

IDS-105G – Industrieller Gigabit-Switch

 perle.com/products/switches/5-port-industrial-gigabit-ethernet-switch.shtml

Kompakter DIN-Schienen-Switch mit 5 bis 7 Ports

- 5 Port 10/100/1000Base-T (RJ45)
- 5 Port 10/100/1000Base-T (RJ45) mit 1 oder 2 Gigabit Glasfaserports (SC/ST/SFP)
- Zertifizierung für explosionsgefährdete Bereiche und industrielle Steuerungen
- Korrosionsbeständiges IP30 Aluminiumgehäuse
- Redundanter dualer Stromeingang 12/24/48 VDC, 18 bis 30 VAC
- Überlaststrom und Verpolungsschutz
- Industrielle Betriebstemperaturunterstützung bis zu -40 bis 75 ° C



Ethernet-Switches in Industriequalität von Perle sind so konzipiert, dass sie **extremen Temperaturen, Überspannungen, Vibrationen und Stößen** standhalten , die in der **industriellen Automatisierung, bei Behörden, im Militär, in der Öl- und Gasindustrie, im Bergbau** und in **Außenanwendungen** vorkommen .

Der **IDS-105G** ist ein **industrieller Gigabit-Ethernet-** Switch mit **5 bis 7 Ports** , der eine fortschrittliche Leistung bietet und einen deterministischen Netzwerkbetrieb in Echtzeit ermöglicht. Es erfordert keine Konfiguration und funktioniert sofort, sobald Sie es einschalten.

Das IDS-105G ist in verschiedenen Modellen mit 5 Kupferports, 5 Kupferports plus 1 Glasfaserport oder 5 Kupferports plus 2 Glasfaserports erhältlich. Alle sind **robuste, lüfterlose Schalter** , die gehärtet sind, um eine überlegene Zuverlässigkeit **bei 0 bis 60 °C** oder rauen erweiterten Betriebstemperaturen von **-40 bis 75 °C** zu bieten .

Perle entwickelt seit über 35 Jahren industrielle Hardware für serielle ModBus- und Profinet-zu-Ethernet-Umwandlungsumgebungen und hat dieses Know-how genutzt, um die **robustesten Ethernet-Switches auf dem Markt zu entwickeln** . Vertrauen Sie Ihre kritischen Mitteilungen nicht kommerziellen Switch-Produkten an. Industrielle Ethernet-Switches von Perle geben Ihnen nachweislich die Sicherheit, dass Ihr System über Jahre hinweg funktioniert.

Merkmale des industriellen Gigabit-Ethernet-Switches IDS-105G

Robustes Design für raue Umgebungen

- Korrosionsbeständiges IP30 Aluminiumgehäuse
- UL508A Sicherheitszertifizierung für industrielle Steuerungen
- Gefahrenbereiche - Class1/Div2, ATEX Class1/Zone2

Zuverlässiger Betrieb

- Lüfterlos, keine beweglichen Teile
- Dualer Stromeingang. Zur Redundanz an separate Stromquellen anschließen.
 - Verpolungsschutz
 - Überlaststromschutz
- Bewältigt Vibrations- und Schockbedingungen in industriellen Umgebungen

Echtzeit-Ethernet-Leistung	<ul style="list-style-type: none"> • Schnelle Wire-Speed, Store-and-Forward-Switching, blockierungsfreie Architektur • Automatische Erkennung von Geschwindigkeit und Duplex • Auto-mdi/mdix-Crossover funktioniert mit geraden und gekreuzten Kabeln
Jumbo-Rahmen	Unterstützt Jumbo-Frames bis 10 KB
Energieeffizientes Ethernet (EEE)	Energieeffizientes Ethernet (EEE) nach 802.3az. Dies sorgt für Energieeinsparungen während inaktiver Netzwerkaktivitäten.

