IES-2890
24 FE + 4 GE Combo SFP Managed Switch
-40 to 75C, IEC61850

Overview
LevelOne IES-2890 Industry Ethernet Switch provides 24 ports 10/100Base plus 4 port Gigabit Combo SFP to enable high speed network at mission-critical environment. 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.

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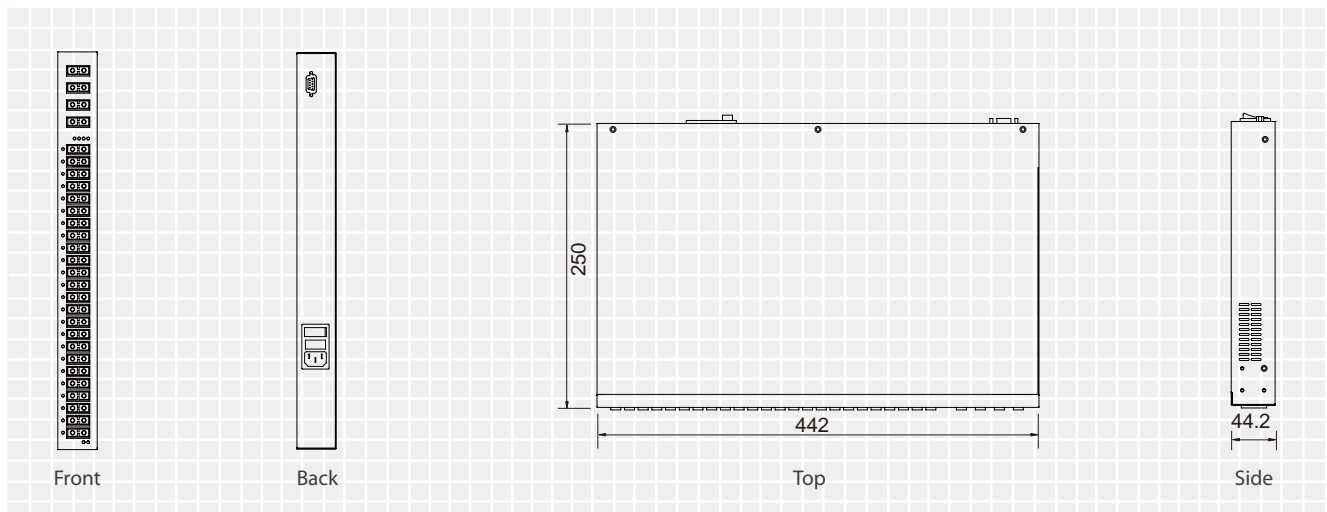
GOOSE Message
Critical GOOSE (Generic Object Oriented Substation Event) messages can be sent reliably using the multicast and prioritisation functionality within LevelOne Industrial switches. Moreover, the test was conducted by KEMA, a renown laboratory for testing and certification for substations.

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.

Features

- Complies with IEC61850-3/IEEE1613 for power substations & EN50121-4 for railway applications
- Supports α-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
- Per-port programmable MAC address locking

- Up to 24 Static Secure MAC addresses per port
- Port mirroring
- NTP synchronization
- DHCP Client/Server
- RS-232 Console, Telnet, SNMP V1, V2c & V3, RMON, Web Browser, and TFTP Management
- 1000Mbps-Full-duplex, 10/100Mbps-Full/Half-duplex, Auto-Negotiation, Auto-MDI/MDIX
- Full wire-speed forwarding rate
- -40°C to 75°C (-40°F to 167°F) operating temperature range, tested for functional operation @ -40°C to 85°C (-40°F to 185°F)

Diagrams

Unit: mm

Front

Back

Top

250

442

Side

44.2

Specifications

Technology

Standards	■ 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
Forward and Filtering Rate	■ 14,880pps for 10Mbps ■ 148,810pps for 100Mbps ■ 1,488,100pps for 1000Mbps
Packet Buffer Memory	■ 3M bits
Processing Type	■ Store-and-Forward ■ Half-duplex back-pressure and IEEE802.3x full-duplex flow control
Address Table Size	■ 8192 MAC addresses

