airbeld™


evvnbio
diagnostics
DETECT EVERYWHERE

English

# Table of Contents

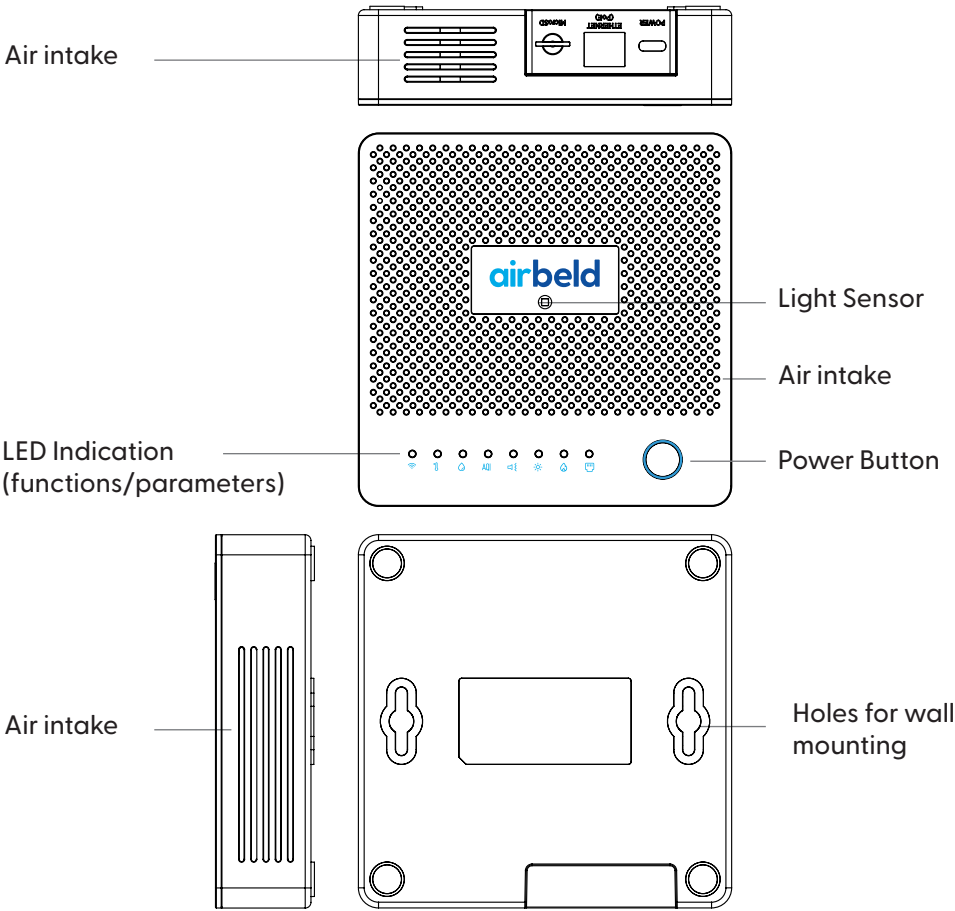
airbeld™
prometheus

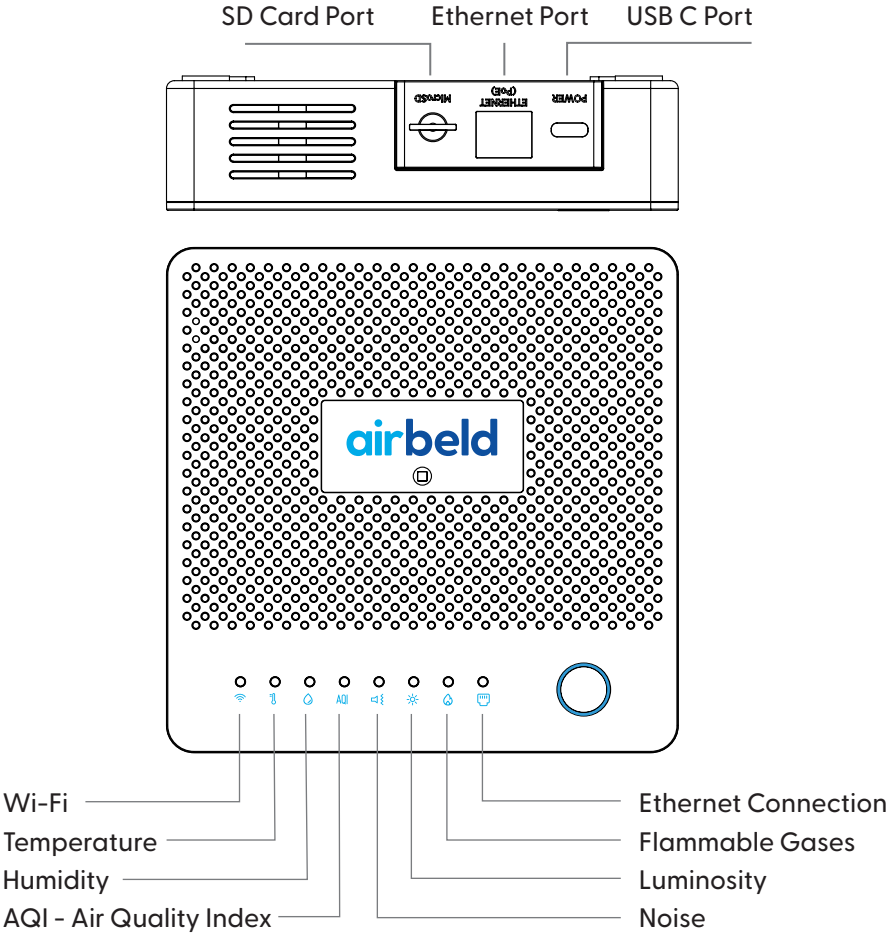
# CREATE A HEALTHIER, SAFER AND MORE PRODUCTIVE INDOOR ENVIRONMENT!

Thank you for choosing the **airbeld™ Prometheus**, **the premium indoor environmental monitoring system** designed for demanding spaces. The device continuously measures key air quality and environmental parameters – including particulate matter, $CO_2$, CO, VOCs, NOx, flammable gases, temperature, humidity, noise, pressure, luminosity, and UV – delivering reliable real-time data to support improvements in health, safety, comfort, and performance.

This user manual guides you through the proper installation and effective use of your **airbeld™ Prometheus** device.

# Product overview




SD Card Port
Ethernet Port
USB C Port
MicroSD
ETHERNET (PoE)
POWER
airbeld
AQI
Wi-Fi
Temperature
Humidity
AQI - Air Quality Index
Ethernet Connection
Flammable Gases
Luminosity
Noise

# Product Characteristics

- **Connectivity:** Wi-Fi – 2.4GHz and Ethernet
- **Dimensions (WxLxH):** 131 mm x 131 mm x 34 mm (271 g)
- **Power:** USB-C: 5VDC, 1A, Power-over-Ethernet (PoE) [back-up power supply, approx. 30 mins, with battery operated)
- **Operating Conditions:** Indoor Environments: -10 – 50°C
- **Storage Conditions:** -40 – 70°C

# Power button

The device is equipped with a multifunction button:
**5 fast presses** – sensors connectivity test.
**Long press (15 seconds)** – forget network credentials.

## Button Indicator

| | stable | flashing |
|---|---|---|
