WQS

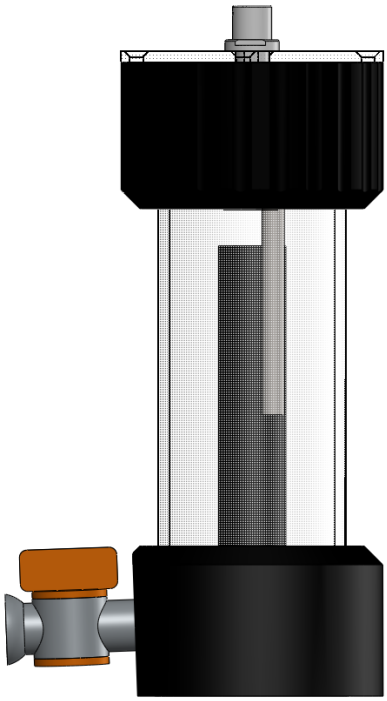
by VINVENTIONS

Nomasense O_2 C300 & Nomasense CO_2 C2000

User guide







September 2026: app version 150 and later

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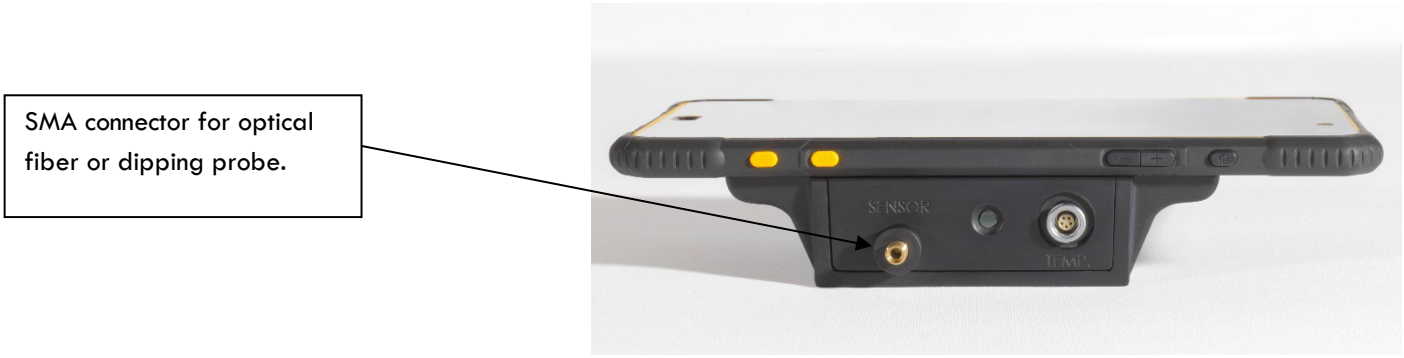
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1. Quick start

1.1- Prepare the device

1.1-1. Connect a sensor or an optical fiber



Connect a dipping probe or an optical fiber to the SMA connector



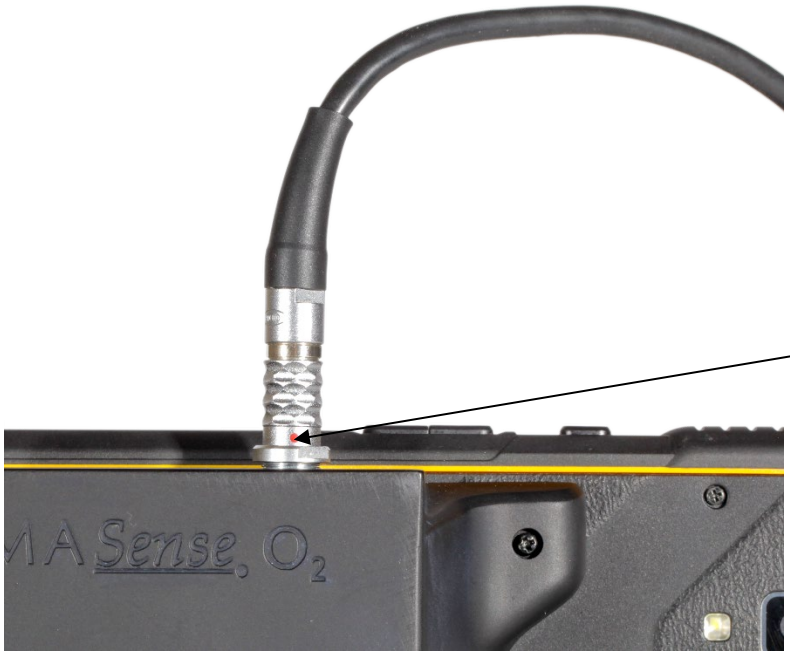
Connect a dipping probe or an optical fiber to the SMA connector, screw manually and moderately.

When no optical fiber or dipping probe is connected to the device, replace the red plastic cap on the connector to protect it from dust.

If the red cap is lost, you can leave the short optical fiber connected to protect the device from dust.

1.1-2. Connect the temperature probe





The temperature probe connector has a small red dot on it that must be carefully placed underneath and carefully pushed in.

No resistance should be encountered, otherwise please check that the connector is placed correctly.

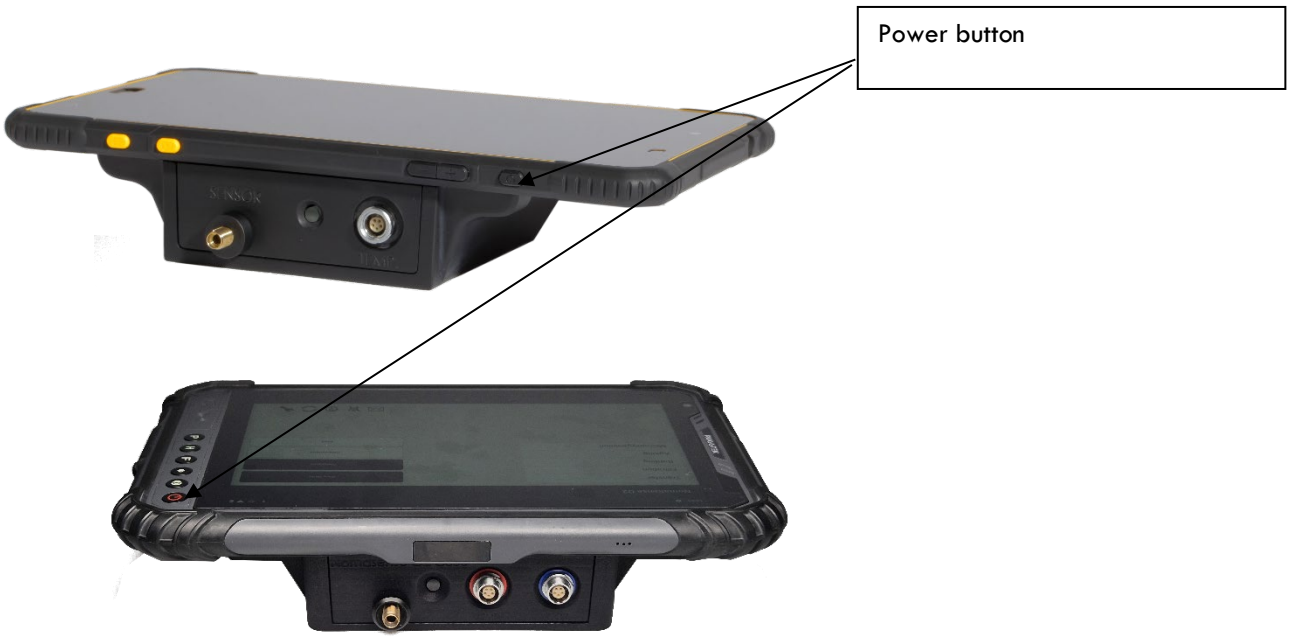
If the connector is not placed correctly, it can be damaged when pushed in.

1.1-3. Connect the CO_2 measuring device

Only on the 2-connector version. Earlier versions can be upgraded: please contact us at wqsorder@vinventions.com.



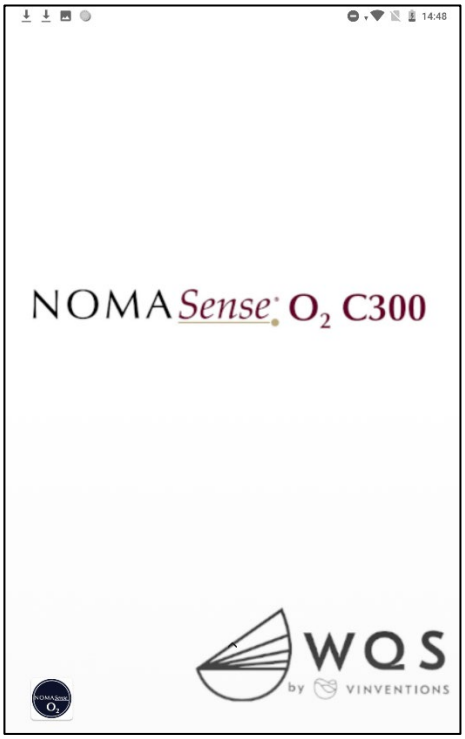
1.1-4. Start up the device

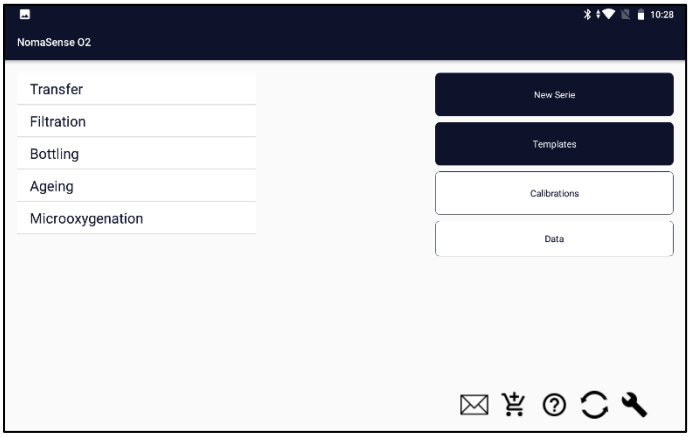


To start the device up, press the power button for 3 seconds if the device is off. If the device is in standby mode, briefly press the power button.

If the device does not start, please check that the battery is not totally depleted.

Once the device has started, please press the icon to launch the app.





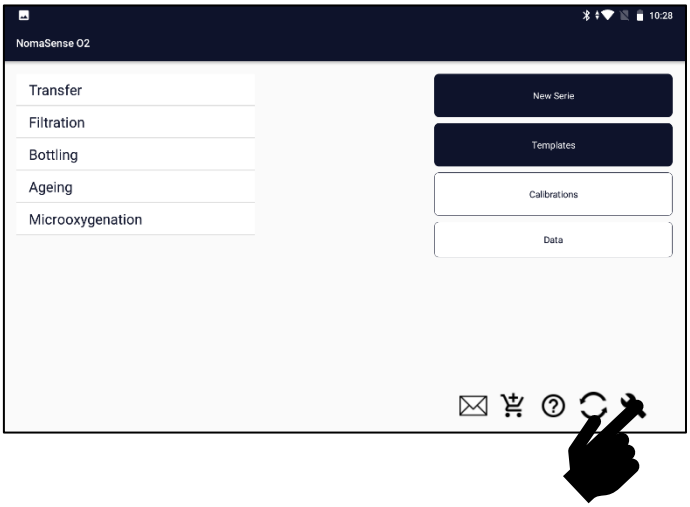
Home screen Nomasense O_2 C300

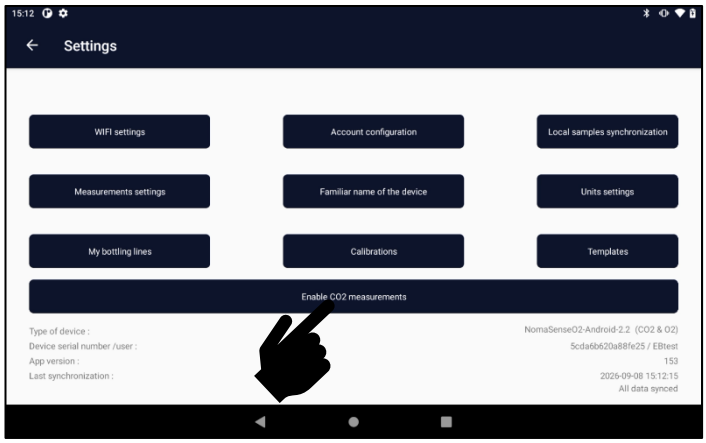
If the icon is not on the home page, please slide the screen with your finger to view other pages.

Once the app icon is pressed, a message box is displayed to indicate that the measurement device is connecting (this can take up to 15 seconds). The home screen is then displayed.

1.2- Activate CO_2 measurements

On compatible devices (serial numbers later than 2025-X), it is possible to enable/disable CO_2 measurement.



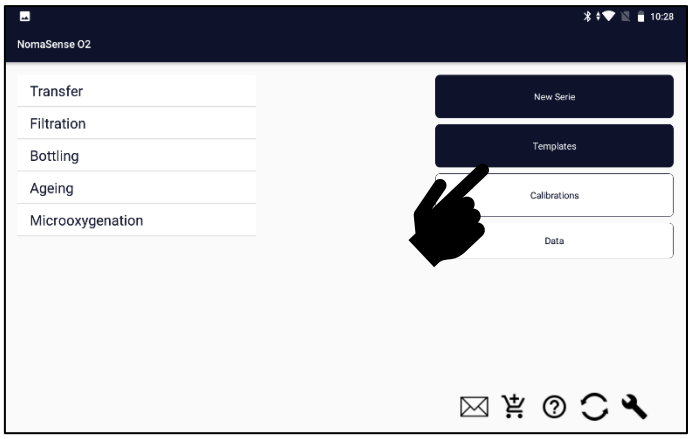


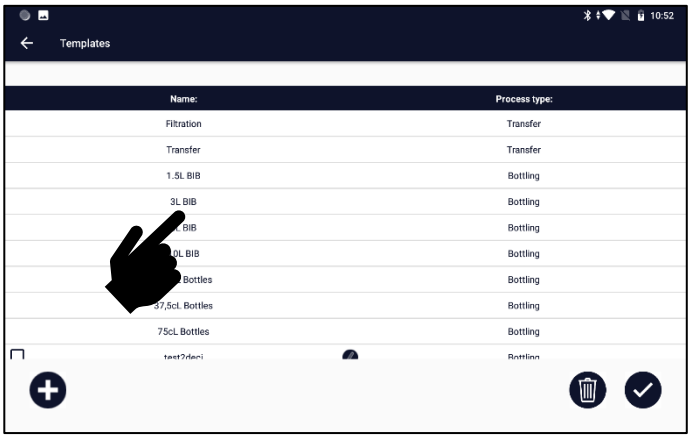
NB: on devices that cannot measure oxygen, CO_2 measurement cannot be disabled.

Only possible measurements (sensor present or enabled) are offered to the user in the drop-down lists.

1.3- Template-based measurements

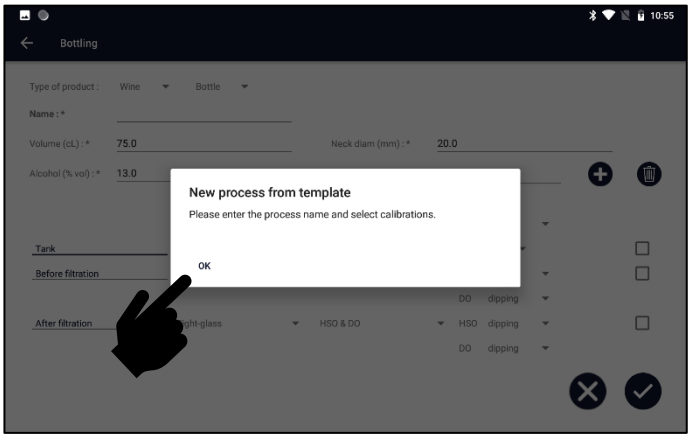
1.3-1. Select the template to be used

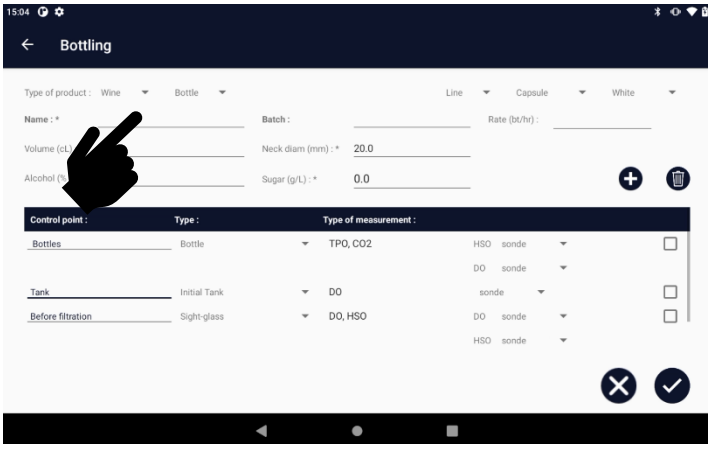




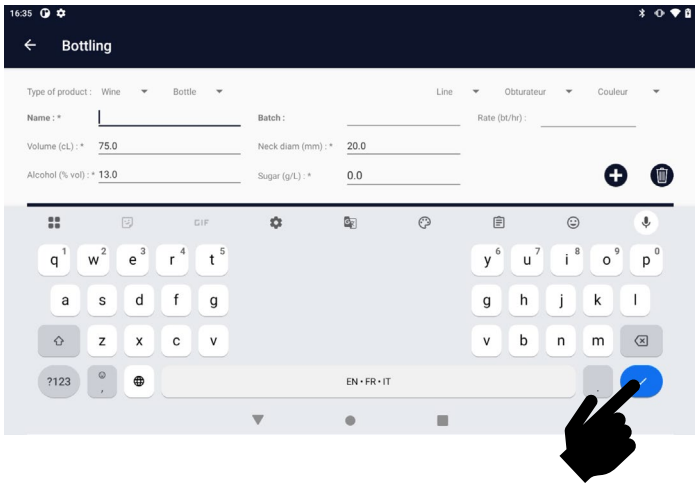
The “Templates” menu displays a list of available tracking templates, both those created by Vinventions and those specific to the user.

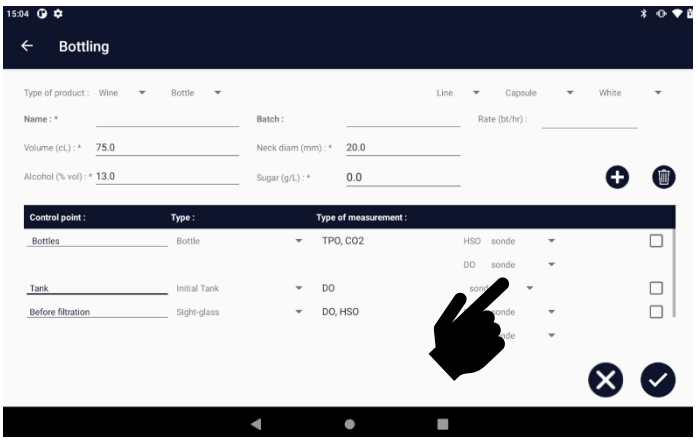
1.3-2. Finalize settings





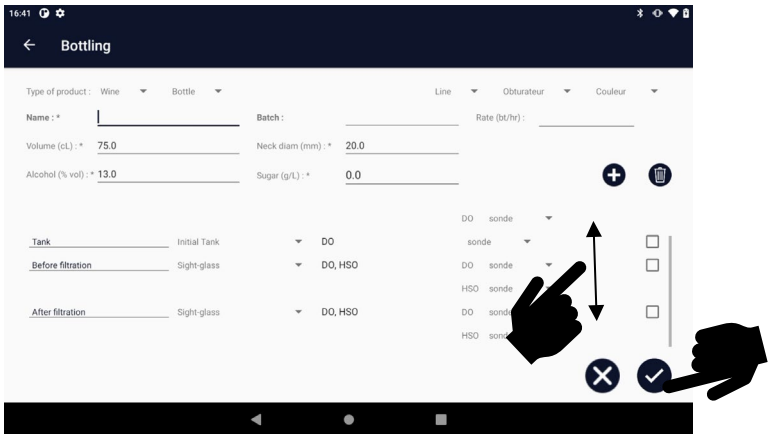
Enter a name for the monitoring and, if necessary, modify the alcohol and sugar contents. Select the type of closure, the color and the bottling line used.





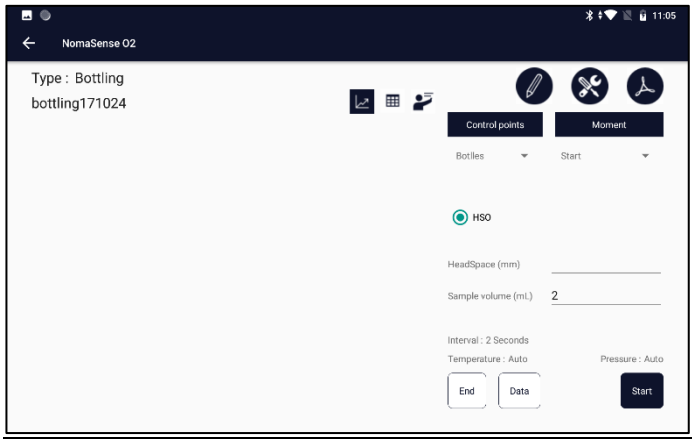
Validate the name, then select the calibrations to be used for the different measurement types set.

<u>Each sensor has its own calibration, and using an inappropriate calibration leads to inaccurate measurements.</u>

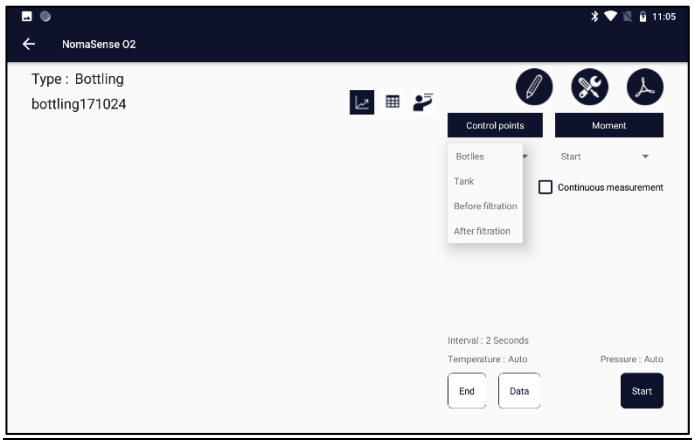


Scroll to the bottom of the screen to make sure all calibrations have been assigned, then press “Validate”.
Only the types of measurement available for the device used are displayed.

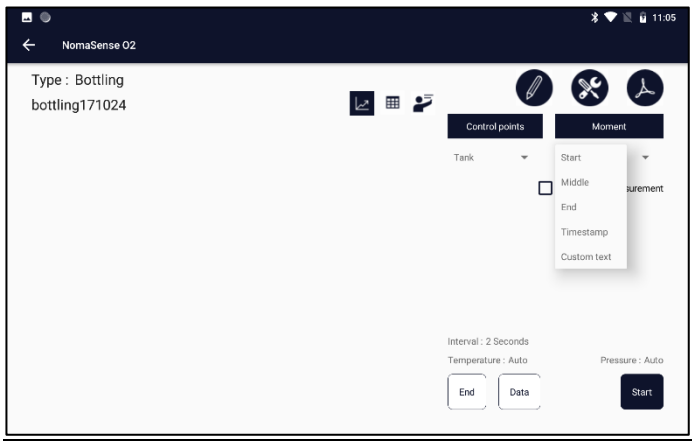
1.3-3. Start an O_2 measurement from a template



Connect the measurement system to be used (short or long fiber, dipping probe).
Connect the temperature probe or switch to manual temperature.



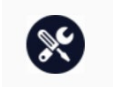
Choose the control point to use



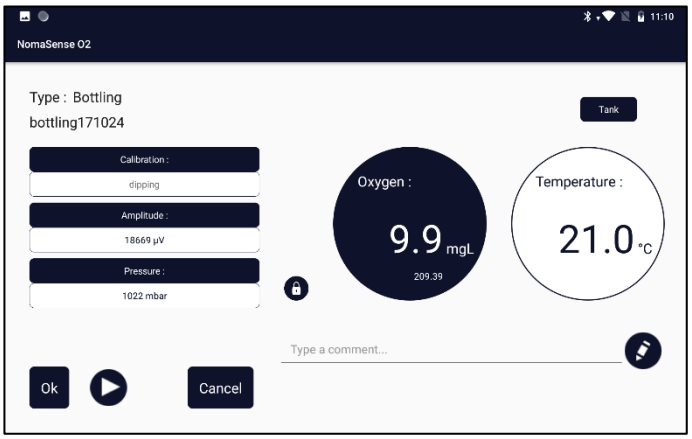
Select the measurement moment to be used

Press “Start” to begin measurement.

NB: You can modify the temperature parameters (use of temperature probe or manual value) and the interval between measurements in the settings menu.



Results are displayed in 2 circles (oxygen and temperature) in the selected unit.





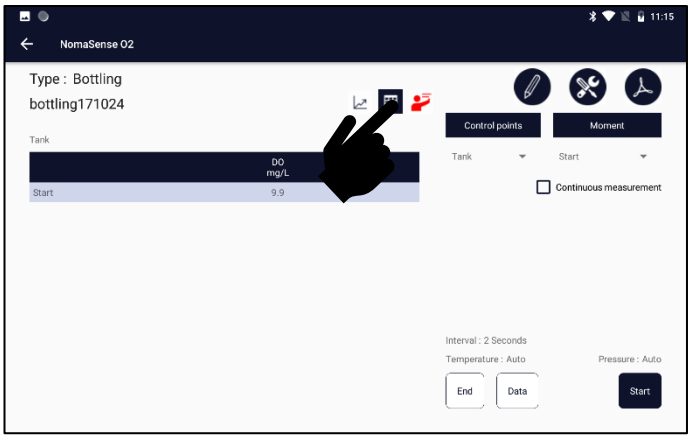
Once the oxygen value is stable, the padlock icon changes from to an easurement stops.

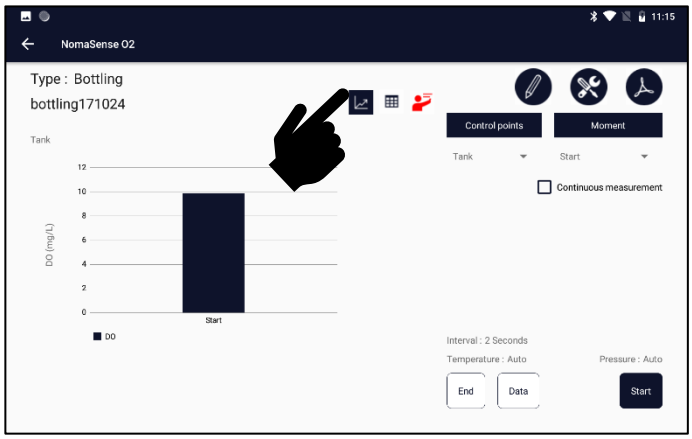
It is possible to restart a measurement.

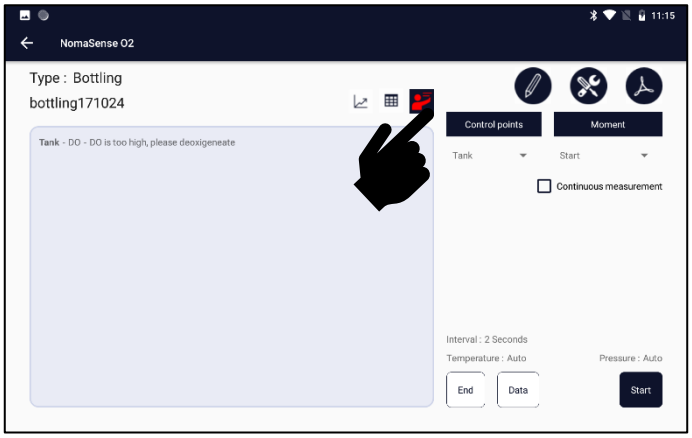
Press Ok ve the measurement

Press estart a measurement.

Press to add a comment to the measurement (bottle number, corking head, CO_2 concentration, etc.)



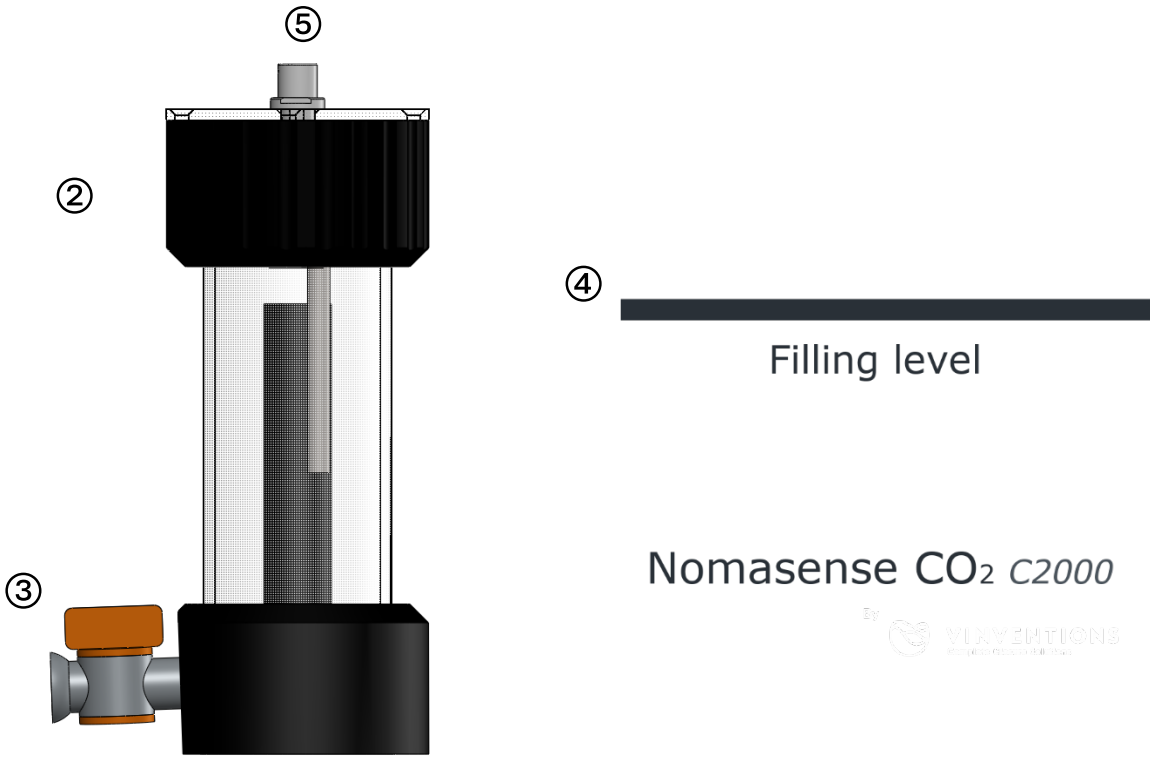




Results can be viewed in 3 ways (graph, table and expert rules), using the icons opposite to switch between views.

Press “Finish” to return to the home screen. You can return to tracking via the “Data” menu.

1.3-4. Start a CO_2 measurement



① Select the control point and the moment of measurement and, if necessary, select the CO_2 measurement



② Unscrew the lid

③ Close the valve

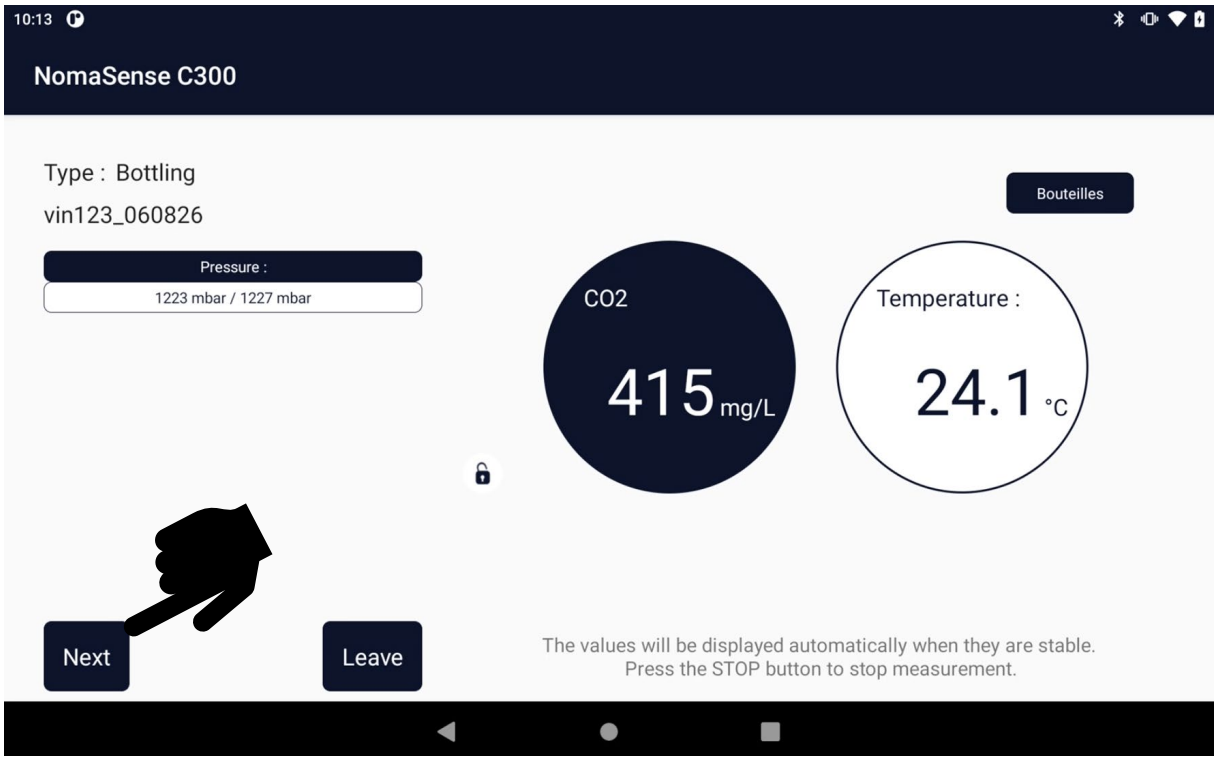
④ Fill with wine up to the fill line (the level affects the measurement)

Hold the device horizontally and open the valve to adjust the level

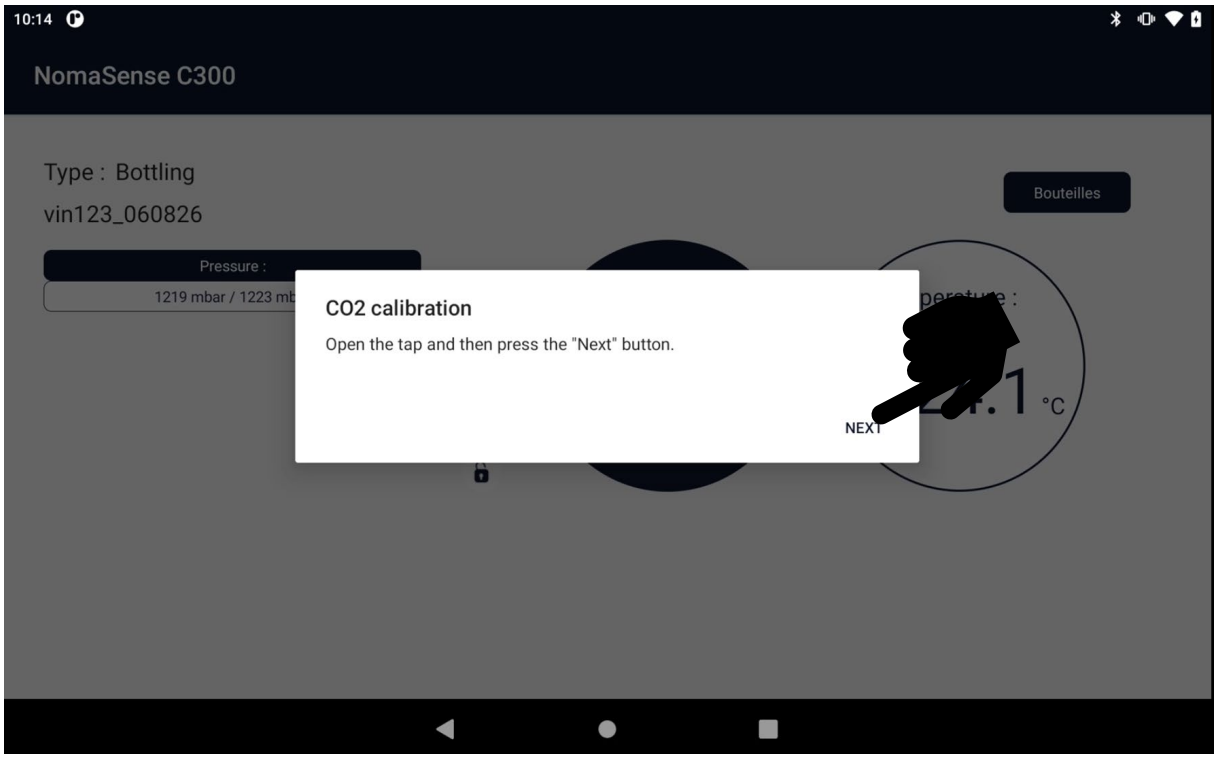
Close the valve and screw the lid back on

Shake vigorously for 10 seconds

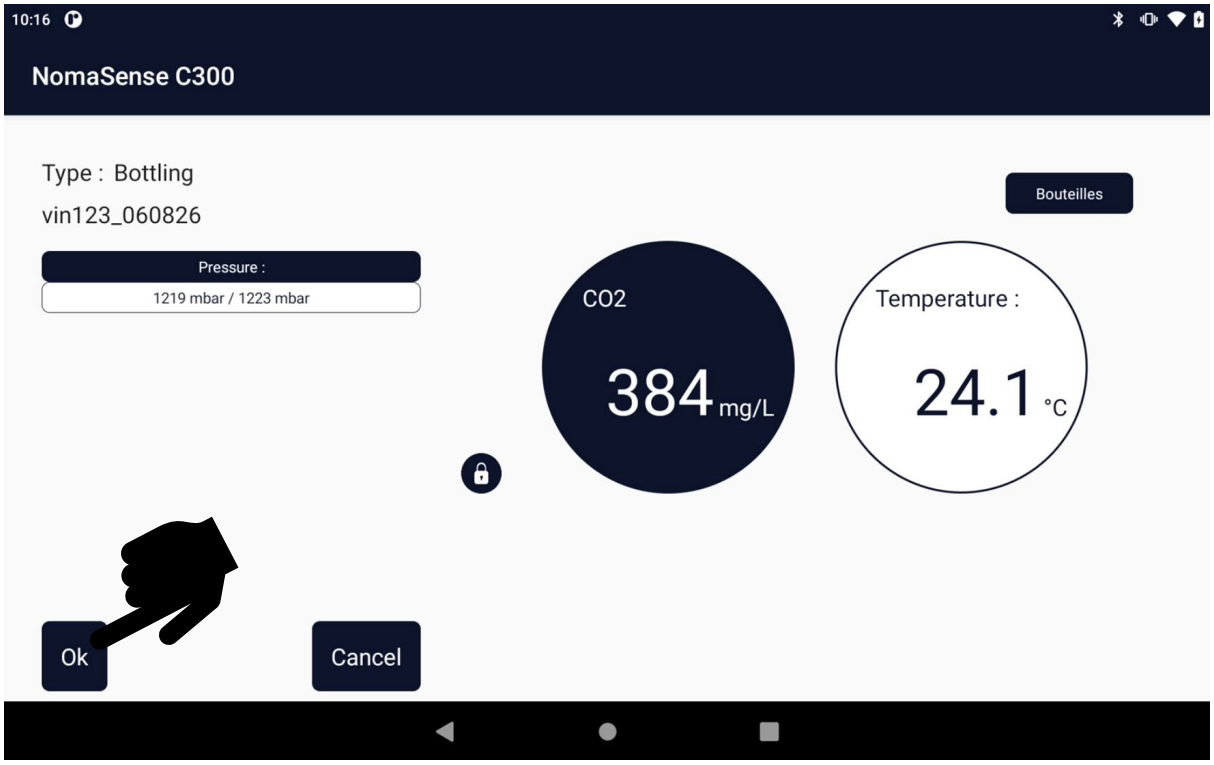
⑤ Connect the cable to the tablet and to the CO_2 measuring device and press “Start” Read the displayed value, shake again and read the displayed value again. If the value is stable (± 30 mg/L), press “Next”.



