



okolab

UNO PLUS

UNO-PLUS-T

UNO-PLUS-T-H

UNO-PLUS-T-H-CO2

User Manual

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1 PREFACE

Welcome to the UNO-PLUS Manual. This manual provides detailed guidance on the setup, operation, and maintenance of UNO-PLUS Systems, designed to deliver precise environmental control for laboratory applications.

Key Features of UNO-PLUS:

- **Flow Control System:** Integrated flow sensors enable monitoring and control CO₂ within the system.
- **Embedded Temperature Sensors:** Continuous temperature feedback enhances control accuracy and stability.
- **Internal Pump:** an internal pump enables you to use the background air.
- **Intelligent Touch Interaction System:** Short presses and long presses on the user interface allow access to distinct functionalities, providing a more intuitive and enriched user experience.
- **User Interface:** Clear instructions cater to users at all levels, facilitating effective usage.

Components and Configuration: The UNO-PLUS Systems feature an heated Lid and base. For systems equipped with humidity control a Humidity Module is provided (UNO-HM) to supply humid gas.

The systems codes to which this manual applies are:

1. **UNO-PLUS-T**
2. **UNO-PLUS-T-H**
3. **UNO-PLUS-T-H-CO₂**

Temperature Range: The UNO PLUS Systems control the temperature from 3°C above ambient temperature up to 60°C, ensuring precise environmental conditions for your samples.

CO₂ Range: The UNO-PLUS-T-H-CO₂ controls the CO₂ concentration from 0% to 20%.

Humidity Range: Systems equipped with humidity control (UNO-PLUS-T-H and UNO-PLUS-T-H-CO₂) control humidity within the range of *51% up to 90% when working at 37°C.*

We recommend carefully reading this manual to familiarize yourself with the functions and operation of the UNO-PLUS Systems before use. Our team is available to assist with any inquiries or issues you may encounter.

2 REGULATORY COMPLIANCE

2.1 Regulatory Statement

The product complies with the essential requirements of the LVD Directive 2014/35/EU and the EMC Directive 2014/30/EU. The product has been tested and it complies with the requirements of the following standards:

- European standard EN 61010-1: 2010 “Safety requirements for electrical equipment for measurement, control and laboratory use”
- European standard EN 61326-1: 2013 “Electrical equipment for measurement, control and laboratory use – EMC requirements”

The product meets the technical requirement of the Directive 2011/65/EU Restriction of the use of certain hazardous substances (RoHS). The product has been tested according to European Standard EN 50581: 2012 “Technical documentation for the assessment of the electrical and electronic products with respect to the restriction of hazardous substances”.

2.2 Waste Electrical and Electronic Equipment Directive (WEEE Directive)

The product must not be disposed as a general household waste. At the end of the product’s life, take the product to a collection point designed for recovering and recycling of electrical and electronic devices.

In case of doubt, please return the product to Okolab s.r.l. for proper treatment.

3 SYMBOL DESCRIPTION

This paragraph describes the symbols used in this manual and on the product label.

3.1 Symbols used in this Manual

The following symbols identify important information:



CAUTION or WARNING or IMPORTANT: This symbol warns of circumstances or practices that can affect the instrument's functionality. Please refer to accompanying documents.



Note ► *Supplies you with important information to successfully use the instrument.*

3.2 Symbols on the Product Label



CE MARKING: This symbol indicates the product's compliance with EU legislation.



PRODUCT DISPOSAL: this symbol indicates that this product must not be disposed as urban solid waste.



This symbol indicates the product production date.



This symbol indicates the Manufacturer data.



This symbol warns you to read the user manual before starting the device.



IP 40

This symbol indicates the protection degree against ingress of solids or liquids inside the product.

4 SAFETY NOTES

In order to achieve maximum performance and to ensure proper operation of your new equipment, please read carefully the following safety notes and the instructions. If you have any question, please contact OKOLAB.

- The equipment must only be used as intended and as described in this Manual.
- Equipment should be operated only by technically qualified personnel.
- Do not start up the equipment if some of its parts are damaged.
- This instrument is not intended for use in locations subject to flammable or explosive gases.
- Transport the equipment with care.
- Equipment and its internal parts can be damaged by dropping and by shock.
- Not following these instructions can result in damage or breakdown of the device and its accessories.
- The products labels can be found on the bottom panel of the Main Box.
- Do not disassemble any part of the system.
- Do not use a volatile solvent such as paint thinner to clean the instrument, because deformation or discoloration may occur.
- Use a soft, dry cloth to remove stains from the instrument.
- Do not exceed voltage indicated in this manual and on the product label.
- Avoid excessive induction noise, static electricity and magnetic fields.
- Do not expose this instrument to rain or moisture.
- Do NOT go in close contact with or breathe any gas stream whose composition is different from that of ambient air.
- Prevent throttling and kinking of tubing.
- Check tubing time to time for possible material usage.
- Check that all tubings are well inserted into the connectors so they cannot slip off
- This device is not designed for use for medical applications.
- Power cord of unit should be unplugged from electrical outlet when left unused for a long period of time.
- PRESSURIZED GAS. Secure all connections with hose clamps. Never exceed the input pressure limit of 5 barg (72.5 psig). Bleed all lines before disconnecting. Wear safety goggles if needed. If pressure regulators are not within sight and reach, make sure at least one shut off valve is within reach.
- CO₂ must be available at 1.4 barg (20.3 psig), with a connector for 6mm OD rigid silicon tube. Gas source must be Standard Purity CO₂ (coded as 4.5 that means 99.995 % of CO₂) and humidity-free gas.



-
- LOW OXYGEN ATMOSPHERES. Never enter a room or enclosure which has a low oxygen atmosphere because of severe danger of suffocation. Only operate in well-ventilated room. A small amount for carbon dioxide gas leaks continuously out of the instrument and should never be allowed to build up in the room.
 - Unit should be situated away from heat sources such as open flames, radiators, heat registers, stoves, or other appliances or processes that produce heat.
-



- Do not start up the equipment if the supply cable is damaged.
 - Connect the equipment only to grounded mains power socket.
 - Do not disconnect cables while in operation.
 - Do not open the unit. Do not remove cover or back.
 - *Prevent metal fragments or lead wire scraps* from falling inside instrument to avoid electric shock, fire or malfunction.
 - No user serviceable parts inside.
 - Unit should never be used where it can fall or be pushed into water
-



International caution symbol marks this device. It is important to read the “Safety Notes” before installing, using and commissioning this device, as the notes contain important information relating to safety and EMC. Not following these instructions can result in damage or breakdown of the device and its accessories

We reserve the right to make technical variations.

IN NO EVENT SHALL OKOLAB S.R.L. BE LIABLE FOR ANY DIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE, OR LOSSES OR EXPENSES RESULTING FROM ANY DEFECTIVE PRODUCT OR THE USE OF ANY PRODUCT

We reserve the right to make technical upgrades and changes.

IN NO EVENT, SHALL OKOLAB S.R.L. BE LIABLE FOR ANY DIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY NATURE – INCLUDING: LOSSES OR EXPENSES RESULTING FROM ANY DEFECTIVE PRODUCT, OR THE USE OF ANY PRODUCT.

5 SUPPLIED EQUIPMENT & COMPONENTS COMPATIBILITY

Figure 1 illustrates the components and the different accessories for UNO-PLUS systems.



Figure 1. UNO-PLUS Components & Accessories.

Components

1. **UNO-PLUS CONTROLLER:** This is a temperature, humidity and CO₂ controller. The type of control provided depends on the purchased code: temperature control (from 3°C above ambient – 60°C) is included in all models, humidity control (51 to 90% at 37°C) in UNO-PLUS-T-H and UNO-PLUS-T-H-CO₂, and CO₂ control (0-20%) only in UNO-PLUS-T-H-CO₂.
2. **TC:** This is a reference temperature probe that can be utilized for measuring temperatures within the sample and has a female connection port to be used along with the TC-EXTENSION-CABLE.
3. **TC-XC:** This is an extension cable for the TC temperature probe.
4. **UNO-HM:** Humidity Module controls relative humidity within the range of 51% up to 90% when working at 37°C.
5. **UNO-CABLE-C:** Cable to connect the HM-UNO to the UNO-PLUS-T-UNIT or UNO-PLUS-T-CO₂-UNIT.



Note ► The TC and the TC-XC are collectively referred to as the T Sensor in this document.

Accessories (Sold Separately)

6. **OBJ-COLLAR:** Also referred to as 'Objective Heater' temperature-controlled heating band that can be placed around the objective lens with the help of the provided Velcro band. The Objective heater is available in 3 different versions:
 - A. **OBJ-COLLAR-1924-** Objective Heater for lenses with diameters ranging from 19 to 24mm
 - B. **OBJ-COLLAR-2532-** Objective Heater for lenses with diameters ranging from 25 to 32mm
 - C. **OBJ-COLLAR-3342-** Objective Heater for lenses with diameters ranging from 33 to 42mm
7. **UNO-CHAMBER:** A micro-environmental chamber with an heated glass, heated base and an embedded Temperature sensor, that fits in the XY stage of the microscope and may be connected to Gas input.
8. **Sample Holder Inserts:** Inserts designed to house different sample holders such as 35mm petri dishes, chamber slides etc.
9. **Sensor lid:** This is a an Okolab SENSOR LID to secure the Fine Gauge Thermocouple in place in the Reference Well during calibration or operation in Sample Feedback Mode. This Sensor Lid is available in 3 different versions:
 - A. **SENSOR LID-35-** To be used in specimen feedback in a 35 mm Petri Dish
 - B. **SENSOR LID-60-** To be used in specimen feedback in a 60 mm Petri Dish
 - C. **SENSOR LID-GS-** To be used in specimen feedback in chamber slides and chambered cover glass
10. **DATA-LOG:** This is a software to log Temperature and Concentration data from any OKOLAB device further details on this software can be found in its dedicated user manual.



