

## Quick Installation Guide

## IGS-T9062DGP










## Industrial Managed Gigabit Switch

## Introduction

ORing's TSN series managed Gigabit Ethernet switches are designed for industrial applications, such as manufacturing, Transportation, medical insurance and Smart City applications. **IGS-T9062DGP** is full Layer-2 managed Redundant Ring Ethernet switch with 6x10/100/1000Base-T(X) and 2x1G/2.5GBase-X ports which is specifically designed for the toughest and fully compliant with Industrial requirement. The switch support Ethernet Redundancy protocol, O-Ring (recovery time < 30ms over 250 units of connection), O-Chain, MRP, ERPS v1/v2 and MSTP (RSTP/STP compatible) can protect your mission-critical applications from network interruptions or temporary malfunctions with its fast recovery technology. **IGS-T9062DGP** supports time sensitive networking. TSN is an industrial network technology with important application prospects. The TSN function of industrial-grade managed switches can bring benefits such as low latency, low jitter, determinism and security to industrial applications, thereby improving the performance and reliability of industrial control systems. **IGS-T9062DGP** support wide operating temperature from -40°C to 75°C, and can also be managed centralized and convenient by Open-Vision, Except the Web-based interface, Telnet and console (CLI) configuration. Therefore, this switch is one of the most reliable choices for industrial-grade highly managed Ethernet applications.

## 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	Contents	Pictures	Number
IGS-T9062DGP		X 1	SFP Dust cover		X 2
CD		X 1	RJ 45 Dust cover		X 6
DIN-rail Kit		X 1	QIG		X 1
Console Cable		X 1	4-pin terminal block		X 2
USB Dust cover		X 1			

## Preparation

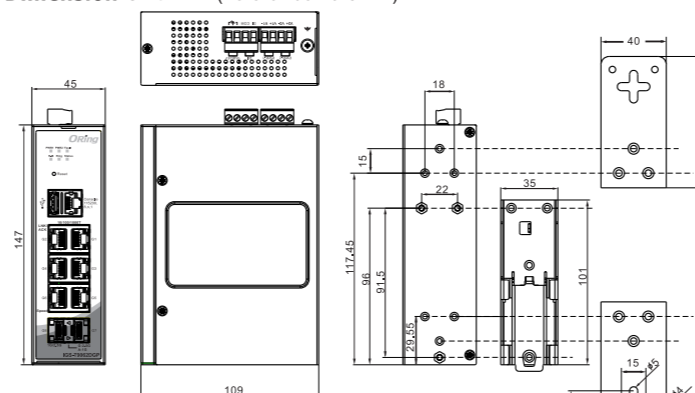
Before you begin installing the switch, make sure you have all of the package contents available and a PC with Microsoft Internet Explorer 6.0 or later, for using web-based system management tools.

## Safety &amp; 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 (T<sub>ma</sub>) 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.

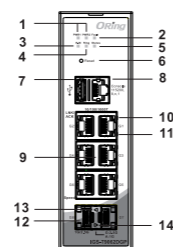
-  **Mechanical Loading:** Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
-  **Circuit Overloading:** Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading 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)



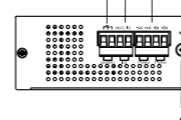
## Panel Layouts

## Front View



1. PWR indicator LED
2. Faulty relay indicator LED
3. R.M. status indicator LED
4. Ring status indicator LED
5. System status indicator LED
6. Reset button
7. USB Port maintenance diagnostic purposes only
8. Console Port for CLI
9. Gigabit LAN ports
10. Link/Act indicator LED
11. Speed indicator LED
12. 2.5G SFP Ports
13. Link/Act/Speed indicator LED for Left SFP port
14. Link/Act/Speed indicator LED for Right SFP port

## Top Panel



1. Power input: 1/2
2. Digital input
3. Relay output
4. Ground wire



## Warning [AVERTISSEMENT]

Take into consideration the following guidelines before wiring the device.

[Tenez compte des directives 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 blochez pas les orifices de ventilation.

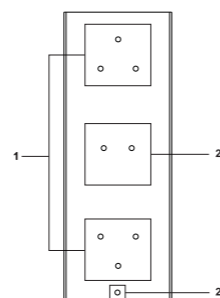
\* If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

\* Si l'appareil est utilisé d'une manière non spécifiée par le fabricant, la protection qu'il apporte peut se voir diminuée.

