U-EARTH

Sensor-X User Manual

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Sensor-X™

1. Introduction to Sensor-X™

Before using the air quality monitor please read this user manual carefully and keep it for future reference.
The user manual helps you use this appliance in a safe and informed way and provides details on all its functions.

Remember that in order to ensure that the unit works properly - and above all, safely - users must also understand how the appliance works and how to maintain it properly over time.

Should the unit be used without following the instructions printed here or should any makeshift modifications or repairsbe done by unqualified personnel, U-Earth will not be held liable.

Such actions will invalidate this appliance's warranty. Should the machine break down or have a manufacturing fault, please contact your closest U-Earth service provider.

This document describes the technical characteristics of the environmental monitoring solution for the air quality detection in indoor environments.

Sensor-X™, the air quality monitor, is connected to an IoT Air Quality Dashboard, where you can visualise air quality data, create reports and manage alerts. Alerts are automatically generated when a sensor reading is out of range or is malfunctioning.

The monitor can be initialised using the dedicated software, which is the mobile version of the IoT Air Quality Dashboard, operating as "controller".

2. Technical Data of Sensor-X™

Dimensions	150x150x195mm
Weight	700g
Operational Enviroment	Temperature: -10°C to 45°C Humidity: 10% to 85% non-condensing
Power Consumption	Max 2.5 W
Battery	Capacity & Voltage: 3.7V 4200mAh Usage Time: 6 hours at full charge
Accesories	Desk stand, 120 cm USB-C to USB-A cable, 5 V charger
Connectivity and Integration	WiFi Connection 2.4 GHz 802.11 b/g/n (setup over Bluetooth)
Data Storage and Logging	2 hours' worth of data storage. Room sensor reading every 10 seconds. Data transmission every 5 minutes.

3. Precautions for children

Supervise your children when they are present near Sensor-X™. Never allow children to play with Sensor-X™.
Keep the packaging out of the reach of children, due to the danger of suffocation.
This device is not a toy.

4. Your contribution to environmental protection and disposal of transport packaging

The packaging protects Sensor-X™ from damage during transport. The packaging material has been selected from materials which are environmentally friendly and disposable, and should be recycled.

5. Disposal of your old device

Old electrical and electronic equipment still contains materials that can be used. However, it may also contain harmful substances required for its functioning and safety. In residual waste or if **incorrectly processed, they can harm human health** and the environment. Therefore, do not simply throw away your old device into residual waste bins. Instead, take your old electrical or electronic devices to an electrical waste drop-off point.

6. Safety Instructions

Sensor-X™ complies with the prescribed safety regulations. Improper use or handling can however cause damage to persons and property.

Before using Sensor-X™, please read the operating instructions.
These provide important information regarding the safety, use and maintenance of Sensor-X™. Through this, you will protect yourself and avoid any damage to Sensor-X™.

Keep the operating instructions safe and hand them to any subsequent user.

7. Intended Use

1. Sensor-X™ should not be operated in explosive environments.
2. Sensor-X™ should not be used in outdoor areas.
3. Place the Sensor-X™ in a safe area with no risk of it tipping over. All the other forms of application are prohibited. U-Earth shall not be liable for damage which results from misuse or improper handling.
4. Persons who are incapable of operating Sensor-X™ safely due to their physical, sensory or mental abilities or their lack of experience or knowledge should not use the device without the supervision or guidance of a responsible person.
5. The ambient temperature should not fall below 3°C or rise above 50°C as Sensor-X™ would not be able to function optimally under such temperatures. At temperatures below 0°C, the device may get damaged.

8. Technical Safety

1. Check Sensor-X™ before setup for any visible external damage. A damaged Sensor-X™ should not be set up and operated.
2. The electrical safety of Sensor-X™ is only guaranteed when it is connected to a protective conductor system installed in accordance with the regulations. U-Earth cannot be held liable/responsible for damage caused by a missing or disconnected protective conductor system.
3. For safety reasons, do not use any extension cables (risk of fire due to overheating).
4. Defective components can only be replaced with U-Earth original spare parts. U-Earth can only guarantee that the safety requirements of these parts have been fulfilled.
5. Improper repairs may lead to unforeseeable hazards for the user for which U-Earth will not be liable. Repair work may only be carried out by technicians authorized by U-Earth. Otherwise, no guarantee claims can be made for any resulting damage.
6. In case of any fault during cleaning or maintenance work, Sensor-X™ is to be electrically disconnected from the power supply only when the power plug of Sensor-X™ has been pulled out or the power button is switched off.
7. Do not place any objects on Sensor-X™.
8. Do not tilt the device, proper functioning is guaranteed only when Sensor-X™ is kept standing on its support. Sensor-X™ is designed to work non-stop 24/7 and this is the intended operational mode.

