

Quick Installation Guide

IQS-402XSM-4PH

Industrial 4 x 10M/100M/1G/2.5G Base-T RJ-45 +
2 x 100M/1G/2.5G/10G Base-X SFP with 4 x PoE Managed Switch



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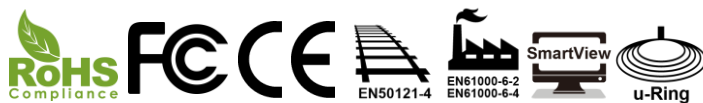
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Introduction

IQS-402XSM-4PH models are managed industrial grade Gigabit PoE (Power over Ethernet) switches with 4 x 10M/100M/1G/2.5G RJ-45 ports (with PoE function) and 2 x 100M/1G/2.5G/10G SFP+ slots. Housed in rugged DIN rail or wall mountable enclosures with fanless design, these switches are designed for heavy-duty applications and harsh environments such as industrial factory automation and intelligent transportation systems (ITS) and are also suitable for many military and utility market applications where environmental conditions exceed commercial product specifications.

Package List

- IQS-402XSM-4PH device
- Protective caps for SFP+ slots
- Din rail with screws
- Terminal block

Features

- 4 x 10M/100M/1G/2.5G RJ-45 (with PoE function) + 2 x 100M/1G/2.5G/10G
- 120W total PoE power budget
- Redundant 48VDC power input
- Provides 3 u-ring instances that each can support u-Ring, u-Chain or Sub-Ring type for flexible uses
- Advanced PoE management such as PoE port ON/OFF scheduling, PoE PD failure auto checking, and auto reset when PD fails
- Software upgrade via TFTP and HTTP, redundant firmware to avoid upgrade failure
- CLI, Web-based management, SNMP v1/v2c/v3, SSH for management
- EN50121-4, EN61000-6-2, EN61000-6-4, CE, FCC Certified

Access to Command Line Interface (CLI)

IQS-402XSM-4PH models are managed Gigabit PoE switch devices. Initial configuration (assignment of IP address) may be accomplished via RJ45 Ethernet port running Telnet or SSH.

Accessing the switch via Ethernet port allows the user to use Command Line Interface (CLI) to manage and configure the device. This management method is relatively useful when the IP address is known or is factory default. In most configuration scenarios, the device may only be accessed via working TCP/IP. See below for useful information for accessing the device via Telnet/SSH connection.

Telnet/SSH Connection

To use Command Line Interface (CLI), you can choose to access the device through a Telnet/SSH connection via TCP/IP network over Ethernet ports. For initial operation, use the default TCP/IP settings (10.1.1.1) to login to the device.

Default TCP/IP settings:

IP Address: 10.1.1.1
Subnet Mask: 255.255.255.0
Username: admin
Password: No password (Press "Enter" key)

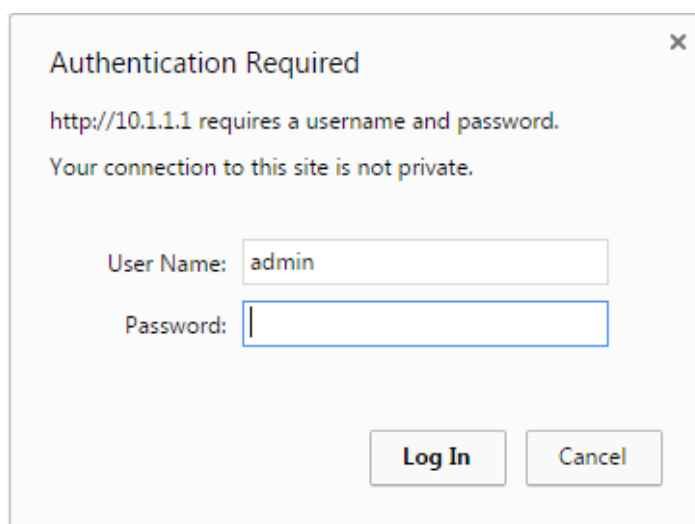
To change the default IP address to your desired one (for example, 192.168.0.10/24), issue the following commands:

```
#
# config terminal
(config)# interface vlan 1
(config-if-vlan)# ip address 192.168.0.10 255.255.255.0
```

Once the desired IP address has been configured, a web browser can be accessed and used to configure the device through a more easy-to-use GUI (graphical user interface). For complete CLI operation, please refer to the operation manual.