Open the valve to release the pressure, then press “Next”.



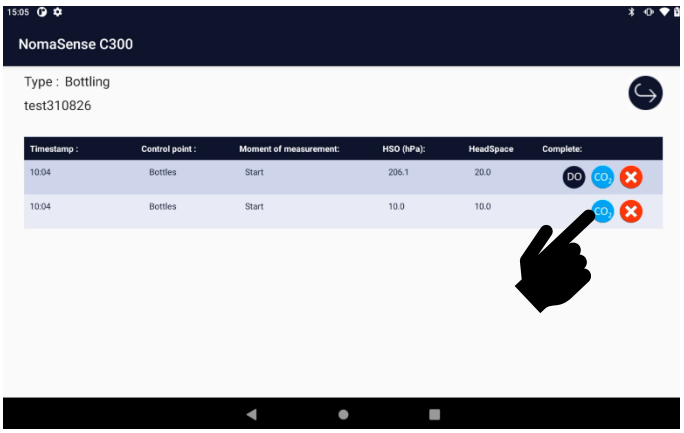
Press “OK” to save the result.



NB: The dissolved CO_2 concentration changes quickly after a bottle is opened.

When measurements are made on BIBs or bottles in addition to the TPO measurement, the first measurement to be made is HSO. The CO_2 measurement must be launched by pressing the "DO & CO_2" button, then the CO_2 icon of the sample to be measured.

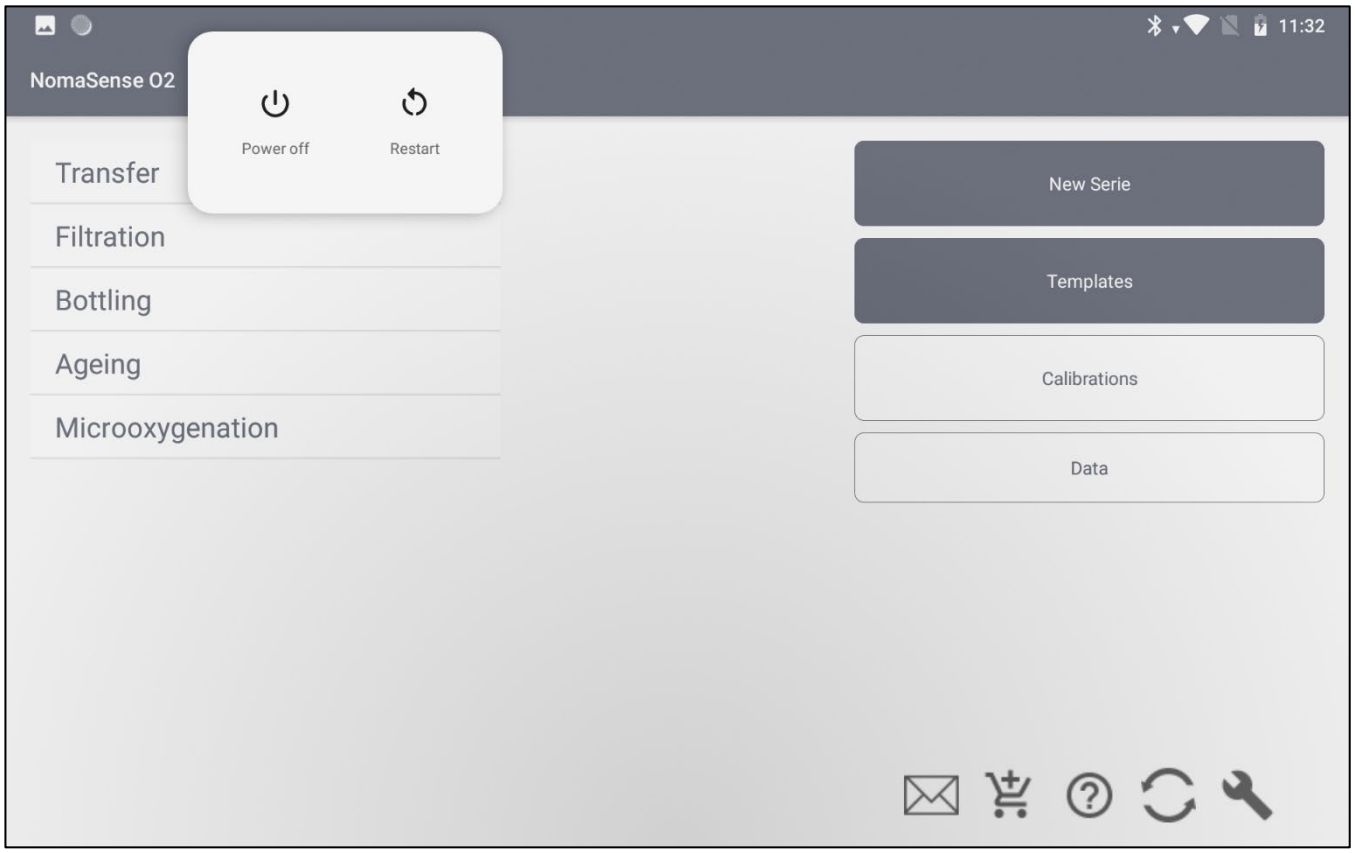




1.3-5. For TPO and other measurements: see the complete guide

1.3-6. Switch off the device

To switch the device off, press the power button until a message box “Power off” is displayed. Then press “Power off”. No need to close the app before.



1.3-7. Battery

Use the charger that is provided with the device.
Deep discharges might decrease battery capacity.

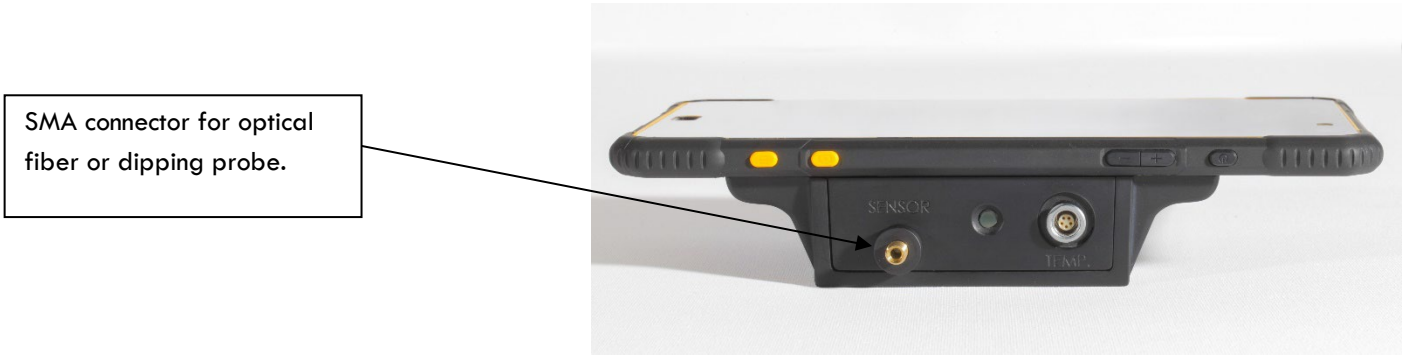
Battery can last more than 10 hours of measurement under normal conditions.
Do not forget to switch off the device after use: even in standby mode, the device consumes energy.

2. Full guide

2.1- Device and accessories

2.1-1. Nomasense O_2 C300

2.1-1.1. Connect a sensor or an optical fiber



Connect a dipping probe or an optical fiber to the SMA connector



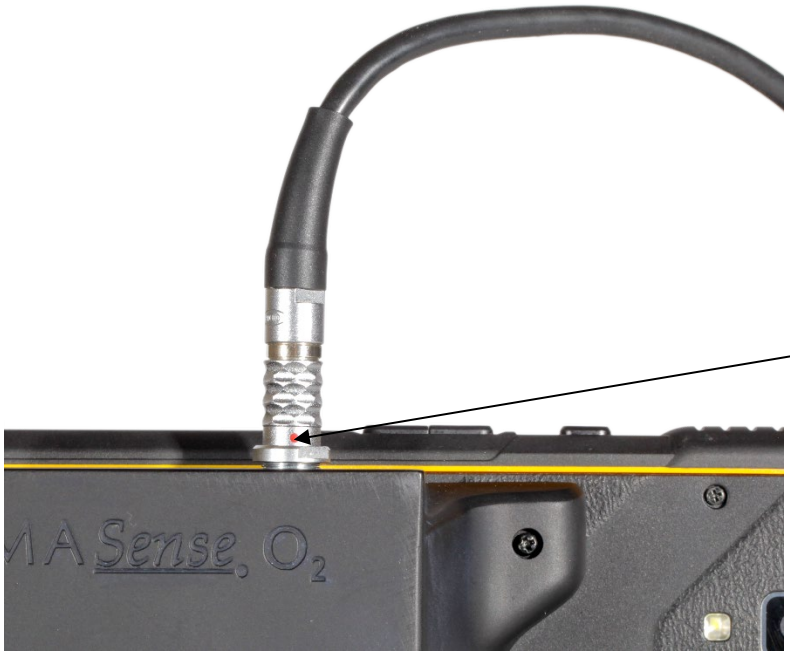
Connect a dipping probe or an optical fiber to the SMA connector, screw manually and moderately.

When no optical fiber or dipping probe is connected to the device, replace the red plastic cap on the connector to protect it from dust.

If the red cap is lost, you can leave the short optical fiber connected to protect the device from dust.

2.1-1.2. Connect the temperature probe



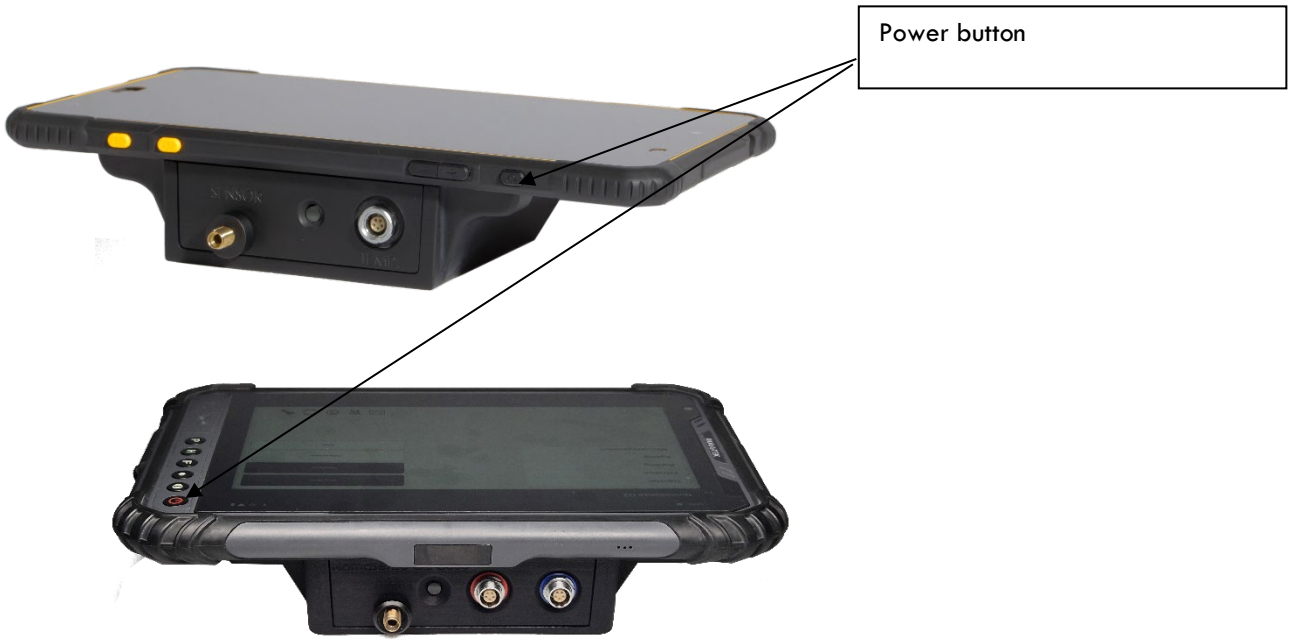


2.1-1.3. Connect a CO_2 measuring device

Only on the 2-connector version. Earlier versions can be upgraded: please contact us at wqsorder@vinventions.com.



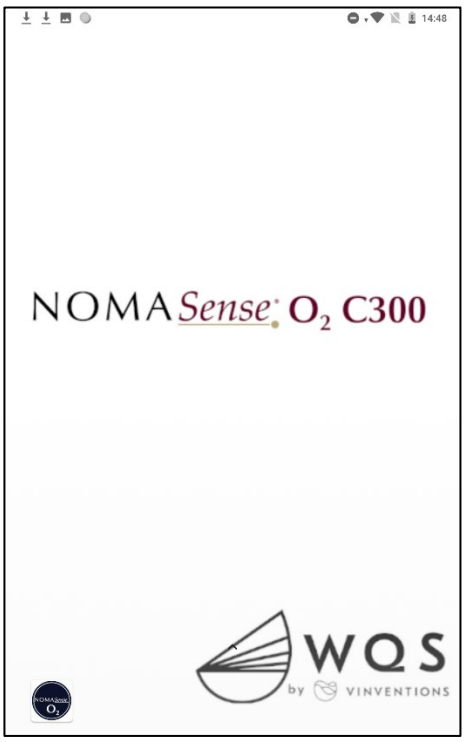
2.1-1.4. Start up the device

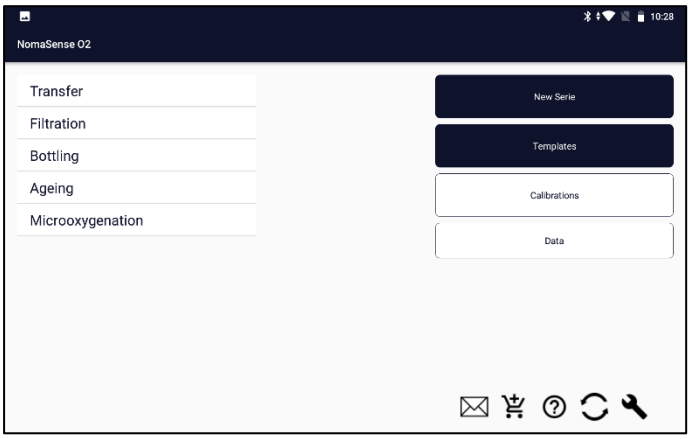


To start the device up, press the power button for 3 seconds if the device is off. If the device is in standby mode, briefly press the power button.

If the device does not start, please check that the battery is not totally depleted.

Once the device has started, please press the icon  to launch the app.





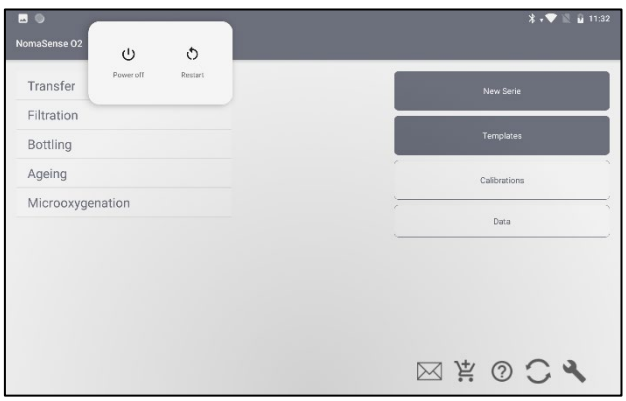
Home screen Nomasense O_2 C300

If the icon is not on the home page, please slide the screen with your finger to view other pages.

Once the app icon is pressed, a message box is displayed to indicate that the measurement device is connecting (this can take up to 15 seconds). The home screen is then displayed.

2.1-1.5. Switch off the device

To switch the device off, press the power button until a message box "**Power off**" is displayed. Then press "**Power off**". No need to close the app before.



2.1-1.6. Battery

Use the charger that is provided with the device.

Deep discharges might decrease battery capacity.

Battery can last more than 10 hours of measurement under normal conditions.

Do not forget to switch off the device after use: even in standby mode, the device consumes energy.

2.1-2. Temperature probe

A PT100 temperature probe (accuracy ± 0.5 °C) comes with the device to allow an automatic temperature compensation for each measurement.

When possible, we recommend using automatic temperature compensation with the temperature probe.

When it is not possible to use the probe (for example measurement through a sight glass), please enter manually the temperature of the liquid when measuring in a liquid or the ambient temperature when measuring gaseous oxygen.

As the temperature probe connector is a "foolproof" connector, please refer to paragraph 2.1-1.2.



2.1-3. Optical fibers

Optical fibers are used to measure oxygen with dot sensors. Dot sensors can be glued in a bottle, in a sight glass, in the syringe of the piercing system or in the Flowcell.

Short optical fiber

Resistant thanks to its stainless steel housing.

Can't be used with the Flowcell.



Long optical fiber

Handle with care: **do not bend**.

Several lengths are available: from 1 m to 10 m.



2 SMA optical fiber

For measuring through a sight glass with an adapter for continuous measurement.

Handle with care: **do not bend**

The best solution to measure with the Flowcell.



Optical fibers do not have sensors. They can only be used to measure on sensor spots.

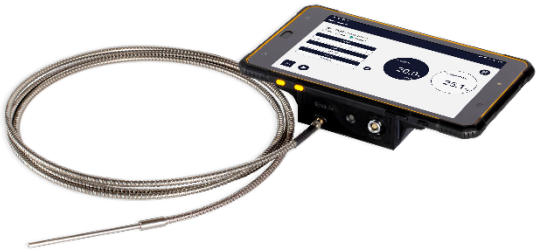
2.1-4. Dipping probe

Dipping probes are used to measure dissolved oxygen in tanks or bottles. Dipping probes have a sensor with its own calibration. They can't be used to measure on sensor spots.

A QR code comes with the sensor to facilitate calibration input into the device.

Each sensor has its own calibration, and using an inappropriate calibration leads to inaccurate measurements.

Even in reinforced version with a metal shell, dipping probes must be handled with care. Please do not bend the optical fiber.



After use, replace caps on both ends of the probe: the red cap on the probe itself to protect the sensor from light and the one on the SMA connector to avoid dust entering the connector.

2.1-5. Dot sensors

Dot sensors are designed to measure through **uncolored transparent glass only.**

Each batch of dot sensors has its own calibration. A QR code comes with the batch of sensors to facilitate the calibration input.

Each batch of dot sensors has its own calibration and using an inappropriate calibration leads to inaccurate measurements.





Dot sensors have to be glued with food grade silicone glue. Several diameters are available:

- 5 mm for bottles
- 10 mm diameter for sight glasses.

Keep the dot sensors inside their black pockets to protect them from light (must be used within 4 years after production date). When dot sensors are glued on bottles or sight glasses, please keep them in a dark and cool place.

Identify the calibration that corresponds to the glued sensors on the bottle itself to enable accurate measurements in the future.

For gluing dot sensors, see application note 3.1.

2.1-6. Piercing System

Piercing system is an accessory developed to measure headspace oxygen in bottle without preparing bottles and using dot sensors.



Piercing system allows sampling a small volume of gas in the headspace of the bottle with a syringe and making measurement in its syringe that is equipped with a dot sensor (provided).

Piercing system can be used on:

- Still wine with inner closures
- Still wine with screw cap
- Sparkling wine (specific device).

NB: Measurement on still wine can also be achieved with the sparkling wine version of piercing system.

When used to go through natural corks or (micro)agglomerates, small particles of cork can sometimes clog the needle. When you make measurement on these types of closure, use a small needle to unclog the needle holes of the piercing system. See application note 3.8.

2.1-7. Flowcell

The Flowcell is an accessory designed to measure dissolved oxygen in a tank at the sampling tap, instead of using the dipping probe.

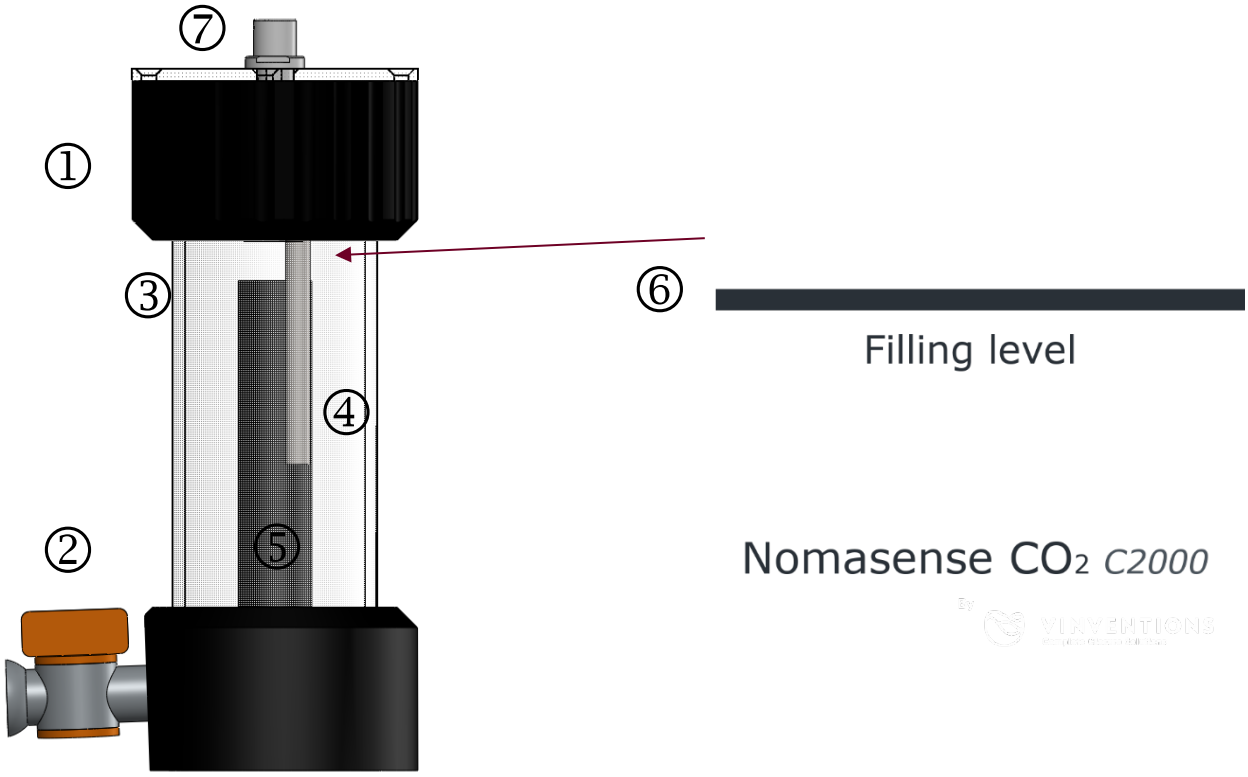


The Flowcell can be used with a 2 SMA optical fiber (optimal solution) or a long optical fiber. The short optical fiber can't be used to measure with the Flowcell.

Wine temperature has to be entered manually in the app for a correct measurement. A dot sensor is glued in the Flowcell and can be changed easily.

Tubes must be adapted to fit the sampling tap.

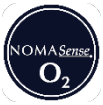
2.1-8. CO_2 measuring device

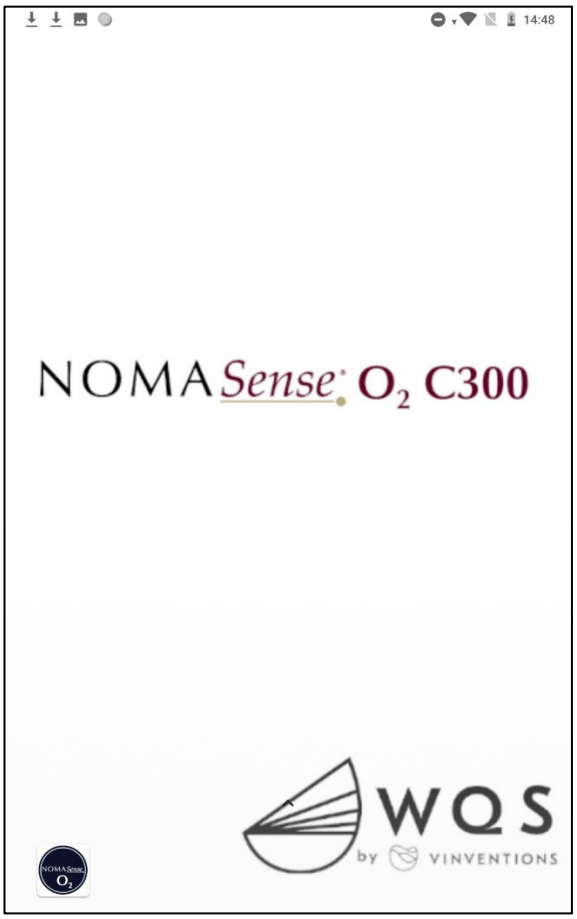


①	Screw-on lid
②	Leveling/venting valve
③	Tank
④	Temperature probe
⑤	Leveling tube
⑥	Fill line (label stuck on the tank)
⑦	Connector to the tablet

2.2- Application

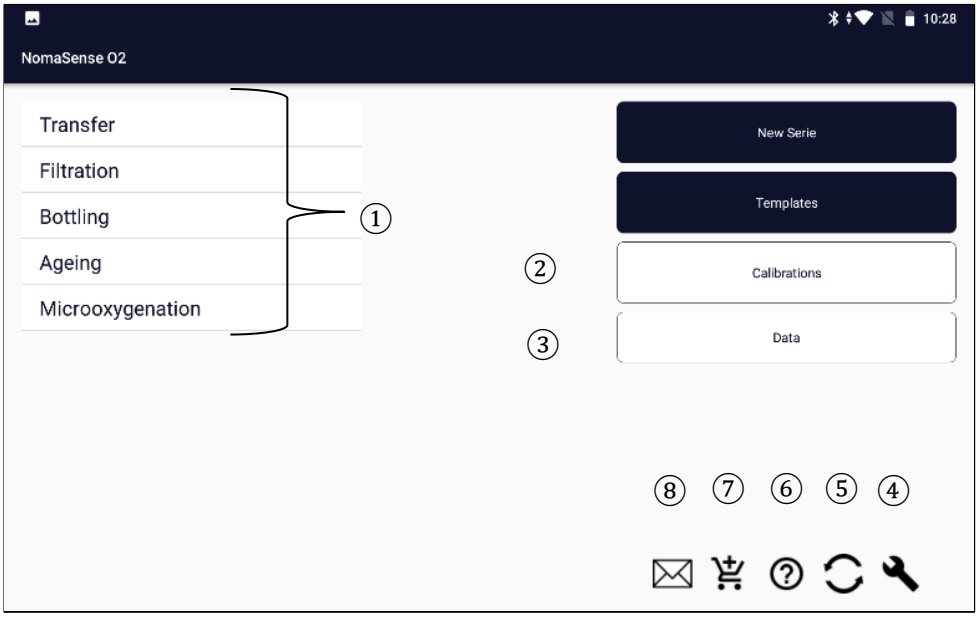
2.2-1. Launch the app

Once the device has started, please press the icon  to launch the app.



Once the app icon is pressed, a message box is displayed to indicate that the measurement device is connecting (this can take up to 15 seconds). The home screen is then displayed.

2.2-2. Home screen



①: measurement types

②: access to calibration management

③: access to previous measurements

④: access to settings

⑤: check the availability of a new version of the application

⑥: access to help

⑦: check subscription

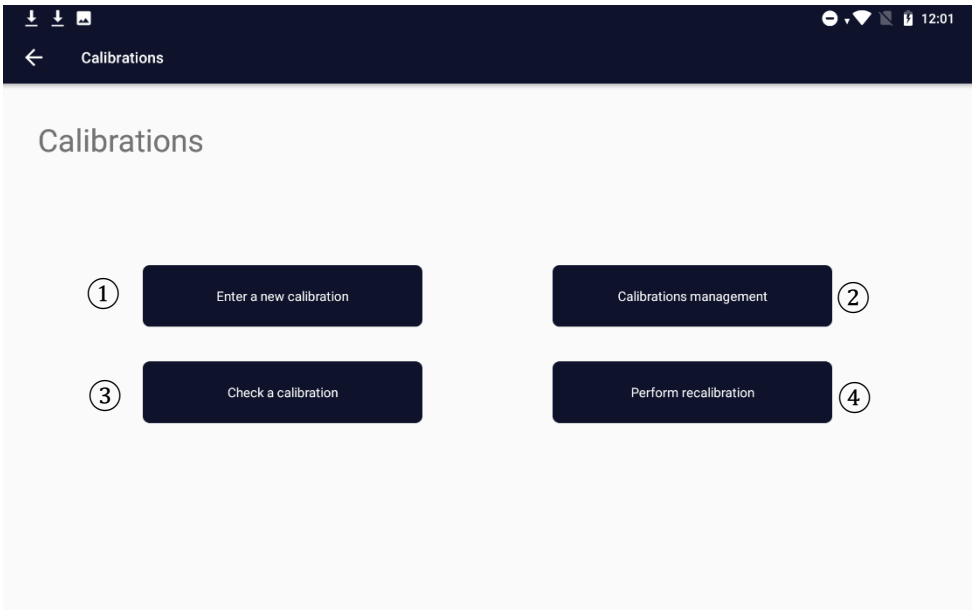
⑧: contact support

2.2-3. Calibrations



Depending on the configuration of your device, different types of calibration are available.

2.2-3.1. O_2 calibrations



①: **enter a new calibration.** Compulsory each time a new batch of dot sensors is used.

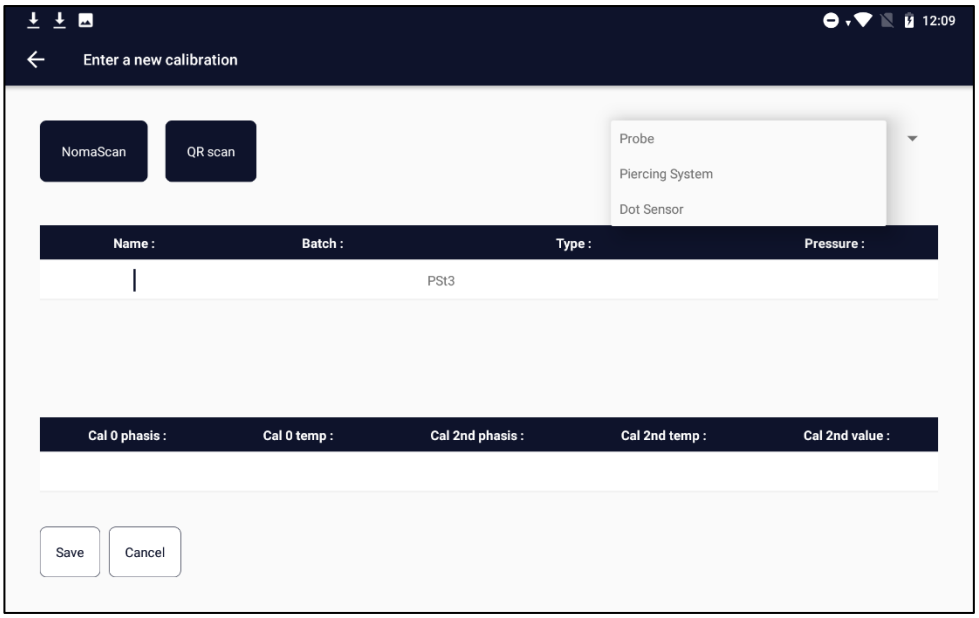
②: **calibrations management:** modify manually the parameters of a given calibration, select or unselect a calibration to make it appear or not in the available calibration list.

③: **check a calibration** with AIR measurement

④: **perform** a recalibration

2.2-3.2. Enter an O_2 calibration

2.2-3.2.1. Manually



To enter a new calibration manually, you have to:

- Give a name to the calibration that will allow you to recognize it in the list of available calibrations.

Select the type of sensor: probe, piercing system or dot sensor (for Flowcell select "dot sensor").

- Enter the parameters that are all available in the final inspection protocol sheet that comes with sensors.

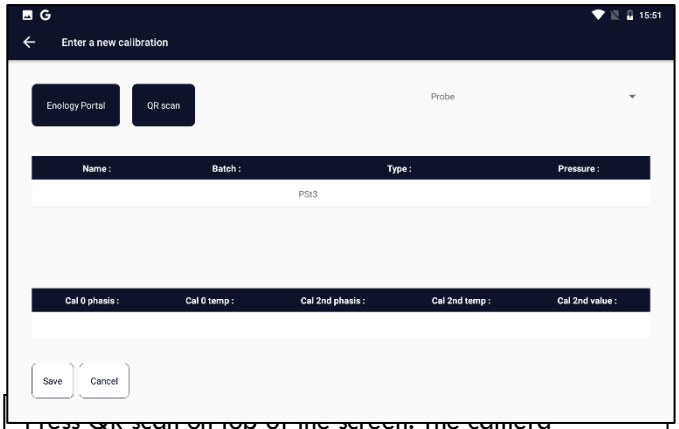
Press "Save".

2.2-3.2.2. With QR code

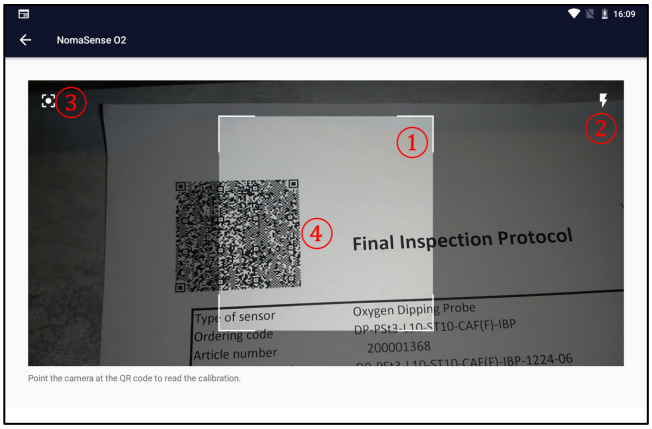
Sensors come with a QR code, it is possible to read the QR codes with Nomasense O_2 C300 and create a new calibration.
Press “QRscan” and use the camera below the device to read the QR code. Once QR code is read, fields are automatically filled in. Please check them.

- Enter a name for the calibration that will allow you to recognize it in the list of available calibrations.
- **Select the type of sensor: probe, piercing system or dot sensor (for Flowcell select “dot sensor”).**

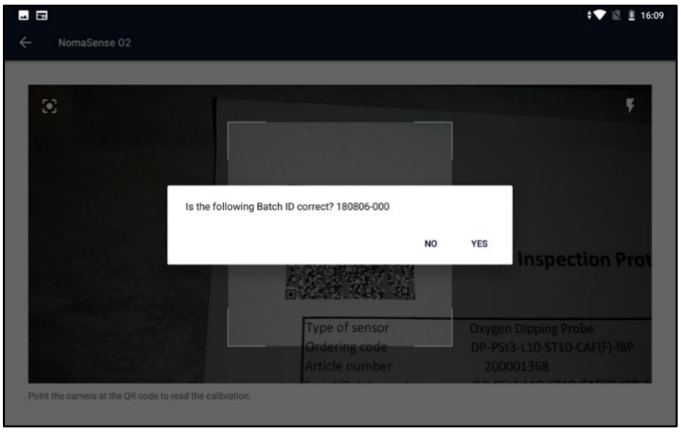
Press “Save”.



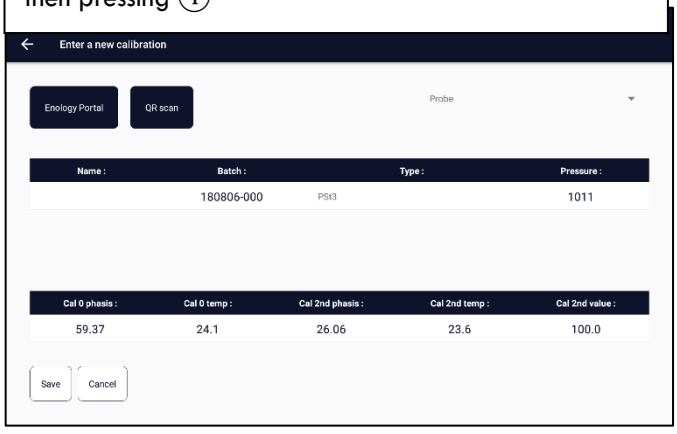
switches on.



Place the QR code in the light frame.①
It is possible to switch off the light by pressing②
It is also possible to force the focus by pressing ③ and then pressing ④



Once the QR code is read, check that the correct batch id is displayed.

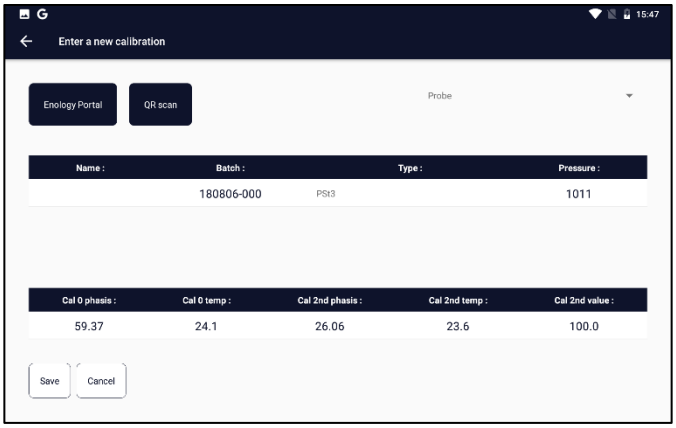


Enter a name, select a type of sensor and press “Save”.

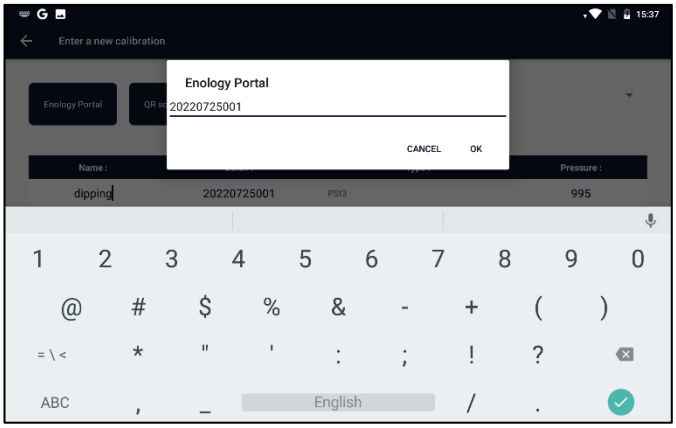
NB: if the name is entered before reading the QR code, it will be deleted when reading.

2.2-3.2.3. Through recorded data in the cloud calibration database

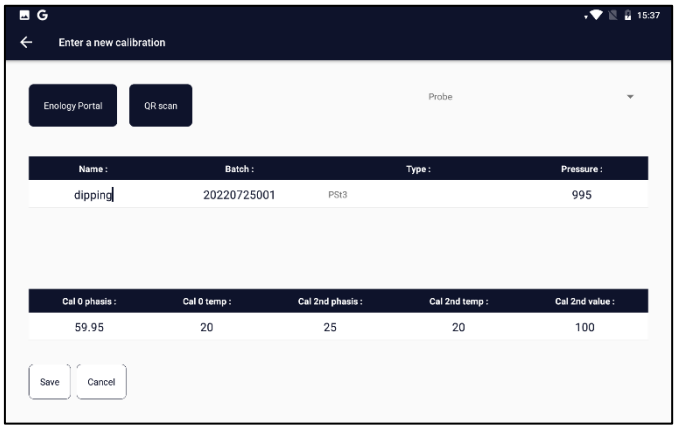
Factory calibrations from batches sold from October 2022 are available in a cloud server (vinventions.enologyportal.wqs.wine). If a Wi-Fi connection is available, it is possible to download data from the cloud database to create a calibration. For that:



Press “Enology Portal”

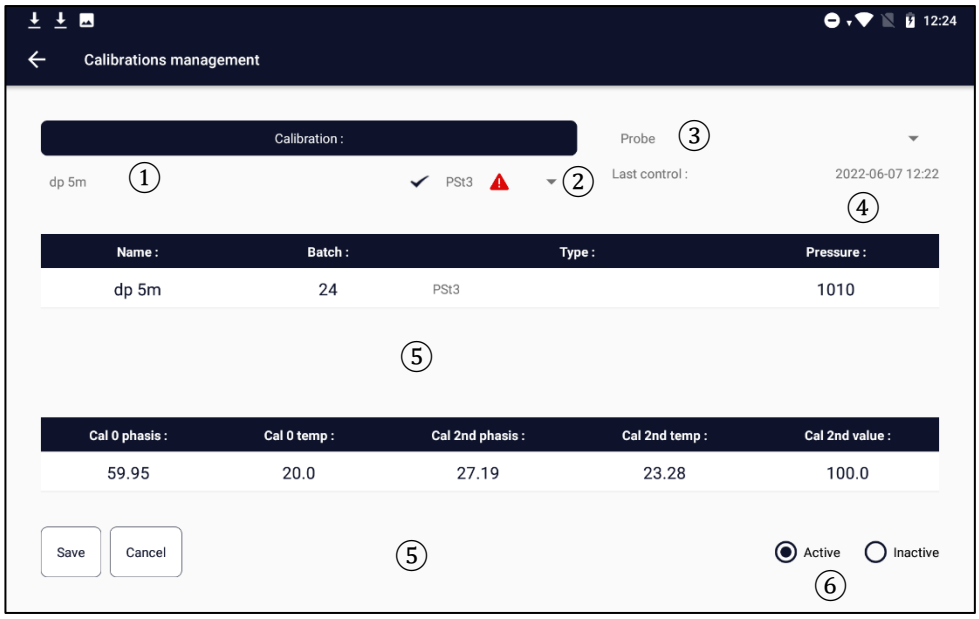


Enter the “batch id” and press OK



Enter a name and select a sensor and press “Save”

2.2-3.3. O_2 calibration management



All the following parameters can be changed in this view. Press “Save” to save the changes.