9. What's in the box

- Sensor-X™ unit
- Power supply + cord (input rating 100-240V, 50-60 Hz)
- QR code for instruction manual

10. Use of Sensor-X™

10.1 Setup

The setup and connection of Sensor-X™ shall be carried out following these steps:

1. Unpack from the box and place in a convenient location or as indicated by your U-Earth Air Quality Specialist;
2. Connect Sensor-X™ to the power using the provided power supply unit;
3. Allow a few seconds for it to set up automatically.

10.2 How to control Sensor-X™

Sensor-X™ can be controlled by a software tool that can be installed on your phone and looks like an app. It's designed to assist you with the operations and maintenance of the air quality monitor.
As it is a mobile version of the IoT Air Quality Dashboard, we have named it 'AQ Dashboard', for our convenience.

The AQ Dashboard is the mobile version of the IoT Air Quality Dashboard, which you should already have access to on our desktop. This dashboard visualises the air quality data of your Pure Air Zone in one place.

These are the instructions to access the IoT controller tool and manage your Sensor-X™:

1. To access the IoT Air Quality Dashboard (AQ Dashboard) for the first time, you will be invited by U-Earth with an email (the email address you shared with U-Earth). Please click the link to complete the registration process and set your password.
2. If you need help accessing the AQ Dashboard app contact support@u-earth.eu.
3. Go to the “mobile” section of the IoT Air Quality Dashboard on your Desktop and scan the QR code to download the mobile version.
4. To log into the AQ Dashboard app please insert your email and password.
5. To add a new Sensor-X™, please select the “Pure Air Zones” item in the side menu and choose the Pure Air Zone where you want to install the new Sensor-X™.
6. Select the “Activate Device” option and enter the device’s Serial Number.
7. From the “Device List” select the Sensor-X™ you just activated.
8. Select “WiFi” in the horizontal menu on top of the page.
9. Scan for the device using your smartphone’s Bluetooth.
10. Once you have scanned and selected the desired device, input the WiFi credentials (WiFi SSID and Password).
11. Swipe right from the Sensor-X™ home page to the “Factory Reset” page and press the “Reboot” button to finalize your changes.

10.3 Operating Details: Home Page and Air Quality Score

Sensor-X™ will visualise the Air Quality Score on the Home screen, which will be a value between 0 and 100 (100 being the highest), indicating how high the indoor air quality is.

The colour of the central circle will also correspond to the 3 values identified for the score:

