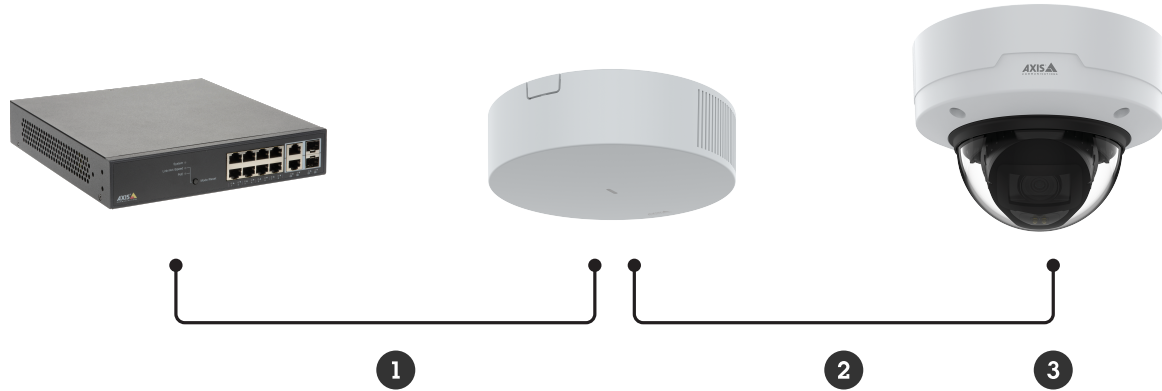


AXIS D6210 Air Quality Sensor

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Solution overview



- 1 PoE in
- 2 PoE out
- 3 Host device

Installation

Important

- Keep at least 1.5 meters (4.9 feet) away from areas with significant vents, or pollution sources. This includes air vents, doors, windows, cooking areas, etc.
- Install the device in a location that allows free air flow.
- For effective vaping or smoking detection, install the device on the ceiling at a height of 2.4–2.7 meters (7.9–8.9 feet) from the floor.
- For effective air quality and environmental monitoring, install the device at a height of 0.9–1.8 meters (3.0–5.9 feet) from the floor.

For detailed installation instructions, see the installation guide.

Configure your device

About the device

When you connect your device to a supported host device, the **Air quality monitor** tab will appear on the host device's web interface.

You can manage all the settings described in this manual through the host device's web interface.

Place your device

Where you place your device will depend on your use case. Install your device as close to your area of interest as possible while taking the following aspects into consideration:

Parameter	Placement	Height	Things to avoid
Vaping and cigarette smoke	Ceiling	2.4–2.7 m (7.9–8.9 ft)	Corners
PM, VOC, NO _x , CO ₂	Wall	0.9–1.8 m (3–6 ft)	Corners, heat sources
Humidity	Ceiling or wall	Any	Windows, ventilation, heat sources, corners
Temperature	Ceiling or wall	Any	Heating and cooling sources, corners

Sensor coverage area

The coverage area extends from the sensor in a cylinder shape. The detection radius for air quality parameters is 2 m (6.5 ft), but the total coverage area shifts based on environmental factors, such as the airflow and the layout of the room.

The coverage area for a sensor used to detect smoking or vaping is 12.6 m² (135 ft²).

