nubo

SENSIRION

Nubo Air
User Manual

User Manual for

Nubo Air *Ambient Air Monitoring System based on* ***Nubo Monitor One NMO-LTE,*** *modular or as* ***Evaluation Kit NMO-EVAL-CE1****, including the* ***Environmental Sensing Cartridge NMO-CE1***

Revision 1.1 from 7th May 2021

Terms
The Buyer accepts the General Terms and Conditions of Sale which can be found under www.sensirion.com/file/terms_conditions. In order to us *Nubo Air* the Buyer is required to have an account with valid subscription at cloud.nubo-air.com and accepts its Terms of Service at http://www.nubo-air.com/document/tos. The Privacy Policy can be found at http://www.nubo-air.com/document/privacy.

IMPORTANT Safety Information

Throughout the manual you will find caution and warning statements that require you to take cautionary measures when working with the device to avoid damage to the device or injury. Please read the manual carefully and follow the procedures of operation as prescribed.

Caution
Caution means that incorrect use might break the device. Failure to follow the procedures explained and prescribed in this manual might result in irreversible damage to the device.

Warning
Warning means that unsafe use of the device can result in injury or cause damage to the device or its surroundings. Follow the procedures prescribed.

Contents

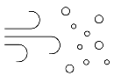
1 Introduction 4
2 System Description 5
2.1 System Operation Overview 5
2.2 *Nubo Air* System components and accessories 6
2.3 Evaluation kit NMO-EVAL-CE1 Package Content 6
3 Handling & Mounting Instruction 7
3.1 General Safety Instructions 7
3.2 Laser-Declaration 7
3.3 Installation Instructions 8
3.3.1 Cartridge Installation 8
3.3.2 Cartridge Removal 9
3.3.3 Mounting to a pole 10
3.3.4 Mounting to a wall 12
3.3.5 Powering up *Nubo Monitor One* 14
3.3.6 Turning off *Nubo Monitor One* for storage and preparation to ship 17
3.4 Storage 18
4 Cloud Usage 19
4.1 Configuration and communication 19
4.2 Account creation 19
4.3 Claiming your device 21
4.3.1 Claiming via Smartphone (automatically) 21
4.3.2 Via Webinterface (manually) 21
4.4 General usage 23
4.4.1 Data Visualization 23
4.4.2 CSV Download 23
4.4.3 API Access 24
4.4.4 Switching organizations 24
4.4.5 Inviting other users 25
5 Maintenance and Replacement 26
6 Conformity Information 27
6.1 European Conformity Information 27
6.2 WEEE 27
6.3 FCC Notice 27
6.4 Frequency band(s) and maximum radio-frequency power transmitted 28
7 Important legal notices 29
8 Revision History 30
9 Contact 30

1 Introduction

Sensirion's *Nubo Air* monitoring system is an end-to-end solution for real-time monitoring of air pollution. Relying on Sensirion's market-leading environmental sensors *Nubo Air* offers excellent data quality. This is underlined by the MCERTS certification and various independent evaluations.

It has never been easier to measure reliable and trustworthy air quality data. Whether you want to measure air quality in your community or facility or plan a larger sensor network, with *Nubo Air* you do not have to compromise between quality and total cost of ownership.

Nubo Air is based on a convenient system with exchangeable cartridges to allow for easy maintenance and quality control. The system enables future and sustainable upgrades to the latest sensing technology. With the first available environmental sensing cartridge *NMO-CE1*, included in this evaluation kit, you get access to the most reliable measurement of



Fine dust (PM1 & PM2.5)

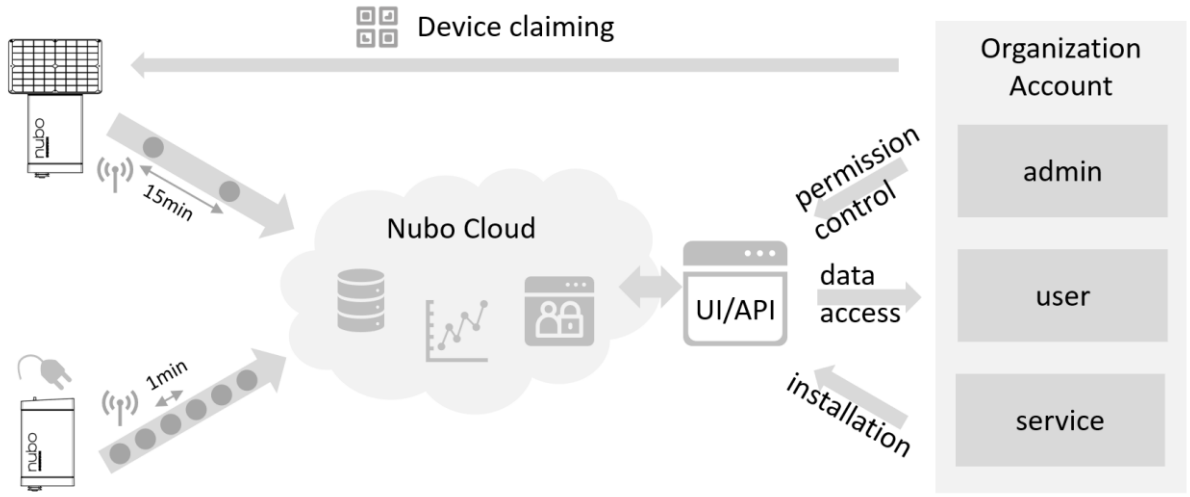
Temperature (T)

Humidity (RH)

Barometric pressure (p)

2 System Description

2.1 System Operation Overview



The *Nubo Air* monitoring system consists of *Nubo Monitor One*, the physical IoT node, and *Nubo Cloud*. *Nubo Monitor One* has two slots for sensing cartridges. The *NMO-CE1* cartridge for sensing of fine dust, temperature, humidity and barometric pressure is the first available and also included with the evaluation kit *NMO-EVAL-CE1. Nubo Cloud* comprises a backend, a user authentication and permission system and a user frontend, separated in a web user interface (UI) and an application programming interface (API).

The *Nubo Monitor One* sends its data via the included cellular connectivity to *Nubo Cloud* once connected to an electrical outlet or as soon as the solar panel is connected. When connected to an electrical power outlet, and using the *NMO-CE1* cartridge, the air is continuous sampled, and the averaged data is uploaded with a time resolution of 1 min. Using solar-power, sampling is non-continuous, and the data rate is reduced to one sample every 15 min.

