



## IES-2892

### Modularized 24 10/100 + 4 GE Combo SFP Managed Switch -40 to 75C, IEC61850

#### Overview

LevelOne IES-2892 Industry Ethernet Switch offers flexible, modular platform that delivers the port densities and scalability. With the 1U height rack-mountable size, this switch can be easily installed in the cabinet, plus the clearly visible status LEDs provide simple monitoring of port link activity. Moreover, the SFP slots support pluggable modules that enabling you to choose from a variety of transceivers.

#### Management

It supports a variety of management features including: CLI via Console or Telnet; Graphic User Interface via Web Browser or Simple Network Management Protocol via SNMP tools. It provides better visibility and management of those critical assets.

#### Resilient Ring Network

Supports Ring topology network providing simple installation and ultra fast network recovery performance, less than 15ms. Unlike much complex resilient topology, such as a redundant star, the Ring simplifies the network design and requires less cabling installation. In addition, fast network recovery time helps minimize system downtime.

#### Features

- Complies with IEC61850-3/IEEE1613 for power substations & EN50121-4 for railway applications
- Supports  $\alpha$ -ring and RSTP/MSTP/STP for Ethernet redundancy and GOOSE Message
- Zero Packet Loss pass by GOOSE Message
- IP Multicast Filtering through IGMP Snooping V1, V2 & V3
- Port-based VLAN and IEEE802.1Q VLAN Tagging and GVRP
- IEEE802.1p QoS with four priority queues
- MAC-based trunking and LACP
- IEEE802.1x Security
- Bandwidth Rate Control

#### High Reliability

All components are built to withstand harsh environment applications without compromise where humidity, temperature variation and even shock vibration are concerns, including Electric & Utility, Critical Infrastructure, Transportation and Surveillance Security. This device operates under -40 to 75 Celsius (-40 to 167 Fahrenheit) temperature.

#### GOOSE Message

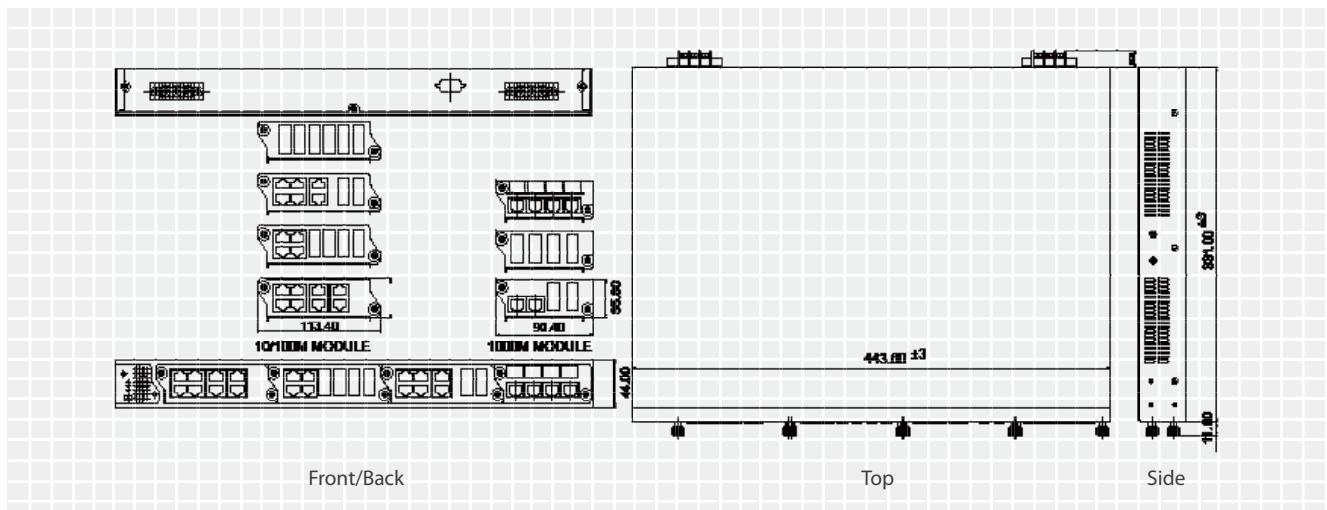
Critical GOOSE (Generic Object Oriented Substation Event) messages can be sent reliably using the multicast and prioritisation functionality within LevelOne Industrial switches. Moreover, the test was conducted by KEMA, a renown laboratory for testing and certification for substations.