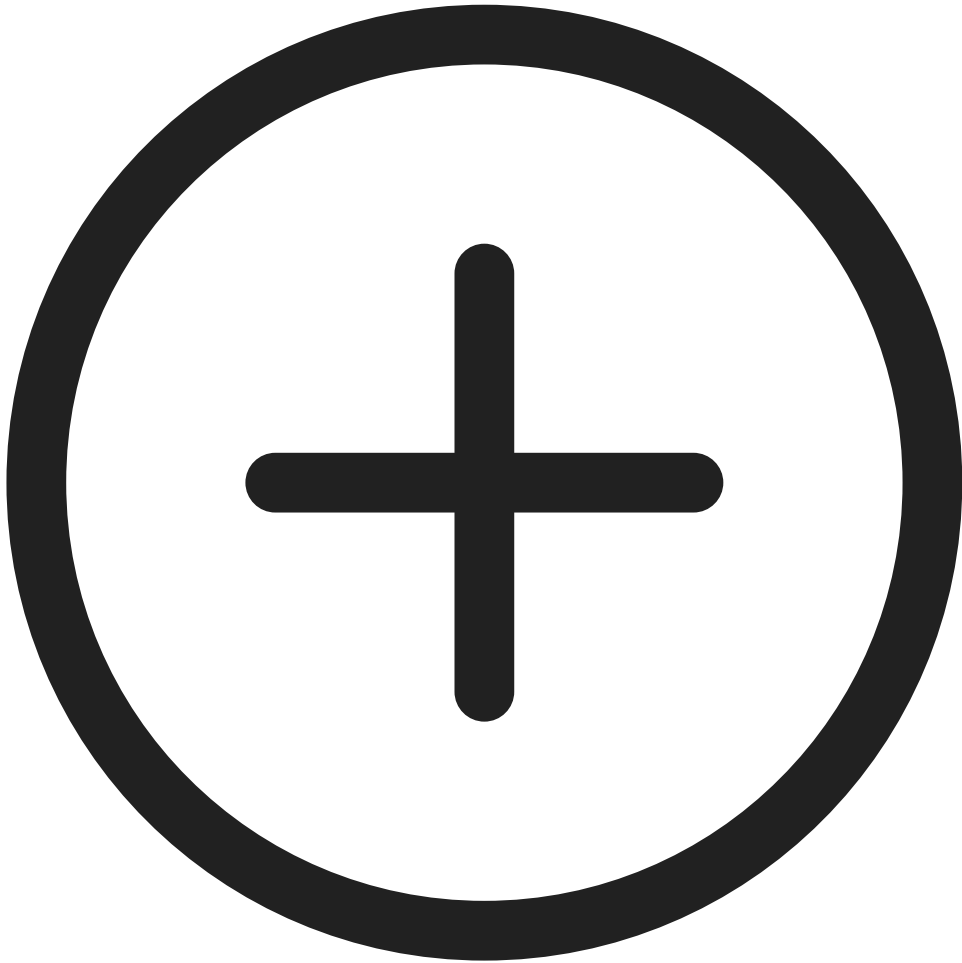
Configure air quality monitor

Configure air quality sensor dashboard

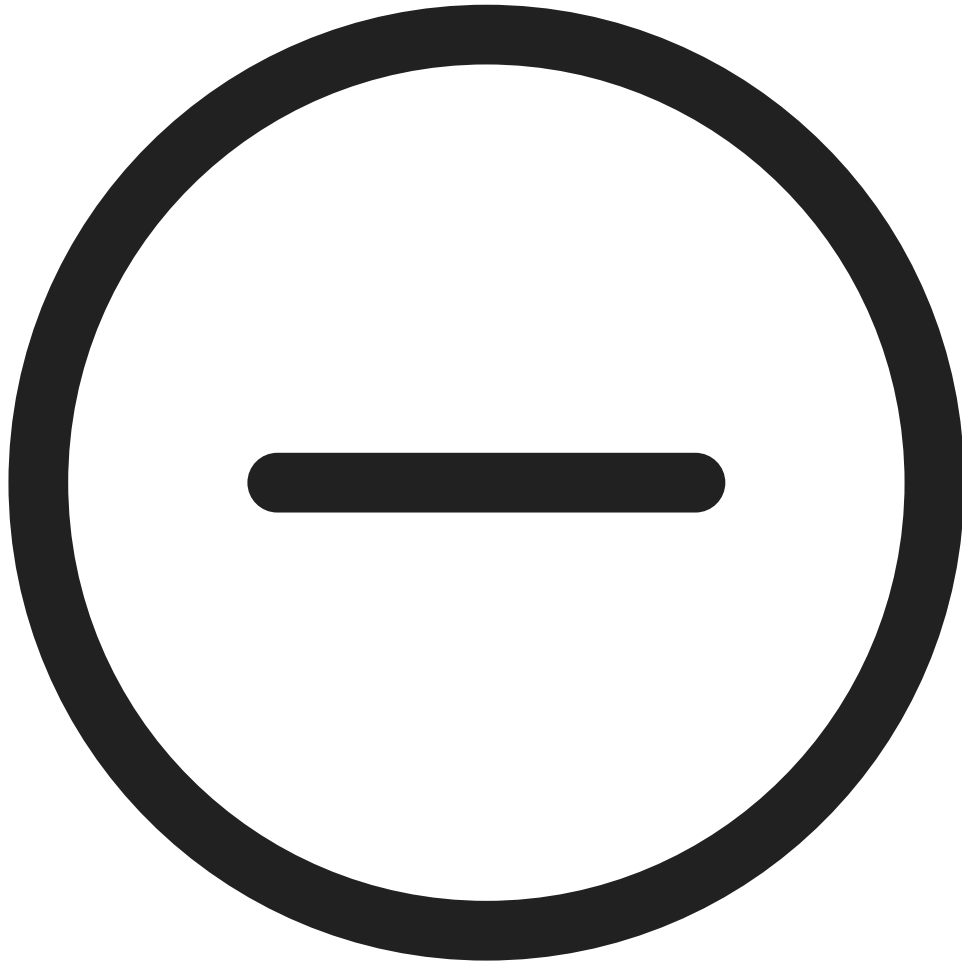
On the device web interface, go to **Air quality monitor > Dashboard**:

