

Kaiterra Sensedge Go **Air Quality Monitor Deployment Guide**

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Introduction

Kaiterra enterprise air quality monitors are designed to be intuitive solutions for your continuous air quality monitoring needs.

These monitors can be used in the following cases:

- To gain a better understanding of the air quality in your building
- To ensure optimized air quality and occupant comfort
- To address the concerns of occupants and tenants
- To analyze how cleaning chemicals impact air quality
- To troubleshoot pollution hot spots and identify underutilized areas
- To evaluate the performance of the filtration and HVAC systems

This guide will assist you in determining the best place to install your Kaiterra Sensedge Go air quality monitors for individual rooms, large open spaces, and entire building projects.

This guide will also cover power considerations, network considerations, and device configuration so you are best prepared to handle your upcoming installation project.



Layout Considerations

You will want to consider installing your air quality monitors in rooms and open spaces that are regularly occupied. The following chart will give you an idea of the types of rooms and spaces you should consider.

Standard Spaces	Recommendation
Lobby/Reception	Recommended
Break Room	Recommended
Conference Room (Any Size)	Recommended
Collaboration Areas	Recommended
(Rooms or Spaces)	
Workstations	Recommended
Multipurpose Rooms	Recommended
Game / Rec Rooms	Recommended
Kitchens	Recommended
Fitness Centers	Recommended
Restrooms / Shower Rooms	Subject to project needs
Mailroom / Shipping &	Recommended
Receiving	
Labs	Recommended
Storage Rooms	Not recommended
Locker Rooms	Not recommended

For any of Kaiterra's enterprise air quality monitors, we recommend an area coverage of 3,500ft² (325m²) with the area of each enclosed space calculated individually*. *Our guidelines follow the standards outlined in RESET and WELL v2 for sensor area coverage



For example:

- One (1) open space of 3,500ft² (325m²) requires one (1) monitor
- Three (3) conference rooms of 225ft² (21m²) requires one (1) monitor **in each room**

Spaces over 3,500ft² (325m²) should consider installing multiple monitors throughout the room to achieve optimal coverage. It is also recommended to align the sensor deployment areas with the HVAC thermal zoning plan.

This inclusion of multiple sensors in larger spaces is required for achieving various building certifications, so be sure to check the requirements for your desired certification in order to meet their standards.

For projects that are not looking to get certified, you have much more flexibility in terms of what your goals are with IAQ monitoring and the budget available for the project. Feel free to contact your account representative at Kaiterra to discuss this further.

The following is a sample floor plan that demonstrates how our air quality monitors should be distributed throughout a typical building floor plan.





Image 1. Example of a 22,500ft² (2090m²) office space with multiple rooms.



Placement Guidelines



Image 2. A room demonstrating proper air quality monitor placement.

For placement, we recommend the guidelines required for RESET Air certification, which requires RESET Air Accredited Monitors to be installed according to the following requirements:

- A. Wall-mounted and centrally located within monitored spaces.
- B. Mounted in the breathing zone: between 3-6 feet (0.9-1.8 meters) from the ground (after finished the floor to the underside of the finished ceiling)*.
- C. Located at least 16 feet (~5 meters) away from operable windows. In areas where this is not possible, monitors must be located no closer to windows than half the width of the space, measured linearly from the windows inwards.
- D. Located at least 16 feet (~5 meters) away from air filters and diffusers. In areas where this is not possible, monitors must be located closer to air returns.
- E. Hard-wired to a permanent power source (recommended but not mandatory).

*Note: this aligns with ASHRAE 62.1



Other things to consider:

- Air is drawn into the Sensedge Go from both the sensor modules on the bottom and the air intake on the top. It is vital that neither side of the device is covered as any changes in the airflow may affect the readings and accuracy of our devices.
- To avoid direct breathing on a device, which would impact your air quality readings, try to avoid installing air quality monitors right next to a workspace, providing at least 3 feet (0.9 meters) of space between the device and any workstations. If the space does not allow this, then make sure the monitor is facing the occupants back.
- Our air quality monitors were designed to be installed in an upright position. Please do not install our products sideways or upsidedown, as your readings will be impacted.
- Ceiling installations are also not ideal. If you are going to proceed with a ceiling installation, please keep in mind the following:
 - Since your ceilings are likely above the breathing zone, your devices will be measuring the air that is not directly associated with the air that your tenants, colleagues, or customers are breathing in, making your readings less accurate according to the actual air that would impact these individuals.
 - Temperature and Relative Humidity readings will especially be influenced: as hot air rises, the Temperature/Relative Humidity readings can be impacted by numerous degrees/% compared to the breathing zone levels.
- Building certifications, such as WELL, RESET, and LEED, may have their own requirements for things such as installation height and placement. If this installation is pursuing any of these certifications, please make sure to check their requirements so that your air quality monitor is properly installed to their specifications.

Exact room placement may vary based on the type of space, but these spaces can be categorized into two general scenarios:

- 1. Enclosed Spaces
- 2. Open Spaces



Enclosed Spaces

Definition: A room enclosed by four walls and a door, which is smaller than 3,500ft².





