



# SENSEMini v1.

Instruction Manual



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# Welcome

Welcome to BonaCaeli. Our aim is to help you understand the air that you breathe, to give you the means to measure what you are breathing in and to use the measured data to manage and improve your well-being in many ways.

The **SenseMini** is our most portable carbon dioxide (CO<sub>2</sub>) sensor yet. It allows you to measure CO<sub>2</sub> concentrations wherever you may be, at work, at home or on the move.

## Overview

CO<sub>2</sub> is everywhere around you. It is safe in low concentrations; however, spending long periods of time exposed to higher concentrations may cause long term health issues and affect your wellbeing.

In 2018, average atmospheric carbon dioxide levels were 407ppm. This is the highest level in 800,000 years!

Measuring and becoming aware of the CO<sub>2</sub> levels around you can help you to avoid high CO<sub>2</sub> concentrations, so you can live a healthier life.

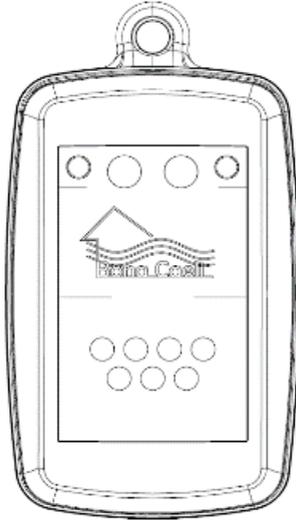
With your **SenseMini** you will be able to record the levels of CO<sub>2</sub> in the air around – wherever you may be – and see how it changes over time through our very own, all new app!



# Getting Started

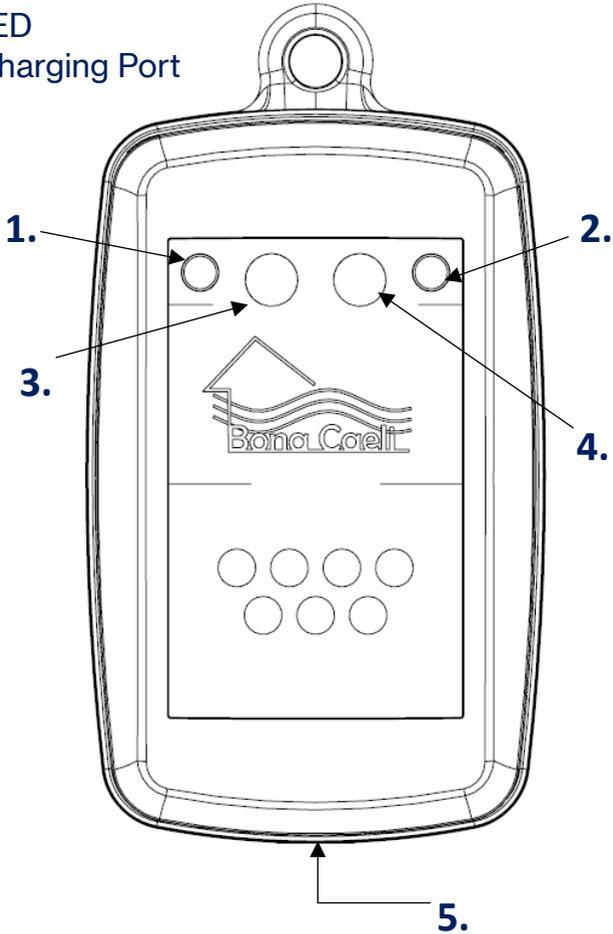
## What's Inside?

- 1 x **SenseMini**
- 1 x USB Charging Lead
- 1 x Wrist Lanyard
- 1 x Getting Started Guide



# Your SENSEMini

1. Power Button
2. CO<sub>2</sub> Button
3. Power LED
4. CO<sub>2</sub> LED
5. USB Charging Port





## Power Up

Connect the **SenseMini** to power using the USB charging lead provided. The Power LED will be **Red** while plugged in and blinks **Green** when fully charged. The battery lasts about 24 hours

Turn your **SenseMini** on/off by holding down the power button for 5s, the power LED will show a **Green/Red** light for on/off.

Your **SenseMini** will take ~30s to warm up before it will give the first reading and blinks **Green** every 15s when turned on.

## Connecting Your Smartphone

Download the BonaCaeli App, it is free to download from the Android and iPhone App stores. Enter the logon credentials you received in your welcome email. If you have not received a welcome email then contact [info@bonacaeli.com](mailto:info@bonacaeli.com).

First, make sure your **SenseMini** is turned on by following the instructions above.

You must calibrate your **SenseMini** before you begin to use it.

