

INDOOR AIR QUALITY MONITOR User Manual



Read the instructions carefully before use. Please keep this manual for future reference.

The indoor air quality monitor Quaelis 34 (reference 23658) is designed to monitor and analyse indoor air pollution continuously in real time along with room temperature and humidity. Indoor use only.

Technical features:

- Large LCD colour screen (9.4 x 5.4 cm) for a full display of all information.
- Measurement of the main pollutants:

Carbon dioxide (CO₂). Non-dispersive infrared sensor (NDIR).
Volatile organic compounds (VOC) Semiconductor sensor.
Particulate Matter PM_{2.5}, PM₁₀ and very fine particles PM_{1.0}. Laser sensor.

- Power supply: 3000 mAh battery rechargeable via USB cable 5V 1A (supplied).

Measurement range	CO ₂	0 to 5000 ppm.
	Total volatile organic compounds (TVOC)	0.001 to 9.999 mg/M ₃ .
	PM _{1.0} , PM _{2.5} and PM ₁₀	0 to 999 µg/M ₃ .
	Temperature	0°C to +50°C.
Accuracy	Humidity	20% to 90% RH.
	CO ₂	+/- 10%
	Total volatile organic compounds (TVOC)	+/- 10%
	PM _{1.0} , PM _{2.5} and PM ₁₀	+/- 10%
Sensitivity/ Resolution	Temperature	+/- 1%
	Humidity	+/- 4 %
	CO ₂	1 ppm
	Total volatile organic compounds (TVOC)	0.001 mg/M ₃ .
	PM _{1.0} , PM _{2.5} and PM ₁₀	1 µg
	Temperature	1°C
	Humidity	1%

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Unpack the device and make sure all the accessories are present.

Interface 1



- 1 : ON/OFF and settings buttons.
- 2 : Date and time display.
- 3 : Display of pollutant measurements (PM_{1.0}, PM_{2.5}, PM₁₀, CO₂, TVOC) and Air Quality Index (AQI).
- 4 : Battery indicator.
- 5 : Rear and side sensor vents.
- 6 : Temperature and relative humidity display.

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Positioning the air quality monitor:

Due to the effects of packaging and shipping, the device must be placed in a well-ventilated area for 2 hours to clear the sensors before use. To ensure proper operation of the unit, place the monitor on a piece of furniture surface in a location that allows the sensors to remain unobstructed. Keep the device well away from any direct source of pollution, liquids, heat sources, flammable products, and magnetic fields.

Connect the indoor air quality monitor.

Peel off the protection film from the screen. Plug the micro-USB end of the charging cable into the micro-USB port on the rear of the device then connect the other end to the USB port of a power source (computer, 230 V mains adapter, etc.).

To turn the air quality monitor on, press and hold in button ON/OFF until the screen comes on.

Icon (4) indicates the progress of the battery charge. The icon indicates that the battery is charging. The air quality monitor displays measurements (3) and (6). An adaptation time of 30 minutes is required for the sensors to regulate the measurements.

Setting the date and time

Press the ON/OFF button twice in quick succession to display the SETUP screen:

The year is highlighted → use the up ▲ and down ▼ keys to select the year → Confirm by pressing and go to the next setting.

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The month is highlighted → use the up and down keys → Validate.
The date is highlighted → use the up and down keys → Validate.
The time is highlighted → use the up and down keys → Validate.
The minutes are highlighted → use the up and down keys → Validate.
The seconds are highlighted → use the up and down keys → Validate.

Setting the alarm:

The monitor allows you to set an alarm (like an alarm clock) for a wake-up or reminder time. After setting the date and time, set the alarm time and activate the alarm.

The alarm time (hour) is highlighted → use the up and down keys → Validate.
The alarm time (minutes) are highlighted → use the up and down keys → Validate.
The alarm function is activated in the ON position and deactivated in the OFF position → use the up and down keys → Validate.

The icon appears (at the top next to the battery level) to confirm the alarm activation.

When the alarm sounds, press one of the buttons (1) to stop the alarm.

Caution: The alarm setting is not related to the measurement of pollutants.

Setting the screen saver.

To save battery power, the monitor has a screen saver function. After setting the alarm, set the delay before the screen goes into sleep mode.

The delay is highlighted (SCR SAVER) → use the up and down keys to select the delay: 10 minutes, 30 minutes, 60 minutes or disable (never) → Validate.
The monitor returns to the display screen.

