IDS-108FPP – Industrial PoE Switch

perle.com/products/8-port-industrial-poe-switch.shtml

8 to 10 port Compact DIN Rail PoE Switch

- 8 port 10/100Base-TX (RJ45)
- 8 port 10/100Base-TX (RJ45) plus 1 or 2 SC/ST fiber ports
- 4 PoE/PoE+ PSE capable ports, fully compliant to IEEE 802.3af/at
- Hazardous Location and Industrial Control Equipment Certification
- Corrosion resistant IP30 aluminum case
- Redundant dual power input 24/48 VDC
- Overload current and reverse polarity protection
- Industrial operating temperature support up to -40 to 75C

Perle **Industrial-grade PoE Switches** are designed to stand up to **extreme temperatures, surges, vibrations,** and shocks found in **industrial automation, government, military, oil and gas, mining** and **outdoor applications.**

In addition, these PoE Switches are classified as **Power Sourcing Equipment (PSE)**. While using standard UTP cables that carry Ethernet data, the IDS-108FPP have 4 ports that also **provide up to 30 watts of power** to Powered Devices (PDs) such as **wireless access points, Voice over IP phones** and **IP cameras**. Learn more about PoE.

The **IDS-108FPP is an 8 to 10 port Industrial Ethernet Switch** with **Power over Ethernet** providing advanced performance enabling real-time deterministic network operation. It requires no configuration and will operate instantly as soon as you power it up.

IDS-108FPP are **rugged fan-less switches** that are hardened to provide superior reliability **in 0 to 60°C**, or harsh extended operating temperatures **from -40 to 75°C**. They come in a variety of models with 8 copper ports, 8 copper ports plus 1 fiber port or 8 copper ports plus 2 fiber ports.

Perle has been **designing industrial hardware** for serial ModBus and Profinet to Ethernet conversion environments **for over 35 years** and have used this expertise to design the **toughest Ethernet switches on the market**. Don't trust your critical communications to commercial switch products. Perle Industrial Ethernet switches give you proven assurance that your system will keep running for years to come.

IDS-108FPP Industrial PoE Switch Features

Rugged design for harsh environments

- Corrosion resistant IP30 aluminum case
- UL508A Industrial Control Equipment Safety certified
- Hazardous locations - Class1/Div2, ATEX Class1/Zone2

Reliable operation

- Fan-less, no moving parts
- Dual power input. Connect to separate power sources for redundancy.
  - Reverse polarity protection
  - Overload current protection
- Handles vibration and shock conditions found in industrial environments

PoE and PoE+ (on 4 ports)	Up to 30 Watts per port driving up to four class 4 (IEEE 802.3at Type 2) PDs
Input Voltage Booster	Voltage boost technology supports 24V power sources ensuring that a full and proper PSE voltage is provided across all PoE ports
Real-time Ethernet performance	• Fast wire-speed , store and forward switching, non-blocking architecture • Auto-sensing for speed and duplex • Auto-mdi/mdix-crossover works with straight and crossover cables

Power

Dual Power Input	Both inputs draw power simultaneously. If one power source fails, the other live source can, acting as a backup, supply enough power to meet the operational needs of the switch. Flexible input voltage range : 24/48 VDC Nominal. (18 to 57 VDC)
Input Voltage Booster	Voltage boost technology supports 24V industrial power sources ensuring that a full and proper PSE voltage is available across all PoE ports
Power Connector	4-Pin Removable Terminal Block. Grounding screw on metal chassis
Maximum Current Consumption @24 vDC	.29 Amps (No PoE PDs attached) 5.6 Amps (4 x PoE+)
Maximum Power Consumption @24 vDC	7 Watts (No PoE PDs attached) 134 Watts (4 x 30 Watts PoE+)
Overload Current Protection	Reset-able fuse provides overload current protection
Reverse polarity protection	Protection is provided should inputs be reversed

Access Ports

RJ45	8 shielded RJ45 ports for 10/100Base-TX up to 100 meters (328 ft). 4 of these ports are PoE PSE capable Auto-negotiation Auto-MDI/MDIX-crossover for use with either crossover over straight-through cable types Ethernet isolation 1500 V
PoE	4 PoE/PoE+ ports Up to 30 Watts per port (@ switch RJ45) driving up to four class 4 (IEEE 802.3at Type 2) PDs
Fiber port	1 or 2 fixed fiber port models Duplex SC or ST connector • Multimode 50/125 or 62.5/125 micron fiber cable • Single mode 9/125 micron fiber cable Simplex (BIDI, single strand) SC connector PC and UPC type patch cords supported.

