PoE SWITCH INDUSTRIAL

ORing

# Quick Installation Guide

# IPS-3082GC-24V

# Industrial PoE Managed Ethernet Switch

## Introduction

**IPS-3082GC-24V** is managed redundant ring Ethernet switch with 8x10/100Base-T(X) ports with 15.4Watts PoE (P.S.E.) function and 2xGigabit combo ports. With completely support of Ethernet redundancy protocol, O-Ring (recovery time < 10/30ms over 250 units of connection), O-Chain, MRP***NOTE** 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. Another O-Chain is the revolutionary network redundancy technology that provides the add-on network redundancy topology for any backbone network, O-Chain allows multiple redundant network rings of different redundancy protocols to join and function together as a larger and more robust compound network topology. O-Chain providing ease-of-use while maximizing fault-recovery swiftness, flexibility, compatibility, and cost-effectiveness in one set of network redundancy topology. **IPS-3082GC-24V** also supports Power over Ethernet, a system to transmit electrical power, along with data, to remote devices over standard twisted-pair cable in an Ethernet network. Each **IPS-3082GC-24V** switch had 8X10/100Base-T(X) 15.4Watts P.S.E. (Power Sourcing Equipment) ports. P.S.E. is a device (switch or hub for instance) that will provide power in a PoE setup. **IPS-3082GC-24V** supports DDM (Digital Diagnostic Monitoring) function, which can monitor instantly the status of electronic voltage, current and temperature. All function of **IPS-3082GC-24V** can be managed centralized by a powerful windows utility — Open-Vision. In addition, the wide operating temperature range from -40 to 70°C can satisfy most of operating environment. Therefore, these switches are one of the most reliable choice for highly-managed and Fiber Ethernet application with PoE function.

The product is open type, intended to be installed in and industrial control panel or an enclosure.

***NOTE : This function is available by request only.**

## Package Contents

The device is 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 |
|---|---|---|
| IPS-3082GC-24V |  | X 1 |
| CD |  | X 1 |
| DIN-rail Kit |  | X 1 |
| Wall-mount Kit |  | X 2 |
| Console Cable |  | 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

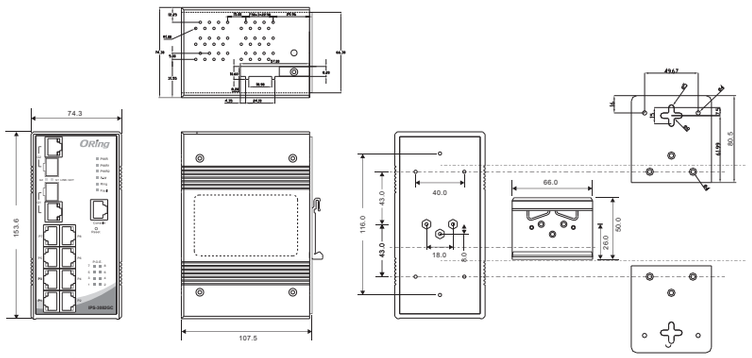
**Elevated Operating Ambient:** If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient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

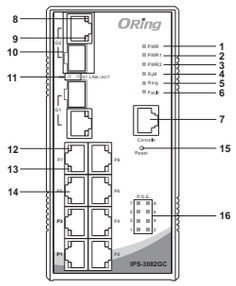
**Circuit Overloading:** Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing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

### Dimension Unit =mm (Tolerance ±0.5mm)



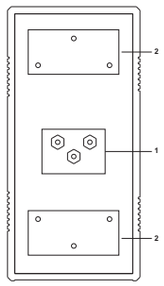

### Panel Layouts

**Front View**



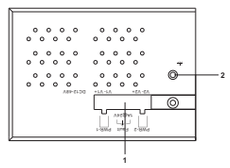

1. Power LED
2. PWR1 LED
3. PWR2 LED
4. R.M. status LED
5. Ring status LED
6. Faulty relay indicator
7. Console port
8. Link/Act LED for Gigabit port
9. 100Mbps indicator for Gigabit port
10. Combo ports
11. Link/Act LED for SFP ports
12. Link/Act LED for Ethernet port
13. Duplex/Collision indicator
14. LAN ports
15. Reset button
16. PoE LED for LAN port

