



# IES-1610

## 16 FE Unmanaged Switch -10 to 60, DIN-rail

### Overview

LevelOne IES-1610 Industry Ethernet Switch provides 16 ports of 10/100Base-TX Ethernet to enable high speed network at mission-critical environment. This device is designed to be mounted on an industry standard DIN-rail, plus the clearly visible status LEDs provide simple monitoring of port link activity.

### Cost Effective

This device operates under -10 to 60 Celsius (-14 to 140 Fahrenheit) temperature that offers optimal suitability for industrial applications at low cost while maintaining all components built to withstand harsh environment applications without compromise reliability and stability.

### Reliability

Rugged IP30 rated metal housing is designed for industrial applications. With protection against ingress of dirt and solid metal housing to ensure a long-last operating life under harsh environments.

### Redundancy

This redundant power system is designed to meet the challenge of power failure to ensure reliability and constant availability. Single power design works fine in non-critical network applications, but it falls short drastically for network applications in transportation, automate production or banking.

### Safety

This device has been tested under UL508 standard for Industrial Control Equipment to endurance under test turn on and off 6,000 times while loaded, with no single failure. It's highly reliability and safety measurement to ensure field hardened, especially for the harsh environment.

### Plug & Play

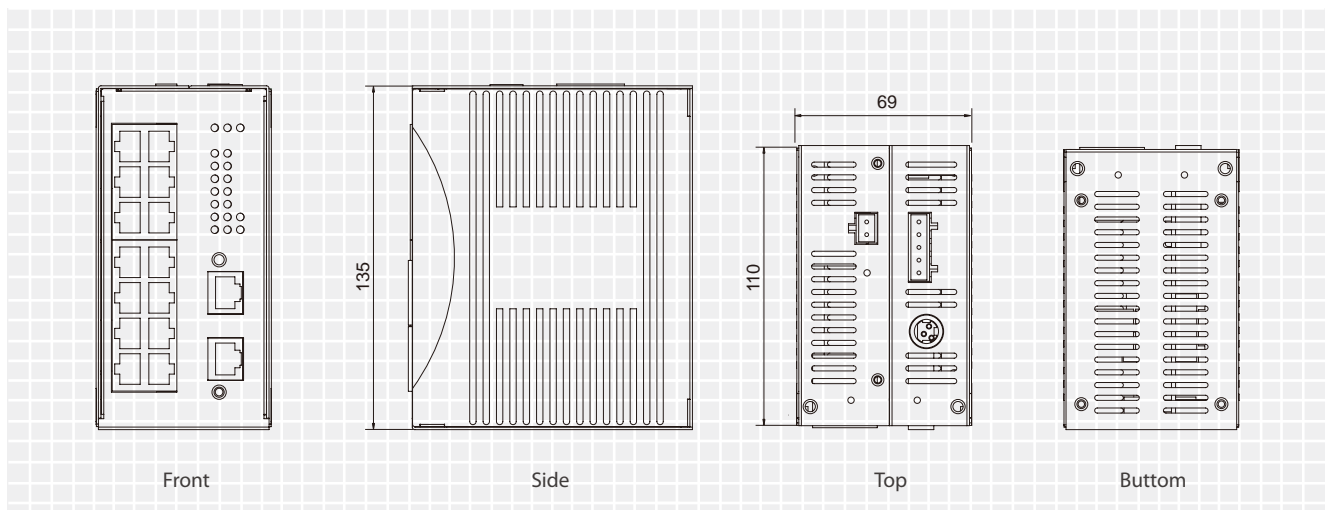
This unmanaged Industrial Ethernet Switch is designed for the demanding industrial environments at businesses in need of instant connectivity with no setup or configure required, truly plug and play.

## Features

- Provides flexibility of 16 10/100BASE-TX ports
- Supports 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Redundant power inputs (12 - 48VDC) with Terminal Block and DC Jack (12VDC)
- Alarms for power failure by relay output
- -10°C to 60°C (14°F to 140°F) and is tested for functional operation @ -20°C to 70°C (-4°F to 158°F)
- Provides DIN-rail, panel or rack mounting
- Complies with IEC61000-6-2 EMC Generic standard immunity for Industrial environment

## Diagrams

Unit: mm



## Specifications

| Technology                 |  |
|----------------------------|--|
| Standards                  | <ul style="list-style-type: none"> <li>IEEE802.3 10BASE-T, IEEE802.3u 100BASE-TX/100BASE-FX, IEEE802.3x</li> </ul>                             |
| Forward and Filtering Rate | <ul style="list-style-type: none"> <li>14,880pps for 10Mbps</li> <li>148,810pps for 100Mbps</li> </ul>   |
| Packet Buffer Memory       | <ul style="list-style-type: none"> <li>1.625M bits</li> </ul>  |
| Processing Type            | <ul style="list-style-type: none"> <li>Store-and-Forward</li> <li>Half-duplex back-pressure and IEEE802.3x full-duplex flow control</li> </ul> |
| Address Table Size         | <ul style="list-style-type: none"> <li>4096 MAC addresses</li> </ul>   |
| Latency                    | <ul style="list-style-type: none"> <li>Less than 10µs</li> </ul>   |