- Multimode 50/125 or 62.5/125 micron fiber cable
- Single mode 9/125 micron fiber cable

Fixed Fiber Port Specs

Fiber1 Type	Transmit (dBm) Min	Transmit (dBm) Max	Receive (dBm) Min	Receive (dBm) Max	Power Budget (dB)	Wavelength (nm)	IEEE	Core Size (um)	Modal Bandwidth (MHz *Km)	Maximum Operating Distance
MMF (Duplex SC/ST)	-20.0	-12.0	-31.0	-14.0	11.0	1310	100Base-FX	50	800*	5 Km 3.1 mi
								62.5	500*	4 Km 2.5 mi
								62.5	200	2 Km 1.2 mi
MMF (Simplex SC)	-15.0	0.0	-28.0	-8.0	13.0	1310 / 1550 1550 / 1310	100Base-BX-U 100Base-BX-D	62.5	200	2 Km 1.2 mi
SMF (Duplex SC/ST)	-18.0	-7.0	-32.0	-3.0	14.0	1310	100Base-LX	9	**	20 Km 12.4 mi
SMF (Simplex SC)	-14.0	-8.0	-32.0	-3.0	18.0	1310 / 1550 1550 / 1310	100Base-BX-U 100Base-BX-D	9	**	20 Km 12.4 mi
SMF (Duplex SC/ST)	-5.0	-0.0	-34.0	-3.0	29.0	1310	100Base-EX	9	**	40 Km 24.9 mi
SMF (Simplex SC)	-8.0	-3.0	-33.0	-3.0	18.0	1310 / 1550 1550 / 1310	100Base-BX-U 100Base-BX-D	9	**	40 Km 24.9 mi
SMF (Duplex SC/ST)	-5.0	0.0	-34.0	-3.0	29.0	1550	100Base-ZX	9	**	80 Km 49.7 mi
SMF (Duplex SC/ST)	0.0	5.0	-35.0	-3.0	35.0	1550	100Base-ZX	9	**	120 Km 74.6 mi

* 1db/km multimode fiber cable

** as per ITU-T G.652 SMF specifications

Switch Properties

Standards

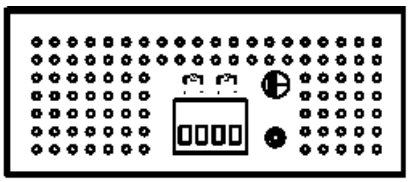
- IEEE 802.3 for 10Base-T

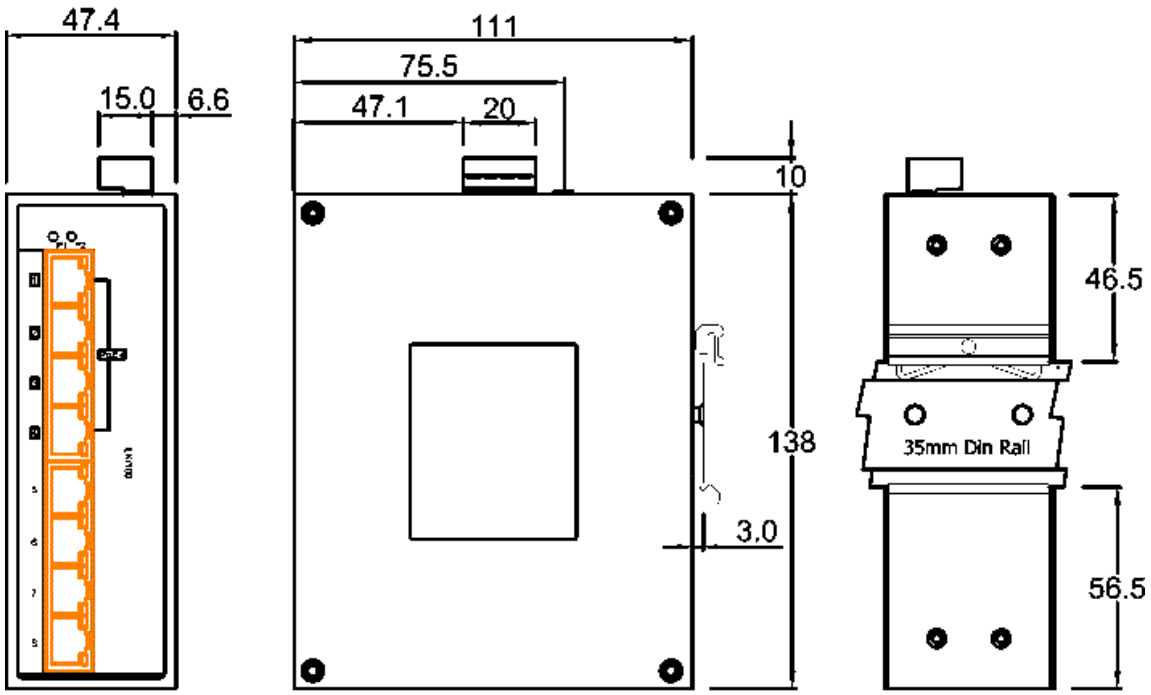
- IEEE 802.3u for 100Base-TX and 100Base-FX
- IEEE 802.3x for Flow Control
- IEEE 802.3af Power Over Ethernet
- IEEE 802.3at Power Over Ethernet

