Overview
This document contains instructions necessary for the installation and operation of the Perle IDS-105G Ethernet switch. This Ethernet switch can be ordered as a 5-port RJ-45 switch or as a 5-port RJ-45 switch with either one fiber port (SC or ST) or up to two SFP transceiver ports. The fiber port can be either single mode (SM) or multimode (MM) depending on the model selected and they can operate over different wavelengths and distances. The SFP transceiver ports support SFP’s supplied by Perle, Cisco or other manufacturers of MSA complaint SFP modules.
Visit the Perle website for the most up to date installation guides, models and specifications. [http://www.perle.com/](http://www.perle.com/)

<table>
<thead>
<tr>
<th>Models</th>
<th>Port 1-5</th>
<th>Port 6</th>
<th>Port 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDS-105G</td>
<td>TP (RJ-45)</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>IDS-105G-xxxxxxxxxxx</td>
<td>TP (RJ-45)</td>
<td>Fiber port</td>
<td>Not applicable</td>
</tr>
<tr>
<td>IDS-105G-SFP</td>
<td>TP (RJ-45)</td>
<td>SFP transceiver port *</td>
<td>Not applicable</td>
</tr>
<tr>
<td>IDS-105G-DSFP</td>
<td>TP (RJ-45)</td>
<td>SFP transceiver port *</td>
<td>SFP transceiver port*</td>
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<tr>
<td>IDS-105G-XT</td>
<td>TP (RJ-45)</td>
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<td>None</td>
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<tr>
<td>IDS-105G-SFP-XT</td>
<td>TP (RJ-45)</td>
<td>SFP transceiver port*</td>
<td>Not applicable</td>
</tr>
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<td>IDS-105G-DSFP-XT</td>
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<td>SFP transceiver port*</td>
<td>SFP transceiver port*</td>
</tr>
<tr>
<td>IDS-105G-xxxxxxxxxxx-XT</td>
<td>TP (RJ-45)</td>
<td>Fiber port</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

**Note:** xxxxxxxxx indicates models numbers for this product line.

**TP = twisted pair**

* fiber characteristics are determined by the SFP inserted

**XT – Industrial Temperature Models**
Features

• 10/100/1000Base-T, 1000Base-X, SC/ST/SFP fiber ports, multi/single mode
• Pluggable SFP transceiver ports
• IEEE 802.3/802.3u/802.3x
• 1000Base-SX /LX/LH /BX-U/BX-D /EX /ZX
• 10/100/1000Base-T, Full/Half duplex, auto-negotiation on copper ports
• Redundant DC power inputs
• Rugged high-strength case
• Industrial temperature models
• DIN-rail or wall/panel mounting

Note – In this guide the various models will be referred to as the IDS-105G

Getting to know your IDS-105G Switch

Package Contents:

• IDS-105G
• DIN-rail mounting clip (pre-installed on the unit)
• This guide

Note – optional panel/wall mounting kits may be ordered
Front View of IDS-105G (5 port RJ-45)

- Power Terminal Block
- Power Indicator LEDs
- TP Ports (RJ-45)
- Port Link / Speed LEDs
**Front View of IDS-105G** (with two SFP transceiver ports)

- **Power Terminal Block**
- **Power Indicator LEDs**
- **SFP Indicator LEDs**
- **TP Ports (RJ-45)**
- **Port Link / Speed LEDs**
- **SFP Ports**
Front View of IDS-105G (with one fiber port)

- Power Terminal Block
- Power Indicator LEDs
- Fiber Port LED
- TP Ports (RJ-45)
- Port Link / Speed LEDs
- Fiber Port 6
Bottom view of the IDS-105G (with fiber port)

Top view of the IDS-105G

Power
The IDS-105G switch has two power inputs that can be connected simultaneously to DC or AC power sources. If one power source fails, the other acts as a backup, and automatically powers the switch.

Reset Button
To reset the IDS-105G insert a paper clip into the air hole vent and gently press the reset button. The LEDs on the IDS-105G will go On and then momentarily Off when released to show that the unit has been reset. All links will be dropped and the MAC tables will be cleared.
LED Status

P1 / P2– Power (Green LED)
On: Power present
Off: No Power Present

6 (Port 6 – Fiber or SFP) (Green LED)
On: Link up
Flashing: Link up and Ethernet activity detected
Off: Link down

7 (Port 7 – SFP) (Green LED)
On: Link up
Flashing: Link up and Ethernet activity detected
Off: Link down

Ethernet Port Status

Port Link / Speed (Green and Yellow LEDs)
On: Link up
  o 1000 Mbps: Green On; Yellow Off
  o 100 Mbps: Green On; Yellow On
  o 10 Mbps: Green Off; Yellow On