Leistung

Dual Power Input	<p>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.</p> <p>12/24/48 VDC Nominal. (9.6 to 60 VDC) 18 to 30 VAC</p>
Power Connector	4-Pin Removable Terminal Block Grounding screw on metal chassis
Maximum Current Consumption @24 vDC	500 mA
Maximum Power Consumption @24 vDC	12.0 Watts
Overload Current Protection	Reset-able fuse provides overload current protection
Reverse polarity protection	The positive and negative inputs can be reversed providing safe and simple power connectivity.
Access Ports	
RJ45	5 shielded RJ45 ports for 10/100/1000Base-T up to 100 meters (328 ft) Auto-negotiation Auto-MDI/MDIX-crossover for use with either crossover over straight-through cable types Ethernet isolation 1500 V
Small Form Factor Pluggable (SFP) slot(s)	1 or 2 empty SFP slot models for 1000Base-X <u>SFP modules supplied by Perle, Cisco</u> or other manufacturers of MSA compliant SFPs

Fixed Fiber port 1 x fixed fiber port
 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

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

PC and UPC type patch cords supported.

Fixed
Fiber
Port
Specs

Fiber Type	Transmit (dBm)		Receive (dBm)		Power Budget (dB)	Wavelength (nm)	IEEE	Core Size (um)	Modal Bandwidth (MHz *Km)	Maximum Operating Distance
	Min	Max	Min	Max						
MMF (Duplex SC/ST)	-9.5	-4.0	-17.0	-3.0	7.5	850	1000Base-SX	62.5	160	220 m (722 ft)
								62.5	200	275 m (902 ft)
								50	400	500 m (1,640 ft)
								50	500	550 m (1,804 ft)
								50	500	1000 m (3,281 ft)
MMF (Duplex SC/ST)	-6.0	0.0	-17.0	0.0	11.0	1310	1000Base-LX	62.5	160	2 km (1.2 mi)
								50	500	1 km (3,280 ft)
SMF (Duplex SC/ST)	-9.5	-3.0	-20.0	-3.0	10.5	1310	1000Base-LX/LH	9	**	10 km (6.2 mi)
SMF (Simplex SC)	-9.0	-3.0	-20.0	-3.0	11.0	1310 / 1490 / 1490 / 1310	1000Base-BX-U / 1000Base-BX-D	9	**	10 km (6.2 mi)
SMF (Simplex SC)	-8.0	-3.0	-22.0	-3.0	14.0	1310 / 1490 / 1490 / 1310	1000Base-BX-U / 1000Base-BX-D	9	**	20 km (12.4 mi)
SMF (Duplex SC/ST)	-2.0	2.0	-23.0	-3.0	21.0	1310	1000Base-EX	9	**	40 Km (24.9 mi)
SMF (Simplex SC)	-3.0	2.0	-23.0	-3.0	2-0	1310 / 1490 / 1490 / 1310	1000Base-BX-U / 1000Base-BX-D	9	**	40 Km (24.9 mi)
SMF (Duplex SC/ST)	-2.0	5.0	-23.0	-3.0	21.0	1550	1000Base-ZX	9	**	70 Km (43 mi)
SMF (Simplex SC)	-2.0	3.0	-26.0	-3.0	24.0	1510 / 1590 / 1590 / 1510	1000Base-BX-U / 1000Base-BX-D	9	**	80 Km (50 mi)
SMF (Duplex SC/ST)	0.0	5.0	-32.0	-9.0	32.0	1550	1000Base-ZX	9	**	120 Km (74.6 mi)
SMF (Simplex SC)	-3.0	2.0	-34.0	-9.0	31.0	1510 / 1590 / 1590 / 1510	1000Base-BX-U / 1000Base-BX-D	9	**	120 Km (74.6 mi)
SMF (Duplex SC/ST)	2.0	5.0	-34.0	-9.0	36.0	1550	1000Base-ZX	9	**	160 Km (100 mi)

* 1db/km multimode fiber cable

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

Switch Properties

Standards	<ul style="list-style-type: none"> • IEEE 802.3 for 10Base-T • IEEE 802.3u for 100Base-TX and 100Base-FX • IEEE 802.3ab for 1000Base-T • Energy Efficient Ethernet (EEE) as per 802.3az. • IEEE 802.3x for Flow Control
Processing Type	Store and Forward, non-blocking architecture
MAC Address Table Size	8K
Packet Buffer Memory	1 Mbit
Jumbo Frame Size	10 KB
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	41 BTU/Hr