| white | Preheating sensors<br>Conducting self-test | |
| green | Successful sensors<br>connectivity test | |
| red | Unsuccessful sensors<br>connectivity test | |

## Battery Indications

| | | |
|---|---|---|
| orange | | Low battery |
| green | Charging mode | |

# Led Light Indicators

## Wi-Fi

| | | stable | flashing |
|---|---|---|---|
|  | **white** | Preheating sensors<br>Conducting self-test | |
|  | **red** | False Wi-Fi settings | |
|  | **orange** | Reset mode | |
|  | **yellow** | Unsuccessful Wi-Fi connection | Provisioning State |
|  | **blue** | Connected to Wi-Fi normally operating | Connecting to the Network |
|  | **no indication** | No Wi-Fi connection | |

## Ethernet Connection

| | | stable | flashing |
|---|---|---|---|
|  | **yellow** | No IP found | |
|  | **blue** | Successful ethernet connection - Normally operating | |
|  | **no indication** | Disconnected | |

# Before installation

**airbeld™ Prometheus is intended for indoor use only.**

**For accurate measurements, it is recommended to place airbeld™ device as follows:**

- Permanently mounted within the breathing zone: The centre of the monitor should be between 0.9-1.8 meters (3-6 ft) from the finished floor.
- At least 5 meters (16 ft) away from operable windows: In areas where this is not possible, airbeld™ device must be located no closer to windows than half the width of the space, measured linearly inward from the windows.
- At least 5 meters (16 ft) away from air filters and fresh-air diffusers: In areas where this is not feasible, airbeld™ device must be placed closer to air returns than to air diffusers.

