

WQS

Nomasense O₂ C300

User guide



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Nomasense O₂ C300

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1. Quick start

1.1- Prepare the device

1.1-1. Connect a sensor or an optical fiber

SMA connector for optical fiber or dipping probe.



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 let the short optical fiber connected to protect the device from dust.

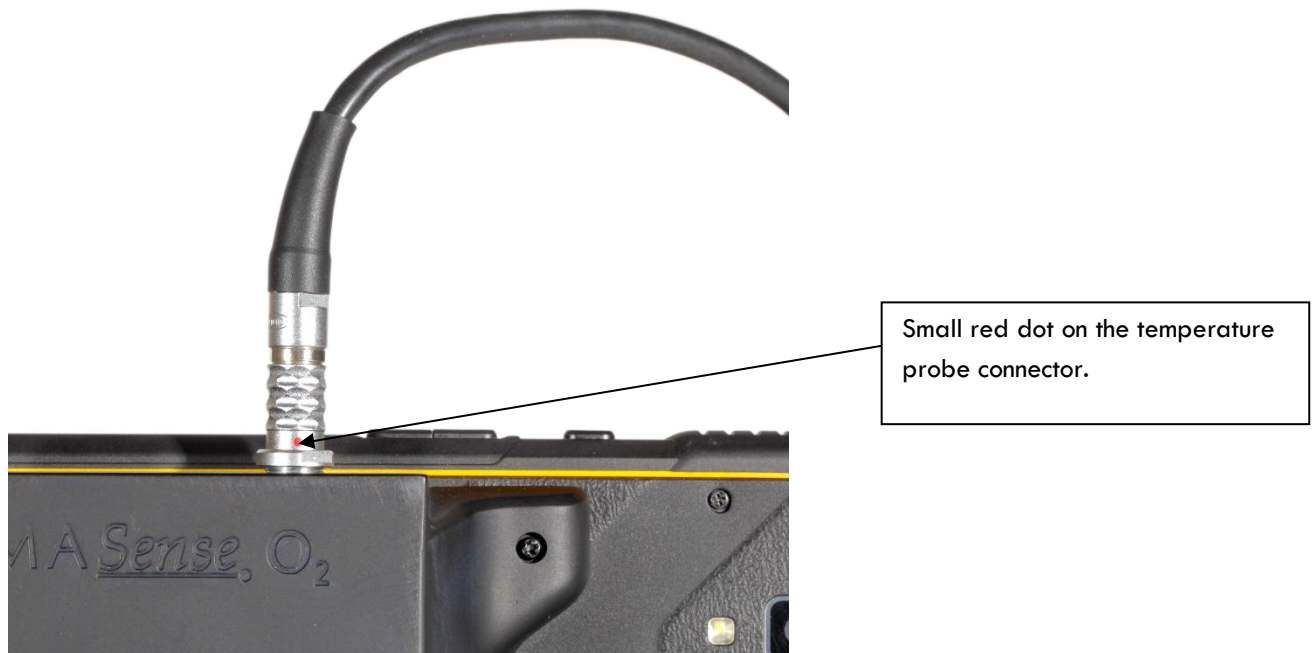
1.1-2. Connect the temperature probe



Connector for temperature probe (PT100)

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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. Start up the device



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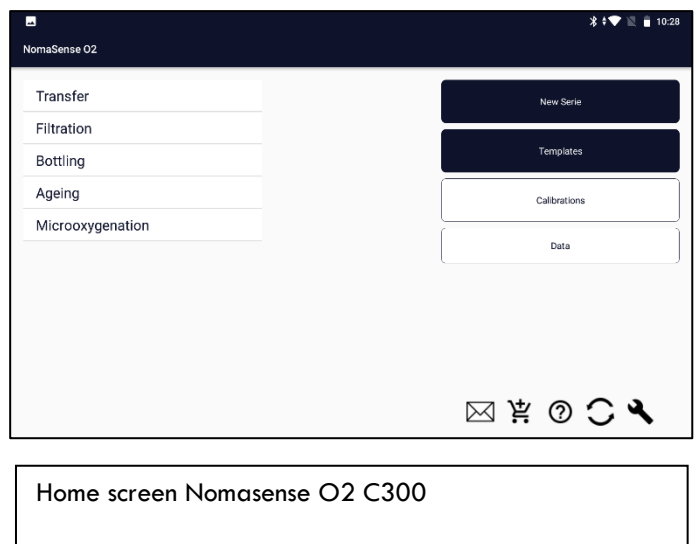
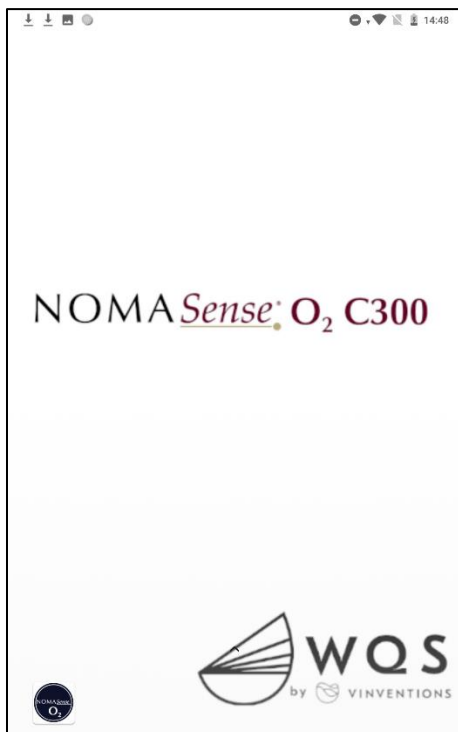
To start the device up, press the power button for 3 seconds if the device is off. If the device is in standby mode, press briefly the power button.

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

Once the device started, please press the icon



to launch the APP.

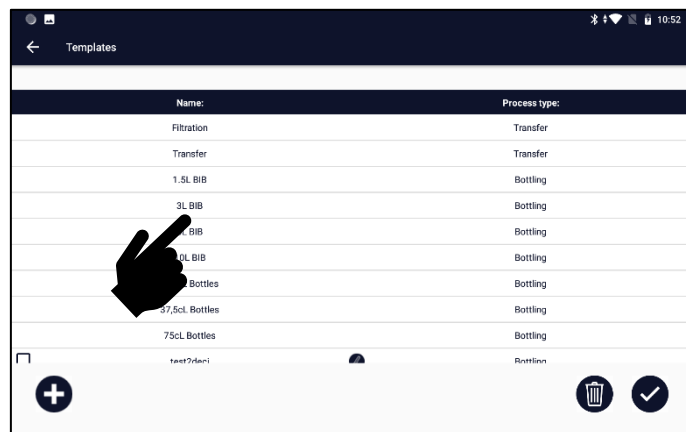
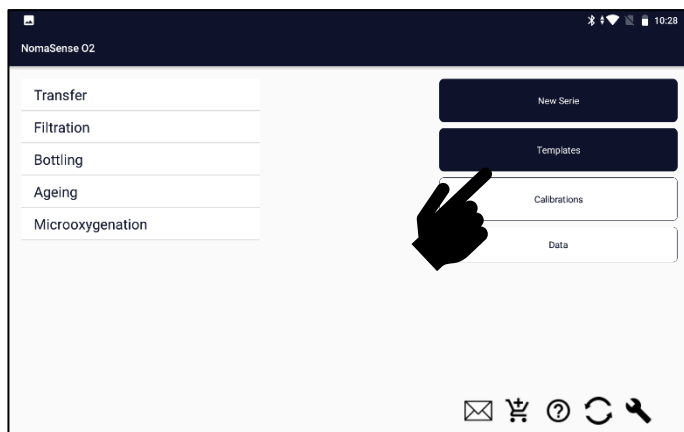


If the icon is not on the home page please slide the screen with your finger to view other pages.

Once the APP icon is pressed, a message box is displayed to indicate that the measurement device is connecting (could take until 15 seconds). The home screen is then displayed.

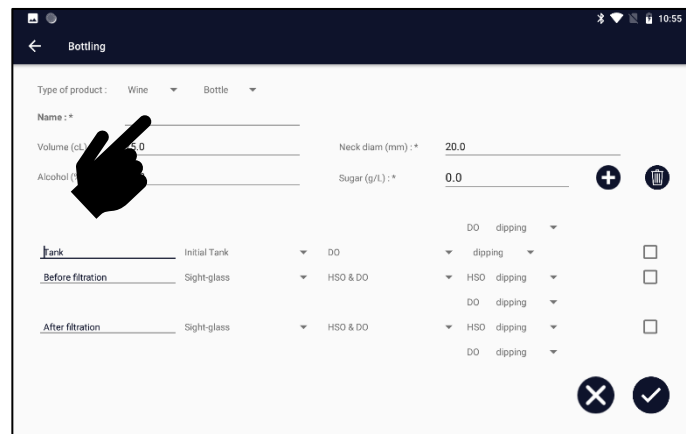
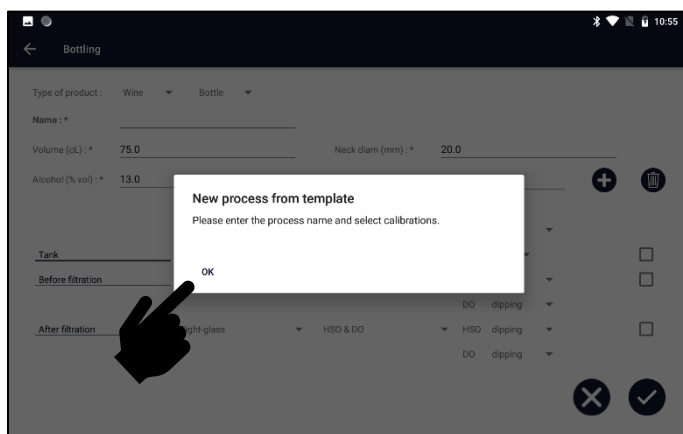
1.2- Model-based measurements

1.2-1. Select the model to be used



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

1.2-2. Finalize settings



Enter a name for the follow-up, and modify alcohol and sugar content if necessary.

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Type of product : Wine Bottle
 Name : * bottling171024
 Volume (cL) : * 75.0 Neck diam (mm) : * 20.0
 Alcohol (% vol) : * 13.0 Sugar (g/L) : * 0.0

bogging battling bottoming

q w e r t y u i o p
 a s d f g h j k l
 ?123 , English

Type of product : Wine Bottle
 Name : * bottling171024 Batch :
 Volume (cL) : * 75.0 Neck diam (mm) : * 20.0
 Alcohol (% vol) : * 13.0 Sugar (g/L) : * 0.0

Control point	Type	Type of measurement	Calibration
<u>Bottles</u>	Bottle	TPO	HSO piercing
<u>Tank</u>	Initial Tank	DO	DO dipping
<u>Before filtration</u>	Sight-glass	HSO & DO	DO dipping

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



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

Type of product : Wine Bottle
 Name : * bottling171024 Batch :
 Volume (cL) : * 75.0 Neck diam (mm) : * 20.0
 Alcohol (% vol) : * 13.0 Sugar (g/L) : * 0.0

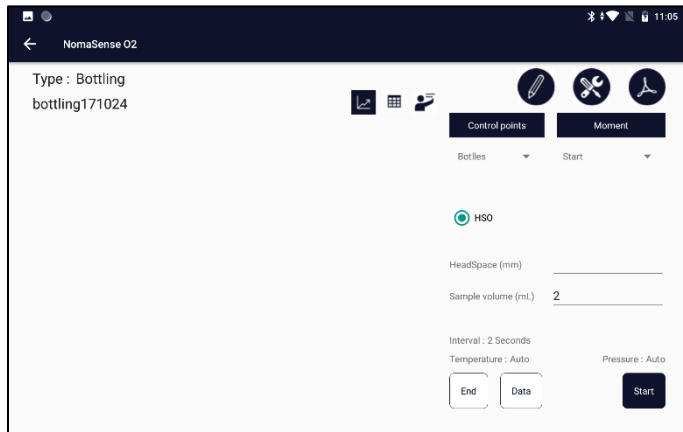
Tank Initial Tank DO dipping
 Before filtration Sight-glass HSO & DO dipping
 After filtration Sight-glass HSO & DO dipping

Scroll to the bottom of the screen to make sure all calibrations have been affected, then press confirm.

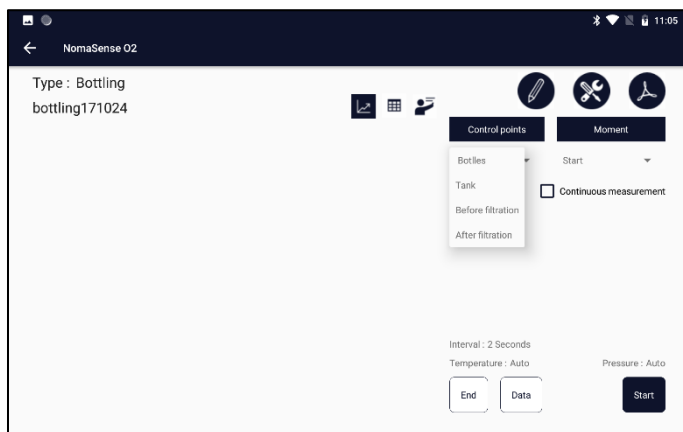
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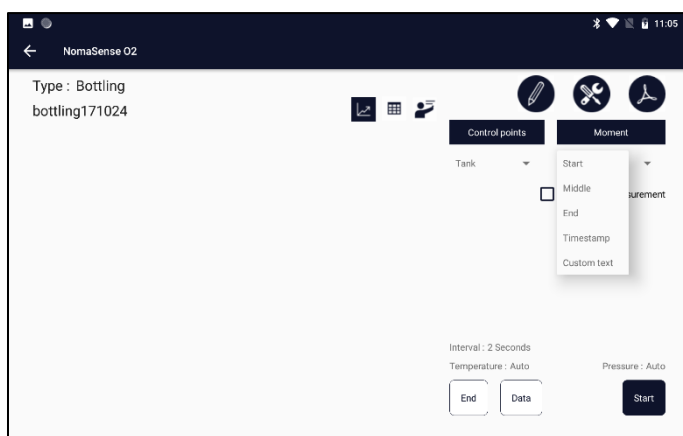
1.2-3. Start a measurement from a model



Connect the measurement system to be used (short or long fiber, immersion probe). Connect 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.

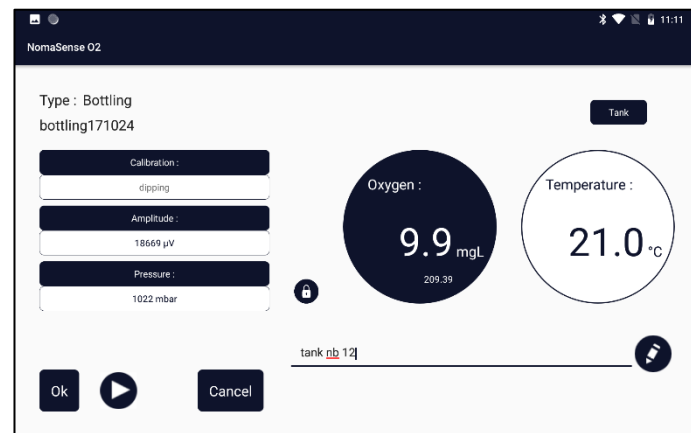
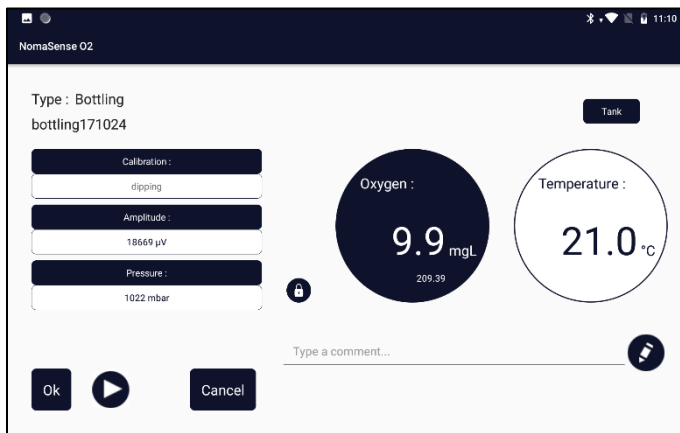
NB: You can modify the temperature parameters (use of temperature probe or manual value) and the interval between measurements in the parameters menu.



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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  and the measurement is locked.

It is possible to restart a measurement.

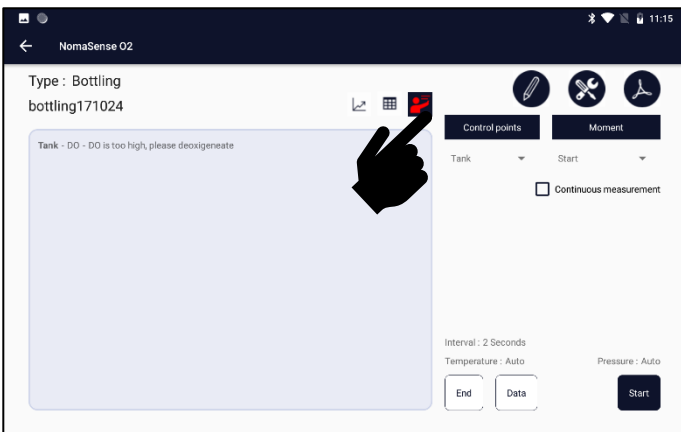
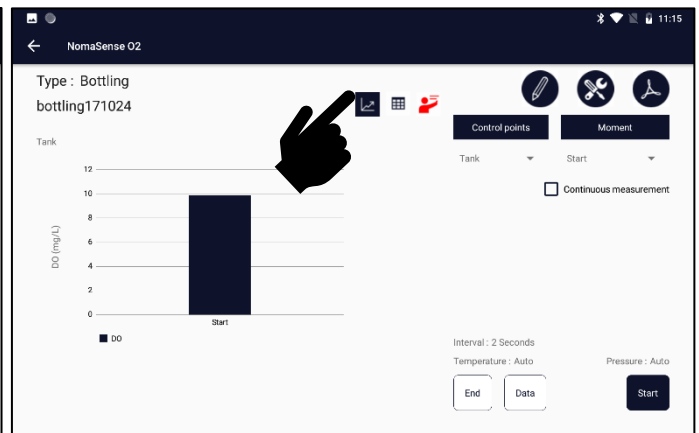
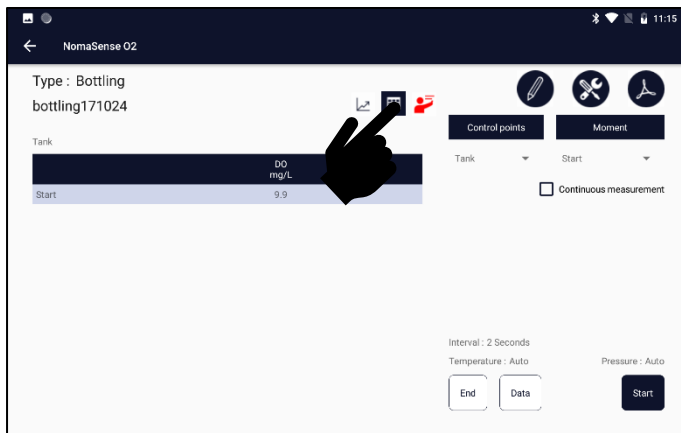
Press the  to save the measurement

Press the  to restart a measurement.

Press  to add a comment to the measurement (bottle number, corking head, CO₂ concentration, etc.).

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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.

