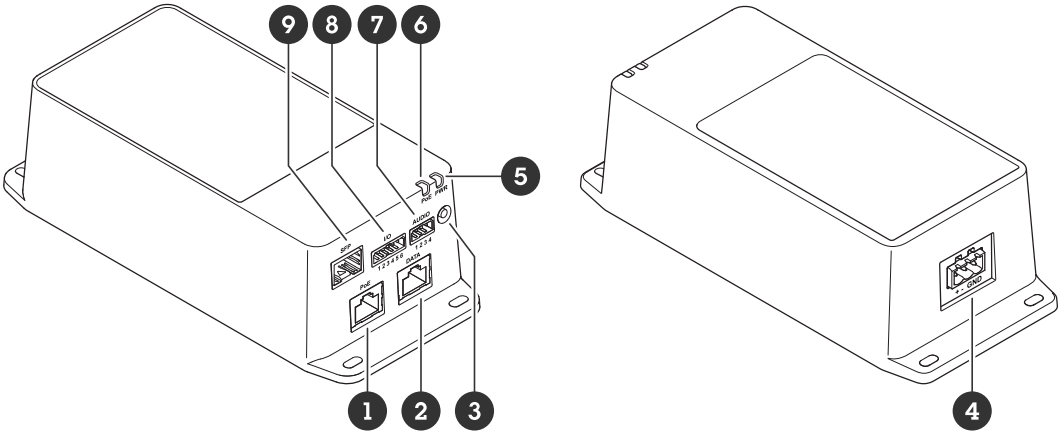
# AXIS TU8012 120 W Connectivity Midspan DC

User manual

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## Product overview




1 *Network connector RJ45 (PoE)*
2 *Ethernet RJ45 connector (DATA)*
3 *Control button*
4 *Power connector*
5 *Power LED*
6 *PoE LED*
7 *Audio connector*
8 *I/O connector*
9 *Optical fibre connector (SFP)*

### Smart restart

The connectivity midspan provides a connected device with power once they have established a connection.

The connected device sends keepalive signals to the connectivity midspan. If the connectivity midspan doesn't receive the signals within 15 minutes, the connectivity midspan restarts the connected device.

Note

- The device may become inaccessible and a camera may fail to display an image correctly, even if it continues to respond to keepalive signals from the connectivity midspan. The device will not restart automatically as long as it acknowledges these signals.
- For a list of all products that supports smart restart, see *axis.com/products/axis-tu8012-120-w-connectivity-midspan#compatible-products*.

# Setup

## About the device

When you connect your midspan to a supported Axis camera, settings for audio and I/O will appear on the camera's webpage.

You can manage all the settings described in this manual through the camera's webpage.

### Power requirements

The power input determines the maximum PoE class that's supported. The connected device's PoE class must not exceed the maximum according to the table.

**⚠ WARNING**

Use a power source that meets the voltage and current requirements specified for the selected PoE class.

| Max input voltage/current | 24 V | 30 V | 36 V | 42 V | 48 V |
|---|---|---|---|---|---|
| 1.0 A | - | Class 3 | Class 3 | Class 3 | Class 4 |
| 1.5 A | Class 3 | Class 3 | Class 4 | Class 4 | Class 5 |
| 2.0 A | Class 4 | Class 4 | Class 5 | Class 5 | Class 6 |
| 2.5 A | Class 4 | Class 5 | Class 6 | Class 6 | Class 7 |
| 3.0 A | Class 5 | Class 6 | Class 7 | Class 7 | Class 8 |
| 3.5 A | Class 5 | Class 6 | Class 7 | Class 8 | 120 W |
| 4.0 A | Class 6 | Class 7 | Class 8 | 120 W | 120 W |
| 4.5 A | Class 7 | Class 8 | Class 8 | 120 W | 120 W |
| 5.0 A | Class 7 | Class 8 | 120 W | 120 W | 120 W |
| 5.5 A | Class 8 | Class 8 | 120 W | 120 W | 120 W |
| 6.0 A | Class 8 | 120 W | 120 W | 120 W | 120 W |
| 7.0 A | 120 W | 120 W | 120 W | 120 W | 120 W |

**Class 3 –** PoE IEEE 802.3af, Type 2 Class 3

**Class 4 –** PoE IEEE 802.3at, Type 2 Class 4

**Class 5 –** PoE IEEE 802.3bt, Type 3 Class 5

**Class 6 –** PoE IEEE 802.3bt, Type 3 Class 6

**Class 7 –** PoE IEEE 802.3bt, Type 3 Class 7

**Class 8 –** PoE IEEE 802.3bt, Type 4 Class 8

**120 W –** Axis High PoE 120 W

## Audio

### Add audio to your recording

Turn on audio:

1. Go to **Settings > Audio** and turn on **Allow audio**.
2. Go to **Input > Type** and select your audio source.

Edit the stream profile which is used for the recording:

3. Go to **Settings > Stream** and click **Stream profiles**.
4. Select the stream profile and click **Audio**.
5. Select the checkbox and select **Include**.
6. Click **Save**.
7. Click **Close**.

