# smartIAQ GridSet

# smartIAQ GridSet Pro

Installation, Operation & Maintenance Manual

IOM

Application Guide

NOTICE: This product is to be used only as directed. Read entire manual before use. Do not use unless properly installed.

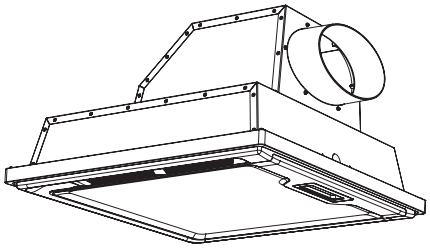
For technical product queries, please reach out to techsupport@gpsair.com

Please read entire manual before use.
Thank you for purchasing a smartIAQ® GridSet™ from GPS Air.

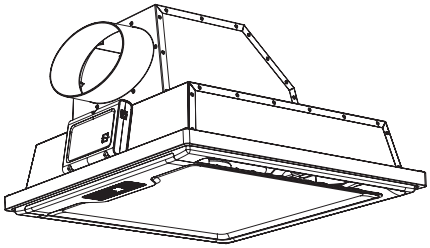
## *What's Included*

Before you start, confirm the contents of your shipment. Each smartIAQ GridSet (GridSet) will consist of the following:

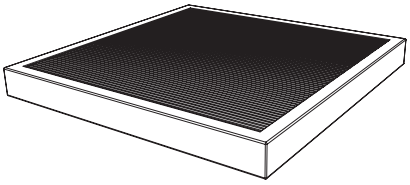
1. GridSet/GridSet Pro - 2 Pieces
   A. Filter Module
   B. Fan Module
2. One CompleteAQ Filter
3. Seismic Clips - 4 per unit (pre-installed)
4. Installation, Operation & Maintenance Manual.



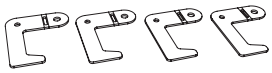
smartIAQ GridSet Filter Module



smartIAQ GridSet Fan Module



CompleteAQ Filter



Seismic Clips

## *What's Not Included*

The following items are required and can be purchased separately fro GPS Air:

1. smartIAQ Hub-4/Hub-4 Pro
2. A Plenum Rated Cat 5e cable with RJ45 male connectors at each end (max. length - 300ft)

## Safety Instructions

WARNING - RISK OF ELECTRICAL SHOCK
These servicing instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

- SmartIAQ GridSet requires a 48 VDC power supply. Do not connect it to AC mains or to a supply voltage other than 48 VDC.
- Failure to apply the correct supply voltage can cause electrical shock or equipment damage not covered under warranty.
- Use the GridSet Hub-4 power supply for SmartIAQ installations.
- All wiring must comply with local electrical codes and standards.
- Ensure the power supply is grounded as required by the installation environment and applicable codes
- Disconnect power supply before servicing
- SmartIAQ GridSet is designed for indoor use only

## Installation

CAUTION - The SmartIAQ GridSet communication interface is not Ethernet based. Do not connect the unit to an Ethernet switch, router, or PoE source

General guidance:

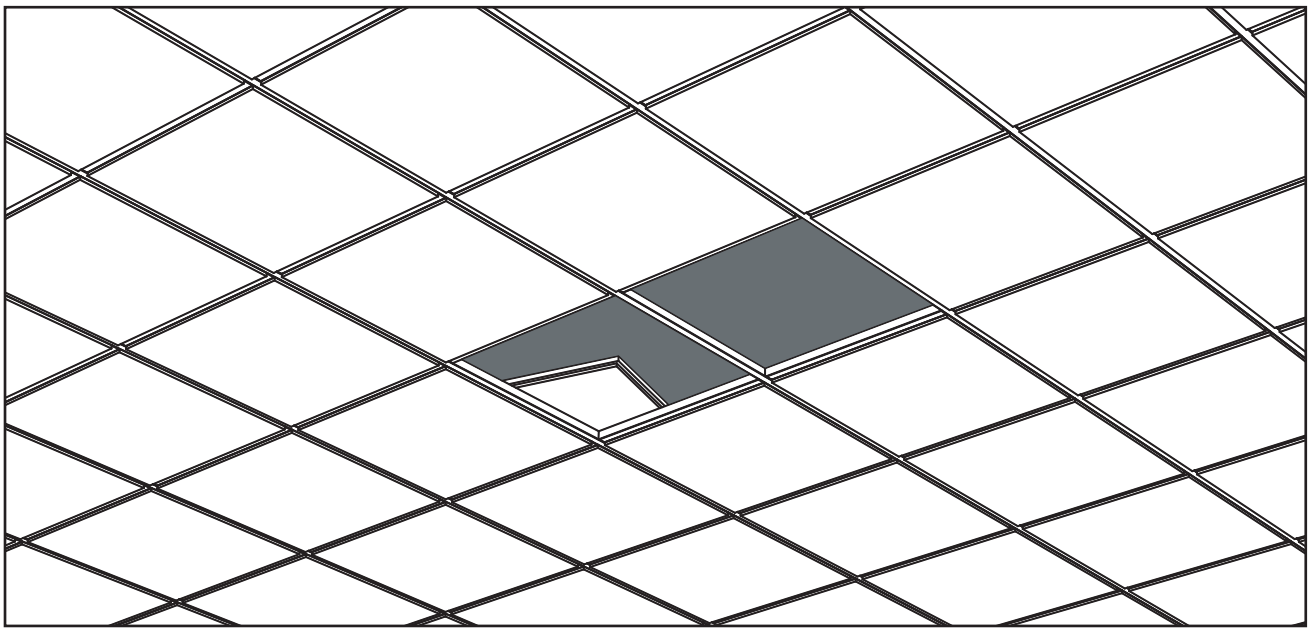
- Connect the GridSet to the appropriate smartIAQ Hub-4 using plenum rated Cat 5e cabling.
- Verify that the correct GridSet port and cabling are being used before applying power.
- Do not connect the unit to PoE equipment or any non-GridSet network infrastructure.

## Location

- Mount directly onto a drop ceiling. The GridSet unit is designed not to exceed the weight limit for direct drop-ceiling installation.
- The GridSet modules shall be installed such that they are at least 7.5’ above the floor.
- Use the optional integrated mounting features at the corners of each unit for additional support if desired.
- Installation must comply with all local electrical and building regulations.
- Do not allow any obstructions to block the fan or diffuser grille.
- Installation and maintenance must be performed by a trained professional.