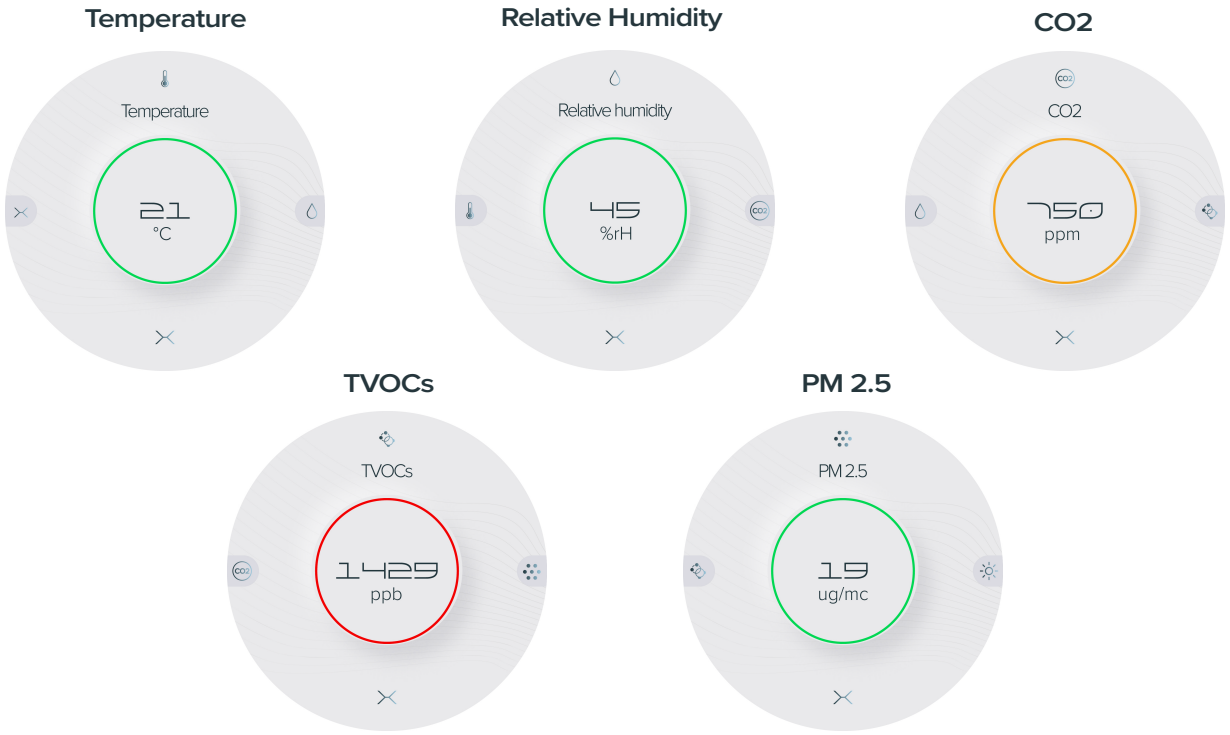
GREEN: 0 ≤ score ≤ 20
YELLOW: 21 ≤ score ≤ 40
RED: 41 ≤ score ≤ 100

The Home screen also displays three icons. From left to right, they are:

1. **Sensor Alarm:** when a sensor detects an out-of-range value or a malfunction, this icon will light up and alert you.
2. **Missing Internet Connection:** when your device loses connection, this icon will light up and alert you.
3. **Low Battery:** when the battery level gets below 10%, this icon will light up and alert you.

10.4 Operating Details: Sensors

By swiping on the screen, to see the readings for each of the five sensors, simply swipe across the screen:



The colour of the central circle will also correspond to the three values identified for the score:

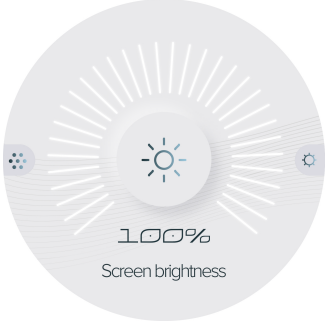
GREEN: Good
YELLOW: Fair
RED: Bad

10.5 Operating Details: Screen Brightness Page

Sensor-X™ adjusts the brightness automatically using an ambient light sensor.
You can reach the Screen Brightness page by swiping across the screen. This allows you to adjust the automatic brightness on the light sensor for the next 10 minutes using a slider. You can select a brightness level between a 30% to 100% range. The Screen Brightness Dial allows you to select the screen brightness.

Default brightness is 60%.
Minimum brightness is 30%.

The screen shows a circular dial of around 270°. The brightness can be changed by moving your finger along the dial. The dial appearance reflects the screen brightness in analog mode (30% brightness = 81°, 100% brightness = 270°). 10 minutes after the manual override the screen backlight will return to be automatically regulated based on the reading from the light sensor.

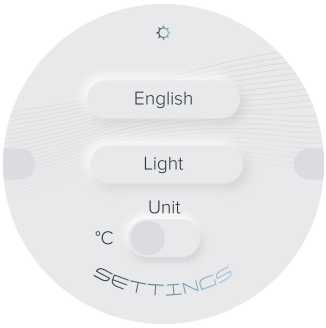


10.6 Operation Details: Configuration Pages

You can reach the Configuration page by swiping the screen. This allows you to:
1. Select your preferred language to be set for Local
2. Select the unit of measure between °C and °F
3. Select the appearance to be used between those available

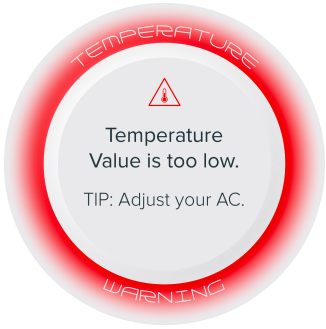
On the screen there are two drop-down lists and a connected pair of radio buttons. The drop-down lists are initialised with all the possible languages and with names of the display options available, respectively. The radio button pair is initialised with the °C or °F radio button, depending on the Unit Of Measurement (UOM) currently selected.