①: calibration name

②: calibration status:

- Red flag: last calibration check wasn’t passed; ➔ recalibration is needed
- Orange flag: calibration wasn’t checked for a long time.
- No flag: everything is OK.

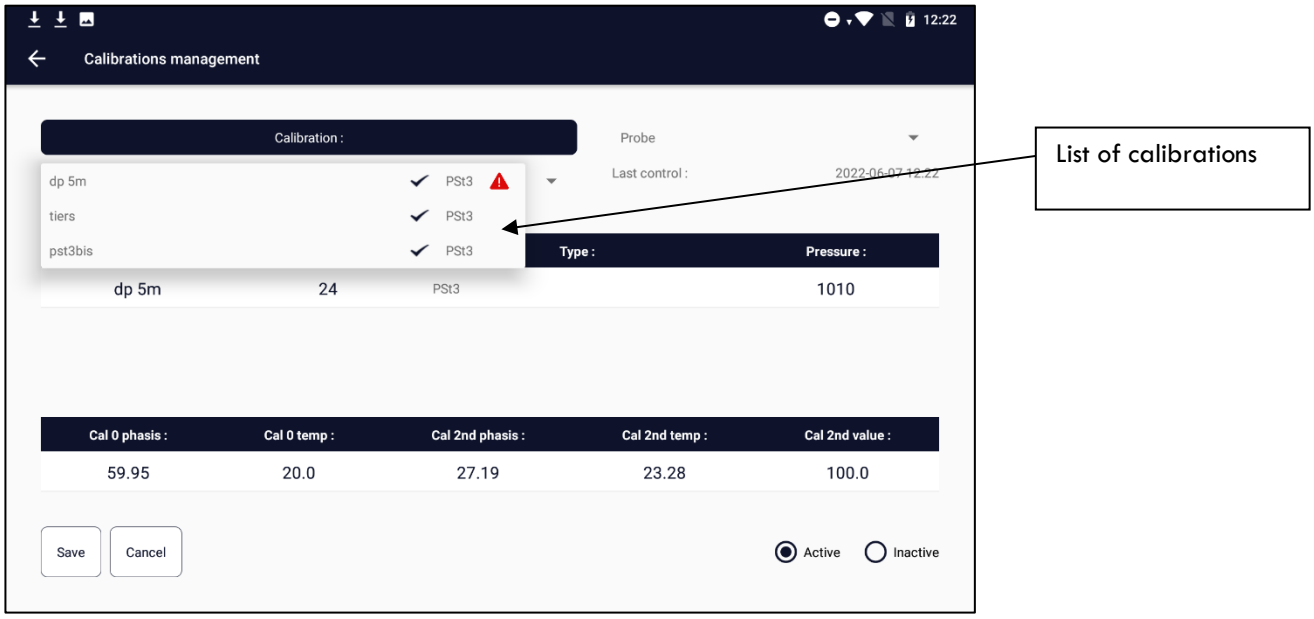
③: type of sensor

④: last control date

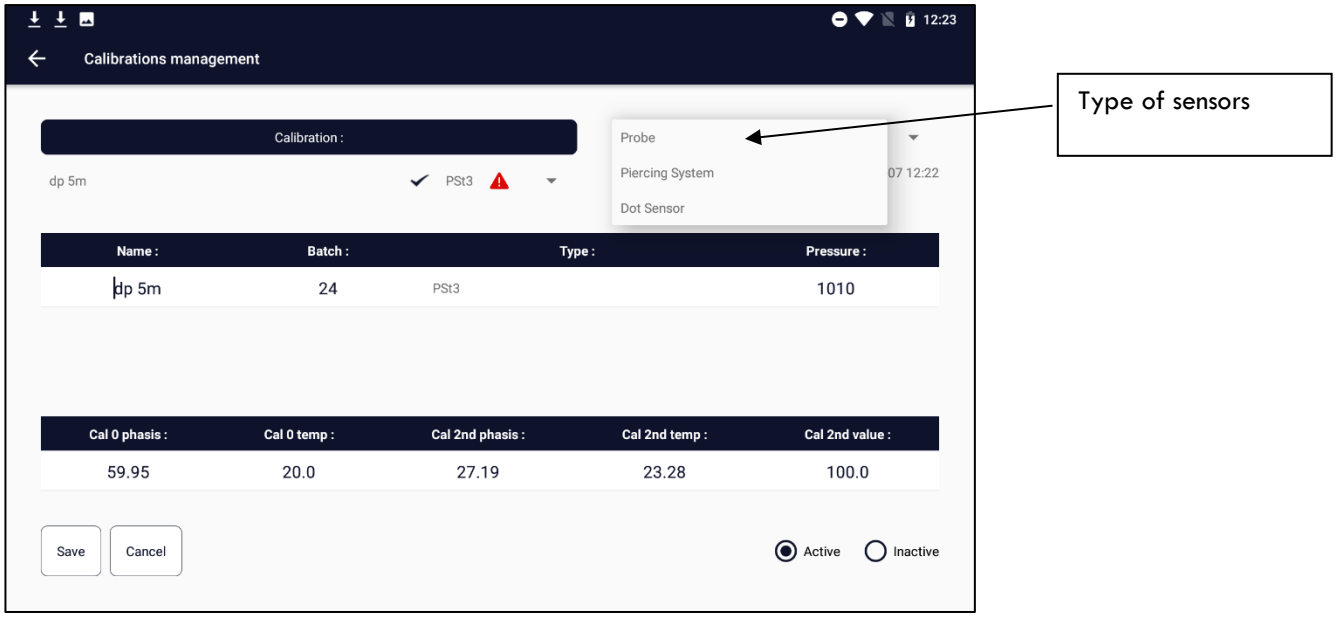
⑤: calibration data

⑥: enable/disable a calibration: if a calibration is inactivated, it won’t appear in the available calibration list in the measurement menu.

To select a given calibration, look for its name in the list of calibrations (zone 1).



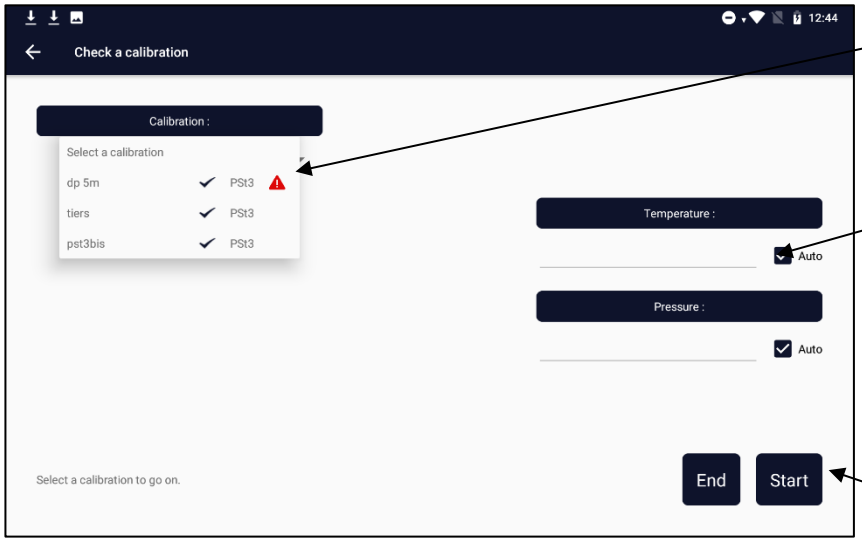
To change the type of sensor, you have to use the drop-down list:



2.2-3.4. Check an O_2 calibration

Before checking a calibration, place the sensor and the temperature probe in the room where you will check it for half an hour. It will allow the system to be perfectly equilibrated and will ensure best conditions to check the calibration. Sensor must be dry.

Connect the temperature probe to the device to use automatic correction of temperature.



Select the calibration

We recommend choosing "auto" for pressure (uses internal barometer) & temperature (uses temperature probe). Nevertheless, you can choose to enter values manually for both parameters.

Launch control of calibration.

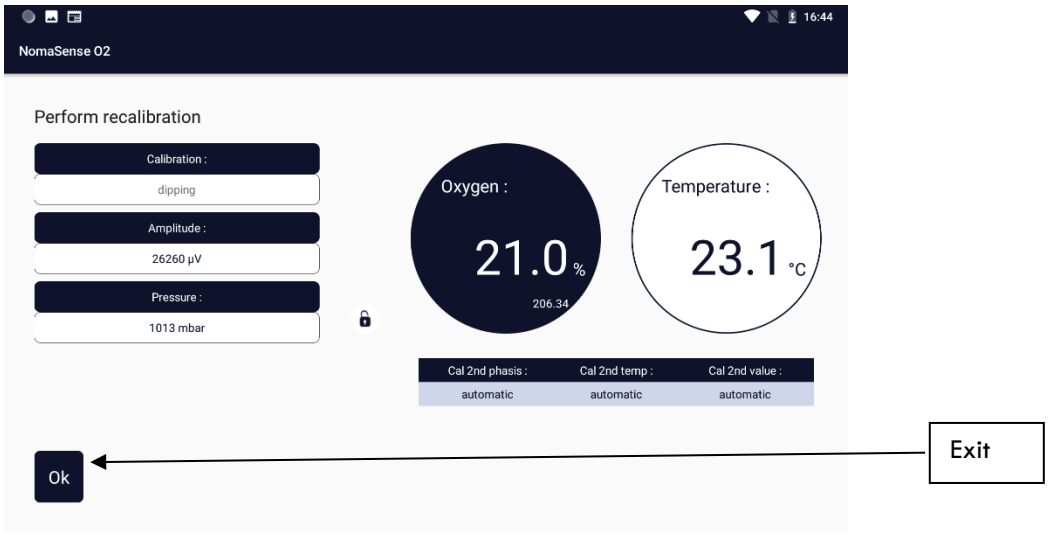
During measurement, the following screen appears:



$\%O_2$

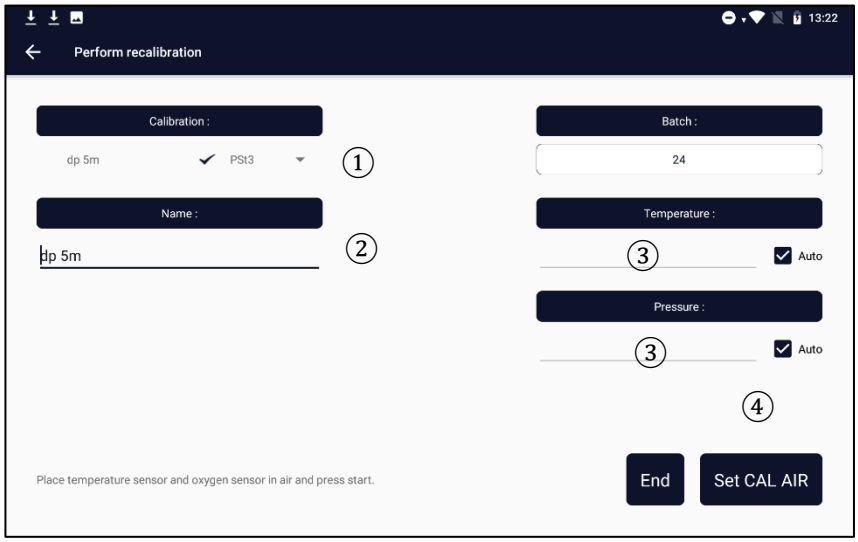
Temperature

Once the measurement is stabilized, $\%O_2$ is displayed. It must be between 19.5 and 22.5%. Otherwise, a recalibration is needed and a red flag appears next to the calibration name. Press "OK" to exit.



2.2-3.5. Recalibrate an O_2 sensor

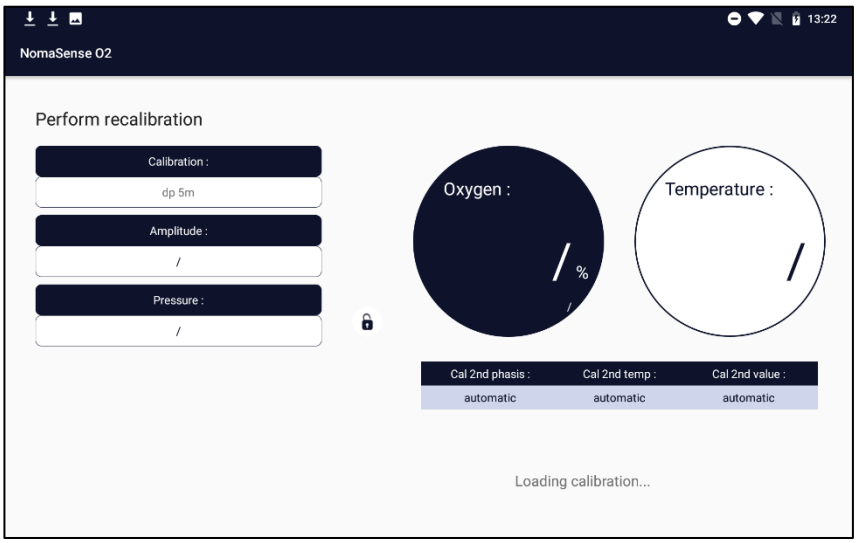
Before recalibrating a sensor, place the sensor and the temperature probe in the room where you will recalibrate it for half an hour. It will allow the system to be perfectly equilibrated and will ensure best conditions for recalibration. Sensor must be dry. Connect the temperature probe to the device to use automatic correction of temperature.



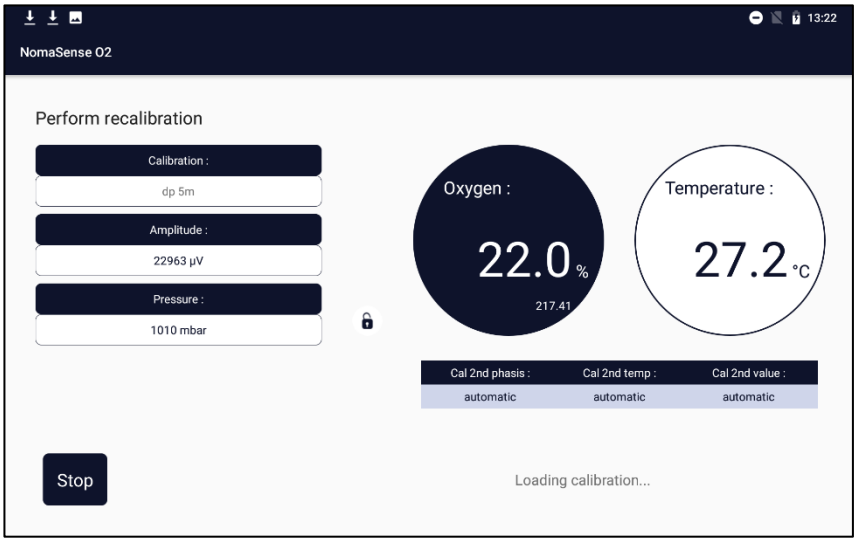
①: select the calibration

②: modify the name to duplicate the calibration during recalibration.

③: Temperature and pressure settings: we recommend selecting Auto for both.



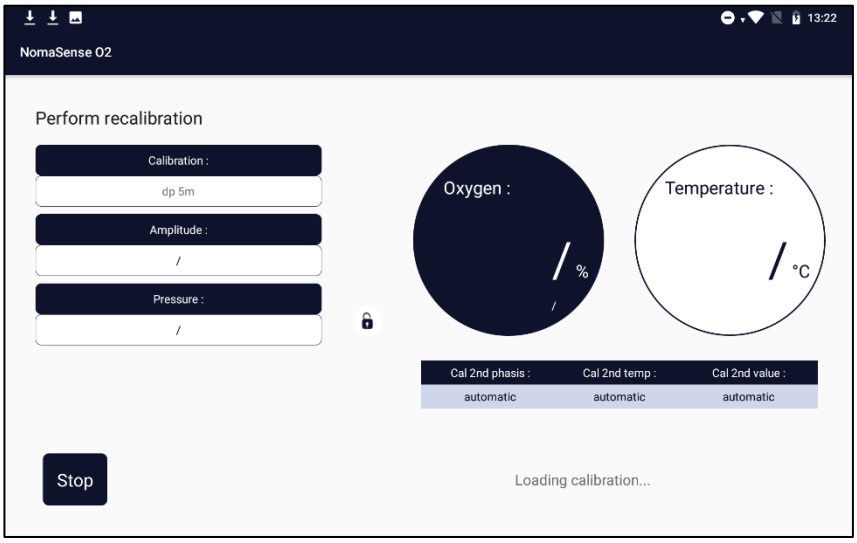
First, current calibration is loaded.



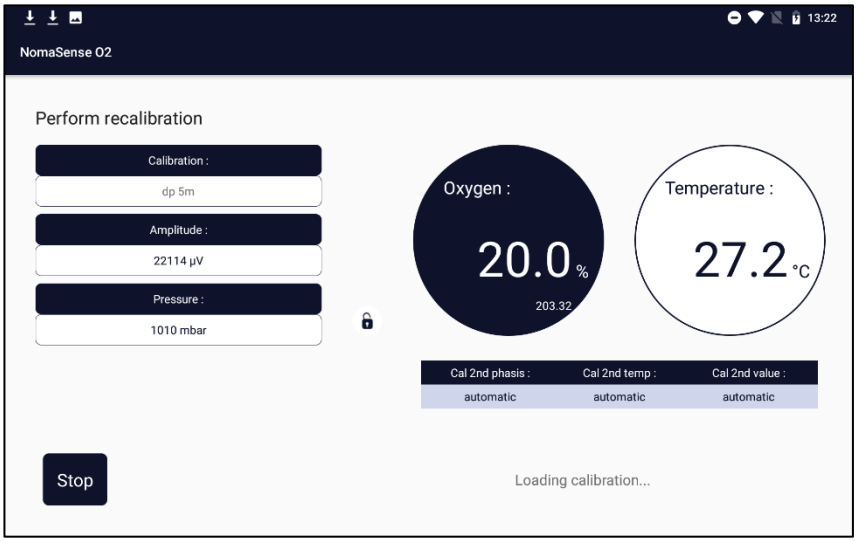
Signal intensity is adjusted



Calibration is then adjusted.



Modifications are saved and the calibration is reloaded.



Calibration is checked.

If the amplitude is under 10,000 µV after recalibration, try to launch the recalibration again. If the signal remains too low:

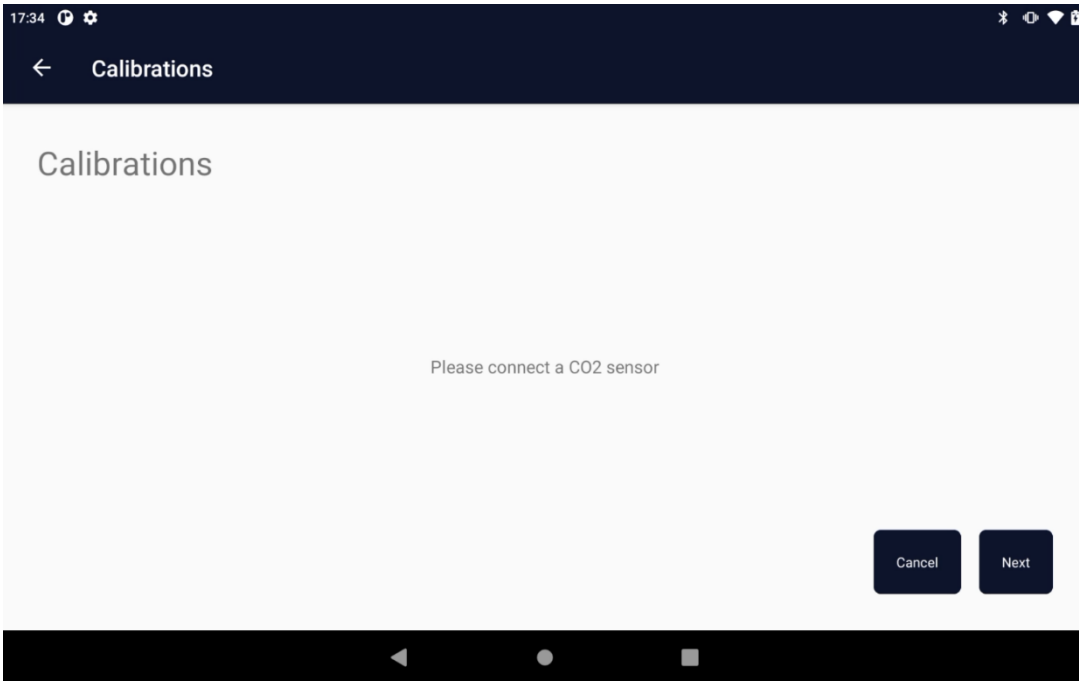
- Optical fiber can be broken and must be changed
- Dot sensors are too old and must be changed
- Glass wall is too thick and 10 mm dot sensors should be used.

2.2-3.6. CO_2 calibrations

Connect your CO_2 measuring device, with the tank empty.

Open the valve.

Press “Next”



NB: it is recommended to perform the CO_2 calibration when the device is started up.

2.2-4. Measurements

2.2-4.1. Compensation of sugar concentration & alcohol content

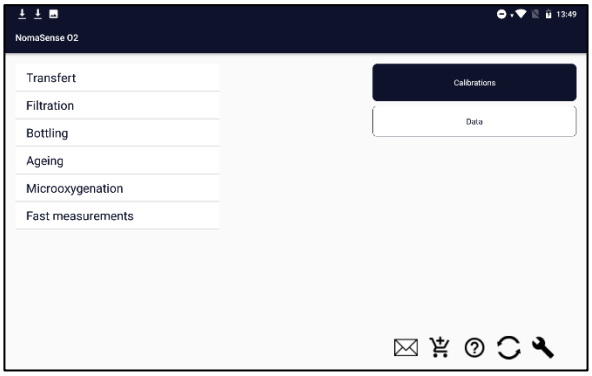
Alcohol and sugar concentration have an impact on solubility of oxygen, which is used in the determination of the value of dissolved oxygen. Nomasense O_2 C300 has an automatic compensation of the amount of alcohol and sugar in the liquid to get the most accurate and reliable value of dissolved oxygen.

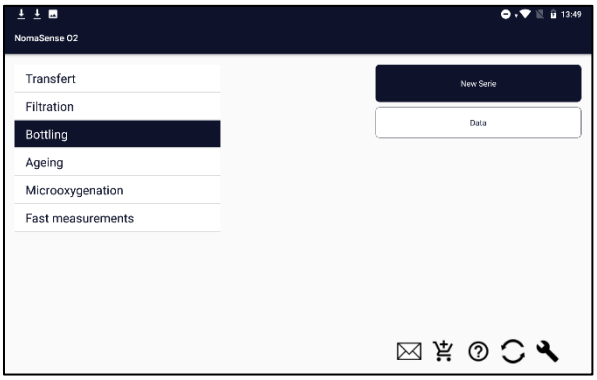
2.2-4.2. Measurements

All the measurements are saved in the local database and in a cloud database.

The measurements are organized in “series”. A series consists of several single measurements made at a given moment of the enological process, for instance during a wine transfer or a bottling session.

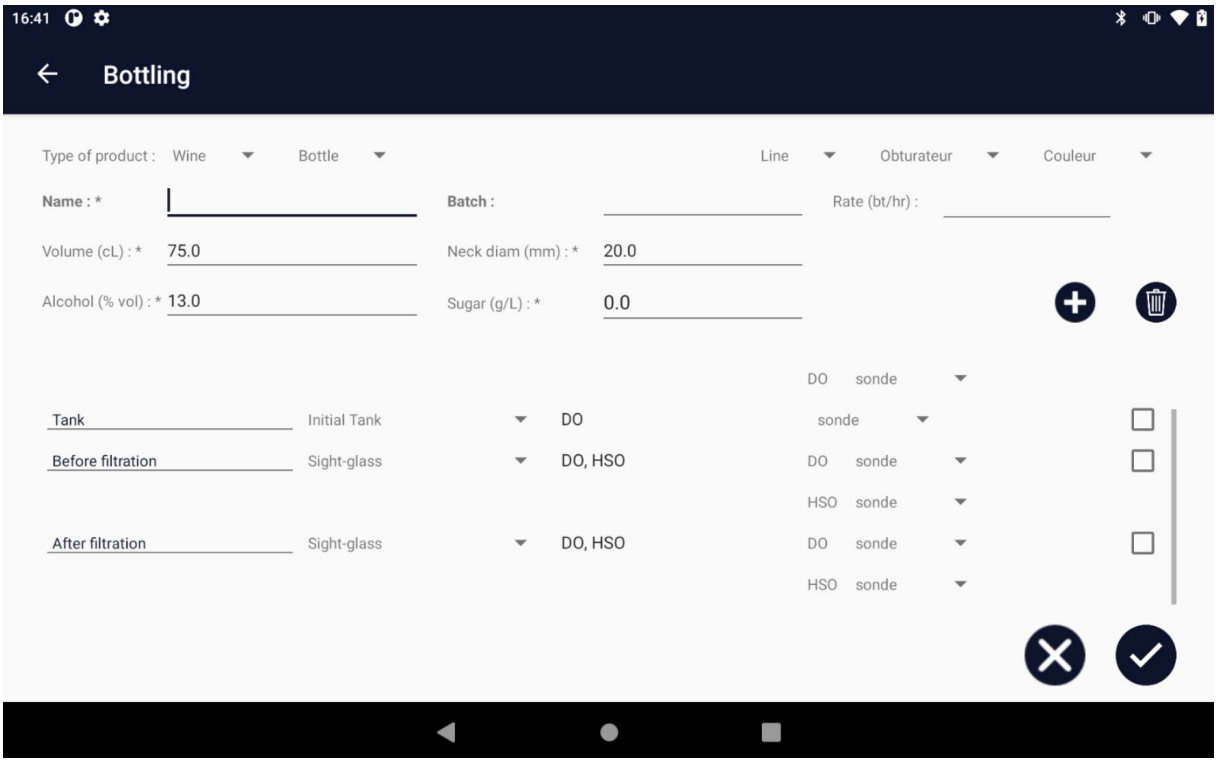
To monitor a process, select the appropriate moment of the enological process in the left column on the home page. Then press “**New series**”.





2.2-4.2.1. Create a new series

2.2-4.2.1.1. Enter series parameters



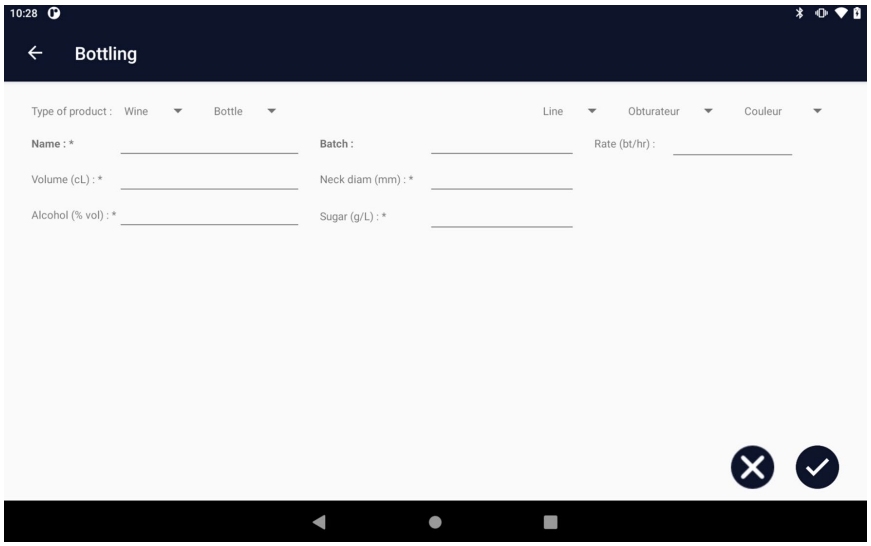
- Type of product:

It has to be chosen among 3 types of product available according to the moment of process:

- Must: no alcohol, sugar to be entered in g/L
- Spirit: level of alcohol to be entered in % vol, default value of sugar concentration 0 g/L
- Wine: default values 0 g/L of sugar and 13% vol of alcohol.

For bottling measurements, a secondary type will have to be chosen between bottle and BIB.

- A name has to be given to the series.
- Other parameters depend on the moment of process selected. For example, volume (cL) and neck diameter (mm) are mandatory for bottling process.
- Batch name is not mandatory, it allows to give further details on the wine/must/spirit itself.
- Depending on the type of monitoring, it is possible to select a color, a type of closure and a bottling line.



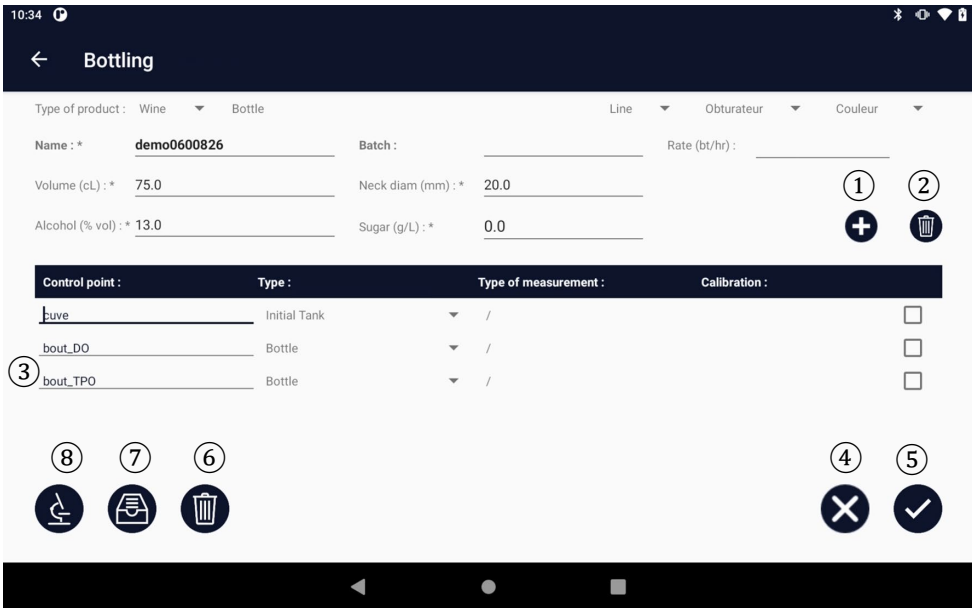
- Validate  to specify control points.

2.2-4.2.1.2. Control points

A "control point" is a place where a measurement will be made. For example, during a bottling session, measurements can be made at several places.

- Initial tank
- Sight glass
- Bottle
- …

Control points should be defined before starting the measurements in a series. They can be modified at any moment as explained later. The definition of control point will be made in the following screen:



①: to enter a new control point

②: to delete selected control point(s): measurements will be deleted

③: each line corresponds to a single control point. It is possible to have several control points with the same type (for example, several bottles)

④: to cancel all modifications

⑤: to save all modifications

⑥: to delete the whole series

⑦: to archive the series: measurements will no longer be available in the device but still available in the cloud database.

⑧: to access the table of all measurements that were made in this series. Some parameters of measurements (moment of measurement, headspace, cone volume, sample volume) can be modified from this screen.

2.2-4.2.1.2.1. Type of control point (where?)

For each process, types of control points are predefined, they have to be chosen in a list.

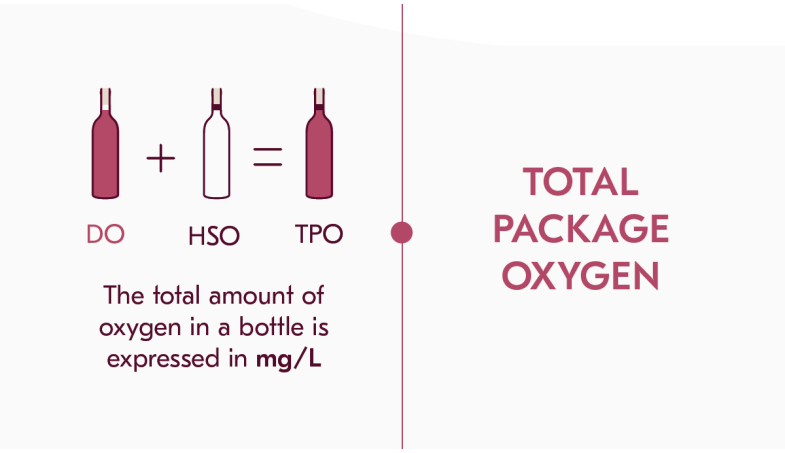
Type of monitoring	Types of control point available
Transfer	Initial tank
	Final tank
	Sight glass
Filtration	Initial tank
	Final tank
	Sight glass
Bottling	Initial tank
	Sight glass
	Bottle
	Bag in Box
Ageing	Tank
	Barrel
	Bottle
	Bag in Box
Microoxygenation	Tank
	Barrel

For control points of bottle or BIB: all measurements made at a given moment are averaged in graphs and tables. Individual measurements are accessible on the device (paragraph 2.2-4.2.5) and in the cloud.

2.2-4.2.1.2.2. Types of measurement (what?)

For each control point a type of measurement has to be defined. Several types are available:

- DO: dissolved oxygen (mg/L)
- HSO: headspace oxygen. It is used in this manual to designate also gaseous oxygen (hPa or $\%O_2$)
- DO & HSO: dissolved oxygen (mg/L) and headspace oxygen (hPa or $\%O_2$)
- TPO: total package oxygen (mg/L), only for Bottle and Bag in Box (BIB)
- CO_2: dissolved CO_2 concentration (bottles, tanks, BIB, barrels)



TPO is the sum of the quantity of dissolved oxygen and headspace oxygen per volume of wine (expressed in mg/L) in a BIB or a bottle.

2.2-4.2.1.2.3. Select a calibration (how?)

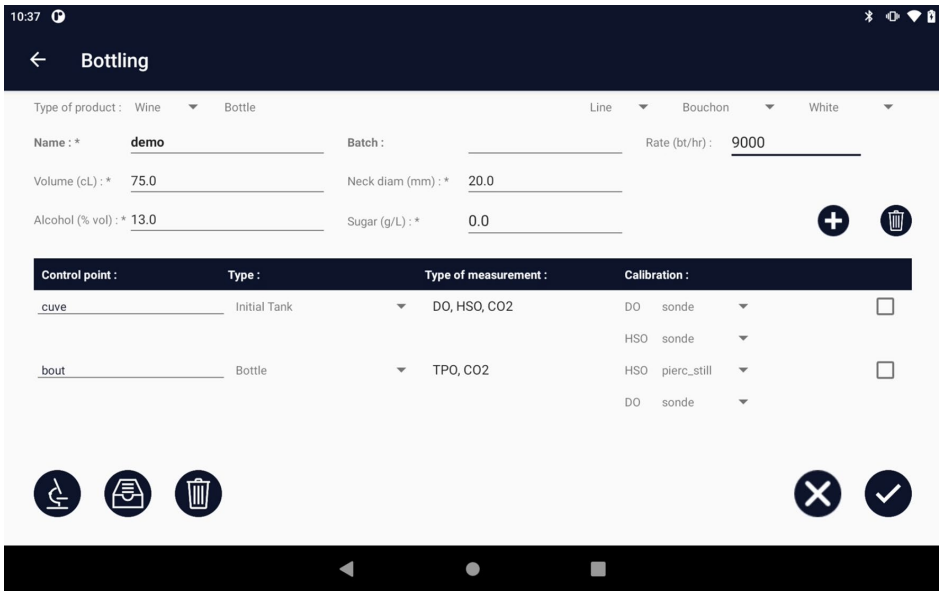
For each "**control point**" one or two calibration(s) (TPO and DO & HSO) must be selected, these calibrations correspond to sensors that will be used to make the measurements.

For CO_2, no calibration has to be selected.

Each sensor has its own calibration, and using an inappropriate calibration leads to inaccurate measurements.

When using a piercing system, make sure the calibration type is a piercing system one in the calibration management. It will allow to enter the volume of HS sample in the syringe and to calculate the HSO.

2.2-4.2.1.2.4. Modify a control point



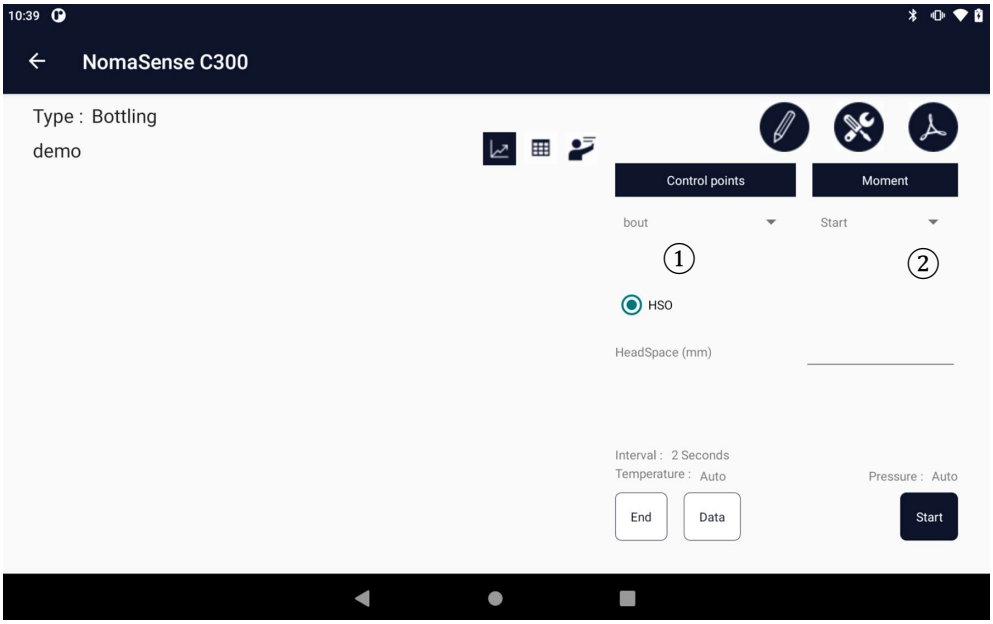
All control point information can be modified if no measurement has been made. Only the calibration can be modified if measurements have been made on the given point. Only the next measurements will be impacted by the change in calibration.