Processing Type	Store and Forward, non-blocking architecture
MAC Address Table Size	8K
Packet Buffer Memory	1 Mbit
Indicators	
P1	This green LED is turned on when power is applied to the power #1 input
P2	This green LED is turned on when power is applied to the power #2 input
RJ45 Ethernet	These integrated colored LEDs indicate link, activity and speed for each port.
Fiber Link	Fiber link LED indicates Link and Data Activity
Environmental Specifications	
Operating Temperature Ranges	Standard temperature models : 0° C to 60° C (32° F to 140° F). Industrial extended temperature models : -40° C to 75° C (-40 F to 167° F)
Storage Temperature Range	Minimum range of -25° C to 70° C (-13° F to 158° F). -40 C to 85 C (-40 F to 185 F) for industrial extended temperature models
Operating Humidity Range	5% to 90% non-condensing
Storage Humidity Range	5% to 95% non-condensing
Operating Altitude	Up to 3,048 meters (10,000 feet)
Chassis	Aluminum with an IP30 ingress protection rating
Din Rail Mountable	DIN Rail attachment included. Mounts to standard 35 mm DIN rail in accordance with DIN EN 60175. Removable to accommodate optional Panel/Wall mount kit
Maximum Heat Output	24 BTU/Hr
MTBF	606,418 hours (without fiber module) 350,726 hours (with 1 fixed fiber module) 316,656 hours (with 2 fixed fiver modules) *MTBF Calculation model based on MIL-HDBK-217-FN2 @ 30 °C*
Product Weight and Dimensions	

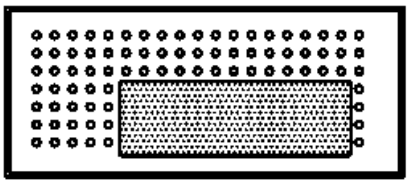
Weight	0.37 Kg, 0.82 lbs
Dimensions	35.5 x 111 x 138 mm, 1.39 x 4.37 x 5.43 inches
	Packaging
Shipping Weight	0.52 Kg, 1.15 lbs
Shipping Dimensions	170 x 260 x 70 mm, 6.69 x 10.24 x 2.76 inches
Contents Shipped	Industrial Ethernet Switch with DIN Rail attachment Terminal block Installation guide
	Standards and Certifications
Safety	UL 60950-1 CSA C22.2 No. 60950-1 IEC 60950-1:2005+A1:2009 and EN 60950-1:2006+A11:2009+A1:2010+A12:2011 CE Mark UL508 (Industrial)
EMC Emissions	FCC 47 Part 15 Class A CISPR 22:2008/EN55022:2010 (Class A) EN61000-6-4
EMC and Immunity	CISPR 24:2010/EN 55024:2010 IEC/EN 61000-4-2 (ESD) : Contact discharge +/- 4kV, Air Discharge +/- 8kV IEC/EN 61000-4-3 (RS) : 10V/m IEC/EN 61000-4-4 (EFT) : DC power line +/- 2 kV, Data Line +/- 1kV IEC/EN 61000-4-5 (Surge) : DC power line, Line/Line +/- 0.5kV, Line/Earth +/- 0.5kV, Data Line line/earth +/- 1kV IEC/EN 61000-4-6 (CS) : 150kHz to 80 MHz; 10V IEC/EN 61000-4-8 : 30A/m IEC/EN 61000-6-2 (General Immunity in Industrial Environments)
Industrial Safety	UL508 (Safety standard for Industrial Control Equipment) CSA C22.2 No. 142
Hazardous Locations (Hazloc)	ANSI/ISA 12.12.01, Class I Division 2 Groups A-D (formerly known as UL 1604) CSA C22.2 No. 213 ATEX Class I Zone 2, EN60079-0, 15
Laser Safety	EN 60825-1:2007 Fiber optic transmitters on this device meet Class 1 Laser safety requirements per IEC-60825 FDA/CDRH standards and comply with 21CFR1040.10 and 21CFR1040.11.
Environmental	Reach, RoHS and WEEE Compliant
Other	ECCN: 5A991
	HTSUS Number: 8517.62.0050
	5 year warranty

