



# IES-0910

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8 FE + 1 MM SC Unmanaged Switch -20 to 60, DIN-rail

## User Manual

# 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 -20°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 hardened 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

<b>PREFACE .....</b>	<b>2</b>
<b>PRODUCT OVERVIEW .....</b>	<b>4</b>
HARDENED ETHERNET SWITCH .....	4
PACKAGE CONTENTS .....	4
PRODUCT HIGHLIGHTS.....	5
FRONT PANEL DISPLAY.....	6
<b>INSTALLATION.....</b>	<b>7</b>
SELECTING A SITE FOR THE SWITCH.....	7
DIN RAIL MOUNTING .....	8
CONNECTING TO POWER.....	9
CONNECTING TO YOUR NETWORK .....	11
<b>SPECIFICATIONS.....</b>	<b>12</b>
<b>APPENDIX A – CONNECTOR PINOUTS.....</b>	<b>13</b>

# Product Overview

## Hardened 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-0910  
8 FE + 1 MM SC Unmanaged Switch -20 to 60, DIN-rail
- Quick Installation Guide
- CD User Manual

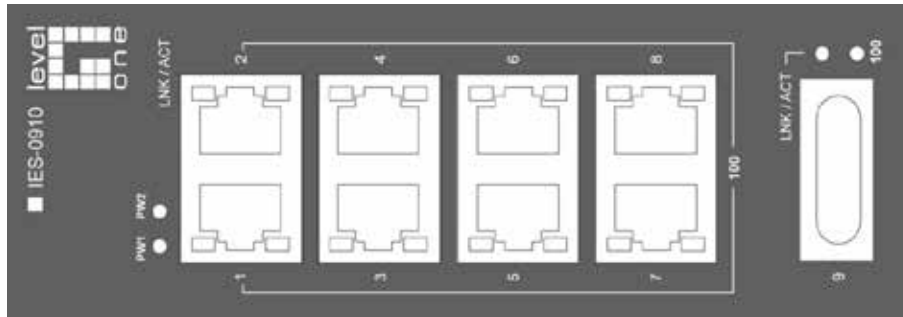
# Product Highlights

## Basic Features

- Meets IEC61000-6-2 EMC Generic Standard Immunity for industrial environment.
- Support 802.3/802.3u/802.3X.
- Auto-negotiation: 10/100Mbps, Full/half-duplex; Auto MDI/MDIX.
- Support 2048 MAC addresses.
- Provides 768K bits memory buffer.
- Alarms for power failure by relay output.
- Operating voltage and Max. current consumption: 1.1A @ 12VDC, 0.55A @ 24VDC.
- Power consumption: 13.2W Max.
- Power Supply: Redundant DC Terminal Block power inputs or 12VDC DC JACK with 100-240VAC external power supply.
- Supports DIN-Rail, Panel, or Rack Mounting installation.

# Front Panel Display

## Basic Features



- **Power Status (PW1, PW2)**

These LEDs come on when the switch is properly connected to power and turned on.

- **Port Status LEDs**

The LEDs display status for each respective port.

LED	Status	Description
PW 1,2 (Green)	Steady	Power On
	Off	Power Off
<b>10/100Base-TX or 100Base-FX/BX</b>		
LNK/ACT (Green)	Steady	Network connection is established
	Flashing	Transmitting or Receiving data
100 (Yellow)	Steady	Connection at 100Mbps speed
	Off	Connection at 10Mbps speed

### Physical Ports

This switch provides:

Eight 10/100Base-TX ports

Eight 10/100Base-TX ports + one 100Base-FX port

Six 10/100Base-TX ports + two 100Base-FX ports

Four 10/100Base-TX ports + four 100Base-FX ports

### Connectivity

RJ-45 connector

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:

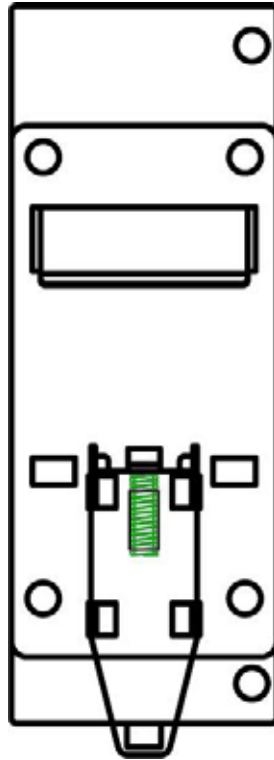
- The ambient temperature should be between -20 to 60 degrees Celsius.
- The relative humidity should be less than 95 percent, non-condensing.
- Surrounding electrical devices should not exceed the electromagnetic field (RF) standards.
- Make sure that the switch receives adequate ventilation. Do not 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

Fix the DIN rail attachment plate to the back panel of the switch.