Access to Web-Based Management Interface

To enter the web-based management interface for the first time or after returning the device back to factory defaults, input the default IP address “**10.1.1.1**” in your web browser. Then, a standard login prompt will appear depending on the type of browser used. The example below is with Firefox browser.



Authentication Required

http://10.1.1.1 requires a username and password.
Your connection to this site is not private.

User Name:

Password:

Enter the factory default username “**admin**” with **no password**. After successfully entering the web based management, the Port State page will appear. For complete Web GUI operation, please refer to the operation manual.

Specifications

Ethernet Interface

- Standards: IEEE802.3 (10Base-T), 802.3u (100Base-TX), 802.3ab (1000Base-T), 802.3bz (2.5GBase-T)
- RJ-45 (shielded) Ports: 4 ports
- Speed: 10M/100M/1000M/2.5G (Auto)

Optical

- Standards: 802.3z (1000Base-X) , 802.3cb (2.5GBase-X), 802.3ae (10Gbits Ethernet over Fiber)
- SFP-Based Slots: 2 slots (Support DDMI)
- Speed: 100M/1G/2.5G/10G

Switch Features

- Store & Forward Switch
- Supports IEEE802.3x Flow Control
- Auto MDI/MDI-X
- Duplex: Full/Half (Auto-negotiation per IEEE802.3u)
- Switching Fabric: 60Gbps (Non-blocking), Full wire speed
- Memory Buffer: 512K Bytes
- MAC Table: 8K
- MTU: 9600 bytes

Power over Ethernet

- 4 x PoE/PoE+ ports, End Span Alternate A Mode
- Supports IEEE802.3af 15.4watts PoE per port
- Supports IEEE802.3at 30watts PoE+ per port
- Maximum 120W total PoE output power budget (30W per port)
- Positive (V+) pins 1,2; Negative (V-) pins 3,6; Data 1, 2, 3, 6, 4, 5, 7, 8

Mechanical

- Water & Dust Proof: IP30 Protection
- Dimensions: 127.6mm (D) x 48.6 mm (W) x 160 mm (H)
- Mounting: DIN-Rail, Wall Mount (Optional)
- Weight: 1,535 g

Power

- Redundant dual 48VDC (44~57VDC) power inputs
- 50~57VDC power input is recommended for IEEE802.3at PoE+ 30W applications
- Support Power Input Reverse Polarity Protection
- Support Dual Power Inputs
- Support Removable Terminal Block
- Consumption:

Input Voltage	Total Power Consumption	Device Power Consumption	PoE Power Budget
50VDC	139.4W	14W	120W

Environmental

- Operating Temperature: -10°C~60°C
- Storage Temperature: -40°C~85°C
- Humidity: 5%~95% (Non-condensing)

Certifications

- EMC: CE (EN55032, EN55035)
- EMI (Electromagnetic Interference): FCC Part 15 Subpart B Class A, CE
- Railway Traffic: EN50121-4
- Immunity for Heavy Industrial Environment: EN61000-6-2
- Emission for Heavy Industrial Environment: EN61000-6-4
- EMS (Electromagnetic Susceptibility) Protection Level:
 - EN61000-4-2 (ESD) Level 3, Criteria B
 - EN61000-4-3 (RS) Level 3, Criteria A
 - EN61000-4-4 (Burst) Level 3, Criteria A
 - EN61000-4-5 (Surge) Level 3, Criteria B
 - EN61000-4-6 (CS) Level 3, Criteria A
 - EN61000-4-8 (PFMF, Magnetic Field) Field Strength: 300A/m, Criteria A
- Safety: EN62368-1 (Pending)
- Shock: IEC 60068-2-27
- Freefall: IEC 60068-2-31
- Vibration: IEC 60068-2-6

MTBF (MIL-HDBK-217)