1.2-4. For TPO and other measurements: see the complete guide

1.2-5. Switch off the device

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

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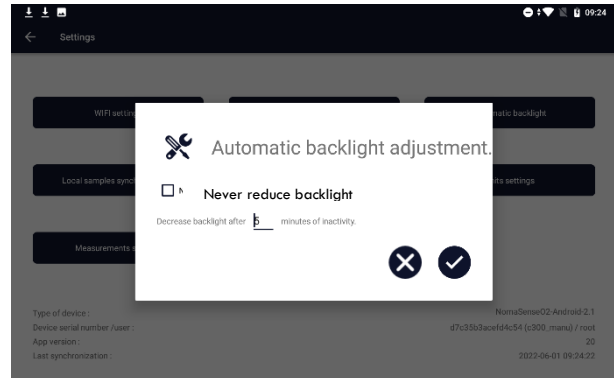
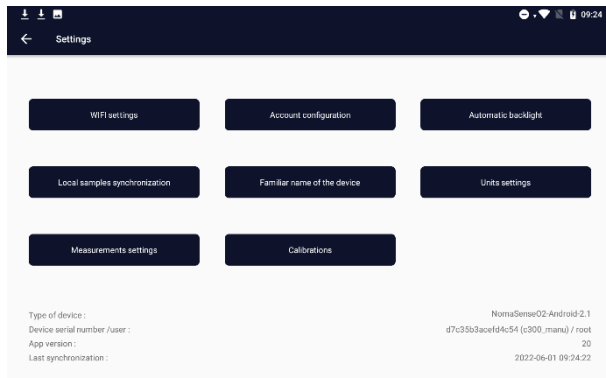
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1.2-6. Battery

Use the charger provided with the device.

Deep discharges might decrease battery capacity.

To save battery, use “Automatic backlight” in “Settings” menu of the APP.



For more details, see paragraph 2.2-5.3

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 O2 C300

2.1-1.1. Connect a sensor or optical fiber

SMA connector for optical fiber or dipping probe.



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 let the short optical fiber connected to protect the device from dust.

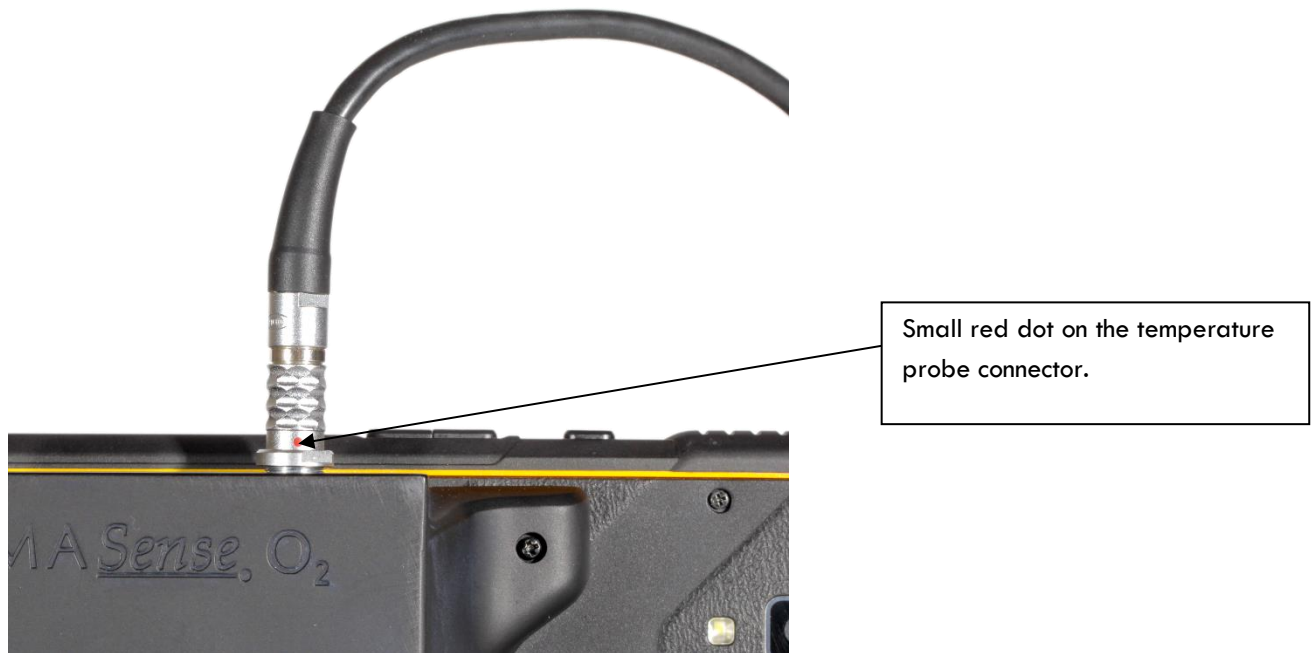
2.1-1.2. Connect the temperature probe



Connector for temperature probe (PT100)

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The temperature probe connector is a “fool-proof” one: it has a small red dot 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.

2.1-1.3. 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, press briefly the power button.

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

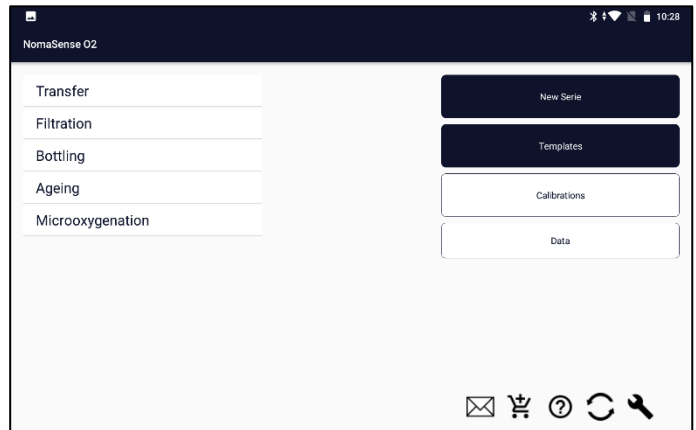
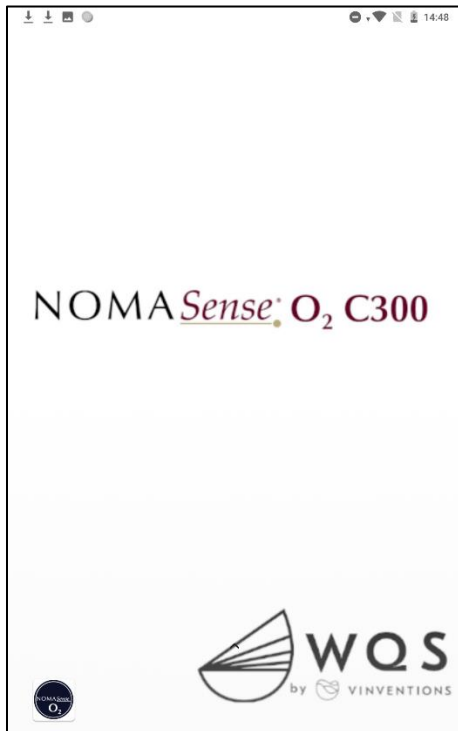
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Once the device started, please press the icon



to launch the APP.



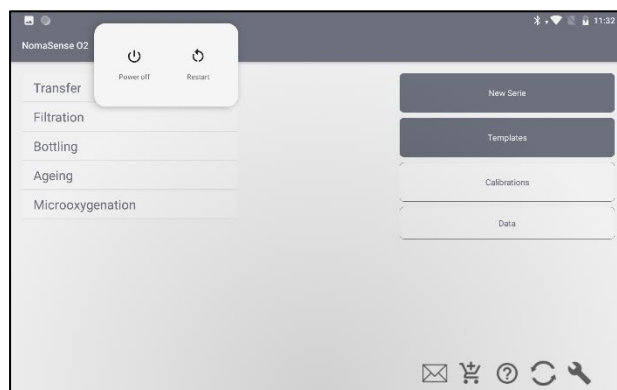
Home screen Nomasense O2 C300

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 (could take until 15 seconds). The home screen is then displayed.

2.1-1.4. 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.

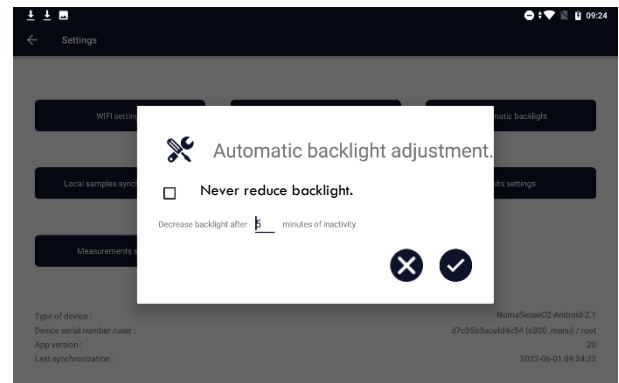
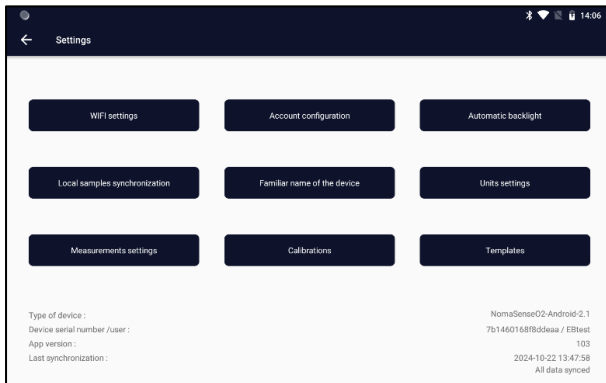


2.1-1.5. Battery

Use the charger that is provided with the device.

Deep discharges might decrease battery capacity.

To save battery, use “Automatic backlight” in “Settings” menu of the APP.



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 to use automatic temperature compensation with 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 “fool-proof” connector please refer to paragraph 2.1-1.2.



2.1-3. Optical Fibbers

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 flowcell.



Long optical fibber

Handle with care: do not bend.

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



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2 SMA optical fibber

To measure in a sight-glass with adapter for round container.

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 handle with care. Please do not bend the optical fibber.



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 sensor to facilitate the calibration input.



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



Dot sensors have to be glued with food grade silicon glue.

Several diameters are available :

- 5mm 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 glass, please keep them in a black 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 head space 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 3.7.

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.



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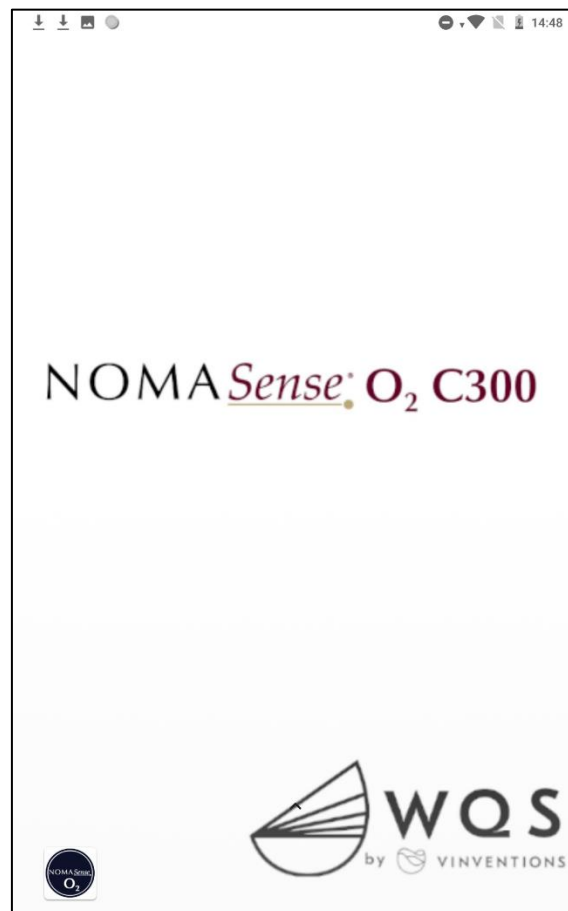
2.2- Application

2.2-1. Launch the app

Once the device started, please press the icon

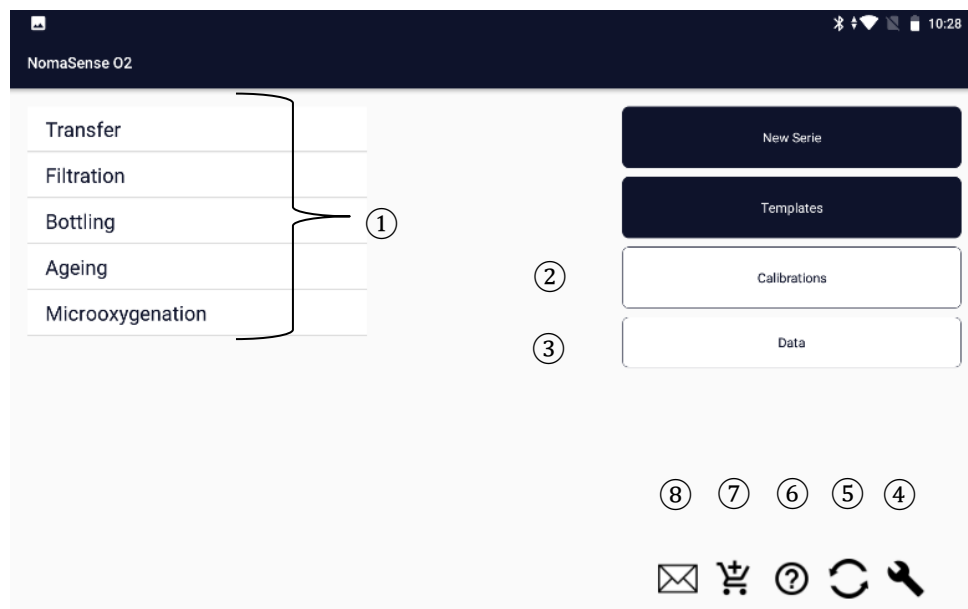


to launch the APP.



Once the APP icon is pressed, a message box is displayed to indicate that the measurement device is connecting (could take until 15 seconds). The, home screen is displayed.

2.2-2.Home Screen



①: measurement types

②: access to calibration management

③: access to previous measurements

④: access to settings

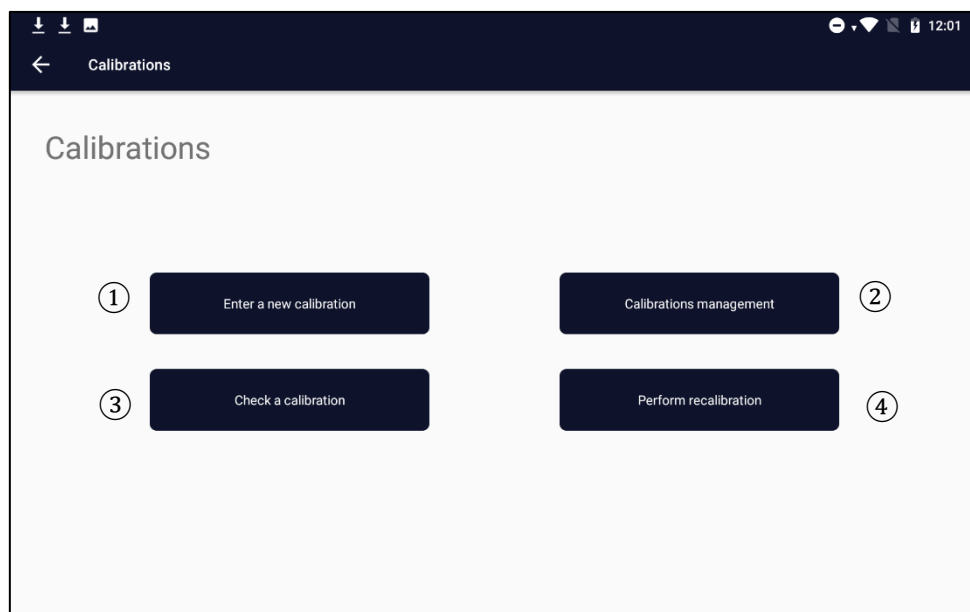
⑤: check the availability of a new version of the application

⑥: access to help

⑦: check subscription

⑧: contact support

2.2-3. Calibrations



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

2.2-3.1. Enter a calibration

2.2-3.1.1. Manually

The screenshot shows a mobile application interface for entering a new calibration. At the top, there's a dark blue header with a back arrow and the text 'Enter a new calibration'. Below the header, there are two buttons: 'NomaScan' and 'QR scan'. To the right of these buttons is a dropdown menu currently showing 'Probe', with 'Piercing System' and 'Dot Sensor' as options. Below the buttons is a form with four fields: 'Name:', 'Batch:', 'Type:', and 'Pressure:'. The 'Type:' field is populated with 'PSt3'. Below this is another set of five fields: 'Cal 0 phasis:', 'Cal 0 temp:', 'Cal 2nd phasis:', 'Cal 2nd temp:', and 'Cal 2nd value:'. At the bottom of the form are two buttons: 'Save' and 'Cancel'.

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”.

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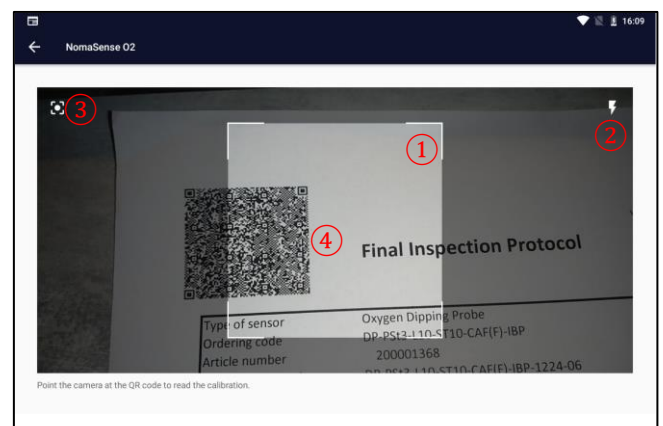
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2.2-3.1.2. With QR code

Sensors come with a QR code, it is possible to read the QR codes with Nomasense O₂ C300 and create a new calibrations.

- 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 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").
- Press "save".

Press QR scan on top of the screen. The camera switches on.



Place the QR code in the light frame. ①
It is possible to switch off the light by pressing ②
Is also possible to force the focus by pressing ③ and then pressing ④

Once the QR coder 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 QRcode, it will be deleted when reading.

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2.2-3.1.3. 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 WIFI connection is available, it is possible to download data from the cloud database to create a calibration. For that:

Name :	Batch :	Type :	Pressure :
	180806-000	PSI3	1011

Cal 0 phase :	Cal 0 temp :	Cal 2nd phase :	Cal 2nd temp :	Cal 2nd value :
59.37	24.1	26.06	23.6	100.0

Press « Enology Portal »

Enology Portal

20220725001

CANCEL OK

Enter the « batch id » and press OK

Name :	Batch :	Type :	Pressure :
dipping	20220725001	PSI3	995

Cal 0 phase :	Cal 0 temp :	Cal 2nd phase :	Cal 2nd temp :	Cal 2nd value :
59.95	20	25	20	100

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

2.2-3.2. Calibration management

Calibration : dp 5m (1) ✓ PSI3 ▲ (2) Probe (3) Last control : (4) 2022-06-07 12:22

Name :	Batch :	Type :	Pressure :
dp 5m	24	PSI3	1010

(5)

Cal 0 phasis :	Cal 0 temp :	Cal 2nd phasis :	Cal 2nd temp :	Cal 2nd value :
59.95	20.0	27.19	23.28	100.0

(5)

Save Cancel Active Inactive (6)

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.

WQS

Nomasense O₂ C300

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

The screenshot shows the 'Calibrations management' interface. At the top, there is a 'Calibration :' dropdown menu. Below it, a list of calibrations is displayed: 'dp 5m', 'tiers', and 'pst3bis'. Each calibration has a checkmark and 'PSI3' next to it. A red warning triangle is next to 'dp 5m'. To the right of the list, there is a 'Probe' dropdown menu and a 'Last control :' date field showing '2022-06-07 12:22'. Below the list, there is a table with columns 'Type :' and 'Pressure :'. The table has one row with 'PSI3' and '1010'. At the bottom, there is a 'Save' button, a 'Cancel' button, and radio buttons for 'Active' and 'Inactive'.

Cal 0 phasis :	Cal 0 temp :	Cal 2nd phasis :	Cal 2nd temp :	Cal 2nd value :
59.95	20.0	27.19	23.28	100.0

List of calibrations

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

The screenshot shows the 'Calibrations management' interface. The 'Calibration :' dropdown menu is open, showing a list of calibrations: 'dp 5m', 'tiers', and 'pst3bis'. Each calibration has a checkmark and 'PSI3' next to it. A red warning triangle is next to 'dp 5m'. To the right of the list, there is a 'Probe' dropdown menu. The 'Probe' dropdown menu is open, showing a list of sensor types: 'Piercing System' and 'Dot Sensor'. Below the list, there is a table with columns 'Name :', 'Batch :', 'Type :', and 'Pressure :'. The table has one row with 'dp 5m', '24', 'PSI3', and '1010'. At the bottom, there is a 'Save' button, a 'Cancel' button, and radio buttons for 'Active' and 'Inactive'.