It is possible to access the series settings from the result screen by pressing

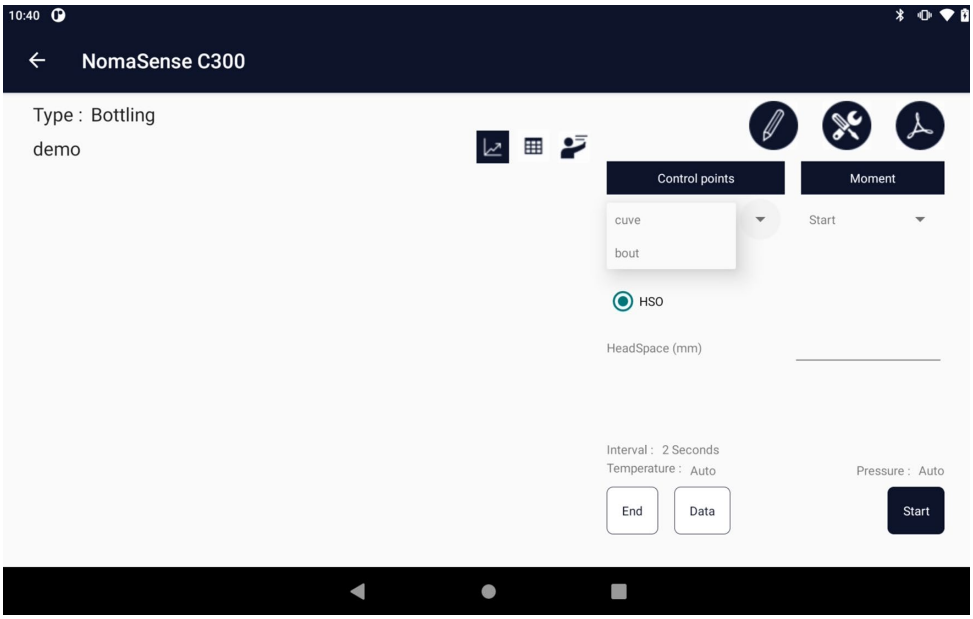
2.2-4.2.2. Launch a measurement

2.2-4.2.2.1. DO or HSO

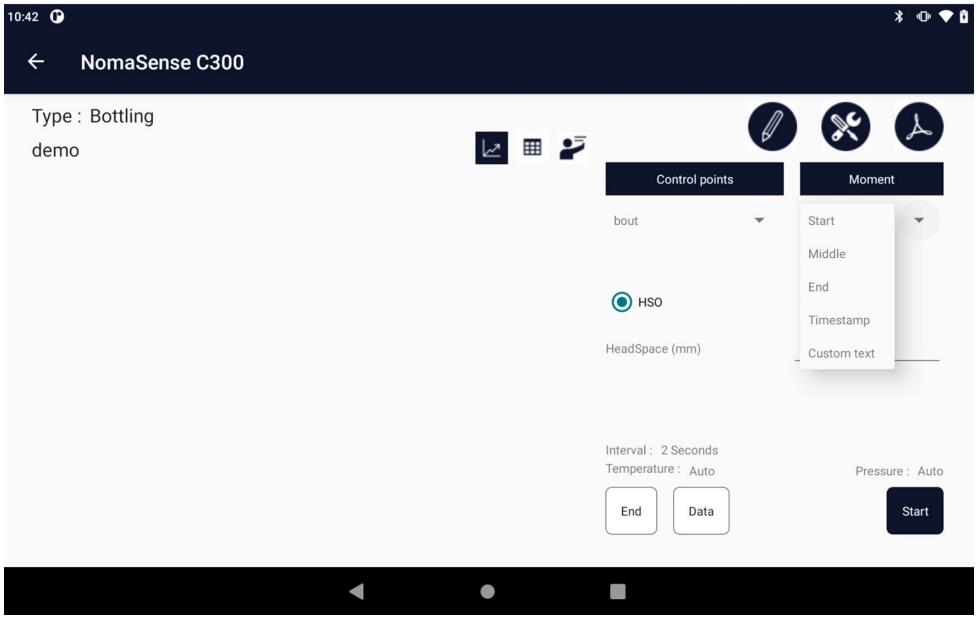
To measure, the control point and the moment of measurement have to be defined in the following screen:

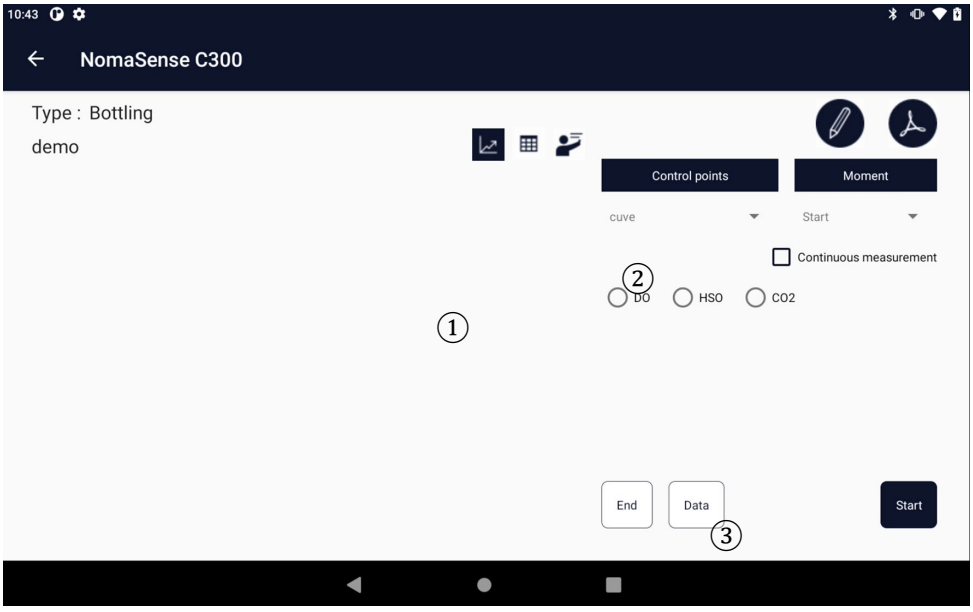


①: select a control point to measure



②: select a moment of measurement (depends on the process. For example, during bottling: start/middle/end/timestamp or custom text)





Then, type of measurement has to be defined:

①: select the type of measurement: DO or HSO or CO_2

②: to make a continuous measurement (not available for bottles, BIB and CO_2 measurement)

③: press "**Start**"

The calibration that was chosen for the control point is automatically applied.

In continuous measurement it is suitable to adapt interval of measurement to the duration of the process, for instance measurement every 5 minutes can be enough during a wine transfer.

2.2-4.2.2.2. TPO (Total Package Oxygen)



TPO is the sum of the quantity of dissolved oxygen and headspace oxygen per volume of wine (expressed in mg/L) in a BIB or a bottle.

2.2-4.2.2.2.1. TPO in bottle with piercing system

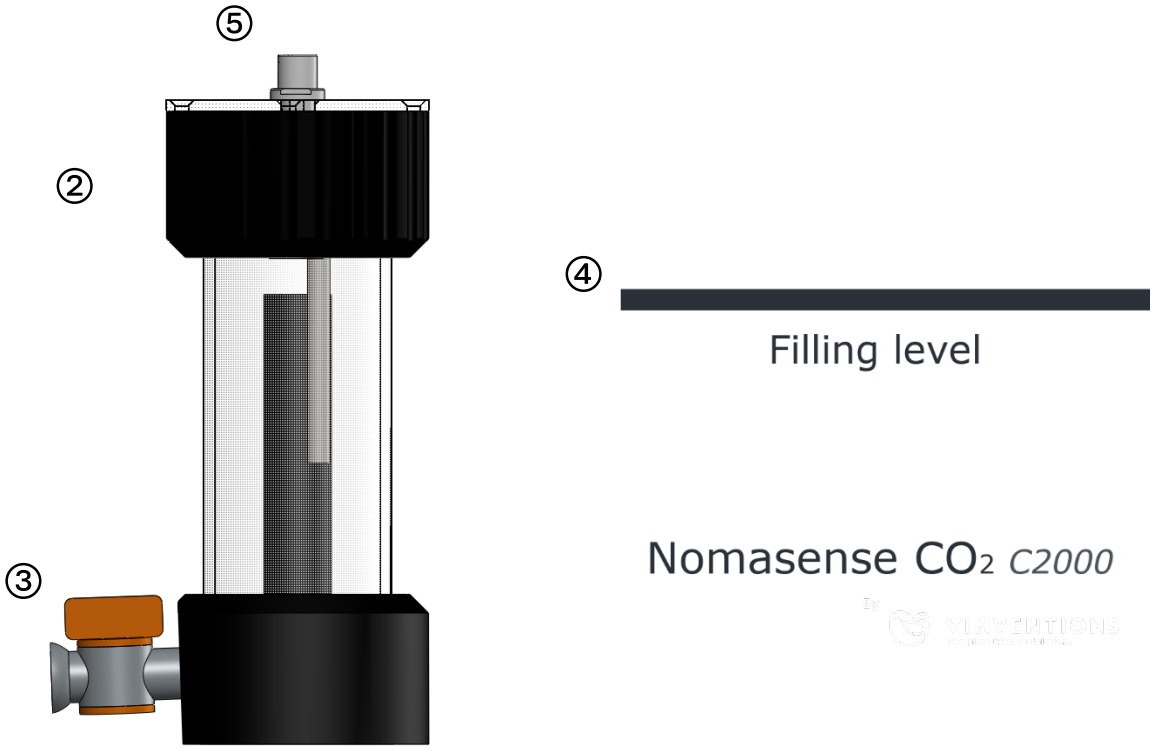
See application note 3.2-2.1

2.2-4.2.2.2.2. TPO in bottle with dot sensors

Wait at least 40 minutes after bottling for DO measurement with dot sensors.

See application note “3.2-2.2. With dot sensors”

2.2-4.2.2.2.3. Dissolved CO_2 measurement



① Select the control point and the moment of measurement and, if necessary, select the CO_2 measurement



② Unscrew the lid

③ Close the valve

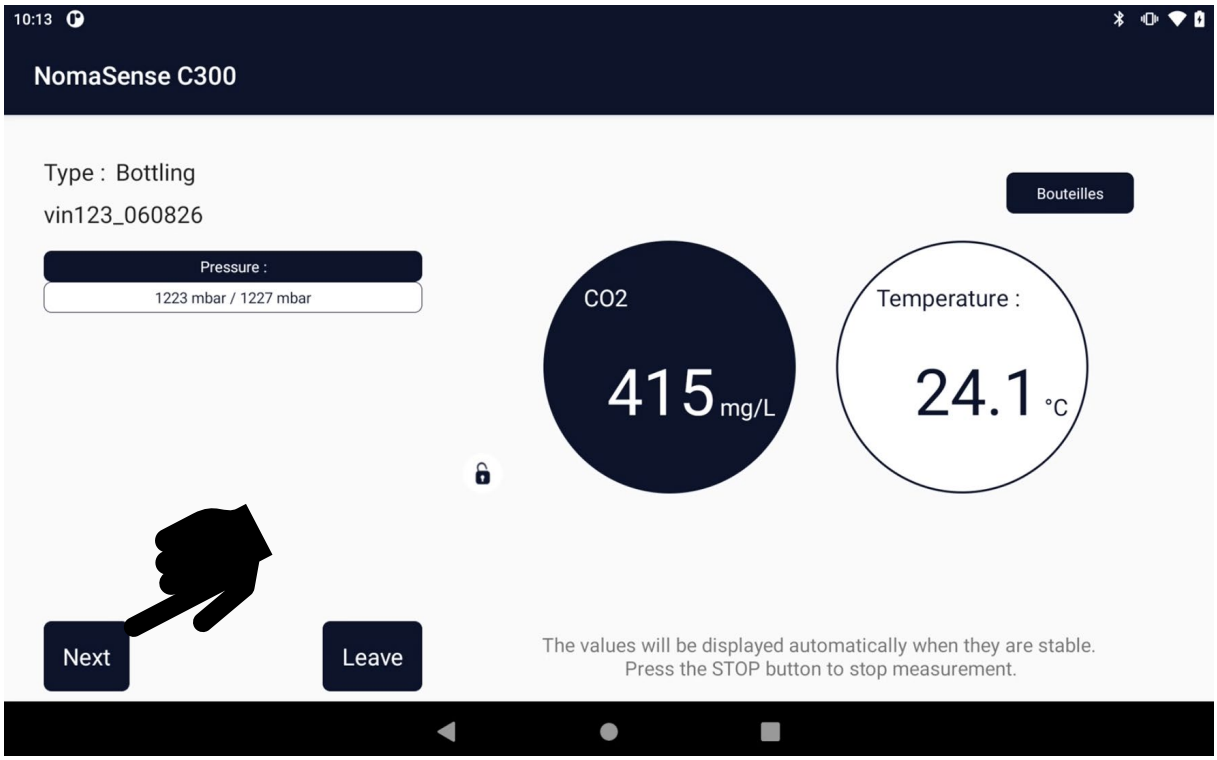
④ Fill with wine up to the fill line (the level affects the measurement)

Hold the device horizontally and open the valve to adjust the level

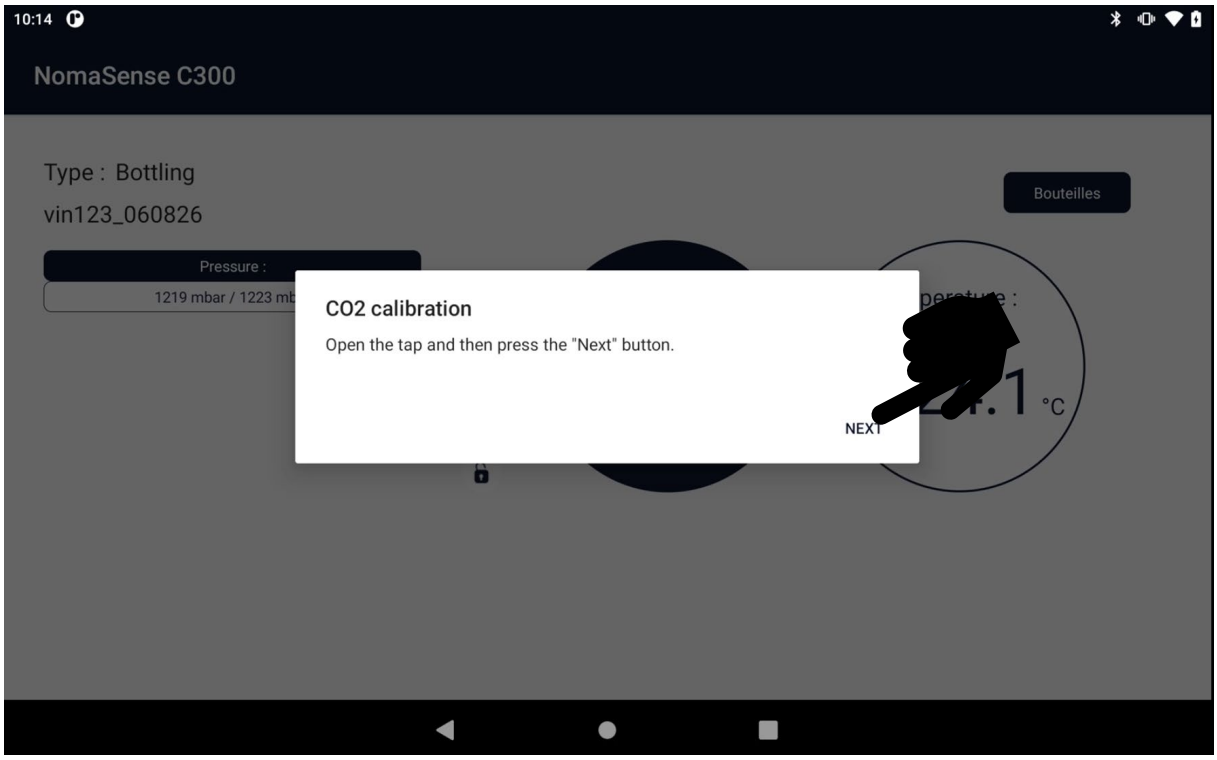
Close the valve and screw the lid back on

Shake vigorously for 10 seconds

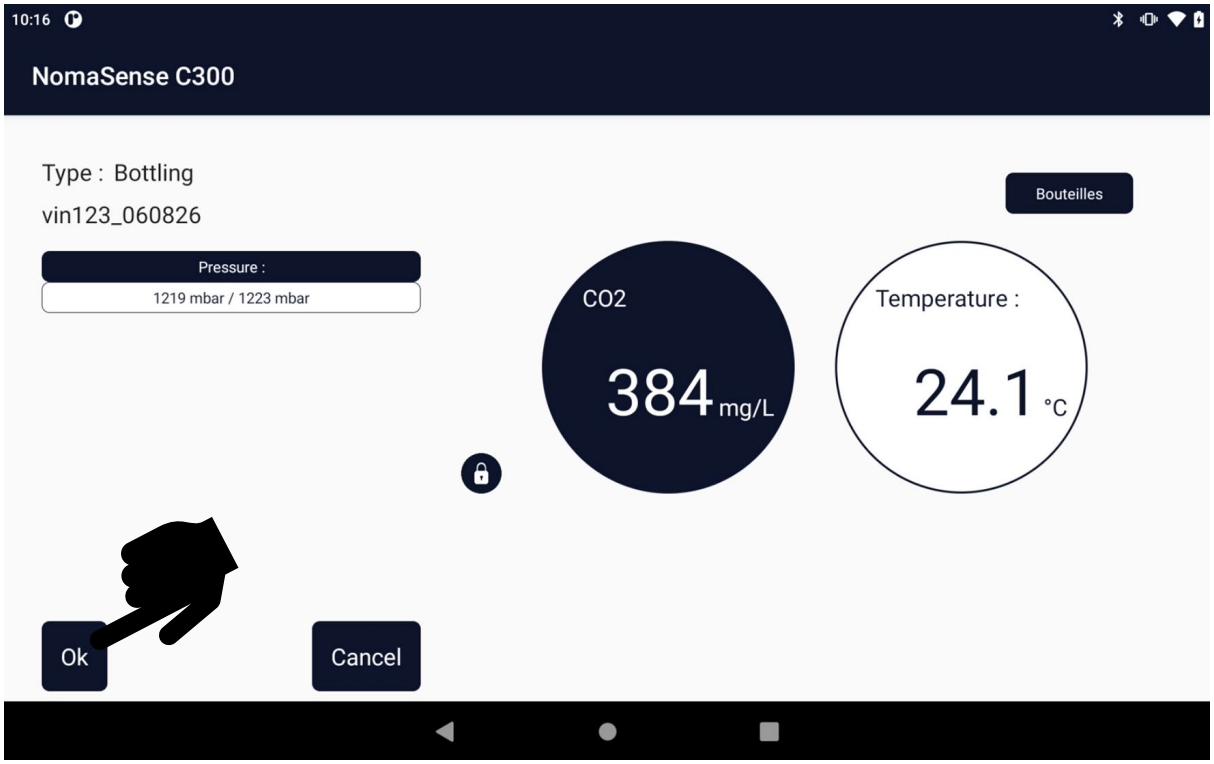
⑤ Connect the cable to the tablet and to the CO_2 measuring device and press "Start"
Read the displayed value, shake again and read the displayed value again. If the value is stable (± 30 mg/L), press "Next".



Open the valve to release the pressure, then press “Next”.

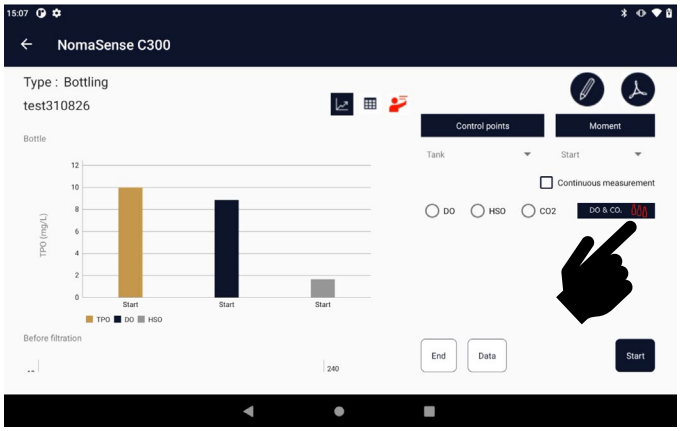


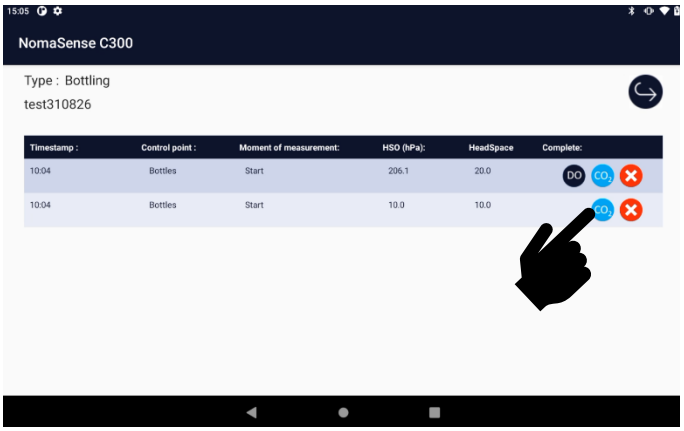
Press “OK” to save the result.



NB: The dissolved CO_2 concentration changes quickly after a bottle is opened.

When measurements are made on BIBs or bottles in addition to the TPO measurement, the first measurement to be made is HSO. The CO_2 measurement must be launched by pressing the "DO & CO_2" button, then the CO_2 icon of the sample to be measured.





2.2-4.2.2.2.4. TPO for BIB with equipped spout

See application note 3.3-

2.2-4.2.3. Results

Results can be displayed in graphs or tables. It is possible to switch from one view to the other by pressing the following icons:

Table view 

Graph view 

Expert rules 

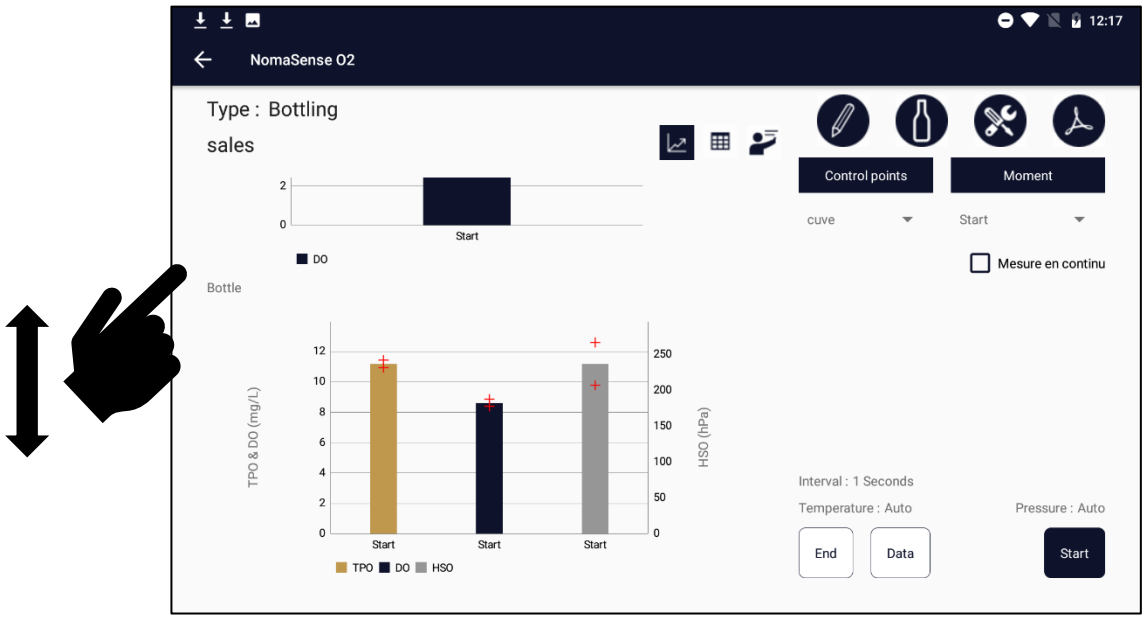
Results are always grouped by control points.

2.2-4.2.3.1. Graph view

Once the control point has at least one measurement, a graph is displayed for the control point with DO (mg/L), TPO (mg/L) and/or HSO (hPa) in y-axis and moment of measurement in x-axis.

If several measurements are made on a control point at the same moment, the average of their result is displayed in the graph. If number of measurements for a given control point is above 3, standard deviation is displayed on the graph.

For BIB and bottle control points, average and standard deviation are automatically calculated for measurements made at the same moment, even if you create several control points (for instance bottle 1, bottle 2…).

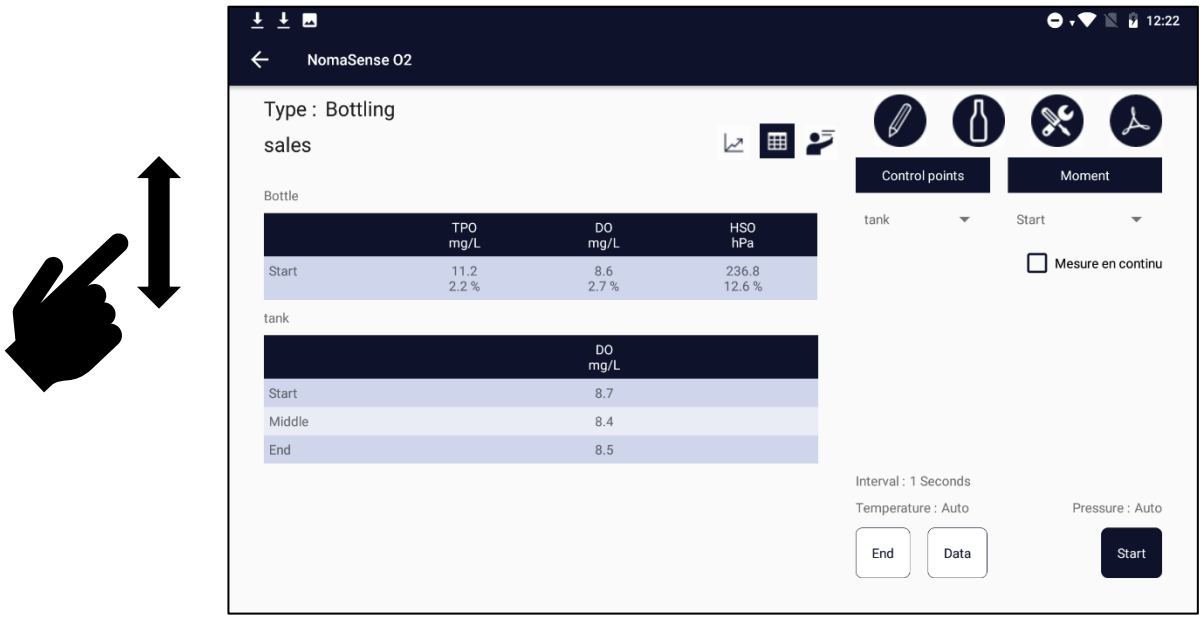


+ standard deviation, plotted around the average (bar in the graph)

If several graphs are displayed it is possible to switch from a graph to another by dragging your finger on the screen.

For continuous measurements a curve is displayed.

2.2-4.2.3.2. Table view



Once the control point has at least one measurement, a table is displayed for the control point with TPO (mg/L), DO (mg/L) and/or HSO (hPa).

If several measurements are made on a control point at the same moment, the average is displayed in the table. If number of measurements is above 3, percentage of variation is displayed in the table.

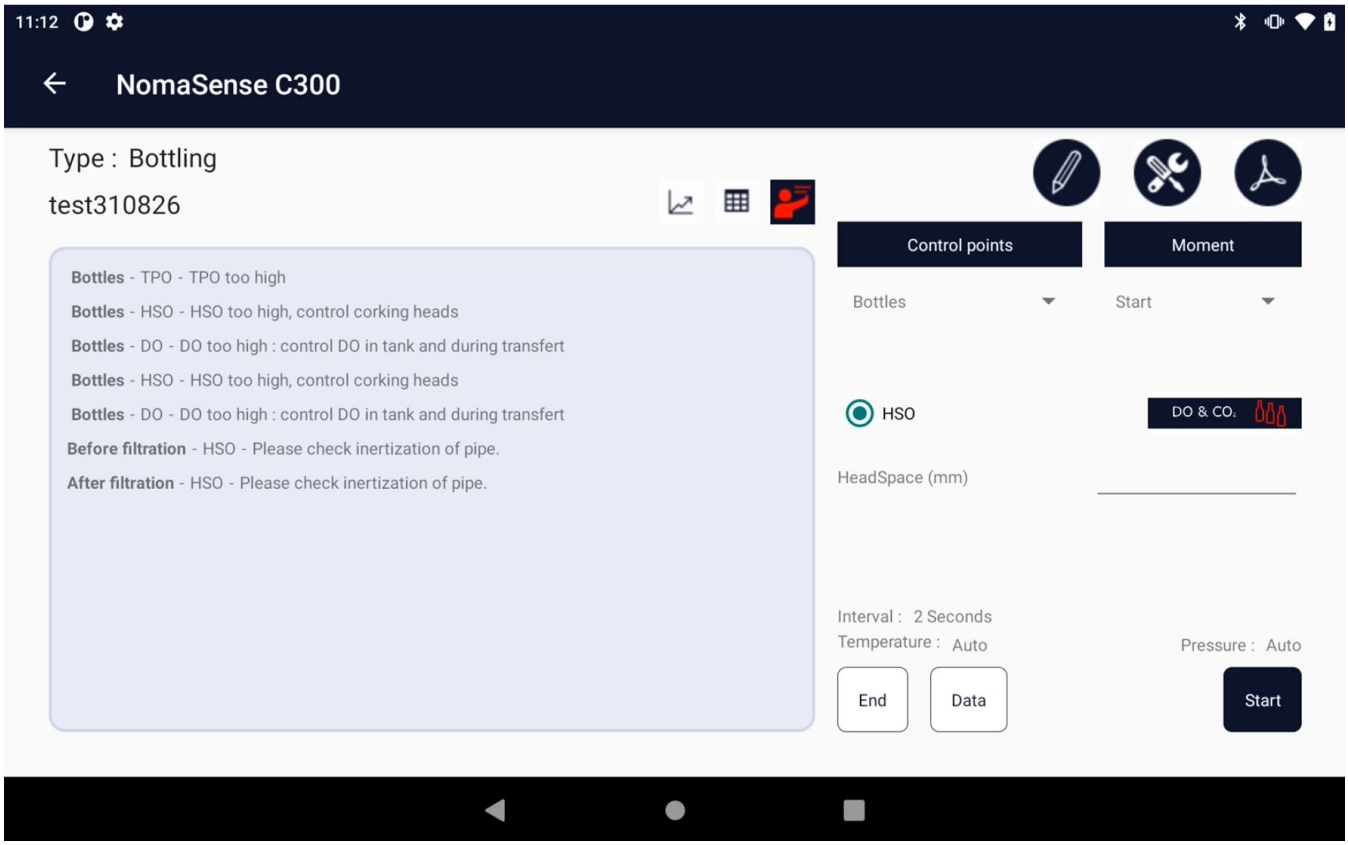
For BIB and bottle control points, average and standard deviation are automatically calculated for measurements made at the same moment, even if you create several control points (for instance bottle 1, bottle 2…).

If several tables are displayed, it is possible to switch from a table to another by dragging your finger on the screen.

2.2-4.2.3.3. Expert rules

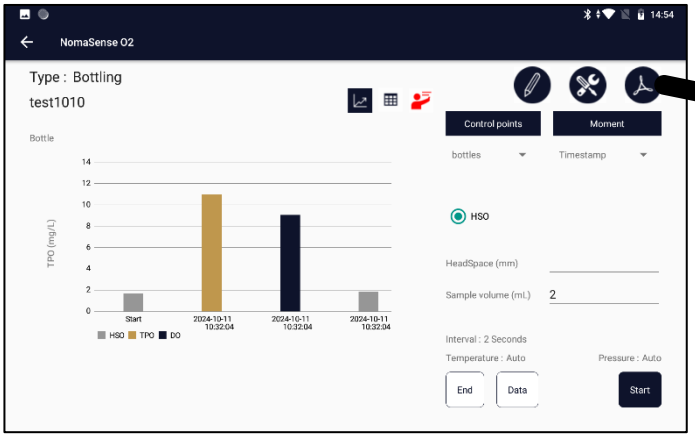
When the icon turns red, it means that the expert rules have been triggered.

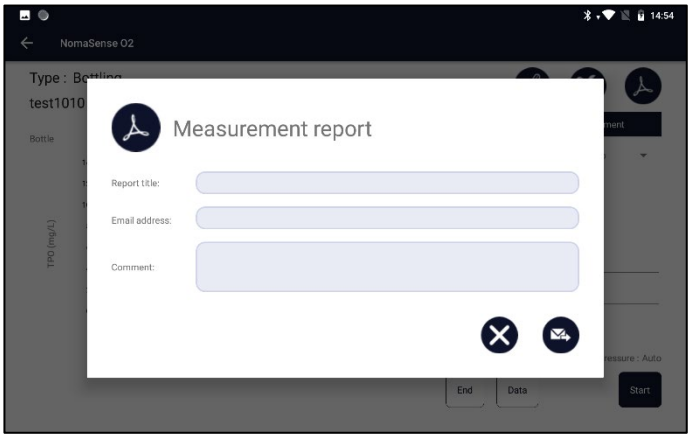
Press this icon to see all the rules.



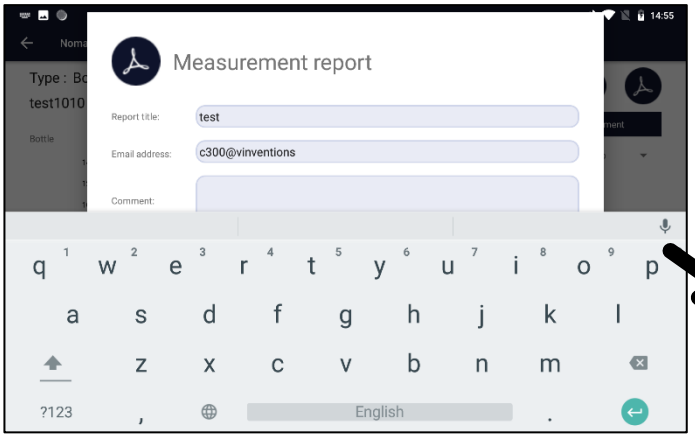
2.2-4.2.3.4. PDF report

It is possible to generate a PDF report of the monitoring performed. To do this, **the device must be connected to Wi-Fi.**





Enter a title and an email address.

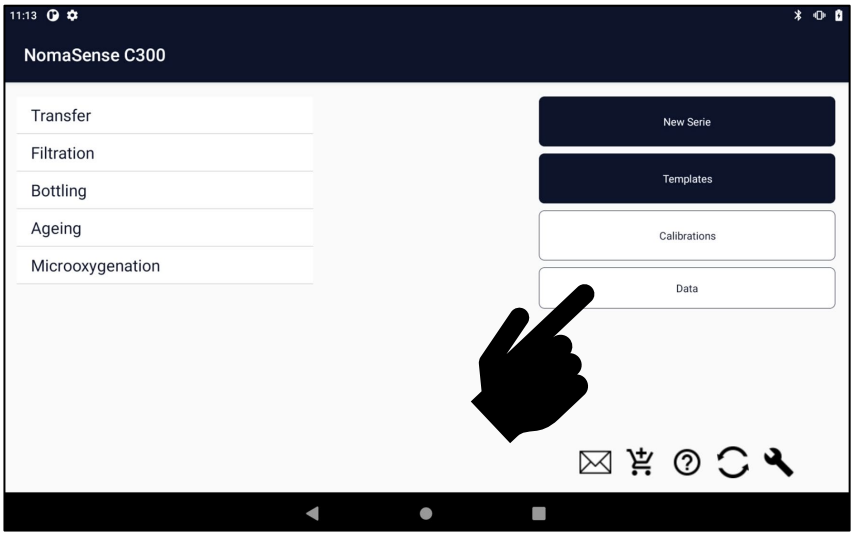


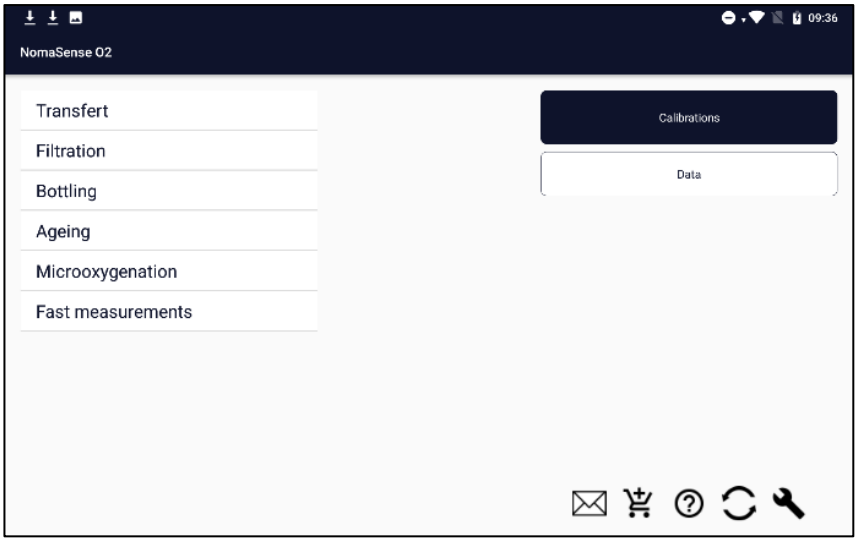
You can enter a comment using the keyboard or dictate it by pressing the Microphone icon.

Press the mail icon to send the report. The report will arrive in the specified mailbox after 10 minutes (beware of email filters). It is also accessible in your “My reports” space.

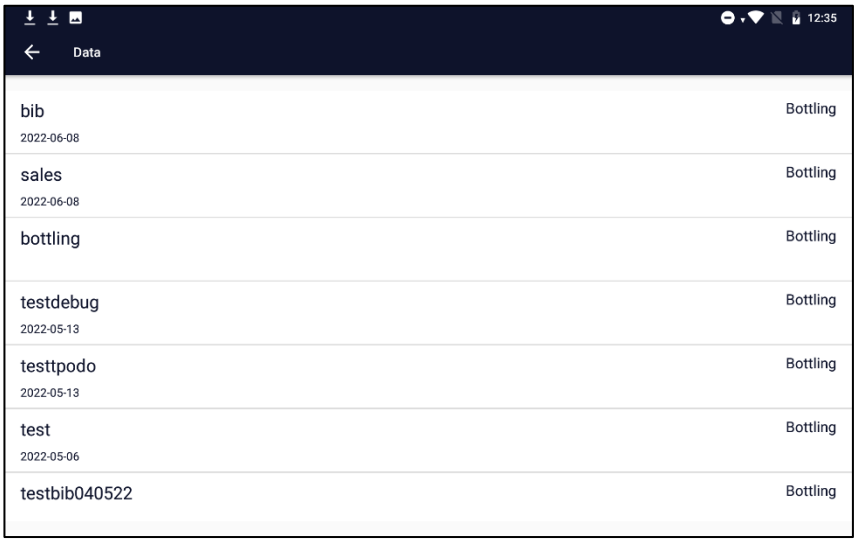
2.2-4.2.4. Access to previous measurements

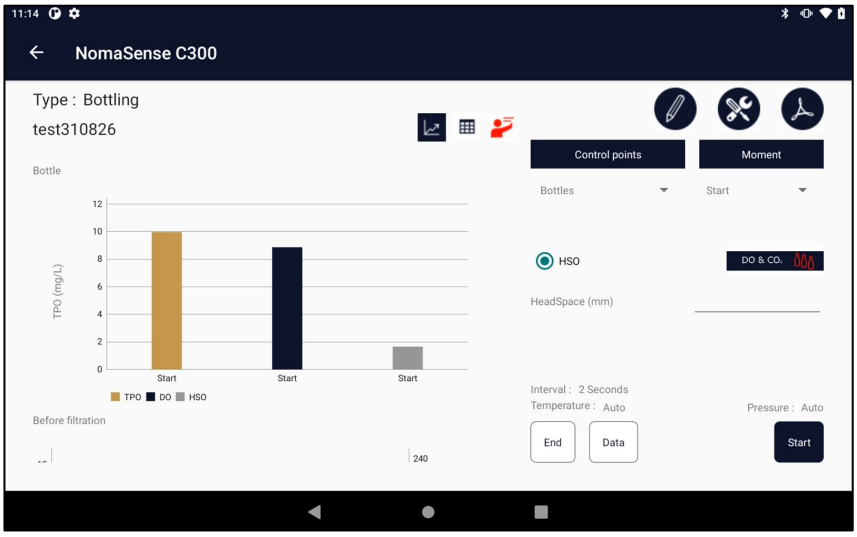
It is possible to access previous measurements through the “**Data**” menu. It is accessible from the home screen or the results screen. Pressing the name of a series opens the results screen for this series.