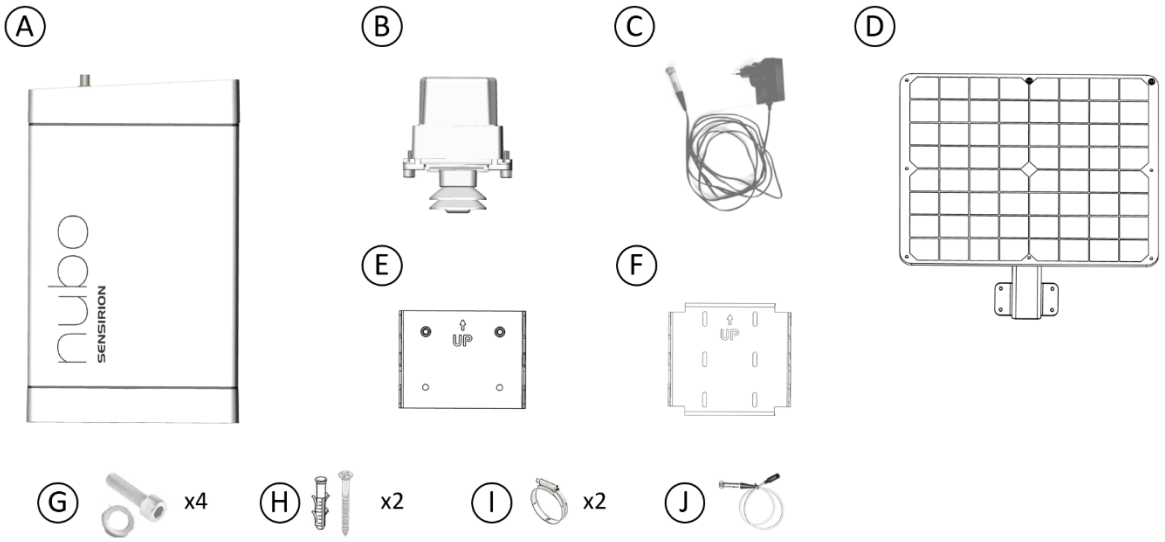
Before the data can be accessed, a device has to be claimed by an organization and thus its data securely linked to the organization's account. The easiest way to do so is to scan the QR-Code on the device. In case no account exists, one can be created at this step. Once a device has been claimed, its status and data can be accessed on the cloud, either via the web user interface (UI) or the application programming interface (API).

Nubo Cloud has a simple yet effective system to control permissions: devices are claimed and linked to an organization. The creator of the organization is the admin and has full control. The admin can invite other users and give them either admin, user or service level permissions. A user account can access data but cannot control permissions. A service level user's rights are limited to claiming devices for the organization without access to data. Such an account is useful for a third-party contractor who is responsible for device installation or maintenance.

2.2 *Nubo Air* System components and accessories

Product	Product Code	Description
Nubo Monitor One	NMO-LTE	IoT sensor node for *Nubo Air* environmental monitoring system
Environmental sensing cartridge	NMO-CE1	Environmental sensing cartridge for *Nubo Monitor One* measuring temperature, humidity, pressure and particulate matter
Plug-in power supply	NMO-PP1	Plug-in power supply for *Nubo Monitor One*
Solar panel	NMO-SP1	Solar panel power supply for *Nubo Monitor One*
Pole mounting kit	NMO-PK1	*Nubo Monitor One* pole mounting kit
Wall mounting kit	NMO-WK1	*Nubo Monitor One* wall mounting kit
Nubo Cloud subscription	NMO-CLOUD	*Nubo Air* data and service subscription
Nubo Air evaluation kit	NMO-EVAL-CE1	Evaluation kit for the *Nubo Air* platform including *NMO-LTE, NMO-CE1*, accessories and 1 year *Nubo Cloud*

2.3 Evaluation kit NMO-EVAL-CE1 Package Content



A. *Nubo Monitor One* (NMO-LTE), IoT sensor node
B. Nubo Environmental Sensing Cartridge (NMO-CE1), cartridge for PM, RH, T & p
C. Plug-in power supply for *Nubo Monitor One* (NMO-PP1)
D. Solar panel for *Nubo Monitor One* with screw set (G) and adapter cable (J) (NMO-SP1)
E. Wall mount adapter with screw set (H) (NMO-WK1)
F. Pole mount adapter with metal bands (I)

3 Handling & Mounting Instruction

3.1 General Safety Instructions

Warning

- Do not open the device. Do not modify the device in any way. Including, but not limited to, exchanging the included antenna, replacing the included modem, making changes to the power supply or circuit board.
- *Nubo Monitor One* is to be operated only with Sensirion Sensor Cartridges. Do not modify the cartridge and/or install components not supplied by Sensirion or components that are not explicitly marketed to be used with *Nubo Monitor One*.
- *Nubo Monitor One* is to be installed in a clean and dry environment. Do not install in rainy conditions.
- *Nubo Monitor One* is to be operated with the supplied powering options only. Do not attach any other power supplies. Do not use the supplied powering options for any other purpose than powering the *Nubo Monitor One*.
- *Nubo Monitor One* contains a Li-ion battery. Do not store or operate the device or battery in temperature conditions outside the specified range. Do not crush the device or its battery. Do not dispose of the device or battery into fire or hot oven. Do not expose the device or the battery to extremely low air pressure. Do not replace the battery with any other type.

Caution

- *Nubo Monitor One* is to be installed with the Sensor Cartridges facing towards the ground. Do not install and/or operate the system in any other orientation.
- The system is designed to be water resistant to rain or spray. It is not designed to be waterproof when immersed. Do not immerse the device in water.

3.2 Laser-Declaration

This device contains a **Class 1 laser product** if equipped with **Environmental Sensing Cartridge NMO-CE1.**

Class 1 laser product: any laser product that does not permit human access to laser radiation in excess of the accessible emission limits of Class 1 for applicable wavelengths and emission durations.

Technical data:

- Power: ≤ 5 mW (electronically controlled)
- Wavelength: 655+/-10nm
- Focal length: 0-20 mm

Warning

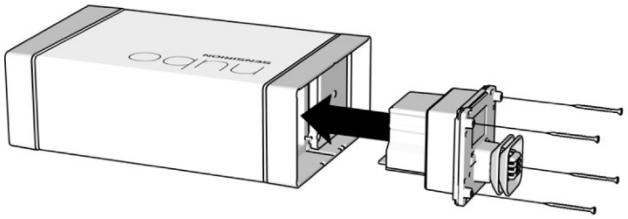
- Device contains Class 1 laser product. Don't open the housing of the NMO-CE1 cartridge and don't open its components.

