



Wireless CO₂ / Temperature / Humidity Monitor



User Manual

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The content of this document will be revised on a regular basis. These changes will be implemented in later versions. The described products can be improved and changed at any time without prior notice.

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Introduction

Thank you for purchasing our **AIRVALENT wireless air quality monitor**! This product is used to monitor the carbon dioxide (CO₂) concentration, relative humidity, and temperature of ambient air helping to maintain a healthier and more comfortable environment for you and your loved ones.

The main goal of AIRVALENT is to provide the best possible measurement solutions by monitoring your environment and communicating the necessary actions to be taken to improve air quality and maintain your productivity and well-being.

This user manual will provide you with detailed instructions on how to set up, operate, and maximize the performance of your air quality monitor. Please read through this manual carefully to make the most out of your AIRVALENT experience and feel free to reach out to our customer support team for any further assistance.

Packing List

- ❖ AIRVALENT Air Quality Monitor
- ❖ USB Type-C Charging Cable
- ❖ Quick Start Guide

How it works

The AIRVALENT air quality monitor comes with an inbuilt nondispersive infrared (NDIR) sensor which is based on photoacoustic measuring principle: infrared rays are emitted from a source, which hit and move CO₂ molecules, the following vibration is detected and the exact level of CO₂ in the room is determined. Each AIRVALENT device is calibrated so the visible CO₂, air temperature and humidity levels are correct to a certain error rate of the sensors.

The default measurement interval is set to 5 minutes. Measurement and data transmission intervals can be set to 1, 2, 5, 10 or 15 minutes in the AIRVALENT app.

Depending on the set measurement intervals the AIRVALENT monitor will have the following battery life between the charges:

Measurement interval	Battery life
1 min	5 days
2 min	10 days
5 min	18 days
10 min	22 days
15 min	31 days

AIRVALENT can carry out the following **measurements**:

CO₂ LEVELS



Below 1000 ppm – Optimal CO₂ level indoors. Effective decision-making performance.



1000 to 1500 ppm – Decreased cognitive ability, drowsiness. The probability of airborne disease transmission increases.



1500 to 2000 ppm – Discomfort, complaints of poor air. The risk of transmitting airborne diseases is significantly increased.



Above 2000 ppm – Headaches, poor cognitive ability, loss of attention. Increased heartrate and slight nausea may occur.

TEMPERATURE (°C / °F)

Optimal temperature indoors in Winter: from +18 to +22 °C / +64 to +72 °F

in Summer: from +20 to +25 °C / +68 to +77 °F

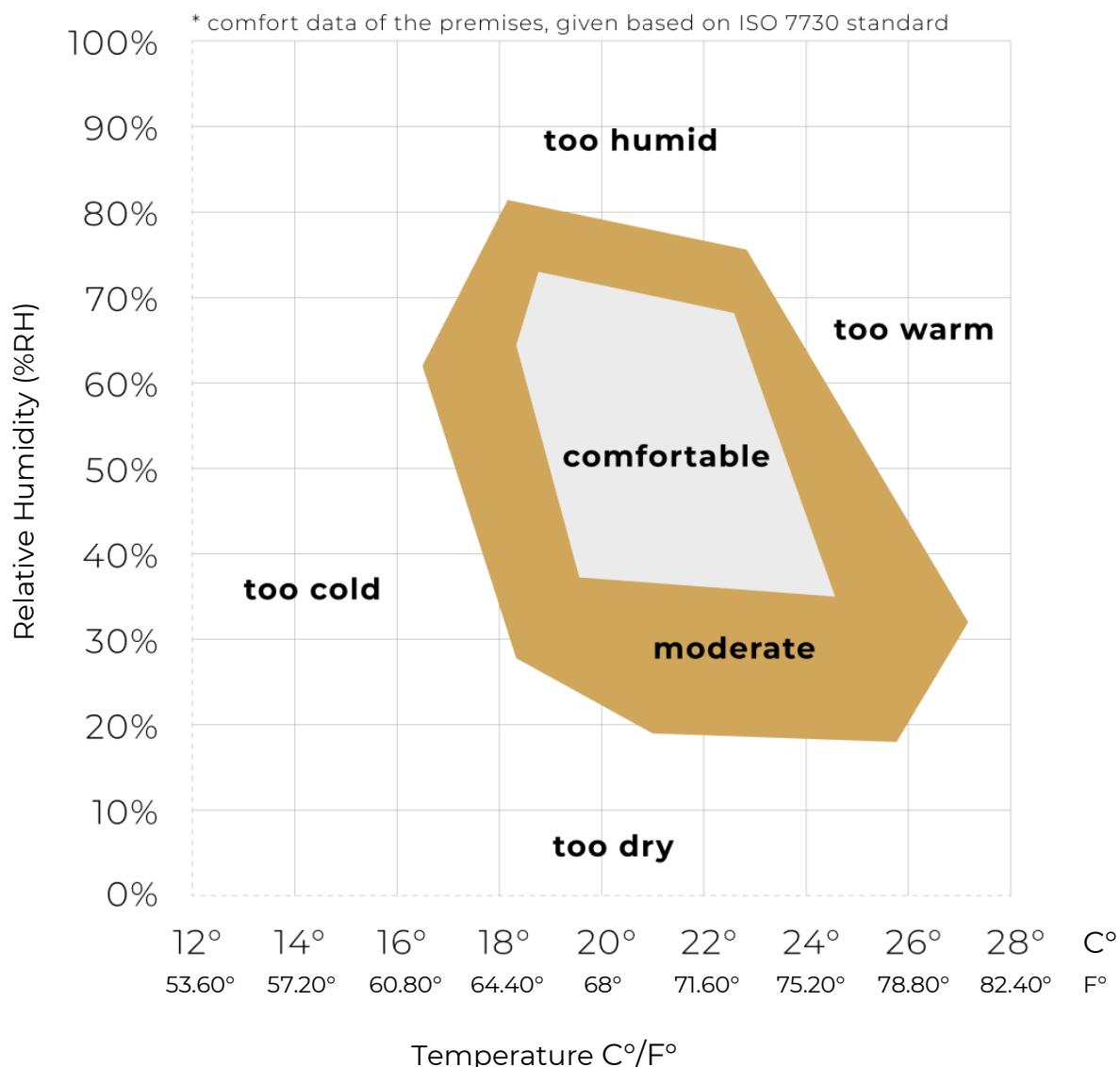
RELATIVE HUMIDITY (%RH)