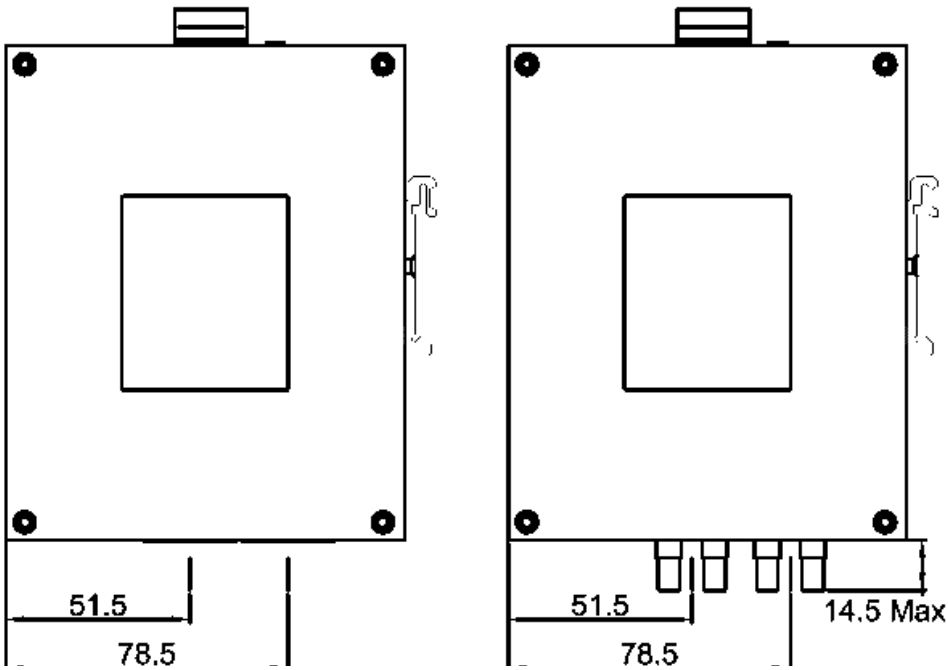
IDS-108FPP with Standard DIN Rail

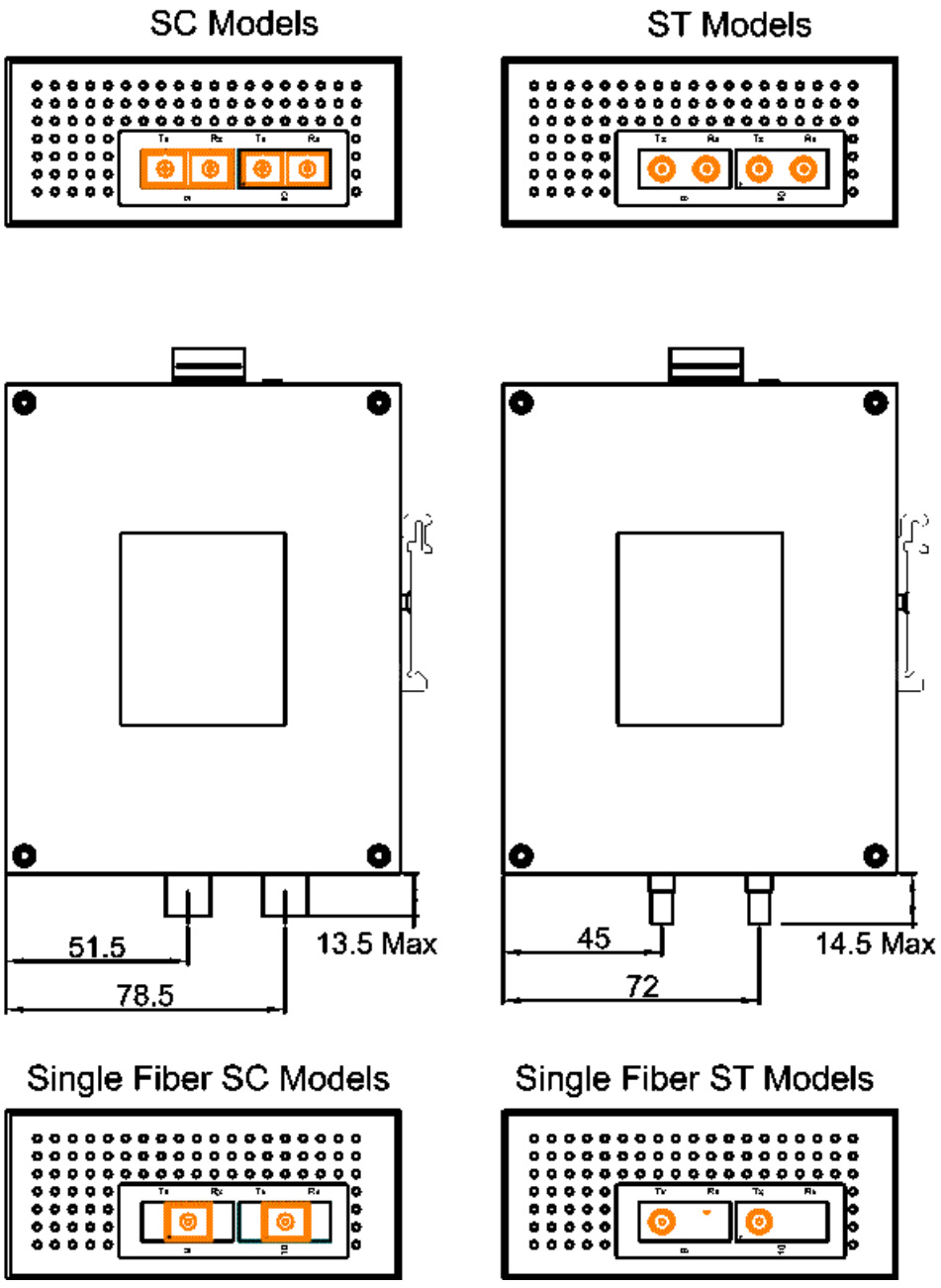



47.4
15.0
6.6
111
75.5
47.1
20
10
138
3.0
46.5
35mm Din Rail
56.5

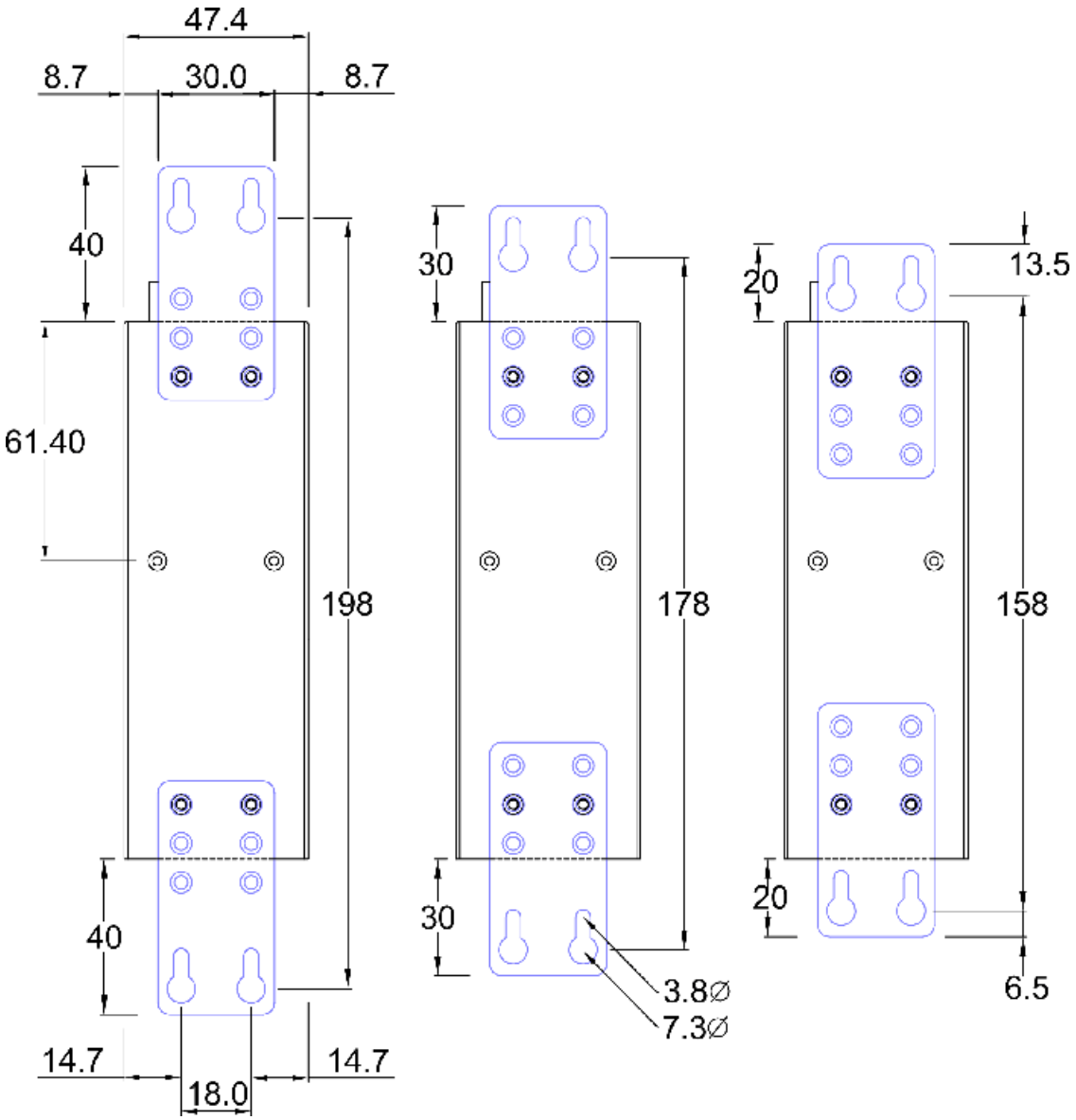
RJ45 Models



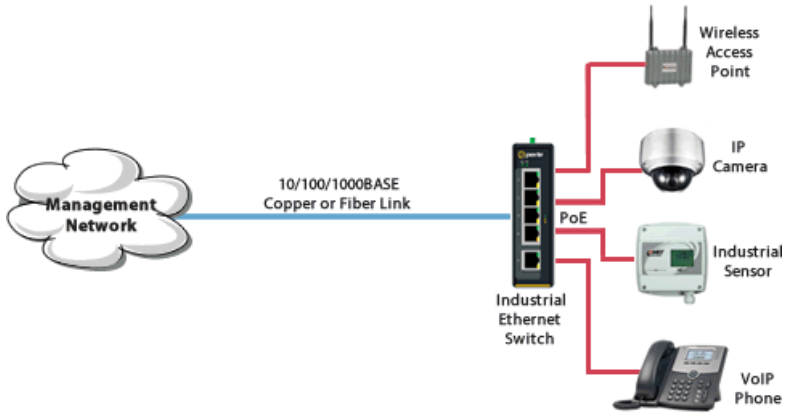

51.5
78.5
51.5
78.5
14.5 Max



IDS-108F with Optional Wall/Panel Mount Brackets



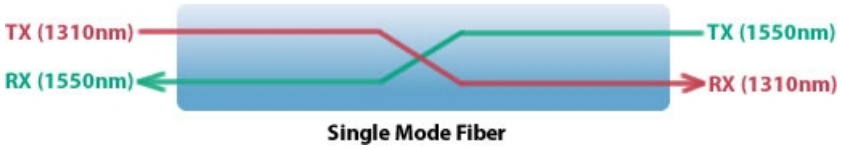
IDS-108FPP Industrial Switch Power over Ethernet (PoE)Diagram



Single Mode / Single Strand (WDM) Fiber

Connecting devices over a single fiber strand (also referred to as "Bi-Directional" BiDi or Simplex)

To reduce costs, or where there are limits on available fiber, Wavelength-Division Multiplexing (WDM) technology