3.3 Installation Instructions

Nubo Monitor One is to be installed in a clean and dry environment. Do not install in rainy conditions. The Nubo Air system allows for grid powered (C) or solar-powered (D) operation. Additionally, mounting kits for wall (E) and pole (F) mounting are possible. All accessories are included in the evaluation kit NMO-EVAL-CE1.

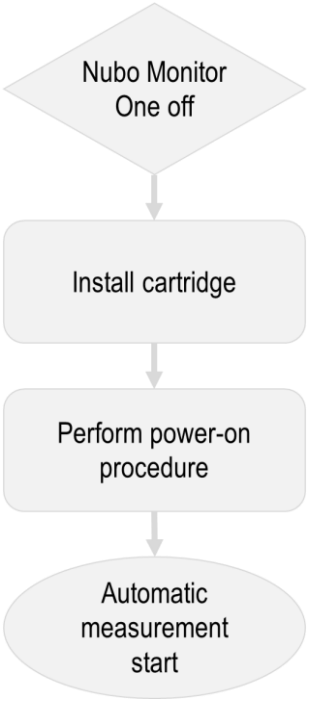
3.3.1 Cartridge Installation

Follow the power-down procedure before inserting a cartridge. Do not install cartridge with Nubo Monitor One device-side power connector connected. Install cartridge in a clean and dry space. Ensure that the contacts of the installed cartridge and its housing are clean and dry.



Install cartridge in one of the two slots provided at the bottom side of Nubo Monitor One. Make sure to correctly place cartridge inside Nubo Monitor One. Insert until you can hear and feal that it has snapped into place. Fix the cartridge inside Nubo Monitor One by tightening the integrated screws. This is intended to prohibit unwanted removal of the cartridge and secures it in place.

Always use the supplied blind cover to protect unused cartridge slots from environmental influences.



Caution
• If a slot is not occupied, install the blind cap delivered with the device to ensure correct sealing. • It is not necessary to tighten the screws of the cartridge strongly. Only tighten the screws by hand and without excessive force to avoid wearing of the threads.

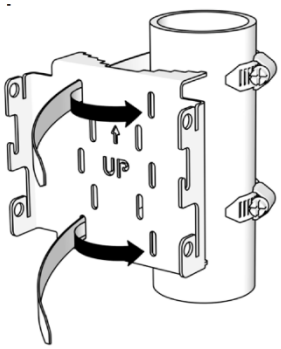
3.3.2 Cartridge Removal

Follow the power down procedure before removing a cartridge (compare section 3.3.6 on page 17). Do not remove cartridge with Nubo Monitor One device side power connector connected.

Remove cartridge in a clean and dry space. While removing the cartridge ensure that the internal contacts of Nubo Monitor One remain clean and dry. Loosen all four cartridge screws before trying to remove the cartridge. Afterwards grab the external parts of the cartridge and pull cartridge in opposite direction of installation.

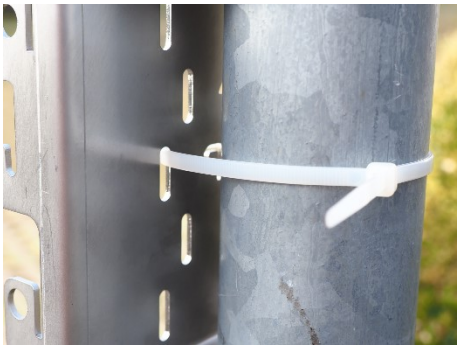
Always use the supplied blind cover to protect unused cartridge slots from environmental influences.

3.3.3 Mounting to a pole



An ideal location to place a *Nubo Monitor One* is on a pole like those typically used for streetlights, traffic signals and other infrastructure installations. For this you can use the pole mount kit *NMO-PK1*, which is also included in the evaluation kit. It contains the pole mounting plate (F), designed to fit well with various dimensions.

We recommend fixing the plate loosely to the pole with a zip tie as a first step. Please ensure correct orientation by ensuring that the arrow points up and the word “UP” is readable. Then use the included metal bands (I) or appropriate alternatives to fix the plate tightly to the pole. Choose the appropriate openings on the plate, depending on the pole dimension. We recommend cutting the bands with an appropriate tool. Be careful with sharp edges and remove them with e.g. a file. Always make sure to use two, well-tightened metal bands to provide secure mounting.

1. 

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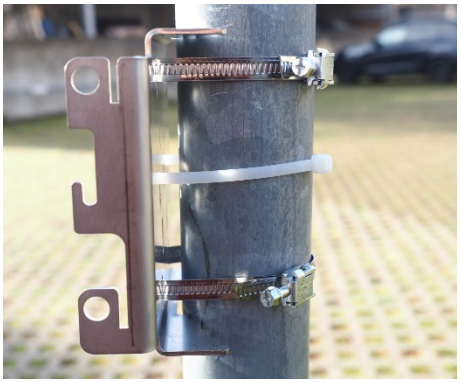
4. 

Once the mounting plate is installed, you can simply attach *Nubo Monitor One* by sliding the system’s backplate into the mounting plate. While the system is designed in such a way that the *Nubo Monitor One* will stay in place from this moment, it is important to tighten the screws on the side to ensure safe and secure fixation of the system in all conditions.

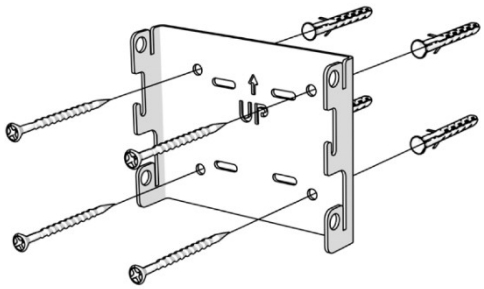
1. 

2. 

Warning

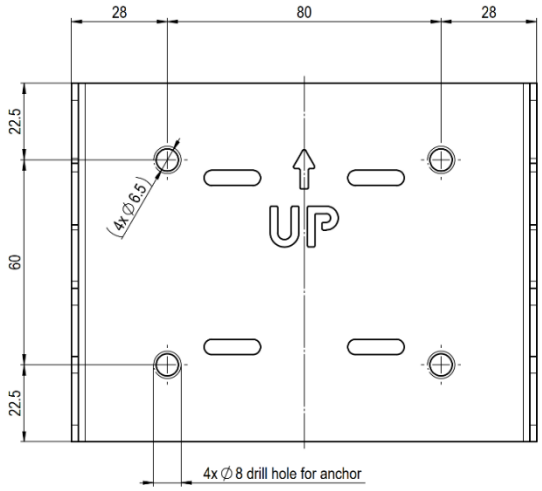
- Using this mounting kit may result in scratch marks or abrasion on the chosen pole. By installing and using this mounting kit you accept that Sensirion AG is not liable for any damages resulting from the installation and use of this mounting kit.
- It is in your responsibility to verify whether installation of the device is permissible by local laws and/or the owner of the infrastructure.
- It is the responsibility to of the person installing the device to ensure secure and safe installation. Sensirion AG cannot be held liable for damages and/or injuries due to improper placement or installation.
- Plastic zip ties might age and/or break due to environmental influences. Only use metal bands or similarly reliable mounting bands.
- Do not install and/or operate *Nubo Monitor One* without tightening the lateral mounting screws and checking that *Nubo Monitor One* cannot be removed. Failing to do so may result in injury and/or damage to the device.

