

CO₂ Calibration Guide

[draft]

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How to read this document

This document is intended for owners of arbn well AQ and AQ+ devices. It describes how the CO₂ sensor in the arbn well AQ and AQ+ devices can be calibrated.

While arbnco maintains these documents with care and regularly updates them with the newest scientific guidelines, errors and misunderstandings can occur. If you are unclear about anything described in this document or need any other help with your arbn well system, please email well-support@arnbco.com. The guidelines in this document are not intended to be part of a professional code of practice, codes, standards, or statutory requirements. Happy sensing!

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1. AQ Device CO₂ Calibration

Before using your AQ device for a demonstration, it should be re-calibrated onsite in fresh air to ensure correct readings.

Please follow these steps when calibrating:

1. Take the AQ device outside into fresh air and leave it there for at least 15 minutes.
2. While holding the device at arm's-length¹, and ensuring that you are not breathing on it, push the device's button four times. Do not hold when pressing the button. If the sequence and duration of presses is correct, the LED will flash green once.
3. Upon seeing the green flash, push the button once more (short press). The LED will flash green up to three more times.
4. Leave the device outdoors for another 15 min (again without breathing on the device).
5. Push the device's button one more time, after which the device's LED should flash green once.
6. Return inside and wait up to an hour to confirm that its CO₂ readings are reasonable (e.g., not below 400ppm, above 3000ppm, etc).

This process will need to be repeated before every new demonstration. If at any point, you see a red flash, it means that the button press sequence was not understood. This can happen if the buttons were pressed for too long, or an incorrect number of times. Unfortunately, you will need to start over.

2. AQ+ Device CO₂ Calibration

Your AQ+ device will self-calibrate for CO₂ levels. You should only have to do the following procedure once to ensure that your AQ+ device's readings are calibrated.

Shipping or carrying the AQ+ device, especially by air, can throw off the calibration. To make sure it has self-calibrated, you should plug it in for several days in a room that:

1. Is properly ventilated, either through windows or a mechanical system.
2. Has minimal activity at night.
3. Returns to 'fresh air' at least once during a 24-hour period. That is, the air inside the room is completely replaced by outside air.

Before unplugging your AQ+ device to use in a demonstration, confirm that its CO₂ readings are reasonable (e.g., not below 400ppm, above 3000ppm, etc).

¹ So as not to breathe directly onto the device. Humans breathe out CO₂ at a concentration of approximately 40,000 ppm. When you breathe out, it creates a 'plume' or 'cloud' of CO₂-rich air that can enter the sensor if held close, interfering with the calibration.