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

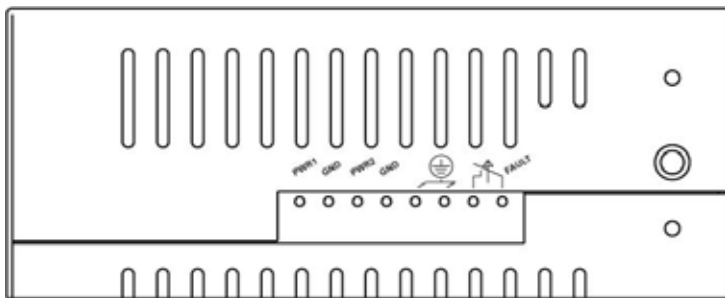
Redundant DC Terminal Block Power Inputs or 12VDC DC Jack (Optional):

## Redundant DC Terminal Block Power Inputs

There are two pairs of power inputs can be used to power up this device. You only need to have one power input connected to run the switch.

**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.

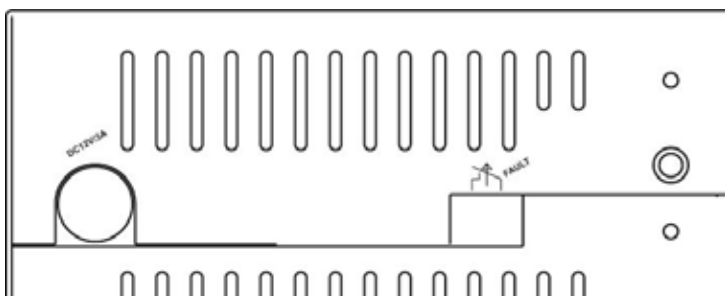
**Step 2:** Disconnect the power cord if you want to shut down the switch.



## 12VDC DC Jack (Optional)



**Step 1:** Connect the supplied AC to DC power adapter to the receptacle on the topside of the switch.

**Step 2:** Connect the power cord to the AC to DC power adapter and attach the plug into a standard AC outlet with the appropriate AC voltage.



## Alarms for Power Failure

Step 1: There are two pins on the terminal block are used for power failure detection. It provides the normally closed output when the power source is active. Use this as a dry contact application to send a signal for power failure detection.

Terminal Block	PW1	+	12 – 30VDC
		-	Power Ground
	PW2	+	12 – 30VDC
		-	Power Ground
		<b>Earth Ground</b>	
		<b>Relay Output</b>	1A @ 12 - 30VDC
			1. The relay contact opens if Power1 or Power2 falls

### Special note:

**The relay output is normal open position when there is no power to the switch. Please do not connect any power source to this terminal to prevent the shortage to your power supply.**

# 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	ST, SC	200 Mbps	MMF (62.5µm)	2 km
100Base-FX	ST, SC	200 Mbps	SMF (9 or 10µm)	20, 40, 75, 100 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.

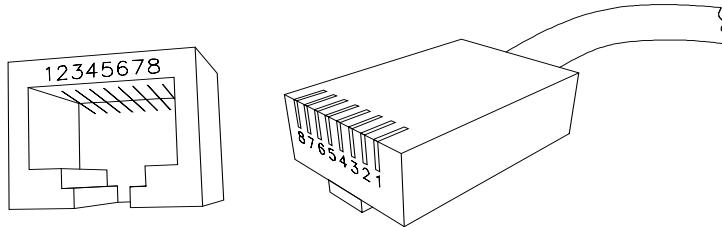
**Step 5:** Once the connections between two end devices are made successfully, turn on the power and the switch is operational.

# Specifications

Hardened Ethernet 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:	10 / 20Mbps half / full-duplex
100Base-TX/FX:	100 / 200Mbps half / full-duplex
Performance	148,80pps for 10Mbps 148,810pps for 100Mbps
Cable	
10Base-T:	2-pair UTP/STP Cat. 3, 4, 5
100Base-TX:	2-pair UTP/STP Cat. 5 Up to 100m (328ft)
100Base-FX:	MMF (50 or 62.5µm), SMF (9 or 10µm)
LED Indicators	Per unit – Power status (PWR1, PWR2) Per port – 10/100TX or 100FX – LNK/ACT (Green), 100 (Yellow)
Dimensions	50mm (W) × 125mm (D) × 135mm (H) (1.97" (W) × 4.92" (D) × 5.31" (H))
Net Weight	0.8Kg (1.76lbs.)
Power	DC Jack: 12VDC, External AC/DC required Terminal Block: 12-30VDC
Operating Voltage & Max. Current Consumption	1.1A @ 12VDC, 0.55A @ 24VDC
Power Consumption	13.2W Max.
Operating Temperature	-20°C to 60°C (-4°F to 140°F)
Storage Temperature	-40°C to 85°C (-40°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

Pin arrangement of RJ-45 connectors:



## RJ-45 Connector and Cable Pins

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

Pin	Standard Port	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