3.3.4 Mounting to a wall

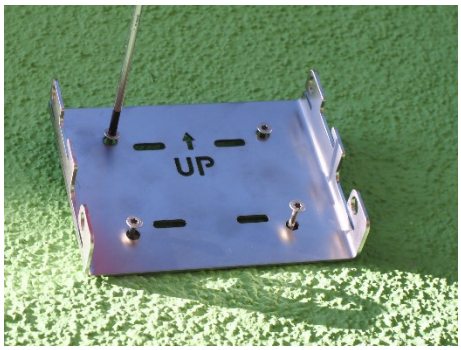


To mount the *Nubo Monitor One* to a wall or plate, please use the wall mounting plate included in mounting kit *NMO-WK1* (E) and the evaluation kit.

To fix the plate four drill holes for wall anchors are needed. Please refer to the dimensions in the drill guide below and ensure correct selection of anchors for the given wall type.



Fix the plate using screw anchors and screws. Please ensure correct orientation by ensuring that the arrow points up and the word “UP” is readable. Always use appropriate screw anchors, depending on your wall material.



Once the mounting plate is installed, you can simply attach *Nubo Monitor One* by sliding the system's backplate into the mounting plate. While the system is designed in such a way that the *Nubo Monitor One* will stay in place from this moment, it is important to tighten the screws on the side to ensure safe and secure fixation of the system in all conditions.

1. 

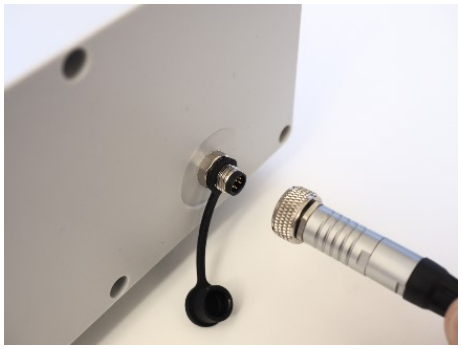
2. 

Warning

Do not install and/or operate *Nubo Monitor One* without tightening the lateral mounting screws and checking that *Nubo Monitor One* cannot be removed. Failing to do so may result in injury and/or damage to the device.

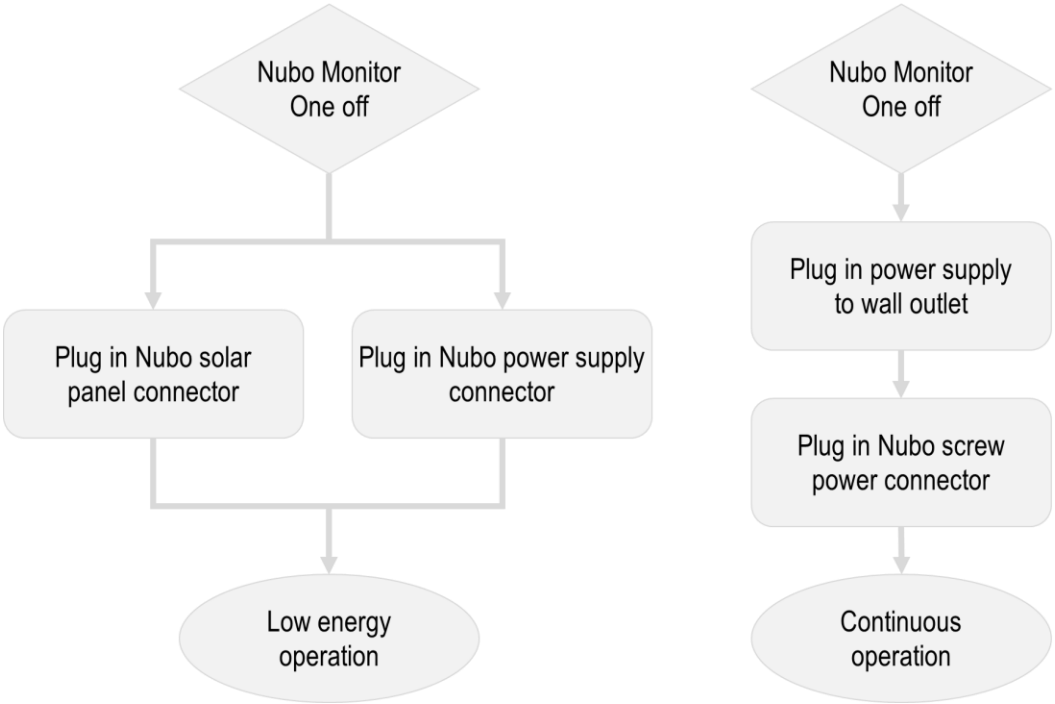
3.3.5 Powering up *Nubo Monitor One*

The power connector of *Nubo Monitor One* acts as On/Off switch.



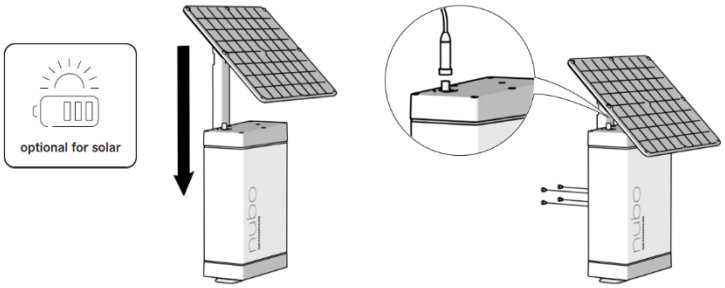
The device includes a battery for back-up power supply. Regular operation or back-up power operation is activated by connecting the device side power connector. Always disconnect the connector during transport and shipping.