- 531,055 Hours

Panels

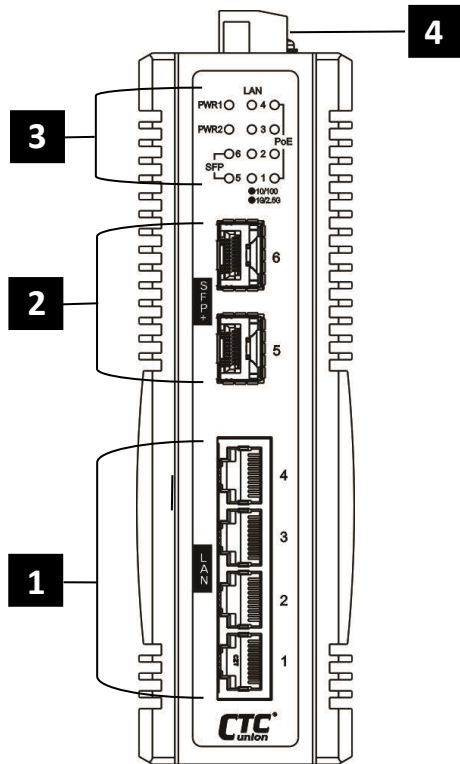


Figure 1. Front Panel

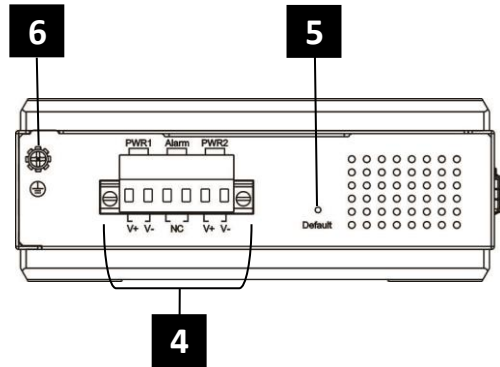


Figure 2. Top Panel

No.	Description
1	10M/100M/1G/2.5G RJ-45 ports (Support PoE function)
2	1G/2.5G/10G SFP+ slots
3	Power, LAN, Fiber & PoE LED indicators
4	Terminal block for power and alarm connection
5	Reset-to-default push button
6	Earth grounding connection

LAN and Fiber Ports

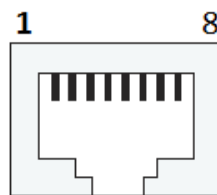
IQS-402XSM-4PH models have 4 LAN ports (labeled 1~4) and 2 fiber ports (SFP+ based, labeled Fiber 5~6) on the front panel. The LAN ports that utilize shielded RJ-45 connectors support 10M/100M/1G/2.5G; while the fiber SFP ports support 100M/1G/2.5G/10G.

PoE Ports

All 4 LAN ports support PoE (Power over Ethernet) per IEEE802.3af (15.4W) or IEEE802.3at (30W) for connection to standard PoE PD (Power Devices) such as IP Cameras, Access Points, IP Phones, Digital Signage, etc. PoE eliminates the need to run separate power to these devices thereby simplifying deployment and reducing expenses.

The LAN ports may also connect to any non-PoE device for normal Ethernet transmission without any damage to the non-PoE device or to this device.

RJ-45 Ethernet Port Pinouts



RJ-45 Ethernet & PoE Pin Assignments

Pin No.	RJ-45 Ethernet		PoE Output
	100Base-TX	1000Base-T	
1	RX+	TRD 0+	V+
2	RX-	TRD 0-	V+
3	TX+	TRD 1+	V-
4	-	TRD 2+	
5	-	TRD 2-	
6	TX-	TRD 1-	V-
7	-	TRD 3+	
8	-	TRD 3-	

Recommended Power, Alarm, Ground Wiring Scheme

DC Power Connection

A removable terminal block on the top panel provides both power and alarm connections. Power can be provided through the dual inputs from separate sources (PWR1 & PWR2). One power supply is enough to power up the device. If two power supplies are used, the device provides power redundancy function. See the figure provided below for recommended DC power wiring scheme.