Note ► *The UNO-CHAMBER, depicted in the image is a **generic model** and the appearance my vary as the chambers are designed to be Microscope Specific.*

Note ► *Information on the **Objective Heater assembly** is explained in Heading 8.7.*

The following Table 1 details the different components and with which of the system codes are they included.

#	Component Name	UNO-PLUS Code		
		UNO-PLUS-T	UNO-PLUS-T-H	UNO-PLUS-T-H-CO2
1	UNO-PLUS-T-CONTROLLER	Included	Included	Not Included
2	UNO-PLUS-T-CO2-CONTROLLER	Not Included	Not Included	Included
3	UNO-HM	Not Included	Included	Included
4	TC	Included	Included	Included
5	TC-XC	Included	Included	Included
6	UNO-CABLE-C	Not Included	Included	Included

Table 1. Component Names and Compatibility with system codes.

Included Accessories

The following Table 2 details the different supplied accessories and with which of the UNO-PLUS system codes are they included.

#	Accessory Name	UNO-PLUS Systems Commercial Code		
		UNO-PLUS-T	UNO-PLUS-T-H	UNO-PLUS-T-H-CO2
1	USB CABLE	Included	Included	Included
2	POWER SUPPLY	Included	Included	Included
3	UNO-TUBE-A	Not Included	Not Included	Included
4	TUBE-EY	Not Included	Not Included	Included

Table 2. Accessories list and with which system are they included.

The following list describes the accessories and what they're used for:

1. USB-Cable: Cable for connecting UNO-PLUS-T-UNIT or UNO-PLUS-T-CO2-UNIT to the PC
2. Power Supply: Cable to provide power to the unit.
3. UNO-TUBE-A: Tube with a valve for gas connection from the CO2 cylinder to the 'CO2 Input' of the UNO-PLUS-T-H-CO2 controller.
4. TUBE-EY: Tube for gas connection between 'CO2 Output' port on the UNO-T-CO2-UNIT to the 'Input' port of the UNO-HM.

6 System Assembly

In order to properly assemble your system, please follow the steps as reported on the following quick instructions guides depending on the UNO PLUS code you have:

1. UNO-PLUS-T_Quick Instructions.
2. UNO-PLUS-T-H_Quick Instructions.
3. UNO-PLUS-T-H-CO2_Quick Instructions.

7 SUPPLIED GAS REQUIREMENTS

Please ensure that the following Gas Supply Requirements are followed for the input to the Gas control

Unit:

- Gas source must be Standard Purity CO₂ (coded as 4.5 that means 99.995 % of CO₂) and humidity-free gas with a connector for 6mm OD rigid silicon tube.
- The CO₂ pressure must be set according to the required set-point value for system operation. The acceptable inlet pressure range is from 0.5 to 3.0 bar.
For a set-point corresponding to 5% CO₂, the recommended supply pressure is 1.0 bar.
CO₂ pressure must not exceed 4.0 bar, in order to ensure system integrity and safe operation.

8 USER INTERFACE

Once you've successfully setup your system by following the detailed instructions provided in the quick assembly guide, you're ready to proceed with configuring your setup and initiating the use of the system.

8.1 Homepage Icons Description

When you're using the UNO-PLUS, the homepage will demonstrate the key measurements (relative to your system type), Settings Option, and the System Overview option. Figure 2 illustrates a generic representation of the UNO-PLUS-T-H-CO2 Homepage.

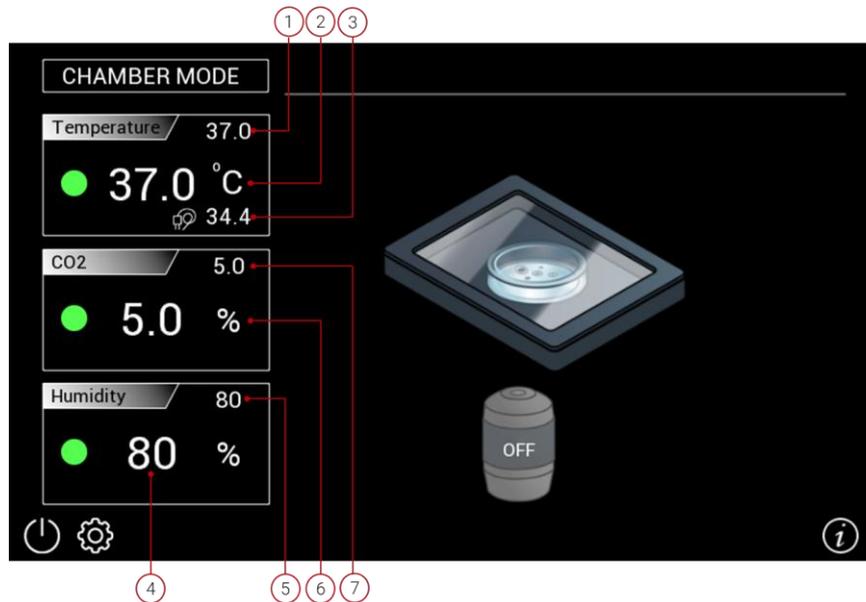


Figure 2. UNO-PLUS-T-H-CO2 Homepage.



Note ► Only the Parameters pertaining to your system type will be visible to you.

Table 3 provides the description of the different parameters present on the Homepage (parameters 1-7).

Parameter	Description
1	Temperature Set Point value.
2	Temperature value read by the Temperature Sensor embedded in the UNO-Chamber.
3	Sample Temperature value read by the T Sensor.
4	Current Relative humidity.
5	Relative humidity Set Point value.
6	Current CO2 value.
7	CO2 Set Point value.

Table 3. Description of different information displayed on the Generic Homepage.

The following Figure 3 illustrates the various icons that can be seen on the UNO-PLUS-T-H-CO2 homepage, their descriptions and the visibility conditions for different system types.

ICON NAME	DESCRIPTION	VISIBILITY CONDITION
Status Indicator 	Indicator of the Status of the parameter it is found next to based on its color.	Always.
ON/OFF 	ON/OFF Icon.	Always.
Settings 	Settings Icon.	Always.
Info 	Info Icon.	Always.
Alarm 	Alarm icon.	When an alarm is occurring.
Sound 	Snooze current alarm sound for 10 minutes.	When an alarm is occurring and the system is not set to No Sound.
T Sensor 	T Sensor Icon.	When the T Sensor is connected.

Figure 3. Icons Descriptions & Visibility Condition.

UNO-PLUS features an intelligent touch interaction system: **short press** and **long press** enable access to different functionalities, providing a richer and more intuitive user experience.

To view detailed information about what each type of interaction opens, simply click the Info button. Figure 4 shows the corresponding screen.

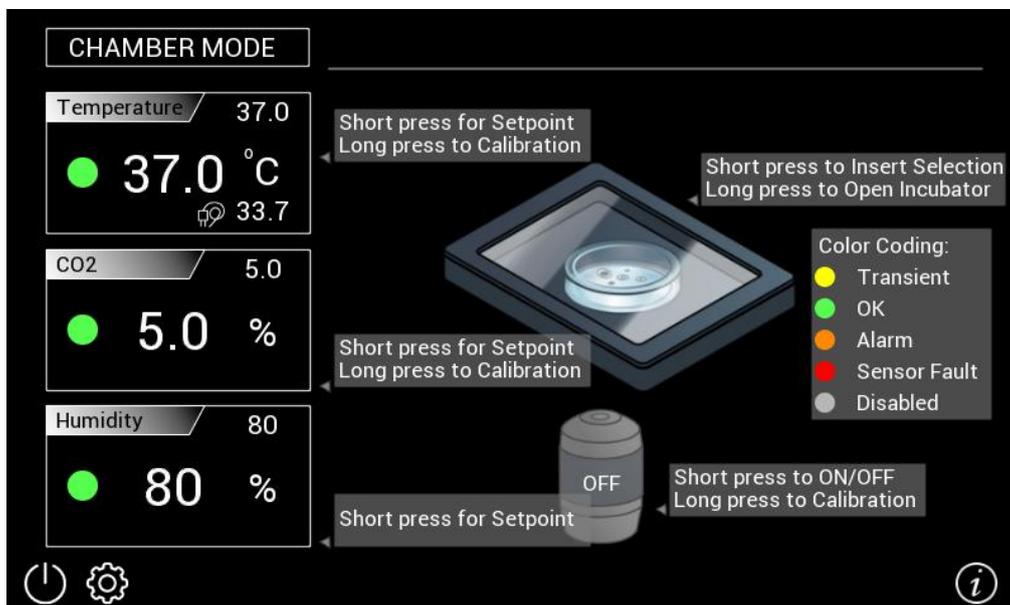


Figure 4. Screen displayed upon selecting the Info button, illustrating the functionalities associated with short press and long press interactions.