Name :	Batch :	Type :	Pressure :
dp 5m	24	PSI3	1010

Type of sensors

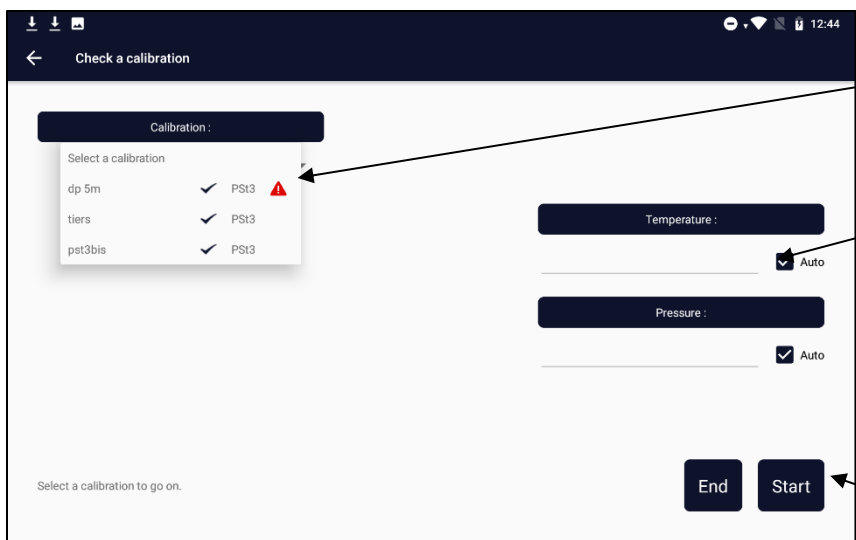
WQS

Nomasense O₂ C300

2.2-3.3. Check a 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.



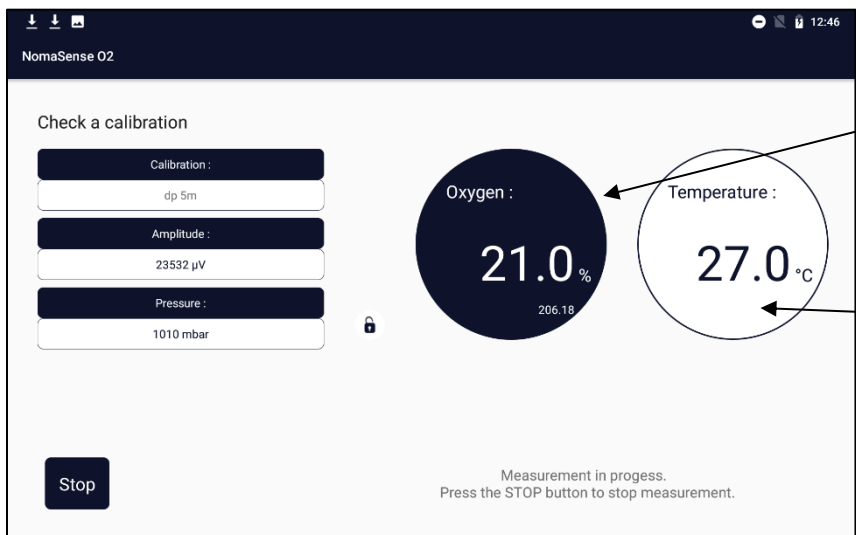
The screenshot shows the 'Check a calibration' screen. On the left, a 'Calibration :' dropdown menu is open, showing three options: 'dp 5m' (checked, with a red triangle icon), 'tiers' (checked), and 'pst3bis' (checked). To the right, there are input fields for 'Temperature :' and 'Pressure :', both with 'Auto' checkboxes. At the bottom right, there are 'End' and 'Start' buttons. Callout boxes provide instructions: 'Select the calibration' points to the dropdown; 'We recommend to choose "auto" for pressure (uses internal barometer) & temperature (uses temperature sensor). Nevertheless, you can choose to enter values manually for both parameters.' points to the 'Auto' checkboxes; and 'Launch control of calibration' points to the 'Start' button.

Select the calibration

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

Launch control of calibration

During measurement, the following screen appears:



The screenshot shows the measurement screen. On the left, there are three input fields: 'Calibration : dp 5m', 'Amplitude : 23532 µV', and 'Pressure : 1010 mbar'. In the center, there are two large circular displays: 'Oxygen : 21.0 %' and 'Temperature : 27.0 °C'. At the bottom left, there is a 'Stop' button. At the bottom center, there is a message: 'Measurement in progress. Press the STOP button to stop measurement.' Callout boxes point to the '%O2' label and the 'Temperature' label.

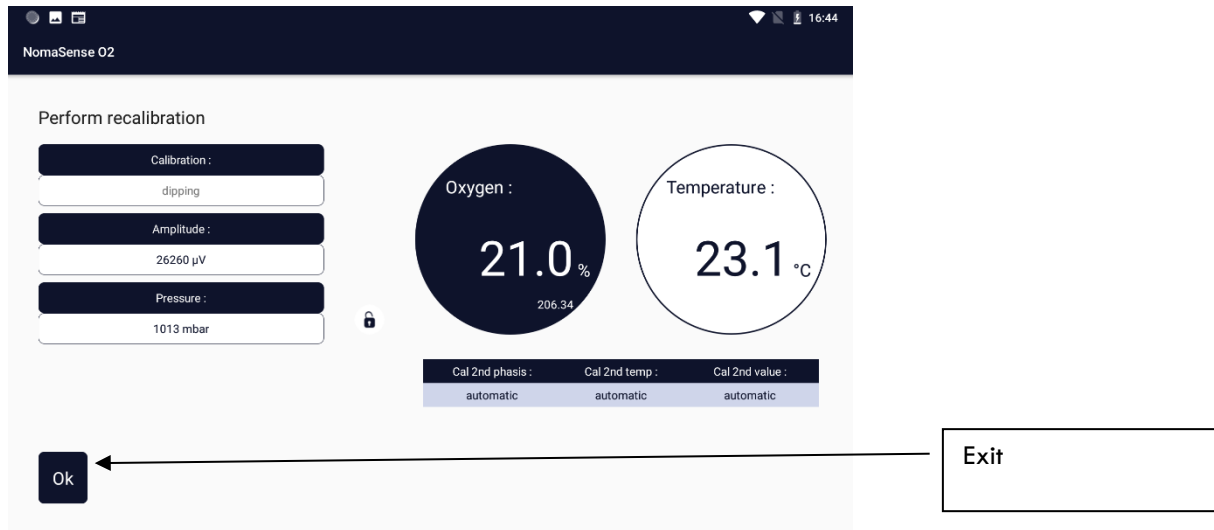
%O2

Temperature

Once measurement is stabilized, %O₂ is displayed. It must be between 20 and 22 %. If not, a recalibration is needed and a red flag will appear next to the name of the calibration. Press "Ok" to exit.

WQS

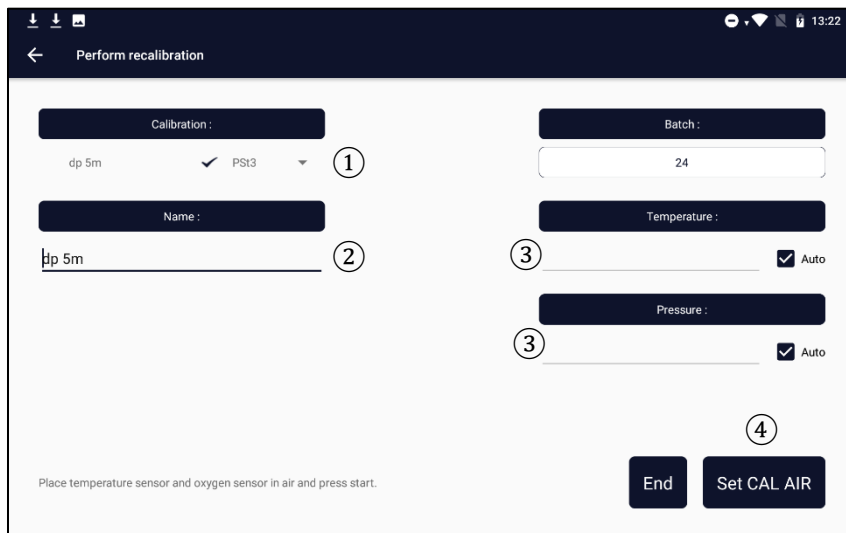
Nomasense O₂ C300



2.2-3.4. Recalibrate a 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

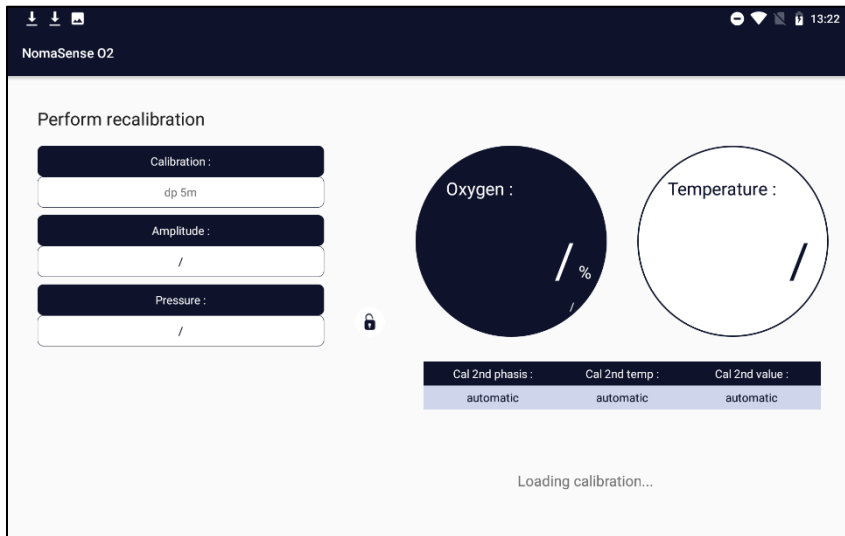
② : modify the name to duplicate the calibration during recalibration.

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

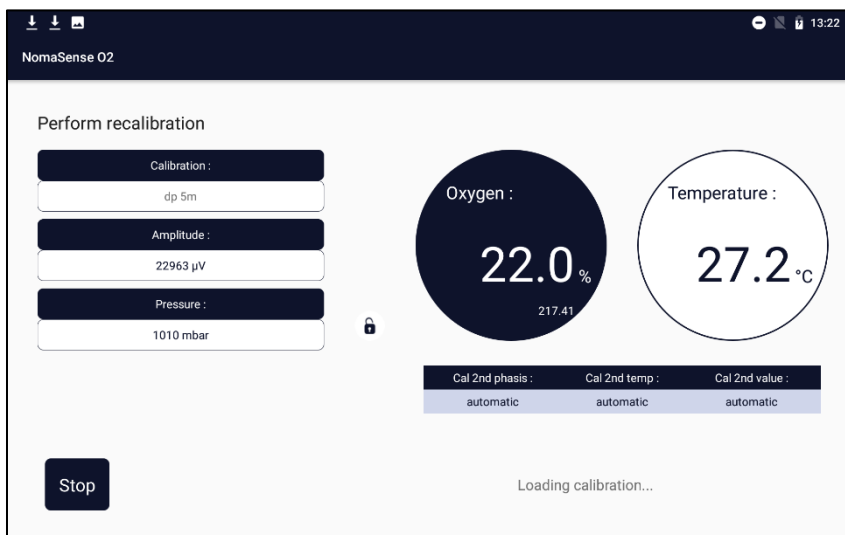
④ : Launch the recalibration

WQS

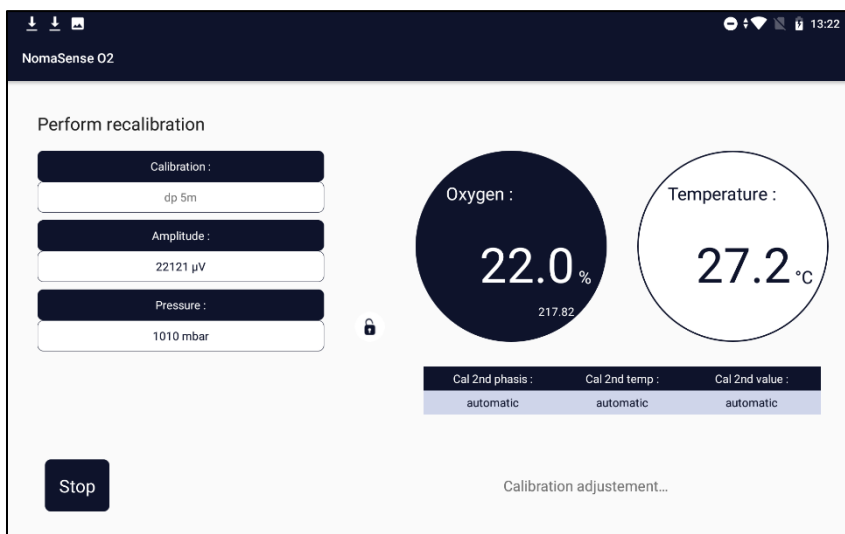
Nomasense O₂ C300



First, current calibration is loaded.



Signal intensity is adjusted



Calibration is then adjusted.

WQS

Nomasense O₂ C300

The screenshot shows the 'Perform recalibration' screen of the NomaSense O2 C300. On the left, there are three input fields: 'Calibration : dp 5m', 'Amplitude : /', and 'Pressure : /'. Below these is a 'Stop' button. In the center, there are two large circular gauges for 'Oxygen : / %' and 'Temperature : / °C'. Below the gauges, there are three status bars for 'Cal 2nd phasis : automatic', 'Cal 2nd temp : automatic', and 'Cal 2nd value : automatic'. At the bottom, it says 'Loading calibration...'.

Modifications are saved and the calibration is reloaded

The screenshot shows the 'Perform recalibration' screen of the NomaSense O2 C300 after recalibration. The 'Amplitude' field now shows '22114 µV' and the 'Pressure' field shows '1010 mbar'. The 'Oxygen' gauge now displays '20.0 %' with '203.32' below it. The 'Temperature' gauge now displays '27.2 °C'. The status bars for 'Cal 2nd phasis : automatic', 'Cal 2nd temp : automatic', and 'Cal 2nd value : automatic' remain. At the bottom, it says 'Loading calibration...'.

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 10mm dot sensors should be used.

2.2-4. Measurements

2.2-4.1. Compensation of sugar concentration & alcohol content

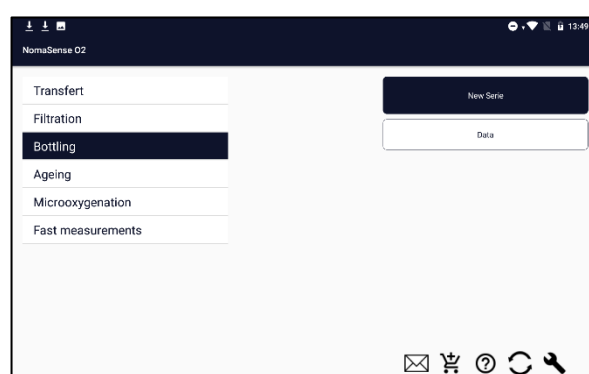
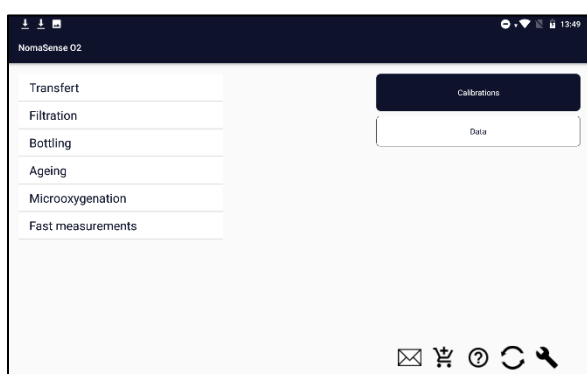
Alcohol and sugar concentration have an impact on solubility of oxygen, which is used in the determination of the value of dissolved oxygen. Nomasense O₂ C300 has an automatic compensation of the amount of alcohol and sugar in the liquid to get the most accurate and reliable value of dissolved oxygen.

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 home page. Then press “New Series”.



2.2-4.2.1. Create a new series

2.2-4.2.1.1. Enter series parameters

WQS

Nomasense O₂ C300

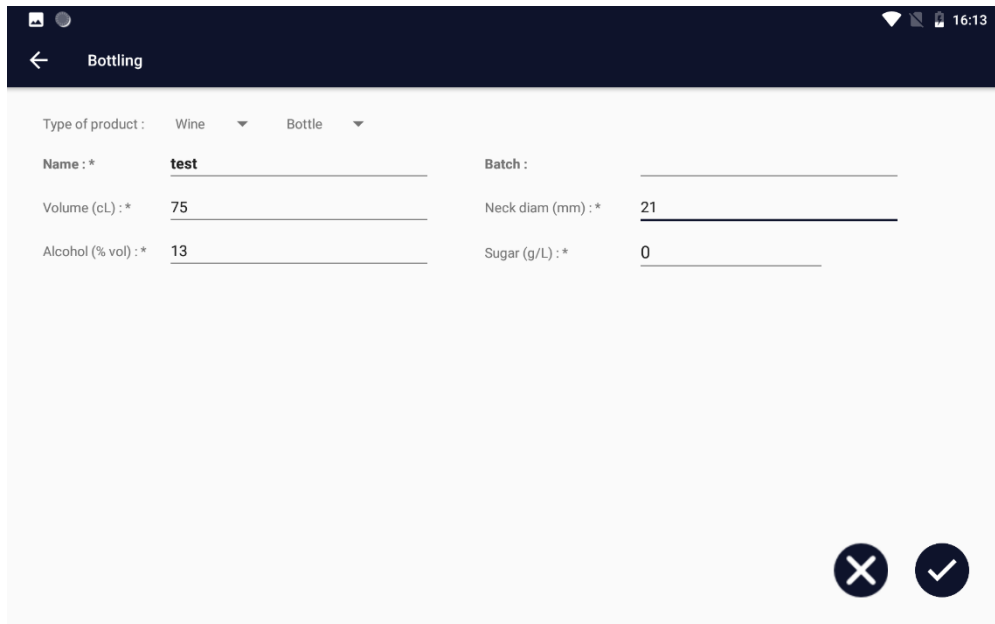
- Type of product:

It has to be chosen among 3 types of product are 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 with “bottle”.
- Batch name is not mandatory, it allows to give further details on the wine/must/spirit itself.



- 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:

WQS

Nomasense O₂ C300

Bottling

Type of product : Wine ▾ Bottle

Name : * bottling Batch : _____

Volume (cL) : * 75.0 Neck diam (mm) : * 20.0

① + ②

Control point :	Type :	Type of measurement :	Calibration :
<u>tank</u>	Initial Tank ▾	DO ▾	dp 5m ▾ <input type="checkbox"/>
③ <u>sight glass</u>	Sight Tank ▾	DO ▾	dp 5m ▾ <input type="checkbox"/>
<u>bottle</u>	Bottle ▾	TP0 ▾	HSO dp 5m ▾ <input type="checkbox"/> DO dp 5m ▾

④ ⑤

⑧ ⑦ ⑥

⑧ ⑦ ⑥ ④ ⑤

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 achieved 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.