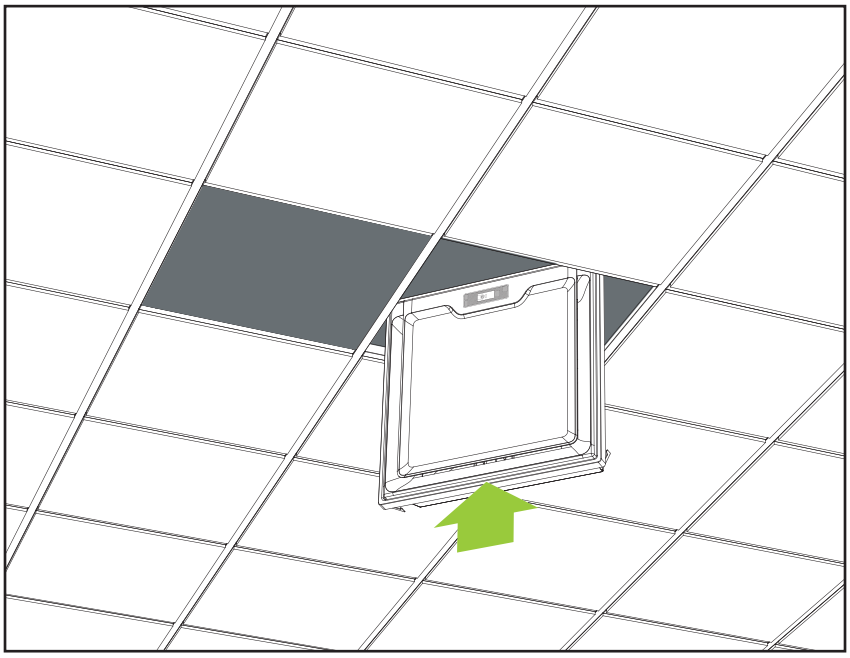
## Drop Ceiling Tile Removal

1 Locate the tiles in the center of the ceiling to install the smartIAQ GridSet. Remove the two tiles adjcent to each other. *Refer to the application guidance or contact tech support if there is anything preventing installing the unit in the center of the ceiling.*

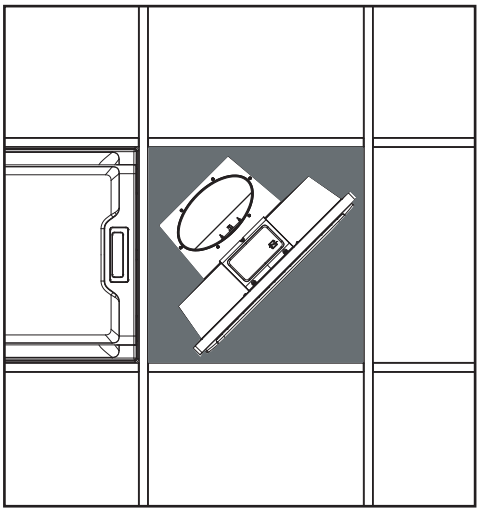


## GridSet Install.

2. Install both modules. Reference image 2a to orient each moduleso you can fit them through the 2x2 grid ceiling opening.

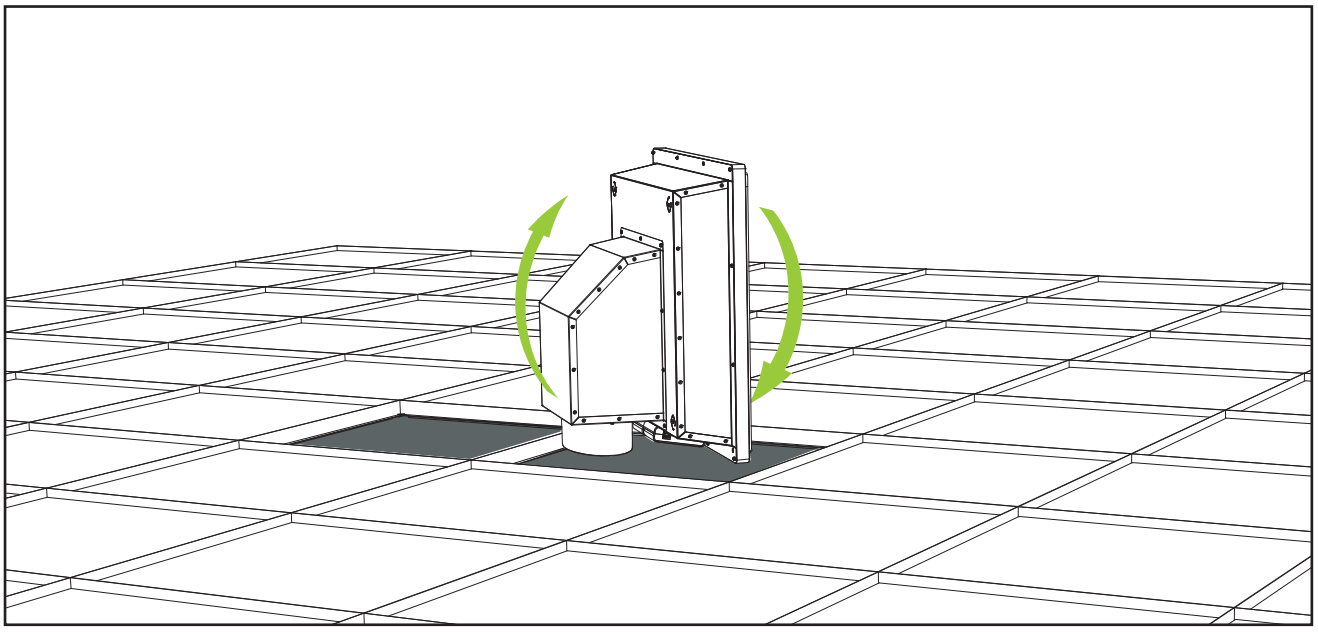


2a

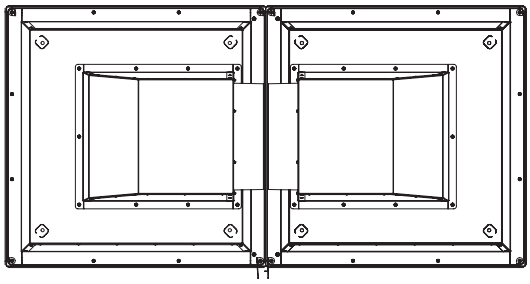


smartIAQ
GridSet

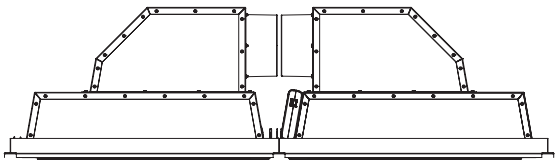
3. Rotate the module once it is above the drop ceiling and lay it on top of the ceiling grid. Orient the module so the airflow path faces the adjacent opening in the drop ceiling. Refer to the orthographic views below to ensure correct orientation.