- To edit the name of the dashboard, click  next to the dashboard name.

- To show data on the dashboard, click  Edit >



- To hide data on the dashboard, Click  Edit >



Note

The dashboard only displays 12 parameters at a time. If your dashboard is full, you need to hide an active parameter before you can display a new one.

Set the air quality sensor

On the device web interface, go to **Air quality sensor > Settings**.

- Set thresholds for temperature, humidity, CO₂, NO_x, PM_{1.0}, PM_{2.5}, PM_{4.0}, PM_{10.0}, VOC, AQI, humidex, and heat index. See *Settings*.
- Set vaping detect sensitivity. See *Settings*.
- Set storage retention time. See *Storage settings*.
- Set variable metadata frequency. See *Variable metadata*.
- Set the validation period. See *Validation period*.
- Enable Modbus. See *Modbus*.

Publish MQTT data

Set up the MQTT broker

1. Go to **System > MQTT**.
2. Enter the broker information:
 - **Host:** IP address
 - **Username and Password**
 - **Device topic prefix:** This is where the MQTT data will be published. The default topic will be `axis/MAC-address`.
3. Turn on the MQTT client. The text should change to **Status: Connected**.
4. Click **Save**.

You can publish data with MQTT using either variable metadata or event data.

Publish MQTT data using variable metadata

Enable variable metadata:

1. Go to **Air quality monitor > Settings > Variable metadata**.
2. Enable **Variable metadata**.
3. Set your data transmission frequency.

Publish the MQTT data:

1. In the **MQTT publication** tab, click **Add condition**.
2. In the **Add condition** dialogue, enter:
 - **Condition:** Air quality cloud monitoring active
 - **MQTT topic:** `axis/{serial}/event/tns:axis/AirQualityMonitor/VariableMetadata`
 - **Payload topic:** `axis:AirQualityMonitor/VariableMetadata`
3. Click **Add**.

Note

If you can't see **Air quality cloud monitoring active**, you need to enable variable metadata in **Air quality monitor > Settings**.