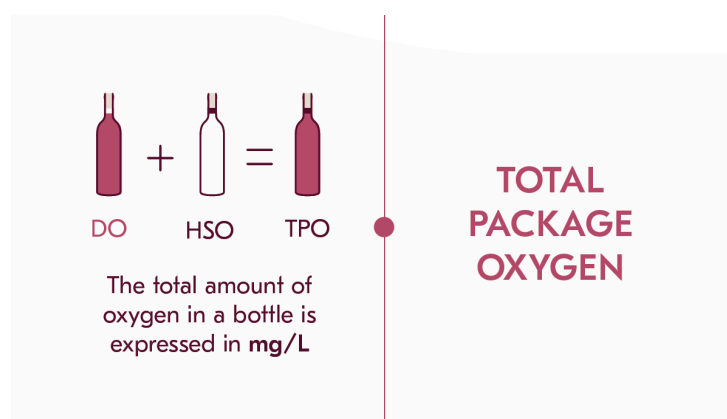
Type of measurement	Types of control point available
Transfer	Initial tank
	Final tank
	Sight glass
Filtration	Initial tank
	Final tank
	Sight glass
Bottling	Initial tank
	Sight glass
	Bottle
	Bag in Box
Ageing	Tank
	Barrel
	Bottle
	Bag in Box
Microoxygenation	Tank
	Barrel

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 2.2-4.2.1.2) 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 type are available:

- DO : dissolved oxygen (mg/L)
- HSO : head space oxygen. It is used in this manual to design also gaseous oxygen (hPa or %O₂)
- DO & HSO : dissolved oxygen (mg/L) and head space oxygen (hPa or %O₂)
- TPO : total package oxygen (mg/L), only for Bottle and Bag In Box (BIB)



TPO is the sum of the quantity of dissolved oxygen and head space 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.



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

Control point :	Type :	Type of measurement :	Calibration :
tank	Initial Tank	DO	dp 5m
sight glass	Sight Tank	DO	dp 5m
bottle	Bottle	TPO	HSO dp 5m
			DO dp 5m

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

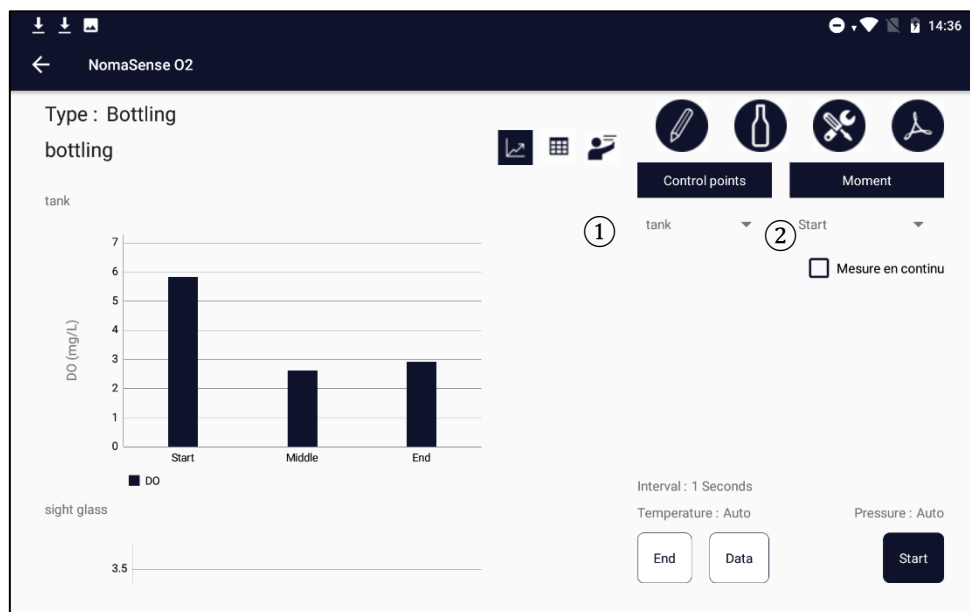
It is possible to access to series settings from the result screen by pressing



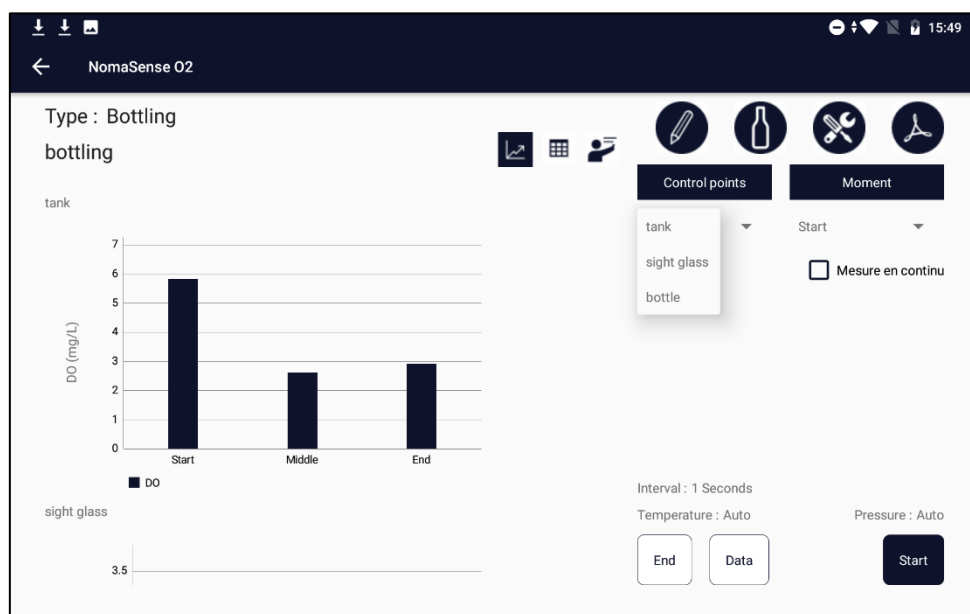
2.2-4.2.2. Launch a measurement

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:



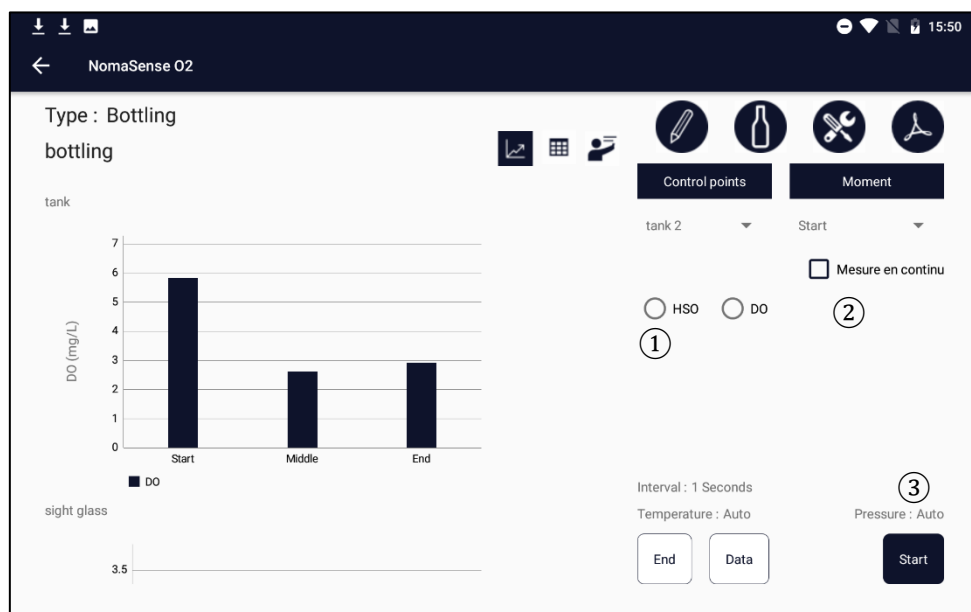
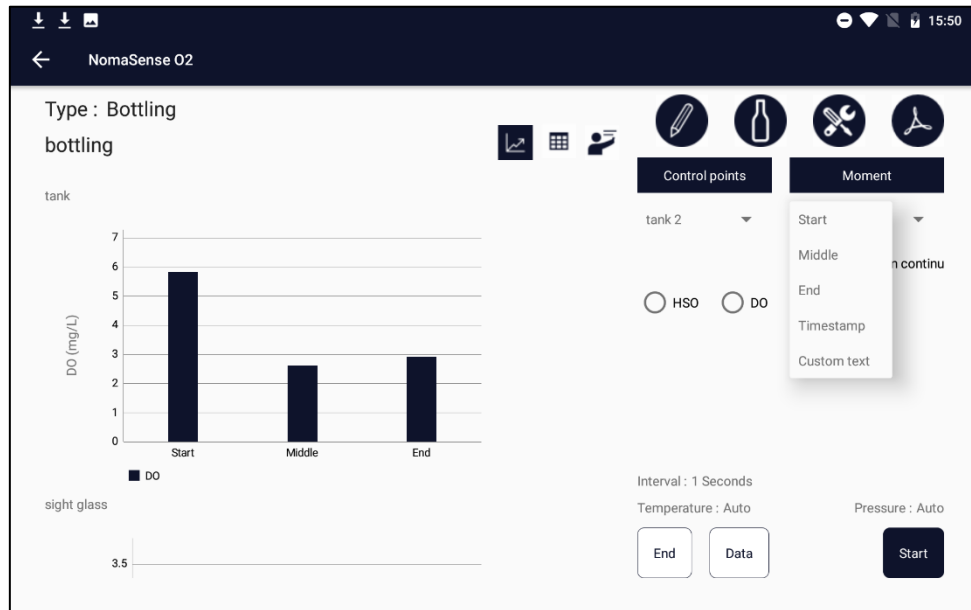
① : select a control point to measure



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

WQS

Nomasense O₂ C300



Then, type of measurement has to be defined:

- ① : to select the type of measurement: DO or HSO
- ② : to make a continuous measurement (not available for bottle and BIB)
- 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 head space 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

At least wait 40 minutes after bottling for DO measurement with dot sensors.

See application note 3.2-2.2

2.2-4.2.2.2.3. 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



WQS

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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 deviations 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...).

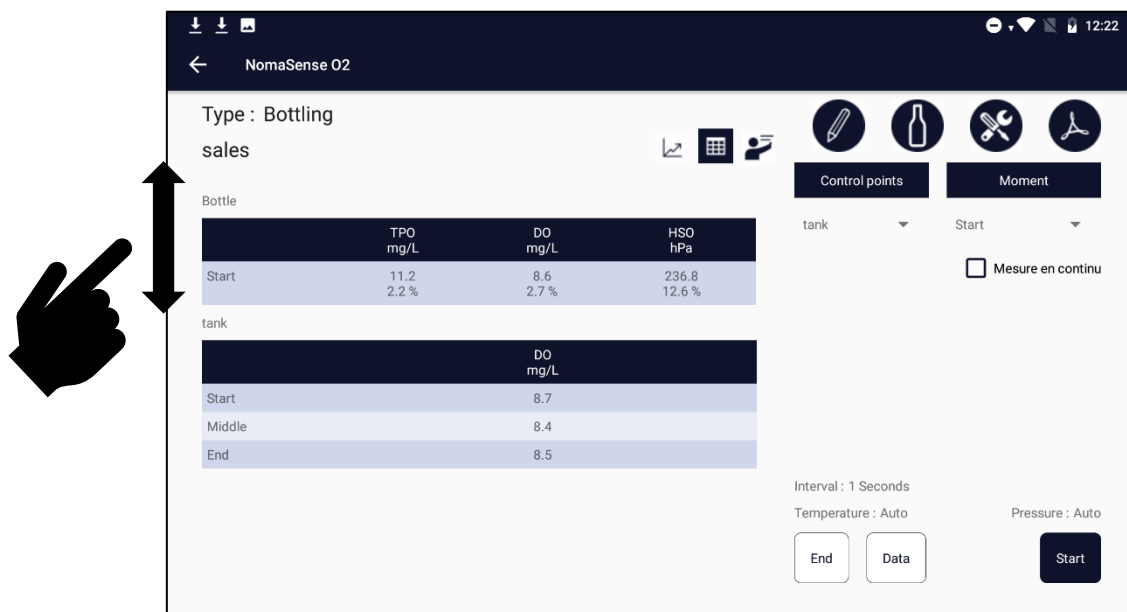


+ standard deviation, plotted around the average (bar in the graph)

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 tab 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 tab. If number of measurements is above 3 , percentage of variation is displayed in the tab.

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 tabs are displayed, it is possible to switch from a graph to another by dragging your finger on the screen.

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2.2-4.2.3.3. Expert rules

When the icon



to see all the rules.

turns to red, it means that experts rules were displayed. Press this icon



NomaSense O2

Type : Bottling
test1010

bottles - TPO - TPO too high
bottles - HSO - HSO too high, control corking heads
bottles - DO - DO too high : control DO in tank and during transfert

Control points

Moment

bottles

Timestamp

HSO

Dissolved Oxygen

HeadSpace (mm)

Sample volume (mL) 2

Interval : 2 Seconds

Temperature : Auto

Pressure : Auto

End

Data

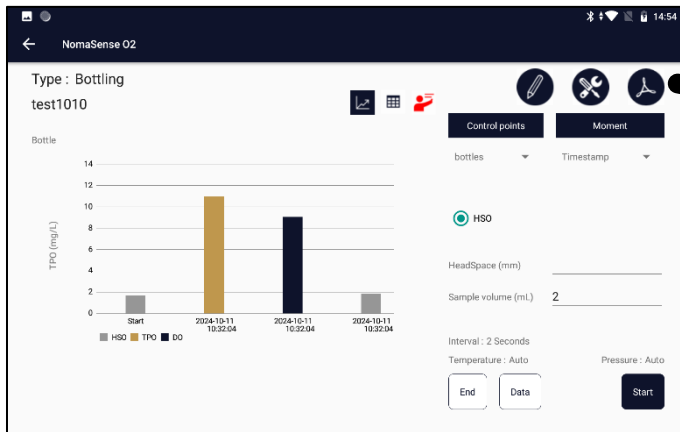
Start

WQS

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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 WIFI.**



The screenshot shows the 'Measurement report' form in the NomaSense O2 app. The form has three input fields: 'Report title:', 'Email address:', and 'Comment:'. Below the form are two icons: a close icon (X) and a mail icon. A hand icon points to the PDF report icon in the top right corner.

Enter a title and an email address.

The screenshot shows the 'Measurement report' form in the NomaSense O2 app with the keyboard open. The 'Report title:' field contains 'test', the 'Email address:' field contains 'c300@vinventions', and the 'Comment:' field is empty. A hand icon points to the mail icon at the bottom right.

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

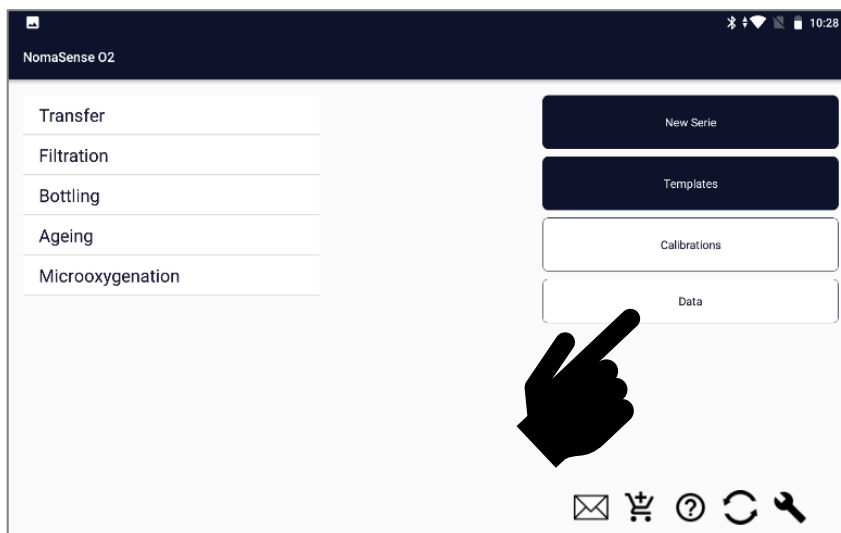
Press the mail icon to send the report. The report will arrive in the specified mailbox after 10 minutes (beware of email filters). It is also accessible in your "My reports" space.

2.2-4.2.4. Access to previous measurement

WQS

Nomasense O₂ C300

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



WQS

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

WQS

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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:



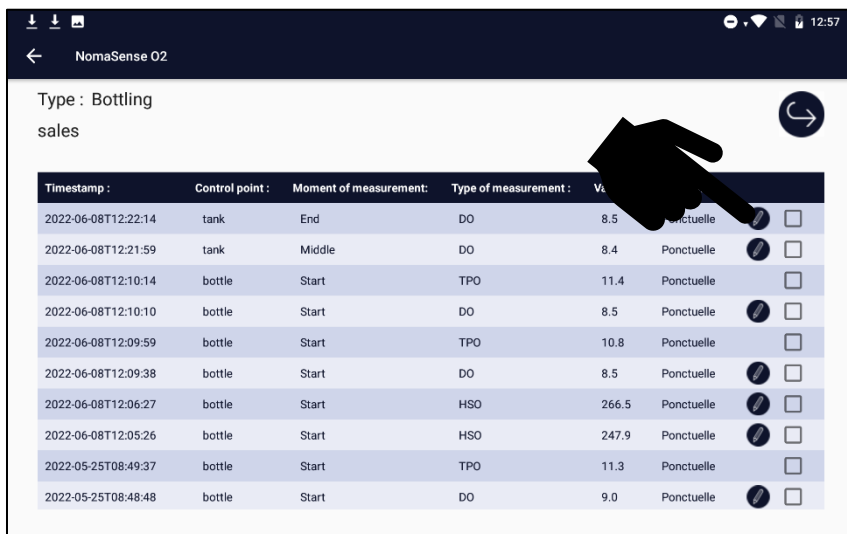
Then press  to access the entire list of measurements made in the series.

The screenshot shows the Bottling app interface. At the top, it says 'Type of product : Wine' and 'Bottle'. Below this are fields for 'Name : *', 'Batch :', 'Volume (cL) : *', and 'Neck diam (mm) : *'. A table below these fields lists measurements. A hand icon is pointing to the microscope icon at the bottom left of the screen.

Control point :	Type :	Type of measurement :	Calibration :
tank	Initial Tank	DO	dp 5m
bottle	Bottle	TPO	HSO dp 5m
			DO dp 5m

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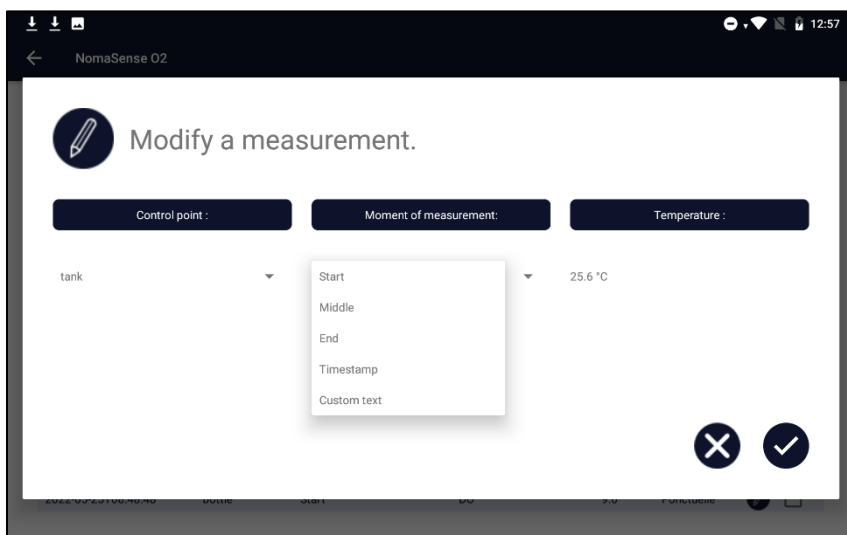


Type : Bottling
sales

Timestamp :	Control point :	Moment of measurement:	Type of measurement :	Value	Unit	Frequency	Action
2022-06-08T12:22:14	tank	End	DO	8.5	Ponctuelle		
2022-06-08T12:21:59	tank	Middle	DO	8.4	Ponctuelle		
2022-06-08T12:10:14	bottle	Start	TPO	11.4	Ponctuelle		
2022-06-08T12:10:10	bottle	Start	DO	8.5	Ponctuelle		
2022-06-08T12:09:59	bottle	Start	TPO	10.8	Ponctuelle		
2022-06-08T12:09:38	bottle	Start	DO	8.5	Ponctuelle		
2022-06-08T12:06:27	bottle	Start	HSO	266.5	Ponctuelle		
2022-06-08T12:05:26	bottle	Start	HSO	247.9	Ponctuelle		
2022-05-25T08:49:37	bottle	Start	TPO	11.3	Ponctuelle		
2022-05-25T08:48:48	bottle	Start	DO	9.0	Ponctuelle		

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

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



Modify a measurement.