MTBF	696,618 hours (without fiber module) 522,423 (with fixed fiber module) 489,383 hours (with 1 SFP slot) 385,036 hours (with 2 SFP slots) <i>MTBF Calculation model based on MIL-HDBK-217-FN2 @ 30 °C</i>
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Product Weight and Dimensions

Weight	0.32 Kg, 0.7 lbs
Dimensions	35.5 x 111 x 138 mm, 1.39 x 4.37 x 5.43 inches

Packaging

Shipping Weight	0.47 Kg, 1.04 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	IEC 62368-1 (ed 2) EN 62368-1:2014 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 ICES-0003 CISPR 22:2008/EN55022:2010 (Class A) EN61000-6-4
EMC 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) : 80 MHz to 2.7 Ghz ; 10V/m, 800 MHz to 1000 MHz; 20V/m IEC/EN 61000-4-4 (EFT) : DC power line +/- 2 kV, Data Line +/- 2kV IEC/EN 61000-4-5 (Surge) : DC power line, Line/Line +/- 1kV, Line/Earth +/- 2kV, Data Line line/earth +/- 1kV IEC/EN 61000-4-6 (CS) : 150kHz to 80 MHz; 10V IEC/EN 61000-4-8 (Magnetic Field): 30 A/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.
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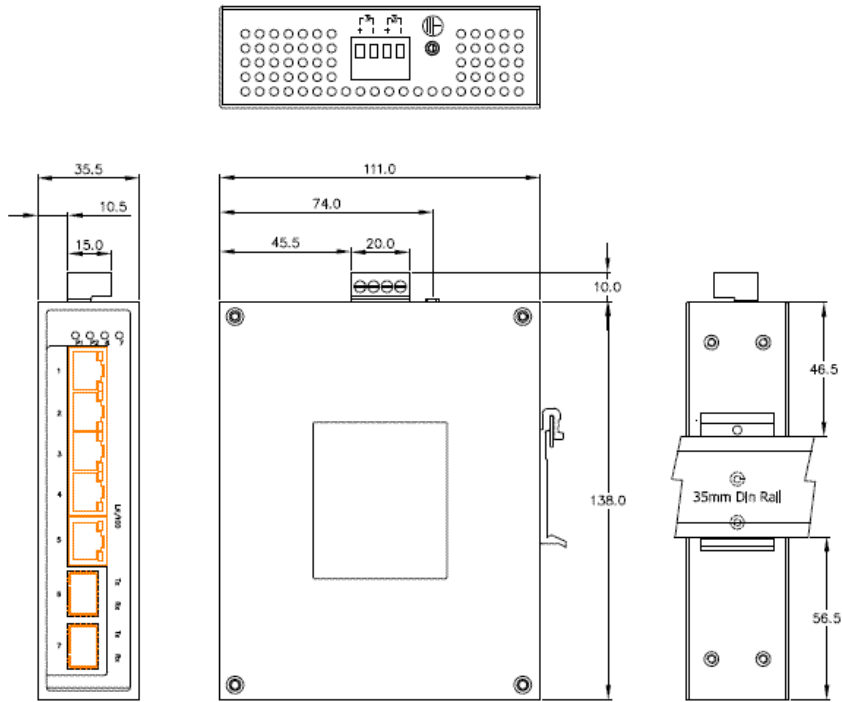
Environmental	<u>Reach, RoHS and WEEE Compliant</u>
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Other	ECCN: 5A991
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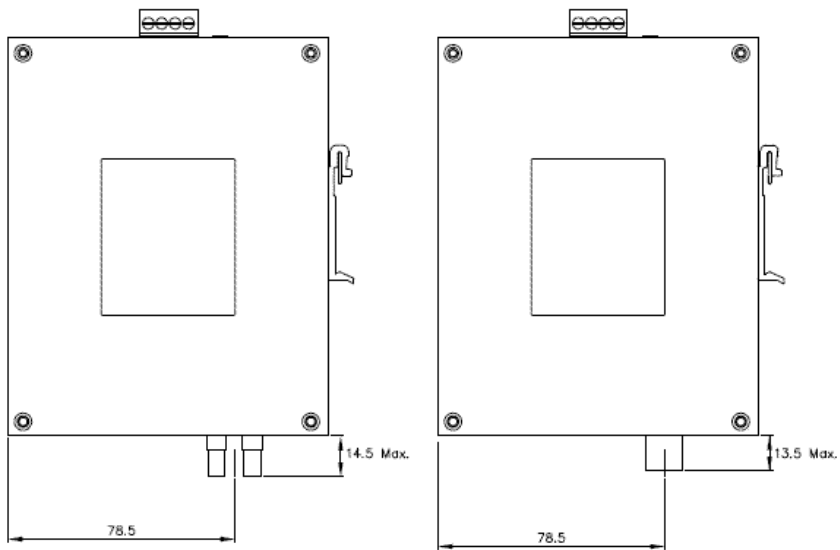
	HTSUS Number: 8517.62.0020
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	5 year warranty
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IDS-105G with Standard DIN Rail