The condition will publish all of the sensor parameters at the variable metadata interval you chose in a format like the following:

```
{ "topic": "axis:AirQualityMonitor/Metadata", "timestamp": 1772553621219,
  "message": { "source": { "sensor_name": "D6310" }, "key": {}, "data": { "NOx":
    "4.000000", "Humidity": "21.290001", "Temperature": "26.430000", "PM10.0":
    "5.200000", "AQI": "28", "PM4.0": "5.000000", "PM1.0": "3.800000", "CO2":
    "580", "VOC": "180.000000", "PM2.5": "4.500000", "Humidex": "25", "Heat
    index": "26",
```

The metadata fields that are generated will include:

Field	Description
topic	The payload topic that produced the condition.
timestamp	Timestamp when the data was generated.

serial	MAC address of the device. The serial number is only displayed if you enable Include serial number in the MQTT publication tab.
message	A JSON object containing information about the condition.
message.source	N/A
message.source.sensor_name	Name of the device that produced the condition.
message.key	N/A
message.data	A JSON object containing the data information.
message.data.NOx	Real-time nitric oxide and nitrogen dioxide concentration.
message.data.Humidity	Real-time humidity information.
message.data.Temperature	Real-time temperature in °C or °F.
message.data.PM1.0	Real-time particle matter 1.0 concentration.
message.data.PM2.5	Real-time particle matter 2.5 concentration.
message.data.PM4.0	Real-time particle matter 4.0 concentration.
message.data.PM10.0	Real-time particle matter 10.0 concentration.
message.data.AQI	Real-time air quality index based on air quality sensor data.
message.data.CO2	Real-time carbon dioxide concentration.
message.data.VOC	Real-time volatile organic compounds index.
message.data.Humidex	Real-time humidex index based on humidity and temperature data.
message.data.Heat_index	Real-time heat index based on humidity and temperature data.

Publish MQTT data using event data

To send event data about parameter thresholds:

1. Go to **System > MQTT > MQTT publication**.
2. Click **+ Add condition**.
3. In the **Add condition** dialogue, enter:
 - **Condition:** Air quality monitor > Air quality outside of acceptable range
 - **MQTT topic:** axis/{serial}/event/tns:axis/AirQualityMonitor/Alarm
 - **Payload topic:** axis:AirQualityMonitor/Alarm
4. Click **Add**.

The condition will publish the event data at the interval you chose in a format like the following:

```
{ "topic": "axis:AirQualityMonitor/Alarm", "timestamp": 1772553621219,
  "message": { "source": { "source": "Temperature" "sensor_name": "D6210" },
  "key": {}, "data": { "active": "1" } } }
```

If "active" is 0, parameters are within acceptable ranges. If "active" is 1, one or more parameter is outside of acceptable ranges.

To send event data about smoking and vaping:

1. Go to **System > MQTT > MQTT publication**.
2. Click **+ Add condition**.
3. In the **Add condition** dialogue, enter:
 - **Condition:** Air quality monitor > Vaping or smoking detected
 - **MQTT topic:** axis/{serial}/event/tns:axis/AirQualityMonitor/Vaping
 - **Payload topic:** axis:AirQualityMonitor/Vaping
4. Click **Add**.

The condition will publish the event data at the interval you chose in a format like the following:

```
{ "topic": "axis:AirQualityMonitor/Vaping", "timestamp": 1772553621219,
  "message": { "source": { "sensor_name": "D6210" }, "key": {}, "data": {
    "active": "1" } } }
```

If "active" is 0, the sensor doesn't detect smoking or vaping. If "active" is 1, the sensor detects smoking or vaping.

Set up rules for events

To learn more, see *Get started with rules for events*.

Record video when there is an alarm

The following example explains how to set up a camera to record video to an SD card when the air quality sensor detects vaping.

1. In the device's web interface, go to **System > Storage** to check that the SD card is mounted.
2. Go to **System > Events** and select **Add a rule**.
3. Enter the following information:
 - **Name:** Select a name for the rule.
 - **Condition:** Air quality monitor > Vaping or smoking detected.
 - **Action :** Recordings > Record video.
 - **Storage:** Choose your SD card.
 - **Camera:** Select a camera view area.
 - **Stream profile:** Select a stream profile or **Create a stream profile**.
 - **Prebuffer and Postbuffer:** Set the desired values.
4. Click **Save**.

Activate strobe siren over MQTT when there is an alarm

This example explains how to connect a camera to the strobe siren over MQTT, then activate a profile in the strobe siren when the air quality sensor identifies that the temperature is outside of the approved range.