The color relative to each icon may represent a Steady state, Transient state, an Alarm state or a Disabled state as described below (Figure 5).

GREEN	The GREEN color indicates that the Setpoint value has been reached and that the system is working properly. Controller Status: NORMAL
YELLOW	The YELLOW color indicates that the controller is in transient regime. The Yellow light will appear after the controller is turned on and after any Setpoint change. The system is working properly, it is not in alarm and no action is needed. Controller Status: TRANSIENT
ORANGE	The ORANGE color indicates that the current parameter value is not correct and is out of the set tolerance. Controller Status: ALARM
RED	The RED color indicates that there is a problem and the system is in Alarm State, this may be due to a broken sensor. Turn the system off, wait for 5 minutes, and turn it back on. If the color is still red, contact Okolab at www.oko-lab.com for support. Controller Status: ALARM
GREY	The GREY color indicates that the current feature is disabled. To enable it, simply perform a short press on the required parameter tab. Controller Status: NORMAL

Figure 5. Significance of Icons Color during use.

8.2 ON/OFF

To turn on the unit, simply connect it to power. To turn it off, press the ON/OFF icon located at the bottom left of the Home Page. A pop-up will prompt you to confirm shutdown by clicking "Yes".

If the display is off but the unit is still connected to power, you can turn on the display by pressing on it. A pop-up will then ask if you want to turn it on.

Note ► For the UNO-PLUS-T-H-CO2, close the CO2 supply before turning OFF the system. A warning will appear if it has not been manually closed upstream, reminding you to do so (see Chapter 14. TROUBLESHOOTING)

8.3 Selecting the Insert

The next step that needs to be undertaken is the selection of the Sample Holder Insert that you'll be utilizing.

With a short press on the Chamber Icon in the Homepage you can enter the Insert selection page (Figure 6). If you are using an insert, select the Petri/Slides option; if you are not using any insert, select the Multiwell option. Then confirm your choice by pressing Save.

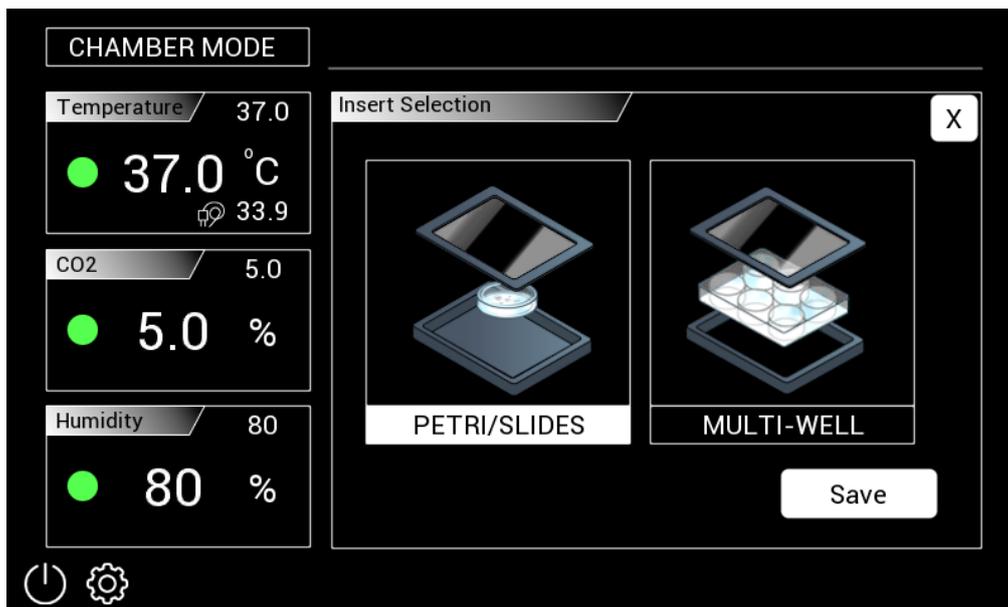


Figure 6. Sample Insert Selection.



Note ► Please make sure to modify the selected Sample Insert every time you change the Sample Insert to ensure the proper functioning of the system.

Note ► If you want to use a custom insert, please follow the instructions in 10.2 Custom Insert.

8.4 Setting the Desired set Points

The following subsections indicate how to select the desired Temperature, CO2 & Humidity set points.



Note ► Each time the Set Point value is modified, the system will go into the Transient State. During this Transient State the system will not trigger any alarms.

8.4.1 Temperature (°C) Set Point

On the Homepage click on the Temperature being displayed with a short press and select the desired set point within the range of 23°C up to 60°C.



Note ► The minimum temperature set point value must be 3°C above the ambient temperature.

8.4.2 CO2 Concentration (%) Set Point

You will have the option to assigning the CO2 concentrations Set Point only if you possess the **UNO-PLUS-T-H-CO2** system.

On the Homepage, click on the CO2 concentration value. Select the desired set point between 0% or 3% to 20% (1% and 2% cannot be selected).



Note ► To enter Gas Pause mode, which suspends gas supply and humidity control, you must adjust the CO₂ setpoint below 0% and close the CO₂ valve.

8.4.3 Humidity (RH%) Set Point

The Humidity Set Point can be changed only if you possess the **UNO-PLUS-T-H** system or the **UNO-PLUS-T-H-CO₂** system. In order to modify the Humidity Set Point, from the Homepage click on the RH% being displayed and select the desired set point within the range of 51% up to 90% when working at 37°C.



Note ► If you have **UNO-PLUS-T** without a UNO-HM you should disable Humidity by clicking with a short press on Humidity Widget and repeatedly pressing the '-' button until the set-point reaches its minimum value.

8.5 Opening & Closing the Chamber

When operating the system, you may need to open the UNO-PLUS-Chamber to access the sample for either changing or micro manipulating it.

Before opening the chamber, you may perform a long press on the displayed chamber to signal that the chamber lid will be opened. The screen will then display the chamber as open. After you've closed the chamber and would like the system to resume its functioning, please perform a long press on the displayed chamber to communicate the closing of the chamber.

The Figure 7 illustrates the '**Chamber Open**' and '**Chamber Closed**' representations.

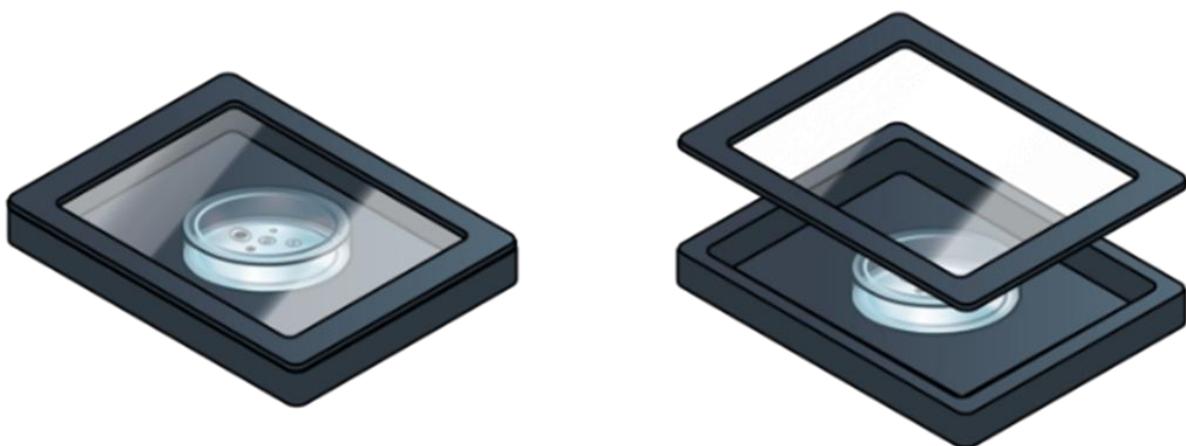


Figure 7. Chamber Open & Chamber Closed representation.



Note ► We advise you to avoid opening the chamber during the transient state as this may slow the system's rate of reaching a stable state.

Note ► If the chamber is left open for a long period of time the system goes into an Alarm State. Please refer the trouble shooting section for further information.

8.6 Control Mode

The Temperature Control can run in two different modes, by navigating to this menu, you can choose the one in which you'd like to work.

To select the control mode, click on the tab located at the top left, as shown in Figure 8. This will open the CHAMBER MODE SELECTION screen. From there, choose between Chamber Mode and Sample Mode, and then click Save to confirm your selection.