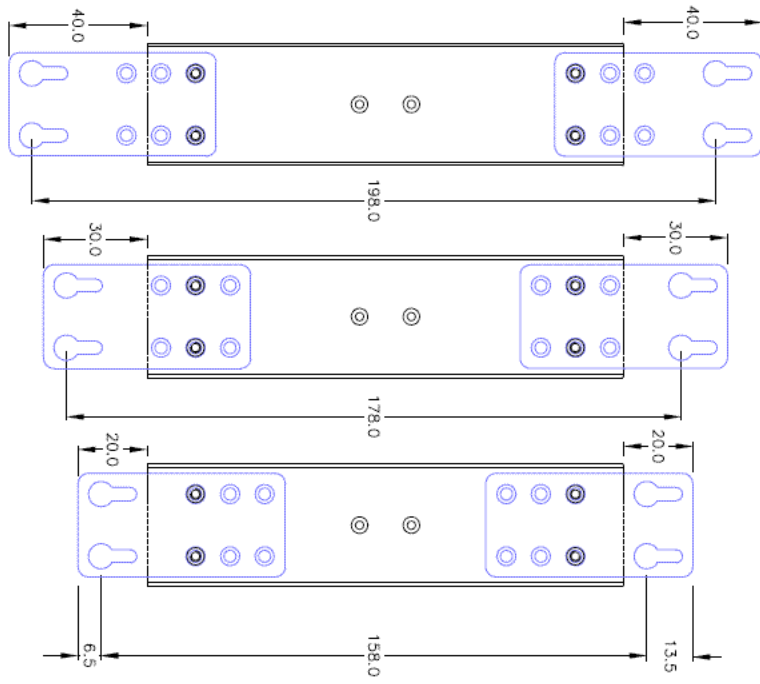
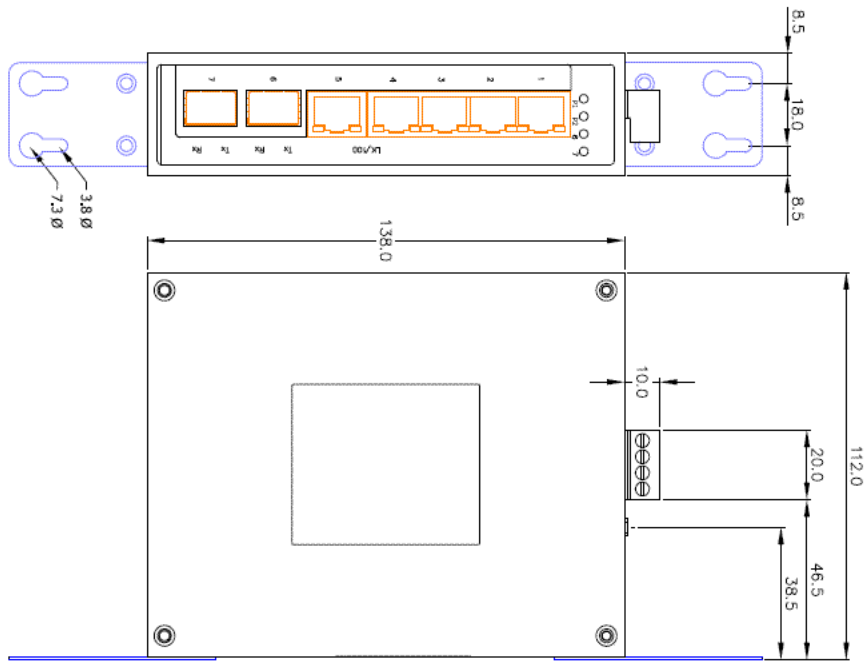
RJ45 , SC & SFP type dimensions