Image 3 is an example of an enclosed space with three (3) suggested installation locations. Assuming that all three locations fall within the breathing zone of 3-6 feet (0.9-1.8 meters), all three of these locations are acceptable. However:

- Location one (1) has the device installed on the same wall as a door. While this is not a bad thing in this example, as the door is more than 16 feet (~5 meters) away, smaller rooms might not be able to make this location work as the space between the device and the door could be smaller.
 - Because of this, considering installation locations that are separate from any doors may be easier to ensure ideal conditions – but for this example, location one (1) is acceptable.
- Kaiterra air quality monitors should be as central to the room as possible. Because of this, location two (2) is not ideal. However, since the door on the right is 40 feet (12 meters) away, the installer could shift location two (2) toward the center of the room to become a better option.
- Of the three suggested locations, position three (3) is the most ideal since it is relatively centralized to the room, does not have any features in the way that might impact air quality, such as windows or diffusers nearby, will provide great coverage of the regularly occupied space, and would still be ideal if the room was smaller or narrower.





locations.

As a comparison, the same example now has a diffuser and a window added to the layout.

Given the RESET placement requirements and Kaiterra's best practices, the only acceptable air quality monitor placement for this scenario is position three (3):

- It is centrally located especially for the regularly occupied space in the room
- It is at least three (3) feet (0.9 meters) away from occupants and workstations
- It is at least 16 feet (~5 meters) away from any operable windows or diffusers



Open Spaces

Definition: An open space, uninterrupted by walls for more than 3,500ft².

For open spaces, the best way to approach this is to take a look at the entire space as a whole and determine two key things:

- 1. How big is the space you are trying to collect data from?
- 2. What is the optimal placement that will provide the best coverage?

One way of achieving this is to look at a floor plan for the space in question, which will provide a holistic view of the walls, general placement of furniture, and areas that people will regularly occupy.

From there, using our recommendation of 3,500ft² (325m²), measure out the larger open areas of the floor plan, prioritizing the areas that will have regular occupants, such as workstations, break areas, and receptions.

Since these spaces are larger than 3,500ft² (325m²), divide the space into sections and try to place a monitor in each section.

Placement should also be aligned with HVAC thermal zones and follow the same, general rules as enclosed spaces, including avoiding installation locations:

- Within 16 feet (~5 meters) of operable windows, doors, air filters, and air diffusers
- Within 3 feet (0.9 meters) of occupants and workstations



Triangle = Air Quality Monitor



Image 5. A 10,000ft² (929m²) open space with three (3) AQMs installed for optimal air data coverage.

For the example above (Image 5), we have a 10,000ft² (929m²) open space. To achieve optimal coverage for this space, you will want three (3) air quality monitors installed, which would meet both WELL and RESET certification requirements.

Since the space has three (3) general sections that will be regularly occupied, the priority areas would be the top-left, top-right, and bottom-right, which, given the 10,000ft² (929m²) of the entire space, can be divided evenly for optimal coverage using the suggested monitor placements.



For non-certification projects with a similar scenario as above, you will still want to prioritize the regularly occupied spaces. However, you could reduce the number of monitors in the space from three (3) to two (2) by removing the bottom monitor, as this would still provide great coverage of the regularly occupied areas.



Power Considerations

Depending on the enterprise air quality monitor selected for your installation, different power sources may be required.

The Sensedge Go natively runs on battery power, achieving up to 8 years of battery life. This allows the Sensedge Go to run wirelessly, giving you the freedom to install the device on any wall or surface available.

If desired, the Sensedge Go can also be powered via a USB-C cable to a wall outlet.

For more information on how to use the Sensedge Go via USB-C, refer to our <u>introduction</u> <u>support article</u>.



Network Connectivity and Data Considerations

Network connectivity and data considerations are essential to consider before any installation. The Kaiterra Sensedge Go uses sub-GHz wireless communication to a gateway, which can be connected to the Internet via Cellular or Ethernet.

If using cellular connectivity, the Gateway and Sensedge Go are completely separated from your building's network, allowing you to avoid any security and network-related issues.

If using Ethernet connectivity, you will want to confirm that the following servers and ports are available on the network:

Server URL: devicehq.com Port Type: TCP Server Port(s): 443, 5798, 5799

Server URL: lora.kaiterra.com Port Type: TCP Server Port(s): 443

Server URL: time.kaiterra.com Port Type: UDP Server Port(s): 123



The Kaiterra Sensedge Go also supports BACnet/IP communication. For more information, please refer to the following documentation: <u>Sensedge Go BACnet User Manual (Coming Soon)</u> <u>API Documentation</u>



Data Platform Setup



The Kaiterra Data Platform allows you to view the data from your Kaiterra air quality monitors. Go to <u>https://app.kaiterra.com</u> and log in to your account. Once logged in, you can create a "Building" for your devices to be added to.

Once your building is added, you can proceed with the device configuration process, which will add the devices to the building. After they are added, you can see your air quality data on the data platform. For more information, please refer to our <u>Data Platform</u> <u>support article</u>.



Device Setup and Configuration



To set up and configure your Kaiterra Sensedge Go air quality monitors, you will need to download the Kaiterra Go app from the <u>Apple App Store</u> or <u>Google Play Store</u>.

Once downloaded, open up the app and follow the on-screen instructions.

For configuration instructions, refer to our <u>Sensedge Go Configuration Guide</u>. For physical installation instructions, refer to our <u>Sensedge Go Installation Guide</u>.



Resources

General

Sensedge Go Introduction Walkthrough (Video) Sensedge Go Installation Guide Sensedge Go Configuration Guide Sensedge Go Gateway Mounting Guide Sensedge Go Servers and Ports

Kaiterra Data Platform

Navigating Your Kaiterra Data Platform

Miscellaneous

<u>API Documentation</u> <u>Understanding Your Air Quality Readings</u>