IES-0500

5 FE Unmanaged Switch -10 to 60, DIN-rail

User Manual

v1.00 - 1206

Preface

A member of the growing family of rugged switches, this switch addresses a need for a smaller switch. This 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 constrained by space.

Plug-and-Play Solution:
The switch is a plug-and-play Fast Ethernet Switch in compact size. It doesn't have any complicated software to set up.

This manual describes how to install and use the Industrial compact Ethernet Switch. This switch integrates full wire speed switching technology. This switch brings the answer to complicated Industrial 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

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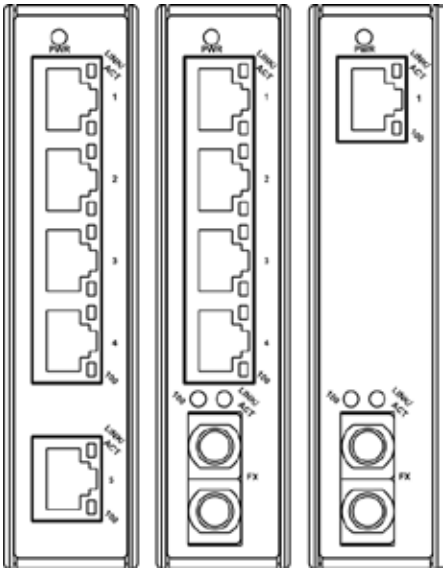
Product Overview

Industrial 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.

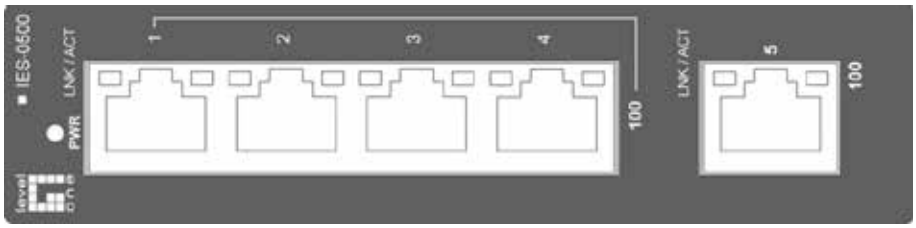
- IES-0500
  5 FE Unmanaged Switch -10 to 60, DIN-rail
- Quick Installation Guide
- CD User Manual

Product Highlights

Basic Features

- 5-port 10/100Base-TX, 4-port 10/100Base-TX plus 1-port 100Base-FX, or 1-port 10/100Base-TX plus 1-port 100Base-FX.
- Available in media converter format with 1-port 10/100Base-TX and 1-port 100Base-FX.
- Support IEEE802.3/802.3u/802.3X.
- Auto-negotiation: 10/100Mbps, Full/half-duplex; Auto MDI/MDIX.
- Support 2048 MAC addresses, 384K bits buffer memory.
- Store-and-forward mechanism.
- Full wire-speed forwarding rate and non-blocking mechanism.
- Broadcast storm filtering.
- Operating voltage and Max. current consumption: 0.2A @ 12VDC, 0.1A @ 24VDC, 0.05A @ 48VDC.
- Power consumption: 2.4W Max.
- Power Supply: DC Terminal Block power input, 12-48VDC with polarity protection.
- Plastic compact DIN-Rail Industrial case design.
- DIN-Rail mounting ability.

Front Panel Display



• **Power Status (PWR)**
This LED comes on when the switch is properly connected to power and turned on.

, **Port Status LEDs**
The LEDs display status for each respective port.

LED	State	Indication
10/100TX or 100FX		
LNK/ACT (Green)	Steady	A valid network connection established. LNK stands for LINK.
	Flashing	Transmitting or receiving data. ACT stands for ACTIVITY.
100 (Yellow)	Steady	Light solid yellow for a port transferring at 100Mbps.
	Off	The port is transferring at 10Mbps If this LED is dark.

Physical Ports

This switch provides:
Five 10/100Base-TX ports
Four 10/100Base-TX ports + one 100Base-FX port
One 10/100Base-TX port + one 100Base-FX port

Connectivity
RJ-45 connectors
SC or ST connector on 100Base-FX fiber port

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.

DIN Rail Mounting

Installation: Place the switch on the DIN rail from above using the slot. Push the front of the switch toward the mounting surface until it audibly snaps into place.