**Rear View**




1. Din-rail screw holes
2. Wall-mount screw holes

**Bottom View**




1. Terminal blocks: PWR1, PWR2 (24-36V DC), Relay
2. Ground wire.

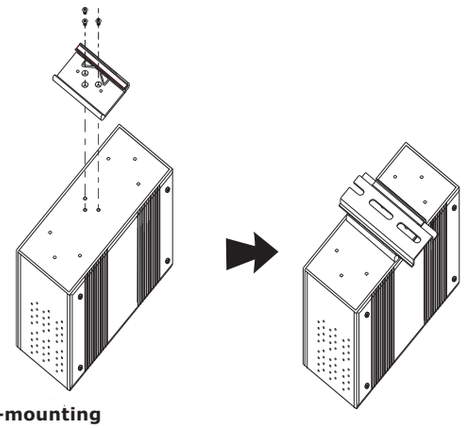
**Warning [AVERTISSEMENT]**
Take into consideration the following guidelines before wiring the device
[Tenez compte des directrices suivantes avant de câbler l'appareil.]
1. Terminal block is mating with Plug and suitable for 12-24AWG.
Torque value 4.5 lb-in.
[Le bornier est compatible avec les connecteurs et convient pour 12-24AWG.
Valeur de couple 4,5 lb-in.]
2. The temperature rating of the input connection cable should higher than 105°C
[La température de service nominale du câble d'entrée doit être supérieure à 105 °C]
3. Use Copper Conductors Only.
[Utilisez uniquement des conducteurs en cuivre.]

* Indoor use and pollution degree II, it must be wiped with a dry cloth for clean up the device and label.
* Utilisation en intérieur et degré de pollution II, il faut l'essuyer avec un chiffon sec pour nettoyer l'appareil et son étiquette.
* Do not block air ventilation holes.
* Ne bouchez pas les orifices de ventilation.
* If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired."
* Si l'appareil est utilise d'une maniere non specifiee par le fabricant, la protection qu'il apporte peut se voir diminuee."
* Shall be mounted in the Industrial Control Panel and ambient temperature is not exceed 75 degree C
* doit être monté dans le panneau de commande industriel et la température ambiante ne doit pas dépasser 75 degrés C

## Installation

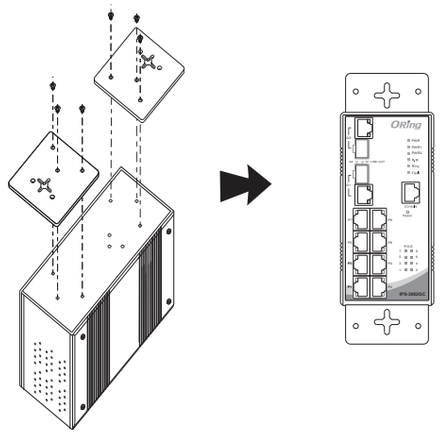
### DIN-rail Installation

**Step 1:** Slant the switch and screw the Din-rail kit onto the back of the switch, right in the middle of the back panel.
**Step 2:** Slide the switch onto a DIN-rail from the Din-rail kit and make sure the switch clicks into the rail firmly.



### Wall-mounting

**Step 1:** Screw the two pieces of wall-mount kits onto both ends of the rear panel of the switch. A total of six screws are required, as shown below.
**Step 2:** Use the switch, with wall mount plates attached, as a guide to mark the correct locations of the four screws.
**Step 3:** Insert a screw head through the large parts of the keyhole-shaped apertures, and then slide the switch downwards. Tighten the screws for added stability.