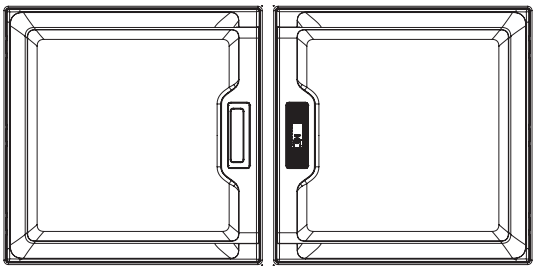
Top View *(above the ceiling grid)*



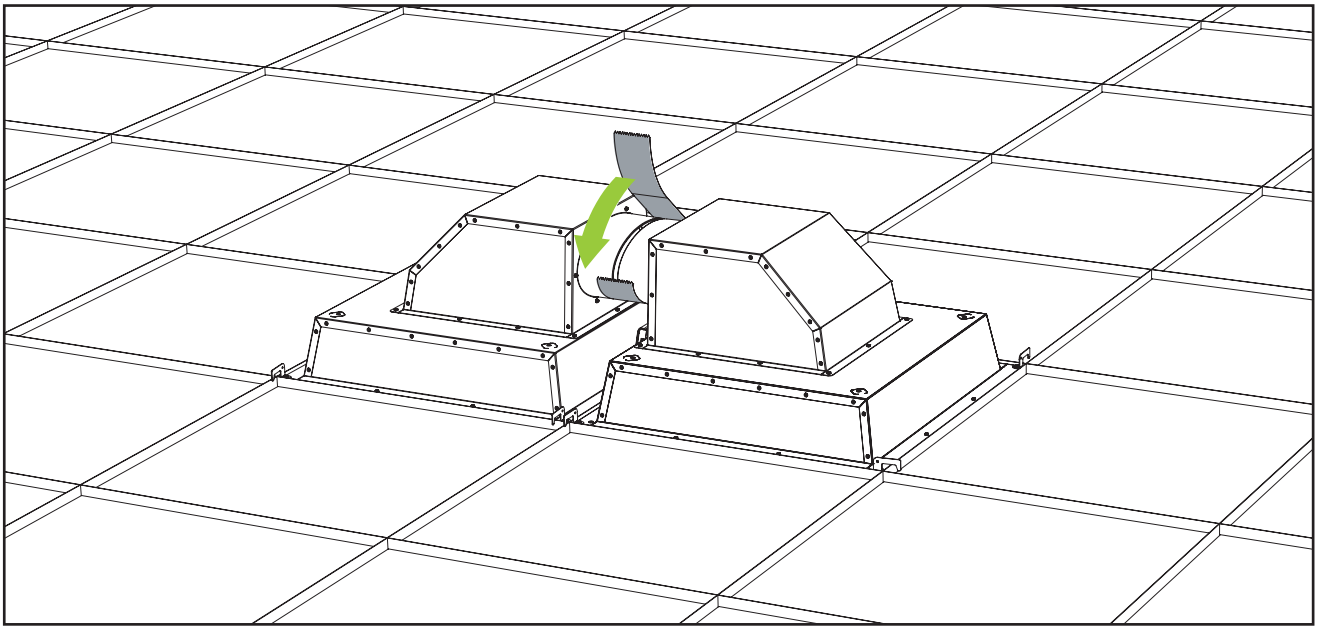
Side View



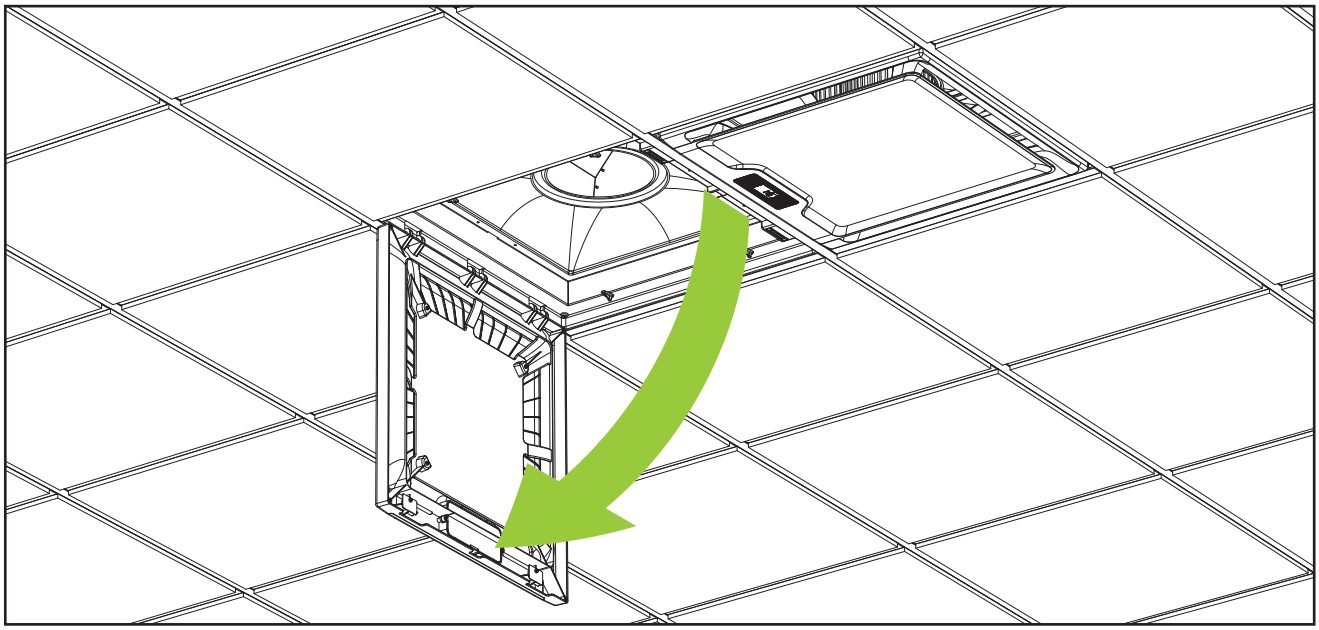
Bottom View *(Below the ceiling grid)*



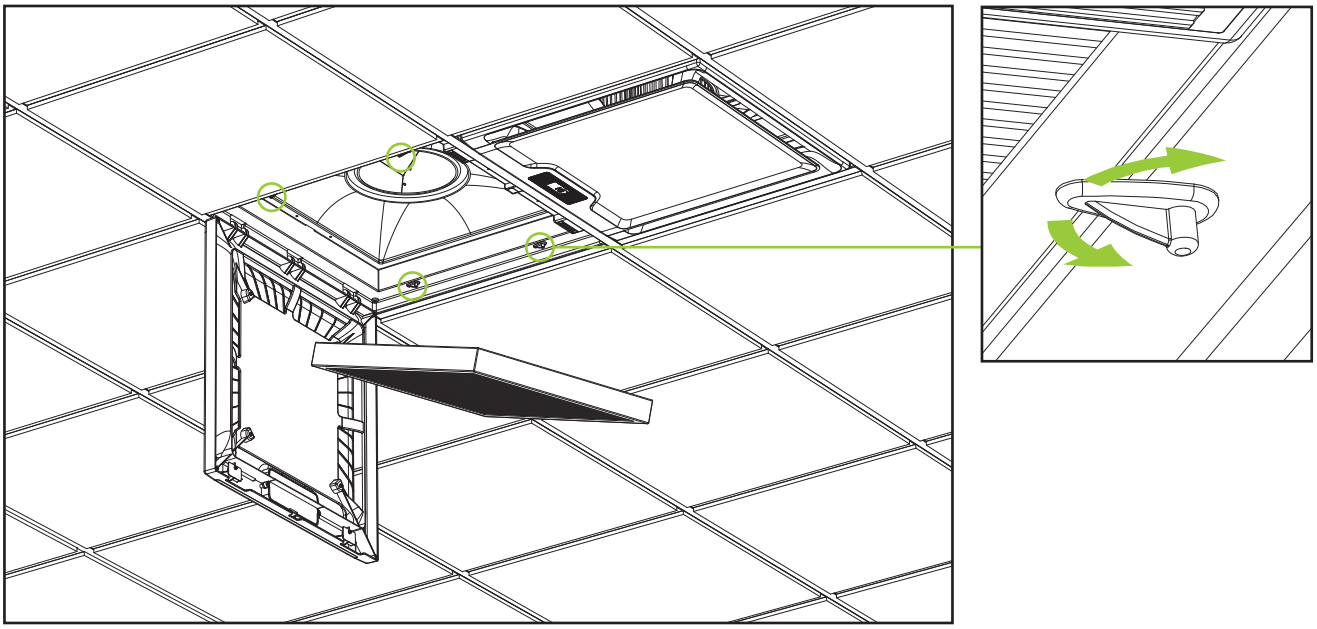
