

IES-1890

16 FE + 2 GE Combo SFP Managed Switch -40 to 75C, DIN-rail, IEC61850

Overview

LevelOne IES-1890 Industry Ethernet Switch provides 16 ports of 10/100Base-TX plus 2 ports of 1000Base Ethernet / SFP Combo 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. 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.

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.

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.

Substation & Railway Applications

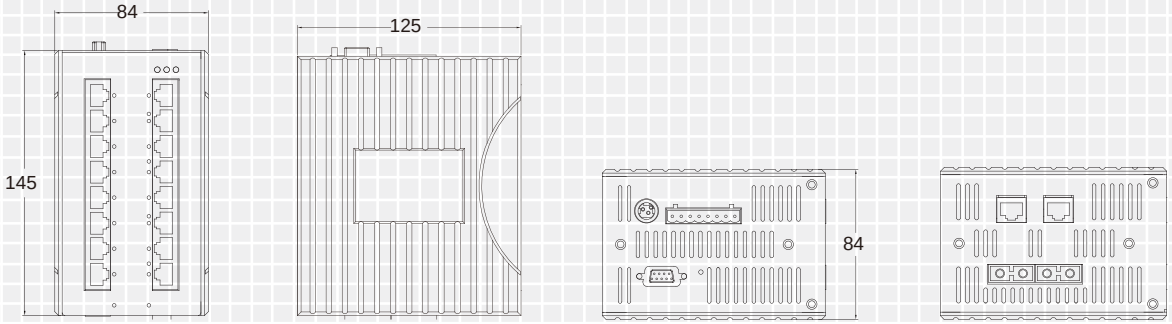
This device is complied with IEC 61850-3 / IEEE 1613 for the power substations and EN 50121-4 for the railway applications. IEC 61850-3 is an international standard for electrical substation systems. The standard enables integration of all control, measurement, monitoring and protection functions within 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 80°C (-40°F to 176°F)

Diagrams

Unit: mm



Specifications

Technology	
Standards	▪ IEEE802.3 10BASE-T, IEEE802.3u 100BASE-TX, IEEE802.3ab1000BASE-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	2M 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	▪ Input Voltage: 12 to 48VDC (Terminal Block); 12VDC (DC Jack)
Power Consumption	▪ 15W Max. 1.25A @ 12VDC, 0.625A @ 24VDC
Overload Current Protection	▪ Present
Reverse Polarity Protection	▪ Present

Mechanical	
Casing	▪ Aluminum case ▪ IP30
Dimensions	▪ 84mm (W) x 125mm (D) x145mm (H) ▪ (3.3" (W) x 4.92" (D) x 5.71" (H))
Weight	1.4Kg (3.1lbs.)
Installation	DIN-Rail (Top hat type 35mm), Wall Mount
Interface	
Ethernet Port	▪ 10/100BASE-TX: 16, 12 or 8 ports ▪ 100BASE-FX: 0, 1, 2 or 4 ports ▪ Gigabit: 0, 1 or 2 ports
Console Port	▪ Port: One DB9 RS-232 port
LED Indicators	▪ Per Unit: Power Status (Power 1, Power 2, Power 3) ▪ Per Port: 10/100BASE: Link/Activity 1000BASE: Link/Activity (Green: Copper, Amber: Fiber)
Alarm Contact	▪ One relay output with current 1A @ 24VDC

Environment	
Operating Temperature	▪ -40°C to 75°C (-40°F to 167°F) Tested @ -40°C to 80°C (-40°F to 176°F)
Storage Temperature	▪ -45°C to 85°C (-49°F to 185°F)
Ambient Relative Humidity	▪ 5% to 95% (non-condensing)
MTBF	▪ 28.62 years

Regulatory Approvals	
ISO	▪ Manufactured in an ISO9001 facility
EMI	▪ FCC Part 15, Class A ▪ EN61000-6-4 ▪ EN55022 EN61000-3-2, EN61000-3-3
EMS	▪ EN61000-6-2 - EN61000-4-2 (ESD Standards) Contact: + / - 8KV Air: + / - 15KV - EN61000-4-3 (Radiated RFI Standards) 10V/m, 80 to 1000MHz; 80% AM - EN61000-4-4 (Burst Standards) Signal Ports: + / - 4KV D.C. Power Ports: + / - 4KV - EN61000-4-5 (Surge Standards) Signal Ports: + / - 4KV; Line-to-Earth D.C. Power Ports: + / - 2KV; Line-to-Earth - EN61000-4-6 (Induced RFI Standards) Signal Ports: 10Vrms @ 0.15 - 80MHz; 80% AM D.C. Power Ports: 10Vrms @ 0.15 - 80MHz; 80% AM - EN61000-4-8 (Magnetic Field Standards) 30A/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): 100kHz, 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 IEC 60870-2-1: DC power supply voltage variations
Environmental Test Compliance	▪ IEC60068-2-6 Fc (Vibration Resistance) 30A/m @ 50, 60Hz 5g @ 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-1890 - 16 FE + 2 GE Combo SFP Managed Switch -40 to 75C, DIN-rail, IEC61850

Package Contents

IES-1890
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)