\* 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

## Rear View

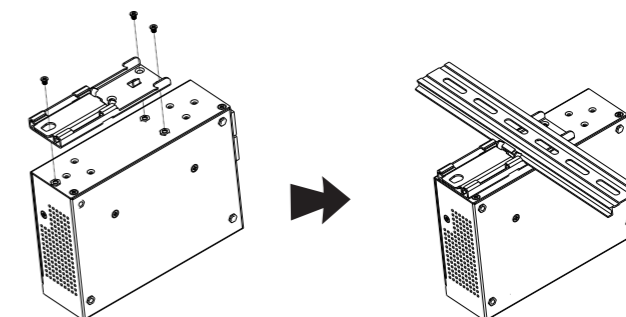


1. Wall-mount screw holes
2. Din-rail screw holes

## Installation

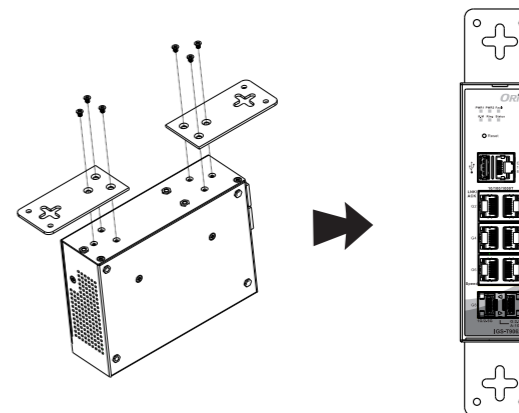
## DIN-rail Installation

- 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 wall-mount kit onto 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

# Quick Installation Guide

## IGS-T9062DGP

## Industrial Managed Gigabit Switch

### Configurations

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

LED	Color	Status	Description
PWR1	Green	On	DC power module 1 activated
		Off	DC power module 1 inactivated or broken
PWR2	Green	On	DC power module 2 activated
		Off	DC power module 2 inactivated or broken
R.M.	Green	On	Indicates that the system is operating in O-Ring Master mode
		Off	Indicates that the system is not operating in O-Ring Master mode
Ring	Green	On	Indicates that the system operating in O-Ring mode
		Blinking	Indicates that the Ring is broken
Fault	Red	On	Indicates that the system not operating in O-Ring mode
		Off	Indicate unexpected event occurred
Status	Green	Slow Blinking	Indicates system operating
		Fast Blinking	Indicates USB reading/writing <b>NOTE: This USB port is for maintenance and diagnostic purposes only.</b>

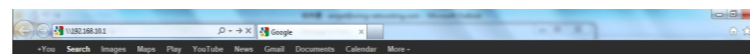
10/100/1000Base-T(X) RJ-45 Port Indicator		
Top Green LED for Link/Act indicator: Green for link-up, Off for link-down, Blinking for Act.		
Bottom dual color LED for Ethernet speed indicator: Green for 1000Mbps, Amber for 100Mbps, Off for 10Mbps		

1G/2.5GBase-X SFP socket		
Dual color LED for Link/Ack and speed indicator:		
Green for 2.5G speed indicator: On for link-up, Off for link-down, Blinking for Act.		
Amber for 1G speed indicator: On for link-up, Off for link-down, Blinking for Act.		

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 for 2-3 seconds.

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

Contact for maintenance and repair service:



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FAX: +886-2-2218-1014 E-mail: [support@oringnet.com](mailto:support@oringnet.com)