Control point : tank

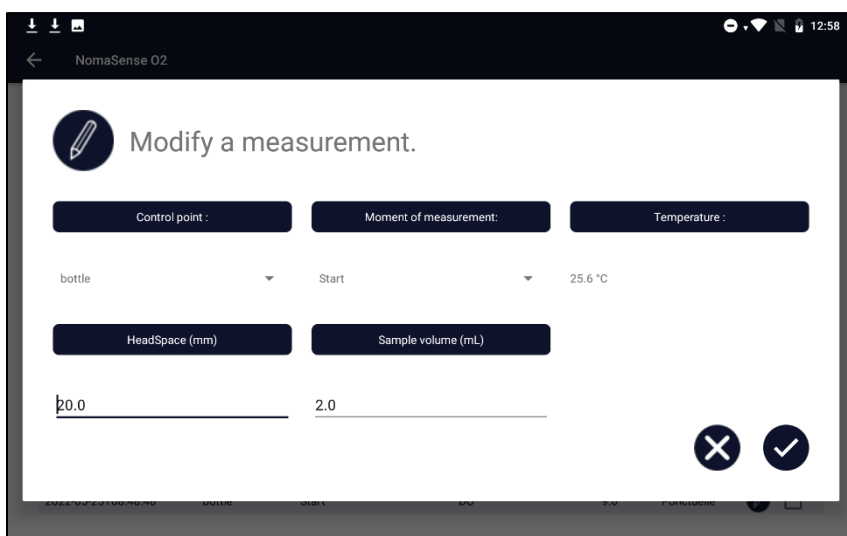
Moment of measurement: Start

Temperature : 25.6 °C

Start
Middle
End
Timestamp
Custom text

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

Press  to validate.



Modify a measurement.

Control point : bottle

Moment of measurement: Start

Temperature : 25.6 °C

HeadSpace (mm) : 20.0

Sample volume (mL) : 2.0

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Timestamp : Control point : Moment of measurement : Type of measurement : Value: Spot/Cont :

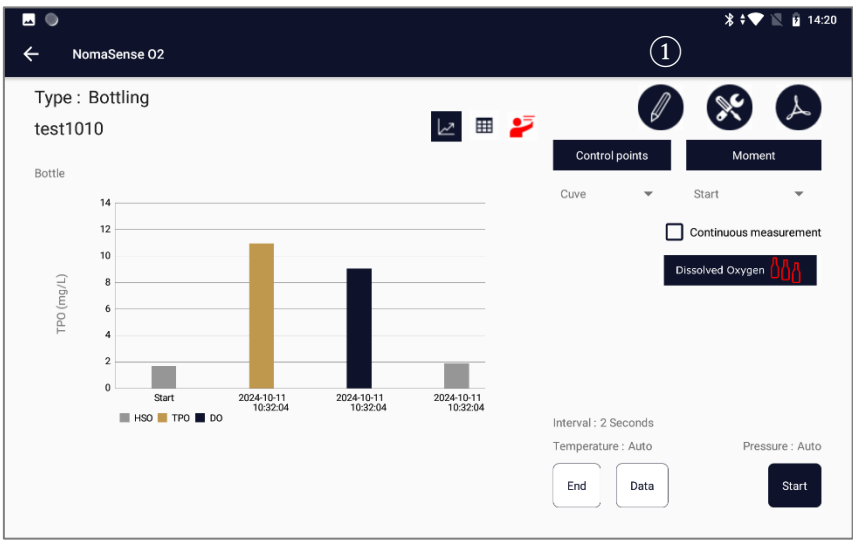
2022-06-08T12:22:14	tank	End	DO	8.5	Ponctuelle		<input type="checkbox"/>
2022-06-08T12:21:59	tank	Middle	DO	8.4	Ponctuelle		<input type="checkbox"/>
2022-06-08T12:10:14	bottle	Start	TPO	11.4	Ponctuelle		<input type="checkbox"/>
2022-06-08T12:10:10	bottle	Start	DO	8.5	Ponctuelle		<input type="checkbox"/>
2022-06-08T12:09:59	bottle	Start	TPO	10.8	Ponctuelle		<input type="checkbox"/>
2022-06-08T12:09:38	bottle	Start	DO	8.5	Ponctuelle		<input checked="" type="checkbox"/>
2022-06-08T12:06:27	bottle	Start	HSO	266.5	Ponctuelle		<input type="checkbox"/>
2022-06-08T12:05:26	bottle	Start	HSO	247.9	Ponctuelle		<input type="checkbox"/>
2022-05-25T08:49:37	bottle	Start	TPO	11.3	Ponctuelle		<input type="checkbox"/>
2022-05-25T08:48:48	bottle	Start	DO	9.0	Ponctuelle		<input type="checkbox"/>

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 result screen:



Then follow procedure described in paragraph 2.2-4.2.1.2


2.2-4.2.6.2. Change a calibration

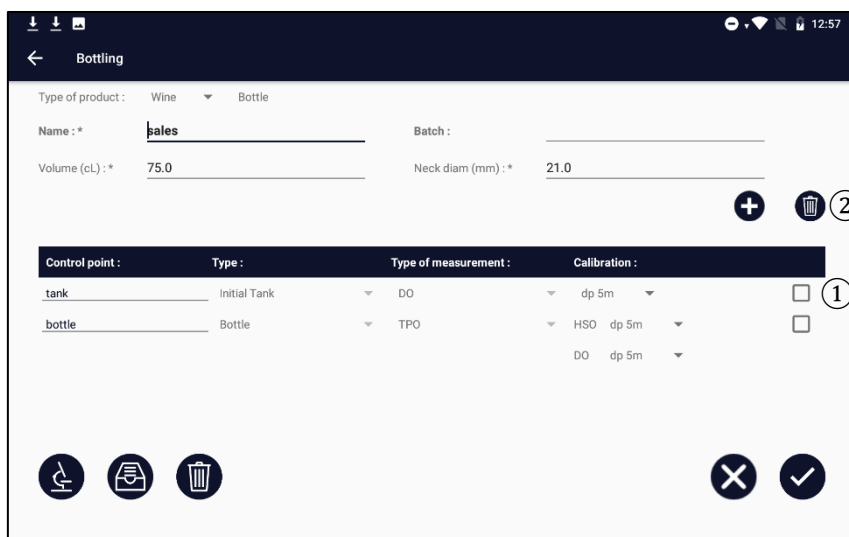
It is possible to change the calibration linked to a control point. Click on the pencil icon on result screen then change the calibration selected for the control point.

Only new measurements will be affected by the change.

2.2-4.2.6.3. Suppress a control point

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

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



The screenshot shows the 'Bottling' screen with the following fields and controls:

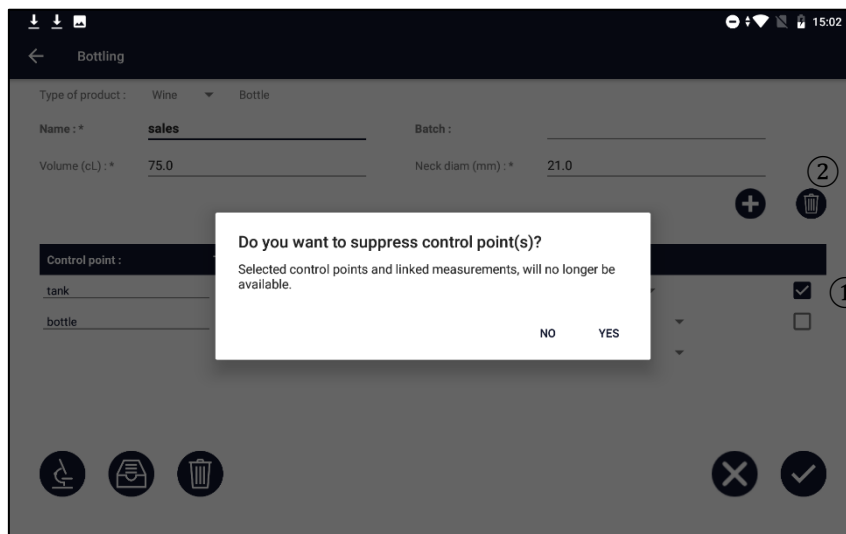
- Type of product:** Wine (dropdown), Bottle
- Name:** * sales
- Batch:**
- Volume (cL):** * 75.0
- Neck diam (mm):** * 21.0
- Control points table:**

Control point :	Type :	Type of measurement :	Calibration :	
tank	Initial Tank	DO	dp 5m	<input type="checkbox"/> ①
bottle	Bottle	TPO	HSO dp 5m	<input type="checkbox"/>
			DO dp 5m	
- Bottom navigation:** Microscope, Document, Trash, Close (X), Confirm (✓)
- Top right icons:** Add (+), Delete (trash icon) ②

Confirm by answering the question in the message.

WQS

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2.2-4.2.6.4. Change a 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.

Type of product : Wine ① Bottle
 Name : * pales Batch :
 Volume (cL) : * 75.0 Neck diam (mm) : * 21.0

Control point :	Type :	Type of measurement :	Calibration :
tank	Initial Tank	DO	dp 5m
bottle	Bottle	TPO	HSO dp 5m DO dp 5m

2.2-4.2.6.5. What can't be changed

Once one measurement was made in a control point, it is not possible anymore to change:

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

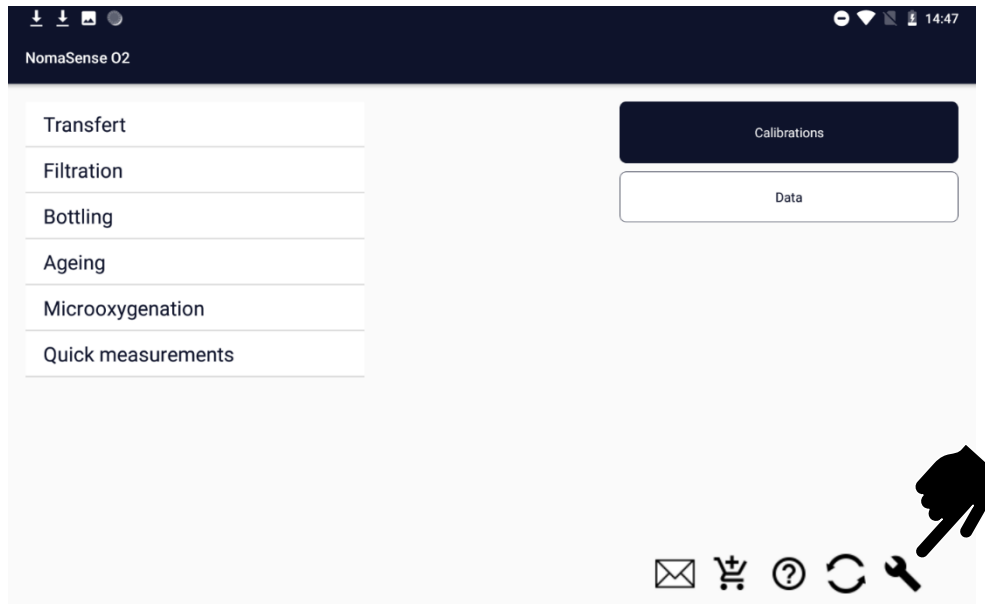
However, you can add a new control point at any moment with the right types.

WQS

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2.2-5. Settings

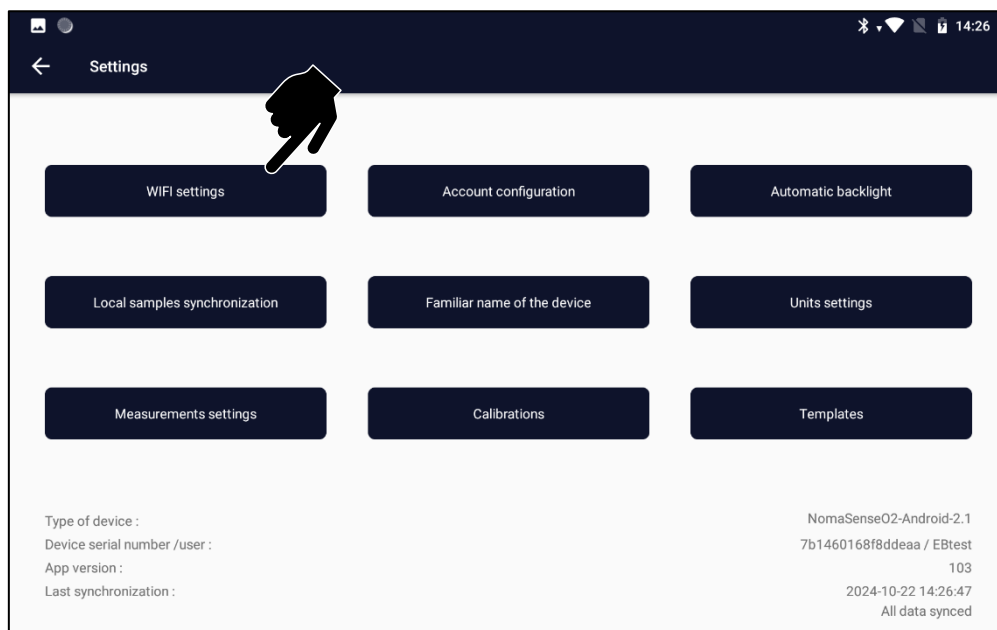
To access the settings menu, press the icon



2.2-5.1. Wifi Settings

2.2-5.1.1. Through the app

To access the settings menu, press the icon

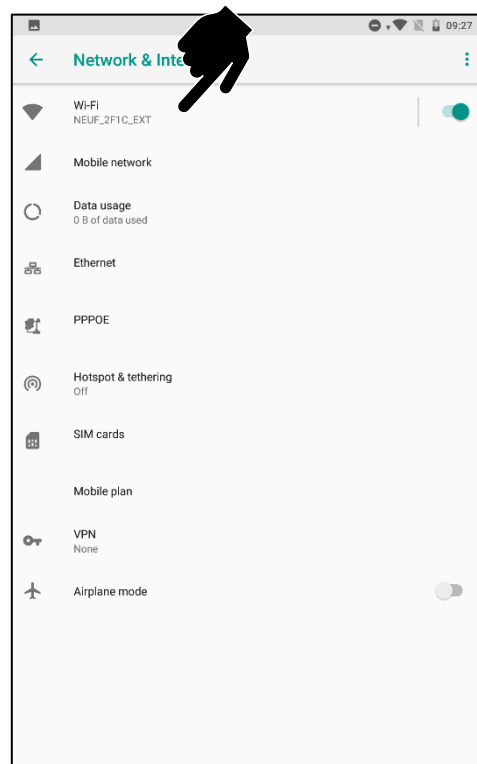
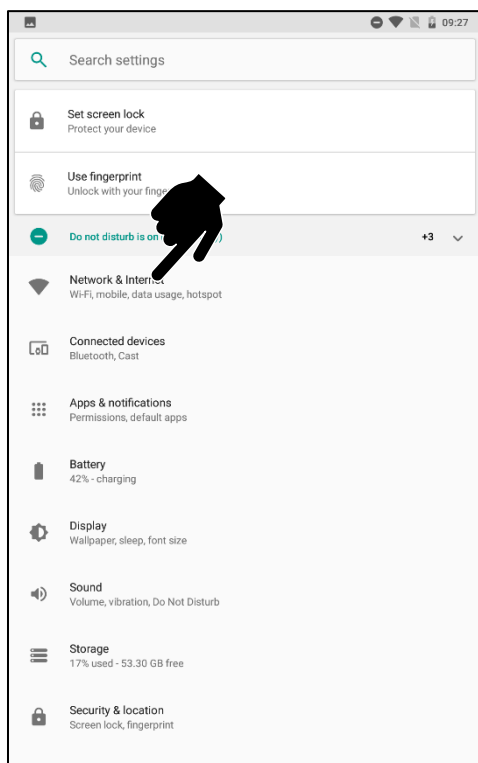
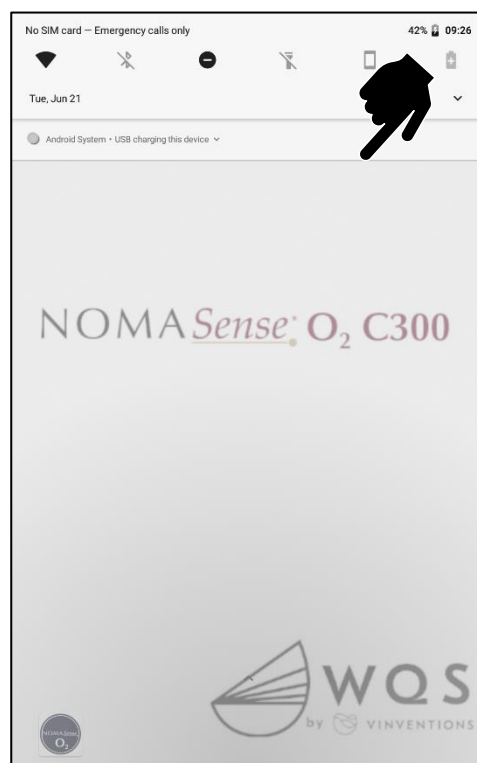
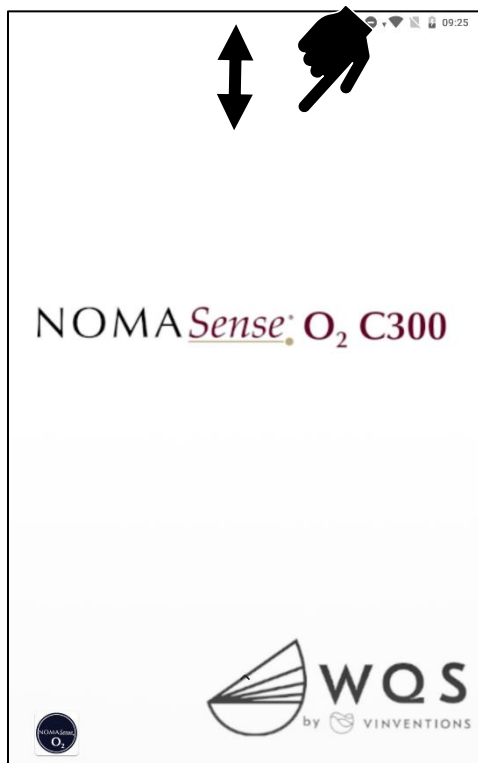


WQS

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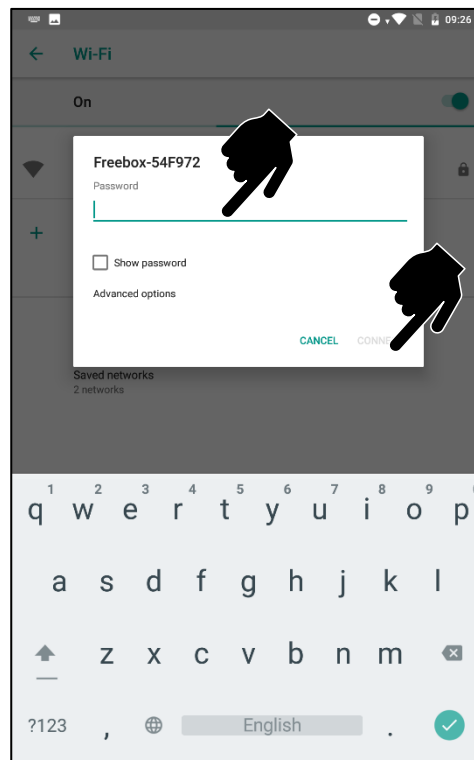
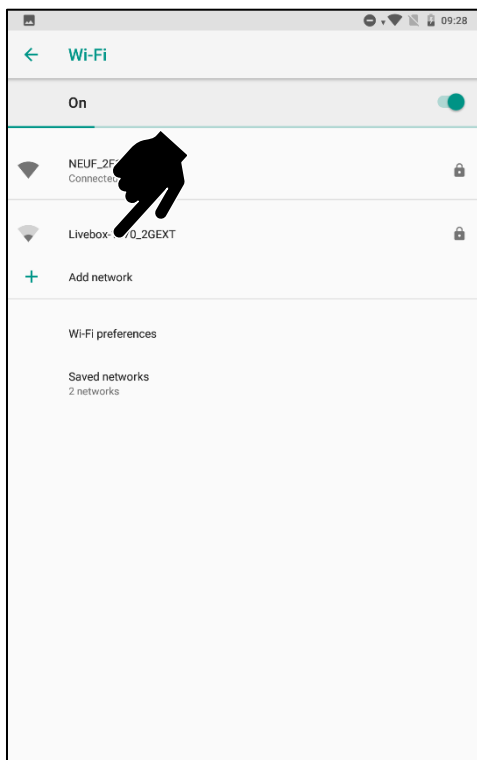
Press “WIFI settings” to set the WIFI connection.

