



QUICK INSTRUCTIONS

LEO

HAND HELD METER



PRELIMINARY OPERATIONS

TURN LEO ON

Press and hold the power button for 2 seconds.



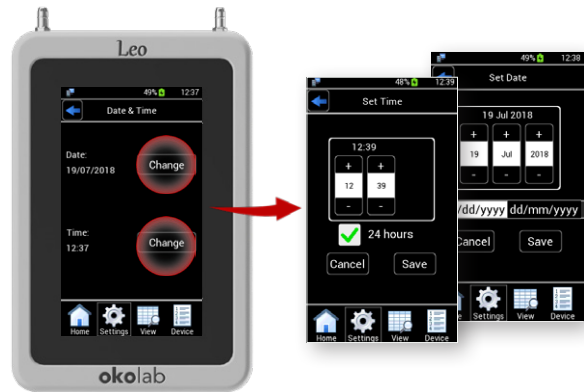
The warming up time for gas measurement is 15 minutes.



A full charge requires 4 hours. The recommended first charging time is 6 hours.

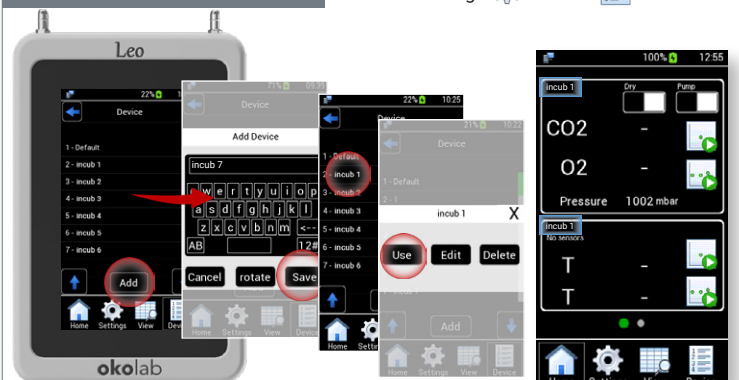
SET DATE & TIME

Press on Settings > System > Date & Time



ORGANIZING DEVICES

Press on Settings > Device



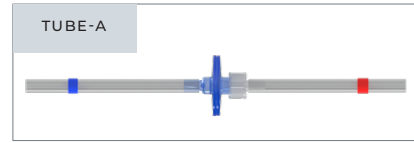
1. CO₂-O₂ Measurement

ASPIRATION MODE

Please verify the correct measurement mode for each incubator.



- 1 Connect the **blue labeled end** of TUBE-A to LEO gas inlet port labeled with icon **IN**.



- 2 Put the cap on LEO gas inlet port labeled with icon **IN**.
- 3 Connect the **red labeled end** of TUBE-A to the incubator or the point where measurement is required.

Use the fitting tubes and/or additional tube in order to allow the compatibility of the supplied tubing with the gas port of your incubators.

- 4 If the incubator has the return input available, use the Output Tube to connect the LEO gas outlet port labeled with icon **OUT** to the incubator gas recycle.
- 5 Press Pump/Diffusion Mode button to select the Pump Mode.
- 6 Start a single point or logging gas measurement.

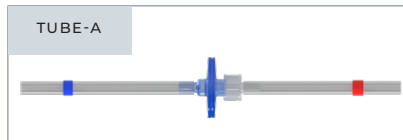


Always take care of the room ventilation.

DIFFUSION MODE



- 1 Connect the **blue labeled end** of TUBE-A to LEO gas inlet port labeled with icon **IN**.



- 2 Put the cap on LEO gas inlet port labeled with icon **IN**.
- 3 Connect the **red labeled end** of TUBE-A to the incubator or the point where measurement is required.

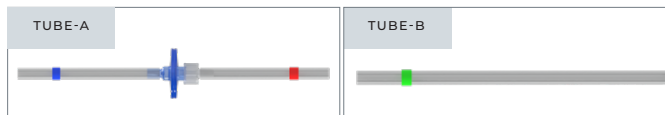
Use the fitting tubes and/or additional tube in order to allow the compatibility of the supplied tubing with the gas port of your incubators.

Do not exceed 300 mbar upstream to LEO.

- 4 Press Pump/Diffusion Mode button to select the Diffusion Mode, and start a single point or logging gas measurement.

FOR HUMID GAS

If the sampling gas is humid, connect the **red labeled end** of TUBE-A and the **green connector** of TUBE-B to the Moisture Trap. Connect the end of Tube-B to the incubator or to the point where measurement is required.