### 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 |

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

| 10/100 Base-T(X) RJ-45 Port | |
|---|---|
| **Pin Number** | **Assignments** |
| 1 | TD+ |
| 2 | TD- |
| 3 | RD+ |
| 4 | Not used |
| 5 | Not used |
| 6 | RD- |
| 7 | Not used |
| 8 | Not used |

| 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- |

| 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- |

| 10/100Base-T(X) P.S.E. RJ-45 port | |
|---|---|
| Pin No. | Description |
| #1 | TD+ with PoE Power Input + |
| #2 | TD- with PoE Power Input + |
| #3 | RD+ with PoE Power Input - |
| #4 | N.C. |
| #5 | N.C. |
| #6 | RD- with PoE Power Input - |
| #7 | N.C. |
| #8 | N.C. |

**Note: "+" and "-" signs represent the polarity of the wires that make up each wire pair.**

### 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 |

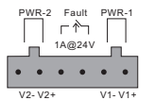
## Wiring

### Power inputs

The switch supports dual redundant power supplies, Power Supply1 (PWR1) and Power Supply 2 (PWR2). The connections for PWR1, PWR2 and the RELAY are located on the terminal block.

**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 two sets of relay contacts of the 6-pin terminal block connector are used 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

Grounding and wire routing 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.

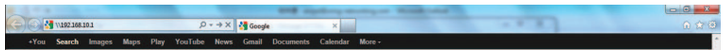
## Configurations

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

| LED | Color | Status | Description |
|---|---|---|---|
| **PWR** | Green | On | DC power on |
| **PWR1** | Green | On | DC power module 1 activated |
| **PWR2** | Green | On | DC power module 2 activated |
| **R.M** | Green | On | Ring Master |
| **Ring** | Green | On | Ring enabled |
| | | Blinking | Ring structure is broken (i.e. part of the ring is disconnected) |
| **Fault** | Amber | On | Faulty relay (power failure or port disconnected) |
| 10/100Base-T(X) Poe Ethernet ports | | | |
| **LNK/ACT & Duplex** | Green | On | Port link up |
| | | Blinking | Data transmitted |
| | Amber | On | Full-duplex mode |
| | | Blinking | Half-duplex and collision occurred |
| | | Off | Half-duplex mode |
| **PoE** | Green | On | Power supplied over Ethernet |
| 10/100/1000Base-T(X) Ethernet ports (Combo port) | | | |
| **LNK/ACT with speed** | Green | On | Port link up |
| | | Blinking | Data transmitted |
| | Amber | On | Port link at 100Mbps |
| | | Off | Port link at 10/1000Mbps |
| SFP (Combo port) | | | |
| **LNK/ACT** | Green | On | Port link up |
| | | Blinking | Data transmitted |

Follow the steps to set up the switch:

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 less than 5 seconds.