4. Once both modules are installed and alligned use UL rated HVAC foil tape (or equivalent) to attach and seal the air path



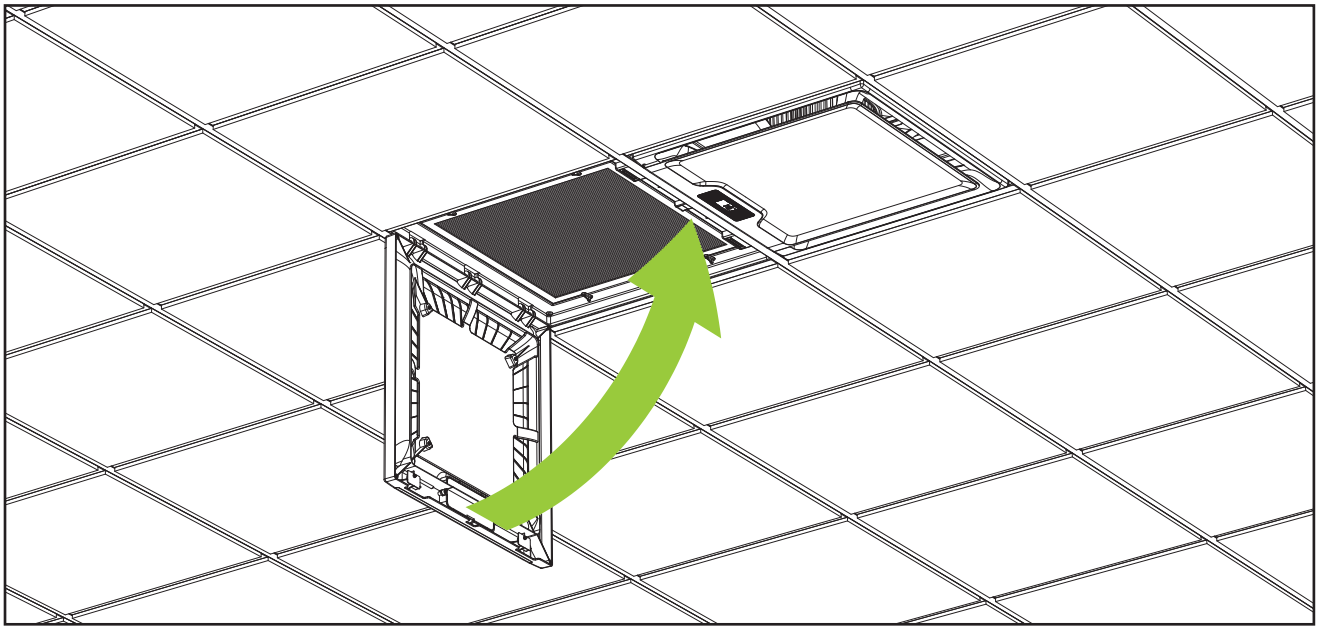
5. Open the filter module door by applying sufficient force to overcome the magnetic latch. The door will hinge downward.