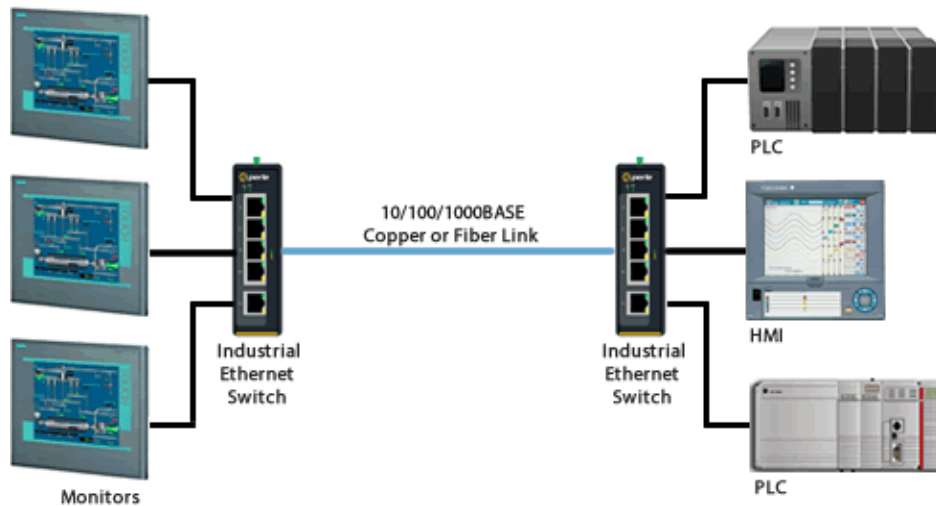
ST type dimensions

SC BiDi type dimensions

IDS-105G with Optional Wall/Panel Mount Brackets



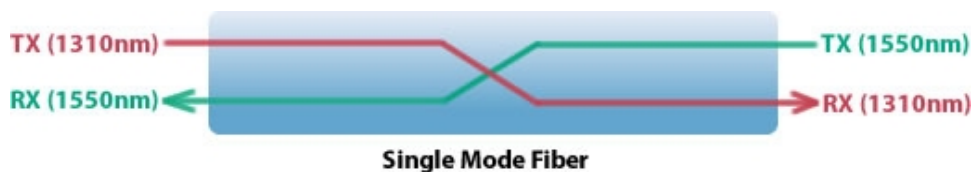
IDS-105G Industrial Gigabit Switch Diagram



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-105G

Operating Temperature (Std) = 0° C to 60° C (32° F to 140° F).
All Models have 5 x 10/100/1000Base-T (RJ45) Connectors

Model

Choose your Fiber Connection from the table below
1000Base-X Duplex Fiber

Fiber Connector	Transmit (dBm)	Receive (dBm)	Power Budget (dB)	Wavelength (nm)	Fiber Type	Operating Distance
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Min Max Min Max