may be utilized. WDM uses separate transmit and receive frequencies to communicate on a single fiber strand. WDM technology relies on the fact that optical fibers can carry many wavelengths of light simultaneously without interaction between each wavelength. Thus, a single fiber can carry many separate wavelength signals or channels simultaneously. WDM systems are divided into different wavelength patterns, conventional/coarse (CWDM) and dense (DWDM).



When Single Strand fiber is used, you will need an **"Up"** side and a **"Down"** side when interconnecting fiber devices.

Perle offers a wide variety of Single Fiber ("Up/Down") Ethernet Switches and Media Converters for use with single strand of fiber.

Select a Model to obtain a Part Number – IDS-108FPP

Std = Standard Temperature models : 0° C to 60° C (32° F to 140° F).
Ind = Industrial Extended Temperature Models : -40° C to 75° C (-40 F to 167° F)

			Duplex Fiber								
				Transmit (dBm)		Receive (dBm)					
Model	Temp	RJ45 10/100Base-TX Connectors	Fiber Connector	Min	Max	Min	Max	Power Budget (dB)	Wavelength (nm)	Fiber Type	Operating Distance
IDS-108FPP	Std	8									
IDS-108FPP-XT	Ind	8									
IDS-108FPP-M2SC2	Std	8	1 x Duplex SC	-20.0	-12.0	-31.0	-14.0	11.0*	1310	MMF	5 km* (3.1 mi)
IDS-108FPP-M2SC2-XT	Ind	8	1 x Duplex SC	-20.0	-12.0	-31.0	-14.0	11.0*	1310	MMF	5 km* (3.1 mi)
IDS-108FPP-M2ST2	Std	8	1 x Duplex ST	-20.0	-12.0	-31.0	-14.0	11.0*	1310	MMF	5 km* (3.1 mi)