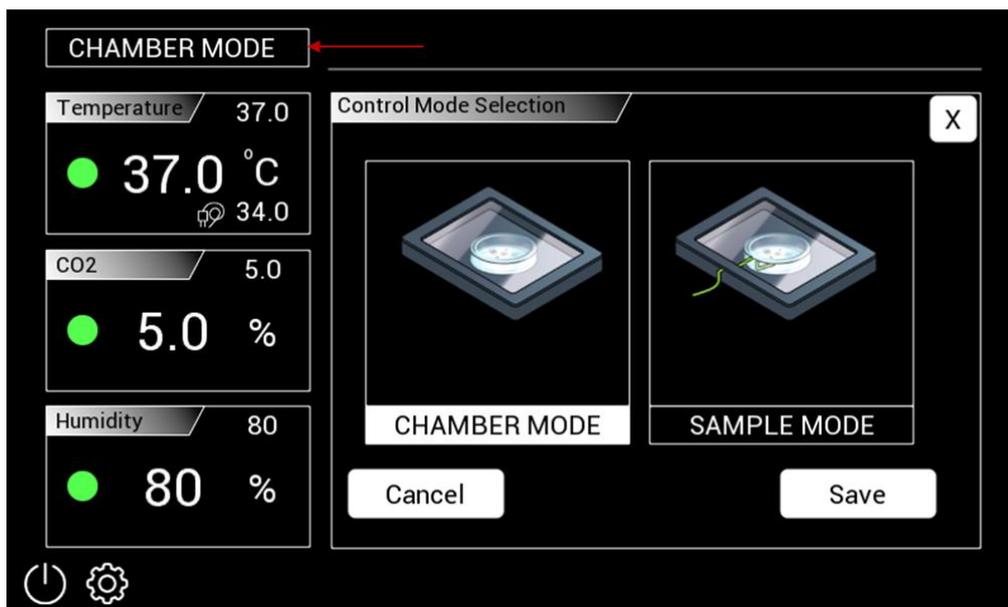


Figure 8. Control Mode Selection Screen that provides the interface for selecting the control mode, allowing users to choose between Chamber Mode and Sample Mode.

8.6.1 Chamber Mode

In this configuration the temperatures of both the lid and the base of the incubating chamber are strictly controlled.

Okolab suggests performing a Chamber calibration (see 9.1.1) before working in this chamber mode.



Note ► By default, systems operate using factory calibration settings optimized at 23°C ambient temperature and with a 1x35 insert. Since chamber temperature depends on ambient conditions, insert material, stage type, and liquid level, a user calibration is strongly recommended to adapt the system to your specific experimental setup.

The advantage of this solution is that you don't have to manually place the Fine Gauge Thermocouple into a Reference Well. The advantages of this Control Mode are: fast experiment start up and no specific action required in multi user applications.

8.6.2 Sample Mode

In this configuration, every time you run an experiment, you must place the provided T Sensor into a Petri dish (or your cell culture support). Fill the petri dish with distilled water to a level allowing full immersion of the T Sensor. If possible close the petri with its own plastic lid or the Sensor Lid (if you have purchased one) and place it in the appropriate holder. In case of Multiwell plates, you may assign a well to have the T sensor placed within it (this well will be referred to as the Reference Well). Using a Reference Well in close proximity to your Experimental Well provides active Sample Feedback Temperature Control. This ensures that your sample will be within 0.1°C from the temperature set point regardless the Room Temperature variations. Advantages of Sample Feedback Control Mode are:

- Direct monitoring and active control of sample temperature and,
- Independence from room temperature variations.
- The temperatures of the Lid and the Base are controlled based on the feedback of the sample so this is more accurate.

8.7 Objective Heater

The Objective Heater can be connected around your objective lens by the following the steps illustrated in Figure 9. The Objective Heater wire is then connected to the port labelled 'Obj Heater' behind the UNO-PLUS unit.

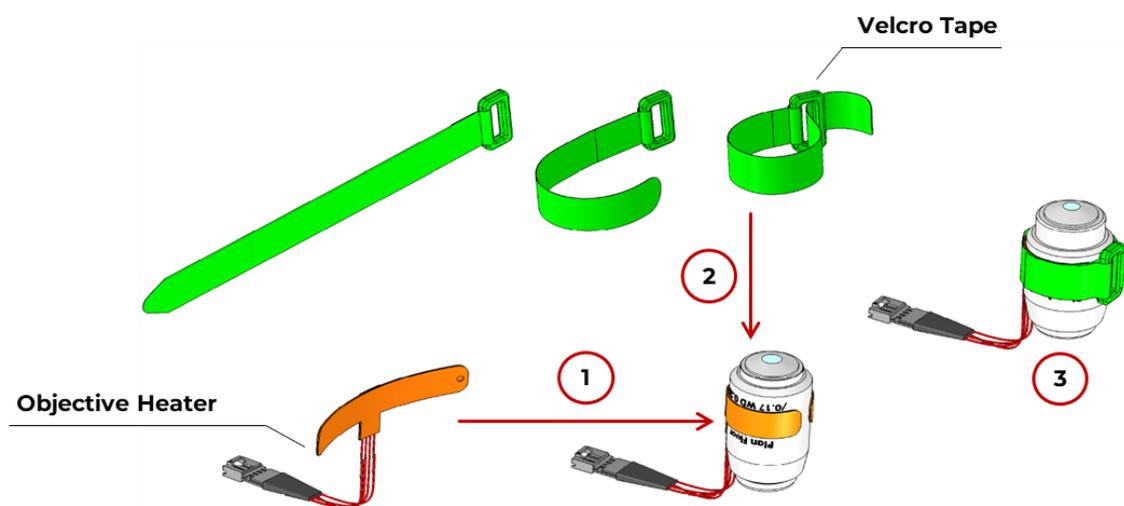


Figure 9. Fixing the Objective Heater.

The Objective Heater can be enabled or disabled by performing a short press on the icon located on the Home Page. If you choose to disable it, a confirmation pop-up will appear asking you to click "YES" to proceed.

For Objective Heater Calibration, please see 9.1.2.

9 CALIBRATION

This section offers detailed instructions for calibrating the Chamber or the Objective heater. Please note that calibrations depend on:

- Temperature Set Point;
- Room Temperature;
- The type of Sample Holder Insert in use.

9.1.1 Chamber Calibration

By performing a long press on the Temperature Widget you can perform the calibration of the UNO-Chamber: this procedure calibrates the embedded Temperature sensors within the Chamber Lid and Base in order to adjust the factory offset allowing you to achieve further accuracy of your temperature Set Point in the sample. You have the option to perform either the '**Factory**' reset of the chamber's calibration or perform a new calibration.

In order to proceed with the Chamber calibration you will first need to attach the tip of the T Sensor to the bottom of a petri dish or the cell culture holder which you use along with the Sample Holder Insert that you've purchased, making sure that it is placed as centrally as possible (see Figure 10)

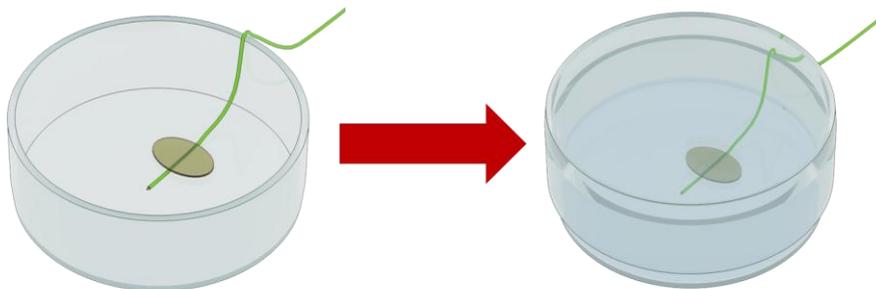


Figure 10. Petri Dish with T sensor placed centrally, filled with water and lid closed.

After placing the T sensor with in the petri dish, fill it with water and place it within the chamber (where the sample will be placed) with its top lid closed.

Calibration can be performed in both **manual** and **automatic** modes. The automatic mode executes the calibration process entirely on its own. The manual mode allows you to input an offset with respect to the setpoint temperature.

If the temperature is unstable during manual calibration, a pop-up will prompt you to choose between continuing or canceling the operation.



Note ► Before starting the Calibration, make sure you've set the correct working Set Point as the calibration will be performed at that Temperature Set Point.

Note ► The Calibration procedure may take between 1–2 hours for completion.

9.1.2 Objective Heater Calibration

To perform the objective heater calibration, perform a long-press on the "Objective Heater" icon in the Homepage. A prompt will appear, asking for confirmation to start the calibration process; confirm to proceed.

For performing the Calibration procedure, you can use the provided T-Sensor. The process is similar to that of the Chamber calibration i.e., you will have to attach the tip of the T-Sensor to the bottom of the cell culture support (as illustrated previously in Figure 10).



Note ► Before proceed with the calibration of the Objective Heater, verify that the standard temperature calibration has already been performed with the objective heater positioned away from the chamber.

On navigating to this menu, you will have the option to select between the '**Manual**' or the '**Auto**' calibration.

For manual calibration, the desired temperature value must be set by the user. Alternatively, selecting the "Auto" mode enables the system to automatically adjust the objective heater to maintain the chosen set point temperature within the sample.



Note ► This feature is only available if you have purchased the Objective Heater accessory and is connected to the UNO-PLUS-T-UNIT or UNO-PLUS-T-CO2-UNIT.