2.2-5.1.2. Through Android



WQS

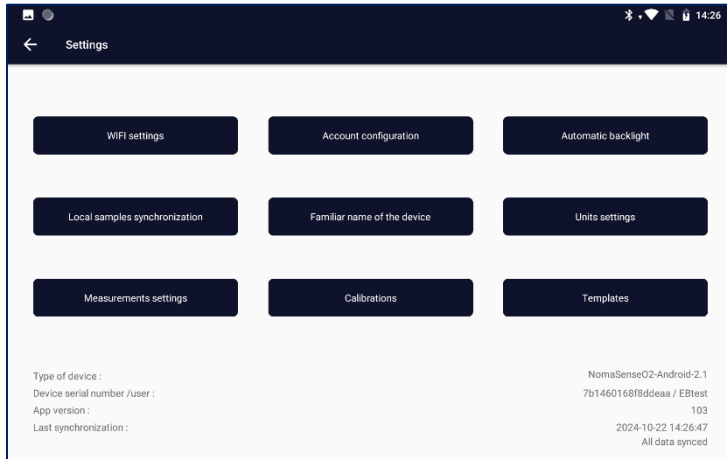
Nomasense O₂ C300



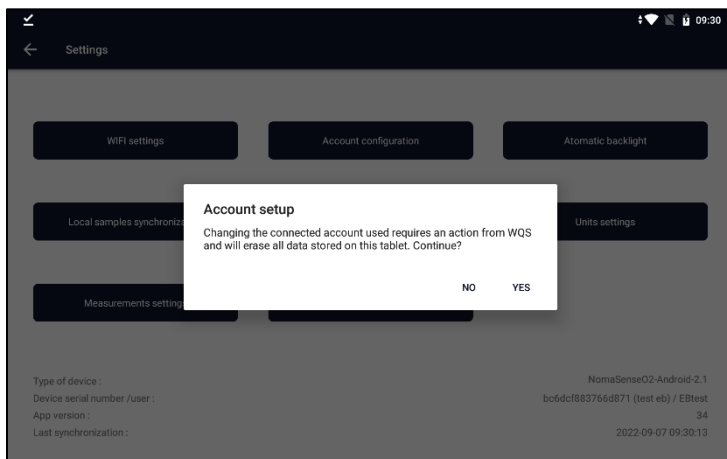
WQS

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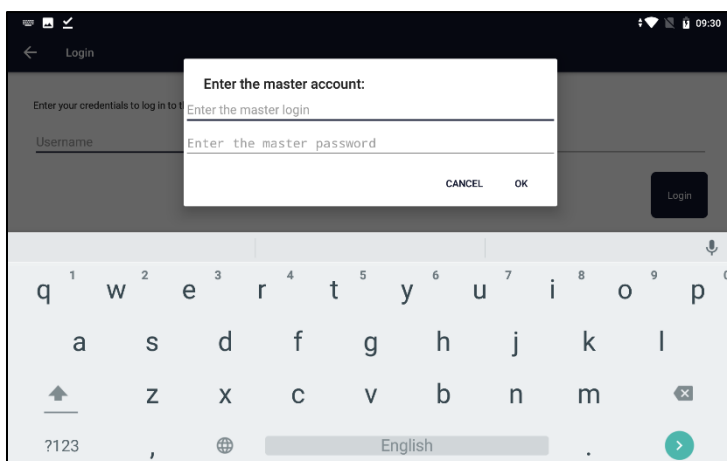
2.2-5.2. Account configuration



In the settings menu, press “Account Configuration”.



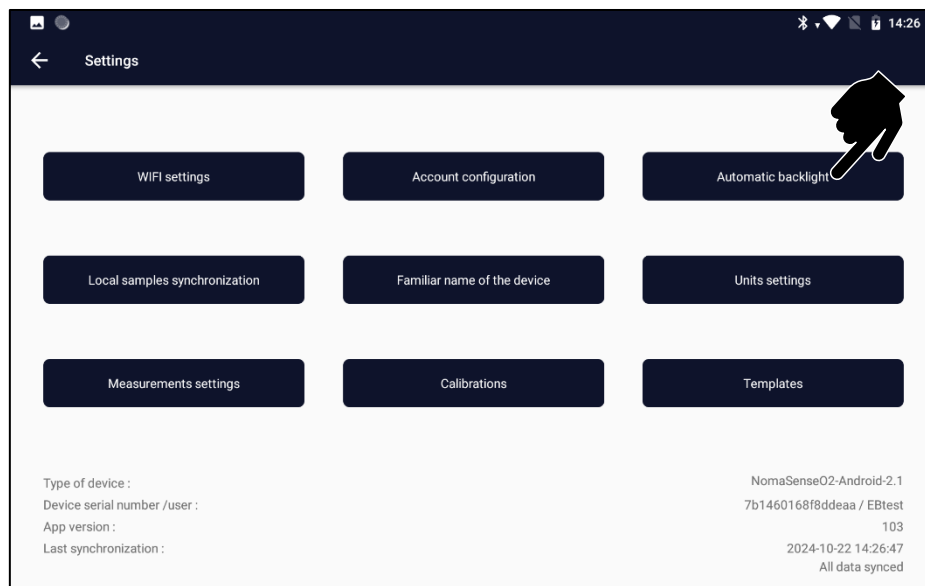
To set an account, master credentials are required : please contact nimescenter@vinventions.com



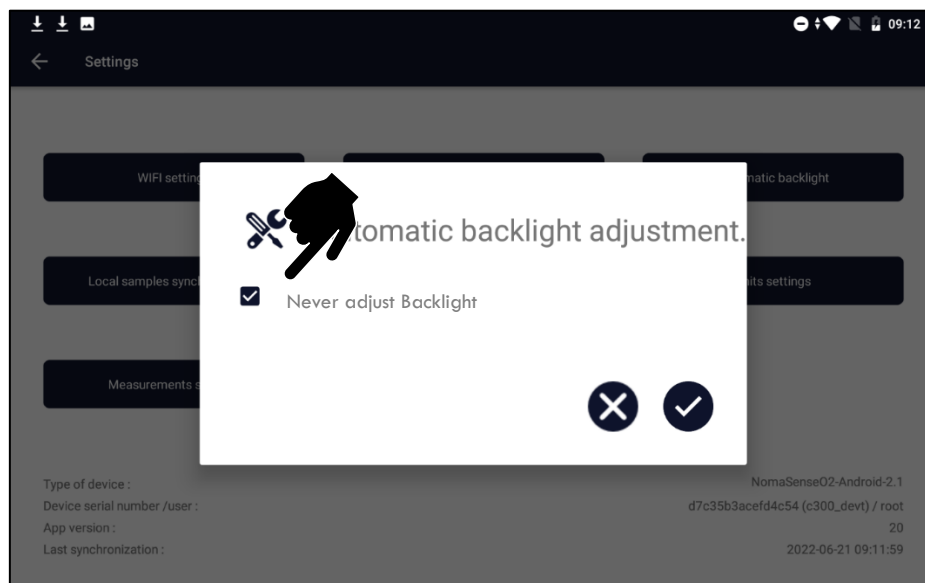
2.2-5.3. Backlight management.

It is possible to change the backlight setting in the APP. It allows setting an idle time before dimming the backlight. To save battery, we advise to define a duration before dimming especially for continuous measurements.

To access the settings menu, press the icon . Press “Automatic backlight”.



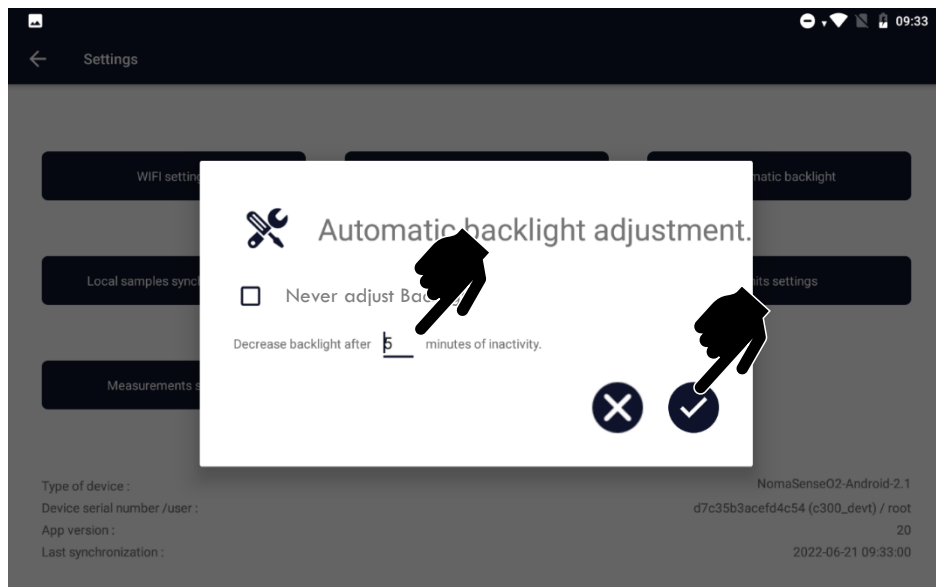
To define a duration before dimming, uncheck “Never adjust backlight”.



WQS


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Then define the time before decreasing the backlight in case of inactivity.



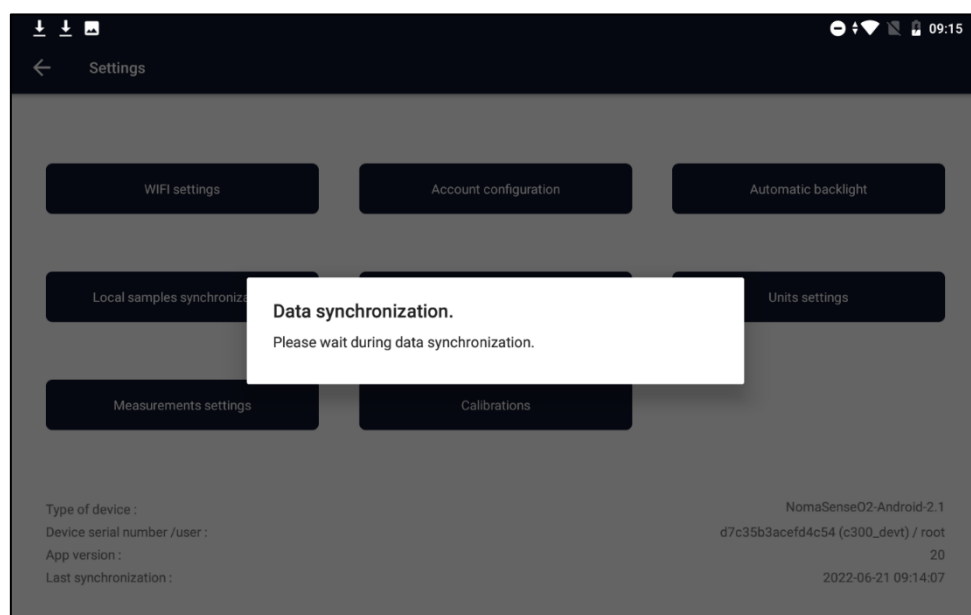
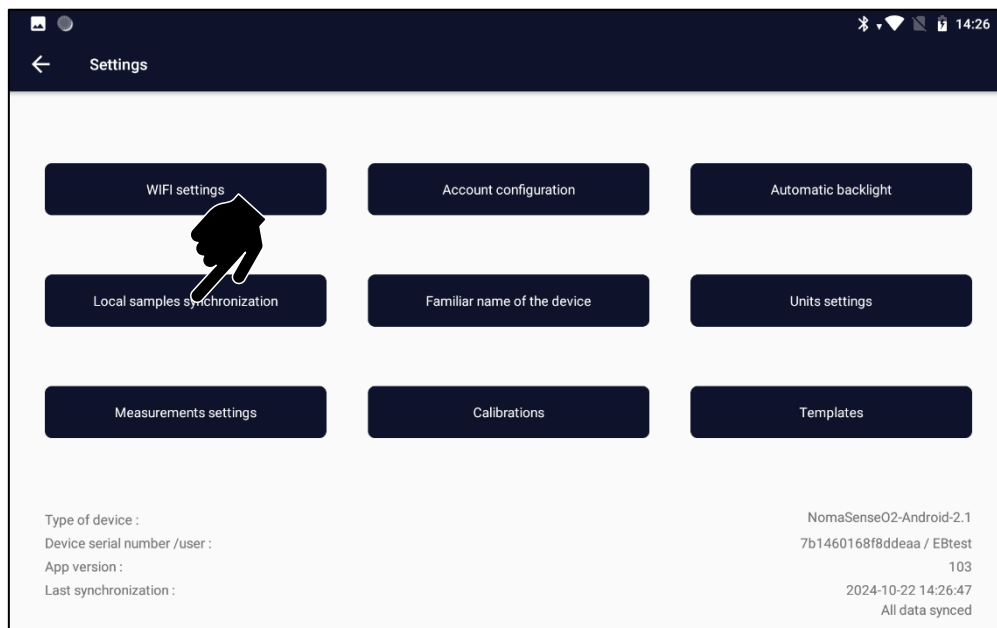
Press  to validate.

2.2-5.4. Sample synchronization

Data synchronization is automatic when the device is connected to the internet by WiFi. However, it is possible to force data synchronization by acceding the setting menu  then pressing “Local samples synchronization”.

WQS

Nomasense O₂ C300



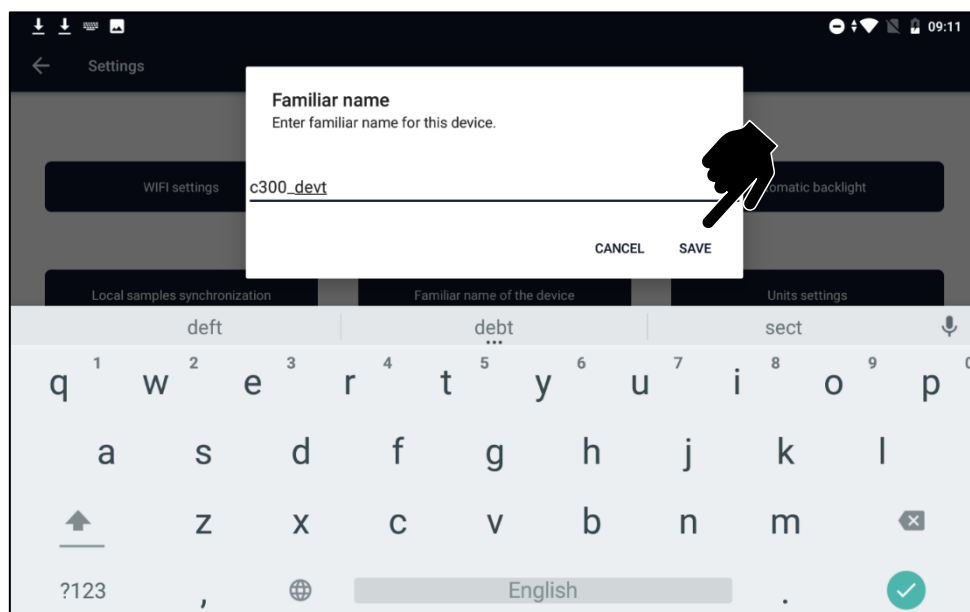
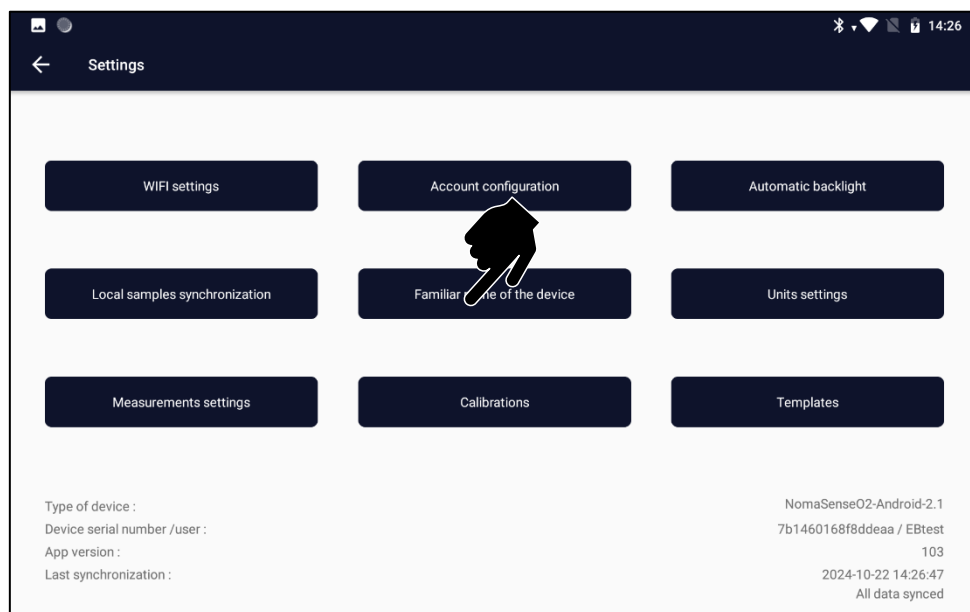
Once achieved, on the last line of the screen, a message “All data synced” will appear.

2.2-5.5. 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.

WQS

Nomasense O₂ C300



2.2-5.6. Units settings

It is possible to select units for:

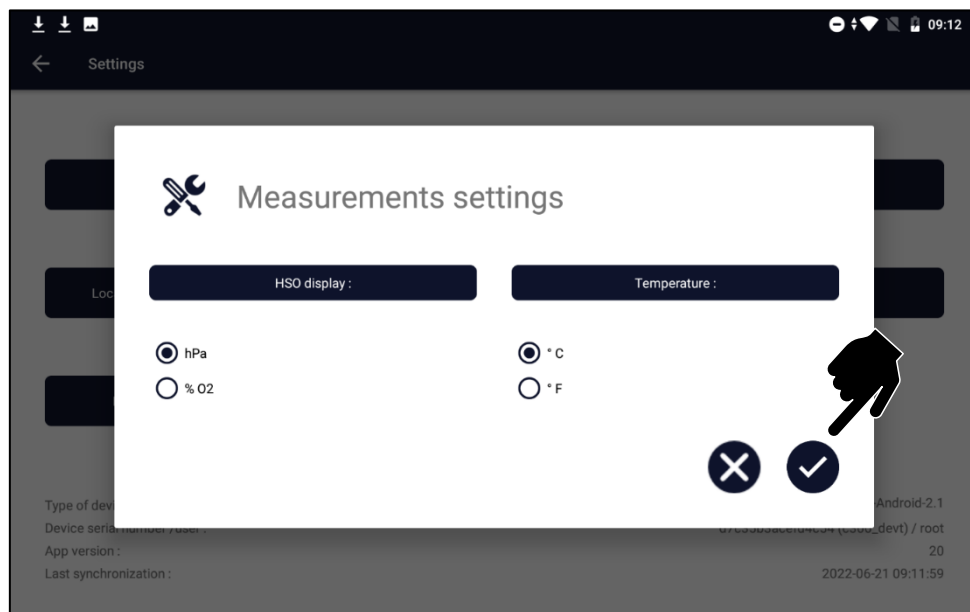
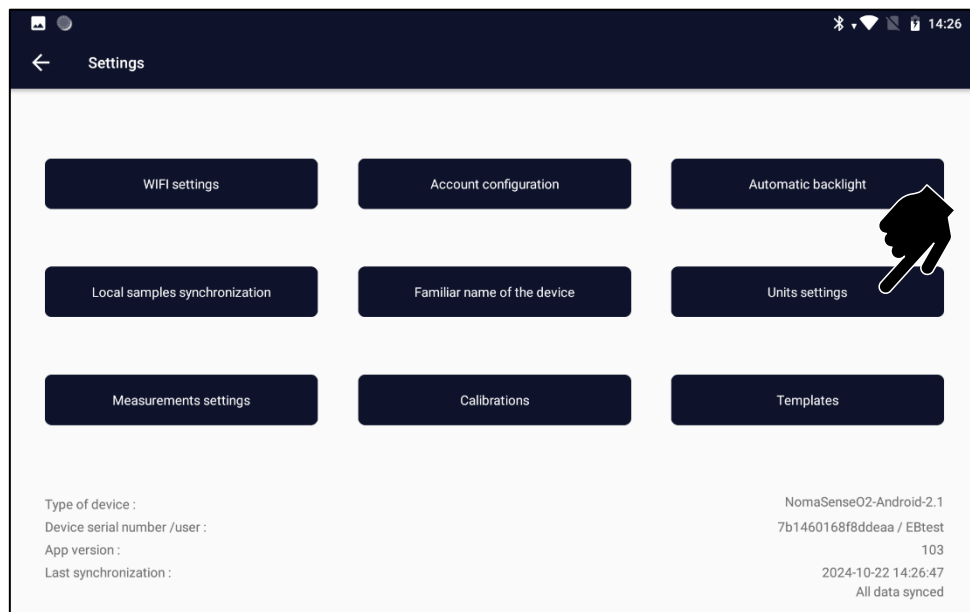
- HSO : hPa or %O₂
- Temperature: °C Celsius or °F Fahrenheit



WQS

Nomasense O₂ C300

To access the settings menu, press the icon .