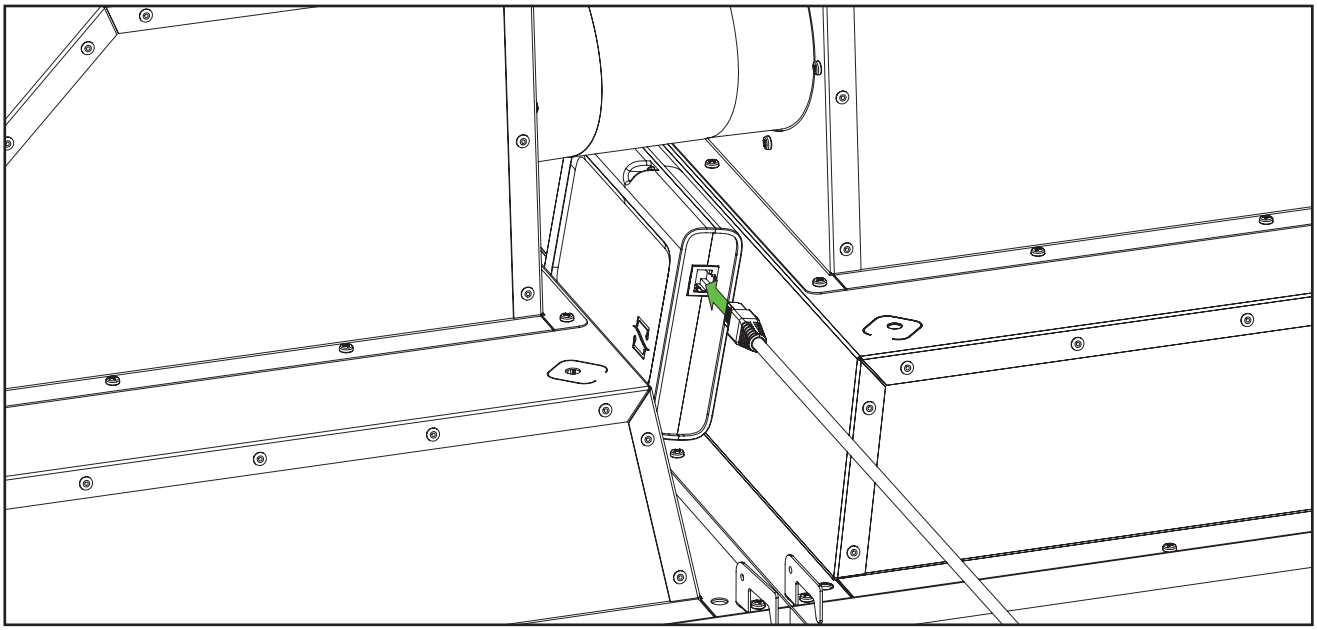
6. Once the filter is installed, use the four locking tabs and rotate them to secure the filter in place.



7. Close the filter door. The magnets will hold the door securely in position.

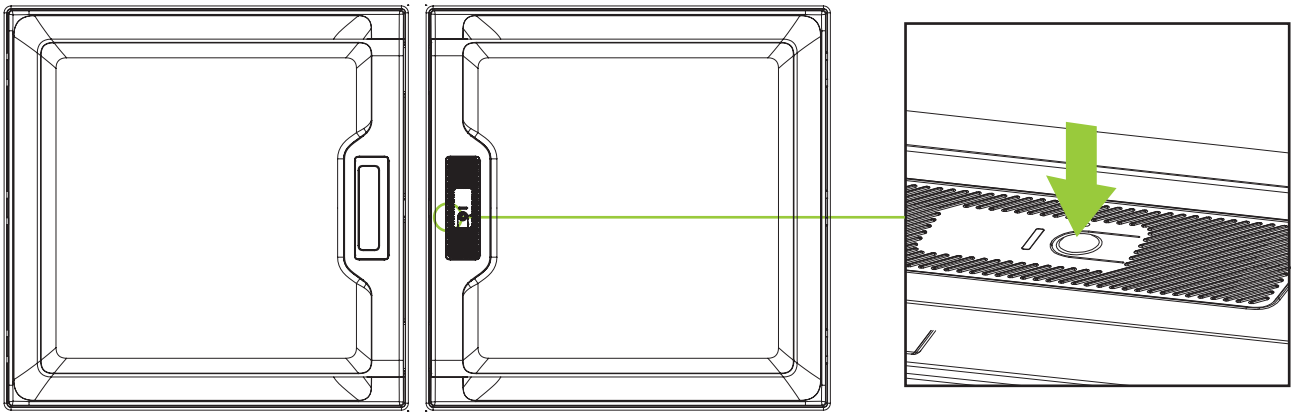


8. Connect the RJ45 plug on one end of the Cat 5e cable into the port located under the air path, between the filter and fan modules. Connect the other end to the appropriate smartIAQ Hub-4 or Hub-4 Pro.



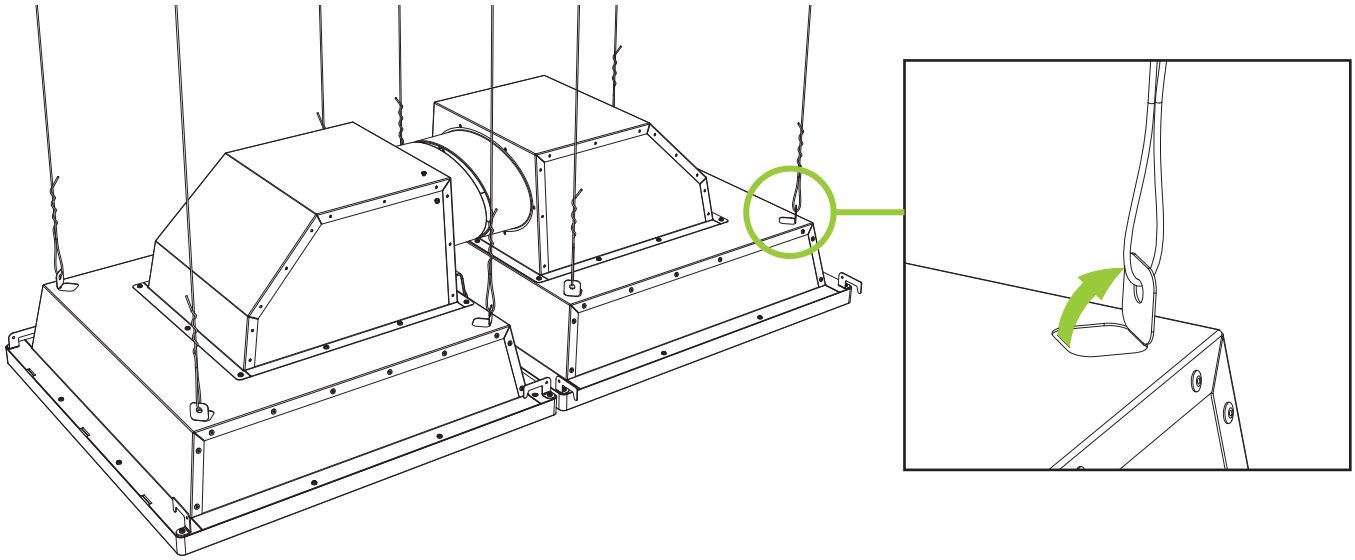
## Replacing the filter

To replace the filter, follow Steps 5, 6, and 7. Once the door is closed, press and hold the filter reset button on the fan module until the LED indicator flashes.