Please note that continuous operation is only possible if the power supply is plugged into a wall outlet BEFORE the power connector is connected to the device:



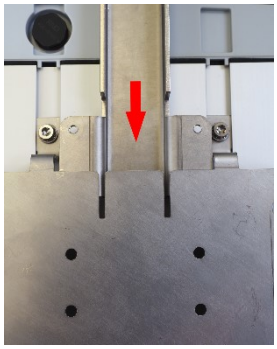
3.3.5.1 Connecting the solar panel

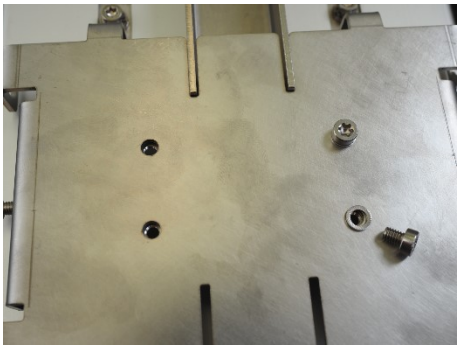
In case the *Nubo Monitor One* should be operated by solar power, you must install the solar panel prior to the device installing in the field. Please note that solar operated devices can only operate at a lower sampling rates compared to the continuous operation of grid powered devices.



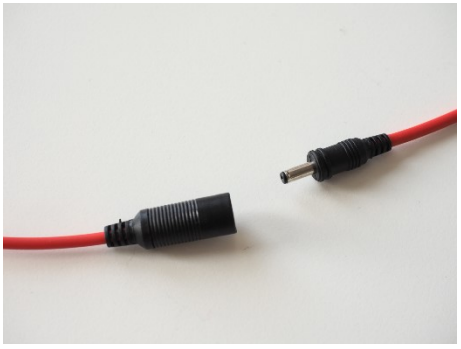
Ensure correct orientation, facing up, of the solar panel. Select the installation location for solar powers systems with special care. Make sure that the direct sunlight to the solar panel is not blocked by trees, buildings or other objects. Use proper equipment to orient the solar panel due south for optimal energy harvesting. The slope angle of the solar panel can be adjusted using the two lateral screws next to the panel. Ensure that the screws are properly tightened after installation and/or adjustment.

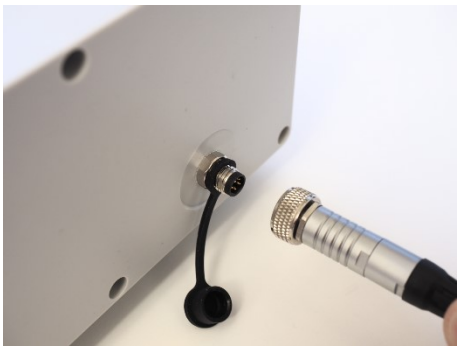
To mount the solar panel (D), attach its mounting bar to the back of the *Nubo Monitor One* (A) and fix it with the 4 included washers and screws (G). Ensure the correct orientation of the solar panel, being on top of the *Nubo Monitor One*:

1. 

2. 

Connect the cable of the solar panel to the included adapter cable (J) and tighten the screw connector to the corresponding socket on top of the *Nubo Monitor One* (A):

3. 

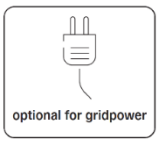
4. 

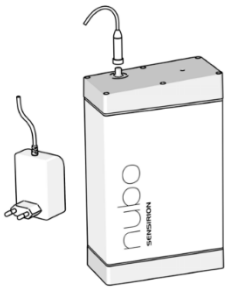
Warning
Always tighten all four screws even though the mount can be put in place with fewer screws.

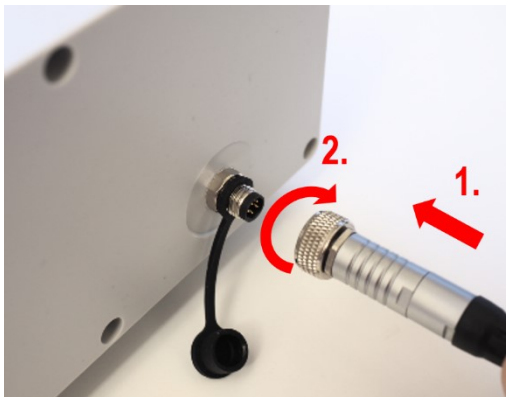
Caution
Do not install the power connector without tightening the union nut.

3.3.5.2 Connecting to grid power

Connect the power supply to a wall power outlet. It is important for the correct operation of *Nubo Monitor One* that the power supply is connected to a wall power outlet first and then connect the power connector to ensure that the system correctly boots in the high sampling rate mode (see also section 0).
Connect the waterproof screw connector of the included wall plug power supply (item C) with the socket on top of the *Nubo Monitor One* (A). Ensure correct placement of the pins and tighten the union nut by hand.







Warning

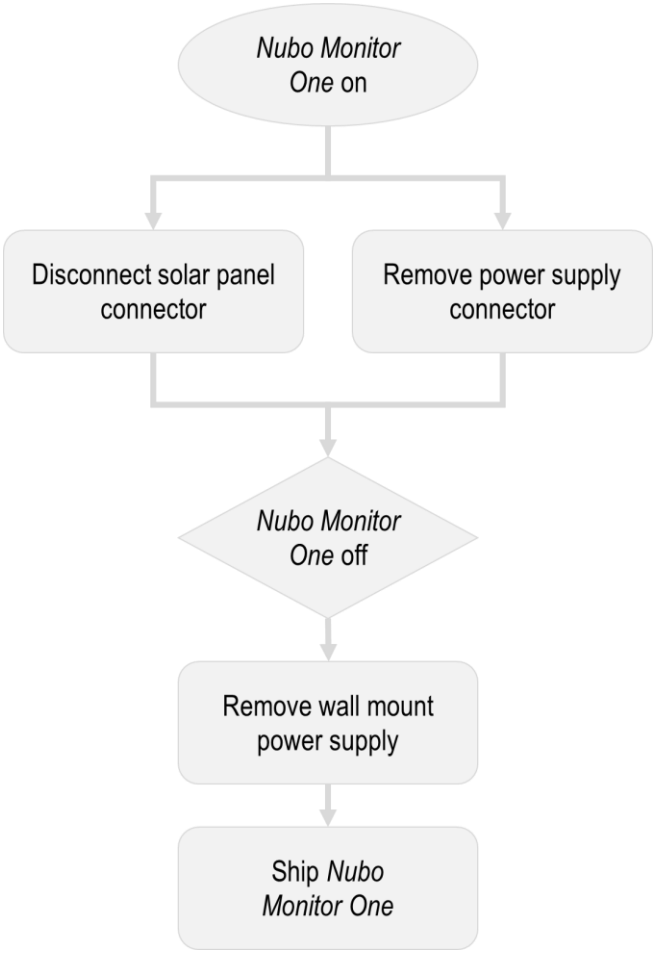
- Improper electrical installation could result in device damage and/or electrical shock. The installation must follow local laws and regulations. Ensure that the chosen wall power outlet was installed by a certified professional.
- Chosen wall power outlets must be in a clean and dry location protected from environmental influence. Protect from temperatures above 40°C.
- Ensure that the socket-outlet used for installation of the device is easily accessible.