Press  to validate.

2.2-5.7. Measurements Settings

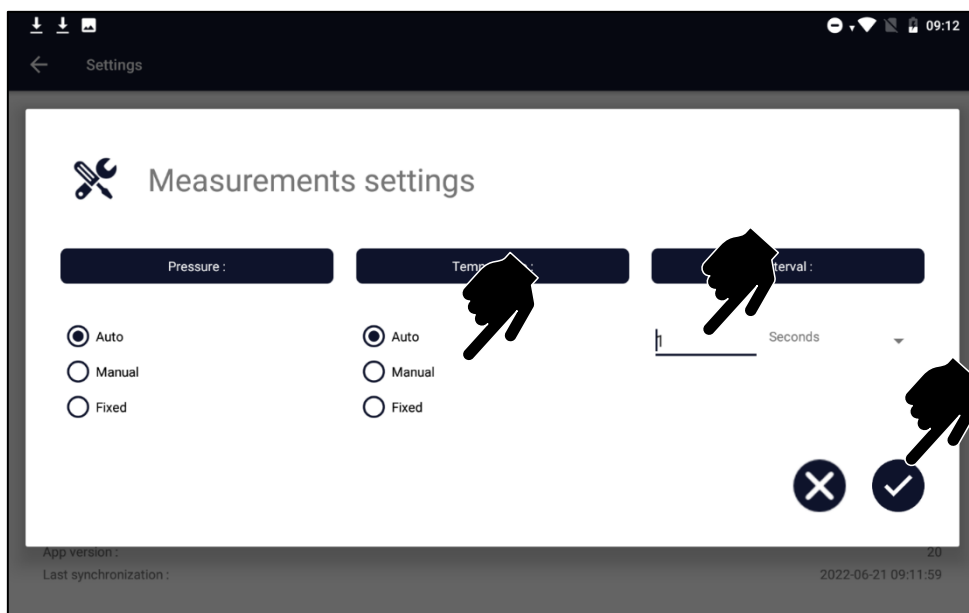
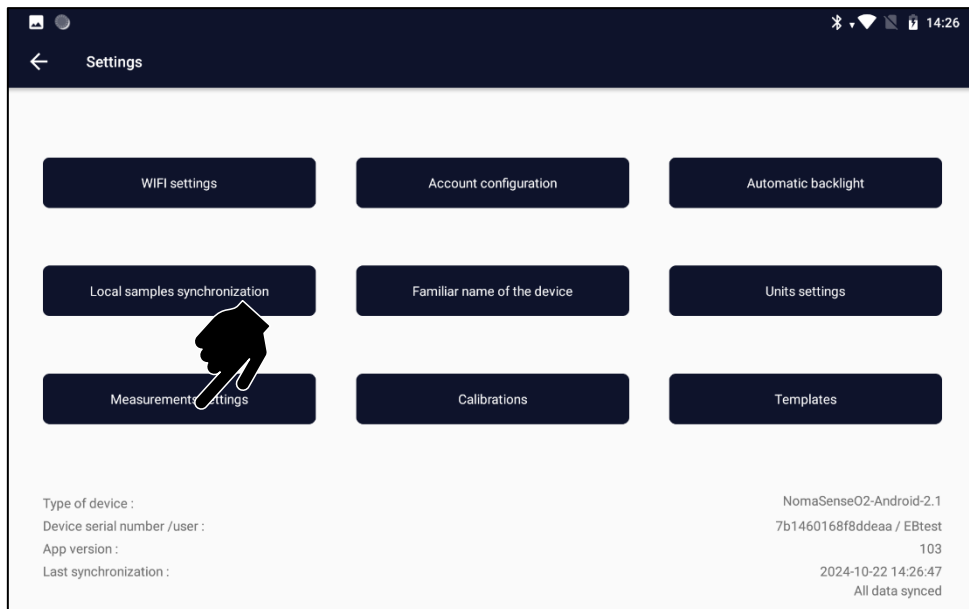
To access the settings menu, press the icon  . Then press “measurement settings”.

WQS

Nomasense O₂ C300

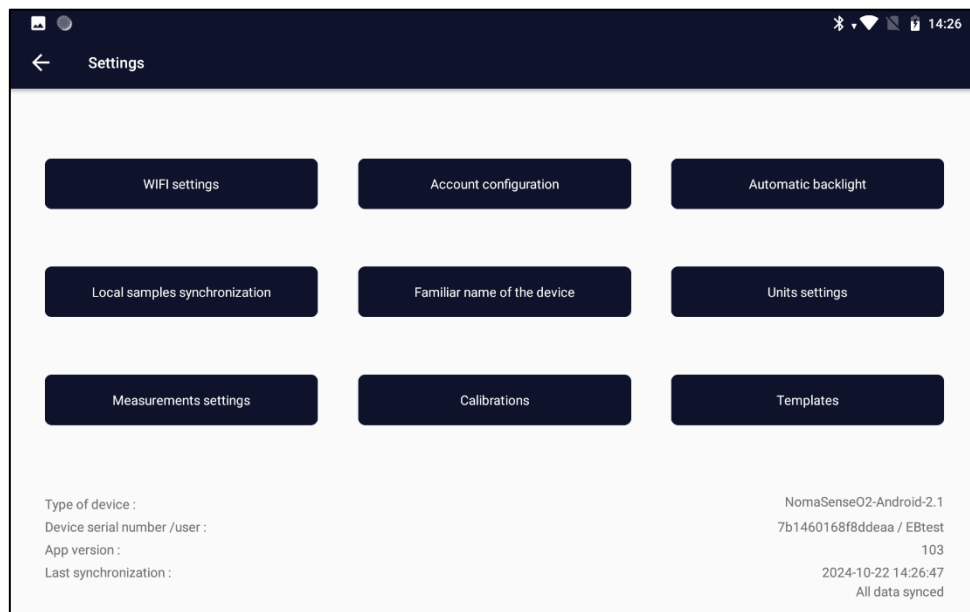
It is possible to adjust measurement settings:

- Pressure : auto (use of internal barometer)/manual (pressure is asked at each measurement)/fixed (same pressure will be used for all measurements). We advise to use “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 large amount of data. During a transfer a measurement every 5 minutes is enough, this duration must be adapted to the duration of process.



2.2-5.8. Calibrations

To access the settings menu, press the icon.  Then choose “Calibrations”.



For more details, see paragraph 2.2-3

2.2-5.1. Create a new template

Settings

WIFI settings

Account configuration

Automatic backlight

Local samples synchronization

Familiar name of the device

Units settings

Measurements settings

Calibrations

Templates

Type of device :
Device serial number /user :
App version :
Last synchronization :

NomaSenseO2-Android-2.1
7b1460168f8ddea / EBtest
103
2024-10-22 14:26:47
All data synced

Templates

Name:	Process type:
Filtration	Transfer
Transfer	Transfer
1.5L BIB	Bottling
3L BIB	Bottling
5L BIB	Bottling
10L BIB	Bottling
150cl Bottles	Bottling
Bottles	Bottling
Bottles	Bottling
Bottles	Bottling
Bottles	Bottling

+

🗑️

✓

Bottling

Type of product :
Wine Bottle

Process type:
Bottling

Name : *

Volume (cL) : *

Alcohol (% vol) : *

Neck diam (mm) : *

Sugar (g/L) : *

+

🗑️

Control point :

Type :

Type of measurement :

✕

✓

WQS

Nomasense O₂ C300

Bottling

Type of product : Wine ▼ Bottle ▼ Process type: Bottling ①

Name : * ②

Volume (cL) : * ③

Alcohol (% vol) : * ③

Neck diam (mm) : * ④

Sugar (g/L) : * ④

Control point :	Type :	Type of measurement :
Control point :	Initial Tank ▼	DO ▼ ⑤

⑤

✕ ✓

1: type of monitoring

2: model name

3: settings (volume, alcohol, sugars)

4: add a control point

5: configuration of control point

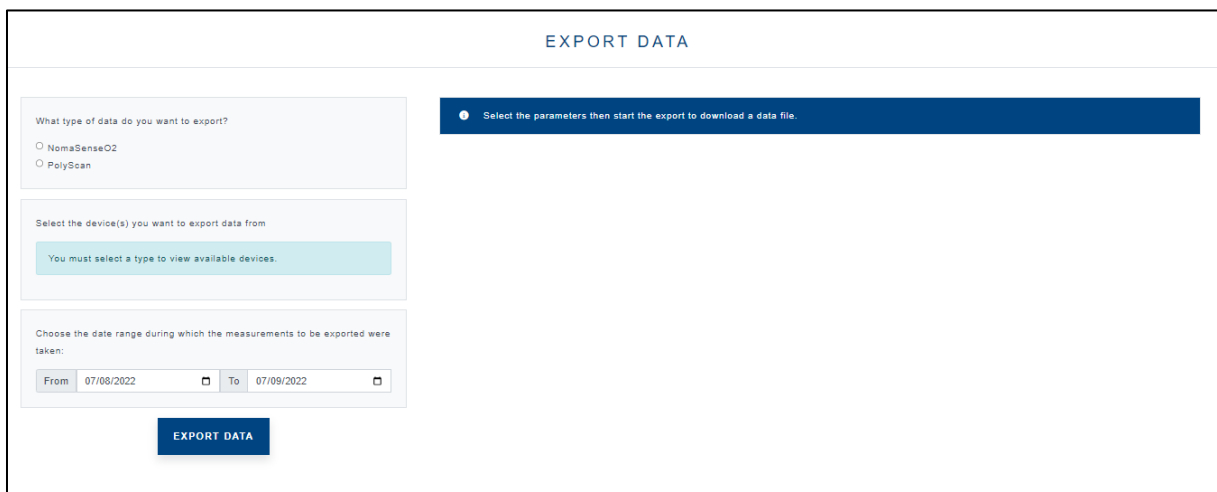
2.3- WQS enology portal

All measurements made with the Nomasense O₂ C300 (except fast measurement) are saved in a cloud database.

With the link bellow and your personal credentials you can access to your data

<https://vinventions.enologyportal.wqs.wine>

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



Select NomasenseO₂, select a range of date and press “export data”.

2.4- Error code and trouble shooting

2.4-1.Errors and Warnings

2.4-1.1. Errors (Error codes Ex)

Error code	Error	Description	Solving
E0	No PT100	No PT100 connected to the device or PT100 not correctly connected	Plug the temperature sensor or use manual/fixed temperature
E1	No Sensor	No sensor is connected (Amplitude < 1000)	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	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 sensor 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. You can use "manual" mode.

2.4-1.2. Warnings

Code	Warning	Description	Solving
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 load the battery.
- When device is unused please keep the device in a dry and temperate room.

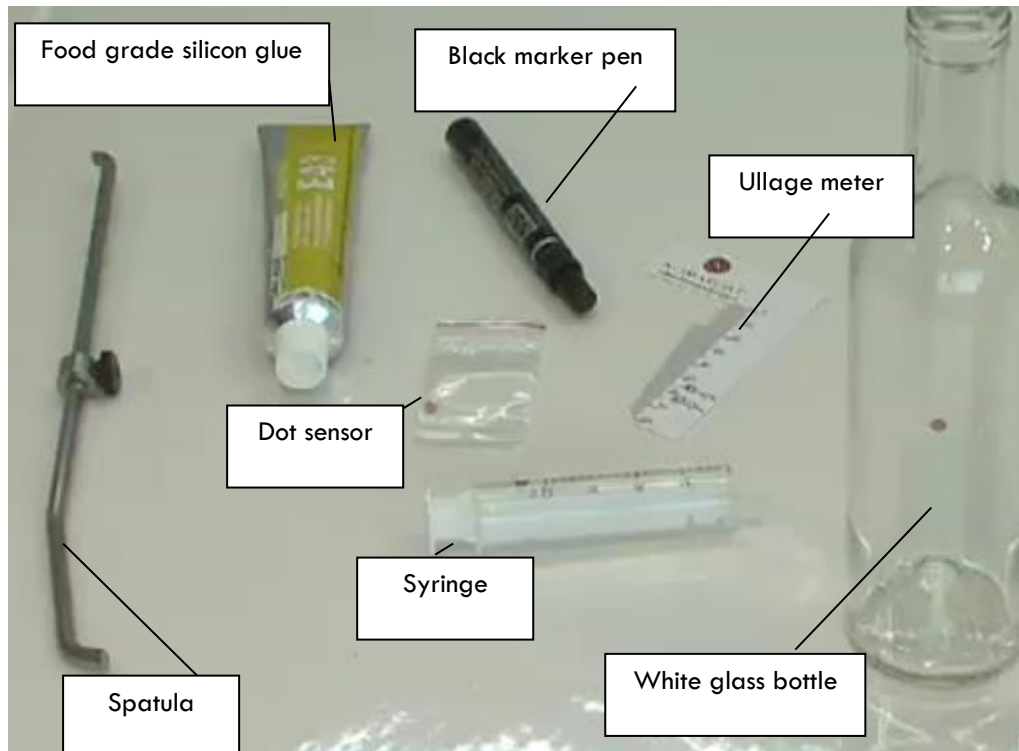
3. Applications Note

WQS

Nomasense O₂ C300

3.1- How to glue a dot sensor

3.1-1.Necessary material



Where dot sensor must be glued?

Use black pen marker 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 head space).

3.1-2.Prepare the glue



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



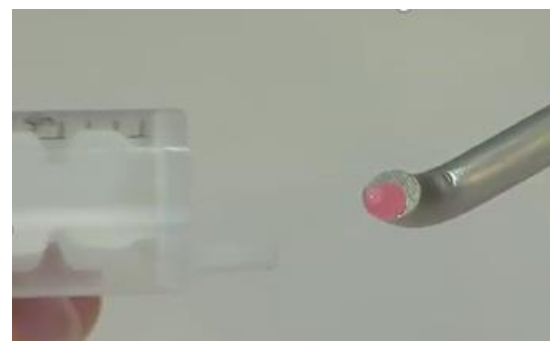
Replace syringe plunger

3.1-3. Prepare the sensor



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

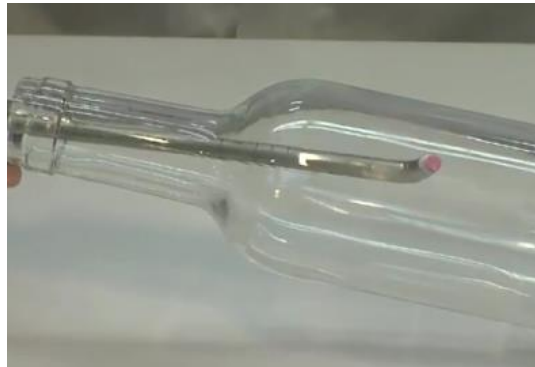
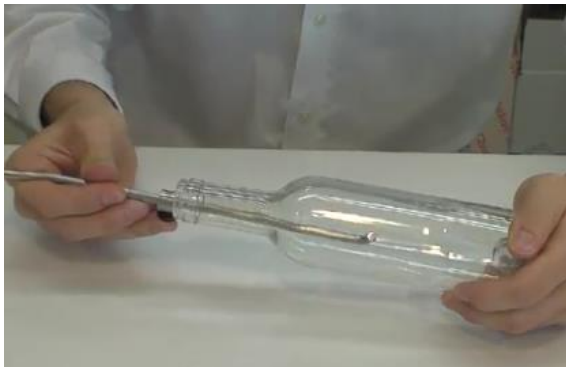
Avoid touching the dot sensor with your fingers.



With the syringe, pour a small amount of silicon glue on the sensor.

(half the size of a grain of rice)

3.1 -4. Glue the sensor



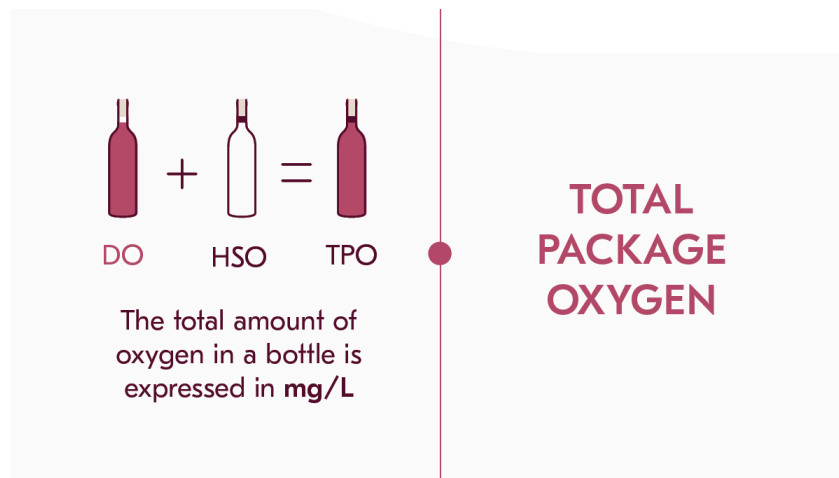
With the spatula, place the dot sensor inside the bottle.

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

Wait at least 30 minutes before using it.

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

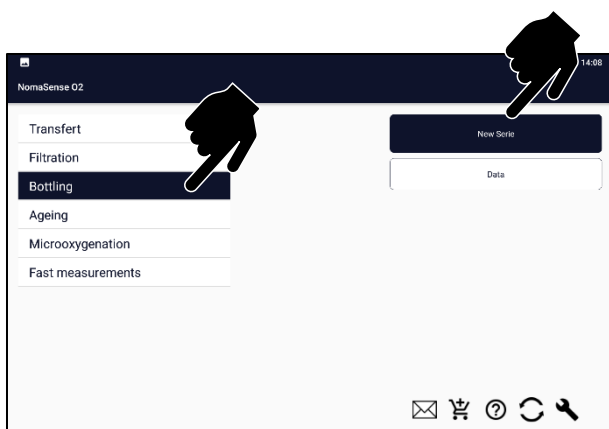
3.2- TPO in bottle



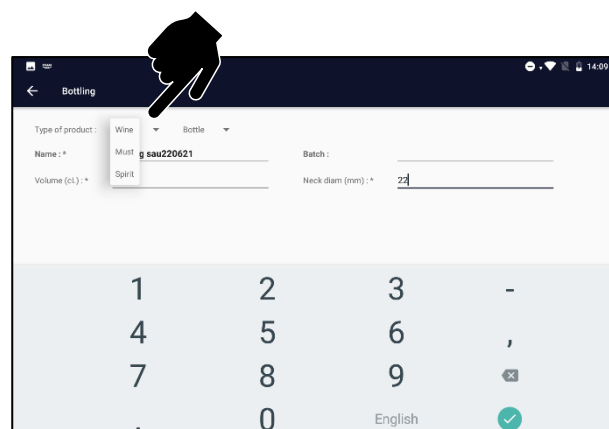
TPO is the sum of the quantity of dissolved oxygen and head space oxygen per volume of wine (expressed in mg/L) in a BIB or a bottle.