#### Substation & Railway Applications

This device is complied with IEC 61850-3 / IEEE 1613 for the power substations and EN 50121-4 for the railway applications. IEC 61850-3 is an international standard for electrical substation systems. The standard enables integration of all control, measurement, monitoring and protection functions within a substation.

#### Diagrams

Unit: mm



## Specifications

| Technology                 |                                                                                                                                                                                                                              |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standards                  | <ul style="list-style-type: none"><li>IEEE802.3 10BASE-T, IEEE802.3u 100BASE-TX/100BASE-FX, IEEE802.3ab 1000BASE-T, IEEE802.3z 1000BASE-SX/1000BASE-LX, IEEE802.3x, IEEE802.1p, IEEE802.1Q, IEEE802.1w, IEEE802.1x</li></ul> |
| Forward and Filtering Rate | <ul style="list-style-type: none"><li>14,880pps for 10Mbps</li><li>148,810pps for 100Mbps</li><li>1,488,100pps for 1000Mbps</li></ul>                                                                                        |
| Packet Buffer Memory       | <ul style="list-style-type: none"><li>3M 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>8192 MAC addresses</li></ul>                                                                                                                                                           |

| Power                       |                                                                                                                                                                         |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input                       | (T) : + / - 48VDC (36- 75VDC) Internal Universal PSU<br>(W) : 88 - 370VDC and 90 - 264VAC Internal Universal PSU<br>(C) : 90 - 264VAC, 50 - 60Hz Internal Universal PSU |
| Power Consumption           | 42.7W Max.                                                                                                                                                              |
| Overload Current Protection | Present                                                                                                                                                                 |

| Mechanical   |                                                                                                                                           |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Casing       | <ul style="list-style-type: none"><li>Metal case</li><li>IP30</li></ul>                                                                   |
| Dimensions   | <ul style="list-style-type: none"><li>Single Power : 442mm (W) x 343mm (D) x 44.2mm (H)<br/>(17.4" (W) x 13.5" (D) x 1.74" (H))</li></ul> |
| Weight       | <ul style="list-style-type: none"><li>4.5Kg (9.9lbs.)</li></ul>                                                                           |
| Installation | <ul style="list-style-type: none"><li>Rack Mounting</li></ul>                                                                             |

| Interface      |                                                                                                                                                                                                                                   |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ethernet Port  | <ul style="list-style-type: none"><li>10/100BASE-TX: 24, 16, 8 or 0 ports</li><li>100BASE-FX: 0 to 18 ports</li><li>Gigabit: 0, 2 or 4 ports</li></ul>                                                                            |
| Console Port   | <ul style="list-style-type: none"><li>Port: One DB9 RS-232 port</li></ul>                                                                                                                                                         |
| LED Indicators | <ul style="list-style-type: none"><li>Per Unit: Power Status</li><li>Per Port: 10/100TX, 100FX: Link/Activity (Green)<br/>10/100/1000TX, 1000SX/LX: Link/Activity (Green)<br/>SFP Selected: Selected/Unselected (Green)</li></ul> |

| Environment               |                                                                                                                            |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Operating Temperature     | <ul style="list-style-type: none"><li>-40°C to 75°C (-40°F to 167°F)<br/>Tested @ -40°C to 85°C (-40°F to 185°F)</li></ul> |
| Storage Temperature       | <ul style="list-style-type: none"><li>-45°C to 85°C (-49°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>20.46 years</li></ul>                                                                |