Caution

Do not install the power connector without tightening the union nut.

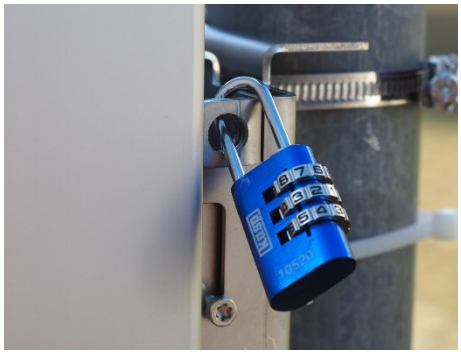
3.3.6 Turning off *Nubo Monitor One* for storage and preparation to ship

Note that *Nubo Monitor One* will continue to run during loss of grid-side voltage supply as it includes a battery for back-up power supply. In order to power down *Nubo Monitor One* it is important to also disconnect the power connector at device side. Always disconnect the device-side power connector before storage or transport and shipping.



Securing against theft

To secure the device against theft or tampering any standard pad-lock or seal can be used. Simply apply the lock to any of the holes in the mounting plates and the backplate of the *Nubo Monitor One*.



Caution

It is your responsibility to protect the device against theft by installing it in a hard-to-reach location and/or using additional theft protection mechanisms. By installing the device, you accept that Sensirion AG is not liable for lost or stolen devices

3.4 Storage

The system operates whenever a power plug is connected. Please always disconnect the power plug (either of the power supply or the solar panel) when storing *Nubo Monitor One*. This way the system is turned off and a deep discharge of the buffer battery avoided.

Keep the sensing cartridges in the sealed package until deployment. When storing cartridges or system with installed cartridges between uses, we recommend putting them in sealed containers or bags to avoid contamination of the sensing elements. For optimal performance we recommend replacing sensing cartridges instead of reusing used ones.

Warning

The device contains batteries. Store the device within the specified temperature range: **-20-60°C**. Store in non-condensing environment.
When stored for an extended amount of time, ensure to reconnect to an external power source every **6 month** to prevent battery damage

Caution

Always place the protective cap on the power socket of the device whenever no plug is connected to avoid corrosion of the contacts.

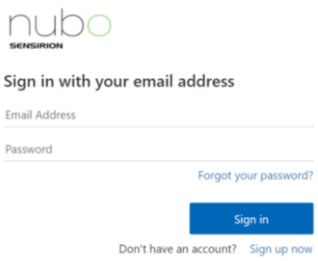
4 Cloud Usage

4.1 Configuration and communication

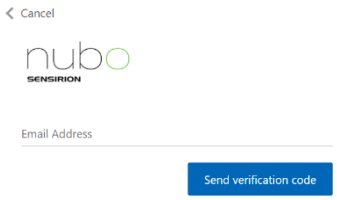
No configuration is needed, every *Nubo Monitor One* is factory configured and will start communicating once connected to power or to the optional solar panel. Once connected, please proceed to account creation and claiming your device (see below).

4.2 Account creation

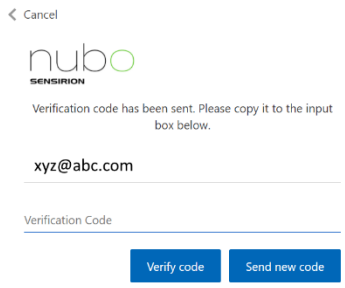
Go to http://cloud.nubo-air.com/ or scan the QR code to the right and select *Sign up now*



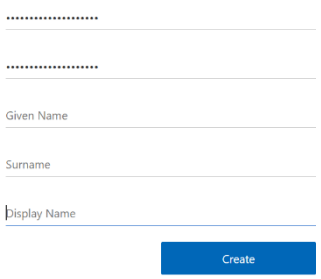
Enter your email address and click *Send verification code*.



An email with a code will be sent to your email address. Copy it, enter it into the corresponding field and click *Verify code*. If you did not receive an email, please check your spam folder.



Now fill in your account's password and note it down carefully. You will need it to access your data later and to manage the account. Also enter a name and display name

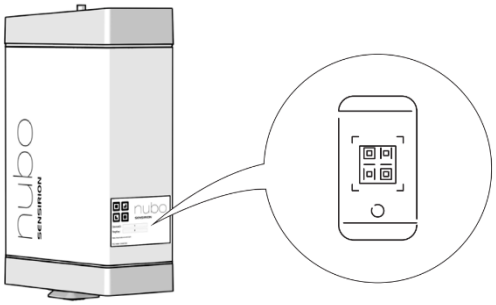


If your account was not added to an organization yet, you will be asked to create a new organization:

4.3 Claiming your device

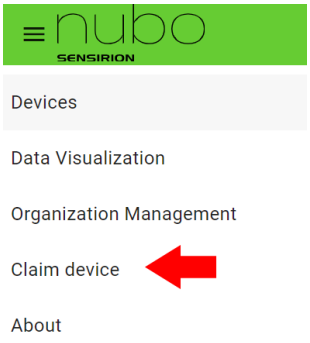
4.3.1 Claiming via Smartphone (automatically)

To register a device, you can simply scan the QR-code on the device with your smartphone. Ideally, you are already logged in to your account (see above). If not, you will be asked to log-in or register during the process.



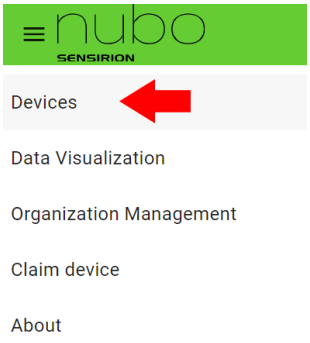
4.3.2 Via Webinterface (manually)

Alternatively, you can log-in to your account on *Nubo Cloud*, via http://cloud.nubo-air.com/claim . You can also click on the menu icon on the top left of the user interface and select *Claim device*:

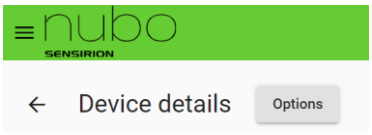


You will be asked to enter the *DeviceID* and the *Registration key (=RegKey)*. Both can be found on the label at the side of your *Nubo Monitor One.*

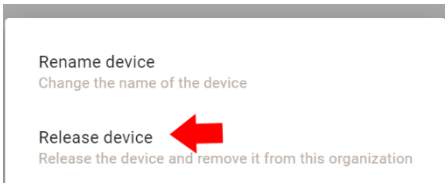
After entering the *DeviceID* and *Registration key* please click *Register or Claim.* The device will then be claimed by your organization. You can then check the status of your claimed device in the device list at http://cloud.nubo-air.com/devices.