11:13
NomaSense C300
Transfer
Filtration
Bottling
Ageing
Microoxygenation
New Serie
Templates
Calibrations
Data


09:36
NomaSense O2
Transfert
Filtration
Bottling
Ageing
Microoxygenation
Fast measurements
Calibrations
Data




12:35
Data
bib
2022-06-08
Bottling
sales
2022-06-08
Bottling
bottling
Bottling
testdebug
2022-05-13
Bottling
testtpodo
2022-05-13
Bottling
test
2022-05-06
Bottling
testbib040522
Bottling



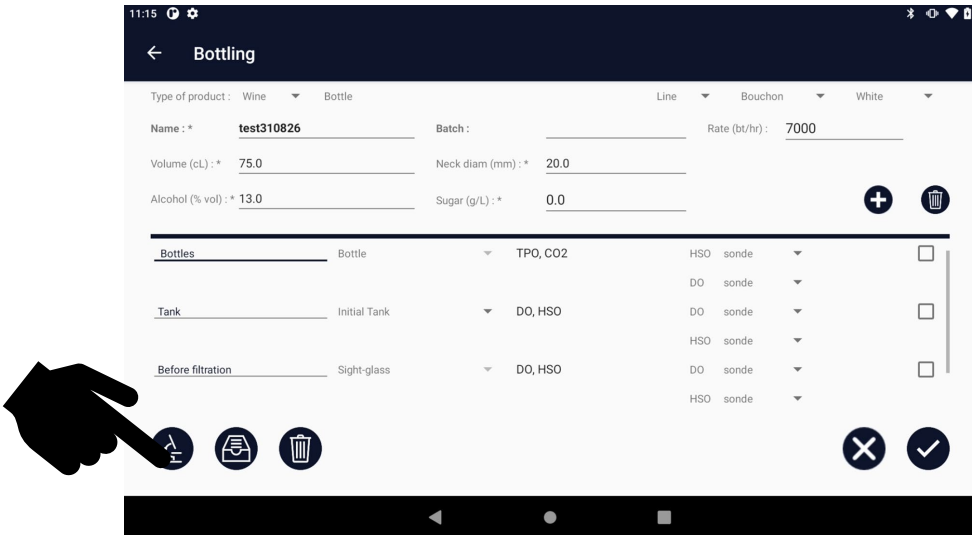
A series is never finished, it is always possible to add measurements to a series.

2.2-4.2.5. Access or modify raw data

To modify raw data, open the series from the series list and click on the pencil icon:



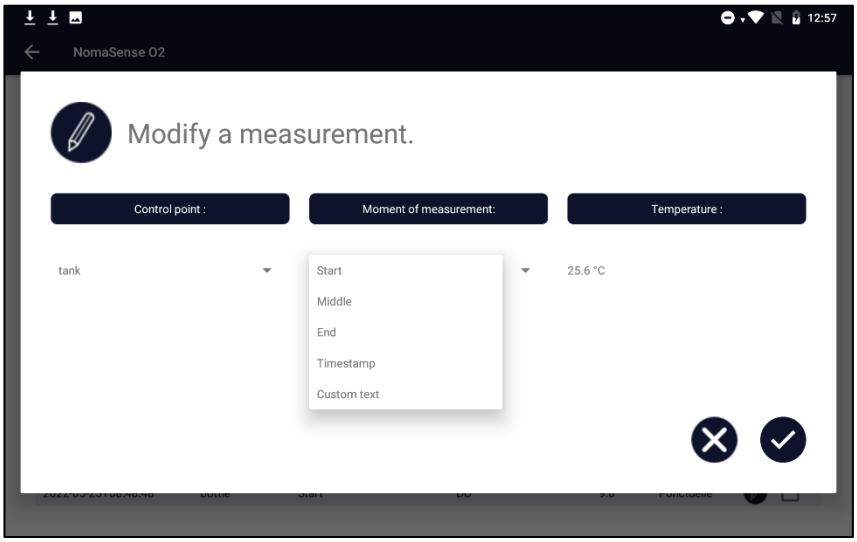
Then press to  access the entire list of measurements made in the series.





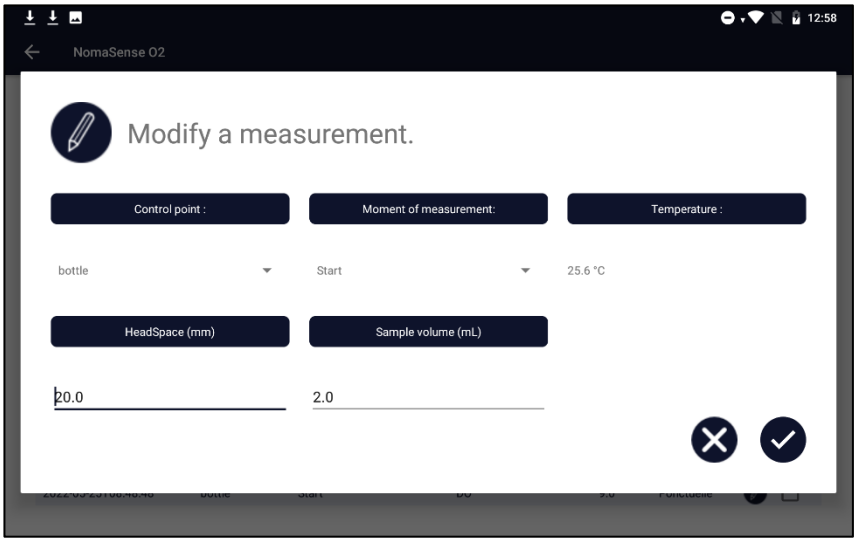
Each row is a measurement. They are ordered by timestamp from newest to oldest.

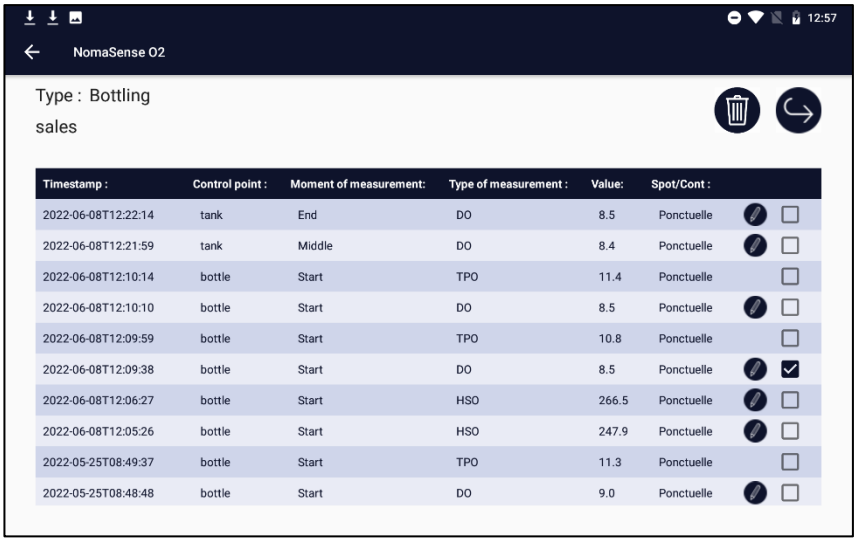
Press the icon  of the measurement you want to open or modify.



Only some parameters of the measurement can be modified: moment of measurement, headspace, cone volume, sample volume.

Press  to validate.



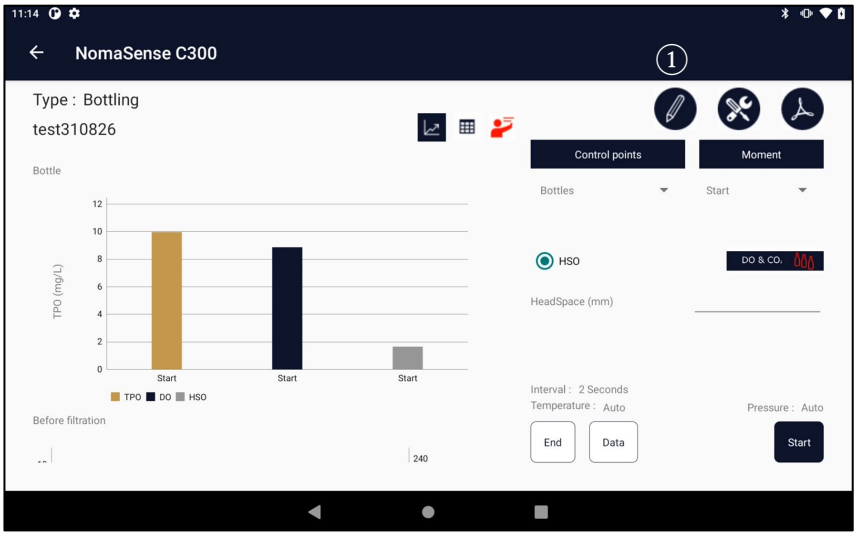


It is possible to delete a measurement by ticking the box at the end of the row for one or several measurement(s) and by pressing the icon 

2.2-4.2.6. Modify a series

2.2-4.2.6.1. Add a control point

To add a control point in a series, click on the pencil icon (①) on the results screen:



Then follow the procedure described in paragraph (2.2-4.2.1.2. Control points)

2.2-4.2.6.2. Change a calibration

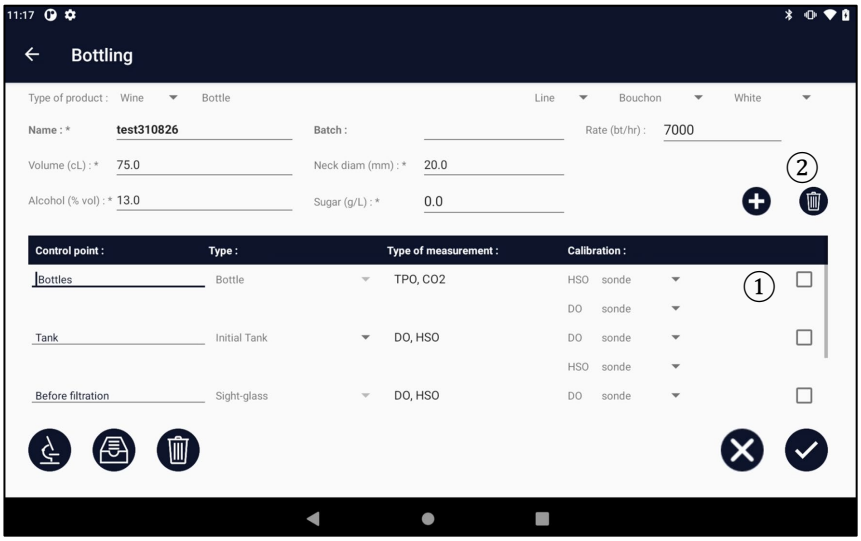
It is possible to change the calibration linked to a control point. Click on the pencil icon on result screen then change the calibration selected for the control point.

Only new measurements will be affected by the change.

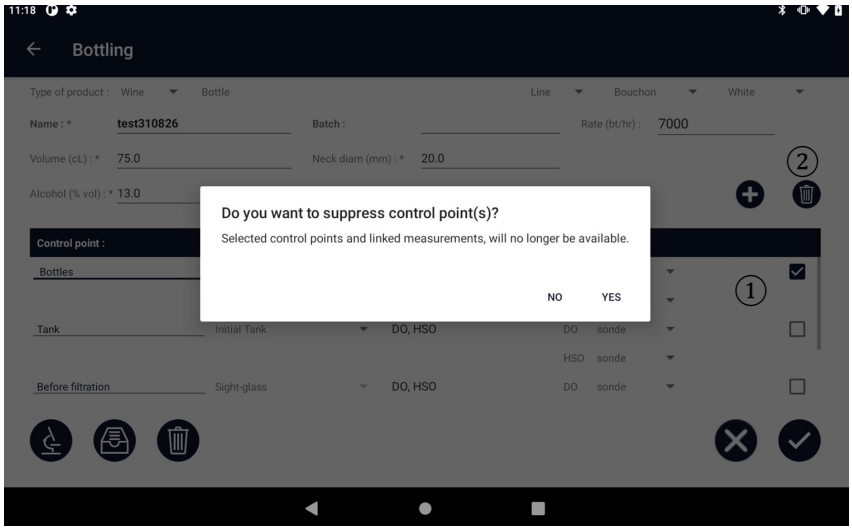
2.2-4.2.6.3. Delete a control point

It is possible to delete a control point, but all measurements linked to the control point will be deleted.

Click on the pencil icon on the results screen. ① Tick the box at the end of the control point row and ② press the icon .



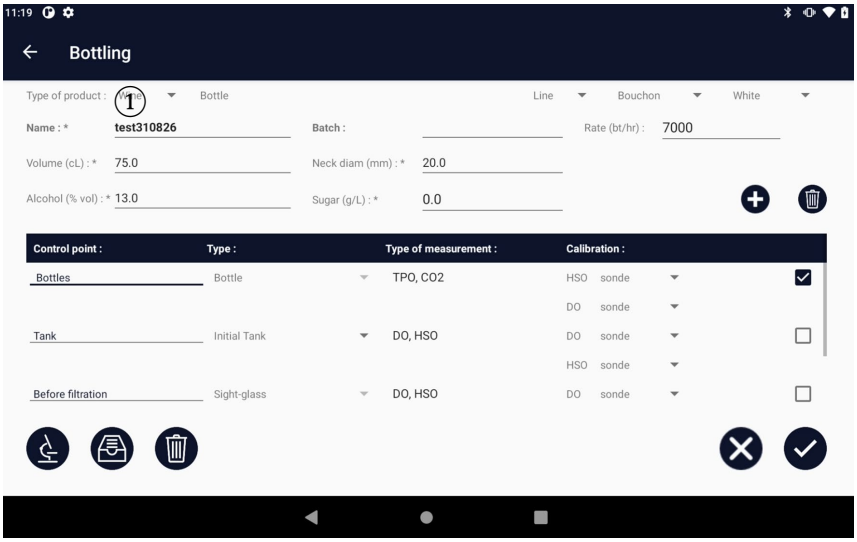
Confirm by answering the question in the message.



2.2-4.2.6.4. Change the type of product

It is always possible to change the type of product (wine, must, spirit). All the measurements will be recalculated with the right alcohol and sugar compensation.

Click on the pencil icon on result screen, then change the type of product in zone ①.



2.2-4.2.6.5. What can't be changed

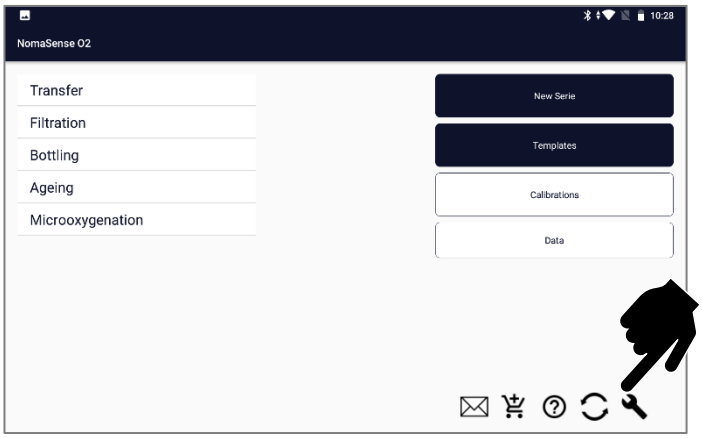
Once a measurement has been made on a control point, it is no longer possible to change:

- The type of control point (depends on stage of process: initial tank, final tank, tank, BIB, bottle, sight glass, barrel…)
- The type of measurement linked to a control point (DO, HSO, TPO, CO_2)
- Type of container (Bottle or BIB) for bottling monitoring.

However, you can add a new control point at any moment with the right types.

2.2-5. Settings

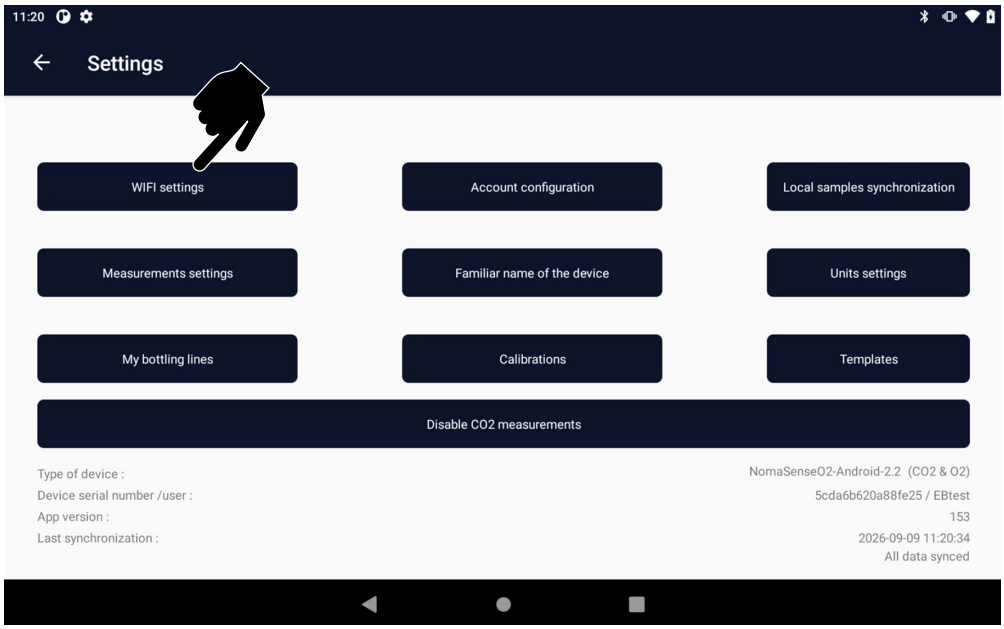
To access the settings menu, press the icon .



2.2-5.1. Wi-Fi settings

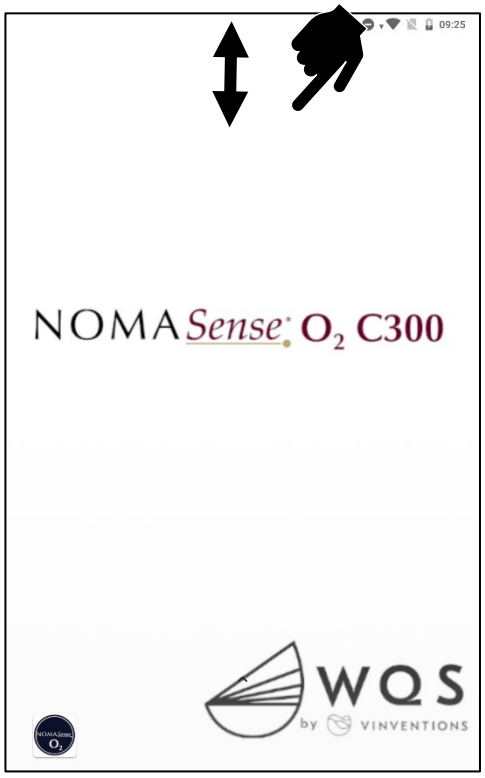
2.2-5.1.1. Through the app

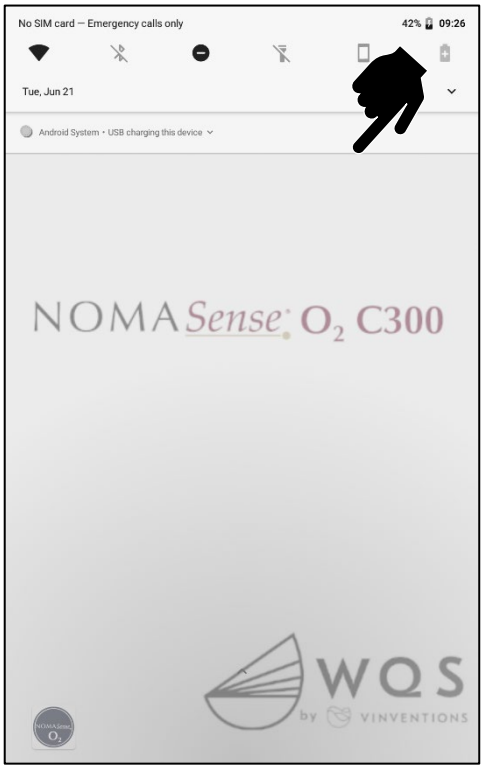
To access the settings menu, press the icon .

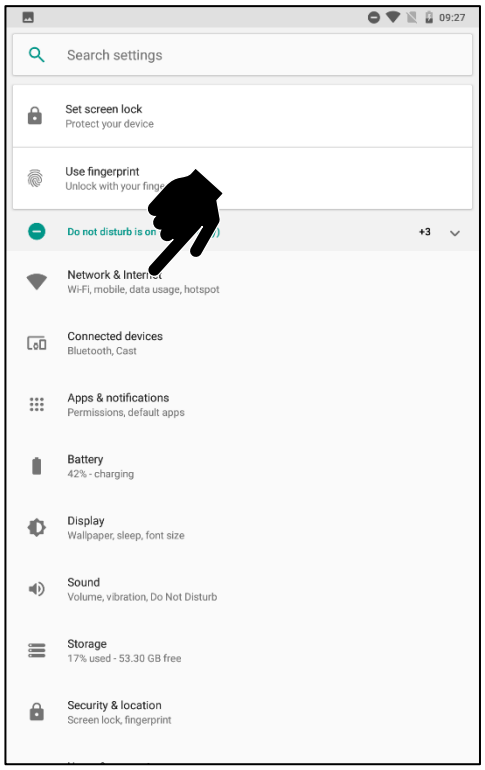


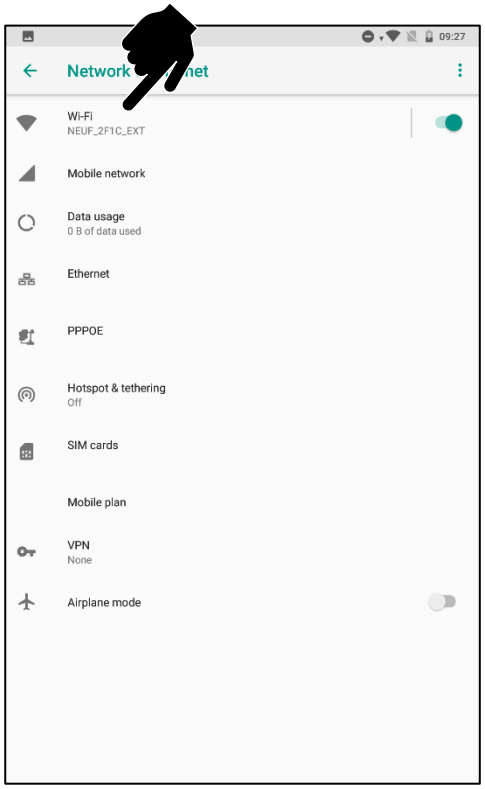
Press “Wi-Fi settings” to set the Wi-Fi connection.

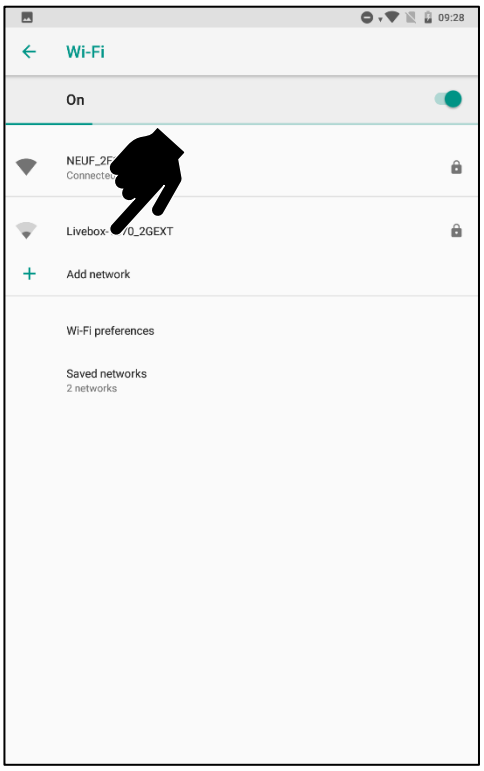
2.2-5.1.2. Through Android

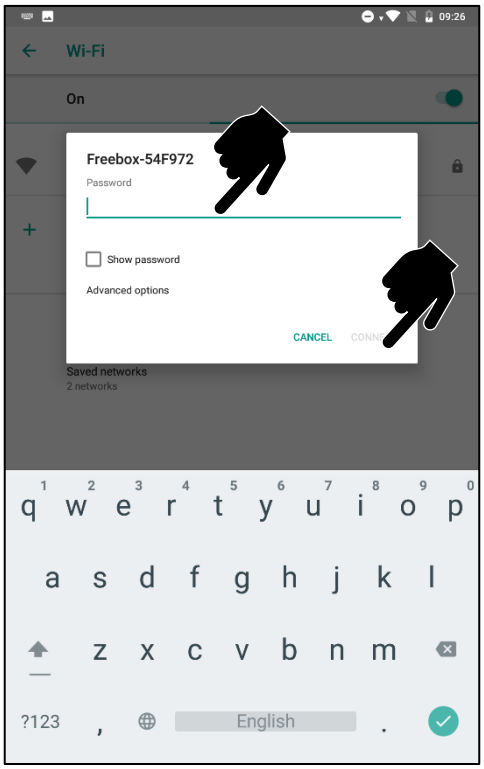




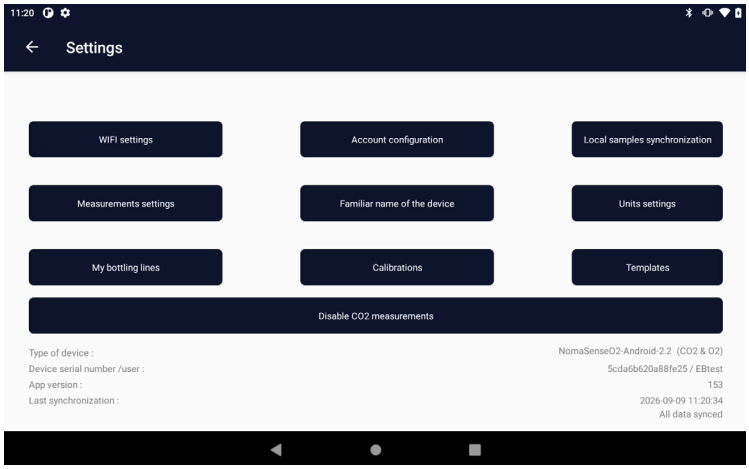




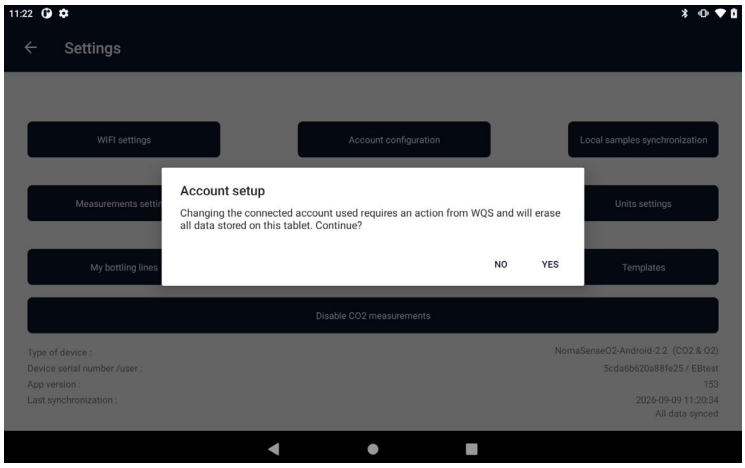

09:28
Wi-Fi
On
Add network
Wi-Fi preferences
Saved networks
2 networks


09:26
Wi-Fi
On
Freebox-54F972
Password
Show password
Advanced options
CANCEL
Saved networks
2 networks
English

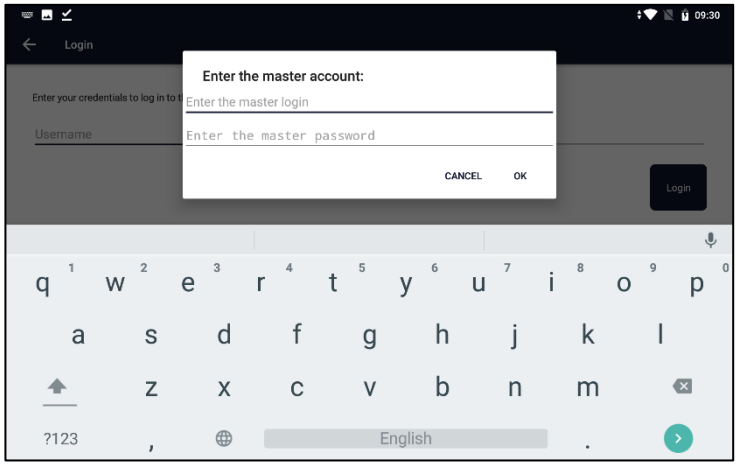
2.2-5.2. Account configuration



In the settings menu, press "**Account Configuration**".

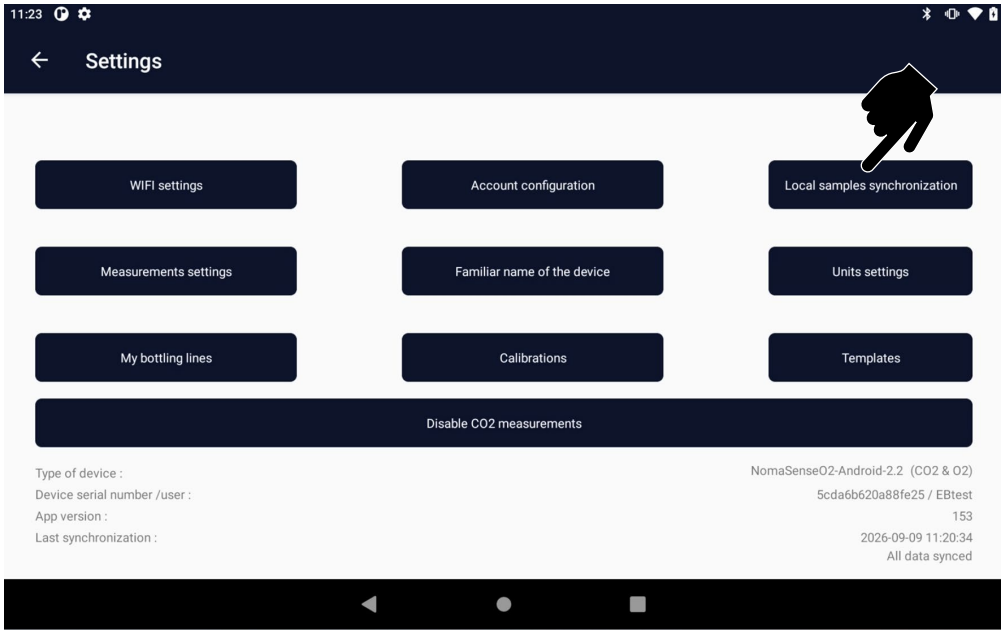


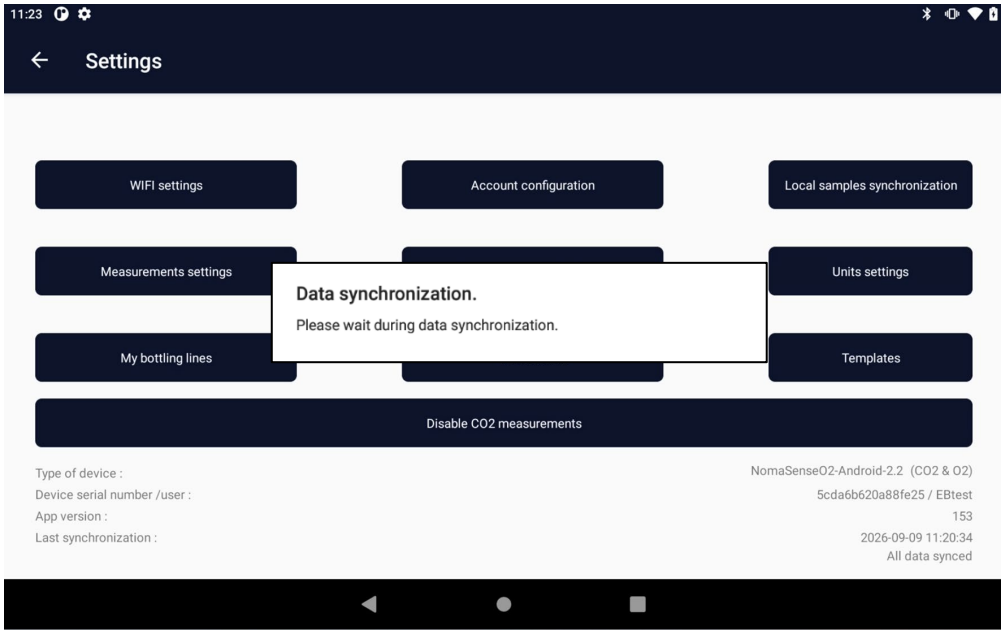
To set an account, master credentials are required: please contact nimescenter@vinventions.com



2.2-5.3. Sample synchronization

Data synchronization is automatic when the device is connected to the internet by Wi-Fi. However, it is possible to force data synchronization by accessing the settings menu then pressing "**Local samples synchronization**".

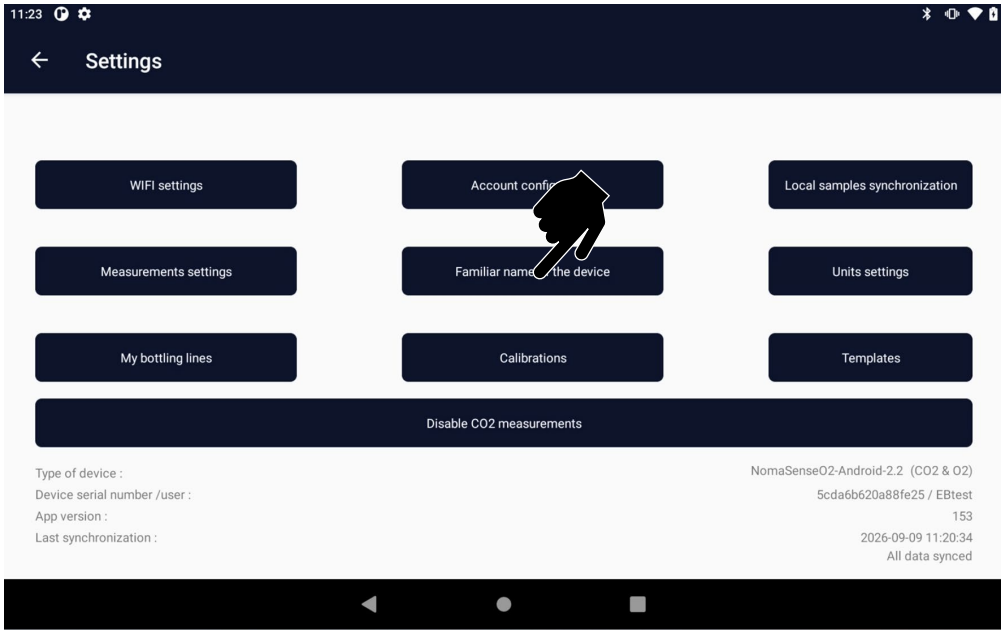


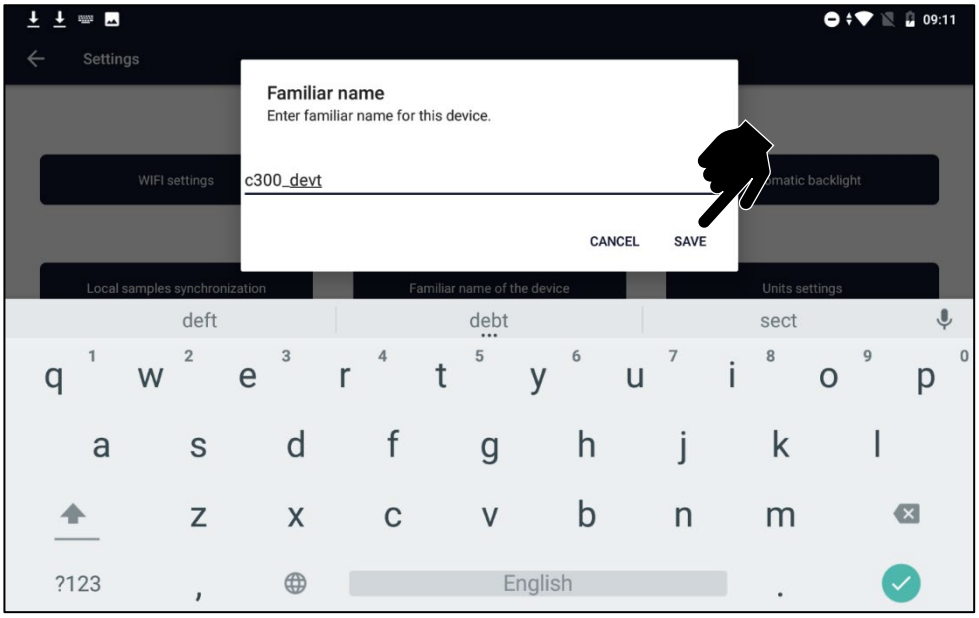


Once synchronization is complete, the message "**All data synced**" will appear on the last line of the screen.

2.2-5.4. Device familiar name

If you have several devices, a familiar name can be set for each one. This makes it easier to identify the origin of data on export files, on top of the serial number of the device.



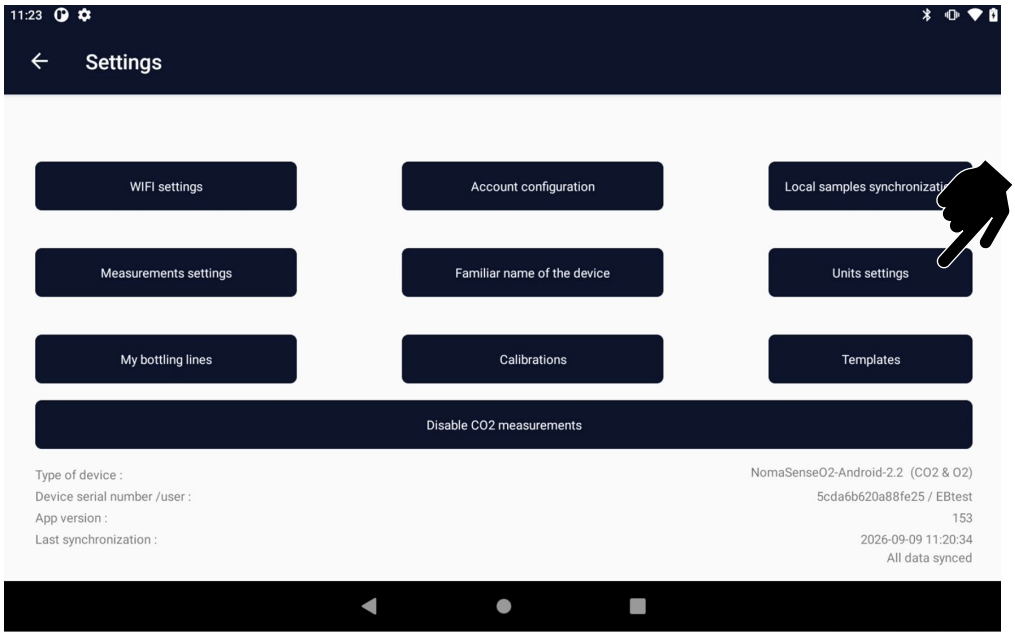


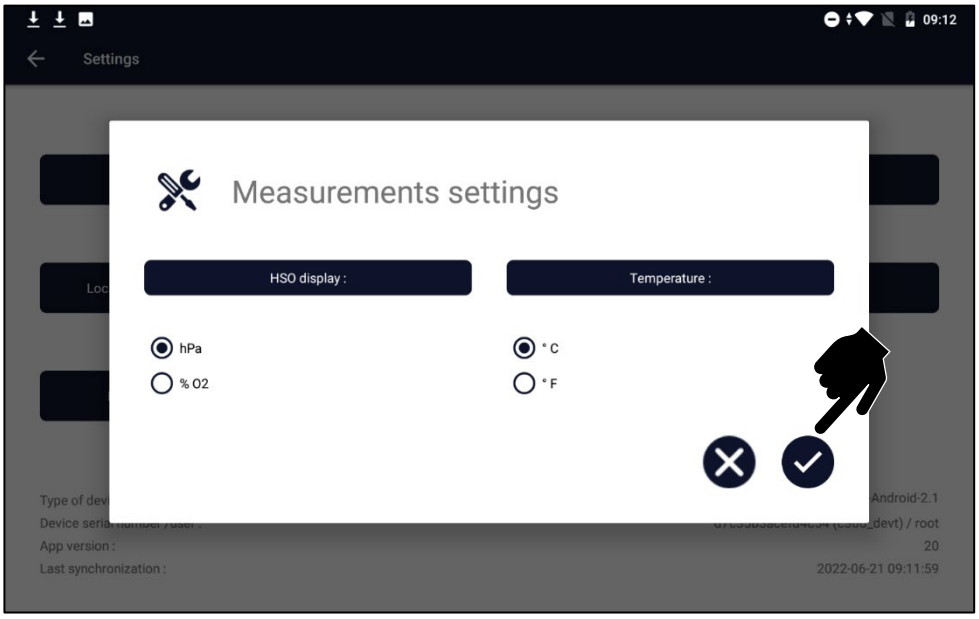
2.2-5.5. Units settings

It is possible to select units for:

- HSO: hPa or %O2
- Temperature: °C Celsius or °F Fahrenheit

To access the settings menu, press the icon .





