch card, the green power LED should turn on. Please refer to the following tablet for LED indication.

LED	Color	Status	Description
Power	Green	On	DC power on
G1-G8	Green	On/Blink	Port is linked / act
R.M	Green	On	Operating as Ring Master
Ring	Green	On	Operating in Ring mode
Status	Green	On	Ethernet link on
Fault	Amber	On	Faulty indication (power failure or port malfunctioning)

Follow the steps to set up the card:

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 2-3 seconds.

To restore the switch configurations back to the factory defaults, press the **Reset** button for 5 seconds.

⊹ Specifications

ORing Switch Model	CPGS-9120-C
Physical Ports	
10/100/1000Base-T(X) Ports Auto MDI/MDIX	**12-port (8-port with CompactPCI interface, 4-port with RJ-45 connector)(PICMG 2.0 compatible)**
Technology	
Ethernet Standards	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX IEEE 802.3ab for 1000Base-T IEEE 802.3x for Flow control IEEE 802.3ad for LACP (Link Aggregation Control Protocol) IEEE 802.1D for STP (Spanning Tree 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: 24Gbps Max. Number of Available VLANs: 4096 IGMP multicast groups: 128 for each VLAN Port rate limiting: User Define
Jumbo Frame	Up to 10K Bytes
Security Features	Device Binding security feature Enable/disable ports, MAC based port security Port based network access control (802.1x) VLAN (802.1Q) to segregate and secure network traffic Radius centralized password management SNMPv3 encrypted authentication and access security Https / SSH enhance network security

Software Features	STP/RSTP/MSTP (IEEE 802.1D/w/s) 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 IGMP Snooping IP-based bandwidth management Application-based QoS management DOS/DDOS auto prevention Port configuration, status, statistics, monitoring, security DHCP Server/Client/Relay SMTP Client Modbus TCP
Network Redundancy	O-Ring, Open-Ring, O-Chain, MRP, MSTP (STP / RSTP compatible)
RS-232 Serial Console Port	RS-232 in RJ45 connector with console cable. Baud rate setting: 115200bps, 8, N, 1
LED Indicators	
Power Indicator	Green: Power LED x1
Status Indicator	Green: System status indicator
R.M. Indicator	Green: Indicate system operated in O-Ring Master mode
Ring Indicator	Green: Indicate system operated in O-Ring mode
Fault Indicator	Amber: Indicate unexpected event occurred
10/100/1000Base-T(X) Port Indicator	Green for port Link/Act.
Power	
Power Input	CompactPCI bus powered (12VDC)
Power Consumption (Typ.)	7.5Watt
Overload current protection	Present
Physical Characteristic	
Dimension (W x D x H)	40.0(W)x130.7(H)x209.0(D) mm (1.57x5.15x8.23 inch.)
Weight (g)	330g
Environmental	
Storage Temperature	-40 to 85°C (-40 to 185°F)
Operating Temperature	-40 to 70°C (-40 to 158°F)
Operating Humidity	5% to 95% Non-condensing
Regulatory Approvals	
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
Shock	IEC60068-2-27
Free Fall	IEC60068-2-32
Vibration	IEC60068-2-6
Safety	EN60950-1
Warranty	5 years

ORing Industrial Networking Corp.

TEL: +886-2-2218-1066   Website: www.oring-networking.com
FAX: +886-2-2218-1014   E-mail: support@oring-networking.com