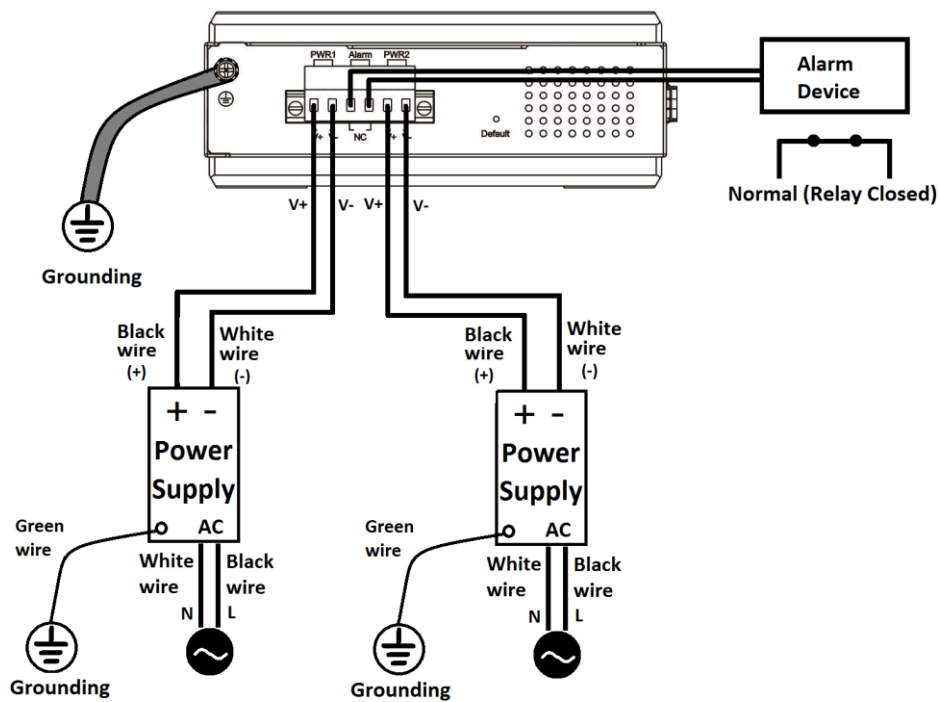


Figure 3. DC Power Connection

Alarm Relay Connection

The alarm relay contact can be wired into an alarm circuit which senses an alarm condition when the contact is broken. The alarm relay is normally closed when there is no alarm condition. The alarm conditions are user programmable through management to include power, link faults or other fault conditions. Please note that the alarm relay contact can only support 1A current at 24VDC. Do not apply voltage and current that exceed these specifications.

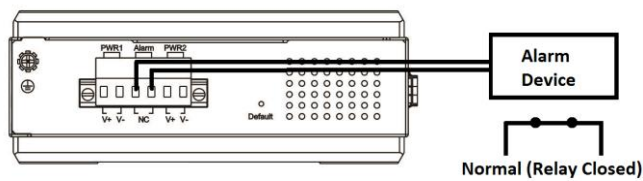


Figure 4. Alarm Relay Wiring

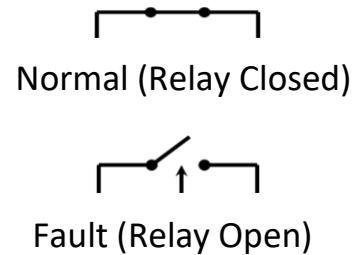


Figure 5. Alarm Relay Circuit

Earth Ground Connection

An earth ground connector is provided on the top panel with an earth ground sign next to it. Grounding the device can help to release leakage of electricity to the earth safely so as to reduce injuries from electromagnetic interference (EMI).

Prior to connecting to the power, it is important to connect the ground wire to the earth. Follow steps below to install ground wire:

1. Loosen or remove the grounding screw.
2. Attach the grounding screw to the ring-type or fork-type terminal of the grounding cable. Make sure that the grounding cable is long enough to reach the earth.
3. Use a screwdriver to fasten the grounding screw.