# Installation guide

- Carefully unpack the device.
- Place the device on the desired surface.
- Plug the power adapter and the power cable into the device. Connect the USB-C cable provided to the device and to an electrical wall socket.
- Do not use it if the cable is damaged.

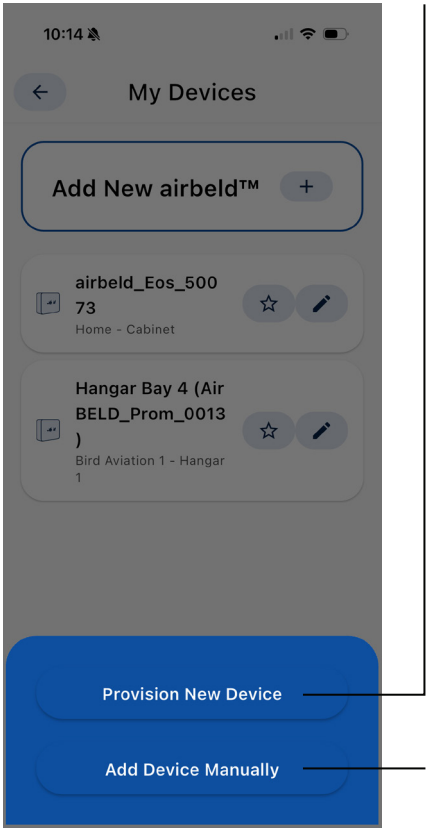
## Sign-up/ Login process

Download the airbeld mobile application (if it is not already downloaded) from Google Play or App Store onto your device (or scan the QR code below).

Launch the mobile application and create and verify your account (this step applies only to new users). For existing airbeld application users, login to the mobile application using the credentials of the user's account.

## Device provisioning

- Ensure that the device is plugged in, and the led light indicator is flashing yellow.
- On the airbeld mobile application click on the plus (+) sign and from the pop-up window select "Add New airbeld™ Device".
- On the next pop-up window select "Provision New Device".




## Device provisioning

Follow the instructions given on the airbeld mobile application.
Connect to the Wi-Fi network with the name of the device under provisioning.

## Add Device Manually

On the airbeld mobile application click on the plus (+) sign and from the pop-up window select “Add New airbeld™ Device”.
On the next pop-up window select “Add Device Manually”.

**Note:** airbeld™ Prometheus must be provisioned (see Device Provisioning) before it can be added manually.

# Dashboard

**Note:** airbeld™ Prometheus cannot be provisioned using the airbeld web dashboard.

Access the web dashboard using the **https://productivity.airbeld.com/** or scan QR

Launch the web dashboard.

**To add new (already provisioned) devices, follow the next steps:**

- Click on “Add New Device”.
- On the pop-up window add the airbeld™ device SSID and the first 3 digits of the Device ID, which can be found on the sticker located at the back of the device.

**Note:**
Devices can be added only if the user has already purchased and provisioned them, via the airbeld™ mobile app. In case one has multiple airbeld™ devices, the process must be repeated as many times as needed.