Please note that a device can only be claimed by one organization at a time. Once claimed a device has to be released before another organization can claim it. To do this select the device in the device list to get to the device details page. Here select *Options*:



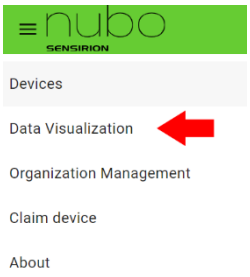
A popup on the bottom of the page gives you the option to release a device



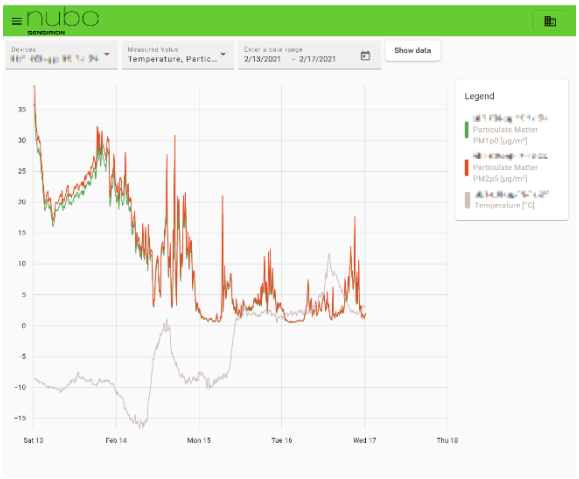
4.4 General usage

4.4.1 Data Visualization

Click on the menu and select *Data Visualization* to get to a tool where you can quickly visualize the collected data:



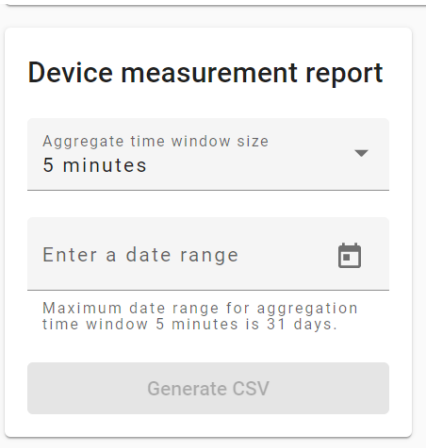
Please select the desired devices, parameters and date range to get a quick overview of the collected data



Please note that the visualization tool is designed for quick analyses. The averaging is dynamic for optimal display quality. For detailed data insights we recommend download data via CSV download or API (see below):

4.4.2 CSV Download

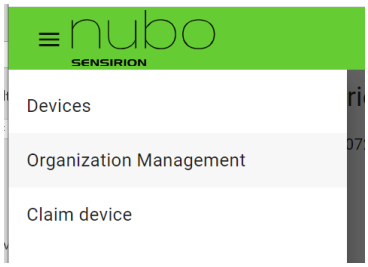
Go to *Device* and select the device for which you want to download data. Here, you can download your data. Just select the aggregation interval and the time range and click on *Generate CSV.*



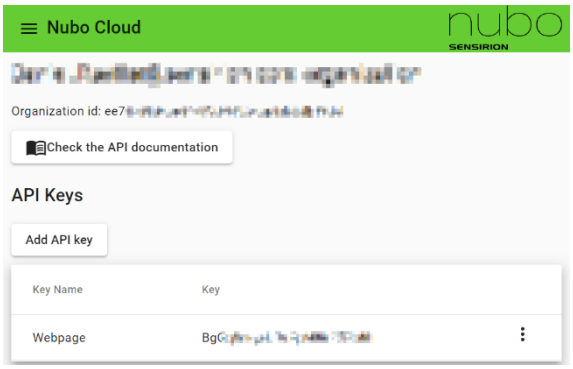
Note: the download tool is meant for quick data debugging. For serious data handling we recommend using the API access, e.g. via a Python script.

4.4.3 API Access

For integration of *Nubo Cloud* with your data platform we recommend the usage of the integrated API. To access the API you need to generate an authentication token. Go to *Organization Management*:

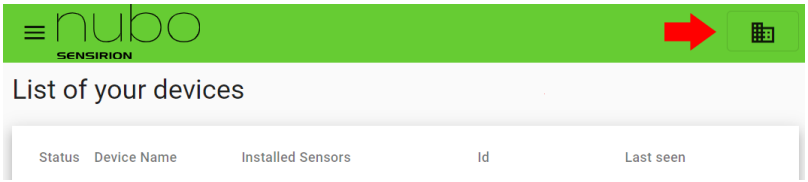


Here you can find a link to the API documentation and the option to generate authentication tokens or to delete old one to limit access.



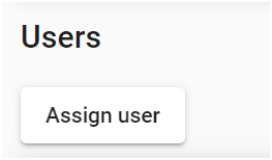
4.4.4 Switching organizations

In case you have been invited to join by an admin of another organization, you might be able to access the devices and data of multiple organizations. To do so, you can switch the active organization with a menu on the top right of the webpage:

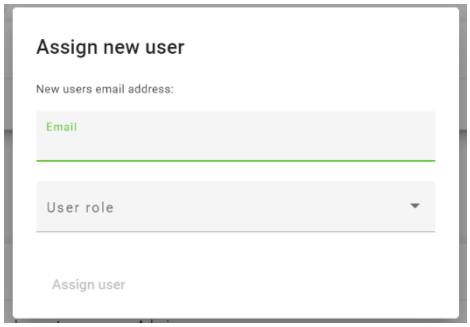


4.4.5 Inviting other users

You can give other users access to your organization. To do this, please go to the Organization Management subpage and click on *Assign user*:



A popup will ask you to enter the users's email address and its permission level



You can choose between admin (full rights), user (only data access but no administration) or service (no data access but can claim devices). If the user already has an account, they can directly start accessing the organization. If they do not yet have an account, they must create one first. They will be invited to do so by email.