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

## Specifications

| **ORing Switch Model** | **IPS-3082GC-24V** |
|---|---|
| **Physical Ports** | |
| 10/100 Base-T(X) Ports in RJ45 Auto MDI/MDIX | **8** |
| Gigabit combo Port in RJ-45 and SFP | **2** |
| **Technology** | |
| Ethernet Standards | IEEE 802.3 for 10Base-T<br>IEEE 802.3u for 100Base-TX and 100Base-FX<br>IEEE 802.3z for 1000Base-X<br>IEEE 802.3ab for 1000Base-T<br>IEEE 802.3x for Flow control<br>IEEE 802.3ad for LACP (Link Aggregation Control Protocol)<br>IEEE 802.1D for STP (Spanning Tree Protocol)<br>IEEE 802.1p for COS (Class of Service)<br>IEEE 802.1Q for VLAN Tagging<br>IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol)<br>IEEE 802.1s for MSTP (Multiple Spanning Tree Protocol)<br>IEEE 802.1x for Authentication<br>IEEE 802.1AB for LLDP (Link Layer Discovery Protocol)<br>IEEE 802.3af PoE specification (up to 15.4 Watts per port for P.S.E.) |
| MAC Table | 8K |
| Packet buffer | 1Mbits |
| Priority Queues | 4 |
| Processing | Store-and-Forward |
| Switch Properties | Switching latency: <7 us<br>Switching bandwidth: 7.2Gbps<br>Throughput (packet per second): 4.166Mpps@64Bytes packet<br>Max. Number of Available VLANs: 4096<br>VLAN ID Range: VID 1 to 4095<br>IGMP multicast groups: 1024<br>Port rate limiting: User Define |
| Security Features | Enable/disable ports, MAC based port security<br>Port based network access control (802.1x)<br>VLAN (802.1Q) to segregate and secure network traffic<br>Supports Q-in-Q VLAN for performance & security to expand the VLAN space<br>Radius centralized password management<br>SNMP V1/V2c/V3 encrypted authentication and access security |
| Software Features | STP/RSTP/MSTP (IEEE 802.1D/w/s)<br>Redundant Ring (O-Ring) with recovery time less than 10/30ms over 250 units<br>**NOTE 1.** Fast Ethernet ports supports less 10 milliseconds recovery time.<br>**NOTE 2.** Gigabit Ethernet ports supports less 30 milliseconds recovery time.<br>TOS/Diffserv supported<br>Quality of Service (802.1p) for real-time traffic<br>VLAN (802.1Q) with VLAN tagging and GVRP supported<br>IGMP Snooping for multicast filtering<br>Port configuration, status, statistics, monitoring, security<br>SNTP for synchronizing of clocks over network<br>Support PTP Client (Precision Time Protocol) clock synchronization<br>DHCP Server / Client support<br>Port Trunk support<br>MVR (Multicast VLAN Registration) support<br>Modbus TCP |
| Network Redundancy | O-Ring, O-Chain, MRP*, **NOTE**, MSTP/RSTP/STP |
| RS-232 Serial Console Port | RS-232 in RJ45 connector with console cable. 9600bps, 8, N, 1 |
| **Fault contact** | |
| Relay | Relay output to carry capacity of 1A at 24 VDC |
| **Reset Function** | |
| Reset Button | < 5 sec: System reboot, > 5 sec: Factory default |
| **Power** | |
| Redundant Input power | Dual DC inputs, 24~36VDC on 6-pin terminal block<br>⚠ * Supplied by SELV or double insulation source evaluated by UL 61010-1 or 61010-2-201 power supply only.<br>* Fourni par la source SELV ou double isolation évaluée uniquement par l'alimentation UL 61010-1 or 61010-2-201. |
| Power consumption(Typ.) | <12Watts, 24VDC/0.5A, 36VDC/0.33A (power consumption of P.S.E. is not included) |
| PoE Total Power Budget | <24VDC@60 Watts Max.<br>>24VDC@120 Watts Max. |
| Overload current protection | Present |
| Reverse polarity protection | Not Presented |
| **Physical Characteristic** | |
| Dimension (W x D x H) | 74.3 (W) x 107.5 (D) x 153.6 (H)mm (2.93 x 4.23 x 6.05 inch.) |
| Weight (g) | 1260 g |
| **Environmental** | |
| Storage Temperature | -40 to 85°C (-40 to 185°F) |
| Operating Temperature | -40 to 70°C (-40 to 167°F) |
| Operating Humidity | 5% to 95% Non-condensing |
| Operating Alttitude | Up to 2000m |
| **Regulatory approvals** | |
| EMC | CE EMC (EN 55024, EN 55032), FCC Part 15 B |
| EMI | EN 55032, CISPR32, EN 61000-3-2, EN 61000-3-3, FCC Part 15 B class A |
| EMS | EN 55024 (IEC/EN 61000-4-2 (ESD: Contact 4KV, Air 8KV), IEC/EN 61000-4-3 (RS: 3V),<br>IEC/EN 61000-4-4 (EFT Power 1KV, Signal 0.5KV), IEC/EN 61000-4-5 (Surge: Power 2KV, RJ45 1KV),<br>IEC/EN 61000-4-6 (CS: 3V), IEC/EN 61000-4-8(PFMF), IEC/EN 61000-4-11 (DIP)) |
| Shock | IEC60068-2-27 |
| Free Fall | IEC60068-2-31 |
| Vibration | IEC60068-2-6 |
| Safety | EN 60950-1, UL 60950-1, IEC 60950-1 |
| **MTBF** | 375,564 hrs |
| **Warranty** | 5 years |

***NOTE : This function is available by request only**

**Contact for maintenance and repair service:**



**ORing Industrial Networking Corp.**
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