# Technical Specifications

| Sensor | Measurement range | Accuracy |
|---|---|---|
| **PM 1.0 /2.5/4.0/10.0** | 0 – 1000 µg/m³ 0.3-1.0; 0.3-2.5; 0.3-4; 0.3-10 µm | +/- 10% |
| **$CO_2$** | 400 – 5000 ppm | +/- (40ppm + 5% of Reading) |
| **CO** | 10-1000 ppm | |
| **VOC** | 0 - 500 Index Points | <+/- 5% repeatability |
| **NOx** | 0 - 500 Index Points | <+/- 10% repeatability |
| **Temperature** | -10 – 50 °C | 0.45 °C |
| **Relative Humidity** | 20 – 80 %RH | +/- 4.5 %RH |
| **Luminosity** | Max range 8000 Lux | +/- 25% |
| **Pressure** | 260 - 1260 hPa | +/- 1 hPa |
| **UV Index** | 1-160 | +/- 1 UVI |
| **Flammable Gasses** | 100 - 10000 ppm | |
| **Noise Level** | Frequency range: 20 Hz -20 KHz. Acoustic Overload Point: 120 dB SPL | Sensitivity: -26 dBFS, under 94d8 SPL@1KHz |

# Sensors

## PM 1.0 /2.5/4.0/10.0

**Source:** Outdoor environment, cooking, combustion activities, cleaning activities. WHO recommends aiming for low PM levels.

**Health Impact:** Prolonged exposure can cause premature death in people with heart or lung disease, non-fatal heart attacks, irregular heartbeat, aggravated asthma, reduced lung function and increased respiratory symptoms.

## Carbon Dioxide ($CO_2$)

**Source:** Cooking stoves; tobacco smoking; fireplaces; generators and other gasoline-powered equipment; outdoor air. WHO recommends that $CO_2$ levels should be kept below 1000 ppm.

**Health Impact:** Fatigue, chest pain, impaired vision, reduced brain function.

## Carbon Monoxide (CO)

**Source:** Incomplete combustion from gas heaters, boilers, fireplaces, stoves, generators, and vehicles operating in or near enclosed spaces.

**Health Impact:** Headaches, dizziness, nausea, confusion, and at high concentrations - loss of consciousness or life-threatening poisoning.

# Sensors

## Volatile Compounds (VOCs)

**Source:** Paints, stains, varnishes, solvents, pesticides, adhesives, wood preservatives, waxes, polishes, cleansers, lubricants, sealants, dyes, air fresheners, fuels, plastics, copy machines, printers, tobacco products, perfumes, dry-cleaned clothing, building materials and furnishings.

**Health Impact:** Eye, nose and throat irritation, headaches, loss of coordination and nausea. Long-term exposure can lead to more serious health issues, such as damage to the liver, kidney, and central nervous system-even cancer.

**The VOC Index describes the current VOC status in a room relative to the sensor's recent history. In this way, the VOC Index behaves like a human nose. For example, when we enter a room from outside, our nose uses the outside air composition outside as a baseline and alerts us if it detects higher or lower levels of VOCs inside the room. Similarly, the VOC Index calculates VOC levels by using a moving average over the past 24 hours (learning time) as a baseline.*

## Nitrogen Oxides (NOx)

**Source:** Gas-fueled cooking and heating appliances. WHO recommends limiting exposure as a 1-hour mean to avoid acute health effects.

**Health Impact:** Enhanced asthmatic reactions and respiratory damage leading to respiratory symptoms.

**The NOx Index describes the current NOx condition in a room relative to the sensor's recent history. In this way, the NOx Index behaves like a human nose. When we are entering a room from outside, our nose uses the outside air composition as a baseline and gives us feedback if it detects higher or lower levels of gases. Similarly, the NOx Index calculates changes by applying a moving average over the past 24 hours (learning time).*

# Sensors

## Luminosity

**Source:** Natural daylight, artificial lighting, screens, and reflections from surfaces.

**Health Impact:** Poor lighting can cause eye strain, headaches, reduced concentration, and negatively affect circadian rhythm and productivity.

## Atmospheric Pressure

**Source:** Weather conditions and altitude-related changes.

**Health Impact:** Sudden pressure changes may cause discomfort, headaches, or fatigue, particularly in sensitive individuals.

## UV Index

**Source:** Sunlight entering indoor spaces through windows or skylights.

**Health Impact:** Poor lighting can cause eye strain; headaches reduce concentration and negatively affect circadian rhythm and productivity.

## Flammable Gasses

**Source:** Gas leaks from heating systems, cooking appliances, industrial processes, or storage of fuels and solvents.

**Health Impact:** Risk of fire or explosion; in enclosed spaces, displacement of oxygen may lead to dizziness or suffocation.