Access level	Claim devices	Device Status	Data access	Release devices	API token management	Permission management
Admin	✓	✓	✓	✓	✓	✓
User	✓	✓	✓	✗	✗	✗
Service	✓	✓	✗	✗	✗	✗

5 Maintenance and Replacement

The *Nubo Air* monitoring system is designed to operate without regular on-site maintenance. The status of the device and its sensors can be remotely assessed using the device status on the *Nubo Cloud*. In case of sensor malfunction or obstruction the respective sensor status will indicate an issue with the device. Should this be the case, please contact your point of sales or the *Nubo Air* support via support@nubo-air.com. Our support team will be able to propose next steps.

While most failure modes and significant sensor degradation are detected by the cloud, we recommend a regular replacement interval of the sensing cartridges. This ensures not only optimal accuracy of the data, but also gives a defined calibration point as all cartridges come factory calibrated with a high degree of precision. The recommended interval for replacement depends significantly on the demands of quality control, the application, and the location of deployment. From our extensive world-wide field testing we are confident that a yearly replacement is sufficient even for high data quality demands in most regions and applications. In most applications and in regions with less demanding air pollution, a bi-yearly exchange can be adequate. In case of doubt, please contact your point of sales or the *Nubo Air* support via support@nubo-air.com to evaluate your situation.

6 Conformity Information

6.1 European Conformity Information

Hereby, Sensirion AG declares that this radio equipment is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at http://www.nubo-air.com/document/ce.

6.2 WEEE

Implementation of Directive 2012/19 / EU on waste electrical and electronic equipment (WEEE): The symbol of the crossed-out wheeled bin, shown on the equipment, indicates that the product at the end of its useful life must be collected separately from other waste to allow adequate treatment and recycling.

The adequate separate collection of equipment at its end of life for recycling, treatment and environmentally compatible disposal contributes to avoiding possible negative effects on the environment and health and promotes the reuse, recycling and/ or recovery of the materials of which the equipment is composed. For specific instructions on the disposal in your country please contact your Sensirion local Subsidiary as listed in Chapter 9

6.3 FCC Notice

Warning
Do not open the device. Do not modify the device in any way. Including, but not limited to, exchanging the included antenna, replacing the included modem, making changes to the power supply or circuit board.

Contains FCC IDs: XMR201707BG96

NOTE: 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 or more 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.

The Declaration of Conformity can be found at http://www.nubo-air.com/document/fcc.

6.4 Frequency band(s) and maximum radio-frequency power transmitted

This product includes the following features and characteristics:

- BDS
  - Operating frequency range: 1559-1610 MHz
- GLONASS receiver
  - Operating frequency range: 1559-1610 MHz
- GPS receiver
  - Operating frequency range: 1559-1610 MHz
- GSM 900
  - Operating frequency range: 880-915, 925-960 MHz
  - Maximum output power: 33 dBm rated
- GSM 1800
  - Operating frequency range: 1710-1785, 1805-1880 MHz
  - Maximum output power: 30 dBm rated
- LTE FDD Band 1
  - Operating frequency range: 1920-1980, 2110-2170 MHz
  - Maximum output power: 23 dBm rated
- LTE FDD Band 3
  - Operating frequency range: 1710-1785, 1805-1880 MHz
  - Maximum output power: 23 dBm rated
- LTE FDD Band 8
  - Operating frequency range: 880-915, 925-960 MHz
  - Maximum output power: 23 dBm rated
- LTE FDD Band 20
  - Operating frequency range: 832-862, 791-821 MHz
  - Maximum output power: 23 dBm rated
- LTE FDD Band 28
  - Operating frequency range: 758-803, 703-748 MHz
  - Maximum output power: 23 dBm rated

7 Important legal notices

Warning, Personal Injury

Do not use this product as safety or emergency stop devices or in any other application where failure of the product could result in personal injury. Do not use this product for applications other than its intended and authorized use. Before installing, handling, using or servicing this product, please consult the manual and data sheet. Failure to comply with these instructions could result in death or serious injury.

If the Buyer purchases or uses SENSIRION products for any unintended or unauthorized application, Buyer shall defend, indemnify and hold harmless SENSIRION and its officers, employees, subsidiaries, affiliates and distributors against all claims, costs, damages and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if SENSIRION is allegedly negligent with respect to the design or the manufacture of the product.

Warranty

SENSIRION warrants solely to the original Buyer of this product for a period of 12 months (one year) from the date of delivery that this product shall be of the quality, material and workmanship defined in SENSIRION's published specifications of the product. Within such period, if proven to be defective, SENSIRION shall repair and/or replace this product, in SENSIRION's discretion, free of charge to the Buyer, provided that:

- notice in writing describing the defects shall be given to SENSIRION within fourteen (14) days after their appearance;
- such defects shall be found, to SENSIRION's reasonable satisfaction, to have arisen from SENSIRION's faulty design, material, or workmanship;
- the defective product shall be returned to SENSIRION's factory at the Buyer's expense; and
- the warranty period for any repaired or replaced product shall be limited to the unexpired portion of the original period.

This warranty does not apply to any equipment which has not been installed and used within the specifications recommended by SENSIRION for the intended and proper use of the equipment. SENSIRION's warranty does not cover defects which are caused by faulty maintenance, incorrect installation, or faulty repair by the Buyer, or by alterations carried out without SENSIRION's consent in writing. SENSIRION's warranty does not cover normal wear and tear or deterioration. EXCEPT FOR THE WARRANTIES EXPRESSLY SET FORTH HEREIN, SENSIRION MAKES NO WARRANTIES, EITHER EXPRESS OR IMPLIED, WITH RESPECT TO THE PRODUCT. ANY AND ALL WARRANTIES, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, PERMANENT AVAILABILITY OF THE CLOUD-SERVICE, OR COMPLETE AND ACCURATE DATA TRACKING ARE EXPRESSLY EXCLUDED AND DECLINED.

SENSIRION is only liable for defects of this product arising under the conditions of operation provided for in the data sheet and proper use of the goods. SENSIRION explicitly disclaims all warranties, express or implied, for any period during which the goods are operated or stored not in accordance with the technical specifications.

SENSIRION does not assume any liability arising out of any application or use of any product and specifically disclaims any and all liability, including without limitation consequential or incidental damages.

SENSIRION reserves the right, without further notice, (i) to change the product specifications and/or the information in this document and (ii) to improve reliability, functions and design of this product, and (iii) to modify the cloud-service.

8 Revision History

Date	Revision	Page(s)	Changes
07.05.2021	1.1	25	Added table with permission overview
07.05.2021	1.1	12	Added drill guide
07.05.2021	1.1	Most	Corrected typos
12.03.2021	1.0	All	Initial version

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