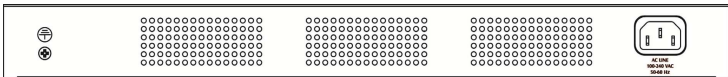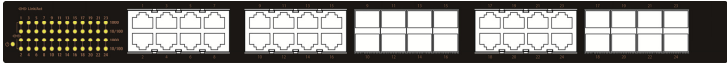# Quick Start Guide

This quick start guide describes how to install and use the Industrial Gigabit Ethernet Switch. This is the switch of choice for harsh environments.

Functional Description

- 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX.
- Supports 8192 MAC addresses. Provides 512KB buffer memory.
- None-blocking architecture and full wire-speed forwarding rate.
- Supports IEEE802.3x Flow Control for Full-duplex and Back Pressure for Half-duplex.
- Supports IEEE802.3az Energy Efficient Ethernet (EEE) standards on copper ports.
- Supports Quality of Service (QoS) based on layer 2 priorities.
- Jumbo frame supports up to 16379 Bytes.
- 100~240VAC, 50~60Hz internal universal PSU.
- -10°C to 60°C (14°F to 140°F) operating temperature range.
- Supports Rack Mounting installation.

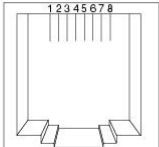# Physical Description

The Port Status LEDs and Power Inputs

LED	State	Indication
Power	Steady	Power on.
	Off	Power off.
10/100/1000Base-TX / SFP Ports		
Link/Act 10/100Base (Green)	Steady	A valid network connection established at 10/100Mbps.
	Flashing	Transmitting or receiving data. Act stands for Activity.
	Off	No valid network connection established.
Link/Act 1000Base (Green)	Steady	A valid network connection established at 1000Mbps.
	Flashing	Transmitting or receiving data. Act stands for Activity.
	Off	No valid network connection established.

The 10/100/1000Base-TX and Gigabit SFP Connectors

• **The 10/100/1000Base-TX Connections**
The following lists the pinouts of 10/100/1000Base-TX ports.

Pin	Label
1	TP0+
2	TP0-
3	TP1+
4	TP2+
5	TP2-
6	TP1-
7	TP3+
8	TP3-

1 2 3 4 5 6 7 8

Pin	Signal Name	Signal Definition
1	TP0+	Transmit and Receive Data 0 +
2	TP0−	Transmit and Receive Data 0 −
3	TP1+	Transmit and Receive Data 1 +
4	TP2+	Transmit and Receive Data 2 +
5	TP2−	Transmit and Receive Data 2 −
6	TP1−	Transmit and Receive Data 1 −
7	TP3+	Transmit and Receive Data 3 +
8	TP3−	Transmit and Receive Data 3 −

• **The SFP Socket Connections**

The SFP socket for SFP optic modules.

Preface

A member of the growing family of rugged switches, this Industrial Gigabit Ethernet Switch provides an affordable solution for rugged and outdoor environment, transportation road-side cabinet, industrial floor shop, multitenant dwellings or Fiber To The Home (FTTH) applications. Capable of operating at temperature extremes of -10°C to +60°C, this is the switch of choice for harsh environments.

Port 9 to port 24 on this Switch supports 16-port combo SFP slots. This manual describes how to install and use the Industrial Gigabit Ethernet Switch. This switch integrates full wire speed switching technology. This switch brings the answer to complicated hardened networking environments.

To get the most out of this manual, you should have an understanding of Ethernet networking concepts.
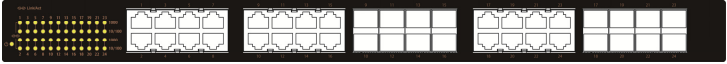
In this manual, you will find:

- Features on the switch
- Illustrative LED functions
- Installation instructions
- Specifications

Table of Contents

Product Overview

Industrial Gigabit Ethernet Switch

Package Contents

When you unpack the product package, you shall find the items listed below. Please inspect the contents, and report any apparent damage or missing items immediately to your authorized reseller.

✓   ***This Switch***
✓   ***User's Manual***

Product Highlights

Basic Features

- 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX.
- Supports 8192 MAC addresses. Provides 512KB buffer memory.
- None-blocking architecture and full wire-speed forwarding rate.
- Supports IEEE802.3x Flow Control for Full-duplex and Back Pressure for Half-duplex.
- Supports IEEE802.3az Energy Efficient Ethernet (EEE) standards on copper ports.
- Supports Quality of Service (QoS) based on layer 2 priorities.
  - 802.1Q VLAN Tag Based Priority, Class of Service.
  - Output Queue Schedule Mode: Weighted Round Robin (WRR) with 2 priority queues.
  - The configurations of QoS are as below:

CoS Field Value	Packet Count	Priority
0, 1, 2, 3	1	Low
4, 5, 6, 7	2	High

- Jumbo frame supports up to 16379 Bytes.
- 100~240VAC, 50~60Hz internal universal PSU.
- -10°C to 60°C (14°F to 140°F) operating temperature range.
- Supports Rack Mounting installation.