| Regulatory Approvals          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ISO                           | <ul style="list-style-type: none"><li>Manufactured in an ISO9001 facility</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| EMI                           | <ul style="list-style-type: none"><li>FCC Part 15, Class A</li><li>EN61000-6-4<br/>- EN55022, EN61000-3-2, EN61000-3-3</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| EMS                           | <ul style="list-style-type: none"><li>EN61000-6-2<br/>- EN61000-4-2 (ESD Standards)<br/>Contact: + / - 8KV<br/>Air: + / - 15KV</li><li>EN61000-4-3 (Radiated RFI Standards)<br/>35V/m, 80 to 1000MHz, 1400 to 2000MHz, 2000 to 2700MHz; 80% AM</li><li>EN61000-4-4 (Burst Standards)<br/>Signal Ports: + / - 4KV<br/>A.C. Power Ports: + / - 4KV</li><li>EN61000-4-5 (Surge Standards)<br/>Signal Ports: + / - 4KV; Line-to-Earth<br/>A.C. Power Ports: + / - 4KV Line-to-Earth<br/>D.C. Power Ports: + / - 2KV Line-to-Earth</li><li>EN61000-4-6 (Induced RFI Standards)<br/>Signal Ports: 10Vrms @ 0.15 - 80MHz; 80% AM<br/>A.C. Power Ports: 10Vrms @ 0.15 - 80MHz; 80% AM<br/>D.C. Power Ports: 10Vrms @ 0.15 - 80MHz; 80% AM</li><li>EN61000-4-8 (Magnetic Field Standards)<br/>1000A/m @ 50, 60Hz</li><li>IEC61000-4-10 (Oscillatory wave magnetic field test)<br/>100kHz and 1MHz: 30A/m</li><li>IEC61000-4-16 (Power frequency immunity test) 50Hz: 300V</li><li>IEC61000-4-18 (Oscillatory wave immunity test):<br/>100 kHz, 2.5kV CM and 2.5kV DM<br/>1MHz , 2.5kV CM and 2.5kV DM</li><li>IEEE1613:<br/>power frequency withstand voltage: 2KV, Insulation resistance &gt;550 MOhm<br/>RJ45 Port 500V, Insulation resistance &gt;550 MOhm<br/>Impulse voltage: 5Kv, Insulation resistance &gt;550 MOhm<br/>IEC60870-2-1: AC/DC power supply voltage variations</li></ul> |
| Environmental Test Compliance | <ul style="list-style-type: none"><li>IEC60068-2-6 Fc (Vibration Resistance)<br/>1g @ 10 - 150Hz, Amplitude 0.35mm (Operation/Storage/Transport)</li><li>IEC60068-2-27 Ea (Shock)<br/>25g @ 11ms (Half-Sine Shock Pulse; Operation)<br/>50g @ 11ms (Half-Sine Shock Pulse; Storage/Transport)</li><li>IEC60068-2-32 Ed (Free Fall)<br/>1M (3.281ft.)</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

## Order Information (Modules are to be ordered separately)

**IES-2892** – Modularized 24 10/100 + 4 GE Combo SFP Managed Switch -40 to 75C, IEC61850

**MDU-2892S** – 4 1000Base SFP Combo Module for IES-2892 Slot 4

**MDU-2892T** – 8 10/100Base TX Module for IES-2892 Slot 1/2/3

**MDU-2892FX** – 6 MMF SC 2Km Module for IES-2892 Slot 1/2/3

## Package Contents

IES-2892

CD Manual / Utility

Quick Installation Guide

## Optional Accessories

SFP-4200 - 1.25G MMF SFP Transceiver (550m, 850nm, -20 to 85C)  
SFP-4210 - 1.25G SMF SFP Transceiver (10km, 1310nm, -40 to 85C)  
SFP-4240 - 1.25G SMF SFP Transceiver (40km, 1310nm, -40 to 85C)  
SFP-4270 - 1.25G SMF SFP Transceiver (70km, 1550nm, -40 to 85C)  
SFP-4310 - 1.25G BIDI SMF SFP Transceiver (10km, 1310nm, -40 to 85C)  
SFP-4320 - 1.25G BIDI SMF SFP Transceiver (10km, 1550nm, -40 to 85C)

SFP-4330 - 1.25G BIDI SMF SFP Transceiver (20km, 1310nm, -40 to 85C)  
SFP-4340 - 1.25G BIDI SMF SFP Transceiver (20km, 1550nm, -40 to 85C)  
SFP-4350 - 1.25G BIDI SMF SFP Transceiver (40km, 1310nm, -40 to 85C)  
SFP-4360 - 1.25G BIDI SMF SFP Transceiver (40km, 1550nm, -40 to 85C)  
SFP-4370 - 1.25G BIDI SMF SFP Transceiver (60km, 1310nm, -40 to 85C)  
SFP-4380 - 1.25G BIDI SMF SFP Transceiver (60km, 1550nm, -40 to 85C)