Optimal humidity indoors¹ 30 - 70%

¹ To establish optimal indoor conditions, it's essential to consider the interplay between temperature and relative humidity, as temperature variations significantly impact the range of comfort in terms of relative humidity.

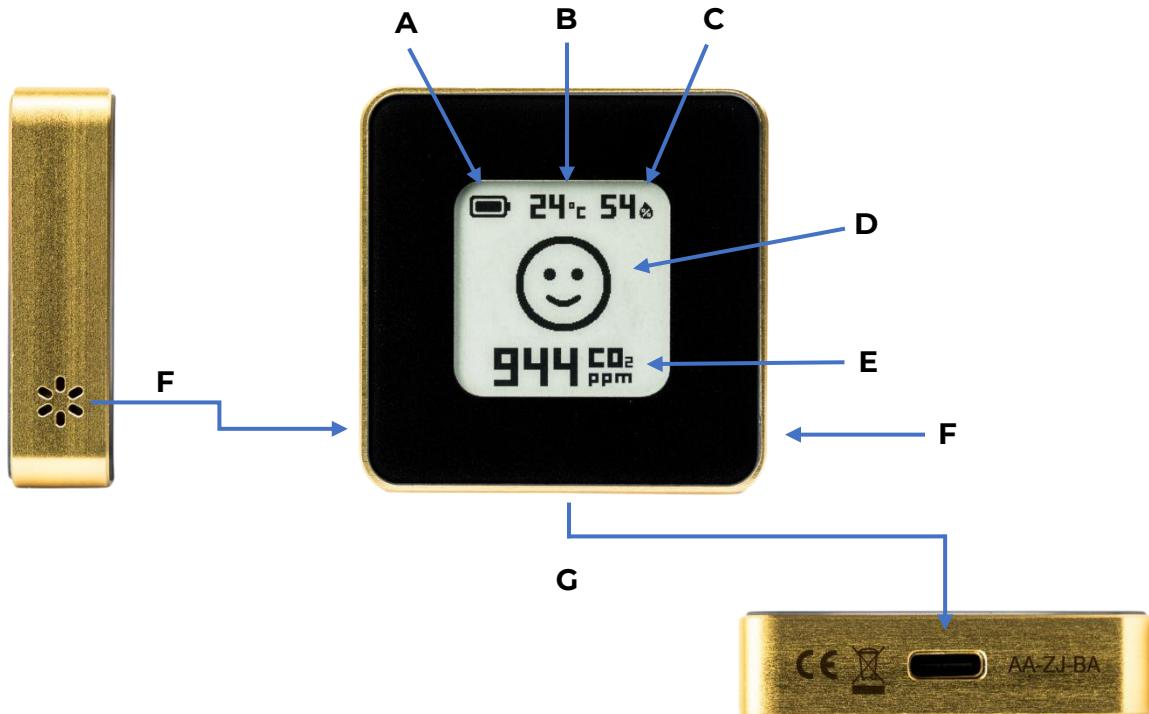
Relative humidity (%RH) measures the proximity of water vapor in the air at a specific temperature to full saturation. Elevated relative humidity can induce a sensation of increased heat and perspiration, regardless of the actual air temperature. In turn, lower relative humidity levels facilitate quicker evaporation of skin moisture, leading to sensations of chilliness and dryness. Thereby maintaining the right balance between the temperature and humidity is essential for a comfortable and healthy indoor environment.