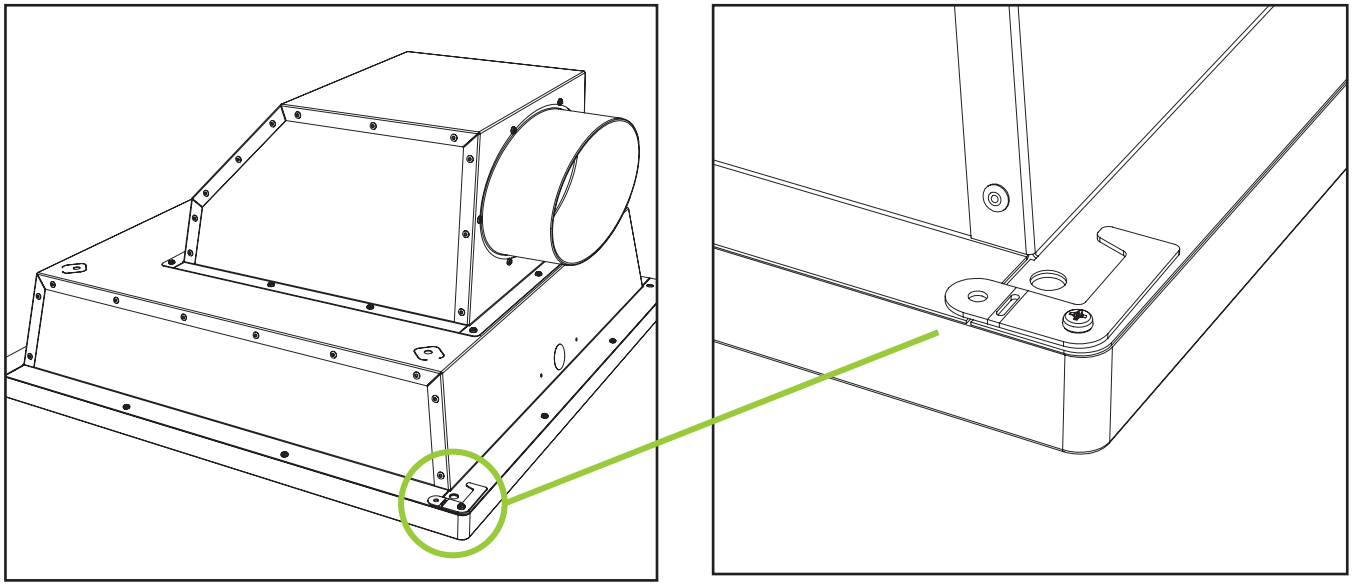
## Additional Support (optional)

1. Each module has support tabs in the four corners of the sheet metal cover. If desired, locate the four tabs and bend them upwards. The tabs have holes in them to facilitate the use of support wire/cable (see below)