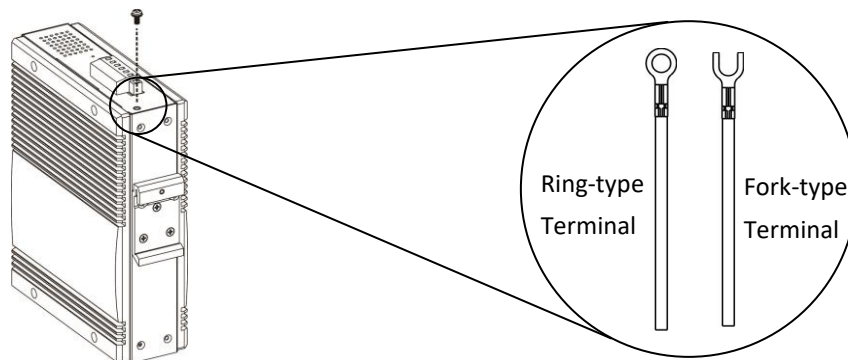


Figure 6. Grounding Connection

Figure 7. Grounding Cable Type

LED Indicators

LED	Color	Status	Meaning
PWR	Green	On	The switch is receiving power.
		Off	The switch does not receive power or is in standby mode.
LAN 1~4	Amber	On	When the LAN port is up and operating at 1G or 2.5G.
		Blinking	The LAN port is receiving and transmitting traffic.
		Off	The LAN port link is down.
	Green	On	When the LAN port is up and operating at 10M or 100M.
		Blinking	The LAN port is receiving and transmitting traffic.
		Off	The LAN port link is down.
PoE 1~4	Green	On	The respective LAN port has successfully negotiated PoE and is supplying output power to the remote connected PD.
		Blinking	One of the PoE faults (overload, short circuit, port failure at startup) occurs.
		Off	PD is not connected or output power is not provided.
SFP+ 5~6	Green	On	The fiber port link is up.
		Blinking	The fiber port is receiving and transmitting traffic.
		Off	The fiber port link is down.

Reset Push-Button

The "Reset" push-button provides the following two functions:

Function	Press and hold for~	LED Status	Description
Reboot	1~6 seconds	PWR LED blinks	Using a ball-point pen, press the "Reset" button and hold for 1~6 seconds (less than 6 seconds) then release. The switch will clear all unsaved settings and restart.
Reset to factory defaults	> 6 seconds	PWR LED blinks rapidly	Using a ball-point pen, press the "Reset" button and hold for 6 seconds or longer then release to set running configurations to factory defaults, including the original factory default IP address. If the IP address of the switch is unknown, it may be necessary to do a factory default reset. The IP address will then be the known default.

Installation

The switch can be mounted on the wall or installed in DIN rail depending on your installation needs. When installing the wall-mounting bracket (optional accessory) and DIN rail bracket, be sure to correctly align the orientation pin.

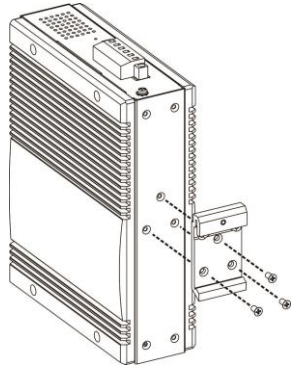


Figure 8. DIN Rail

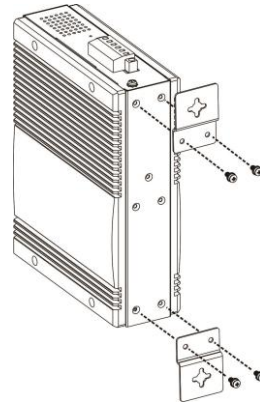


Figure 9. Wall Mount

The switch with DIN Rail bracket has a steel spring in the upper rail of the bracket. This spring is compressed for mounting and un-mounting by applying downward force.

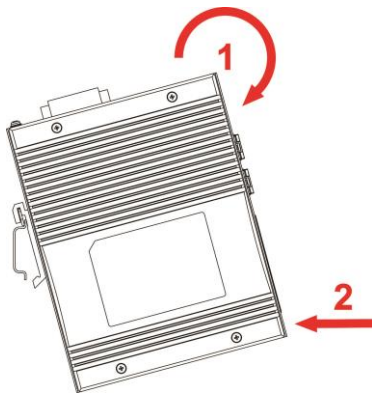


Figure 10. Mounting

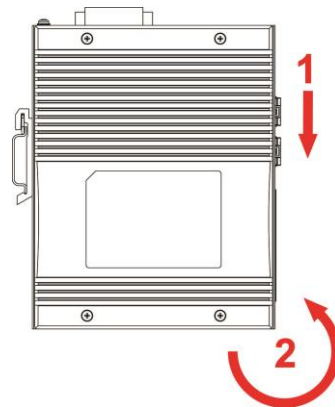


Figure 11. Un-mounting