Flashing: Link up and Ethernet activity detected
Off: Link Down
Views for the IDS-105G

Note: all dimensions are in mm
SC Models

ST Models

Single Fiber Models

IDS-105G Installation Guide
Mounting the IDS-105G on a DIN-rail

1. The DIN-rail clip will be fixed to the back panel of the IDS-105G switch when you receive the product.
2. Position the IDS-105G switch such that the top of the DIN-rail fits into the slot on the top of the DIN-rail clip, just below the hook and behind the spring.
3. While pushing down on the unit to compress the spring rotate the bottom of the IDS-105G toward the rail. This will snap the bottom of the rail into the bottom of the clip. See diagram below.

```
DIN-rail hook
DIN-rail
Wall
DIN-rail hook
DIN-rail
Wall
```

Note: To remove the IDS-105G switch from the DIN-rail, push down slightly on the IDS-105G while pulling the bottom out.
Mounting the IDS-105G to the Wall

1. Remove the DIN-rail clip from the rear panel on the IDS-105G.
2. Attach the wall mount plates to the IDS-105G switch as shown below using the screws provided in the kit.

3. Use the wall mount plates as a guide to mark the spots where the screws will be.
4. Drive the screws into the wall leaving about 2 mm of the screw protruding from the wall to allow room for sliding the wall mount panel between the wall and the screws.
5. Once the screws are fixed to the wall, insert the four screw heads through the large parts of the keyhole shaped screw openings.
6. Pull the IDS down to lock the IDS-105G to the wall mount.
7. Tighten the four screws securely to the wall.

*Note: For the best results use screws that have the following attributes:*
*Head diameter .5 - .6 mm*
*Shaft diameter 3 - 3.5 mm*

*Note: the dimensions are in mm*
Wiring up the IDS-105G

Power sources must be off prior to beginning the power connection steps.

Ensure that the voltage and current ratings of the intended power source are appropriate for the IDS-105G as indicated on the product label.

Ensure that the installation and electrical wiring of the equipment is performed by trained and qualified personnel and that the installation complies with all local and national electrical codes.

If this unit is to be installed in a location where the ambient temperature exceeds 50°C, the case temperature may exceed safe levels. For this reason, this unit should be installed in a restricted access location where access can only be gained by service personnel or users who have been instructed about the reasons for the restrictions applied to the location and about any precautions that shall be taken; and access is through the use of a tool or lock and key, or other means of security, and is controlled by the authority responsible for the location.

Hazardous Location Warnings
(safe conditions for use:)

Subject devices are to be installed in an ATEX Certified IP54 (as defined in IEC 60529) enclosure and accessible only by the use of a tool.

Subject devices are for use in an area of not more than pollution degree 2 in accordance with IEC 60664-1.

These devices are open-type devices that are to be installed in an enclosure with tool removable cover or door, suitable for the environment.

This equipment is suitable for use in Class I, Division 2, Groups A,B,C,D or only non-hazardous locations only.

WARNING – EXPLOSION HAZARD – Do not disconnect equipment unless power has been removed or the area is known to be non-hazardous.

WARNING EXPLOSION HAZARD – Substitution of any components on this switch may impair suitability for Class I, Division 2.

Provision shall be made to prevent the rated voltage being exceeded by the transient disturbances of more than 140% of the peak rated voltage.
Connecting the IDS-105G to ground
If your installation requires additional grounding follow this procedure.

1. Follow the manufacturer’s instructions for attaching the ground wire to grounding lug.
2. Attach the grounding lug to the chassis and secure with the grounding screw provided.

Grounding the chassis requires the following items:

- One grounding lug (not provided)
- One 12 AWG wire (not provided)

Connecting Power to the IDS-105G

1. Ensure the power source is off prior to connection.
2. Strip both wires (12-20 AWG) 5 mm (3/16\textsuperscript{th} inch).
3. Loosen the terminal block screws and connect positive (+) / negative (-) wires into the -/+ terminals.
4. Tighten terminals screws 0.51Nm torque.
5. Ensure the wires are securely fastened.
6. Re-insert the Terminal block connector if removed.
7. Turn on power source.
8. Check that the P1 LED is On.
9. If desired connect P2 (power source 2, beginning at Step 1).
10. One individual conductor for each clamping point.
**Ethernet Copper Cabling Requirements**
- Category 5 UTP or STP
- 24-22 AWG
- Straight through or Ethernet crossover cable

Connect the copper cables from each TP port (RJ-45) on the IDS-105G switch to Ethernet-enabled devices. See below for pinouts.