### Specifications

ORing Switch Model	IGS-T9062DGP
<b>Physical Ports</b>	
10/100/1000Base-T(X) Ports in RJ45 Auto MDI/MDIX	6
1G/2.5GBase-X Port in SFP	2
<b>Technology</b>	
Ethernet Standards	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX IEEE 802.3ab for 1000Base-T IEEE 802.3ae for 1000Base-X IEEE 802.3bz for 2.5GBase-SR/LR 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: 2004 (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
Packet Buffer Size	160K Bytes
Priority Queues	8
Processing	Store-and-Forward
Switch Properties	Switching latency: <7 μs Switching bandwidth: 22Gbps Max. Number of Available VLANs: 4095 IGMP multicast groups: 128 for each VLAN Port rate limiting: User Define
Jumbo Frame	Up to 10K Bytes
Security Features	Device Binding security feature Access management Access control list 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 TACACS+ IEEE 802.1x SNMPv3 encrypted authentication and access security Https / SSH enhance network security
TSN Features	Time sync - IEEE 802.1AS-2011 Latency - IEEE 802.1Qbv Latency - IEEE 802.1Qbv/IEEE 802.3br Reliability - IEEE 802.1Qci (TBD) Reliability - IEEE 802.1CB (TBD)
Software Features	MSTP (RSTP/STP compatible) - (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/Snooping NTP Server/Client Modbus TCP
Network Redundancy	O-Ring O-Chain RRR ERPS (G.8032) v1/v2 MSTP (RSTP/STP compatible)
RS-232 Serial Console Port	RS-232 in RJ-45 connector with console cable. Baud rate setting: 115200bps, 8, N, 1
USB v2.0 Port	USB in Type-A female connector NOTE: This USB port is for maintenance and diagnostic purposes only.
<b>Fault Contact</b>	
Relay	Relay output to carry capacity of 1A at 24VDC with terminal block
<b>Digital Input Contact</b>	
D/I	Power input 12-30 VDC, Max. input current: 8 mA
<b>Reset Function</b>	
Reset Button	< 5 sec: System reboot, > 5 sec: Factory default
<b>Power</b>	
Input power	Dual DC inputs, 12-48VDC/1A-0.3A on 4-pin terminal block
Power Consumption (Typ.)	12 Watts max.
Overload current protection	Present
Reverse Polarity Protection	Present
<b>Physical Characteristic</b>	
Enclosure	IP-40
Dimension (W x D x H)	45 x 109 x 147 mm. (1.772 x 4.291 x 5.787 inch)
Weight (g)	645g
<b>Environmental</b>	
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
<b>Regulatory Approvals</b>	
EMC	CE EMC (EN 55035, EN 55032), FCC Part 15 B
EMI	EN 55022, CISPR32, EN 61000-3-2, EN 61000-3-3, FCC Part 15 B class A
EMS	EC/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 (RFMF), IEC/EN 61000-4-11 (DIP)
Shock	IEC60068-2-27
Free Fall	IEC60068-2-31
Vibration	IEC60068-2-6
Safety	IEC/EN 62368-1
<b>Warranty</b>	5 years

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

10/100 Base-T(X) RJ-45 Port		1000Base-T RJ-45 Port	
Pin Number	Assignments	Pin Number	Assignment
1	TD+	1	BI_DA+
2	TD-	2	BI_DA-
3	RD+	3	BI_DB+
4	Not used	4	BI_DC+
5	Not used	5	BI_DC-
6	RD-	6	BI_DD-
7	Not used	7	BI_DD+
8	Not used	8	BI_DD-

10/100 Base-T(X) MDI/MDI-X			1000Base-T MDI/MDI-X		
Pin Number	MDI port	MDI-X port	Pin Number	MDI port	MDI-X port
1	TD+(transmit)	RD+(receive)	1	BI_DA+	BI_DB+
2	TD-(transmit)	RD-(receive)	2	BI_DA-	BI_DB-
3	RD+(receive)	TD+(transmit)	3	BI_DB+	BI_DA+
4	Not used	Not used	4	BI_DC+	BI_DD+
5	Not used	Not used	5	BI_DC-	BI_DD-
6	RD-(receive)	TD-(transmit)	6	BI_DD-	BI_DA-
7	Not used	Not used	7	BI_DD+	BI_DC+
8	Not used	Not used	8	BI_DD-	BI_DC-

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.

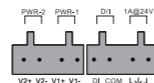
PC (male) pin assignment	RS-232 with DB9 (female) pin assignment (RJ45-DB9 cable)	RJ45 pin assignment
PIN#2 RxD	PIN#2 RxD	PIN#2 RxD
PIN#3 TxD	PIN#3 TxD	PIN#3 TxD
PIN#5 GND	PIN#5 GND	PIN#5 GND

### Wiring

#### Power inputs

The switch supports dual redundant power supplies, Power Supply1 (PWR1) and Power Supply 2 (PWR2). The connections for PWR1, PWR2 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 relay contacts of the terminal block connector are used to detect user-configured events. The two wires attached to the fault contacts form an close circuit when a user-configured event is triggered. If a user-configured event does not occur, the fault circuit remains opened.

#### Digital Input

Digital Input can monitor the on/off status of external devices or sensors in real-time, such as buttons, limit switches, or other binary output devices, and transmit this status information to an Ethernet switch. Through digital input, the system can accurately monitor the operational status of equipment, achieving automated control and monitoring functions, ensuring your operational processes are efficient and reliable.

#### 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.