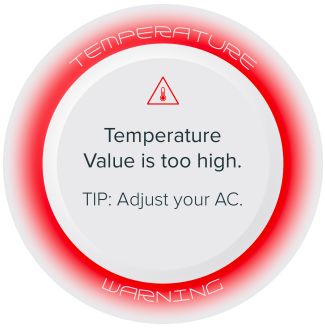
• **SHUTDOWN** will turn off the Sensor-X™, to turn it back on keep the screen pressed for a few seconds
• **DISPLAY OFF** will turn off the Sensor-X™ screen while keeping the device active. To turn it back on, keep the screen pressed for a few seconds
• **REBOOT** will restart Sensor-X™, use it for finalising the initial WiFi setup
• **FACTORY RESET** will restore Sensor-X™ back to its original settings, including erasing any connection setting

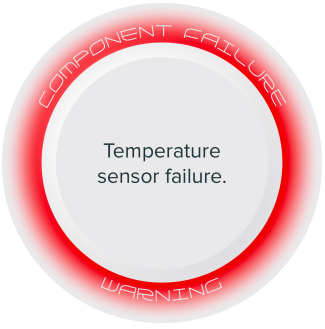


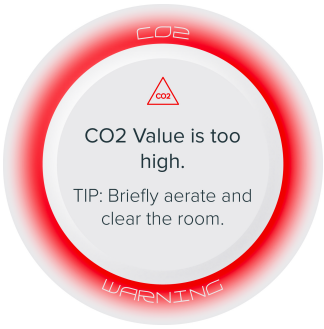
10.7 Operating Details: Sensor Alarms

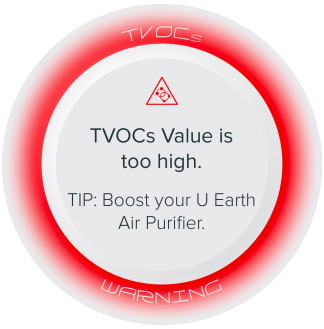
If sensor readings result above or below predetermined thresholds, placing it in the “red” area of the Colour Code for Sensor Readings, dedicated alarm screens will be shown.
Each alarm screen will display a warning signal containing:
1. Name of the sensor launching the alarm
2. Value of the reading of the sensor
3. Short tip explaining to the user how to intervene in order to fix the alarm











11. Proper use

11.1 General

1. Do not place Sensor-X™ in rooms susceptible to frost, since the reliability of the electronic equipment may be reduced at temperatures below the freezing point.
2. Remove all the transport aid in the box of Sensor-X™ before setting up.
3. Make sure that no foreign objects (e.g. nails, needles, paperclips) and fluids enter the device housing and openings. Foreign objects can damage the device components.
4. Never use solvent-containing cleaning agents on Sensor-X™; the device components may get damaged and toxic fumes may be released.
5. Never use solvent-containing cleaning agents around or directly on Sensor-X™. Wetted plastic/metal surfaces can get damaged.

11.2 Improper use

Any use of the appliance not covered by this manual is considered incorrect. This appliance complies with current safety regulations.

Improper use of the appliance could result in personal injury and property damage.

Please read the operating instructions carefully before operating the appliance. They contain important safety, operating and maintenance information. This will protect you and prevent damage to the machine itself. The manufacturer cannot be held liable for damage caused by failure to observe the safety instructions and warnings.