| Power                       |  |
|-----------------------------|--|
| Input                       | <ul style="list-style-type: none"> <li>Input Voltage: 12 to 48VDC (Terminal Block); 12VDC (DC Jack)</li> </ul> |
| Power Consumption           | <ul style="list-style-type: none"> <li>7.4W Max. 0.6A @ 12VDC, 0.3A @ 24VDC, 0.15A @ 48VDC</li> </ul>          |
| Overload Current Protection | <ul style="list-style-type: none"> <li>Present</li> </ul>  |
| Reverse Polarity Protection | <ul style="list-style-type: none"> <li>Present</li> </ul>  |

| Mechanical   |  |
|--------------|--|
| Casing       | <ul style="list-style-type: none"> <li>Metal case</li> <li>IP30</li> </ul>   |
| Dimensions   | <ul style="list-style-type: none"> <li>69mm (W) x 110mm (D) x 135mm (H) (2.72" (W) x 4.33" (D) x 5.31" (H))</li> </ul> |
| Weight       | <ul style="list-style-type: none"> <li>0.87Kg (1.92lbs.)</li> </ul>  |
| Installation | <ul style="list-style-type: none"> <li>DIN-Rail (Top hat type 35mm), Panel, Rack Mounting</li> </ul>                   |

| Interface      |  |
|----------------|--|
| Ethernet Port  | <ul style="list-style-type: none"> <li>10/100BASE-TX: 16, 15 or 14 ports</li> <li>100BASE-FX: 0, 1 or 2 ports</li> </ul>                               |
| LED Indicators | <ul style="list-style-type: none"> <li>Per Unit: Power Status (Power 1, Power 2, Power 3)</li> <li>Per Port: 10/100TX, 100FX: Link/Activity</li> </ul> |
| Alarm Contact  | <ul style="list-style-type: none"> <li>One relay output with current 1A @ 24VDC</li> </ul>   |

| Environment               |   |
|---------------------------|---|
| Operating Temperature     | <ul style="list-style-type: none"> <li>-10°C to 60°C (14°F to 140°F)</li> <li>Tested @ -20°C to 70°C (-4°F to 158°F)</li> </ul> |
| Storage Temperature       | <ul style="list-style-type: none"> <li>-40°C to 85°C (-40°F to 185°F)</li> </ul>  |
| Ambient Relative Humidity | <ul style="list-style-type: none"> <li>5% to 95% (non-condensing)</li> </ul>  |
| MTBF                      | <ul style="list-style-type: none"> <li>72.62 years</li> </ul>   |

| Regulatory Approvals          |   |
|-------------------------------|---|
| ISO                           | <ul style="list-style-type: none"> <li>Manufactured in an ISO9001 facility</li> </ul>   |
| Safety                        | <ul style="list-style-type: none"> <li>UL508</li> </ul>   |
| EMI                           | <ul style="list-style-type: none"> <li>FCC Part 15, Class A, VCCI</li> <li>EN61000-6-4 <ul style="list-style-type: none"> <li>EN55022</li> <li>EN61000-3-2</li> <li>EN61000-3-3</li> </ul> </li> </ul>  |
| EMS                           | <ul style="list-style-type: none"> <li>EN61000-6-2 <ul style="list-style-type: none"> <li>EN61000-4-2 (ESD Standards) <ul style="list-style-type: none"> <li>Contact: + / - 6KV; Criteria B</li> <li>Air: + / - 8KV; Criteria B</li> </ul> </li> <li>EN61000-4-3 (Radiated RFI Standards) <ul style="list-style-type: none"> <li>10V/m, 80 to 1000MHz; 80% AM Criteria A</li> <li>3V/m, 1400 to 2000MHz; 80% AM Criteria A</li> <li>1V/m, 2000 to 2700MHz; 80% AM Criteria A</li> </ul> </li> <li>EN61000-4-4 (Burst Standards) <ul style="list-style-type: none"> <li>Signal Ports: + / - 4KV; Criteria B</li> <li>D.C. Power Ports: + / - 4KV; Criteria B</li> </ul> </li> <li>EN61000-4-5 (Surge Standards) <ul style="list-style-type: none"> <li>Signal Ports: + / - 1KV; Line-to-Line; Criteria B</li> <li>D.C. Power Ports: + / - 0.5KV; Line-to-Earth; Criteria B</li> </ul> </li> <li>EN61000-4-6 (Induced RFI Standards) <ul style="list-style-type: none"> <li>Signal Ports: 10Vrms @ 0.15 - 80MHz; 80% AM Criteria A</li> <li>D.C. Power Ports: 10Vrms @ 0.15 - 80MHz; 80% AM Criteria A</li> </ul> </li> <li>EN61000-4-8 (Magnetic Field Standards) <ul style="list-style-type: none"> <li>30A/m @ 50, 60Hz; Criteria A</li> </ul> </li> </ul> </li> </ul> |
| Environmental Test Compliance | <ul style="list-style-type: none"> <li>IEC60068-2-6 Fc (Vibration Resistance) <ul style="list-style-type: none"> <li>5g @ 10 - 150Hz, Amplitude 0.35mm (Operation/Storage/Transport)</li> </ul> </li> <li>IEC60068-2-27 Ea (Shock) <ul style="list-style-type: none"> <li>25g @ 11ms (Half-Sine Shock Pulse; Operation)</li> <li>50g @ 11ms (Half-Sine Shock Pulse; Storage/Transport)</li> </ul> </li> <li>IEC60068-2-32 Ed (Free Fall) <ul style="list-style-type: none"> <li>1M (3.281ft.)</li> </ul> </li> </ul>  |

## Order Information

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## Package Contents

IES-1610

Quick Installation Guide