Front Panel Display
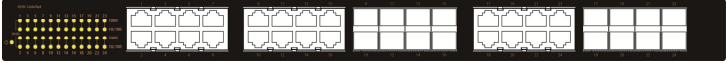
Status LEDs

LED	State	Indication
Power	Steady	Power on.
	Off	Power off.
10/100/1000Base-TX / SFP Ports		
Link/Act 10/100Base (Green)	Steady	A valid network connection established at 10/100Mbps.
	Flashing	Transmitting or receiving data. Act stands for Activity.
	Off	No valid network connection established.
Link/Act 1000Base (Green)	Steady	A valid network connection established at 1000Mbps.
	Flashing	Transmitting or receiving data. Act stands for Activity.
	Off	No valid network connection established.

Physical Ports

This switch series provides:
24-port Industrial Gigabit Ethernet Switch with 16-port combo SFP slots.

Connectivity:
- RJ-45 connectors.
- SFP socket connection on 1000Base-SX/LX/BX fiber ports.

Installation

This chapter gives step-by-step instructions about how to install the switch:

Selecting a Site for the Switch

As with any electric device, you should place the switch where it will not be subjected to extreme temperatures, humidity, or electromagnetic interference. Specifically, the site you select should meet the following requirements:

- The ambient temperature should be between -10 to 60 degrees Celsius.
- The relative humidity should be less than 95 percent, non-condensing.
- Surrounding electrical devices should not exceed the electromagnetic field (RFC) standards.
- Make sure that the switch receives adequate ventilation. Do not block the ventilation holes on each side of the switch
- The power outlet should be within 1.8 meters of the switch.

Connecting to Power

AC Inlet Power Socket

Connect the supplied AC power cord to the receptacle on the back of the switch, and then plug it into a standard AC outlet with a voltage range from 100 to 240 VAC.
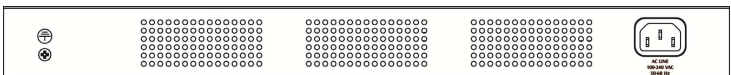
Connecting to Your Network

Cable Type & Length

It is necessary to follow the cable specifications below when connecting the switch to your network. Use appropriate cables that meet your speed and cabling requirements.

Cable Specifications

Speed	Connector	Port Speed Half/Full Duplex	Cable	Max. Distance
10Base-T	RJ-45	10/20 Mbps	4-pair UTP/STP Cat. 3, 4, 5	100 m
100Base-TX	RJ-45	100/200 Mbps	4-pair UTP/STP Cat. 5	100 m
1000Base-T	RJ-45	2000 Mbps	4-pair UTP/STP Cat. 5	100 m
SFP				
1000Base-SX	Duplex LC	2000 Mbps	MMF (50 or 62.5µm)	275 m, 550 m, 2 km
1000Base-LX	Duplex LC	2000 Mbps	SMF (9µm)	10, 20, 40, 70 km
1000Base-BX	Single LC	2000 Mbps	MMF (50 or 62.5µm)	550 m
1000Base-BX	Single LC	2000 Mbps	SMF (9µm)	10, 20 km

Cabling

Step 1:   First, ensure the power of the switch and end devices are turned off.

<Note>   Always ensure that the power is off before any installation.

Step 2:   Prepare cable with corresponding connectors for each type of port in use.

Step 3:   Consult the previous section for cabling requirements based on connectors and speed.

Step 4:   Connect one end of the cable to the switch and the other end to a desired device.

Step 5:   Once the connections between two end devices are made successfully, turn on the power and the switch is operational.

Specifications

Industrial Gigabit Ethernet Switch	24-port Industrial Gigabit Ethernet Switch with 16-port combo SFP slots
Applicable Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX IEEE 802.3ab 1000Base-T IEEE 802.3z 1000Base-SX/LX IEEE 802.1x Full-duplex Flow Control IEEE 802.1az Energy Efficient Ethernet IEEE 802.1p Quality of Service (QoS)
Switching Method	Store-and-Forward
Forwarding Rate **10Base-T:** **100Base-TX:** **1000Base-T/SX/LX:**	10 / 20Mbps half / full-duplex 100 / 200Mbps half / full-duplex 2000Mbps full-duplex
Performance	14,880pps for 10Mbps 148,810pps for 100Mbps 1,488,100pps for 1000Mbps
Cable **10Base-T:** **100Base-TX:** **1000Base-T:** **1000Base-SX/LX/BX:**	4-pair UTP/STP Cat. 3, 4, 5 4-pair UTP/STP Cat. 5 4-pair UTP/STP Cat. 5 Up to 100m (328ft) MMF (50 or 62.5μm), SMF (9 or 10μm)
LED Indicators	Per unit – Power Per port – Link/Act
Dimensions	440mm (W) × 210mm (D) × 44mm (H) (17.32" (W) × 8.19" (D) × 1.73" (H))
Net Weight	2.9Kg (6.4lbs.)
Power	100 – 240VAC, 50 – 60Hz Internal Universal PSU
Operating Temperature	-10°C to 60°C (14°F to 140°F)
Storage Temperature	-10°C to 70°C (14°F to 158°F)
Humidity	5%-95% non-condensing

| **Emission Compliance** | CE Mark Class A, FCC Part 15 Class A |