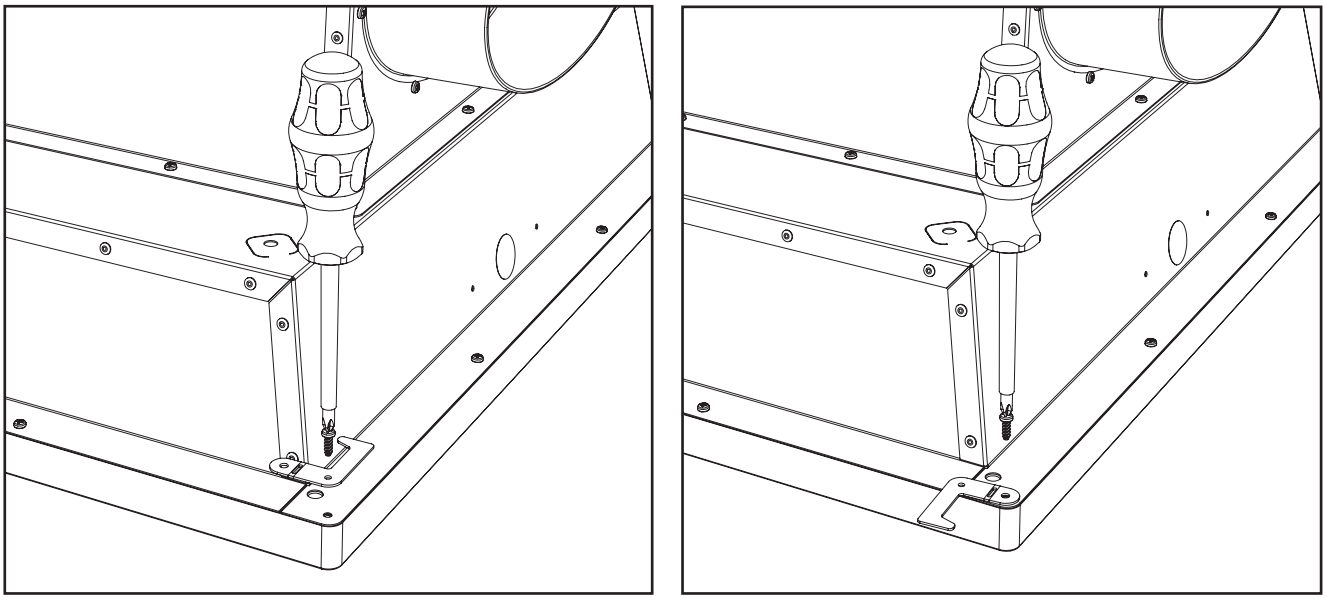


## Seismic installation (optional)

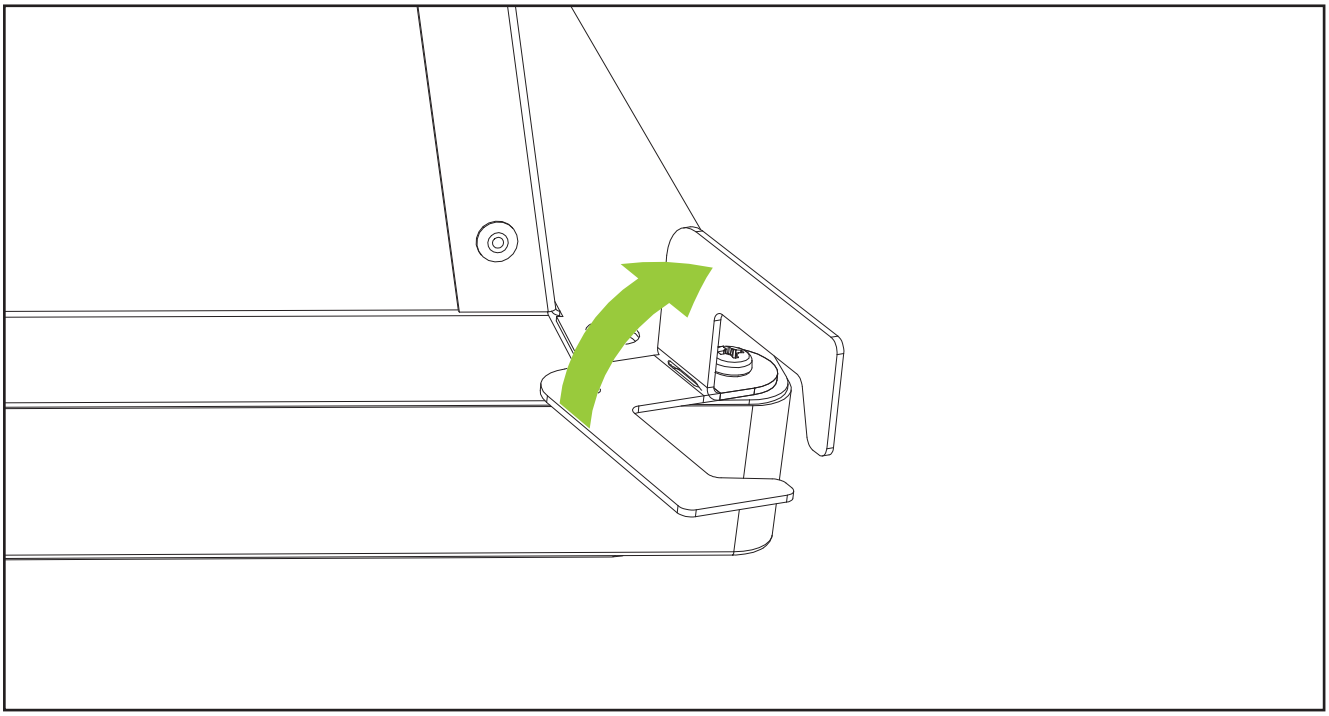
1. Identify the four pre-installed seismic tabs located at each corner.



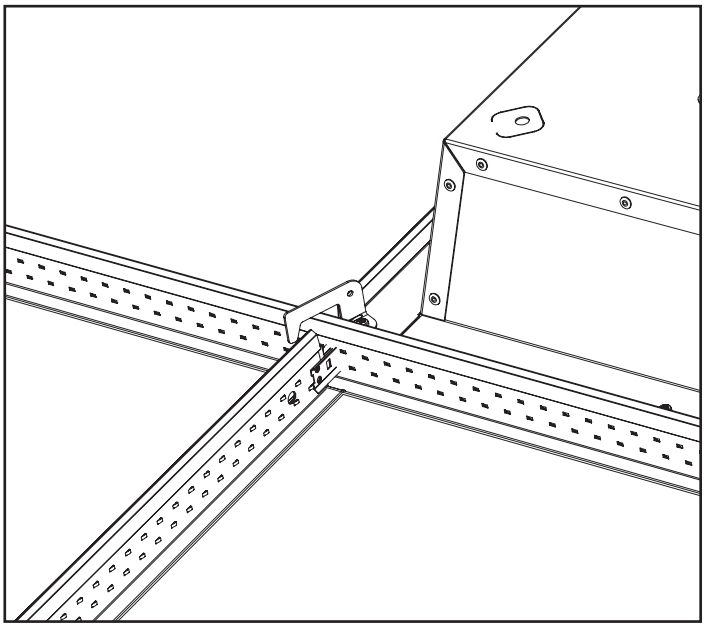
2. Remove the metal seismic clips using a Phillips screwdriver, then reinstall them as shown in the image using the same screw

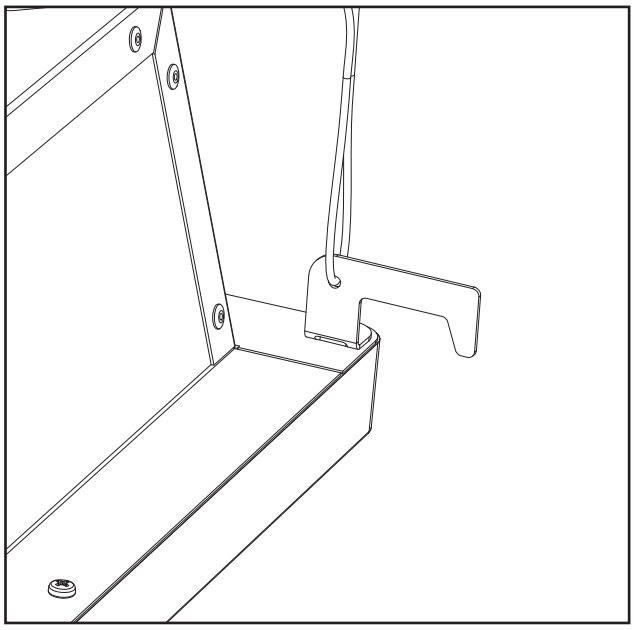


3. Ensure the seismic clip is securely fastened. Then bend the tab upward.



4. After bending the clips, orient them in order to secure the unit to the ceiling grid. The clips may also be used to attach the unit to other structures, by routing wire/cable through the designated hole.





# Operation

During normal operation, SmartIAQ monitors air conditions, adjusts fan operation automatically, and reports status through the front-panel LED. In Auto mode, fan operation may be reduced or stopped when the space is unoccupied.

The unit enters Auto mode automatically after a normal bootup.

When power is applied first time (or after a forced power cycle), GridSet completes initialization in approximately 3 seconds. During boot, the LED may be off or briefly illuminate. After successful initialization:

- The **LED will show steady white**, indicating normal operation with a healthy filter.

After power-on, the device starts in the **occupied** state. This ensures the fan runs and ventilates the space immediately after installation or after a power interruption, without waiting for CO2 levels to rise or for presence to be detected.

## Fan Control Modes

The SmartIAQ fan operates in two main modes. After any reboot, the device returns to **Auto** mode.

### Auto Mode (Default)

In Auto mode, the fan speed adjusts continuously based on measured air quality. When the space is determined to be unoccupied, the fan shuts off automatically — this is normal, expected behavior and does not indicate a fault.

### Manual Mode

Manual mode is available only through BACnet-enabled GridSet Pro systems. In Manual mode, the fan runs at a fixed speed selected through the external control system. In this mode, occupancy state is ignored.

## Occupancy Detection

In Auto mode, SmartIAQ can use presence, CO2, and ambient light inputs to determine whether the space is occupied. When the space is unoccupied, the fan may shut off or reduce operation to conserve energy. The fan resumes automatically when occupancy is detected again.