1. Take your **SenseMini** outdoors into fresh air.
2. In the BonaCaeli App menu, tap on Calibrate Device.
3. Tap on Begin Calibration in the BonaCaeli app and then short press the CO<sub>2</sub> button on your **SenseMini**.



4. Remain outdoors whilst the calibration routine takes some readings. When calibration is complete you will see the message Calibration Saved – you will then return to the app's main screen.

Once turned on, your **SenseMini** will take a CO<sub>2</sub> reading every 5 min and stores the reading on the device.

To access the 'on-demand' function, open the BonaCaeli App and short press the CO<sub>2</sub> button, this will give you a reading every 5s for 2 minutes.

To transfer all the data points to your phone, open the BonaCaeli App then hold the CO<sub>2</sub> button for 5s, this must be done at least **once every 24 hours** to ensure data is not lost.

When in Bluetooth mode, the power LED will blink **Blue**. The CO<sub>2</sub> LED will blink **Red/Green** when the CO<sub>2</sub> reading is above/below 1000ppm.

## The BonaCaeli App

Open up the BonaCaeli App to view the concentrations of CO<sub>2</sub> you have been exposed to! You can view your CO<sub>2</sub> readings over various time scales. For example, "Day" view allows you to see the CO<sub>2</sub> levels and how much they vary throughout that day.

The App displays the CO<sub>2</sub> data in parts per million (ppm) and presents it in spot, line graph and pie chart formats. It also presents max./min. and average concentrations



and even tells the user the time over which level were above 1000 ppm as “Time in reduced cognitive function” and the time in good CO<sub>2</sub> levels.

There are various other features of the App so have a play around with it can see the benefits. Head over to [bonacaeli.com/support](http://bonacaeli.com/support) to find out more about the App and its features.

Make sure to keep the App up to date as we will be continuing to improve its features and helping you to understand even more about the air you breathe.

## Using your SENSEMini

The **SenseMini** is so small it can fit pretty much anywhere. It can be carried in a pocket, on a keychain or even on a belt loop!

CO<sub>2</sub> concentrations are measured in parts per millions (ppm) which quite simply denotes that for a reading of 100 ppm, there would be 100 molecules of CO<sub>2</sub> for every 1,000,000 molecules of surrounding air.

Increasing the number of people in the room or being in a confined space are some of the reasons for an increased CO<sub>2</sub> concentration.

To reduce such levels, you can try opening a window or increase the air flow around the area you are in.



Make sure to keep the CO<sub>2</sub> intake holes below the BonaCaeli logo clear so that the sensor inside can measure the CO<sub>2</sub> in the air around you.

The CO<sub>2</sub> sensor has an accuracy of ±30ppm of the true concentration level.

People are affected in various ways when subject to high concentrations of CO<sub>2</sub>. Typical observed effects are displayed in the table below



CO <sub>2</sub> (ppm)	<u>Likely Effects</u>
<b>250-350</b>	background (normal) outdoor air level.
<b>350-1,000</b>	typical level found in occupied spaces with good air exchange.
<b>1,000-2,000</b>	level associated with complaints of drowsiness and poor air.
<b>2,000-5,000</b>	level associated with headaches, sleepiness, and stagnant, stale, stuffy air. Poor concentration, loss of attention, increased heart rate and slight nausea may also be present.
<b>5,000</b>	this indicates unusual air conditions where high levels of other gases could also be present. Toxicity or oxygen deprivation could occur. This is the permissible exposure limit for daily workplace exposures.
<b>&gt;40,000</b>	Exposure may lead to serious oxygen deprivation and is immediately harmful



# Troubleshooting

If the CO<sub>2</sub> LED is flashing **Blue** and the readings are not being transferred to your phone, you will need to restart your **SenseMini**, to do this, hold the power button for 5s to power it off, and then hold the power button for 5s to power it on again. This will happen if you press the CO<sub>2</sub> button without having the BonaCaeli App open.

Connecting your phone to Bluetooth over and over will drain the battery and require charging more frequently.

## Warnings

Do not operate outside temperatures of 0°C - 50°C.

Attempting to open the casing will void any warranty.

Small components are a choking hazard.

Do not leave within reach of children below 8 years old.

Do not have any liquids around the device at any time.

The warranty provides 12 months full cover against a faulty or non-functional component. If you find a faulty component, simply return the product to us together with proof of purchase. We will send a replacement SENSEMini to you, subject to our warranty terms.



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**BonaCaeliHQ**

BonaCaeli is a trade name of BPP Technical Services Ltd.

The BonaCaeli project aims to educate and inform its sponsors on how to measure and mitigate the concentrations of carbon dioxide that they are exposed to.

For more information visit: [bonacaeli.com](http://bonacaeli.com)