Note ► Similar to the Chamber Calibration, before starting the Calibration, make sure you've set the correct working Set Point as the calibration will be performed at that Temperature Set Point.

9.1.3 CO₂ Calibration

To calibrate the CO₂, an external meter must be connected to the unit. To start the calibration, perform a long press on the CO₂ widget on the homepage and click 'Yes' on the pop-up that will appear. Enter the CO₂ percentage value from the external meter, then click the 'Enter' icon  on the right (as shown in Figure 11) to confirm.

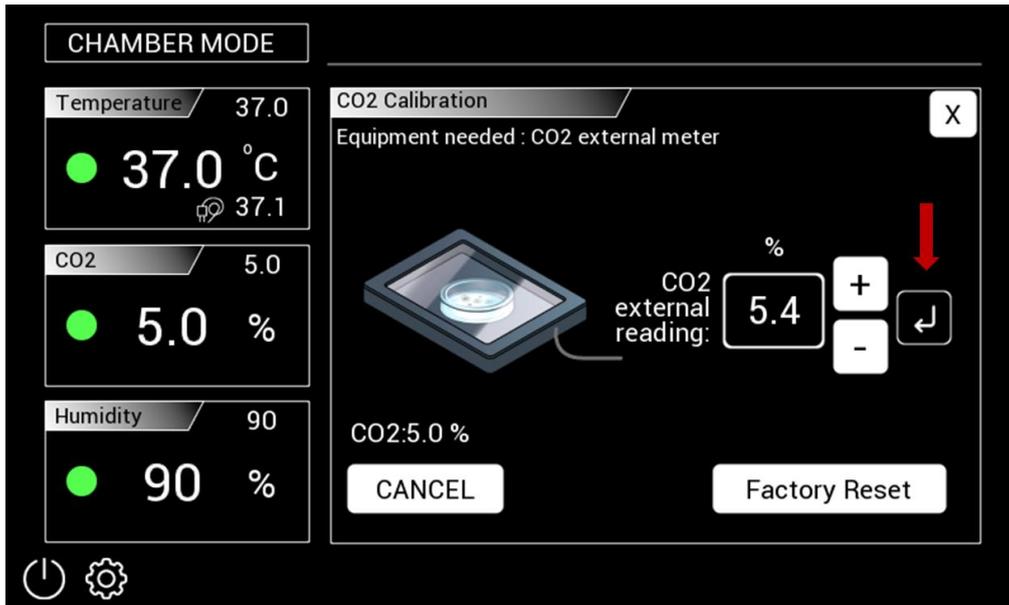


Figure 11. CO₂ calibration screen.

10 ADVANCED SETTINGS

10.1 Pump reset



This section should only be accessed if the pump has been replaced. Upon entering, a WARNING will appear displaying the pump's usage hours compared to its maximum allowed hours. The system will prompt you to confirm whether the pump has been replaced. If the pump has indeed been replaced, click "Yes" to proceed.



Note ► The pump must be replaced every 6000 hours of operation: an alarm will appear indicating that the pump lifetime has expired. The Status Page (see Figure 20c) displays the current operating hours of the pump compared to its total lifetime hours.

Note ► This section is accessible only for UNO-PLUS-T-H-CO2.

10.2 Custom Insert



This section should be accessed when a custom chamber is purchased. Through this page, you can enter the Lid and Base offsets that will be used with that insert, as visible in Figure 12. The custom setting is enabled by clicking on "USE CUSTOM" and then pressing "Save".

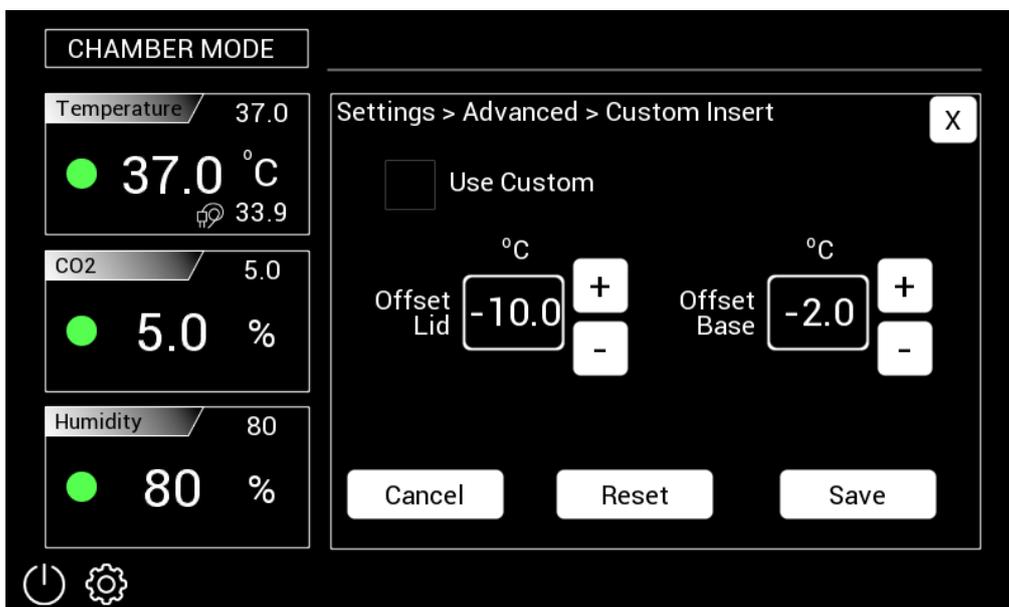


Figure 12. Custom Insert configuration page.

10.3 Obj. Heater Ramp rate



This section can be accessed when an objective heater has been purchased and set to ON. It allows you to select the heating speed of the objective heater by moving the slider or pressing the '-' or '+' buttons and then clicking on Save. The default value is set to 10.5 °C/min.

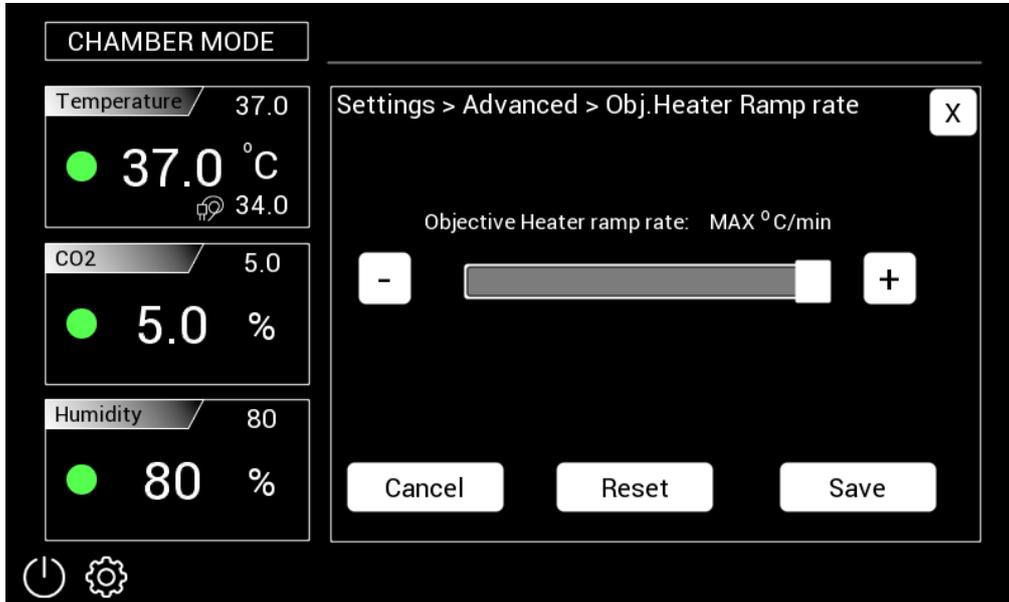


Figure 13. Objective Heater ramp rate configuration page.

10.4 Humidity Options



By navigating to this option, you can regulate the humidity by choosing between a 'Less Humid' or a 'More Humid' option.

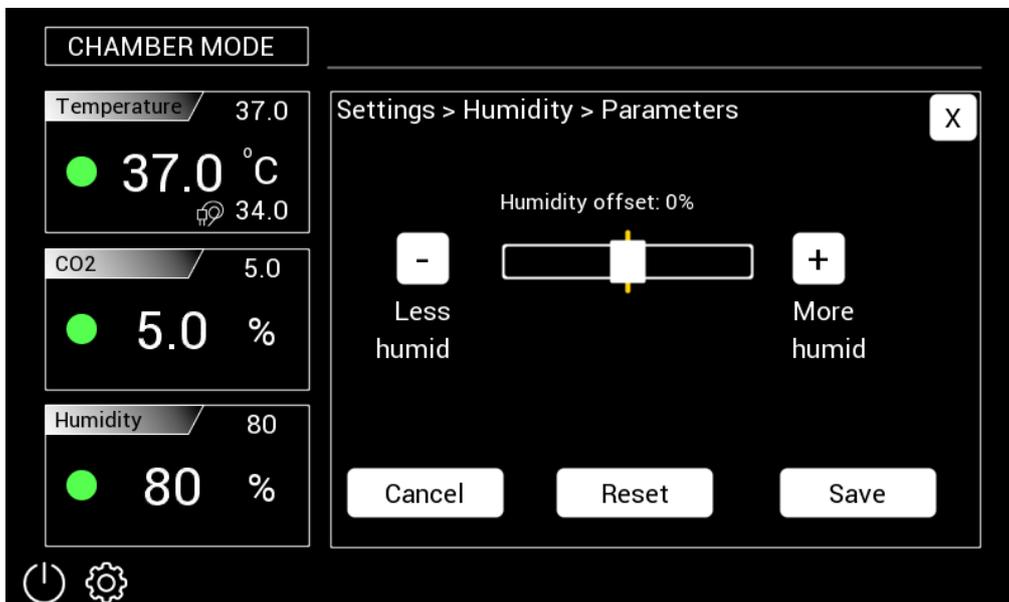


Figure 14. Humidity Regulation.