No Fiber connection									
<u>IDS-105G</u>									
<u>IDS-105G-SFP</u>	1 x SFP slot (empty)	Fiber specifications are dependent upon the choice of SFP used							
<u>IDS-105G-DSFP</u>	2 x SFP slot (empty)	Fiber specifications are dependent upon the choice of SFP used							
<u>IDS-105G-M2SC05</u>	1 x Duplex SC	-9.5	-4.0	-17.0	-3.0	7.5	850	MMF	550 m (1,804 ft)
<u>IDS-105G-M2ST05</u>	1 x Duplex ST	-9.5	-4.0	-17.0	-3.0	7.5	850	MMF	550 m (1,804 ft)
<u>IDS-105G-M2SC2</u>	1 x Duplex SC	-6.0	0.0	-17.0	0.0	11.0	1310	MMF	2 km (1.2 mi)
<u>IDS-105G-M2ST2</u>	1 x Duplex ST	-6.0	0.0	-17.0	0.0	11.0	1310	MMF	2 km (1.2 mi)
<u>IDS-105G-S2SC10</u>	1 x Duplex SC	-9.5	-3.0	-20.0	-3.0	10.5	1310	SMF	10 km (6.2 mi)
<u>IDS-105G-S2ST10</u>	1 x Duplex ST	-9.5	-3.0	-20.0	-3.0	10.5	1310	SMF	10 km (6.2 mi)
<u>IDS-105G-S2SC40</u>	1 x Duplex SC	-2.0	2.0	-23.0	-3.0	21.0	1310	SMF	40 km (24.9 mi)
<u>IDS-105G-S2ST40</u>	1 x Duplex ST	-2.0	2.0	-23.0	-3.0	21.0	1310	SMF	40 km (24.9 mi)
<u>IDS-105G-S2SC70</u>	1 x Duplex SC	-2.0	5.0	-23.0	-3.0	21.0	1550	SMF	70 km (43 mi)
<u>IDS-105G-S2ST70</u>	1 x Duplex ST	-2.0	5.0	-23.0	-3.0	21.0	1550	SMF	70 km (43 mi)
<u>IDS-105G-S2SC120</u>	1 x Duplex SC	0.0	5.0	-32.0	-9.0	32.0	1550	SMF	120 km (74.6 mi)

<u>IDS-105G-S2ST120</u>	1 x Duplex ST	0.0	5.0	-32.0	-9.0	32.0	1550	SMF	120 km (74.6 mi)
<u>IDS-105G-S2SC160</u>	1 x Duplex SC	2.0	5.0	-34.0	-9.0	36.0	1550	SMF	160 km (100 mi)
<u>IDS-105G-S2ST160</u>	1 x Duplex ST	2.0	5.0	-34.0	-9.0	36.0	1550	SMF	160 km (100 mi)

**Operating Temperature (Ind) = -40° C to 75° C (-40 F to 167° F)
All Models have 5 x 10/100/1000Base-T (RJ45) Connectors**

**Choose your Fiber Connection from the table below
1000Base-X Duplex Fiber**

Model	Fiber Connector	Transmit (dBm)		Receive (dBm)		Power Budget (dB)	Wavelength (nm)	Fiber Type	Operating Distance
		Min	Max	Min	Max				
<u>IDS-105G-XT</u>		No Fiber connection							
<u>IDS-105G-SFP-XT</u>	1 x SFP slot (empty)	Fiber specifications are dependent upon the choice of SFP used							
<u>IDS-105G-DSFP-XT</u>	2 x SFP slot (empty)	Fiber specifications are dependent upon the choice of SFP used							
<u>IDS-105G-M2SC05-XT</u>	1 x Duplex SC	-9.5	-4.0	-17.0	-3.0	7.5	850	MMF	550 m (1,804 ft)
<u>IDS-105G-M2ST05-XT</u>	1 x Duplex ST	-9.5	-4.0	-17.0	-3.0	7.5	850	MMF	550 m (1,804 ft)
<u>IDS-105G-S2SC10-XT</u>	1 x Duplex SC	-9.5	-3.0	-20.0	-3.0	10.5	1310	SMF	10 km (6.2 mi)

<u>IDS-105G-S2ST10-XT</u>	1 x Duplex ST	-9.5	-3.0	-20.0	-3.0	10.5	1310	SMF	10 km (6.2 mi)
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* 1db/km multimode 50/125 micron fiber cable