**8-pin RJ-45**

![RJ-45 Connector Diagram](image)

<table>
<thead>
<tr>
<th>MDI Port Pinouts</th>
<th>MDI-X Port Pinouts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pin</strong></td>
<td><strong>Signal</strong></td>
</tr>
<tr>
<td>1</td>
<td>Tx+</td>
</tr>
<tr>
<td>2</td>
<td>Tx-</td>
</tr>
<tr>
<td>3</td>
<td>Rx+</td>
</tr>
<tr>
<td>6</td>
<td>Rx-</td>
</tr>
</tbody>
</table>

Remaining pins not used.

**Fiber Port Cabling Requirements**

**MM:** 50/125 microns or 62.5/125 microns  
**SM:** 9/125 microns

Connect the fiber cables to Port 6/7 on the IDS-105G and the other end to a compliant fiber devices. If you are making your own fiber cables, remember that the RX on one side needs to go to TX on the other side and vice versa. See diagram below.

![Fiber Port Diagram](image)
**Technical Specifications**

### Connection
- **Dual input terminal block power**
  - Power Input/Consumption:
    - 9.6 to 60 VDC, 1.25A max
    - 18 to 30 VAC, 0.67A max 50/60 Hz
- **Reverse Polarity Protection**: Yes

### Interface
- **RJ-45**
  - 10/100/1000Base-T, auto negotiation speed, F/H duplex mode and auto MDI/MDI-X connection
- **Fiber Ports**
  - 1000Base-X (SC or ST connectors)
- **SFP transceiver ports**
  - One or two transceiver ports (depending on model) for 1000Base-X SFP’s
- **LED indicators**
  - P1 – power 1
  - P2 – power 2
  - Ports 1 – 8 G/Y –Link/Activity/Speed
  - Port 6 – port status (Fiber or SFP models)
  - Port 7 – port status (SFP models)

### Environmental
- **Operating Temperature**
  - **Commercial Models**: IDS-105G-(D)SFP and IDS-105G-xxxxxxx
    - 0°C to 60°C (32°F to 140°F)
  - **Industrial Models**: IDS-105G-(D)SFP-XT and IDS-105G-xxxxxxx-XT
    - -40°C to 75°C (-40°F to 167°F)
- **Storage Temperature**
  - **Commercial Models**: IDS-105G-(D)SFP and IDS-105G-xxxxxxx
    - -25°C to 70°C (-13°F to 158°F)
  - **Industrial Models**: IDS-105G-(D)SFP-XT and IDS-105G-xxxxxxx-XT
    - -40°C to 85°C (-40°F to 185°F)
- **Operating Humidity**: 5% to 90% non-condensing
- **Storage Humidity**: 5% to 95% non-condensing
- **Operating Altitude**: Up to 3,048 m (10,000 ft)

### Regulatory Approvals
- **Safety**
  - cUL 60950-1, EN 60950-1
- **Industrial**
  - UL 508
- **Hazardous Locations**
  - ANSI/ISA 12.12.01-2013 Class I Division 2 Groups A-D
  - ATEX Class I Zone 2
  - CENELEC EN 60079-0:2012+A11:2013
  - CENELEC EN 60079-15:2010
  - IEC 60079-0 Edition 6 – Revision Date 2012-11-01
- **Laser Safety**
  - Transmitters: EN60825-1:2007
  - FDA/CDRH 21 CFR1040.11/CFR1040.11
- **EMI/EMC**
  - FCC Part 15 – Class B
  - CISPR22 / EN55022 Class B
  - EN55024 Class B
## Fiber Specifications