1. Do not place Sensor-X™ in areas subject to freezing temperatures, the reliability of electronic equipment may be reduced at temperatures below freezing.
2. Never use cleaning agents containing solvents to clean Sensor-X™ (e.g., benzene) as this may damage device components and release hazardous fumes.
3. Do not use cleaning agents containing solvents near or directly on Sensor-X™ (e.g., benzene). Plastic/metal surfaces in contact with the product may be damaged.
4. Do not place any type of object on top of the appliance.
5. Do not use abrasive or corrosive materials to clean the exterior surfaces of the appliance.
6. Do not apply any voltage or frequency to the appliance other than those indicated in the specifications.
7. Do not introduce liquids or other substances, this could irreparably affect the performance of the appliance.

11.3 Cleaning and care

Sensor-X™ should be dusted without using any chemical products that could alter the device's reading. Any infringements would render all guarantee claims invalid. The manufacturer cannot be held liable for any resulting damage.

11.4 Failure support

In case of any defects or malfunctioning of the device, Sensor-X™ will automatically generate an alert, informing the customer of the failure.
To contact the customer service staff, you can use the Support link present in IoT Air Quality Dashboard and in the AQ Dashboard app, or you can write to **support@u-earth.eu**.

11.5 Electrical connection

Sensor-X™ is fitted with a connection cable and power plug. The power plug should always be used for disconnecting Sensor-X™ from the main power supply.
The device may only be connected to an electrical system that complies with local requirement norms.
Sensor-X™ should not be connected to extension cables such as multi-socket plug strips in any case in order to avoid any possible sources of danger (danger of fire). The nameplate provides details about the rated power input.
Compare the details on the nameplate with the main power source data.

11.6 Handling

If you decide to move the appliance after its installation, be sure to take all appropriate precautions for its safe handling.
In particular, pay attention when lifting the unit, always use both hands, and check that the supporting surface is free from sharp or protruding objects.

11.7 Accessories

Accessories may only be attached or fitted if they have been expressly approved for use by U-Earth.
If other parts are attached or fitted, claims arising from guarantees, warranties and/or product liability will become void.

U-Earth cannot be held liable for any damage which results from non-compliance with the safety instructions and the Warnings.

11.8 Residual risks and warnings

It is forbidden to tamper with or alter the unit.
It is mandatory to read and understand this manual in its entirety.
The appliance is powered by 220-240V AC, do not use the appliance if there are damaged or missing parts.
This appliance is to be used only by trained personnel who have read and fully understood this owner's guide.

12. Sensor-X™ - Warranty Conditions

U-Earth Biotech LTD (hereinafter "U-Earth") provides to a customer ("Customer") a limited warranty on the materials, and electric/electronic components of its Sensor-X™ under the following terms and conditions.

12.1 Users

U-Earth products are intended for a professional use (B2B) in medical, commercial, corporate and industrial settings.

12.2 Validity

U-Earth warrants its products with a starting date from whichever of the following events occurs first:

1. Elements are unpacked from the original packing;
2. Thirty (30) days following the date of shipment.

12.3 Performance warranty

a. U-Earth system's sizing and positioning must be properly advised by a qualified U-Earth Air Quality Specialist in order to resolve the Customer concern.
b. U-Earth will not be held responsible for poor performance, in terms of pollution decrease, in case of incorrect sizing (number of units used) or positioning of the unit/s, if individually decided by the end user.
c. U-Earth is responsible for providing the end user with adequate manuals for system operation and maintenance, training of the operators and supervisors, ensuring user's ability to perform cleaning and other performance restoration and finally training the end user in diagnostic and troubleshooting procedures.
d. Prior to installation and use, the elements shall be stored in their original packaging and shall not be exposed to an ambient air greater than 35°C (95°F) or below 0°C (32°F).

12.4 Sensor-X™ - Warranty on components

12.4.1 Materials

U-Earth warrants that its new elements in Sensor-X™ monitors are free from defects in materials.
The materials covered by this warranty are:

1. The plastic housing,
2. The internal motherboard and sensors,
3. The metallic support.

The Customer's exclusive fix and U-Earth's (including those entities involved in the distribution and sale of elements) total liability the Customer under this materials warranty for all claims is limited, at U-Earth option, to repair or supply of new elements for replacement of any elements which is determined by U-Earth to be defective under this material warranty. The replacement of the elements with ones supplied by U-Earth shall be made by the Customer at its cost and expense. This material's warranty is effective for five (5) years from the date of receipt by the Customer.