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To turn the monitor on or off manually, press and hold in the button.

When the screen is in standby mode, press one of the buttons (1) to exit the standby mode.

Pour une mise en veille manuelle : effectuer un appui long sur le bouton

Lorsque l'écran est en mode veille, appuyer sur un des boutons (1) pour sortir du mode veille.

Caution: If no button is pressed for 10 seconds while updating settings, the monitor will return to normal display.

Caution: The monitor makes a slight noise. This is normal and is caused by the sensor cooling fan during use. The noise stops when the monitor is turned off.

Use:

The air quality monitor provides three display interfaces. By default the screen shows interface 1. Press the Up Button to scroll to the desired display.



Interface 1 : Displays all measurements and the corresponding air quality colour index for each measured pollutant.

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Interface 2 : displays the list of all measurements.



Interface 3 : displays the real-time pollutant value readings as a graph.

Display of and recommendations on air quality.

The monitor measures the main pollutants found in indoor air: Carbon Dioxide (CO₂), Total Volatile Organic Compounds (TVOC), Particulate Matter PM_{2.5}, PM₁₀ and very fine particles PM_{1.0}.

Carbon dioxide is a colourless, odourless gas that comes from a variety of sources (greenhouse gases, transport, fuel, heating...).

Carbon dioxide (CO₂), a molecule that is naturally present in the atmosphere, is produced by the human body during respiration. Its concentration inside buildings is proportional to the rate of occupation and the air renewal rate. The current regulatory standards limits vary between 1000 and 1500 ppm.

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Risks vary with exposure to CO₂:

- Mild exposure: slight headache, nausea, fatigue...
- Moderate exposure: throbbing headache, drowsiness, confusion...
- Extreme exposure: loss of consciousness...

Values in a room above 2000 ppm can harm the occupants: it is recommended to leave the room, ventilate and improve the air quality.

Caution: The monitor has a display range up to 5000 ppm. We recommend not to exceed 2000 ppm in a room.

Particulate Matter come from indoor or outdoor sources and can be natural in origin (e.g. bacteria, pollen) or the result of human activity (e.g. combustion heating, transport).

Everyone is exposed to Particulate Matter (PM_{2.5} and PM₁₀) and very fine particles (PM_{1.0}). Nonetheless, PM_{1.0} are the most harmful of the three, their extremely small size allows them to penetrate the human body, but some are more sensitive than others to them: children, the elderly, people with allergies, asthmatics, the breathing deficient.

Volatile Organic Compounds are pollutants derived from hydrocarbons, solvents, exhaust gases, furniture, ceilings, paints, glues, and other products.

Total volatile organic compound rates (TVOC) express total detected values of multiple pollutants.

The comfort indices are indicated according to the following measurements on interface 1 of the monitor:

Comfort indices vary according to the specific measurements of each pollutant to identify air quality more readily.

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For CO₂ :

Rating	CO ₂ (ppm)	Short-term actions recommended
Green	≤ 1000	Continue to ventilate the room regularly.
Yellow	1001-2000	Ventilate the room
Red	>2000	Air the room; leave and come back later.

For TVOC :

Rating	TVOC (mg/M ₃)	Short-term actions recommended	Long-term actions recommended
Green	0 - 0.500	Continue to ventilate the room regularly.	
Yellow	0.501 – 1.500	Ventilate the room Leave the room	Install a permanent ventilation system.
Red	> 1.500	Limit heating during winter	Identify and reduce all sources of possible pollution (furniture, ceiling, floor and wall coverings, home improvement work, painting, etc.).

Caution: The actions to be taken are indicative only. They cannot be considered a substitute for legislative or regulatory provisions or any other obligation that may exist.

Rating	PM _{2.5} µg/m ³
Green	≤ 25
Yellow	26-120
Red	> 120

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Caution: Concerning Particulate Matter, the regulatory or recommended values focus mainly on PM_{2.5}. Thus, the World Health Organization (WHO) has defined exposure thresholds for PM_{2.5} and PM₁₀ particulates. **But PM_{1.0} is overlooked when it comes to exposure thresholds and guide values.** Nonetheless, PM_{1.0} is the most harmful of the three, their very small size allowing them to penetrate the human body. That's why the indoor air quality monitor includes this category in its measurements, especially for people sensitive to particles. We therefore recommend that PM_{1.0} measurements be monitored to ensure they remain lower than those of PM_{2.5}.