<table>
<thead>
<tr>
<th>IDS-105G models</th>
<th>Fiber Connector</th>
<th>SFP transceiver ports</th>
<th>Mode</th>
<th>Distance</th>
<th>Wavelength (nm)</th>
<th>TX Power (dB)</th>
<th>RX Power (dB)</th>
<th>Budget</th>
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</thead>
<tbody>
<tr>
<td>IDS-105G(-XT)</td>
<td>None</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
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<td>IDS-105G-M2SC05-(XT)</td>
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<td>850</td>
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<td>MM</td>
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<td>850</td>
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<td>7.5</td>
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<td>-6</td>
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<td>-3</td>
<td>10.5</td>
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<td>-3</td>
<td>10.5</td>
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<td>1310</td>
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<td>-3</td>
<td>11</td>
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<td>SM</td>
<td>10 km</td>
<td>1310</td>
<td>-9</td>
<td>-3</td>
<td>11</td>
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<tr>
<td>IDS-105G-S1SC20U</td>
<td>SC</td>
<td>None</td>
<td>SM</td>
<td>20 km</td>
<td>1310</td>
<td>-8</td>
<td>-3</td>
<td>14</td>
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<td>None</td>
<td>SM</td>
<td>20 km</td>
<td>1310</td>
<td>-8</td>
<td>-3</td>
<td>14</td>
</tr>
<tr>
<td>Model</td>
<td>SC/ST</td>
<td>Connector</td>
<td>Fiber Type</td>
<td>Distance (km/Miles)</td>
<td>TX/RX</td>
<td>Min: -3</td>
<td>Max: -5</td>
<td>Min: -23</td>
</tr>
<tr>
<td>----------------</td>
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<td>IDS-105G-S2SC40</td>
<td>SC</td>
<td>None</td>
<td>SM duplex</td>
<td>40 km / 24.9 miles</td>
<td>TX: 1310 RX:1310</td>
<td>Min: -3</td>
<td>Max: -5</td>
<td>Min: -23</td>
</tr>
<tr>
<td>IDS-105G-S2ST40</td>
<td>ST</td>
<td>None</td>
<td>SM duplex</td>
<td>40 km / 24.9 miles</td>
<td>TX: 1310 RX:1310</td>
<td>Min: -3</td>
<td>Max: -5</td>
<td>Min: -23</td>
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<td>IDS-105G-S1SC40U</td>
<td>SC</td>
<td>None</td>
<td>SM duplex</td>
<td>40 km / 24.9 miles</td>
<td>TX: 1310 RX:1490</td>
<td>Min: -3</td>
<td>Max: -2</td>
<td>Min: -23</td>
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<td>None</td>
<td>SM duplex</td>
<td>40 km / 24.9 miles</td>
<td>TX: 1490 RX:1310</td>
<td>Min: -3</td>
<td>Max: -2</td>
<td>Min: -23</td>
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<td>SC</td>
<td>None</td>
<td>SM duplex</td>
<td>70 km / 43.5 miles</td>
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<td>Min: -2</td>
<td>Max: 5</td>
<td>Min: -23</td>
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<tr>
<td>IDS-105G-S2ST70</td>
<td>ST</td>
<td>None</td>
<td>SM duplex</td>
<td>70 km / 43.5 miles</td>
<td>TX: 1550 RX:1550</td>
<td>Min: -2</td>
<td>Max: 5</td>
<td>Min: -23</td>
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<td>None</td>
<td>SM simplex</td>
<td>80 km / 49.7 miles</td>
<td>TX: 1510 RX:1590</td>
<td>Min: -2</td>
<td>Max: 3</td>
<td>Min: -26</td>
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<tr>
<td>IDS-105G-S1ST80D</td>
<td>ST</td>
<td>None</td>
<td>SM simplex</td>
<td>80 km / 49.7 miles</td>
<td>TX: 1590 RX:1510</td>
<td>Min: -2</td>
<td>Max: 3</td>
<td>Min: -26</td>
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<tr>
<td>IDS-105G-S2SC120</td>
<td>SC</td>
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<td>SM duplex</td>
<td>120 km / 74.6 miles</td>
<td>TX: 1550 RX:1550</td>
<td>Min: 0</td>
<td>Max: 5</td>
<td>Min: -32</td>
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<tr>
<td>IDS-105G-S1SC120U</td>
<td>SC</td>
<td>None</td>
<td>SM simplex</td>
<td>120 km / 74.6 miles</td>
<td>TX: 1510 RX:1590</td>
<td>Min: -2</td>
<td>Max: 3</td>
<td>Min: -26</td>
</tr>
<tr>
<td>IDS-105G-S1SC120D</td>
<td>ST</td>
<td>None</td>
<td>SM simplex</td>
<td>120 km / 74.6 miles</td>
<td>TX: 1590 RX:1510</td>
<td>Min: -2</td>
<td>Max: 3</td>
<td>Min: -26</td>
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<td>SC</td>
<td>None</td>
<td>SM duplex</td>
<td>160 km / 100 miles</td>
<td>TX: 1550 RX:1550</td>
<td>Min: 0</td>
<td>Max: 5</td>
<td>Min: -32</td>
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<tr>
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<td>ST</td>
<td>None</td>
<td>SM duplex</td>
<td>160 km / 100 miles</td>
<td>TX: 1550 RX:1550</td>
<td>Min: 0</td>
<td>Max: 5</td>
<td>Min: -32</td>
</tr>
</tbody>
</table>

*fiber characteristics are determined by the SFP inserted*
Product Label (samples)

For models IDS-105G-(D)SFP and IDS-105G-xxxxxxxx

Contacting Technical Support
Contact information for the Perle Technical Assistance Center (PTAC) can be found at the link below. A Technical Support Query may be made via this web page.

www.perle.com/support_services/support_request.shtml

Warranty / Registration
This product is covered by the Perle Ethernet Switches Warranty. Details can be found at:

http://www.perle.com/support_services/warranty.shtml

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