As illustrated in Figure 14, you can modify the humidity value to more or less humid by moving the regulator left or right.

If your chamber has a humidity setpoint of 90% but see rapid evaporation of the sample medium (maybe due to constant opening closing of the chamber) you can select to provide more humidity to the chamber by moving the selector bar to the right and vice versa for the other way round.

10.5 Calibration



By entering this section, you can modify the calibration accuracy (displayed in °C/min) using the slider or the '+' and '-' buttons. Finally, press 'Save' to apply the modifications. The default value is set to 0.15 °C/min.

Press 'Reset' to restore the factory default settings.

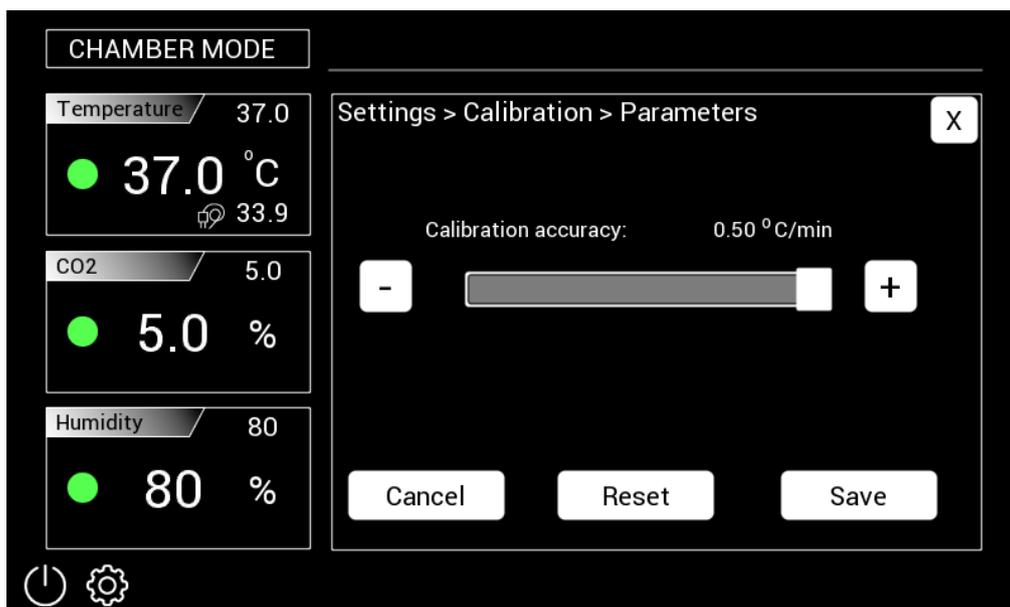


Figure 15. Calibration Accuracy Screen.

10.6 Factory Reset



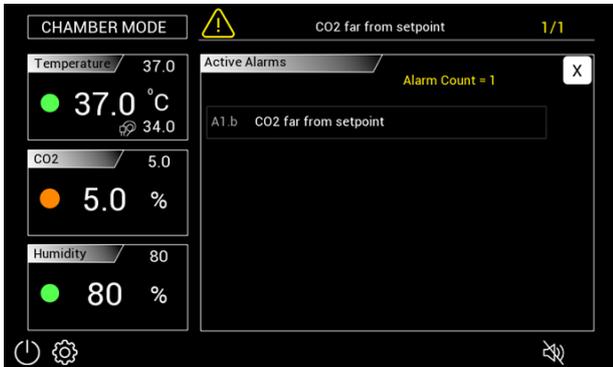
This option will allow you to perform a factory reset of all the parameters of UNO-PLUS. It will remove all the offset calibrations imposed by the user. On selecting this option, a pop-up message will ask you to confirm this selection as this cannot be undone.

11 ALARM SETUP

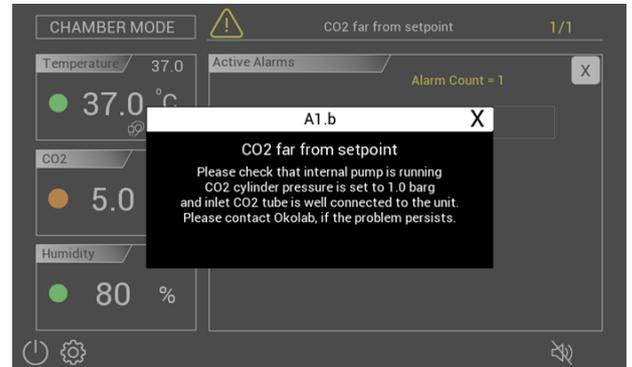


This section details the Alarm setting for different variable being worked with. When the system goes into an Alarm state the **homepage** of UNO-PLUS displays the '**Alarm**' icon  at the top left.

Figure 16 (a & b) shows an example of an alarm Message that is displayed on clicking the '**Alarm**' icon  on the top left homepage.



a.



b.

Figure 16. Alarm Message.

The following sub headings detail the alarm setup procedures for the Temperature, CO2 and Humidity.

11.1 Temperature Alarm



In this section, you can setup the value of the deviation (tolerance), in °C, from the temperature set point and the time for which the system has to read the measurement out of tolerance value, before going into an alarm state (Figure 17). The default values are set to 0.5°C and 10 minutes.

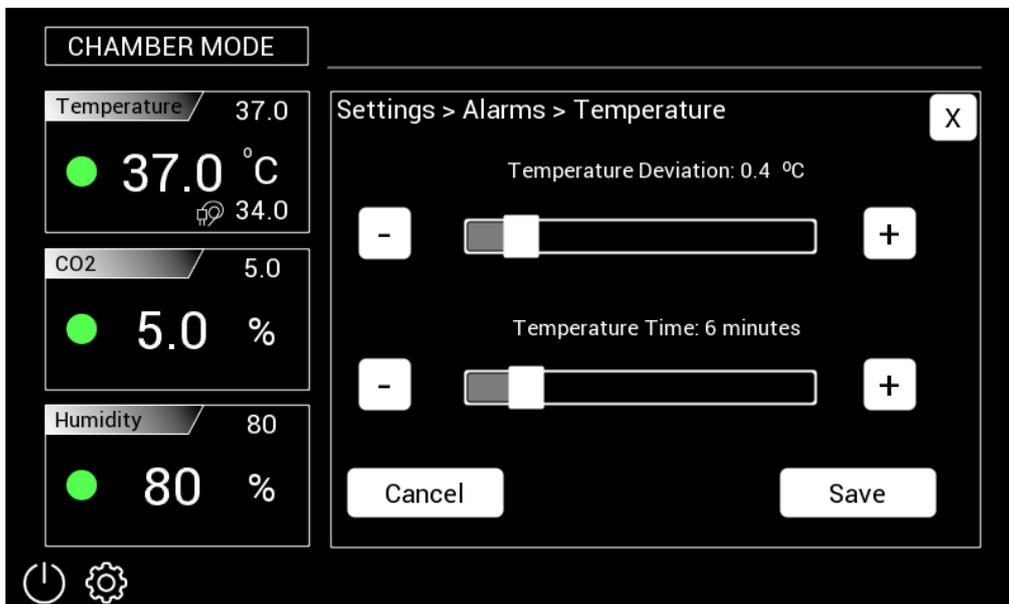


Figure 17. Temperature Alarm Settings Page.

11.2 Gas Alarm



The Gas alarm settings not available for UNO-PLUS-T and UNO-PLUS-T-H systems. In this section, you can setup the value of the deviation (tolerance), in % of concentration, from the gas set point and the time for which the system has to read the measurement out of tolerance value, before going into an alarm state (Figure 18). The default values are set to 0.5% and 5 minutes.