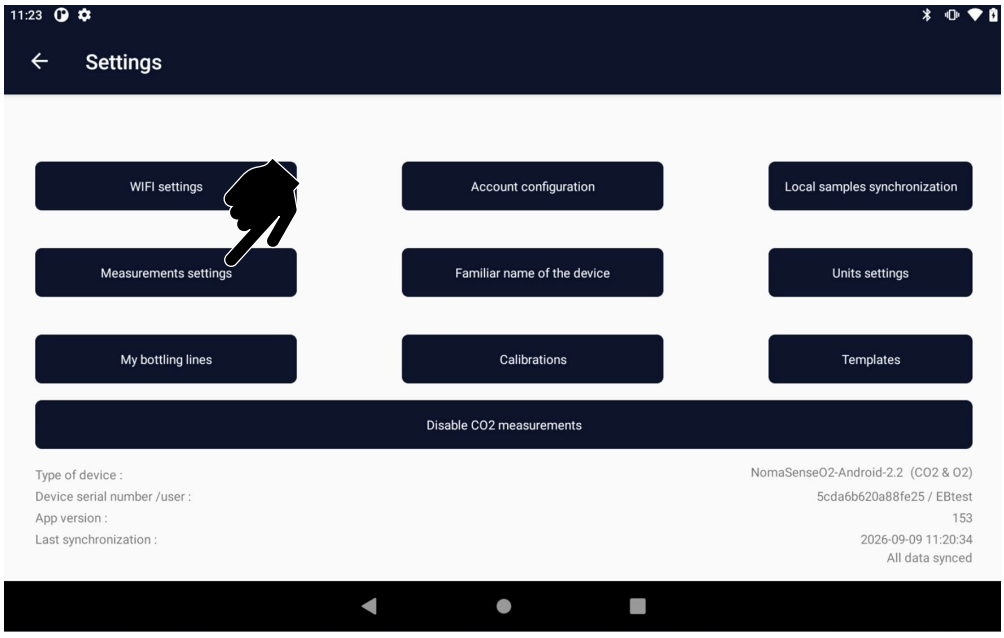
Press to validate.

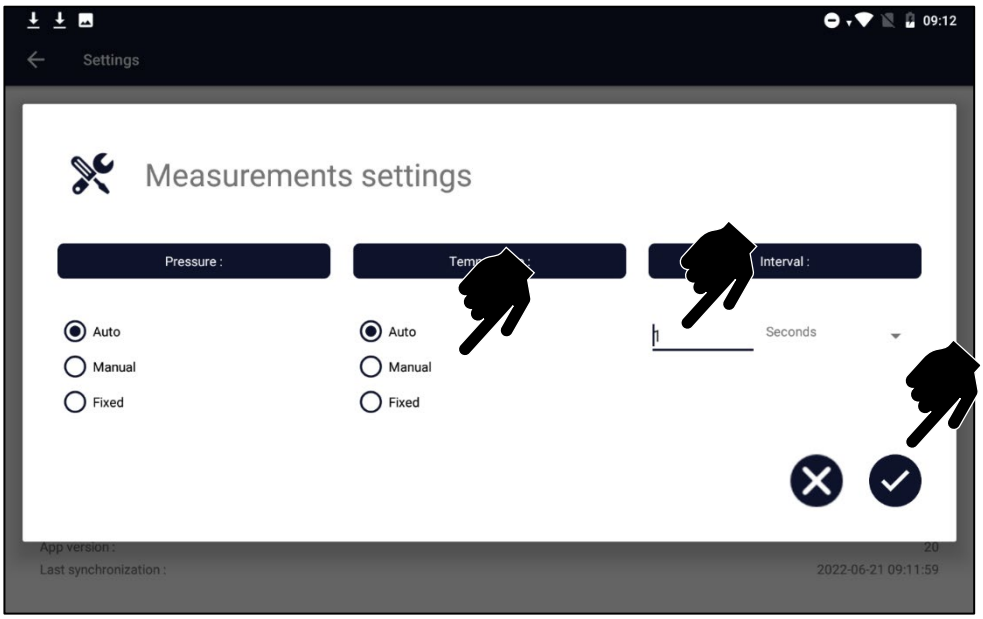
2.2-5.6. Measurement settings

To access the settings menu, press the icon . Then pre **easurement settings**".

It is possible to adjust measurement settings:

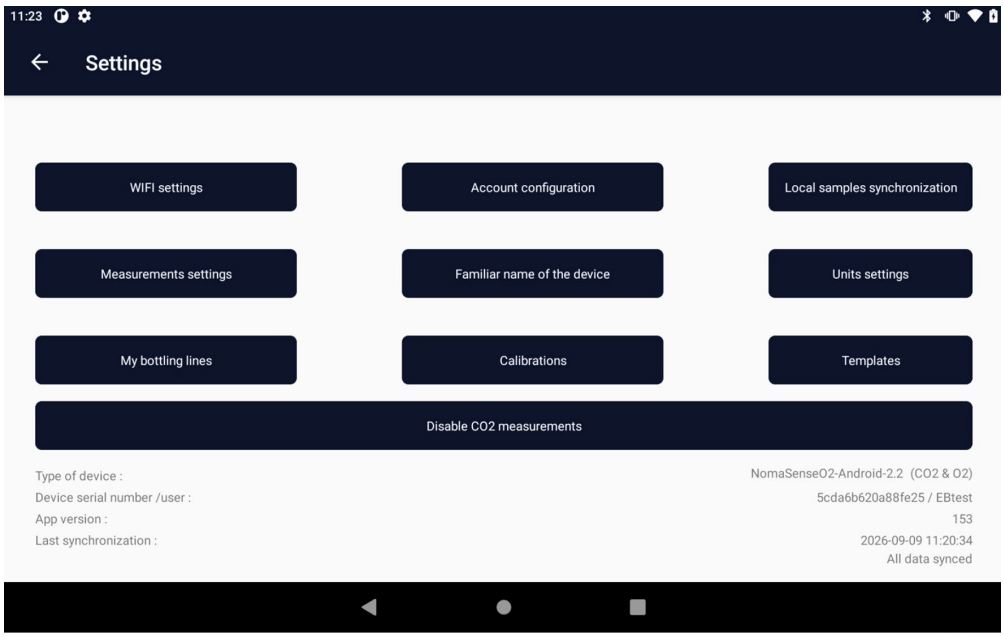
- **Pressure**: auto (use of internal barometer)/manual (pressure is asked at each measurement)/fixed (same pressure will be used for all measurements). We advise using "auto" mode.
- **Temperature**: auto (use of PT100 temperature probe)/manual (temperature is asked at each measurement)/fixed (same temperature will be used for all measurements). When the temperature probe can't be used (for instance measurement through a sight glass), use manual or fixed temperature.
- **Interval of measurement**: time between two light emissions by the device. In continuous measurement, this interval must be changed to avoid a large amount of data. During a transfer a measurement every 5 minutes is enough, this duration must be adapted to the duration of the process.




09:12
Settings
Measurements settings
Pressure :
Interval :
Auto
Manual
Fixed
Auto
Manual
Fixed
Seconds
App version :
Last synchronization :
2022-06-21 09:11:59

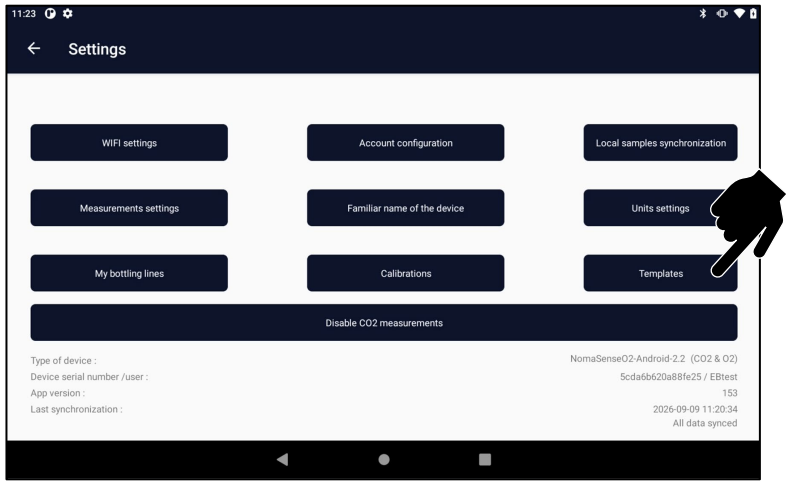
2.2-5.7. Calibrations

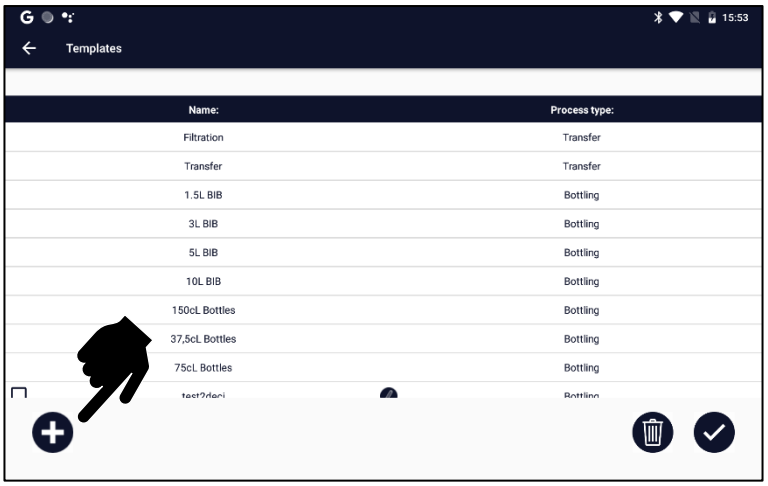
To access the settings menu, press the icon. Then choc **alibrations**".

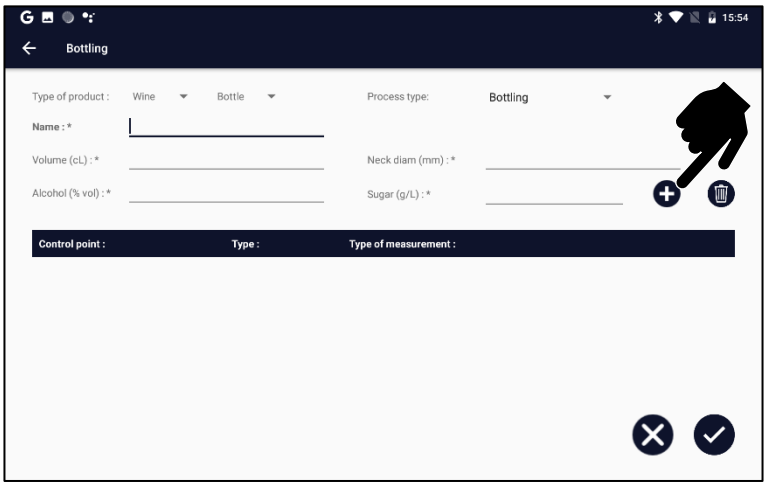


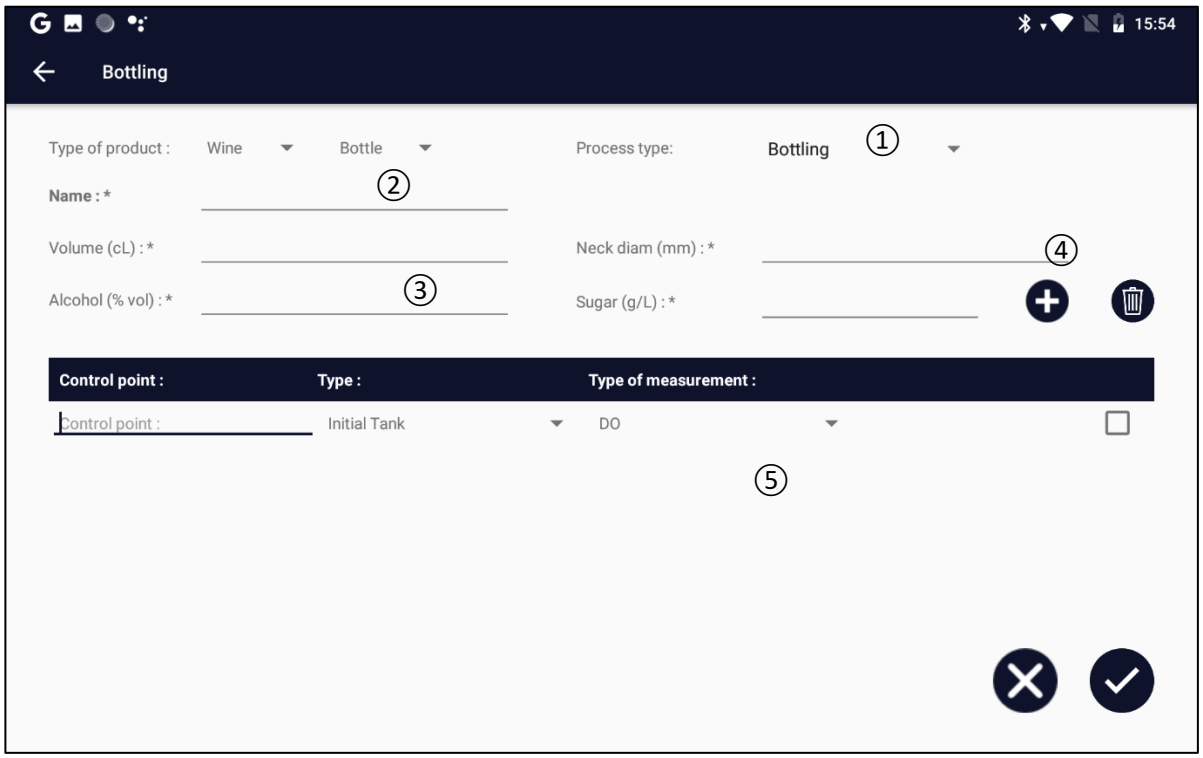
For more details, see paragraph 2.2-3

2.2-5.8. Create a new template









1: type of monitoring

2: template name

3: settings (volume, alcohol, sugars)

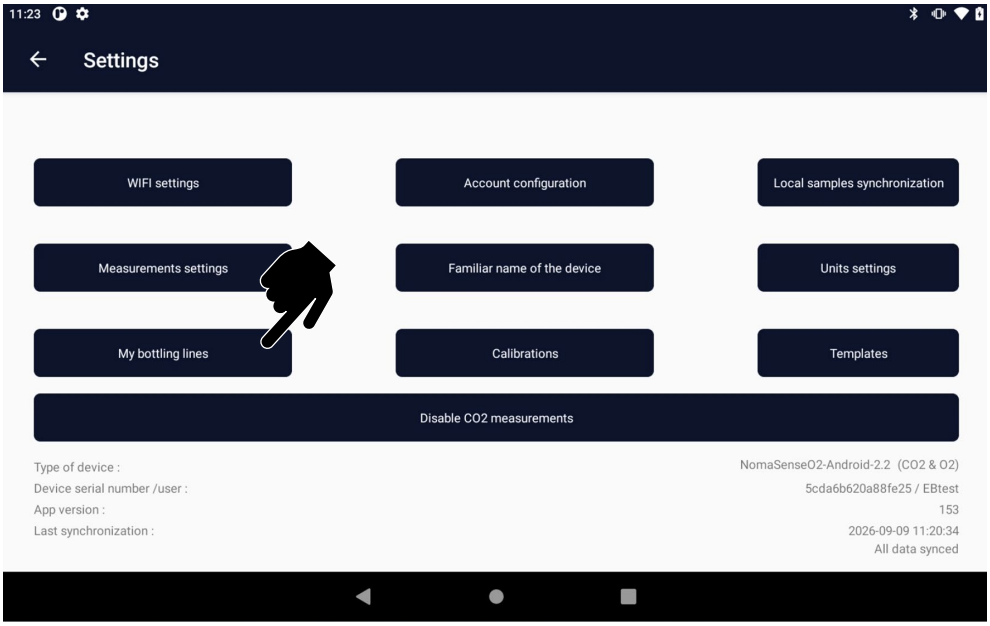
4: add a control point

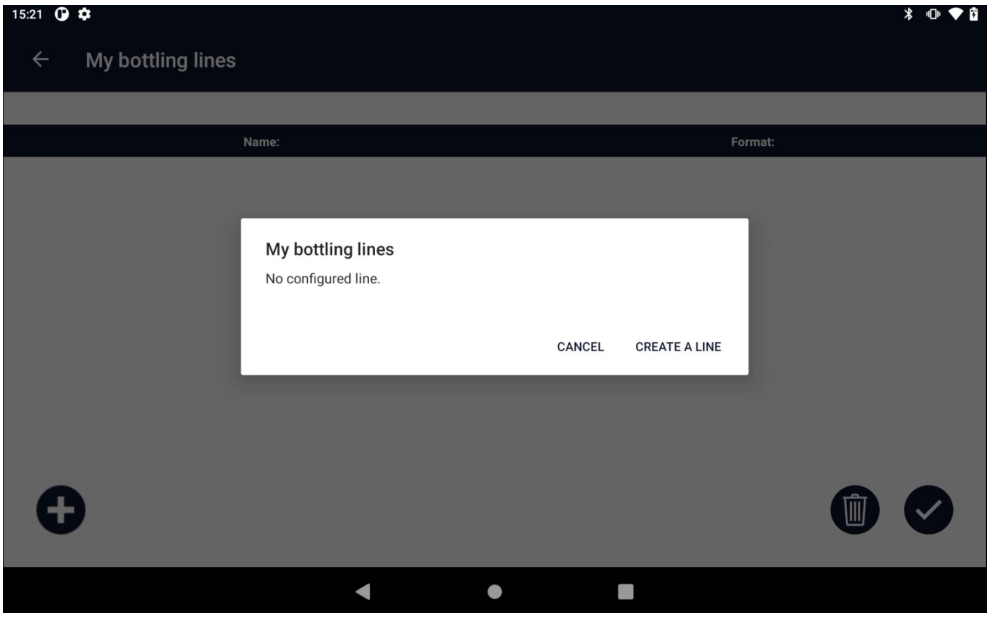
5: configuration of control point

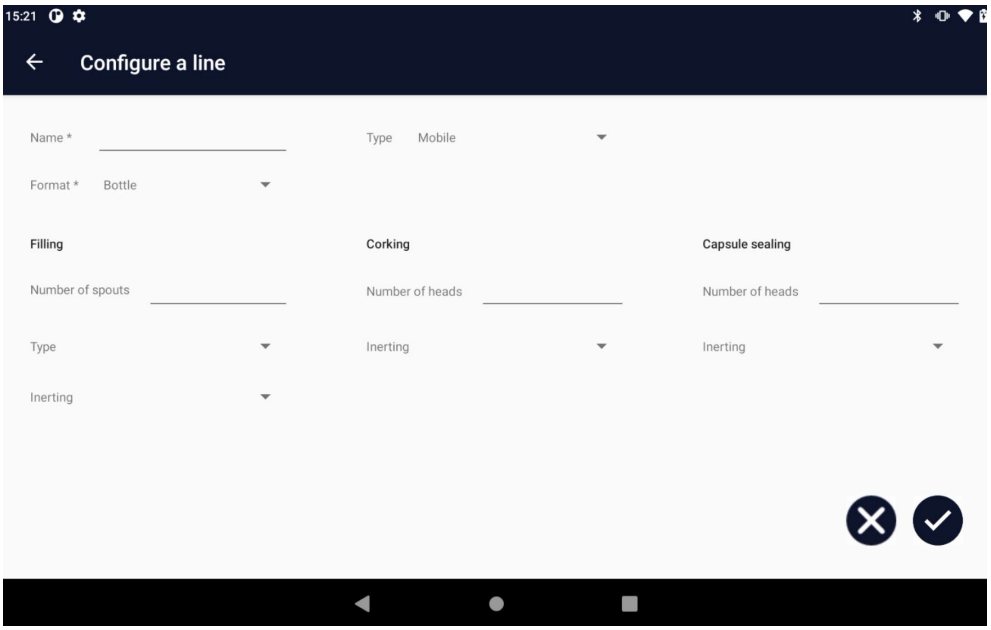
2.2-5.9. Set up bottling lines

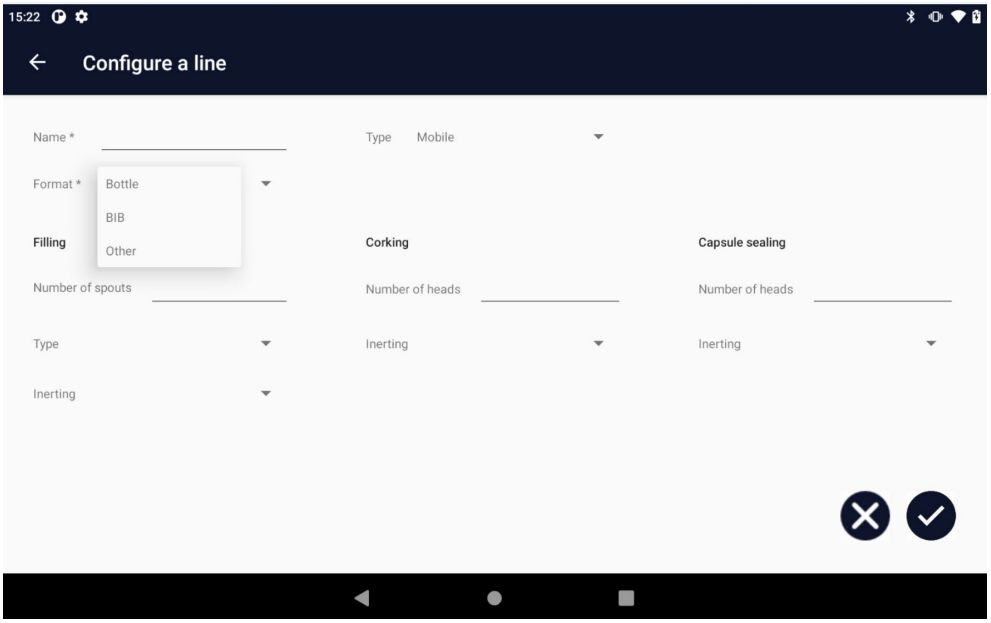
The bottling line settings make it possible to define the lines used and their characteristics. This function makes it possible to compare several bottling lines with each other. It will also make it possible to compare a line with bottling lines in the database according to their technical characteristics.

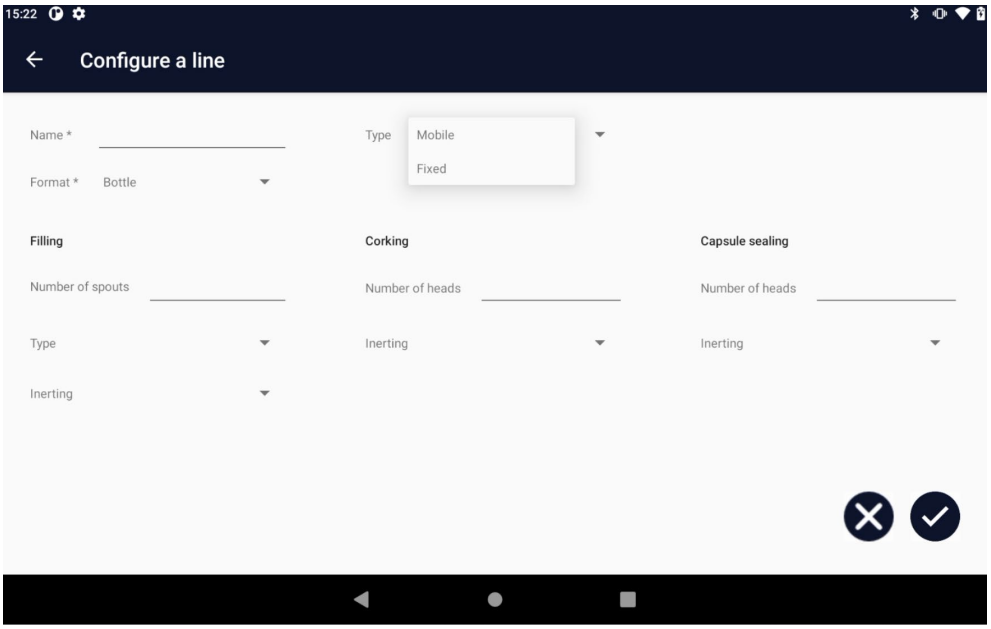
Only the fields marked with an * are mandatory, but the more detailed the settings, the more accurate the comparison will be.

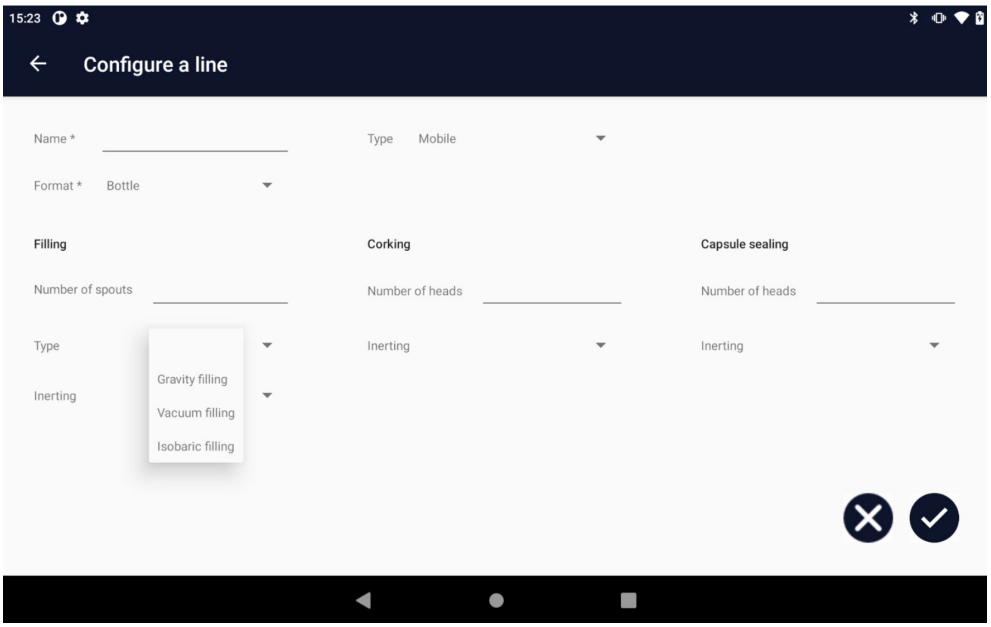


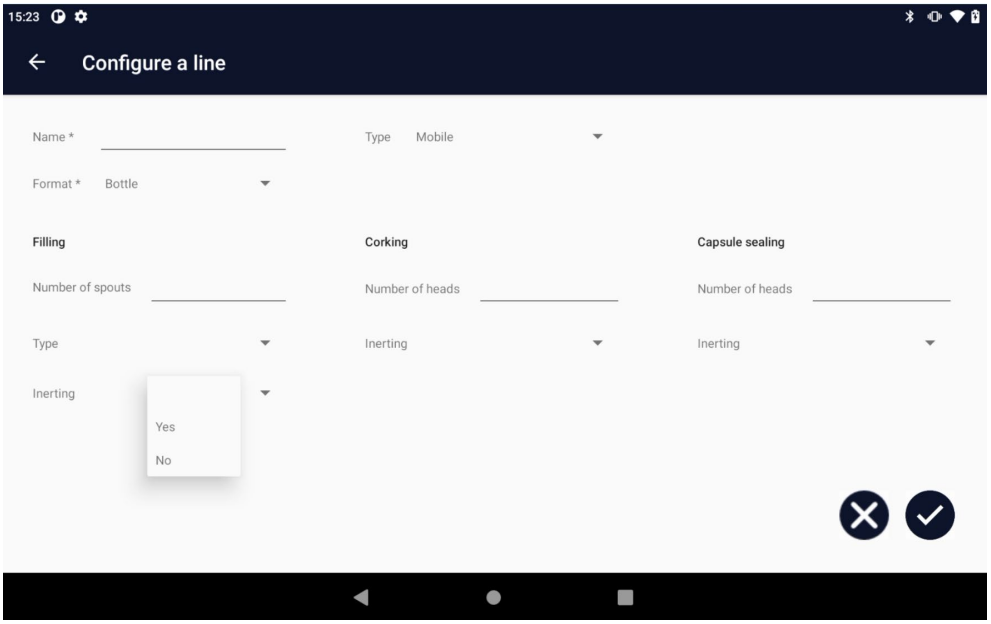


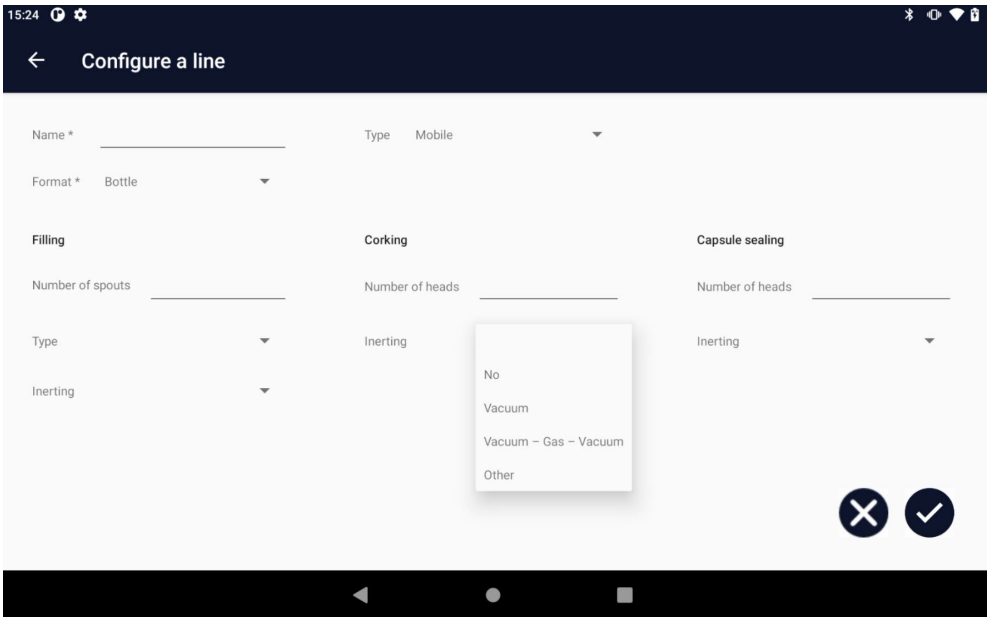

15:21
Configure a line
Name *
Type
Mobile
Format *
Bottle
Filling
Corking
Capsule sealing
Number of spouts
Number of heads
Number of heads
Type
Inerting
Inerting
Inerting

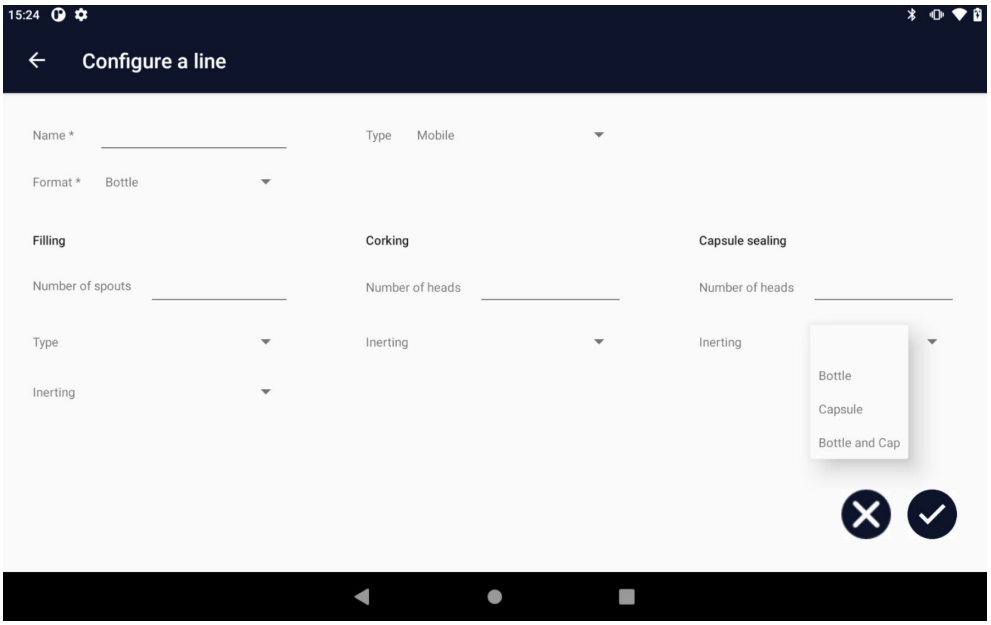

15:22
Configure a line
Name *
Type
Mobile
Format *
Bottle
BIB
Other
Filling
Corking
Capsule sealing
Number of spouts
Number of heads
Number of heads
Type
Inerting
Inerting
Inerting


15:22
Configure a line
Name *
Type
Mobile
Fixed
Format *
Bottle
Filling
Corking
Capsule sealing
Number of spouts
Number of heads
Number of heads
Type
Inerting
Inerting
Inerting


15:23
Configure a line
Name *
Type
Mobile
Format *
Bottle
Filling
Corking
Capsule sealing
Number of spouts
Number of heads
Number of heads
Type
Inerting
Inerting
Gravity filling
Vacuum filling
Isobaric filling


15:23
Configure a line
Name *
Type
Mobile
Format *
Bottle
Filling
Number of spouts
Type
Inerting
Yes
No
Corking
Number of heads
Inerting
Capsule sealing
Number of heads
Inerting


15:24
Configure a line
Name *
Type
Mobile
Format *
Bottle
Filling
Number of spouts
Type
Inerting
Corking
Number of heads
Inerting
No
Vacuum
Vacuum – Gas – Vacuum
Other
Capsule sealing
Number of heads
Inerting


15:24
Configure a line
Name *
Type
Mobile
Format *
Bottle
Filling
Number of spouts
Type
Inerting
Corking
Number of heads
Inerting
Capsule sealing
Number of heads
Inerting
Bottle
Capsule
Bottle and Cap

2.3- WQS Enology Portal

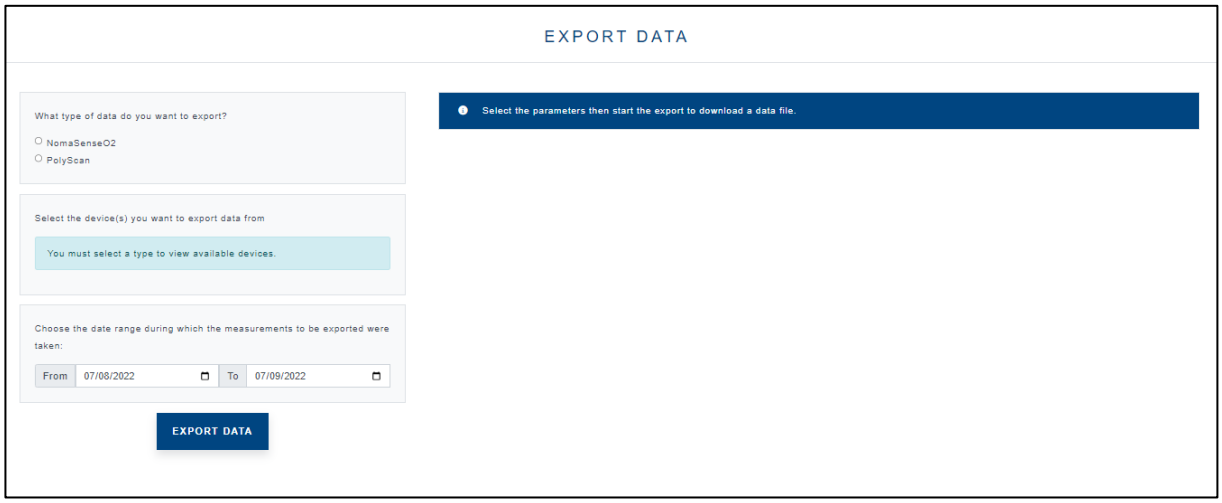
All measurements made with the Nomasense O_2 C300 (except fast measurement) are saved in a cloud database.

With the link below and your personal credentials you can access your data

https://vinventions.enologyportal.wqs.wine

If you have lost your credentials, contact wqsorder@vinventions.com





Select Nomasense O_2, select a date range and press "**Export data**".

2.4- Error codes and troubleshooting

2.4-1. Errors and warnings

2.4-1.1. Errors (examples of error codes)

Error code	Error	Description	Solution
E0	No PT100	No PT100 connected to the device or PT100 not correctly connected	Plug the temperature probe or use manual/fixed temperature
E1	No sensor	No sensor is connected (Amplitude < 1000)	Connect a dipping probe or place the optical fiber near the spot sensor.
E2	Signal amplitude too low	Signal amplitude < 3000	Perform a recalibration.
E3	Not attributed	-	-
E4	Reference amplitude out of range	Contact service team: nimescenter@vinventions.com	Contact service team: nimescenter@vinventions.com
E5	Photodiode saturated	Warning: Ambient light or signal strength too high (Measurement is still functioning correctly!)	Contact service team: nimescenter@vinventions.com
E6	Reference overflow	Reference strength too high.	Contact service team: nimescenter@vinventions.com
E7	Signal overflow	Signal strength too high.	Perform a recalibration.
E8	Not attributed	-	-
E9	PME error	Contact service team: nimescenter@vinventions.com	Contact service team: nimescenter@vinventions.com
E10	Pressure sensor defect	Pressure sensor out of order.	Contact service team: nimescenter@vinventions.com You can use “manual” mode
E11	Temperature too high	The max. allowed temperature is reached.	Contact service team: nimescenter@vinventions.com
E12	-	-	-
E13	Pulse counter overflow	The pulse counter has reached the pulse counter overflow limit.	Contact service team: nimescenter@vinventions.com
E14	Temperature sensor not available	The temperature sensor was activated but it is not present on the device.	Plug the temperature probe or use manual/fixed temperature
E15	Pressure sensor not available	The pressure sensor was activated but it is not present on this device.	Contact service team: nimescenter@vinventions.com You can use “manual” mode.

2.4-1.2. Warnings

Code	Warning	Description	Solution
W0	Oxygen value negative	The oxygen calculation resulted in a negative value. This may occur if no sensor is connected or the calibration values are incorrect.	Connect a sensor or perform a recalibration
W1	Not attributed	-	-
W2	Value too low	The measurement value is lower than the given minimum value.	Contact service team: nimescenter@vinventions.com
W3	Value too high	The measurement value is higher than the given maximum value.	Contact service team: nimescenter@vinventions.com
W4	Not attributed	-	-

2.4-1.3. Other errors

Other errors have specific error codes, please write down the code and contact service teams: nimescenter@vinventions.com.