IDS-108FPP-M2ST2-XT	Ind	8	1 x Duplex ST	-20.0	-12.0	-30.0	-14.0	10.0*	1310	MMF	5 km* (3.1 mi)
IDS-108FPP-S2SC20	Std	8	1 x Duplex SC	-18.0	-7.0	-32.0	-3.0	14.0	1310	SMF	20 km (12.4 mi)
IDS-108FPP-S2SC20-XT	Ind	8	1 x Duplex SC	-18.0	-7.0	-32.0	-3.0	14.0	1310	SMF	20 km (12.4 mi)
IDS-108FPP-S2ST20	Std	8	1 x Duplex ST	-18.0	-7.0	-32.0	-3.0	14.0	1310	SMF	20 km (12.4 mi)
IDS-108FPP-S2ST20-XT	Ind	8	1 x Duplex ST	-18.0	-7.0	-32.0	-3.0	14.0	1310	SMF	20 km (12.4 mi)
IDS-108FPP-S2SC40	Std	8	1 x Duplex SC	-5.0	0.0	-34.0	-3.0	29.0	1310	SMF	40 km (25 mi)
IDS-108FPP-S2SC40-XT	Ind	8	1 x Duplex SC	-5.0	0.0	-34.0	-3.0	29.0	1310	SMF	40 km (25 mi)
IDS-108FPP-S2ST40	Std	8	1 x Duplex ST	-5.0	0.0	-34.0	-3.0	29.0	1310	SMF	40 km (25 mi)
IDS-108FPP-S2ST40-XT	Ind	8	1 x Duplex ST	-5.0	0.0	-34.0	-3.0	29.0	1310	SMF	40 km (25 mi)
IDS-108FPP-S2SC80	Std	8	1 x Duplex SC	-5.0	0.0	-34.0	-3.0	29.0	1550	SMF	80 km (50 mi)
IDS-108FPP-S2ST80	Std	8	1 x Duplex ST	-5.0	0.0	-34.0	-3.0	29.0	1550	SMF	80 km (50 mi)
IDS-108FPP-S2SC120	Std	8	1 x Duplex SC	0.0	5.0	-35.0	-3.0	35.0	1550	SMF	120 km (75 mi)
IDS-108FPP-S2ST120	Std	8	1 x Duplex ST	0.0	5.0	-35.0	-3.0	35.0	1550	SMF	120 km (75 mi)
IDS-108FPP-DM2SC2	Std	8	2 x Duplex SC	-20.0	-12.0	-31.0	14.0	11.0*	1310	MMF	2 km (1.2 mi)
IDS-108FPP-DM2SC2-XT	Ind	8	2 x Duplex SC	-20.0	-12.0	-31.0	14.0	11.0*	1310	MMF	2 km (1.2 mi)
IDS-108FPP-DM2ST2	Std	8	2 x Duplex ST	-20.0	-12.0	-31.0	14.0	11.0*	1310	MMF	2 km (1.2 mi)
IDS-108FPP-DM2ST2-XT	Ind	8	2 x Duplex ST	-20.0	-12.0	-30.0	14.0	10.0*	1310	MMF	2 km (1.2 mi)
IDS-108FPP-DS2SC20	Std	8	2 x Duplex SC	-18.0	-7.0	-32.0	-3.0	14.0	1310	SMF	20 km (12.4 mi)
IDS-108FPP-DS2SC20-XT	Ind	8	2 x Duplex SC	-18.0	-7.0	-32.0	-3.0	14.0	1310	SMF	20 km (12.4 mi)
IDS-108FPP-DS2ST20	Std	8	2 x Duplex ST	-18.0	-7.0	-32.0	-3.0	14.0	1310	SMF	20 km (12.4 mi)
IDS-108FPP-DS2ST20-XT	Ind	8	2 x Duplex ST	-18.0	-7.0	-32.0	-3.0	14.0	1310	SMF	20 km (12.4 mi)

IDS-108FPP-DS2SC40	Std	8	2 x Duplex SC	-5.0	0.0	-34.0	-3.0	29.0	1310	SMF	40 km (25 mi)
IDS-108FPP-DS2SC40-XT	Ind	8	2 x Duplex SC	-5.0	0.0	-34.0	-3.0	29.0	1310	SMF	40 km (25 mi)
IDS-108FPP-DS2ST40	Std	8	2 x Duplex ST	-5.0	0.0	-34.0	-3.0	29.0	1310	SMF	40 km (25 mi)
IDS-108FPP-DS2ST40-XT	Ind	8	2 x Duplex ST	-5.0	0.0	-34.0	-3.0	29.0	1310	SMF	40 km (25 mi)
IDS-108FPP-DS2SC80	Std	8	2 x Duplex SC	-5.0	0.0	-34.0	-3.0	29.0	1550	SMF	80 km (50 mi)
IDS-108FPP-DS2ST80	Std	8	2 x Duplex ST	-5.0	0.0	-34.0	-3.0	29.0	1550	SMF	80 km (50 mi)
IDS-108FPP-DS2SC120	Std	8	2 x Duplex SC	0.0	5.0	-35.0	-3.0	35.0	1550	SMF	120 km (75 mi)
IDS-108FPP-DS2ST120	Std	8	2 x Duplex ST	0.0	5.0	-35.0	-3.0	35.0	1550	SMF	120 km (75 mi)

* 1db/km multimode 50/125 micron fiber cable

Single Fiber (Simplex / BiDi) Models (Recommended use in pairs)