### Allow two-way audio communication

Note

When you have set up two-way audio communication in the camera's user interface, use a video management system to make use of the functionality.

1. Connect a microphone to the **Audio in** connector.
2. Connect a speaker to the **Audio out** connector.

Allow two-way audio in the camera's web page:

1. Go to **Video > Stream > Audio** and include audio.
2. Go to **Audio > Device settings** and make sure audio is allowed.
3. Turn on the correct input source.
4. If you make any changes to the input source, click **Apply changes**.
5. Go to **System > Plain config**.
6. Set **Select group** to **Audio**.
7. Make sure **Duplex mode** is set to **Full duplex**

## Events

### Trigger an action

1. Go to **Settings > System > Events** to set up a rule. The rule defines when the device will perform certain actions. Rules can be setup as scheduled, recurring, or for example, triggered by motion detection.
2. Select the **Condition** that must be met to trigger the action. If you specify more than one condition for the rule, all of the conditions must be met to trigger the action.
3. Select which **Action** the device should perform when the conditions are met.

Note

If you make changes to an active rule, you have to restart the rule for the changes to take effect.

### Record video when a PIR detector senses motion

This example explains how to connect an Axis PIR detector to the product, and set up the camera to start recording when the detector senses motion.

**Required hardware**

- 3-wire cable (ground, power, I/O)
- Axis PIR detector

*NOTICE*

Disconnect the product from power before connecting the wires. Reconnect to power after all connections are done.

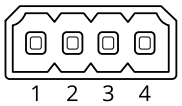
**Connect the wires to the product's I/O connector**

Note

For information on the I/O connector, see *Connectors, on page 9*.

1. Connect the ground wire to pin 1 (GND/-).
2. Connect the power wire to pin 2 (12V DC output).
3. Connect the I/O wire to pin 3 (I/O input).

**Connect the wires to the PIR detector's I/O connector**




1. Connect the other end of the ground wire to pin 1 (GND/-).
2. Connect the other end of the power wire to pin 2 (DC input/+).
3. Connect the other end of the I/O wire to pin 3 (I/O output).

**Configure the I/O port in the camera's webpage**

1. Go to **Settings > System** > **I/O ports**.
2. Select **Input** in the **Port 1** drop-down list.
3. Give the input module a descriptive name.
4. To make the PIR detector send a signal to the camera when it senses motion, select **Closed circuit** in the drop-down list.

To trigger the camera to start recording when it receives a signal from the PIR detector, you need to create a rule in the camera's webpage.

## Troubleshooting

**The midspan does not power up**

- Verify that the power cable is properly connected. The midspan must be powered by a 24–48 VDC power supply, max 7.0 A.
- Remove and re-apply power to the device and check the indicators during power up sequence.
- Verify that the power inlet cable is functional.

**The powered device does not operate**

- Verify that the powered device is designed for PoE operation.
- Verify that the input power is enough for the powered device.
- Make sure not to exceed the maximum recommended cable length between the midspan and the powered device.
- Verify that a standard Category 5e/6, straight-wired cable with four pairs is used.
- Verify that the powered device is connected to the PoE port.
- If an external power splitter is in use, verify that it works.
- Verify that there is no short over on any of the twisted pair cables or over the RJ45 connectors.
- If possible, reconnect the same powered device into a different midspan.

**The end device operates, but there is no data link**

- If using an Ethernet RJ45 cable, verify that a standard Category 5e/6, straight-wired cable with four pairs is used.
- If using an Ethernet RJ45 cable, verify that the Ethernet cable length is less than 100 m (330 ft) from the Ethernet source to the load/remote terminal.
- If using an optical fibre cable, verify that the cable and the SFP module are of the correct type, and that the cable is functional.
- If an external power splitter is in use, verify that it works.
- If possible, reconnect the same powered device into a different midspan.

**I/O doesn't work**

- Go to **System > Plain config > Network** and make sure IPv4 is turned on.