	Exposure threshold	Short-term actions recommended	Long-term actions recommended
PM _{2.5}	25 µg/M ₃ ⁽¹⁾ average exposure in a 24-hour period	Continue airing the room (unless the outdoor air is experiencing a fine-particle pollution peak).	Install a permanent ventilation system.
	10 µg/M ₃ ⁽¹⁾ average year-round exposure		Distribute ambient air detoxifying plants (azalea, ficus, palm): 1 plant/10m ² room area.
PM ₁₀	50 µg/M ₃ ⁽²⁾ average exposure in a 24-hour period	Limit heating during winter.	Identify and reduce all sources of possible pollution (moulds, allergens, mites, etc.).
	20 µg/M ₃ ⁽²⁾ average year-round exposure	Wear a mask	Regularly remove dust on floors and furniture with a vacuum cleaner.

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⁽¹⁾ An exposure threshold is, however, defined by the World Health Organization: as 25 µg/m³ for a 24-hour exposure to PM_{2.5} and 10 µg/m³ for a 24-hour exposure to PM₁₀.

⁽²⁾ An exposure threshold is, however, defined by the World Health Organization: as 50 µg/m³ for a 24-hour exposure to PM₁₀ and 20 µg/m³ for a 24-hour exposure to PM₁₀.

Source: Benchmark values for the management of airborne particles in enclosed spaces: published by French Public Health Commission, 2013.

The values detected by the monitor can often be higher than the exposure threshold. That's why each threshold is coupled to a specific exposure time. If the measured values regularly exceed these limits, a professional diagnosis is advisable to identify the source of the pollutants.

And the AQI (Air Quality Index) provides a general assessment of air quality for all pollutants.

Rating	Measurement range
GOOD	0-50
ACCEPTABLE	51-100
MODEST	101-200
BAD	201-300
CRITICAL	301-400
HAZARDOUS	401-500

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Interface 3 displays the real-time pollutant value readings as a graph.

When interface 3 is displayed, move the cursor with the key ▼ : the AQI indicator or the pollutant concerned is highlighted and the corresponding graph is displayed. This graph displays the trend in automatically measured readings: the monitor lets you display 8 readings every 20 minutes. Readings can only take place when the air quality monitor is switched on.

Caution: when moving the cursor, if there are no readings or only spot readings for the AQI index and fine particles PM_{1.0}, PM_{2.5} and PM₁₀, it means that the monitor failed to record values greater than or equal to 1. This means that the air quality is good for these values.

Conditions of use and safety:

Use the indoor air quality monitor only for its intended purpose. Do not alter the structure of the product or repair it yourself. Use only the cables and connectors supplied with the product. The manufacturer cannot be held liable for damages arising from improper use or maintenance of the product. Keep the appliance out of children's reach.

Maintenance/ safety:

Do not use cleaning products containing caustic or abrasive agents.

Troubleshooting:

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Defects found	Solutions/how to solve the problem
The monitor does not turn on.	Make sure the battery is charged. Press and hold in the ON button to turn the monitor on.
The battery fails to charge.	Make sure the charger is correctly connected. Makes sure the USB port of the power source (computer, mains adapter, etc.) is receiving current.
The screen turns off automatically.	The monitor has a power-saving mode to save power. Deactivate the screen saver.
No graph displayed for certain pollutants in interface 3.	The monitor did not record values greater than or equal to 1 (for AQI) or 1 µg/M ₃ (for Particulate Matter) when recording measurements at twenty-minute intervals.
Measurements seem to be frozen or wrong.	The measurement update time is a few seconds (between 2 and 10 seconds) when the pollutant (CO ₂ , PM or VOC) or the AQI index changes. It may take up to one minute to update the temperature and humidity level.

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Defects found	Solutions/how to solve the problem
Measurements seem to be frozen or wrong.	In the event of rapid and significant changes in temperature, humidity or environment, the update time takes several minutes to stabilise. If the measurements still seem to be frozen or wrong, turn the monitor off, wait a few minutes, then turn it back on and place it in a well-ventilated area or outdoors for 30 minutes to clear the sensors. Observe the monitor positioning instructions found in the manual. Sensors can lose their sensitivity over time.

NB : End-of-life electrical or electronic products can have a negative impact on the environment and human health. Do not discard them with your household waste; recycle them via the facilities provided. Batteries must never go to landfill or incineration. They must be disposed of following local chemical waste regulations. This product complies with the WEEE and RoHS directive. Please observe national and local regulations when discarding this device.



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