Power

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

Mechanical

Casing	■ Metal case ■ IP30
Dimensions	■ Single Power: 442mm (W) x 284mm (D) x 44.2mm (H) (17.4" (W) x 11.1" (D) x 1.74" (H)) ■ Redundant Power: 442mm (W) x 375mm (D) x 44.2mm (H) (17.4" (W) x 14.7" (D) x 1.74" (H))
Weight	■ Single Power: 5.1Kg (11.2lbs.) ■ Redundant Power: 6.2Kg (13.7lbs.)
Installation	■ Rack Mounting

Interface

Ethernet Port	■ 10/100BASE-TX: 24, 16, 8 or 0 port ■ 100BASE-FX: 0, 4, 8, 12, 16, 20 or 24 ports ■ Gigabit: 0, 2 or 4 ports
Console Port	■ Port: One DB9 RS-232 port
LED Indicators	■ Per Unit: Power Status ■ Per Port: 10/100TX, 100FX: Link/Activity (Green) 10/100/1000TX, 1000SX/LX: Link/Activity (Green) SFP Selected: Selected/Unselected (Green)

Environment

Operating Temperature	■ -40°C to 75°C (-40°F to 167°F) Tested @ -40°C to 85°C (-40°F to 185°F)
Storage Temperature	■ -45°C to 85°C (-49°F to 185°F)
Ambient Relative Humidity	■ 5% to 95% (non-condensing)
MTBF	■ 15.24 years

Regulatory Approvals

ISO	■ Manufactured in an ISO9001 facility
EMI	■ FCC Part 15, Class A ■ EN61000-6-4 - EN55022, N61000-3-2, EN61000-3-3

EMS	■ EN61000-6-2
	  - EN61000-4-2 (ESD Standards)
	    Contact: + / - 8KV
	    Air: + / - 15KV
	  - EN61000-4-3 (Radiated RFI Standards)
	    35V/m, 80 to 3G; 80% AM
	  - EN61000-4-4 (Burst Standards)
	    Signal Ports: + / - 4KV
	    A.C. Power Ports: + / - 4KV
	  - EN61000-4-5 (Surge Standards)
	    Signal Ports: + / - 4KV; Line-to-Earth
	    A.C. Power Ports: + / - 4KV; Line-to-Earth
	    D.C. Power Ports: +/-4KV; Line-to-Earth
	  - EN61000-4-6 (Induced RFI Standards)
	    Signal Ports: 10Vrms @ 0.15 - 80MHz; 80% AM
	    A.C. Power Ports: 10Vrms @ 0.15 - 80MHz; 80% AM
	  - EN61000-4-8 (Magnetic Field Standards)
	    1000A/m @ 50, 60Hz
	  - IEC61000-4-10 (Oscillatory wave magnetic field test)
	    100kHz and 1MHz: 30A/m
	  - IEC61000-4-16 (Power frequency immunity test) 50Hz: 300V
	  - IEC61000-4-18 (Oscillatory wave immunity test):
	    100 kHz, 2.5kV CM and 2.5kV DM
	    1MHz , 2.5kV CM and 2.5kV DM
	  - IEEE1613:
	    power frequency withstand voltage: 2KV, Insulation resistance >550 MOhm
	    RJ45 Port 500V, Insulation resistance >550 MOhm
	    Impulse voltage: 5Kv, Insulation resistance >550 MOhm
	    IEC60870-2-1: AC/DC power supply voltage variations

Environmental Test Compliance	■ IEC60068-2-6 Fc (Vibration Resistance) 1g @ 10 - 150Hz, Amplitude 0.35mm (Operation/Storage/Transport) ■ IEC60068-2-27 Ea (Shock) 25g @ 11ms (Half-Sine Shock Pulse; Operation) 50g @ 11ms (Half-Sine Shock Pulse; Storage/Transport) ■ IEC60068-2-32 Ed (Free Fall) 1M (3.281ft.)

Order Information

IES-2890 – 24 FE + 4 GE Combo SFP Managed Switch -40 to 75C, IEC61850

Package Contents

IES-2890
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)