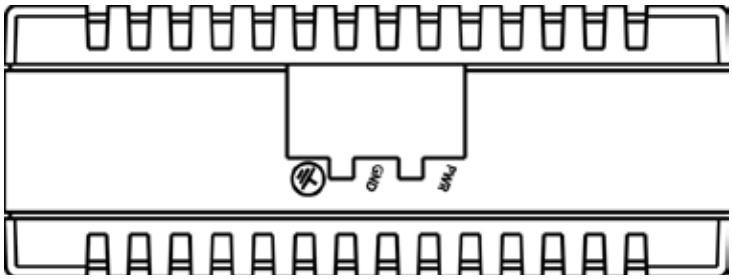
Removal: Pull out the lower edge and then remove the switch from the DIN rail.

Connecting to Power

DC Terminal Block Power Inputs

Step 1: Connect the DC power cord to the plug-able terminal block on the switch, and then plug it into a standard DC outlet.

Step 2: Disconnect the power cord if you want to shut down the switch.



The Terminal Block	
PWR	Power Input
GND	Power Ground
⏚	Earth Ground

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	2-pair UTP/STP Cat. 3, 4, 5	100 m
100Base-TX	RJ-45	100/200 Mbps	2-pair UTP/STP Cat. 5	100 m
100Base-FX	SC, ST	100/200 Mbps	MMF (50 or 62.5µm)	2 km
100Base-FX	SC, ST	100/200 Mbps	SMF (9 or 10µm)	15, 40, or 75 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.

<Note> To connect two regular RJ-45 ports between switches or hubs, you need a straight or cross-over cable.

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

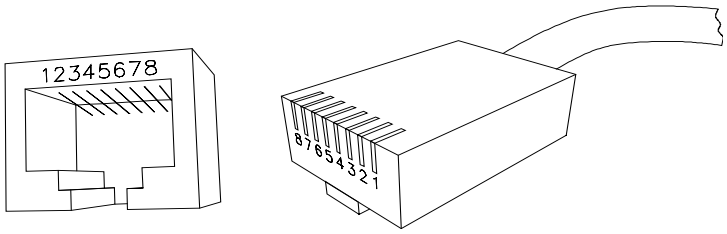
Step 4: Connect one end of the cable to the switch and the other end to a desired device.

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

Specifications

Industrial Compact Switch	10/100Base-TX auto-negotiating ports with RJ-45 connectors, 100Base-FX fiber ports
Applicable Standards	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX/FX
Switching Method	Store-and-Forward
Forwarding Rate 10Base-T: 100Base-TX/FX:	 10 / 20Mbps half / full-duplex 100 / 200Mbps half / full-duplex
Performance	148,80pps for 10Mbps 148,810pps for 100Mbps
Cable 10Base-T: 100Base-TX: 100Base-FX:	 2-pair UTP/STP Cat. 3, 4, 5 2-pair UTP/STP Cat. 5 Up to 100m (328ft) MMF (50 or 62.5μm), SMF (9 or10μm)
LED Indicators	Per unit – Power status (PWR) Per port – 10/100TX or 100FX - LNK/ACT (Green), 100 (Yellow)
Dimensions	26mm (W) × 70mm (D) × 110mm (H) (1.02" (W) × 2.76" (D) × 4.33" (H))
Net Weight	0.2Kg (0.44lb.)
Power	Terminal Block: 12-48VDC
Operating Voltage & Max. Current Consumption	0.2A @ 12VDC, 0.1A @ 24VDC, 0.05A @ 48VDC
Power Consumption	2.4W Max.
Operating Temperature	-10°C to 60°C (14°F to 140°F)
Storage Temperature	-25°C to 85°C (-13°F to 185°F)
Humidity	5%-95% non-condensing
Safety	UL60950-1, EN60950-1, IEC60950-1
EMI	FCC Part 15, Class A EN61000-6-3: EN55022, EN61000-3-2, EN61000-3-3
EMS	EN61000-6-2: EN61000-4-2 (ESD Standard) EN61000-4-3 (Radiated RFI Standards) EN61000-4-4 (Burst Standards) EN61000-4-5 (Surge Standards) EN61000-4-6 (Induced RFI Standards) EN61000-4-8 (Magnetic Field Standards) EN61000-4-11 (Voltage Dips Standards)
Environmental Test Compliance	IEC60068-2-6 Fc (Vibration Resistance) IEC60068-2-27 Ea (Shock) IEC60068-2-32 Ed (Free Fall)

Appendix A – Connector Pinouts



RJ-45 Connector and Cable Pins

The following table lists the pinout of 10/100Base-TX ports.

Pin	Regular Ports	Uplink port
1	Output Transmit Data +	Input Receive Data +
2	Output Transmit Data -	Input Receive Data -
3	Input Receive Data +	Output Transmit Data +
4	NC	NC
5	NC	NC
6	Input Receive Data -	Output Transmit Data -
7	NC	NC
8	NC	NC