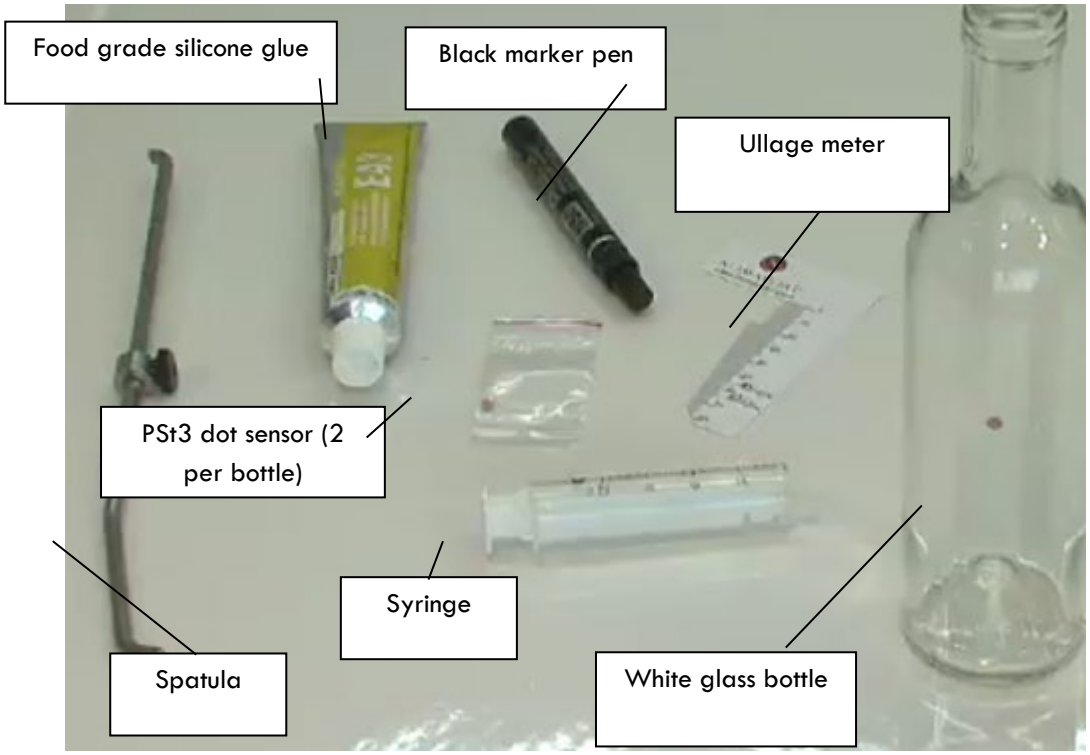
2.5- General information and precautions

- Device is not waterproof: do not immerse the device or sprinkle water on it.
- Always use the charger that is provided with the device to charge the battery.
- When device is unused please keep the device in a dry and temperate room.

3. Application notes

3.1- How to glue a dot sensor

3.1-1. Necessary material



Where must the dot sensors be glued?

Use a black marker pen to mark the bottle (upper and lower limit) to be sure that the dot sensors are glued at the right place in the bottle (above all for headspace).

3.1-2. Prepare the glue





Pour a small amount of glue inside the syringe (size of a pea)	Replace the syringe plunger

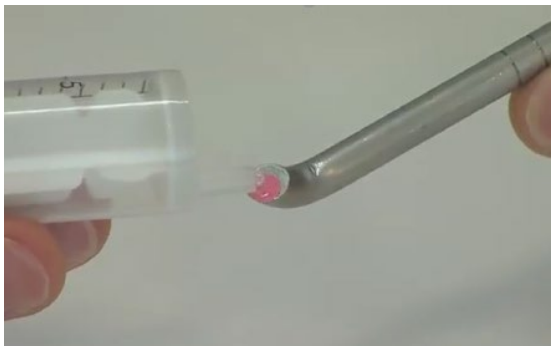
3.1-3. Prepare the dot sensor

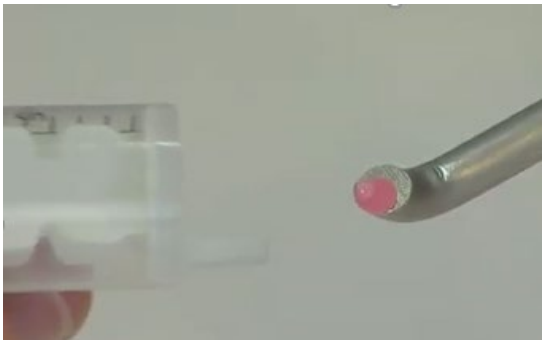




Place the dot sensor on the spatula (red side up).

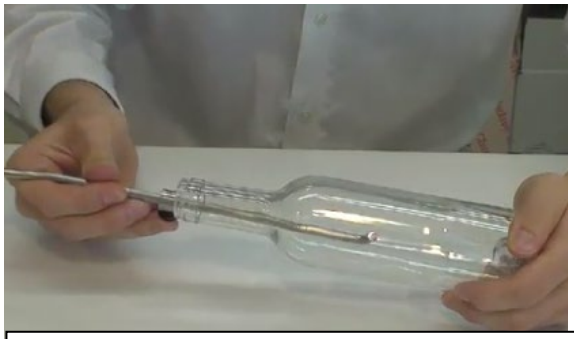
Avoid touching the dot sensor with your fingers.





With the syringe, put a small amount of silicone glue on the red side of the dot sensor.
(half the size of a grain of rice)

3.1-4. Glue the sensors





With the spatula, place the 1st dot sensor in the bottle, red side against the glass.

Apply a moderate pressure to glue the dot sensor and ensure a good glue distribution.

Wait at least 30 minutes before using it.

To glue dot sensors inside the bottle neck, please use a corked bottle and the ullage meter.

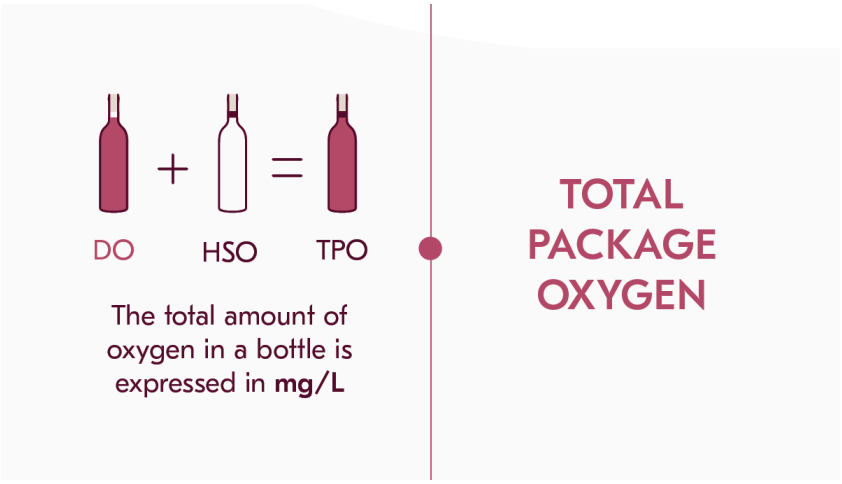
To glue the 2nd dot sensor in the bottle neck:

With the black marker pen, draw a 1st line at the fill height and a 2nd line at the cork length + 2 mm

Place the second dot sensor inside the neck between the two marks

Wait at least 30 minutes before using it.

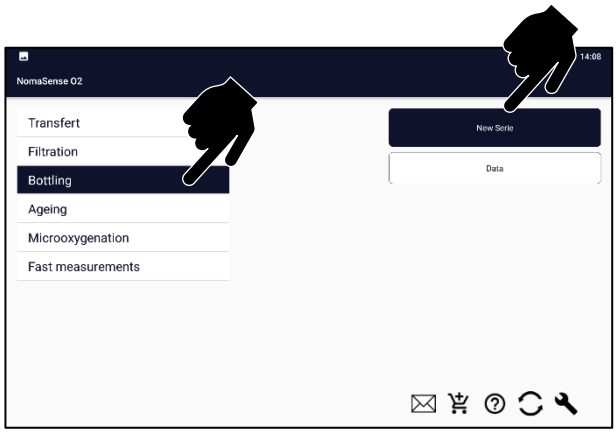
3.2- TPO in bottle



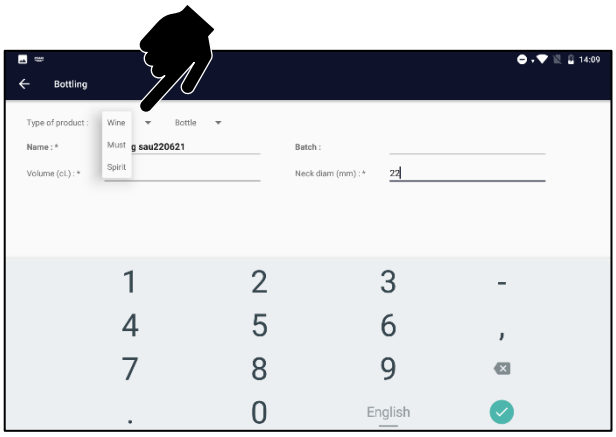
TPO is the sum of the quantity of dissolved oxygen and headspace oxygen per volume of wine (expressed in mg/L) in a BIB or a bottle.

3.2-1. Set the device

TPO (total package oxygen) measurement is only available in “Bottling” menu.

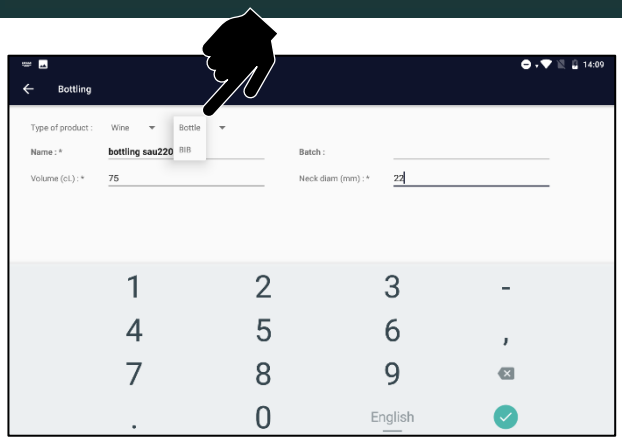


Select “**Bottling**” and press “New series”.

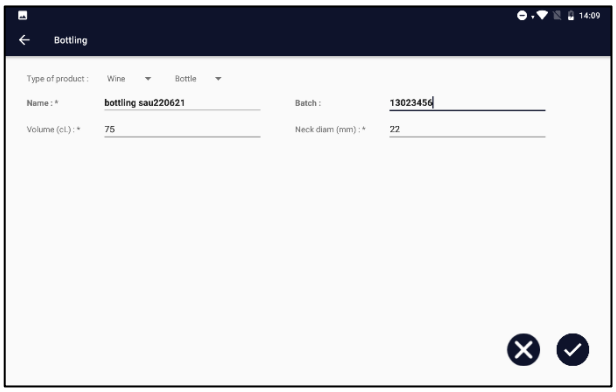


Select the type of product (must/wine/spirit) with the drop-down list.

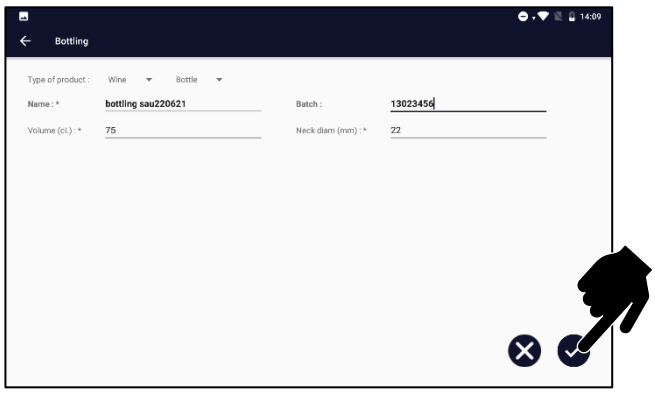
Enter/modify alcohol content and sugar concentration



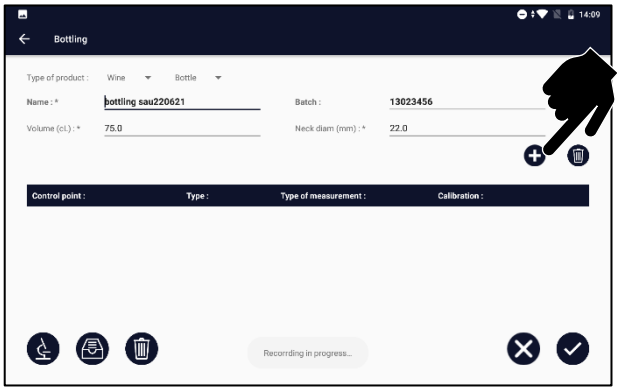
Select bottle or BIB in the drop-down list.



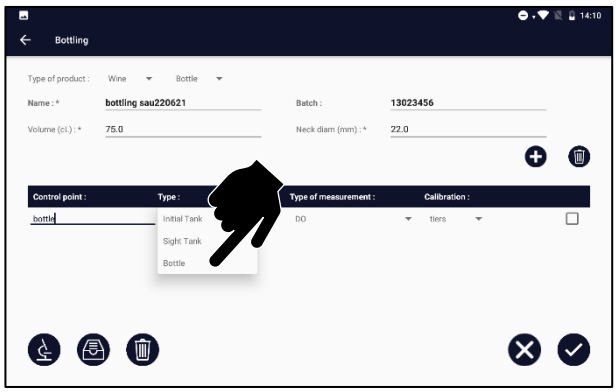
Enter a name for the series, volume of bottles and inner bottleneck diameter (consider the bottle neck diameter in the headspace of the bottle. It is often 21 mm).



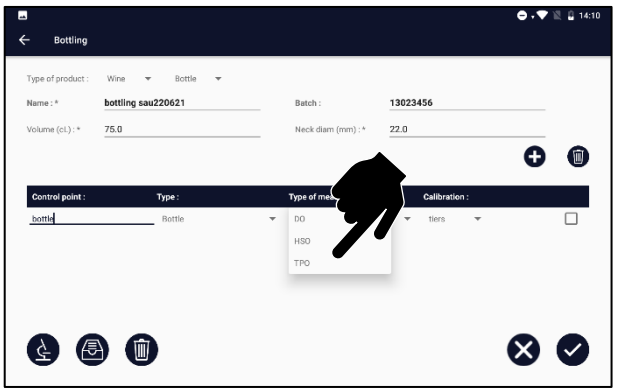
Press to validate



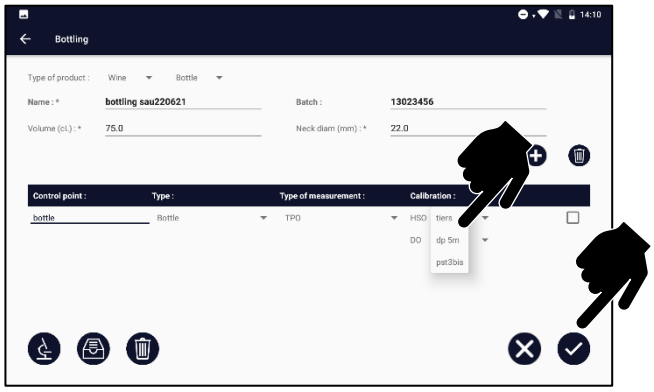
Press to create a control point.

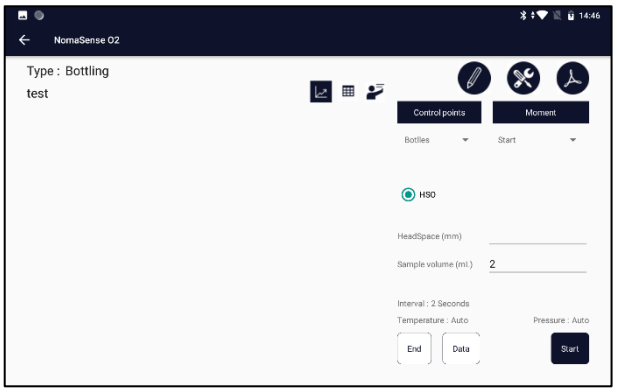


Enter a name for the control point and select "bottle" in the "**Type**" drop-down list.



Select TPO in the "**type of measurement**" drop-down list.





Select the calibrations for DO and for HSO.

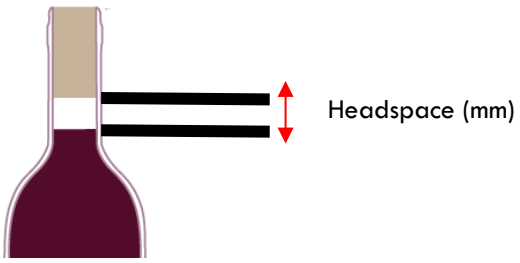
And press ✓ to validate.

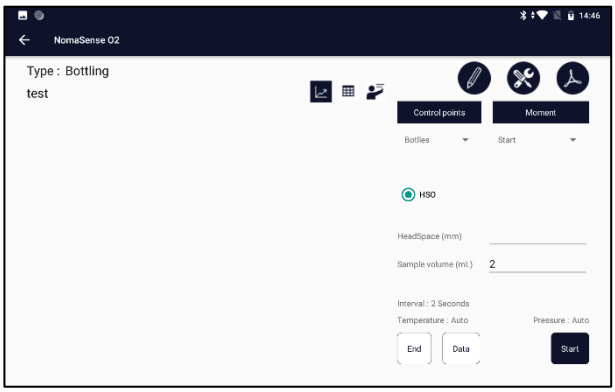
Device is now ready to start measuring. All the measurements will be saved in this series.

3.2-2. Make measurements

3.2-2.1. TPO with piercing system / DO with dipping probe

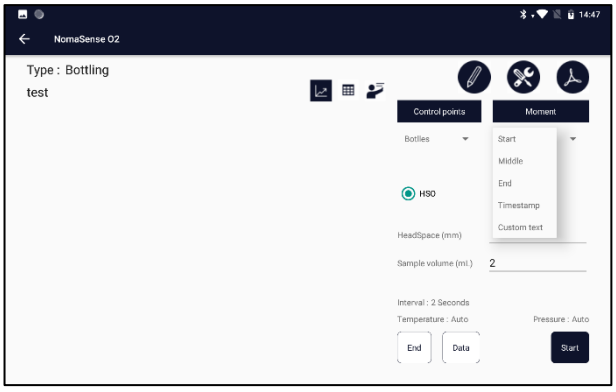
- Plug the long or short optical fiber on the device.
- Plug the temperature probe.
- Measure the headspace height in mm with the ullage meter.



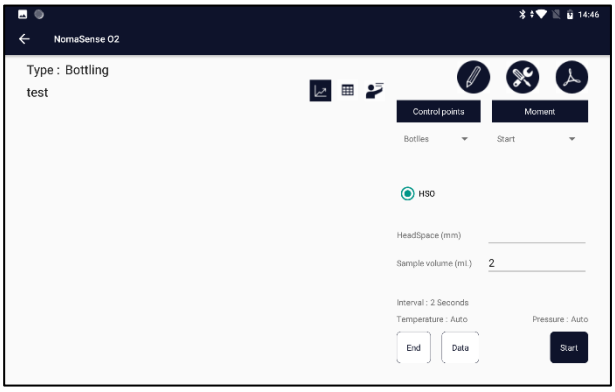


Select the control point (bottle type) to measure.

First measurement is always HSO

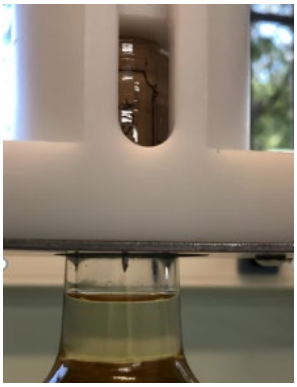


Select or enter a moment of measurement start/middle/end or bottle number as custom text or a time stamp.



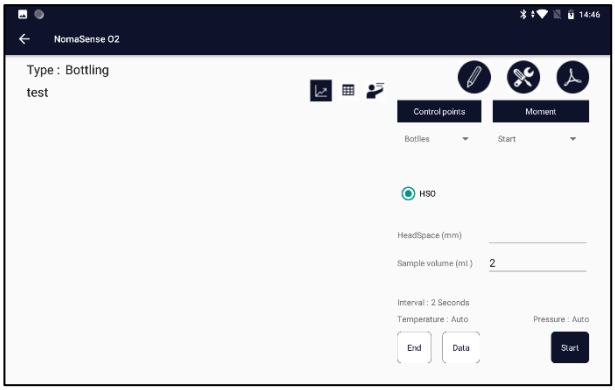
Enter the HS sample volume you will take in the syringe in mL and the headspace in mm. Note that headspace can be entered before HSO measurement, after HSO measurement or after DO measurement.





Pierce the cork with the piercing system until the holes of the needle are inside the headspace.

Move up and down the plunger of the syringe 3 to 4 times. Sample the desired sample volume and maintain the plunger.



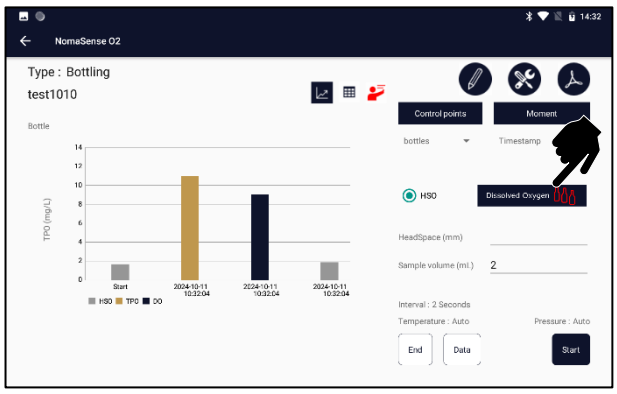
Press "**Start**"



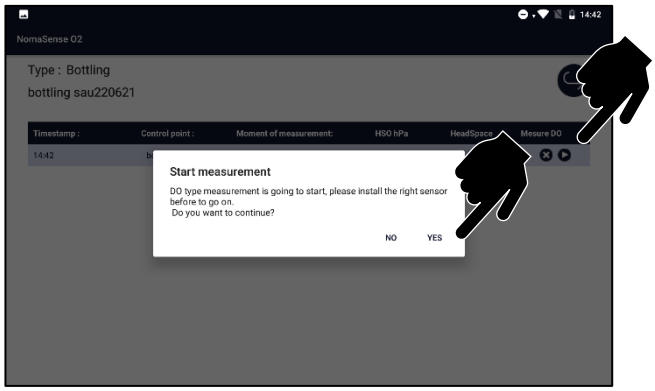
Place the optical fiber on the dot sensor of the syringe. Temperature probe must be placed in the air. Once the value is stable, measurement automatically stops.



Press OK to save measurement.



Press the “Dissolved oxygen” icon to start DO measurement. Open the bottle, place the dipping probe and temperature probe inside the bottle.



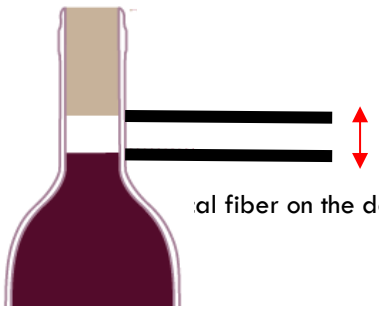
Select the bottle to measure (ordered by HSO timestamp) and press “Play” and “YES”.



Agitate the dipping probe to have a shorter stabilization time. Once the value is stable, measurement automatically stops. At the end of measurement press OK

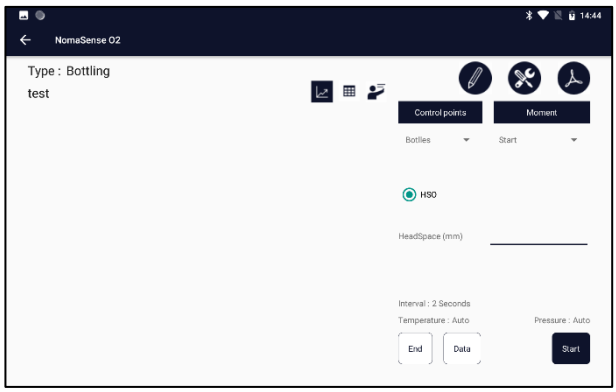
3.2-2.2. With dot sensors

- Place bottles with 2 dot sensors on the bottling line, and collect these bottles after bottling.
- **Wait at least 40 minutes before making the dissolved oxygen measurement: the dot sensors must equilibrate with the wine.**
- Measure the headspace height in mm with the ullage meter

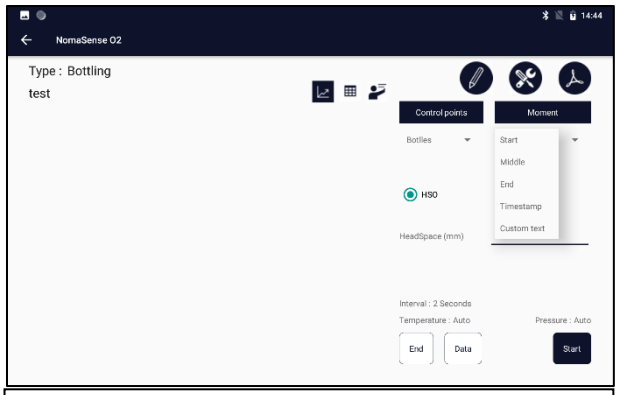


- Plug the al fiber on the device.

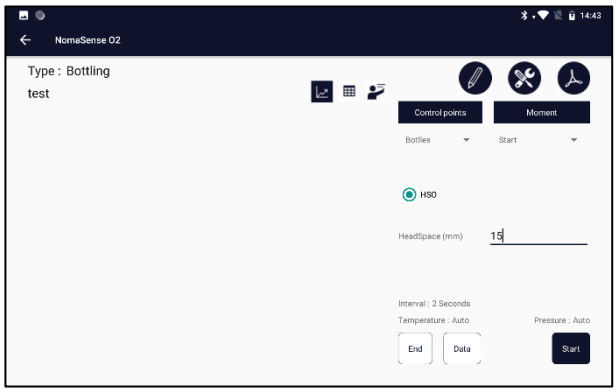
- Plug the temperature probe.



First measurement is always HSO



Select a moment of measurement: start/middle/end or bottle number as custom text or time stamp.



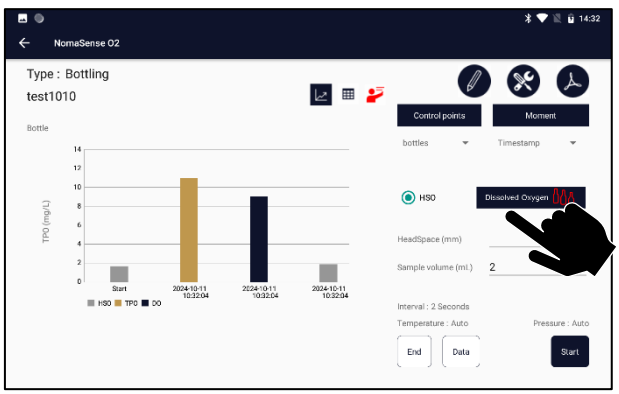
Enter the headspace in mm. Note that headspace could be entered before HSO measurement, after HSO measurement or after DO measurement.



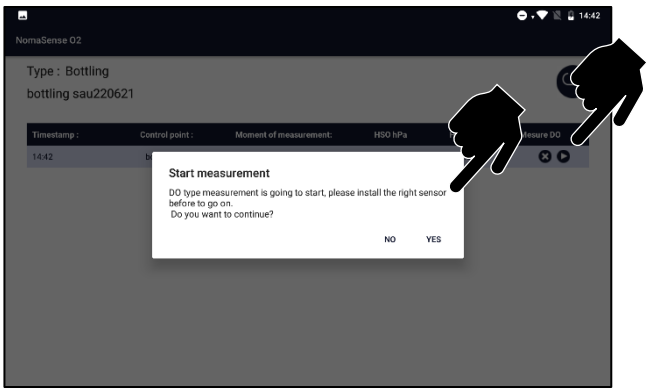
Place the optical fiber on the dot sensor glued in the headspace. Temperature probe must be placed in the air. Once the value is stable, measurement automatically stops.



Press OK to save measurement.



Take a bottle from the line (without sensor), open it and place the temperature probe inside. Press the "Dissolved oxygen" icon to start DO measurement.

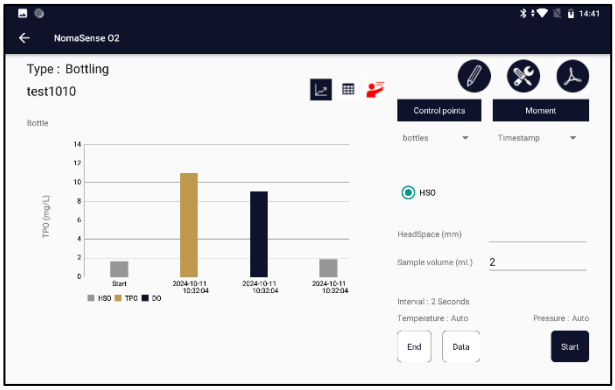




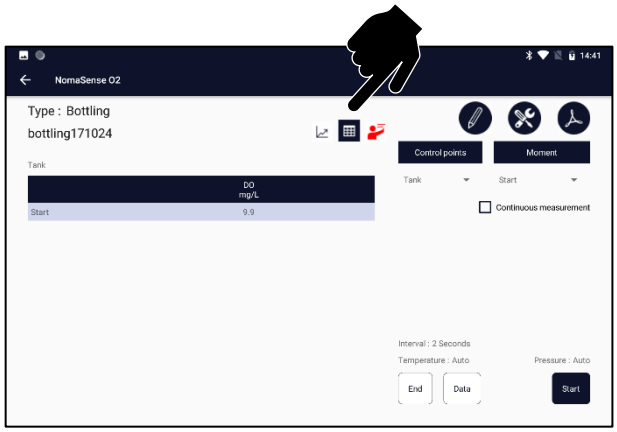
Select the bottle to measure (ordered by HSO timestamp) and press “Play” and “YES”.

Place the optical fiber on the dot sensor in contact with wine. Once the value is stable, measurement automatically stops.

3.2-3. Results

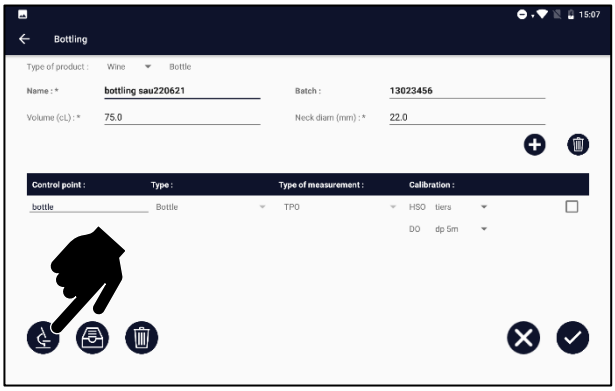


Results are displayed in a graph with TPO/DO and HSO. For each moment of measurement, average values (standard deviation is displayed if number of bottles is over 2).



A table view is also available, a line per moment of measurement with DO, HSO and TPO.

Variation coefficient is displayed if number of bottles is over 2 for one moment of measurement.



It is possible to access all single measurements, by pressing the “pencil” icon and “microscope” icon.



It is possible to modify some parameters (such as headspace height) for a given measurement by pressing the pencil at the end of the row.

3.3- TPO in Bag in Box (BIB) with spouts

3.3-1. Necessary material

Transparent Vitop spout



PSt3 dot sensors (1 per spout)



Gluing kit (glue, spatula)



Temperature probe



Optical fiber





BIB “Cone meter” from *Performance BIB*

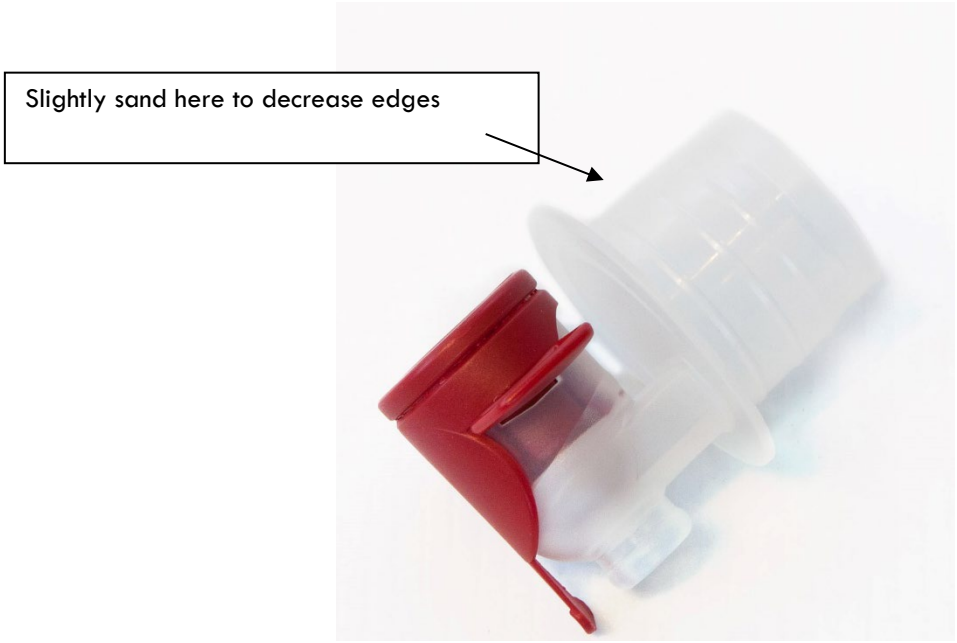


3.3-2. Prepare the Vitop spout

Glue a dot sensor inside the transparent Vitop spout.



TIP: Lightly sand the exterior of the Vitop spout with sandpaper, to make it easier to remove it from the BIB after filling.



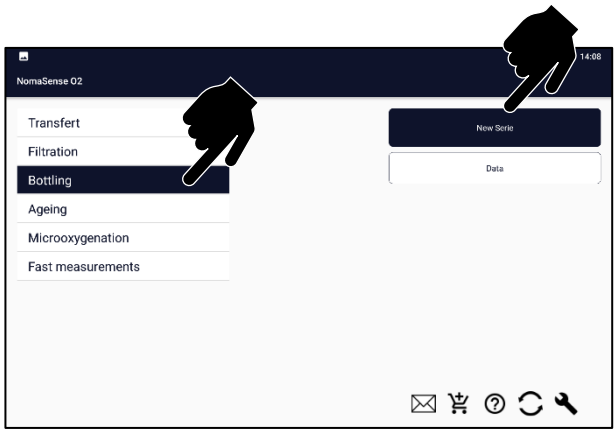
3.3-3. Prepare the pouch

- Prior to BIB filling, remove Vitop spout from the pouch to install the transparent Vitop spout with a dot sensor.

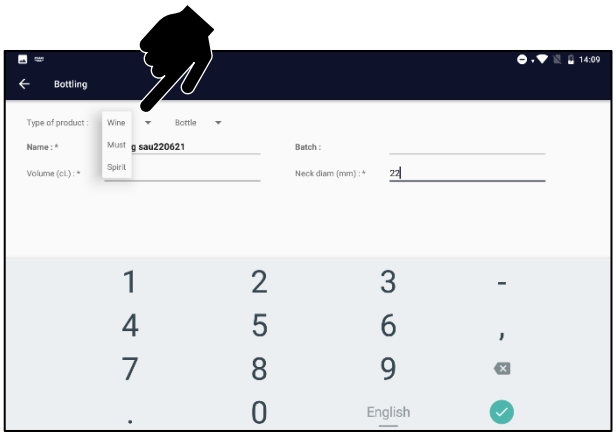
- Collect this equipped pouch after filling.

3.3-4. Prepare Nomasense O2 C300

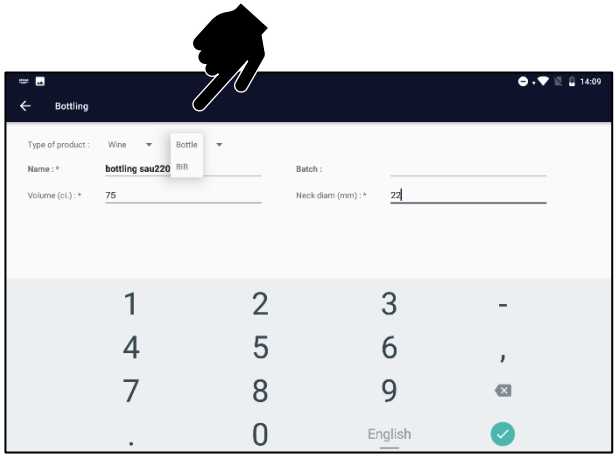
TPO (total package oxygen) measurement is only available in “Bottling” menu.



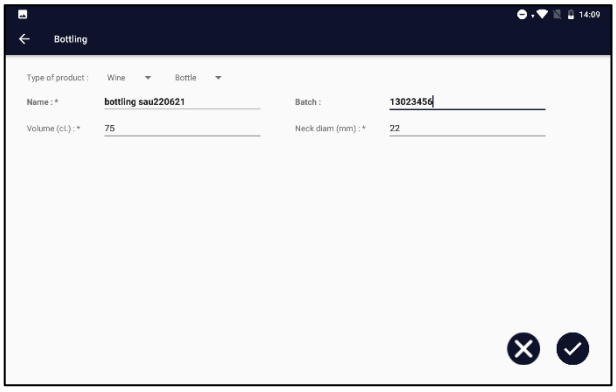
Select “Bottling” menu and press “New series”.



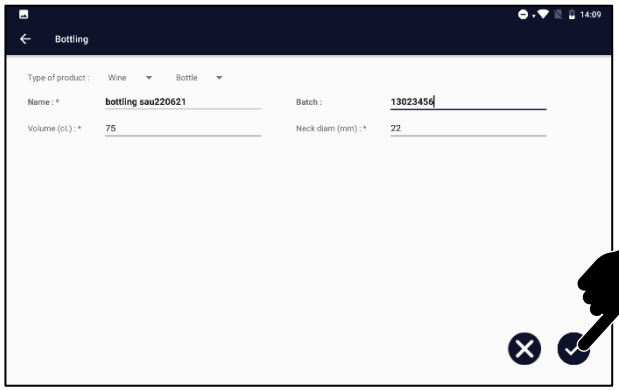
Select the type of product (must/wine/spirit) in the drop-down list. Enter/modify alcohol content and sugar concentration



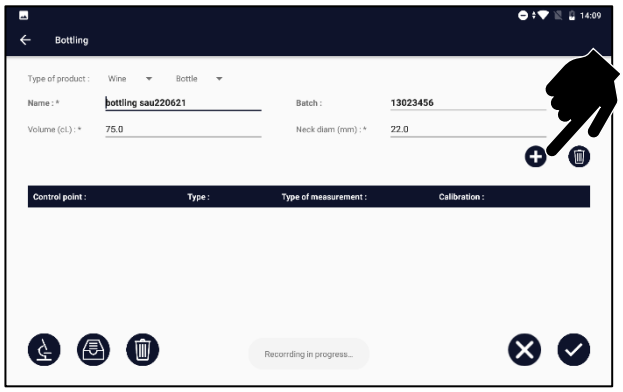
Select BIB in the drop-down list.



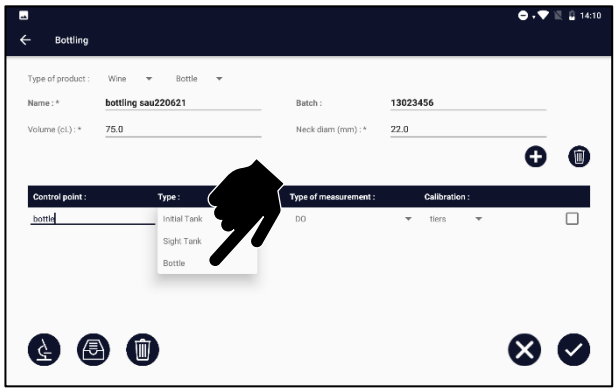
Enter a name/volume for BIB pouch.



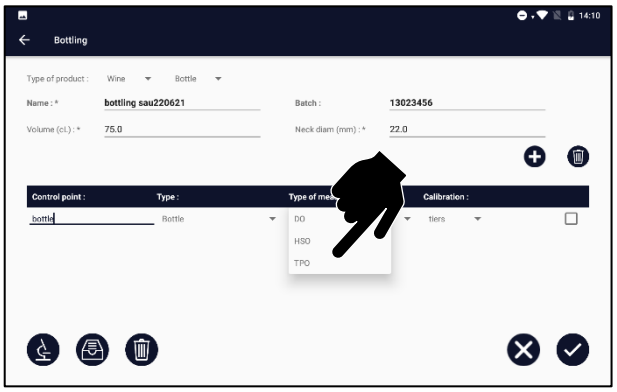
Press “Validate”.



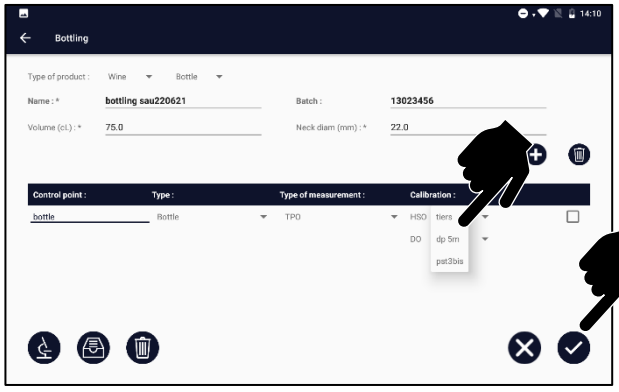
Press “Add” to create a control point.



Enter a name and select “BIB” in the drop-down list.