Use the fitting tubes and/or additional tube in order to allow the compatibility of the supplied tubing with the gas port of your incubators.

Before starting a Gas Logging, unscrew the condensation trap to make sure the condensation trap top lid has been removed.




The condensation trap top lid allows reducing the sampling gas time during a Gas Single Point measurement Gas Measurement with Moisture Trap.

Press Dry/Wet Mode button to set the Wet Mode, and insert the humidity and temperature values of your incubator.



SINGLE POINT MEASUREMENT



1 Press on CO2-O2 single point measurement icon 

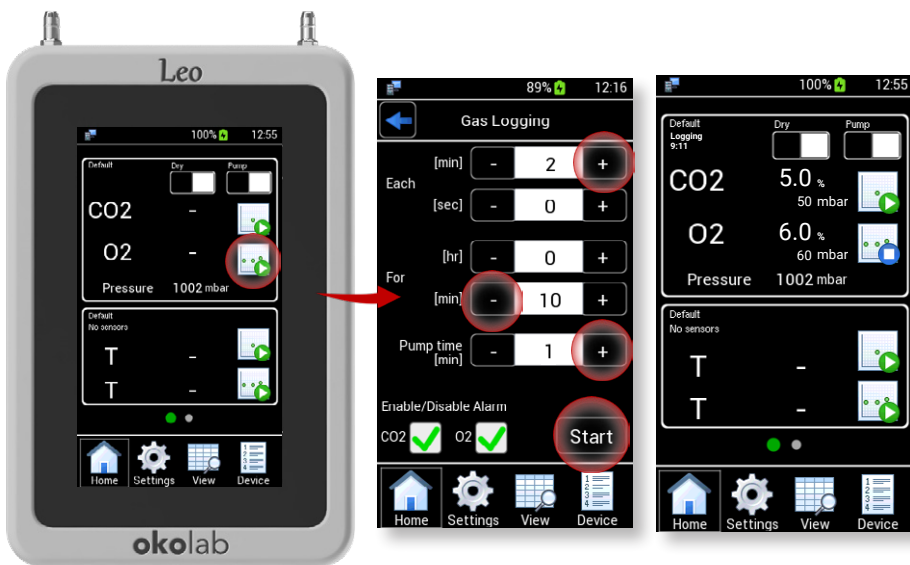
2 Select **Auto** for an automatic or **Manual** for a manual measurement.


Auto: the CO2-O2 Single Point measurement terminates automatically when the gas reading value becomes stable.

Manual: you have to click again on the CO2-O2 Single Point Measurement Icon to stop the measurement.

CO2 and O2 gas concentration values appear on the Homepage.

LOGGING MEASUREMENT



1 Press on CO2-O2 logging measurement icon 

2 Insert the measurement times using + and - :

Each: the time between measurements. It is the acquisition frequency. The time can be inserted in minutes and seconds.

For: is the logging function duration. Leo will perform measurements and log them in the memory For the time selected here.

Pump Time*: the time, in minutes, the pump is active and aspirates gas, prior to saving a reading. This parameter is available only if the Aspiration mode is selected.



3 Press **Start**.

CO2 and O2 gas concentration values appear on the Homepage.

*The pump settings are not available when working in Diffusion Mode.

DATA ANALYSIS

Use the supplied OTG Cable to download the stored data on a USB flash drive.

Press View icon  > Download/Delete icon  and select the data to download.



Organize and analyze the downloaded data by using the LEO DATA IMPORT Excel Macro.

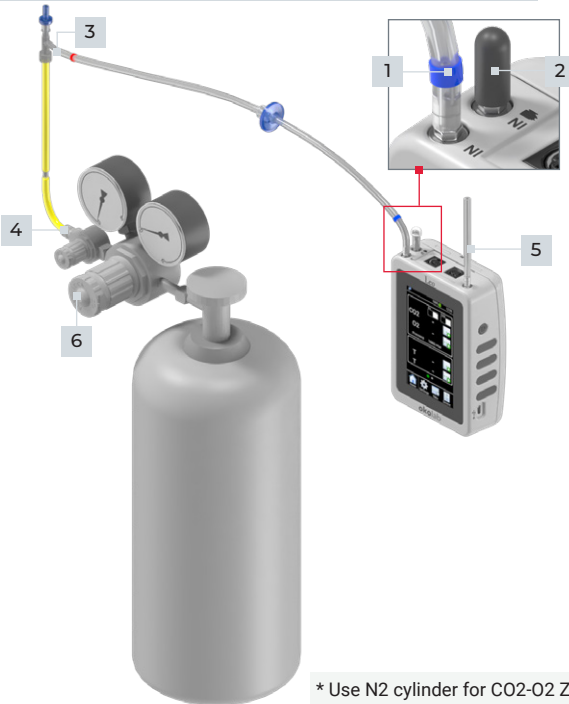
Download available on oko-lab.com.