			Simplex (BiDi) Fiber								
				Transmit (dBm)		Receive (dBm)					
Model	Temp	RJ45 10/100Base-TX Connectors	Fiber Connector	Min	Max	Min	Max	Power Budget (dB)	Wavelength (nm) TX / RX	Fiber Type	Operating Distance
IDS-108FPP-M1SC2U	Std	8	1 x Simplex SC	-15.0	0.0	-28.0	-8.0	13.0	1310 / 1550	MMF	2 km (1.2 mi)
IDS-108FPP-M1SC2D	Std	8	1 x Simplex SC	-15.0	0.0	-28.0	-8.0	13.0	1550 / 1310	MMF	2 km (1.2 mi)
IDS-108FPP-M1ST2U	Std	8	1 x Simplex ST	-15.0	0.0	-28.0	-8.0	13.0	1310 / 1550	MMF	5 km (3.1 mi)
IDS-108FPP-M1ST2D	Std	8	1 x Simplex ST	-15.0	0.0	-28.0	-8.0	13.0	1550 / 1310	MMF	5 km (3.1 mi)
IDS-108FPP-DM1ST2U	Std	8	2 x Simplex ST	-15.0	0.0	-28.0	-8.0	13.0	1310 / 1550	MMF	5 km (3.1 mi)
IDS-108FPP-DM1ST2D	Std	8	2 x Simplex ST	-15.0	0.0	-28.0	-8.0	13.0	1550 / 1310	MMF	5 km (3.1 mi)
IDS-108FPP-S1ST20U	Std	8	1 x Simplex ST	-14.0	-8.0	-32.0	-3.0	18.0	1310 / 1550	SMF	20 km (12.4 mi)
IDS-108FPP-S1ST20D	Std	8	1 x Simplex ST	-14.0	-8.0	-32.0	-3.0	18.0	1550 / 1310	SMF	20 km (12.4 mi)

IDS-108FPP-DS1ST20U	Std	8	2 x Simplex ST	-14.0	-8.0	-32.0	-3.0	18.0	1310 / 1550	SMF	20 km (12.4 mi)
IDS-108FPP-DS1ST20D	Std	8	2 x Simplex ST	-14.0	-8.0	-32.0	-3.0	18.0	1550 / 1310	SMF	20 km (12.4 mi)
IDS-108FPP-S1SC20U	Std	8	1 x Simplex SC	-14.0	-8.0	-32.0	-3.0	18.0	1310 / 1550	SMF	20 km (12.4 mi)
IDS-108FPP-S1SC20D	Std	8	1 x Simplex SC	-14.0	-8.0	-32.0	-3.0	18.0	1550 / 1310	SMF	20 km (12.4 mi)
IDS-108FPP-S1SC20U-XT	Ind	8	1 x Simplex SC	-14.0	-8.0	-32.0	-3.0	18.0	1310 / 1550	SMF	20 km (12.4 mi)
IDS-108FPP-S1SC20D-XT	Ind	8	1 x Simplex SC	-14.0	-8.0	-32.0	-3.0	18.0	1550 / 1310	SMF	20 km (12.4 mi)
IDS-108FPP-S1SC40U	Std	8	1 x Simplex SC	-8.0	-3.0	-33.0	-3.0	25.0	1310 / 1550	SMF	40 km (25 mi)
IDS-108FPP-S1SC40D	Std	8	1 x Simplex SC	-8.0	-3.0	-33.0	-3.0	25.0	1550 / 1310	SMF	40 km (25 mi)
IDS-108FPP-DM1SC2U	Std	8	2 x Simplex SC	-15.0	0.0	-28.0	-8.0	13.0	1310 / 1550	MMF	2 km (1.2 mi)
IDS-108FPP-DM1SC2D	Std	8	2 x Simplex SC	-15.0	0.0	-28.0	-8.0	13.0	1550 / 1310	MMF	2 km (1.2 mi)
IDS-108FPP-DS1SC20U	Std	8	2 x Simplex SC	-14.0	-8.0	-32.0	-3.0	18.0	1310 / 1550	SMF	20 km (12.4 mi)
IDS-108FPP-DS1SC20D	Std	8	2 x Simplex SC	-14.0	-8.0	-32.0	-3.0	18.0	1550 / 1310	SMF	20 km (12.4 mi)
IDS-108FPP-DS1SC20U-XT	Ind	8	2 x Simplex SC	-14.0	-8.0	-32.0	-3.0	18.0	1310 / 1550	SMF	20 km (12.4 mi)
IDS-108FPP-DS1SC20D-XT	Ind	8	2 x Simplex SC	-14.0	-8.0	-32.0	-3.0	18.0	1550 / 1310	SMF	20 km (12.4 mi)
IDS-108FPP-DS1SC40U	Std	8	2 x Simplex SC	-8.0	-3.0	-33.0	-3.0	25.0	1310 / 1550	SMF	40 km (25 mi)
IDS-108FPP-DS1SC40D	Std	8	2 x Simplex SC	-8.0	-3.0	-33.0	-3.0	25.0	1550 / 1310	SMF	40 km (25 mi)

Industrial Ethernet Switch Accessories

Panel Mount kit PM3	Brackets for attaching 30 to 40mm wide Perle IDS industrial switches inside a control panel or to a wall.
Rack Mount Kit RM4U	Bracket for mounting one or more Perle DIN Rail switches in a standard 19” rack. Occupies “4U” of vertical rack space. 275 mm (10 inches) deep
DIN Rail 48V Power Supply	IDPS-48-240-XT - DIN-Rail 48 VDC , 240Watt power supply with universal 85 to 264 VAC or 120-370 VDC input , -10 to 70°C extended operating temperature. Power Supply Specifications.