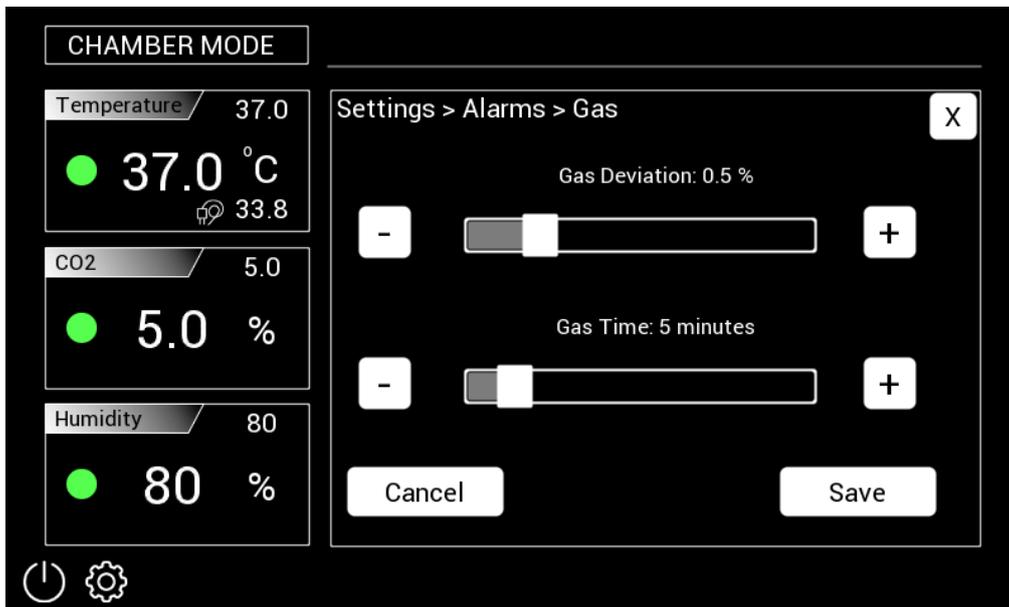


Figure 18. Gas Alarm Settings Page.

11.3 Humidity Alarm



The Humidity alarm settings not available for UNO-PLUS-T systems. From this menu, you can setup the value of the deviation (tolerance), in % of humidity, from the humidity set point and the time for which the system has to read the measurement out of tolerance value, before going into an alarm state (Figure 19). The default values are set to 10% and 10 minutes.

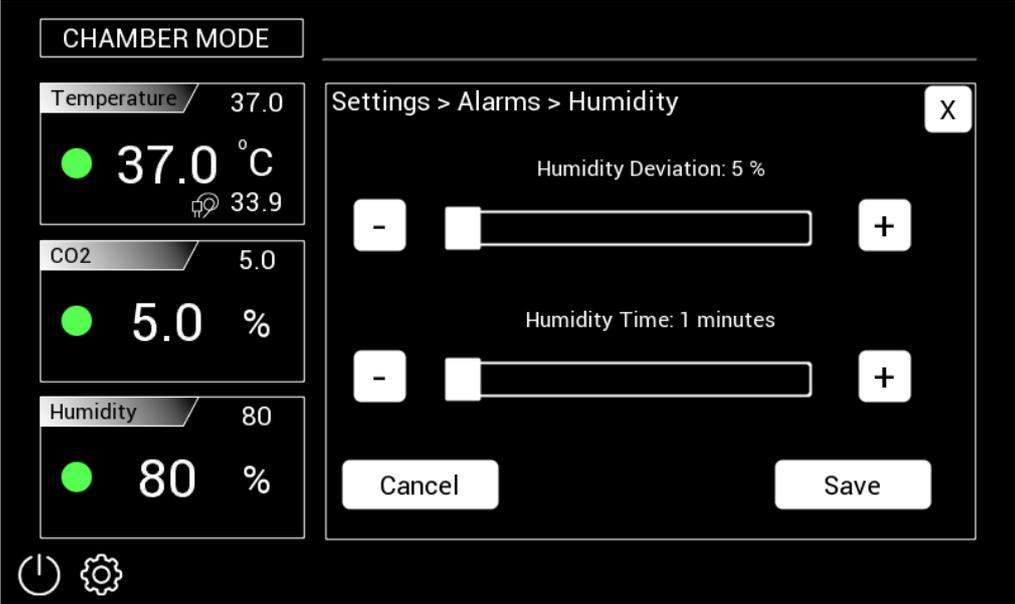


Figure 19. Humidity Alarm Settings Page.

12 SYSTEM STATUS



For quick visualization of the system's status, you can navigate to this menu and view the details pertinent to the system's functioning. The figure below illustrates the status pages for Temperature (Figure 20 (a)), Gas (Figure 20 (b)), Humidity (Figure 20 (c)). Figure 20d shows a summary of all the parameters and relative informations.



Figure 20. Status Pages for different parameters (a-d).

The first page will allow you to view system details such as the release date, serial number, software version etc. as illustrated in Figure 21.

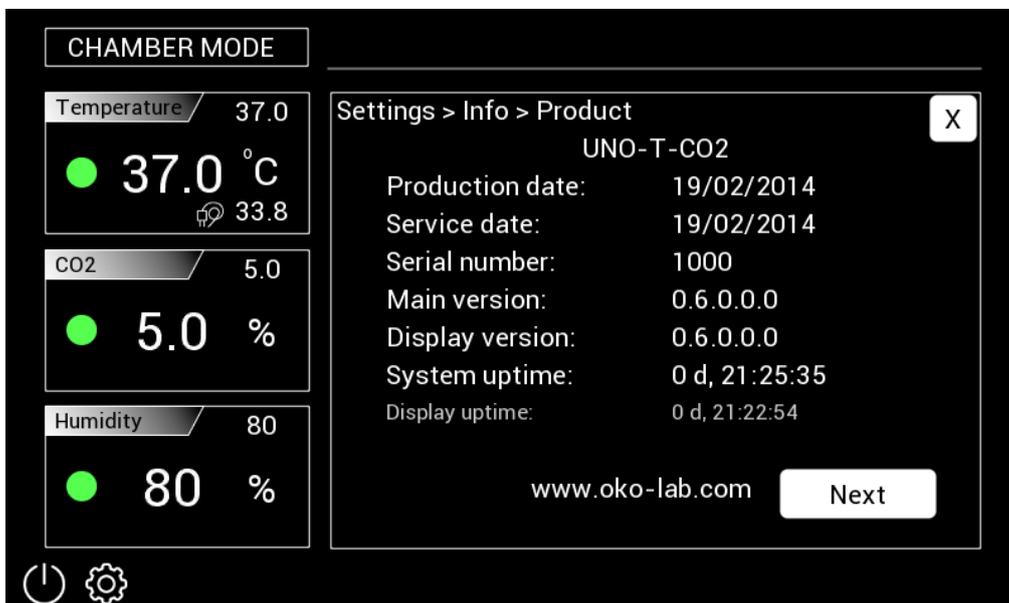


Figure 21. System Information.



Note ► *These details such as the serial number, status pages, will be requested by the OKOLAB Technical Support team during assistance sessions. If you find yourself in need for a technical assistance, please attach images of the Status page for each of the parameters available to you relative to the system that you possess.*

13 DISPLAY SETTINGS



In this menu the following system settings are available:

- **Brightness** : From this page you can set the brightness of the UNO-PLUS screen.
- **Sound** : From this page you can choose between the following audio configurations:
 - **Sound for alarms and touch**: enables sound feedback for both alarms and touch interactions on the screen.
 - **Sound only for alarms**: enables sound only when an alarm is triggered.
 - **No sound**: disables all sound notifications.

You can adjust the sound frequency using the slider or the “-” and “+” buttons.

- **Calibrate** : From this page you can calibrate the touch. Once the calibration starts, tap blue calibration dots until the calibration is complete.

14 TROUBLESHOOTING

Please refer to the following Alarms list for the troubleshooting.

Alarm Code	Alarm Name	Remedy
A1.a	Temperature far from setpoint	<p>In Sample Mode: Please check if the chamber is closed, cables are properly connected and sample is well placed. A calibration may be necessary. Please contact Okolab, if the problem persists.</p> <p>In Chamber Mode: Please check if the chamber is closed, cables are properly connected. A calibration may be necessary. Please contact Okolab, if the problem persists.</p>
A1.b	CO2 far from setpoint	<p>Please check that internal pump is running, CO2 cylinder pressure is set to n.n barg and inlet CO2 tube is well connected to the unit. Please contact Okolab, if the problem persists.</p>
A1.c	Humidity far from setpoint	<p>Please check that the water bottle is not empty, that is closed and that the tube and cable is properly connected to UNO. Please contact Okolab, if the problem persists.</p>
A1.d	Objective far from setpoint	<p>Please check if the objective heater is properly placed and connected. A calibration may be necessary. Please contact Okolab, if the problem persists.</p>
A1.e	Lid far from setpoint	<p>Please check if the chamber lid is properly closed and connected. Please contact Okolab, if the problem persists.</p>
A1.f	Tube far from setpoint	<p>Please check if the humidifier tube is properly placed and connected. Please contact Okolab, if the problem persists.</p>
A2	Internal communication error	<p>COMMUNICATION ERROR The display is not able to communicate with the system. You should ignore this message if it appears during an update. Please try restarting the system</p>

		removing the power, if it is not solved contact okolab for assistance.
A3	Software issue required restart	Please check the unit power connector. Please contact Okolab, if the problem persists.
A4.a	Chamber base sensor error	Please check that the cable of the chamber base is well connected to the unit. Please contact Okolab, if the problem persists.
A4.b	Sample sensor error	Please check that the T.Sensor is properly connected to the unit and check that the green wire is not damaged. Please contact Okolab, if the problem persists.
A4.c	Chamber lid sensor error	Please check that the cable of the chamber lid is well connected to the unit. Please contact Okolab, if the problem persists.
A4.d	Objective heater sensor error	Please check that the cable of the objective heater is well connected to the unit. Please contact Okolab, if the problem persists.
A4.e	Humidifier sensor error	Please check that the cable of the humidifier is well connected to the unit. Please contact Okolab, if the problem persists.
A4.f	Heated tube sensor error	Please check that the cable of the heated tube is well connected to the unit. Please contact Okolab, if the problem persists.
A4.g	CO2 flow sensor error	No communication with CO2 flow sensor. Please contact Okolab.
A4.h	Air flow sensor error	No communication with Air flow sensor. Please contact Okolab.
A5.a	Chamber base temperature too high	Please check that the cable of the chamber base is well connected to the unit.