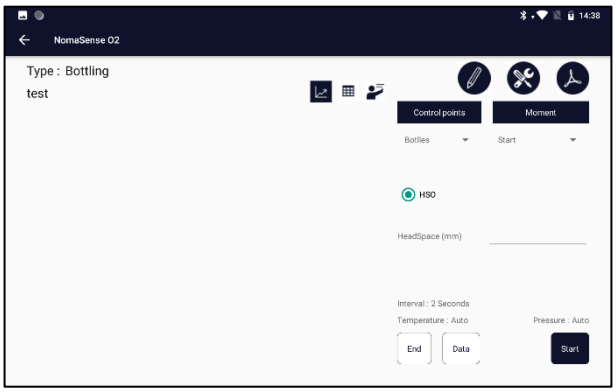


Select TPO for type of measurement.



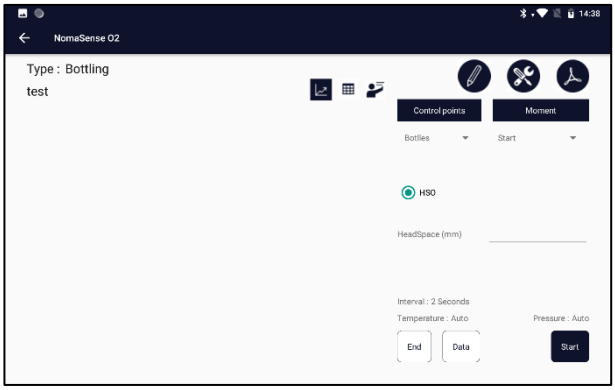
Select the calibrations to use for DO and for HSO.

And press “Validate”.

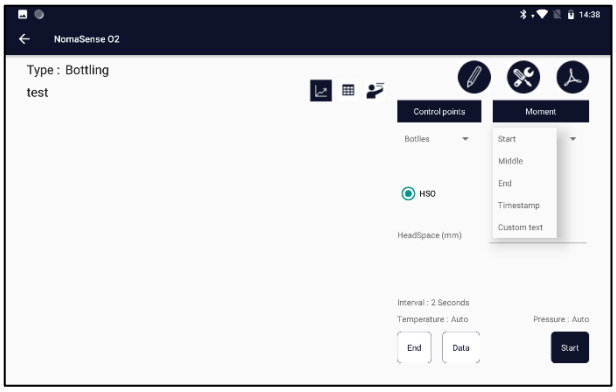


Device is now ready for measurement. And all the measurements will be saved in this series.

3.3-5. Make measurements



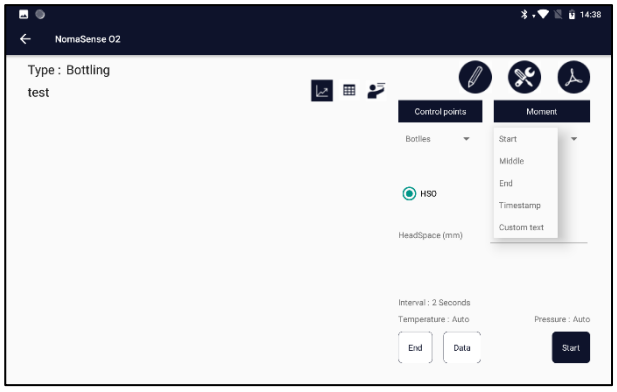
First measurement is always HSO



Select or enter a moment of measurement start/middle/end or BIB number as custom text or a time stamp.



Position the pouch so that the spout is in contact with the bubble in the pouch. Place the temperature probe in ambient air or enter manually the ambient temperature in the parameter menu.



Press “Start”.



Place the optical fiber on the dot sensor.



Measure the volume of the cone. Place the pouch on a flat surface and press it moderately to form the cone.

If you are using a non-transparent pouch, you have to remove the non-transparent layer. Roll the pouch between your fingers to separate the layers.



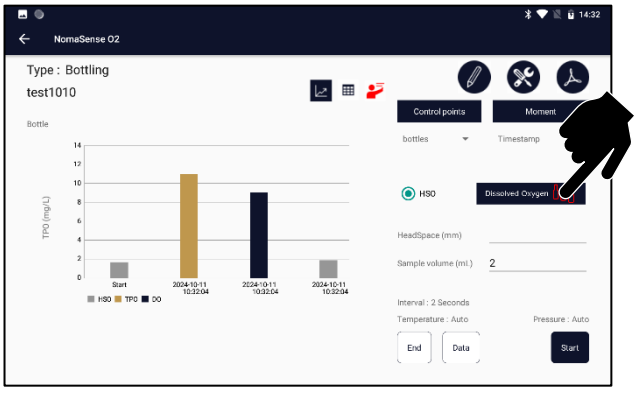
Press OK to save measurement.



Measurement automatically stops when the value is stable.

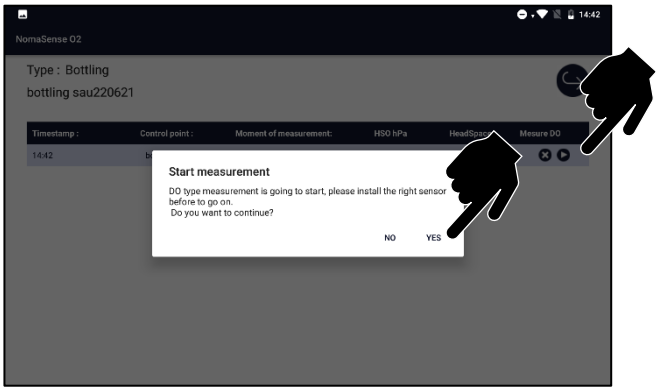


Enter cone volume. It is also possible to enter cone volume after DO measurement or before HSO measurement.



Press the red bottle icon to start DO measurement. Retrieve a BIB from the line without a sensor, pour some wine into a bucket and place the temperature probe in the wine.

Or enter manually the wine temperature in the parameter menu.





Select the BIB to measure (ordered by HSO timestamp) and press “Start” and “YES”.

Pour some wine during measurement to have a correct value.

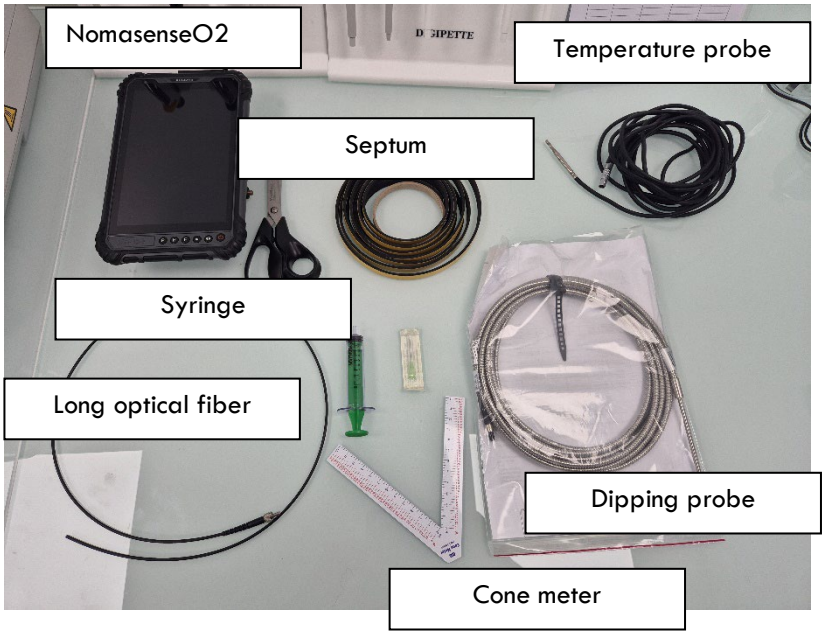




Place the optical fiber on the dot sensor in contact with wine. Once the value is stable, measurement automatically stops. At the end of measurement press OK

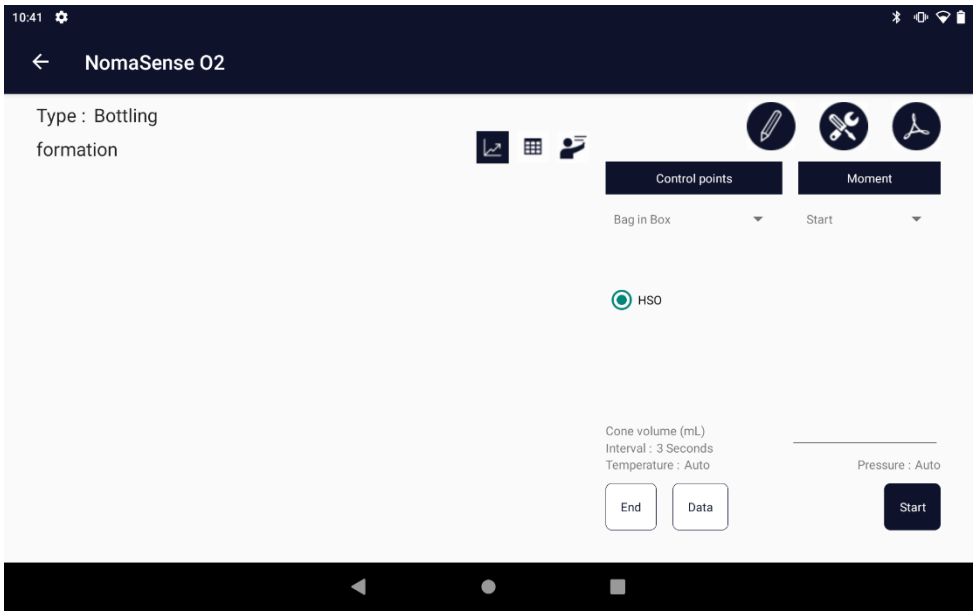
Even if the measurement stopped, you can redo it by pressing .

3.4- TPO measurement in BIB with syringe and dipping probe



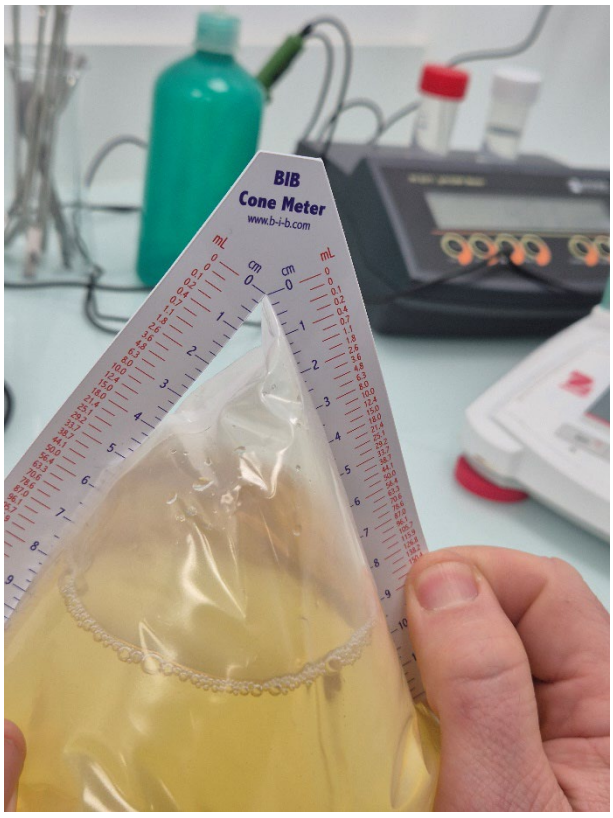
Septum is a self-adhesive EPDM (5 mm thickness) used to create a sealing between the needle of the syringe and the pouch.

Prepare a new series (using the template according to the BIB's volume) select for HSO calibration the syringe and for DO the dipping probe.

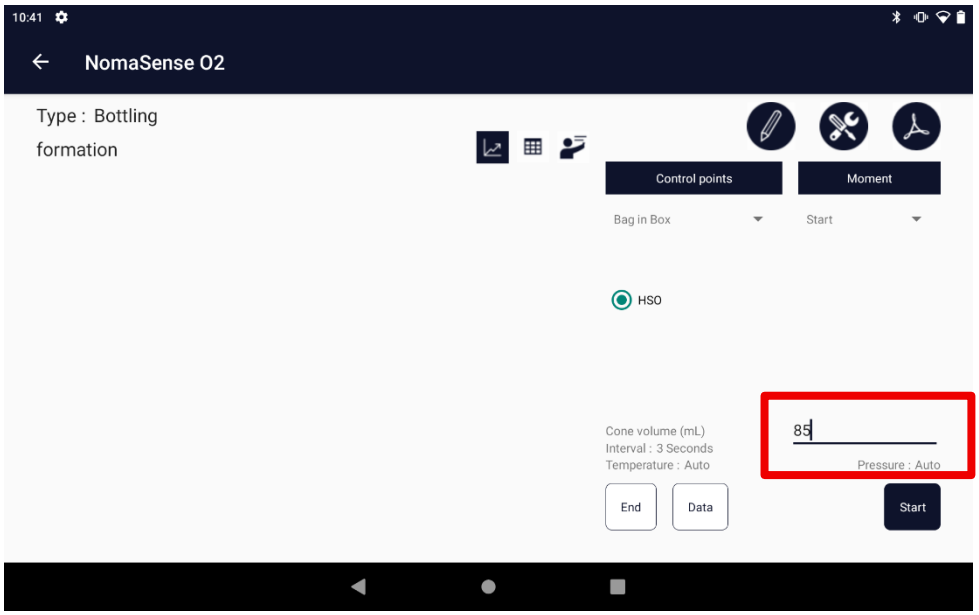


Measure the cone volume using the cone meter, press the pouch on a flat surface to make the cone firm enough to be measured.



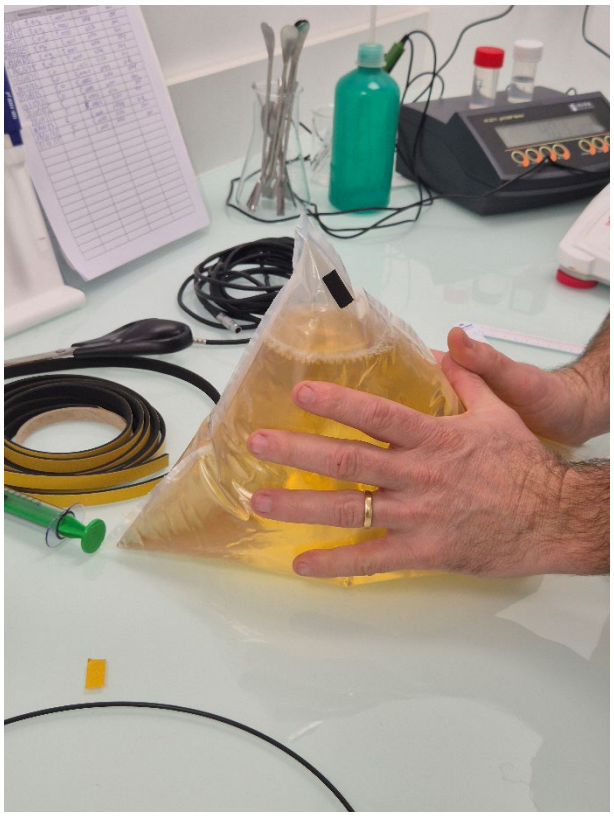


Enter the value for the cone volume in the device.

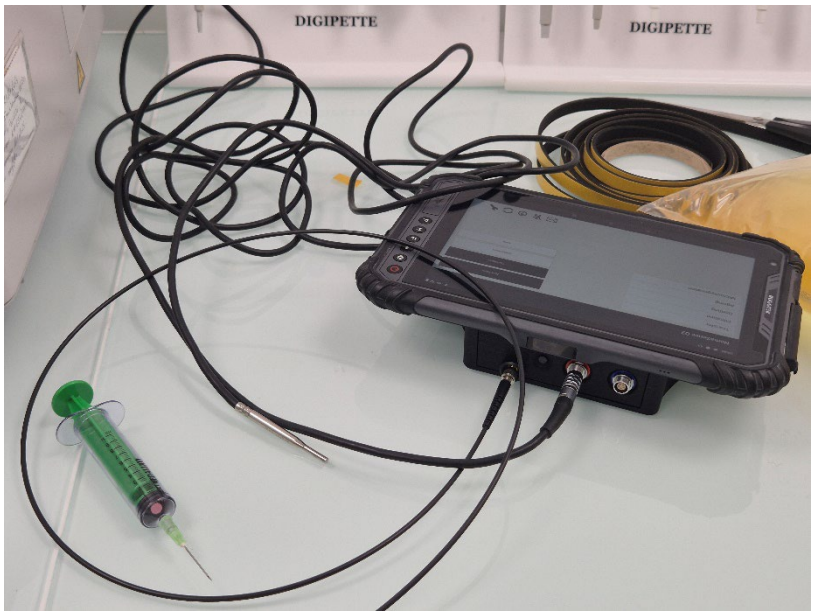


Cut a small piece of ribbon (2 cm length) to glue on the pouch on the bubble.



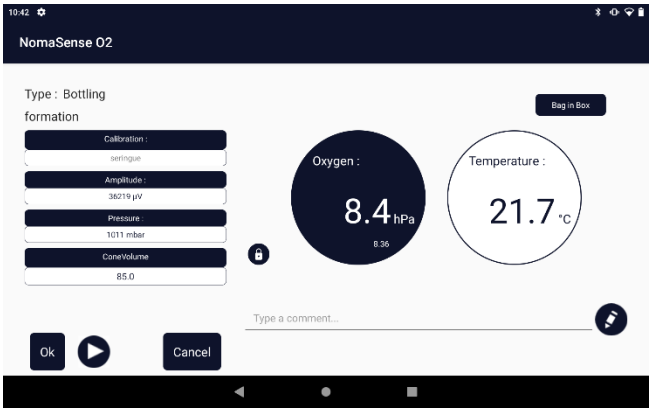


Connect the temperature probe and the long optical fiber to the Nomasense O2 C300. Use the syringe equipped with a 5 mm PSt3 sensor and a small needle to sample a small volume of gas.

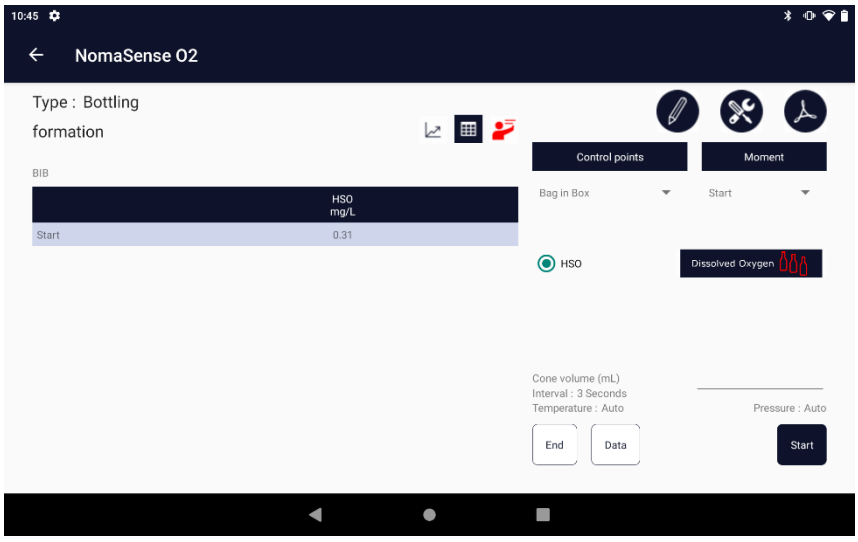


Use the syringe to sample a small volume of gas through the ribbon glued on the pouch. Volume between 2 and 6 mL. Press “Start” to launch HSO measurement.

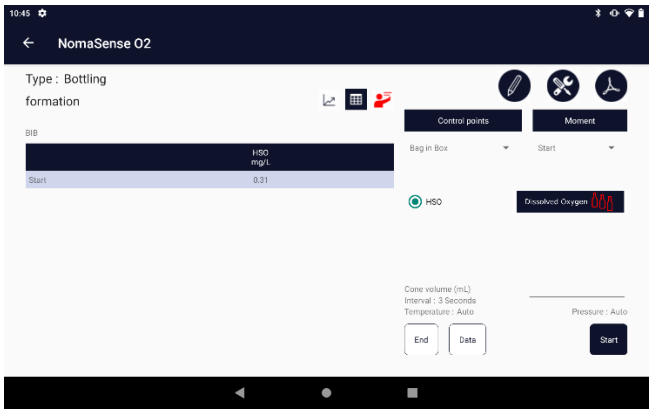


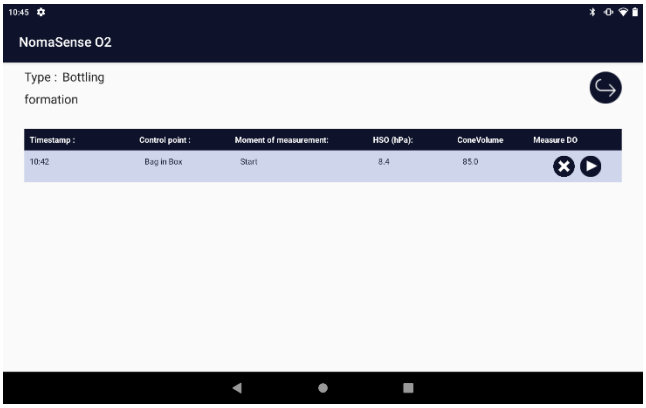


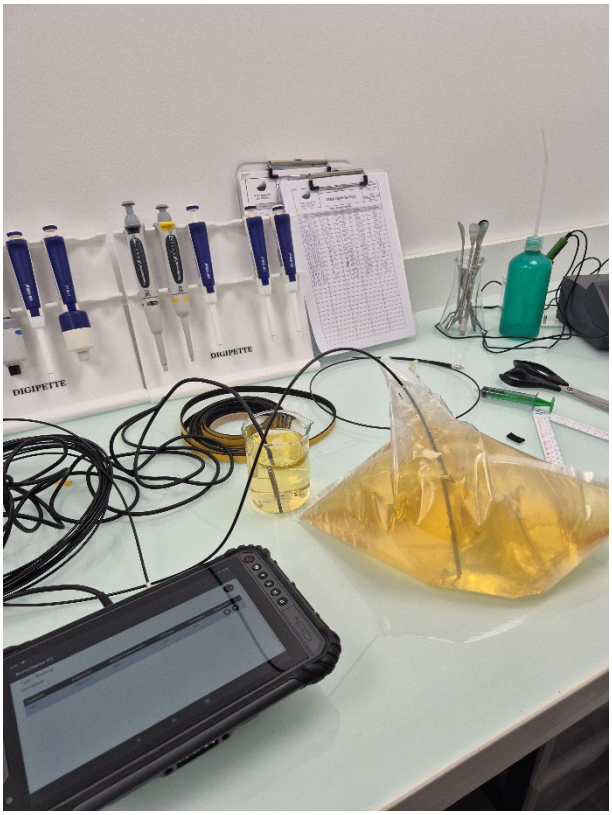
Press OK to save the results. HSO measurement must be made in hPa. Nomasense O2 C300 will convert the value in mg/L using the BIB volume and the cone volume.

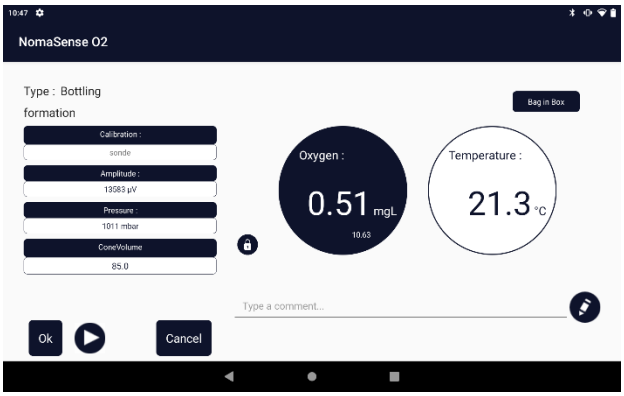


Connect the dipping probe to the Nomasense O2. Sample a volume of wine in another pouch for temperature measurement. Place the dipping probe inside the pouch in the wine. Press the “Dissolved oxygen” icon and the “Play” icon corresponding to the BIB to measure.



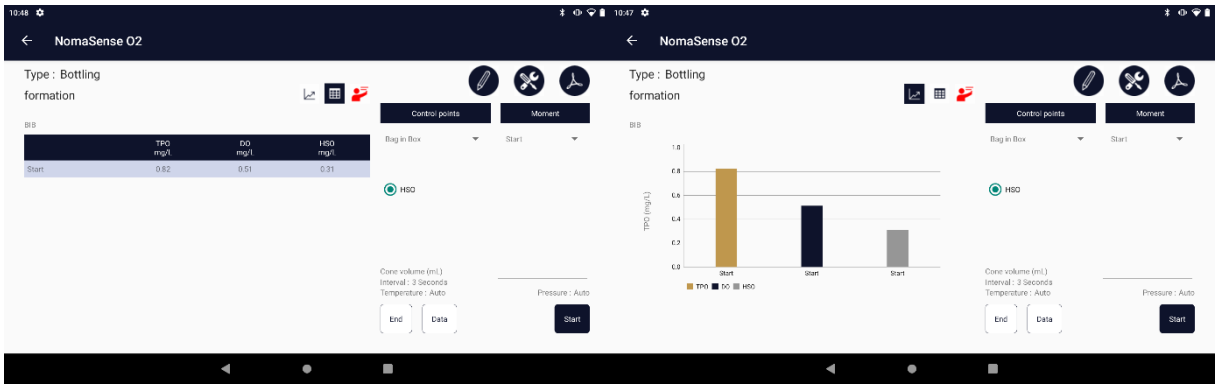


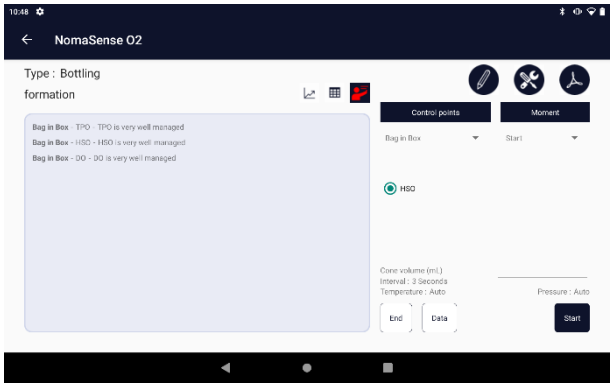




Once the measurement is complete, press OK to save the result.

TPO, HSO and DO values are displayed on the device as a graph and a table, the interpretation of the results is available directly on the device.

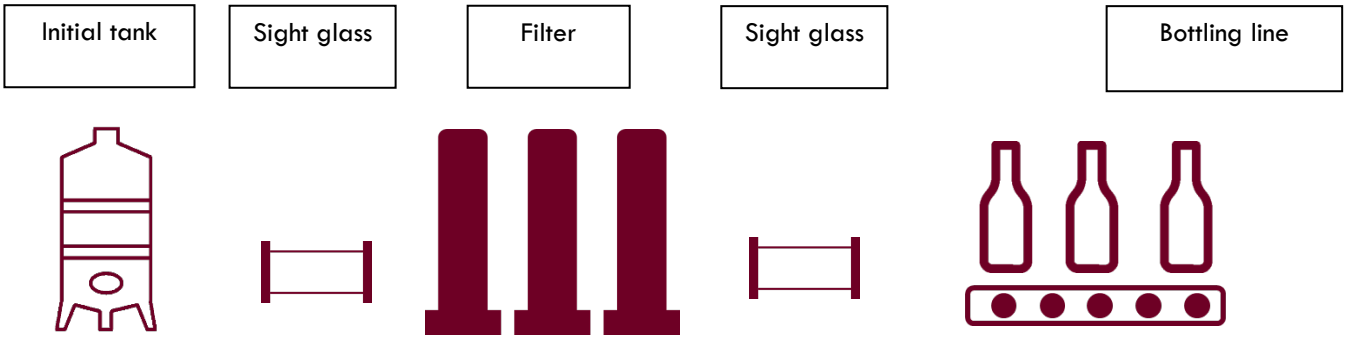




3.5- Audit a bottling line

3.5-1. Where, when and what?

To audit the performances of a bottling line, measurements have to be made at several locations and several moments.



DO mg/L

HSO hPa

DO mg/L

HSO hPa

DO mg/L

TPO mg/L

Control point	Start	Middle	End
Initial tank	DO mg/L	DO mg/L	DO mg/L
Sight glass	HSO hPa or % O2 DO mg/L	DO mg/L	DO mg/L
Bottle/BIB	TPO mg/L	TPO mg/L	TPO mg/L

Nice to have

Strongly recommended

3.5-2. How many bottles?

3.5-2.1. At the beginning of bottling

Pick up bottles 2 per 2.

- First 2 bottles
- After 2 revolutions of the filling heads
- After 4 revolutions of the filling heads
- After 8 revolutions of the filling heads
- After 12 revolutions of the filling heads

- After 16 revolutions of the filling heads
- After 20 revolutions of the filling heads.

3.5-2.2. In the middle of bottling

- Pick up 12 to 20 bottles (depends on the number of corking heads on the line)
- Collect consecutive bottles
- Identify the corking head for the first bottle
- If bottling process is long: this step can be repeated twice.

3.5-2.3. At the end of bottling

Pick up bottles 2 per 2.

- 700 bottles before the end
- 500 bottles before the end
- 200 bottles before the end
- Last revolution before the end

3.5-3. Additional measurements

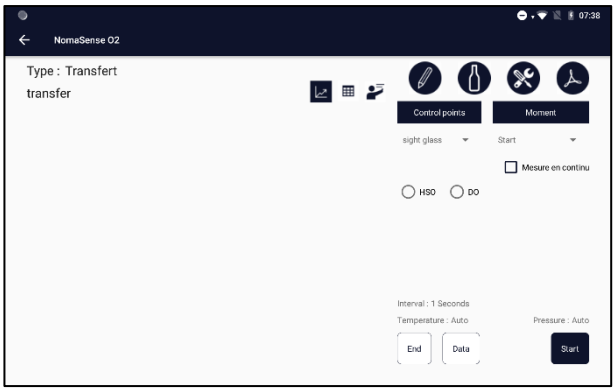
Control point	Start	Middle	End
CO_2 concentration	Each sampled bottle	4 bottles (min, max and average value of TPO)	Each sampled bottle
Bottle pressure (not compatible with TPO piercing system)	Each sampled bottle		Each sampled bottle

3.6- Check the inertization of the pipes

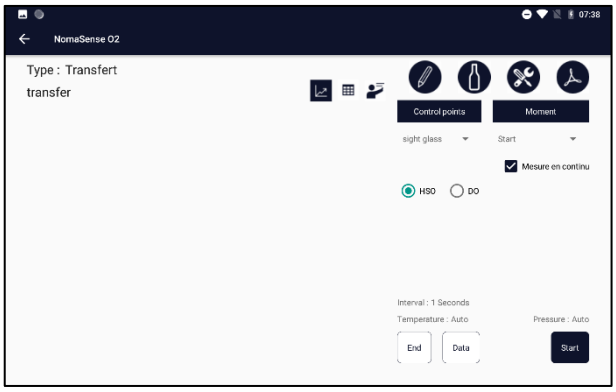
- Place a sight glass on the pipe with a 10 mm diameter PSt3 sensor.
- Inject inert gas inside the pipe and make continuous measurement (low interval of measurement: 2 seconds for instance)
- Create a series with a sight glass type control point and HSO type of measurement (or HSO & DO if you wish to measure DO in the wine on the same sight glass afterwards)
- A 2 SMA optical fiber can be used with a sight glass adapter to make continuous measurements (see right-hand photo below).







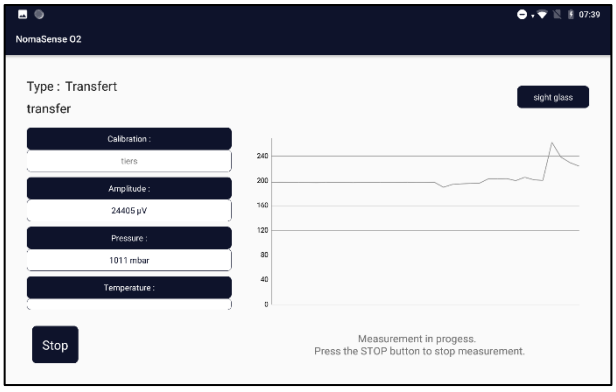
Select the control point and the moment of measurement (start or time stamp)



Select HSO and continuous measurement and press Start.



Place the optical fiber on the sensor or use the sight glass adapter for continuous measurement.



Then press “Stop” and “Save”.

3.7- Recalibrate a sensor

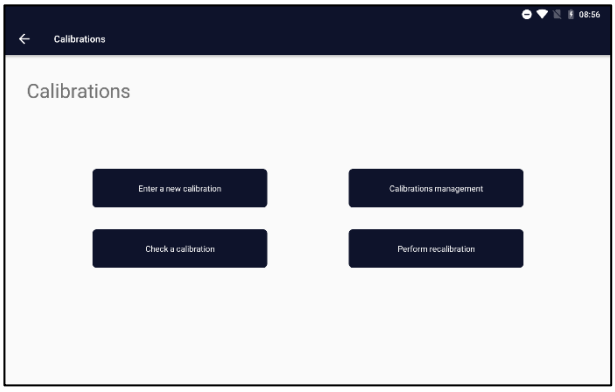
In "Calibrations" / "Calibrations management", it is possible to see calibration status:

- Red flag: last calibration check wasn't passed ➔➔ recalibration is needed.
- Orange flag: calibration wasn't checked for a long time.
- No flag: everything is OK.

Before recalibrating a sensor, place the sensor and the temperature probe in the room where you will recalibrate it for half an hour. It will allow the system to be perfectly equilibrated and will ensure best conditions for recalibration. Sensor must be dry.

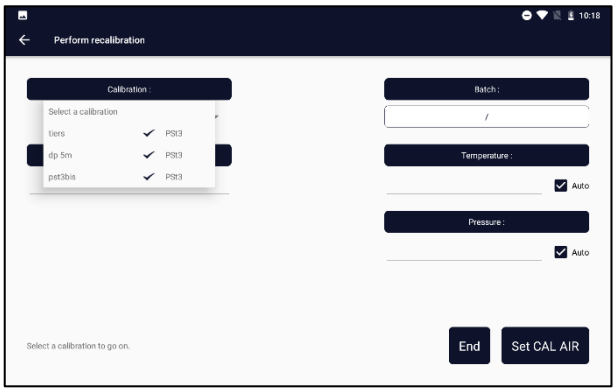
Connect the temperature probe to the device to use automatic correction of temperature.

- Plug the dipping probe to be calibrated or an optical fiber.

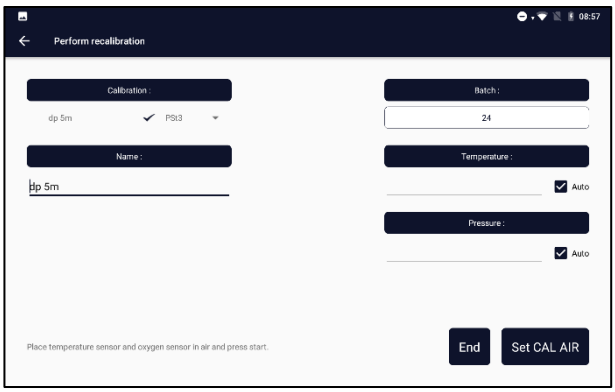


Open the "Calibrations" menu

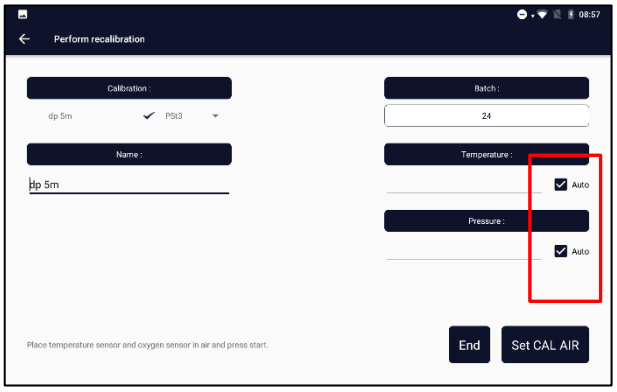
Select "Perform recalibration".



From the drop-down list, select the calibration to recalibrate.

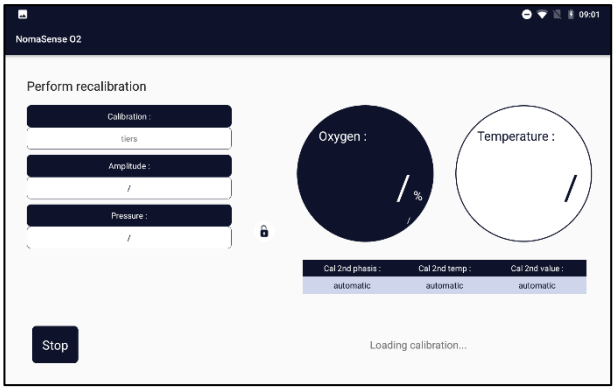


It is possible to modify the name or create a new calibration. In this case, calibration with previous name is saved and calibration with new name corresponds to the recalibration.



Leave pressure and temperature in auto mode. It is possible to enter a value for these parameters but it is better to use the inbuilt sensor for pressure and the temperature probe. Press "Set CAL AIR" *

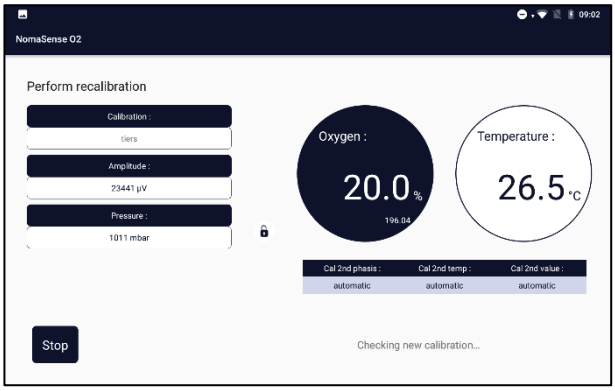
** if you are calibrating dot sensors, place and maintain the optical fiber on the sensor during the calibration.*



The device loads the calibration.



Then adjust the LED intensity and calibration parameters.



The device checks the new calibration.



At the end, press OK to save the calibration. The %O2 value must be between 19.5 and 22.5%. Otherwise, a red flag appears next to the calibration name.

If the amplitude is under 10,000 µV after recalibration, try to launch the recalibration again. If the signal remains too low:

- Optical fiber can be broken and must be changed
- Dot sensors are too old and must be changed
- Glass wall is too thick and 10 mm dot sensors should be used.

3.8- Unclog the needle of the piercing system

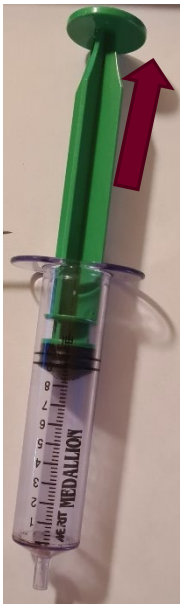
Small pieces of cork may get into the needle hole and clog the needle of the piercing system. If you raise the plunger of the syringe and it does not stay in its position when the needle is in the air: the needle is certainly clogged.

To unclog the needle you can use a small needle or pin to remove small parts of cork from the piercing system's needle holes.

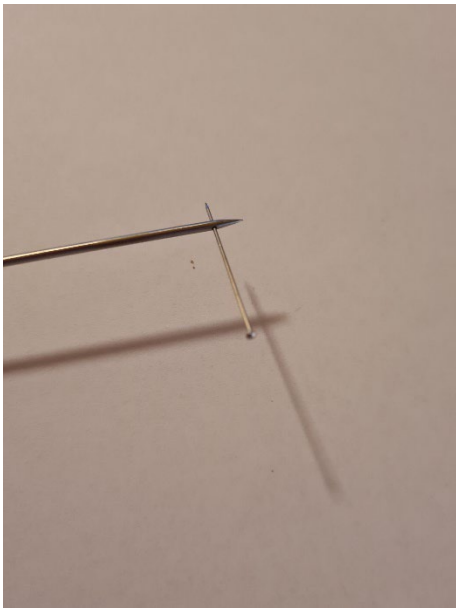
You can use the syringe to push the small parts that clogged the needle through the needle holes.

For that:

- Remove the syringe from the Piercing System
- Move up the plunger
- Replace the syringe in its position
- Move down the plunger…
- Use a small pin/needle to eliminate small parts of cork







An air compressor can be used to blow cork particles by positioning the blower instead of the syringe.





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