2. Calibration / CO2-O2 Zero Reset / CO2 Zero Reset

Okolab suggests to perform the Zero Reset procedure each month.

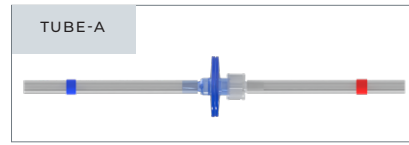
CALIBRATION / CO2-O2 ZERO RESET

GAS CYLINDER WITH PRESSURE REGULATOR



* Use N2 cylinder for CO2-O2 Zero Reset procedure.

- 1 Connect the **blue labeled end** of TUBE-A to LEO gas inlet port labeled with icon **IN**



- 2 Put the cap on LEO gas inlet port labeled with icon **IN**.

- 3 Connect the **clear connector** of the Calibration Kit to the **red labeled end** of TUBE-A.



- 4 Connect the **yellow end** of Calibration Kit to the Gas Cylinder*.

Use the fitting tubes and/or additional tube in order to allow the compatibility of the supplied tubing with the gas port of your gas cylinders.

- 5 Use the OUTPUT TUBE to connect a purge tube to LEO gas outlet port. Place the purge tube in a well ventilated environment.

- 6 Set 1.0 barg on the pressure regulator of the pure N2 tank.

Do not exceed 1.5 barg.

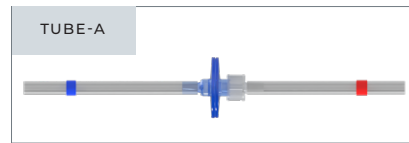
- 7 Start the Calibration/CO2-O2 Zero Reset procedure (refer to LEO User Manual, paragraph 13).

GAS CYLINDER WITH FLOW REGULATOR



* Use N2 cylinder for CO2-O2 Zero Reset procedure.

- 1 Connect the **blue labeled end** of TUBE-A to LEO gas inlet port labeled with icon **IN**



- 2 Put the cap on LEO gas inlet port labeled with icon **IN**.

- 3 Connect the **red labeled end** of TUBE-A to the Calibration Gas Regulator*.

Use the fitting tubes and/or additional tube in order to allow the compatibility of the supplied tubing with the gas port of your gas cylinders.

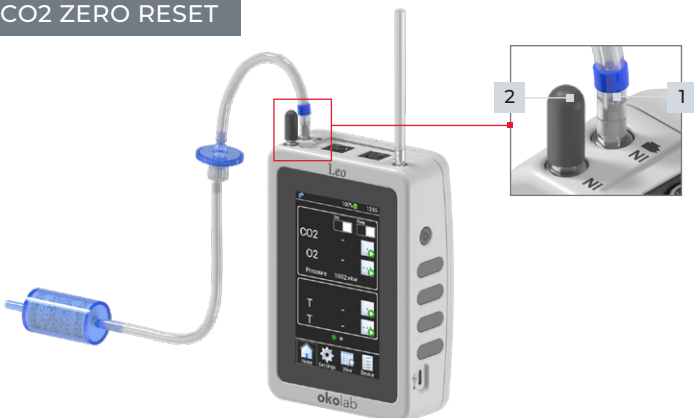
- 4 Use the OUTPUT TUBE to connect a purge tube to LEO gas outlet port. Place the purge tube in a well ventilated environment.

- 5 Open the Calibration Gas Regulator by using the valve.

Set the flow rate value at maximum 0.4 l/min.

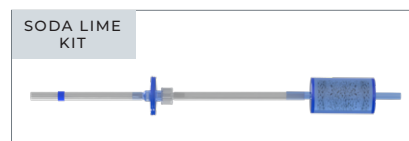
- 6 Start the Calibration/CO2-O2 Zero Reset procedure (refer to LEO User Manual, paragraph 13).

CO2 ZERO RESET



The CO2 Zero Reset procedure adjusts the zero of the CO2 sensor only.

- 1 Connect the **blue labeled end** of SODA LIME KIT to LEO gas inlet port labeled with icon **IN**.



- 2 Put the cap on LEO gas inlet port labeled with icon **IN**.

- 3 Start the CO2 Zero Reset procedure (refer to LEO User Manual, paragraph 13).