		Please contact Okolab, if the problem persists.
A5.b	T.Sensor temperature too high	Please check that the T.Sensor is properly connected to the unit and check that the green wire is not damaged. Please contact Okolab, if the problem persists.
A5.c	Chamber lid temperature too high	Please check that the cable of the chamber lid is well connected to the unit. Please contact Okolab, if the problem persists.
A5.d	Objective heater temperature too high	Please check that the cable of the objective heater is well connected to the unit. Please contact Okolab, if the problem persists.
A5.e	Humidifier temperature too high	Please check that the cable of the humidifier is well connected to the unit. Please contact Okolab, if the problem persists.
A5.f	Heated tube temperature too high	Please check that the cable of the heated tube is well connected to the unit. Please contact Okolab, if the problem persists.
A5.g	CO2 cut-off valve open in standby	Please close the CO2 flow when going in standby. Please contact Okolab, if the problem persists.
A6.a	Chamber base not heating up	Please check that the cable of chamber is well connected to the unit. Please contact Okolab, if the problem persists.
A6.c	Chamber lid not heating up	Please check that the cable of the chamber lid is well connected to the unit. Please contact Okolab, if the problem persists.
A6.d	Objective not heating up	Please check that the cable of objective heater cable is well connected to the unit. Please contact Okolab, if the problem persists.
A6.e	Humidifier not heating up	Please check that the cable of humidifier is well connected to the unit.

		Please contact Okolab, if the problem persists.
A6.f	Heated tube not heating up	Please check that the cable of heated tube is well connected to the unit. Please contact Okolab, if the problem persists.
A7.g	CO2 flow far from expected	Please check that CO2 cylinder pressure is set to n.n barg and inlet CO2 tube is well connected to the unit. Please contact Okolab, if the problem persists.
A7.h	Air flow far from setpoint	Please check that the pump is running, check outlet tubes and internal tubes. Verify there is no clogging inside. Please contact Okolab, if the problem persists.
A8	Pump lifetime expired	Please contact Okolab to replace the air pump inside the unit.
A11	Open lid timeout warning	Incubator opened for more than 10 minutes. Ignore this warning if the opening is intended. Close the incubator to cancel this alert.

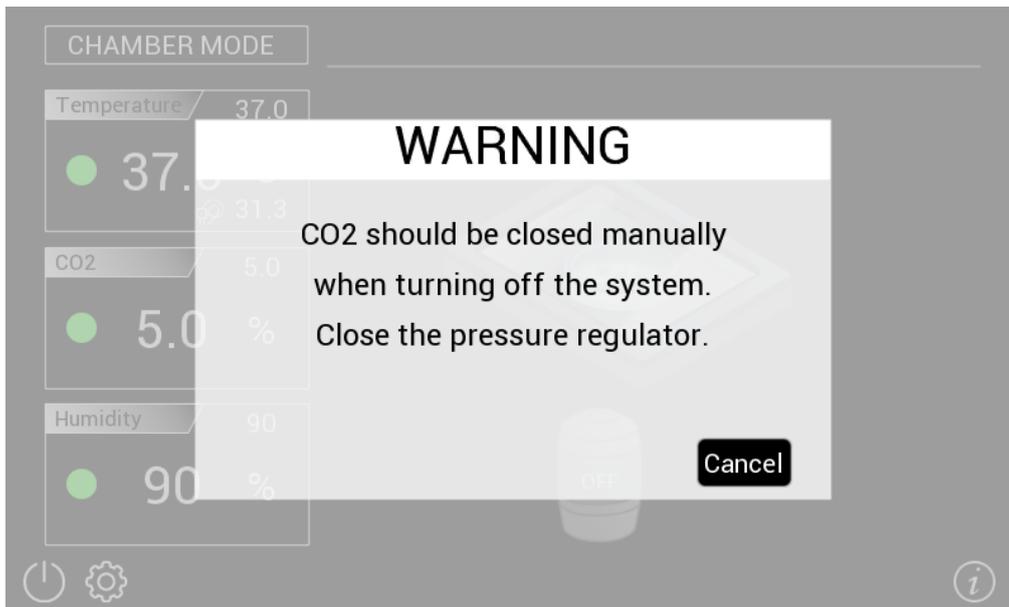


Figure 22. Warning appearing when trying to turn off the system without closing the CO2.

15 CLEANING & MAINTENANCE

15.1 Cleaning

The following subheadings explain the cleaning of the different components.

15.1.1 Control Units Cleaning

- Use a polishing cloth or dry cloth to wipe off dust and dirt.
- Never use thinners, benzene, solvents on or near the devices, since these could corrode their surfaces.
- To polish the Stage Incubator and the Humidifying Module, if it is present, you can use distilled water or alcohol
- Verify the status of all cables and if some cable is damaged, contact Okolab to receive assistance



Before cleaning the unit, disconnect all the electrical connections.

Water must not enter in the system.

15.1.2 Chamber Cleaning

In order to keep the Chamber clean, please follow the steps below:

1. Turn the system off and pull the mains plug out the socket
2. Wait till the chamber cools down.
3. To clean the body of the chamber, wipe with a soft micro-fiber cloth. For stubborn smudges, you can damp the soft micro-fiber cloth with ethyl alcohol (product code UN1170). Do not put any liquid directly on the chamber. While cleaning the glass lid, do not apply strong force to the surface of the glass lid because it can be damaged.

15.1.3 HM-UNO Cleaning

In order to keep the HM-UNO clean please follow the steps below:

1. Turn the system off and pull the mains plug out the socket.
2. Disconnect the HM-UNO from the UNO-PLUS-T-H-CO2 unit.
3. Disconnect the Sensing cell from the Base.
4. Wait the bottle cools down.
5. Empty the bottle.
6. Wipe the exterior of the bottle with a 70% alcohol solution.
7. Only if needed rinse the bottle with the above-mentioned solution and wait till the bottle's interior is completely dry before reusing it.



When the system is switched off by the UNO-PLUS unit, the sensing cell still remains ON to avoid the water from condensing on it.

When you disconnect the system from the power supply, or when the HM-UNO is not being utilized, we advise you to remove the sensing cell from the bottle to avoid water condensation.

15.1.4 AIR-PUMP Replacement

The OKO-AIR-PUMP has a lifetime of 6000 hours. When the maintenance of the embedded pump is due the system will display the alarm code **A8- "Please contact Okolab to replace the air pump inside the unit."** on the homepage advising you to change the pump. Contact Okolab Technical Support Team for instructions on the pump replacement procedure.



Note ► After replacing the pump, please navigate to



and click

on Yes on the pop-up that appears.

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18 SUPPORT

To contact one of our engineers please send an email to the technical support address listed below or contact us through the live chat on www.oko-lab.com. You can request a remote support session anytime.

Please, do not hesitate to contact Okolab for any further commercial information or technical support.

For TECHNICAL SUPPORT: support@oko-lab.com

Phone +39 081 806 3470

Fax: +39 081 876 4410

Mobile: +39 348 96807 18

For COMMERCIAL SUPPORT WORLDWIDE: lanzaro@oko-lab.com

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For COMMERCIAL SUPPORT US&CANADA: usa@oko-lab.com

For COMMERCIAL SUPPORT CHINA: tong@oko-lab.cn

WARRANTY

Okolab S.r.l. warrants "UNO PLUS" to be free of defects in materials and workmanship for a period of three years starting from invoice date. If the units malfunction, they must be returned to the factory for evaluation. If the equipment has to be returned to the factory, please ensure that is carefully and properly packed. Okolab S.r.l. accepts no responsibility for damage due to unsatisfactory packing. If the unit is found to be defective, it will be repaired or replaced at no charge. This warranty does not apply to defects resulting from any actions of the purchaser. Components which wear are not warranted. Okolab S.r.l. neither assumes responsibility for any omissions or errors nor assumes liability for any damage that may result from improper use of its products in accordance with information provided by Okolab S.r.l. Okolab S.r.l. warrants only the parts manufactured by Okolab S.r.l. to be free of defects. Okolab S.r.l. makes no other warranties or representations of any kind whatsoever, express or implied, except that of title, and all implied warranties including any warranty of merchantability and fitness for a particular purpose are hereby disclaimed. LIMITATION OF LIABILITY: the total liability of Okolab S.r.l. shall not exceed the purchase price of the component upon which liability is based. In NO event shall Okolab S.r.l. be liable for consequential, incidental or special damage.