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

Operating Temperature (Std) = 0° C to 60° C (32° F to 140° F).
All Models have 5 x 10/100/1000Base-T (RJ45) Connectors

Choose your Fiber Connection from the table below
1000Base-X Simplex (BiDi) Fiber

Model	Fiber Connector	Transmit (dBm)		Receive (dBm)		Power Budget (dB)	Wavelength (nm) TX / RX	Fiber Type	Operating Distance
		Min	Max	Min	Max				
<u>IDS-105G-S1SC10U</u>	1 x Simplex SC	-9.0	-3.0	-20.0	-3.0	11.0	1310 / 1490	SMF	10 km (6.2 mi)
<u>IDS-105G-S1SC10D</u>	1 x Simplex SC	-9.0	-3.0	-20.0	-3.0	11.0	1490 / 1310	SMF	10 km (6.2 mi)
<u>IDS-105G-S1SC20U</u>	1 x Simplex SC	-8.0	-3.0	-22.0	-3.0	14.0	1310 / 1490	SMF	20 km (12.4 mi)
<u>IDS-105G-S1SC20D</u>	1 x Simplex SC	-8.0	-3.0	-22.0	-3.0	14.0	1490 / 1310	SMF	20 km (12.4 mi)
<u>IDS-105G-S1SC40U</u>	1 x Simplex SC	-3.0	2.0	-23.0	-3.0	20.0	1310 / 1490	SMF	40 km (24.9 mi)
<u>IDS-105G-S1SC40D</u>	1 x Simplex SC	-3.0	2.0	-23.0	-3.0	20.0	1490 / 1310	SMF	40 km (25 mi)
<u>IDS-105G-S1SC80U</u>	1 x Simplex SC	-2.0	3.0	-26.0	-3.0	24.0	1510 / 1590	SMF	80 km (50 mi)
<u>IDS-105G-S1SC80D</u>	1 x Simplex SC	-2.0	3.0	-26.0	-3.0	24.0	1590 / 1510	SMF	80 km (50 mi)

<u>IDS-105G-S1SC120U</u>	1 x Simplex SC	-3.0	2.0	-34.0	-9.0	31.0	1510 / 1590	SMF	120 km (74.6 mi)
<u>IDS-105G-S1SC120D</u>	1 x Simplex SC	-3.0	2.0	-34.0	-9.0	31.0	1590 / 1510	SMF	120 km (74.6 mi)

**Operating Temperature (Ind) = -40° C to 75° C (-40 F to 167° F)
All Models have 5 x 10/100/1000Base-T (RJ45) Connectors**

**Choose your Fiber Connection from the table below
1000Base-X Simplex (BiDi) Fiber**

Model	Fiber Connector	Transmit (dBm)		Receive (dBm)		Power Budget (dB)	Wavelength (nm) TX / RX	Fiber Type	Operating Distance
		Min	Max	Min	Max				
<u>IDS-105G-S1SC10U-XT</u>	1 x Simplex SC	-9.0	-3.0	-20.0	-3.0	11.0	1310 / 1490	SMF	10 km (6.2 mi)
<u>IDS-105G-S1SC10D-XT</u>	1 x Simplex SC	-9.0	-3.0	-20.0	-3.0	11.0	1490 / 1310	SMF	10 km (6.2 mi)

Industrial Ethernet Switch Accessories

Panel Mount kit PM3 Brackets for attaching 30 to 45 mm wide Perle IDS industrial switches inside a control panel or to a wall for 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

UNO-PS/1AC/24DC/60W DIN-Rail Power Supply UNO-PS/1AC/24DC/60W DIN-Rail Power Supply: 24 VDC, 60 Watt with universal 85 to 264 VAC, -25 to 70°C extended operating temperature. [Power Supply Specifications.](#)

UNO-PS/1AC/24DC/150W Power Supply UNO-PS/1AC/24DC/150W Power Supply - DIN-Rail 24 VDC , 150 Watt power supply with universal 85 to 264 VAC, -25 to 70°C extended operating temperature. [Power Supply Specifications.](#)