# Specifications

## LED indicators

*Power LED*

| LED color | Behavior | Description |
|---|---|---|
| Off | | Power off |
| Red | Flashing | The device is starting up. |
| Green | Solid | Power on |

*PoE LED*

| LED color | Behavior | Description |
|---|---|---|
| Off | | No device is connected. |
| Red | Solid | A remote device is connected but PoE negotiation has failed or the port is overloaded or shorted. |
| Green | Solid | A remote device is connected, PoE negotiation has succeeded and the port is providing load. |

*Power LED and PoE LED*

| LED color | Behavior | Description |
|---|---|---|
| Red | Flashing | The security of the device is compromised and the device is therefore disabled. |

## Buttons

### Control button

The control button is used for:

- Resetting the product to factory default settings.

Important

Reset to factory default should be used with caution. A reset to factory default resets all settings to the factory default values.

To reset the product to the factory default settings:

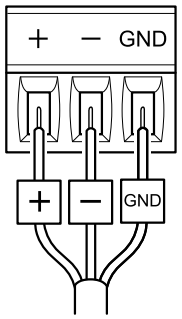
- Disconnect power from the product.
- Press and hold the control button while reconnecting power.
- Keep the control button pressed for 15–30 seconds until the status LED indicator flashes amber.

- Release the control button. The process is complete when the status LED indicator turns green.

## Connectors

### Power connector

3-pin terminal block for DC power input.




### Network connector

This product comes with several network connectors:

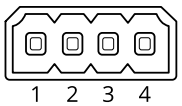
- PoE: RJ45 connector with High Power over Ethernet (High PoE)
- SFP: SFP connector to connect an SFP module with an optical fibre cable
- DATA: RJ45 connector to connect a device with an Ethernet RJ45 cable

Note

You can connect a device to either the SFP port or the data port. If you connect two devices, one device in each port, the device connected to the SFP port will have priority.

### Audio connector

4-pin terminal block for audio input and output.




| Function | Pin | Notes |
|---|---|---|
| GND | 1 | Ground |
| 12 V | 2 | 12 V for external source |
| Line in | 3 | Audio IN |
| Line out | 4 | Audio OUT |

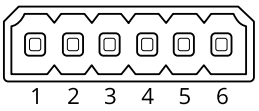
### I/O connector

**Digital input –** For connecting devices that can toggle between an open and closed circuit, for example PIR sensors, door/window contacts, and glass break detectors.

**Digital output –** For connecting external devices such as relays and LEDs. Connected devices can be activated by the VAPIX® Application Programming Interface, through an event or from the product's webpage.

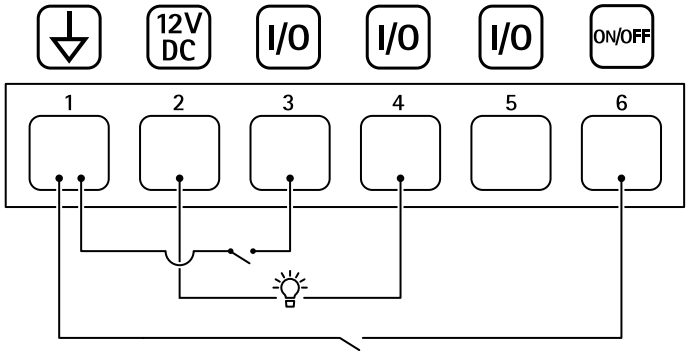
**ON/OFF –** Turns PoE output on or off.

6-pin terminal block




| Function | Pin | Notes | Specifications |
|---|---|---|---|
| DC ground | 1 | | 0 V DC |
| DC output | 2 | Can be used to power auxiliary equipment.<br>Note: This pin can only be used as power out. | 12 V DC<br>Max load = 50 mA |
| Configurable (Input or Output) | 3–5 | Digital input – Connect to pin 1 to activate, or leave floating (unconnected) to deactivate. | 0 to max 30 V DC |
| | | Digital output – Internally connected to pin 1 (DC ground) when active, and floating (unconnected) when inactive. If used with an inductive load, e.g., a relay, connect a diode in parallel with the load, to protect against voltage transients. | 0 to max 30 V DC, open drain, 100 mA |
| CAM ON/OFF | 6 | CAM ON: To keep the camera powered on, leave this pin floating (disconnected) for 7 s or more.<br><br>CAM OFF: Connect to pin 1 for 7 s or more to power off the camera. | |

**Example:**




1 *DC ground*
2 *DC output 12 V, max 50 mA*
3 *Configurable I/O*
4 *Configurable I/O*
5 *Configurable I/O*
6 *CAM ON/OFF*

T10247303

2026-11 (M3.2)

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