The graph below illustrates 'comfort data' values, which are influenced by optimal conditions.



Appearance

AIRVALENT CASING AND DISPLAY DESIGN



A – Battery level indicator

B – Temperature indicator (you can switch between °C and °F in the AIRVALENT app)

C – Relative humidity (%RH) indicator

D – Customizable display (you can choose from 10 individual designs in the AIRVALENT app)

E – CO₂ level indicator (shows levels in ppm – parts per million)

F – Air exchange openings

G – USB Type-C charging port

Setup Instruction

Setting up AIRVALENT is as easy as breathing:

- A. Take your AIRVALENT out of the box,
- B. Plug it in to charge,
- C. The device will turn ON automatically, and
- D. You are good to go!

Installing the AIRVALENT App

- A. Go to airvalent.com/app to download the AIRVALENT App for your iOS or Android.
- B. Make sure the Bluetooth in your smartphone is ON.
- C. Open the App and press the **+** icon to choose your AIRVALENT monitor².



- D. Input the 6-digit PIN code from your AIRVALENT display into your smartphone or device.
- E. Complete the pairing³ and enjoy all the features the App provides!

By using the AIRVALENT App you will be able to:

- Choose your individual AIRVALENT display.
- Access the current air quality measurements.
- Download and analyze the historical data.
- Set measurement time intervals.
- Change temperature units to °C or °F.
- Configure sound and mobile notifications.
- Perform calibration of CO₂ readings.
- Update the firmware of your monitor.

² For **Android versions below 11** make sure to **ALLOW** the AIRVALENT App to find, connect to, and determine the relative position of nearby devices.

³ For **Android** devices **first** pairing with your AIRVALENT monitor might require you to **turn ON** the **'Location'** function on your device. When the pairing is complete, you can turn the function OFF again, as it will not be needed.

NB: If for some reason the bonding information of a previously paired AIRVALENT monitor is deleted on your smartphone or device, next time connection to that monitor might be rejected.

In this case, please repeat the process of adding a new monitor via the App.

Important Maintenance Instruction

Ensuring proper maintenance of your AIRVALENT wireless air quality monitor is essential to uphold its performance and longevity. This section provides important instructions to help you effectively maintain your device.

By following these maintenance practices, you can ensure accurate measurements, prolong the lifespan of your monitor, and guarantee its continued functionality. Please carefully read and adhere to the instructions below to optimize the performance and reliability of your AIRVALENT air quality monitor.

Calibration Instructions

The AIRVALENT device measures the CO₂ concentration and is calibrated at the factory. However, unexpected factors like mechanical or thermal stresses can cause permanent inaccuracies in readings. Two calibration methods are available to restore accuracy: Automatic Self-Calibration (ASC) mode or manual recalibration.

ASC mode regularly calibrates the device by assuming the lowest CO₂ reading within a recalibration period (\approx 1 week) corresponds to the amount of CO₂ in the fresh air. If the device continuously operates in an unventilated environment, disable ASC and perform manual recalibration. To recalibrate, operate the device for 30 minutes in fresh, stable air conditions. Avoid sources of excessive vibrations and direct airflows. Press 'CALIBRATE' to initiate recalibration, which can be repeated as required. These steps will help restore the AIRVALENT device's accuracy.

When ASC is enabled, the symbol 'A' is displayed on the device's screen.

In case you have chosen AIRVALENT display design #4 (**ANALOG**) and ASC is turned ON, the screen will additionally show the number of automatic recalibrations since the last factory reset and the value of the last PPM correction in the first and second row respectively, which may be useful to you for keeping track of the ASC progression.

The following suggestions will help you use the warranty service effectively.

- Keep the device dry. Rain, moisture and various liquids or water may contain minerals that can cause corrosion of internal electronics. In the case when device is wet, please dry it completely.
- Do not use or store in dusty or dirty areas.
- Do not place near sources of excessive heat. To prevent damage to internal battery avoid operating the device beyond 0 and 40 °C.
- Do not keep the device in direct sunlight.
- Do not operate below dew point. Moisture condensation can greatly affect the measurement accuracy. Prolonged operation in condensing environments can damage the device.
- Do not throw, knock or shake the device. Treating the device roughly can destroy internal circuit boards and delicate structures.
- Do not wash with strong chemicals, regular or strong detergents.
- Do not paint the device. Smudges can make debris blocks and affect normal operation.
- Do not connect or power the device using cables that have been damaged.

All the above suggestions apply equally to your device and accessories.