# Sensors

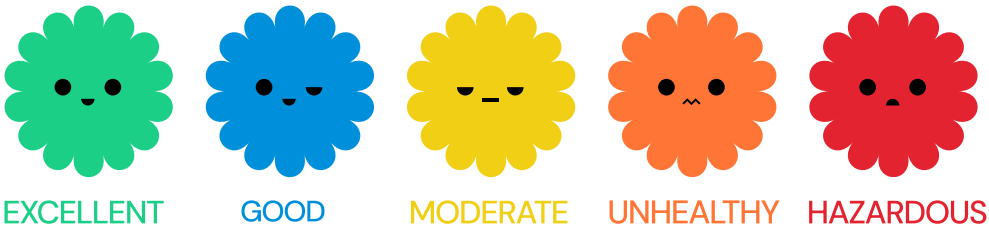
## Noise Level

**Source:** HVAC systems, office equipment, machinery, traffic, and human activity.

**Health Impact:** Stress, fatigue, reduces concentration, sleep disturbance and long-term hearing damage with prolonged exposure to high noise levels.

# Air Change Rate (ACR)

**Air Change Rate (ACR)** is a 24-hour evaluation of how often the air in space is renewed. It uses various parameters measured by the airbeld™ device, to provide an accurate overview.




The ACR is based on the ICONE Index, a metric developed by the French government to assess the stuffiness of air in indoor environments. It is derived from average carbon dioxide ($CO_2$) concentrations over time and reflects a shift in Indoor Air Quality (IAQ) management, where $CO_2$ is recognised as a key indicator.

$CO_2$ levels are highly responsive to ventilation, especially in occupied spaces. As people exhale $CO_2$, its concentration rises quickly in poorly ventilated environments. International guidelines recommend maintaining average $CO_2$ levels between 800 and 1,000 parts per million (ppm). In some settings, values up to 1,300 or 1,500 ppm may be considered acceptable, though long-term exposure to concentrations of 2,500 ppm or more may pose health risks.

Unlike traditional methods that rely solely on estimated ACR values, the ICONE Index offers a more dynamic and practical approach by focusing on real-time $CO_2$ levels. This makes it especially valuable for optimizing ventilation systems and reducing the spread of airborne illnesses, such as COVID-19.

## Productivity Index

The productivity Index is a universal indicator that reflects how supportive the indoor environment is for overall comfort and well-being. It is derived from multiple factors, such as temperature, humidity, and air pollutants like VOCs, $CO_2$, NOx and PM.

## Indoor Air Quality Index (IAQ Index)

Indoor air quality is about how clean the air is inside buildings, affecting our health and well-being. The IAQ level displayed is determined based on rea-time measurements of key parameters including temperature, humidity, carbon dioxide (CO2) and volatile organic compounds (VOCs).

# Safety and maintenance

airbeld™ Prometheus is designed exclusively for indoor use. To ensure optimal performance and longevity:

- Keep out of direct light for extended periods.
- Avoid placing the device near heat sources such as radiators and stoves.
- Operate only within the recommended temperature range (refer to the Technical Specifications section).
- High humidity levels may affect performance, reduce sensor sensitivity, or cause permanent damage.
- Do not attempt to disassemble the device.

If you suspect a malfunction or experience unexpected behavior, contact technical support immediately.

- To clean the device, use a dry, soft cloth only – avoid liquids or harsh chemicals.
- This product functions as a radio transmitter and receiver.

## Limited liability

This product is under continuous improvement and development.
We recommend keeping the device powered on at all times for optimal functionality.

EMBIO Diagnostics Ltd is not responsible for any damage or data loss resulting from improper use, incorrect operation, or mishandling of the device.

## About EMBIO Diagnostics Ltd

EMBIO Diagnostics is a rapidly growing biotech company that designs and develops innovative, portable, biosensor-based digital devices for rapid diagnostics.

## Contact information

+357 22515175

Athalassas Avenue 8, 2018, Nicosia, Cyprus

embiodiagnostics.eu

## Technical Support

support@embiodiagnostics.eu

## Let’s Get In Touch

(+357) 22515175
sales@embiodiagnostics.eu
8B Athalassas, Nicosia, Cyprus

embiodiagnostics.eu