# Sensors & Monitoring

## Overview

SmartIAQ GridSet can monitor, act on and report a range of indoor air quality and environmental readings, depending on model and installed hardware. This section describes the purpose of each reading

## Measurements Summary

| Measurements | Units | What it indicates | Availability |
|---|---|---|---|
| Formaldehyde (HCHO) | µg/m³ | Formaldehyde level associated with off-gassing from building materials and furnishings | All units |
| Temperature | °C | Indoor air temperature | All units |
| Barometric Pressure | Pa (hPa) | Ambient Atmospheric Pressure | All units |
| Ambient Light | lux | Light level that can support occupancy-related functions | All units |
| Human Presence | N/A | Presence input used in supported operating modes | All units |
| Relative Humidity | %RH | Moisture level in the air | Pro Units only |
| PM1.0 / PM2.5 / PM4.0 / PM10 | µg/m³ | Airborne particle levels such as dust, smoke, and other fine particles | Pro Units only |
| TVOC | µg/m³ | Total volatile organic compounds from sources such as furnishings, cleaning products, and other indoor materials | Pro Units only |
| NOx Index | Index (1–500) | Relative level of nitrogen oxides commonly associated with combustion sources | Pro Units only |
| $CO_2$ | ppm | Carbon dioxide level, commonly used as an indication of ventilation adequacy and occupancy | Pro Units only |

# LED Indicator Reference

SmartIAQ GridSet chas a single LED indicator located in the sensor array on the fan module. The LED displays one color and pattern at a time. Only the highest priority condition drives the LED.

During normal operation, if the space is occupied and the fan is operating, the colors indicated are as detailed below:

| LED State | What it indicates | Action Required |
|---|---|---|
| **White, steady** | Normal operation; filter life is healthy | None |
| **Yellow, steady** | Filter life is low (less than 10% remaining) | Plan to replace the filter soon |
| **Red, steady** | Filter expired (less than 5% remaining), or a startup fault was detected | Replace filter and reset counter; see 'Filter Button' |

# Operating Buttons

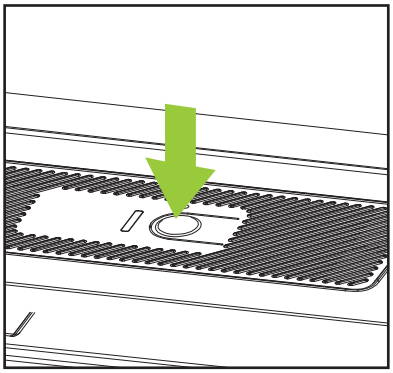
smartIAQ GridSet has two physical buttons:

## Filter Button (Front Panel)

The Filter button is accessible on the front of the unit without tools (see below).

| Hold duration | Action | Confirmation |
|---|---|---|
| 5 seconds or more | Reset filter life counter to 100% after replacing the filter | Three quick white LED flashes |

To reset the filter counter: install the new filter, then hold the Filter button for 5 seconds. Three white flashes confirm success.



### Option Button (Pinhole - Requires a tool to operate)

The Option button is a recessed pinhole button on the unit. Use a straightened paperclip or similar tool to depress it.

| Hold duration | Action | Confirmation |
|---|---|---|
| 15 seconds or more | Factory reset — erases all settings, filter data, and calibration; device reboots | The LED will progress through: White (short flash) > Yellow > Red > Red fast blink. |

***Warning: Factory reset cannot be undone. All custom parameters, filter life data, and calibration will be lost.***

## Maintenance

### Filter Life Monitoring

SmartIAQ tracks filter life automatically and retains filter status through power cycles. Replace the filter when the device indicates low or expired filter life, or at intervals appropriate for the installation site.

***Important: The filter life counter does not reset automatically when the filter is changed. The counter reset step must be performed each time a new filter is installed. Skipping this step will cause inaccurate filter life readings.***

### Sensor Maintenance

SmartIAQ's onboard sensors are factory-calibrated and require no routine maintenance under normal operating conditions.

If sensor readings appear unusual, first confirm whether the space may actually have elevated pollutants, ventilation issues, or other real air-quality conditions affecting the readings. Readings that appear high are not necessarily a sensor fault.

If readings remain absent, invalid, or clearly implausible for the installation environment after the surrounding air conditions have been evaluated, contact support for further guidance.

## General Maintenance

Recommended maintenance intervals depend on site conditions and the final approved installation requirements.
The following inspection items should be carried out at least as frequently as filters are changed

- Inspect the airflow inlet and outlet for obstructions or accumulated debris
- Wipe accessible exterior surfaces and check for physical damage
- Confirm the unit remains securely mounted

# Troubleshooting

## Symptom Quick Reference

| Symptom | Possible Cause | Resolutions |
|---|---|---|
| Red LED - slow blink (~1 s cycle) | Motor Fault | Power cycle the unit |
| | Fan obstructed | De-energize unit and check for obstructions at the intake, outlet and fan |
| Red LED - fast blinking | Factory reset in progress | Wait for reboot to complete - this is normal |
| No LEDs at all | Unit not powered correctly, sensor board ribbon cable disconnected, or startup fault | Verify that a 48 VDC supply is connected and active |
| Fan not running | Unoccupied space (Auto mode) | The fan will resume automatically when occupancy is detected |
| | Motor fault | Power cycle the unit. |
| Fan running but air quality readings unavailable | Sensor connection issue | Reboot; if persistent, reseat ribbon cable |

## When to Contact Support

Contact support if any of the following conditions apply:
- A motor fault returns immediately after power cycling.
- The fan does not run and no fault condition (motor fault, degraded mode, or unoccupied) explains the behavior.
- Sensor readings are persistently absent or implausible after reseating the ribbon cable and rebooting.
- Physical damage to the unit, sensor board, or wiring is observed.
- The unit fails to boot after repeated power cycles.

## Building Management System Integration

BMS communications (either Modbus or BACnet) are only available with smartIAQ GridSet Pro units, and are facilitated by the appropriate smartIAQ Hub-4 Pro.

See smartIAQ Hub-4 Pro Installation, Operation and Maintenance Manual for further details.

Note: Points/Objects Lists are available from your Rep or directly from GPS Air on request. Information may also be accessed by scanning the QR code on either the GridSet Pro Unit or Hub-4 Pro Power Supply.

## Product Documentation

The information provided in this manual is up to date at the time of printing. Any revisions to this document will supersede the content included. For the latest applicable version of this manual, visit our website or utilize the QR code.

IOM

QR code for application guidance. please contact GPS Air for additional assistance.

Application Guide

smartIAQ
GridSet



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