Important

Check that a PoE class 4 power supply is used when the device is connected to a strobe siren.

Before you start:

- Create a profile in the strobe siren.

- Set up an MQTT broker and get the broker's IP address, username, and password.
- Set up air quality monitoring in the camera.

Set up the MQTT client in the camera:

1. In the camera's web interface, go to **System > MQTT > MQTT client > Broker** and enter the following information:
 - **Host:** Broker IP address
 - **Client ID:** For example, Camera 1
 - **Protocol:** The protocol the broker is set to
 - **Port:** The port number used by the broker
 - The broker **Username** and **Password**
2. Click **Save** and **Connect**.

Create a rule in the camera for MQTT publishing:

1. Go to **System > Events > Rules**.
2. Click **+ Add a rule**.
3. Enter the following information:
 - **Name:** Temperature out of range
 - **Condition:** Air quality monitor > Air quality outside acceptable range
 - **Sensor:** Temperature
 - **Action:** MQTT > Send MQTT publish message
 - **Topic:** Temperature out of range
 - **Payload:** On
 - **QoS:** 0, 1, or 2
4. Click **Save**.

Set up the temperature range:

1. In the camera's web interface, go to **Air quality monitor > Settings > Threshold**.
2. Enter the **Min** and **Max** to set the temperature range. You can switch between Celsius and Fahrenheit in **Temperature units**.

Set up the MQTT client in the strobe siren:

1. In the strobe siren's web interface, go to **System > MQTT > MQTT client > Broker** and enter the following information:
 - **Host:** Broker IP address
 - **Client ID:** Siren 1
 - **Protocol:** The protocol the broker is set to
 - **Port:** The port number used by the broker
 - **Username** and **Password**
2. Click **Save**.
3. Enable **Connect**.
4. Go to **MQTT subscriptions** and select **+ Add subscription**.
5. Enter the following information:
 - **Subscription filter:** Temperature out of range
 - **Subscription type:** Stateful
 - **QoS:** 0, 1, or 2

6. Click **Save**.

Create a rule in the strobe siren for MQTT subscriptions:

1. In the strobe siren's web interface, go to **System > Events > Rules**.
2. Select **+ Add a rule**.
3. Enter the following information:
 - **Name:** Temperature out of range
 - **Condition:** MQTT > Stateful
 - **Subscription filter:** Temperature out of range
 - **Payload:** On
 - **Action:** Light and siren > Run light and siren profile while the rule is active
 - **Profile:** Select the profile you want to be active.
4. Click **Save**.

Flash status LED on air quality sensor when there is an alarm

This example explains how to turn on the air quality sensor's flash status LED when CO2 is too high.

Create a rule:

1. In the camera's web interface, go to **System > Events > Rules > + Add a rule** to create a rule.
2. Enter the following information:
 - **Name:** Type a name for the rule.
 - **Conditions:** Air quality monitor > Air quality outside acceptable range
 - **Sensors:** CO2
 - **Actions:** LEDs > Flash I/O interface status LED
 - **Color:** Red
 - **Duration:** Preferred duration in hh:mm:ss format
3. Click **Save**.

Set up the alarm range for CO2:

1. In the camera's web interface, go to **Air quality monitor > Settings > Threshold**.
2. Under CO2, enter the **Min** and **Max** data to set the CO2 range.

Calibration for the first run of the device

Note

- Full CO2 accuracy takes 2 days the first time the device runs.
- The AQI (Air Quality Index) requires 12 hours to be functional the first time the device runs. The AQI will show **Calculating** until it has enough data. The calibration time is required whenever the device reboots.
- Full VOC accuracy is obtained after the device has been running for one hour. The calibration time is required whenever the device reboots.
- Full NOx accuracy is obtained after the device has been running for 6 hours. The calibration time is required whenever the device reboots.