12.4.2 Electronic components

U-Earth warrants that its new electronic components are covered by a one (1) year warranty from the date of receipt by the Customer. This warranty is contingent upon proper storage and handling of the product and does not cover products that have been subjected to physical abuse or electrical stress from improper handling and storage of ElectroStatic Discharge (ESD) sensitive products. All ESD sensitive products must be stored per manufacturer's recommendations.

12.4.3 Electric components

U-Earth warrants its components are free from defects and are covered by a two (2) year warranty on malfunctioning due to manufacturing defects, provided the unit has been serviced correctly and repaired ONLY by U-Earth's qualified technical staff. The Customer acknowledges that the sensors can be subject to a precocious premature lifespan which could probably occur in very dirty environments. Short life span of these components due to usury will not be

covered by guarantee. Customers should forecast that the sensor's average life span under normal conditions is 2 years of continuous use. However due to heavy contaminant aggression in some cases the Customer should take into consideration the possibility of the early default of the components and anticipate its replacement accordingly.

12.4.4 Refund/Return Policy

Items are entitled to be refunded or returned based on malfunctioning at the moment of first installation or defective components. If an item is damaged during shipping, it cannot be refunded. We strongly advise the Customer to insure the shipping for the whole value of the unit.

If the customer or end user has used the unit improperly, U-Earth is not responsible for refund.

a. If any element(s) hold manufacturing defects, in accordance with the performance warranty, U-Earth shall repair, regenerate or replace, at its discretion, said element at the then EXW price less a prorated rebate on the unrealised life of the warranty period, excluding customs, taxes, levies, fees, installation work, etc.
b. U-Earth's liability shall be limited to the extent to which the total number of supplied element(s) for replacement will be less than or equal to the number of initial element(s) installed. Claims for damages as well as right of recourse are excluded.
c. Element(s) returned to U-Earth for warranty examination shall be shipped freight prepaid. If the failure of the element(s) performance is due a cause other than breach of warranty as set forth above, Customer shall pay all direct expenses incurred by U-Earth's personnel investigation. If the performance of element(s) examined is found equal or better than the warranty, U-Earth shall return them to Customer freight collect.

12.4.5 Disclaimer of Liability

No warranties, expressed or implied, are given except as expressly provided above. The implied warranties on Merchantability and fitness for a particular purpose are not provided and are expressly disclaimed and excluded.

U-Earth is not liable for consequential, incidental, special exemplary and punitive damages, loss of profits, plant shut down time or suits by third parties against Customer, due to the performance failure or defect of the element(s).

These terms and conditions are subject to change.

12.4.6 Storage Conditions

The device is intended to be stored under the following environmental conditions:

- Temperature between 0 and 50 °C;
- In the absence of condensation.

The following conditions should also be observed:

- Storage rooms: the rooms used for storing the equipment must be dry and well ventilated. The room must be able to maintain a more or less constant temperature, neither too cold nor too hot. Direct exposure to sunlight should be avoided in all cases. Outdoor storage sites should be avoided at all costs;
- Heat Sources: appliances should be stored away from any heat source such as furnaces or boilers.

CE DECLARATION OF CONFORMITY

U-Earth Biotech LTD
172 Fulham Road, London, SW10 9PR, UK
VAT number: 10920970968

In his capacity as manufacturer, he declares that the new machine described as below:

Machine model:	Serial number - lot:	Year of construction:
Sensor-X	UM00001	2022

It complies with all safety requirements regarding traffic, accident prevention, health and anti-pollution protection, prescribed by current legislation and in particular by the following directives:

- Low voltage directive 2014/35/UE
- Machinery directive 2006/42/CE
- Protection of health and safety in the workplace D.Lsg.N.81/2008
- Restriction of use of certain hazardous substances in electrical and electronic equipment directive 2011/65/EU
- Determination of certain substances in electrotechnical products - Part 3-1: Screening - Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry IEC 62321-6:2015

It is forbidden for the machine covered by this declaration to be put into service before its instructions have been carefully read by the operator.

We declare that the CE plate has been applied to the macchine in question.

The person authorized to compile the technical file is **Mrs. Maggio Elisabetta.**
The technical file was created at U-Earth Biotech at the above address.

Place: London, United Kingdom
Date: 30/09/2022
Signature: Elisabetta Maggio

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