ATTENTION! Your device should only be used in accordance with the specific instructions for use and intended purpose of the device. Using your device in any way other than its intended purpose could cause injury to yourself, others and/or damage to the device or property.

If any device is not operating properly or you have any additional questions, please contact AIRVALENT Customer Service at support@airvalent.com.

Warranty

We offer a **24-month** warranty from the date of shipment **for natural persons**, and a **12-months** warranty from the date of shipment **for legal persons**, for each of our AIRVALENT monitors. Should the product exhibit any damage related to manufacturing quality or materials, we will deal with this situation responsively. The warranty is not valid if any mechanical damage is detected during use. The warranty also does not apply to the body paint of the tempered glass or aluminum coating, as we cannot guarantee the reaction of the paint if the user has used any chemical cleaners.

To submit a warranty application, you must send the following information and documents to our Customer Service at support@airvalent.com:

- Order confirmation;
- Order payment;
- Photographs and description of the damage;
- Buyer's contact information.

Provided the damages to the device fall under the AIRVALENT terms of warranty, our Client Service will arrange a return shipping of the damaged monitor.

After inspecting the damage and confirming that the AIRVALENT air quality monitor has not been mechanically damaged during use, we will either fix the damage by repairing it, or if this is not possible, we will send you a new item as replacement, covering all shipping costs.

If you have any questions or complaints, please contact us at the above email and we will try to resolve the situation as soon as possible. For more information on the AIRVALENT Warranty, please visit our website www.airvalent.com.

Performance characteristics

Built-in Sensors	CO ₂ (Photoacoustic NDIR technology) Temperature Relative Humidity
CO₂ measurement max range	400 ... 30 000 ppm
CO₂ measurement error	± (40 + 5%) ppm in range 400 ... 5000 ppm
CO₂ measurement resolution	1 ppm
CO₂ measurement response time (in still air)	3 min ($\tau = 63\%$) 8 min ($\tau = 95\%$)
Temperature measurement range	-10 ... +50 °C / 14 122 °F
Temperature measurement error	±1 °C / ±1.8 °F
Temperature measurement resolution	1 °C/ ±1.8 °F on display, 0.1 °C / 0.18 °F via mobile APP
Temperature measurement response time	7 min ($\tau = 63\%$) 16 min ($\tau = 95\%$)
Humidity measurement range	0 ... 85 % (non-condensing)
Humidity measurement error	± 6 %
Humidity measurement resolution	1 % on display, 0.1 % via mobile APP
Battery Run-time	5 days @ 1 min refresh time 10 days @ 2 min refresh time 19 days @ 5 min refresh time 26 days @ 10 min refresh time 31 days @ 15 min refresh time
Battery charging time	≈1 hour
Recommended operating conditions	Temperature range: +5 to +50 °C / +41 to +122 °F Humidity range: 0 to 80 % (non-condensing)
Protection rating	IP40

Functionality

- Standalone operation – readout data visualization on E-Ink display.
- Built-in buzzer for audible alarm.
- CO₂ measurement calibration modes available to user: Manual Recalibration using fresh air and Automatic Self-Calibration.
- Onboard non-volatile memory for historical data logging. Data logging intervals:
 - last 54 days at 1 min refresh time
 - last 270 days at 5 min refresh time
- Remote control and monitoring via Bluetooth connection using mobile APP:
 - Current measurement readout
 - Historical data readout
 - Refresh time setup
 - Audible alarm setup
 - Temperature/pressure format setup
 - Device recalibration
 - New display design upload to device
 - Device firmware upgrade
- Battery charging using standard USB-C cable.

Declaration of Conformity

AIRVALENT is in conformity with the essential requirements and other relevant provisions of the CE and WEEE.



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Additional information

FCC Compliance Statement (Part 15.19)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Warning (Part 15.21)

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Interference Statement (Part 15.105 (b))

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by

turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

ISED Compliance Statement (See RSS-210 clause 5.11)

This device complies with Industry Canada licence-exempt RSS standard(s).

Operation is subject to the following two conditions:

- This device may not cause interference and
- This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radioexempts de licence.

L'exploitation est autorisée aux deux conditions suivantes:

- l'appareil ne doit pas produire de brouillage, et
- l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Caution: Exposure to Radio Frequency Radiation.

To comply with RSS 102 RF exposure compliance requirements, for mobile configurations, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons. This device must not be co-located or operating in conjunction with any other antenna or transmitter.

Pour se conformer aux exigences de conformité CNR 102 RF exposition, pour des configurations mobiles, une distance de séparation d'au moins 20 cm doit être maintenue entre l'antenne de cet appareil et toutes les personnes. Cet appareil ne doit pas être colocalisés ou fonctionnant en conjonction avec une autre antenne ou transmetteur.