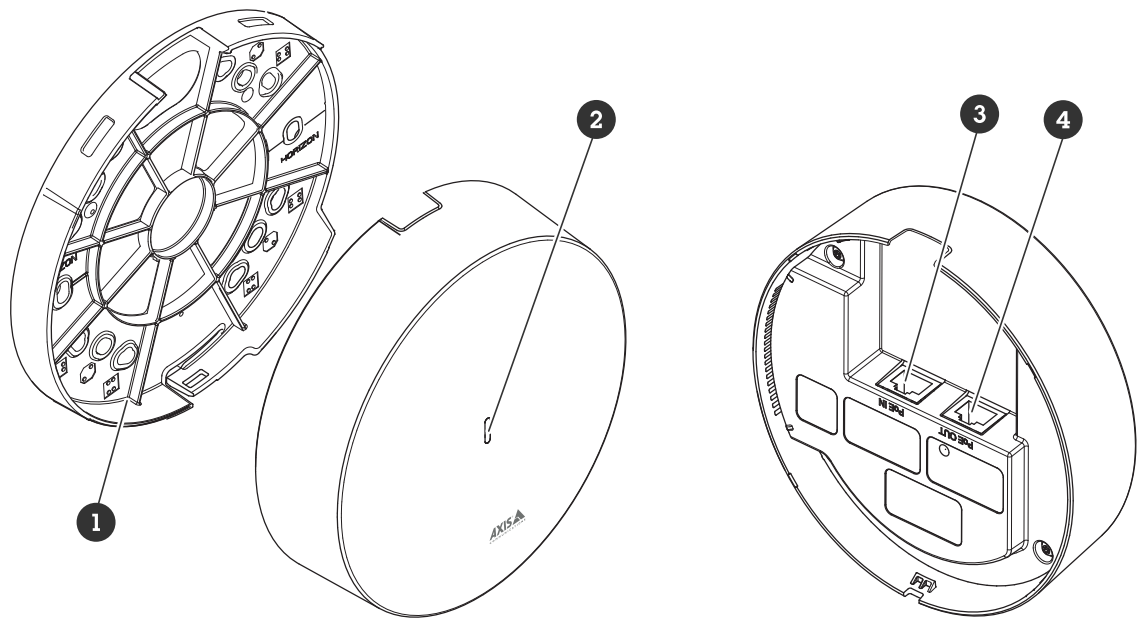
The web interface

To read about all the features and settings available in the web interface of devices with AXIS OS, go to *AXIS OS web interface help*.

Specifications

Product overview

AXIS D6210



- 1 Bracket mount
- 2 Status LED
- 3 PoE in
- 4 PoE out

LED indicators

Status LED	Indication
Unlit	Connection and normal operation.
Green	Shows steady green for 10 seconds for normal operation after startup completed.
Amber	Steady during startup. Flashes during device software upgrade.
Amber/Red	Flashes amber/red if network connection is unavailable or lost.
Red	Flashes red for device software upgrade failure.

Connectors

Network connector

Input: RJ45 Ethernet connector with Power over Ethernet (PoE).

Output: RJ45 Ethernet connector with Power over Ethernet (PoE).

Troubleshooting

Technical issues, clues and solutions

If you can't find what you're looking for here, try the troubleshooting section at axis.com/support

The Air quality monitor tab is not visible in the host device's web interface

The web interface is not updated.	Refresh the browser window. If that does not help, clear the browser cache.
Wrong host device firmware version.	Make sure that the host device has the latest firmware version installed. For information about how to check the host device's firmware version, see the host device's user manual.
The network connection is unavailable.	Check the LED indicators on the product and compare with the LED indicators table on .
The input and output network cables are connected to the wrong connectors.	Interchange the input and output network cables.
The host device is not compatible.	Go to the device's product page to see if your host device is compatible.

The air quality monitor tab is visible but the air quality sensor is not working

The host device has been disconnected from the air quality sensor.	Reconnect the host device to the air quality sensor and refresh the host device's web interface.
--	--

The host device doesn't start up after connecting it to the product

Hardware issue	Contact Axis support.
The network connection is unavailable.	Check the LED indicators on the product and compare with the LED indicators table on .
The input and output network cables are connected to the wrong connectors.	Interchange the input and output network cables.

Contact support

If you need more help, go to axis.com/support.

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