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 list

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Hand icon pointing to the 'Bottle' option in the 'Type of product' dropdown menu.

Select bottle or BIB in the drop 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).

Hand icon pointing to the checkmark button at the bottom right.

Press  to validate

Hand icon pointing to the plus button at the bottom right.

Press  to create a control point.

Hand icon pointing to the 'bottle' option in the 'Control point' dropdown menu.

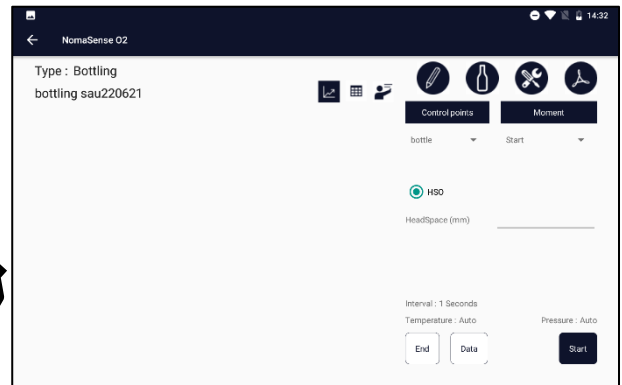
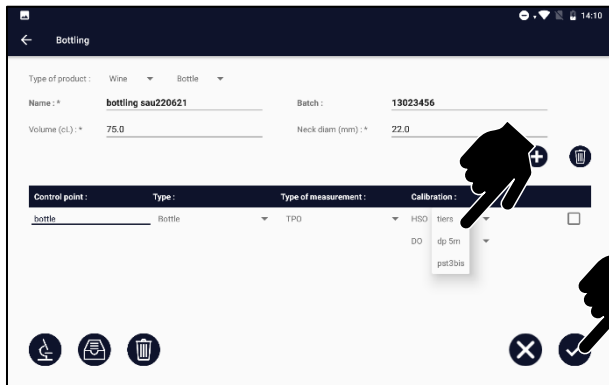
Enter a name for the control point and select "bottle" in the "type" drop list

Hand icon pointing to the 'TPO' option in the 'Type of measurement' dropdown menu.

Select TPO in the "type of measurement" drop list.

WQS

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Select the calibrations for DO and for HSO.

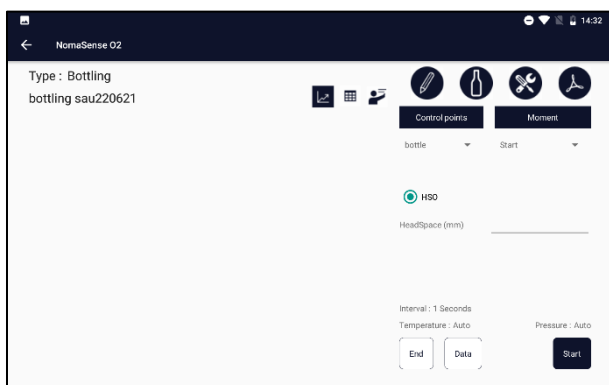
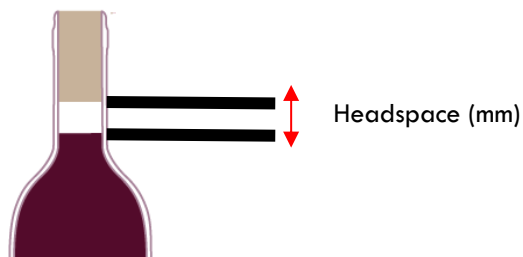
And press  to validate.

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

3.2-2. Make measurements

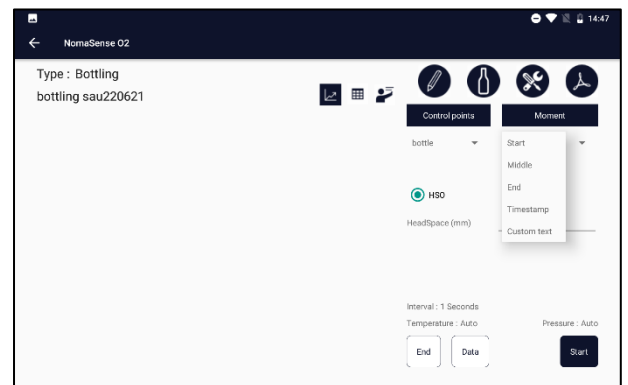
3.2-2.1. TPO with piercing system / DO with dipping probe

- 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.

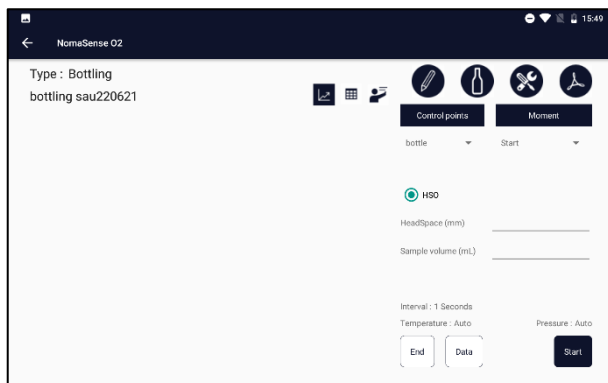
First measurement is always HSO



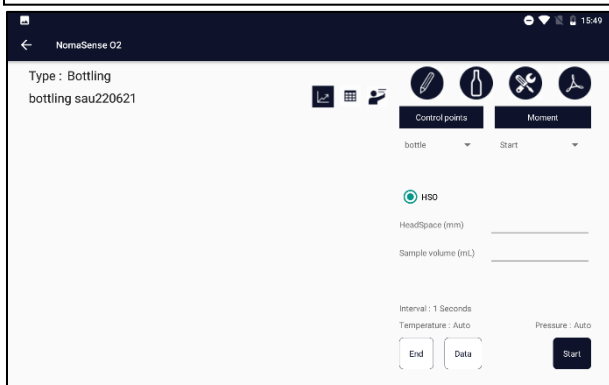
Select or enter a moment of measurement start/middle/end or bottle number as custom text or a time stamp.

WQS

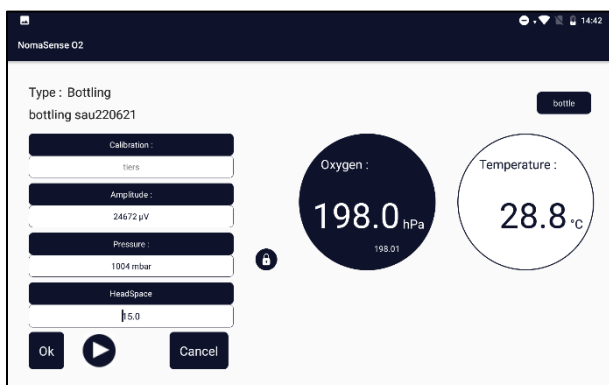
Nomasense O₂ C300



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.



Press "start"



Press OK to save measurement.

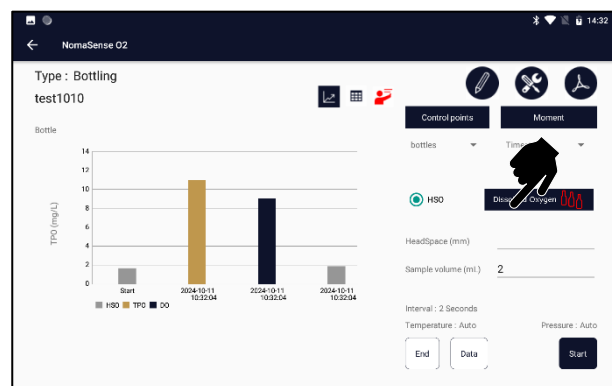


Pierce the cork with the piercing system until the holes of the needle are inside the headspace.

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



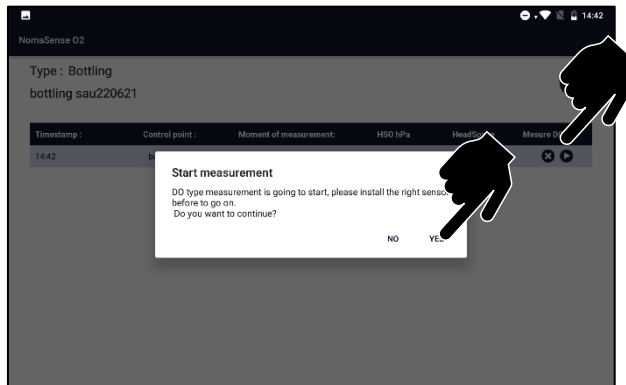
Place the optical fiber on the dot sensor of the syringe. **Temperature probe must be placed in the air.** Once the value is stable measurement automatically stop.



Press the "Dissolved oxygen" icon to start OD measurement. Open the bottle, **place the dipping probe and temperature probe inside the bottle.**

WQS

Nomasense O₂ C300



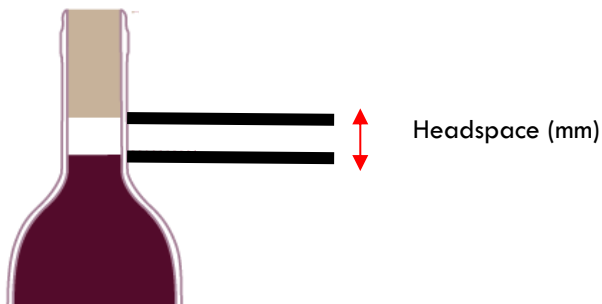
Select the bottle to measure (ordered by HSO timestamp) and press “play” and “YES”



Agitate the dipping probe to have a shorter stabilization time. Once the value is stable measurement automatically stops.

3.2-2.2. With dot sensors

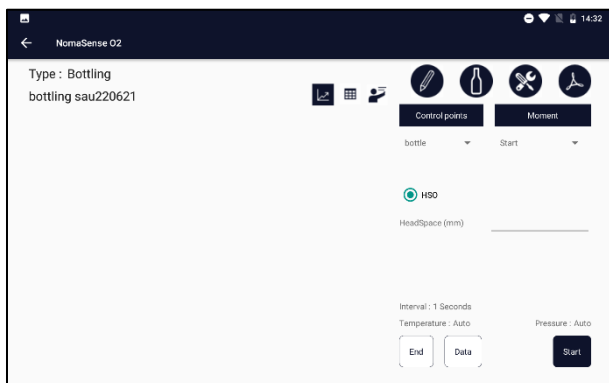
- Place bottles with 2 dot sensors on the bottling line, and collect these bottles after bottling.
- **Wait at least 40 minutes before making measurement**, the dot sensors must equilibrate with wine.
- Measure the headspace height in mm with the ullage meter



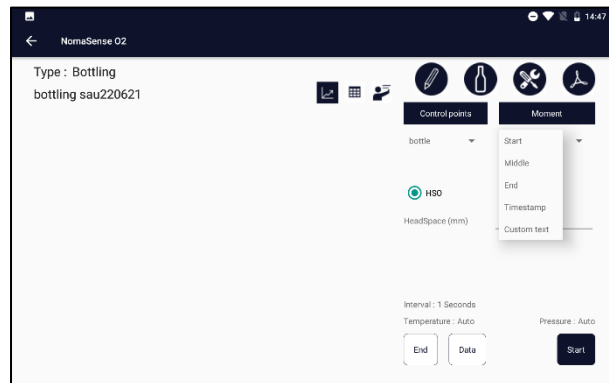
- Plug the long or short optical fiber on the device.
- Plug the temperature probe.

WQS

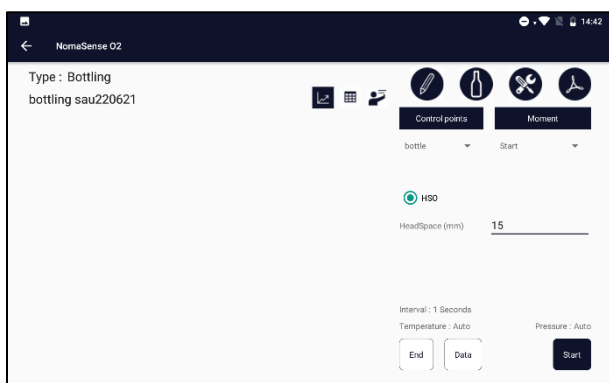
Nomasense O₂ C300



First measurement is always HSO



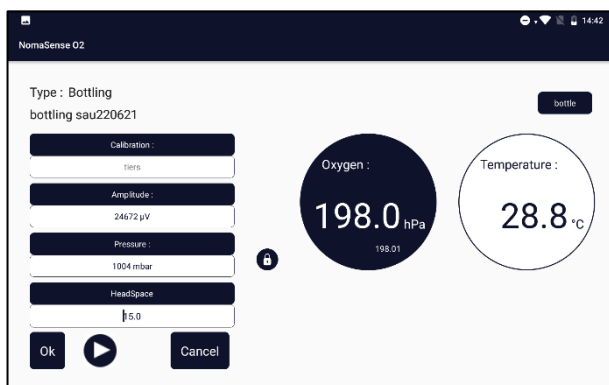
Select a moment of measurement:
start/middle/end or bottle number on custom text
or time stamp.



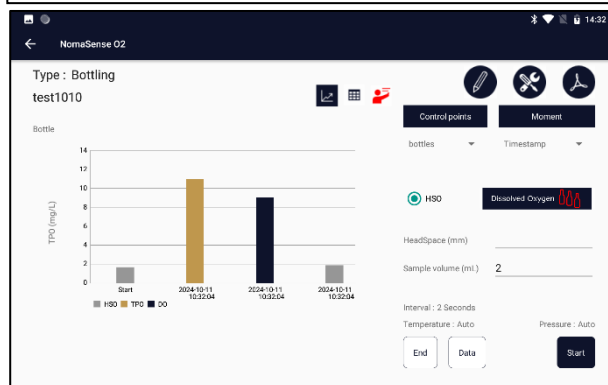
Enter the headspace in mm. Note that headspace could be entered before HSO measurement, after HSO measurement or after DO measurement.



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 stop.



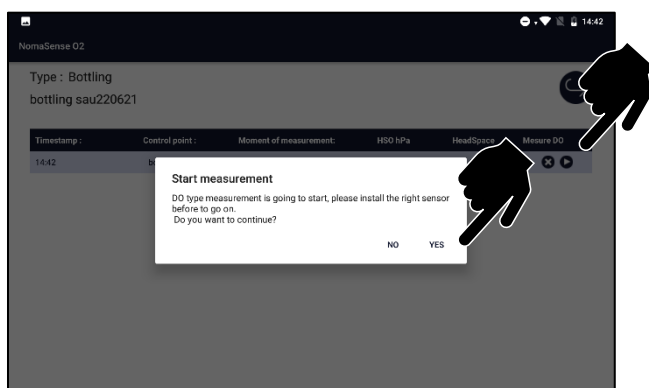
Press OK to save measurement.



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

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

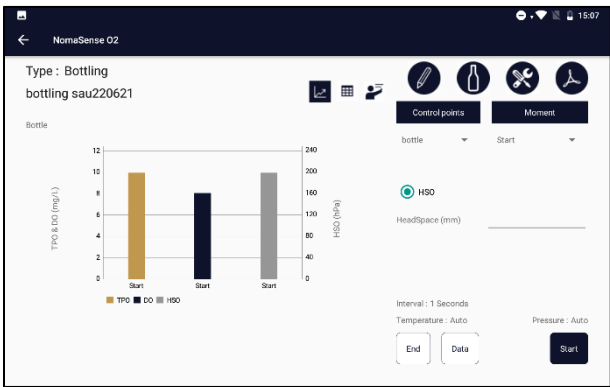


Place the optical fiber on the dot sensor in contact with wine. Once the value is stable, measurement automatically stops.

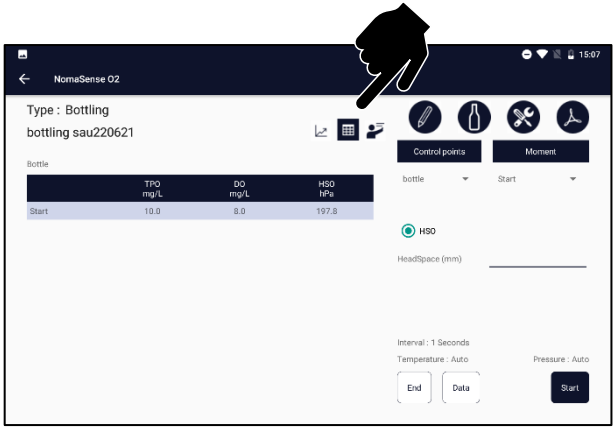
WQS

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3.2-3. Results

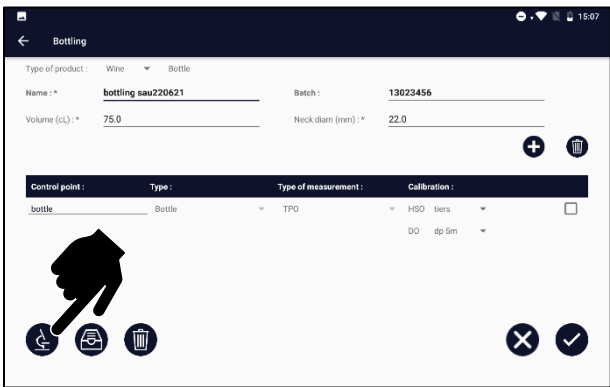


Results are display in a graph with TPO/DO and HSO. For each moment of measurement, average values (standard deviation are displayed if number of bottles is over 2).



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

Variation coefficient are displayed if number of bottle 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 (as headspace height) for a given measurement by pressing the pencil at the end of the row.

3.3- TPO in Bag in Box

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*



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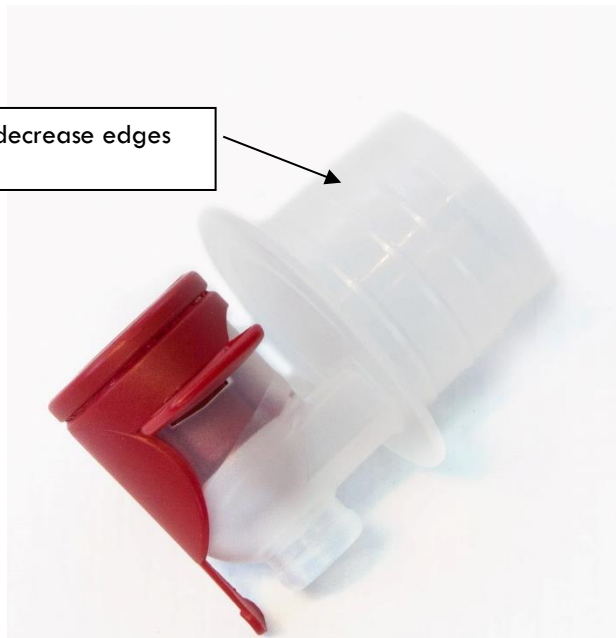
3.3-2. Prepare the Vitop Spout

Glue a dot sensor inside the transparent Vitop Spout.



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

Slightly sand here to decrease edges



3.3-3. Prepare the pouch

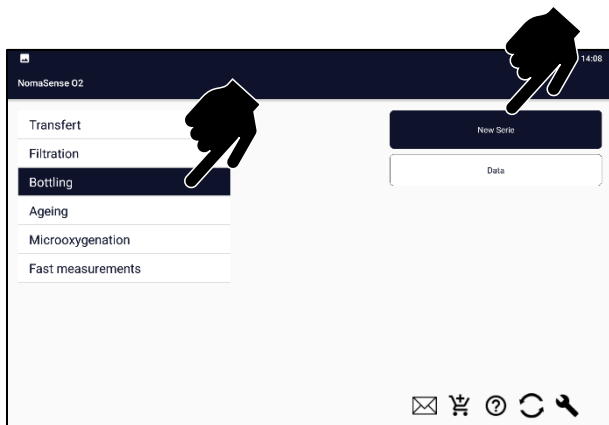
- Prior to BIB filling, remove Vitop spout from the pouch to install the transparent Vitop spout with a dot sensors.
- Collect this equipped pouch after filling.

WQS

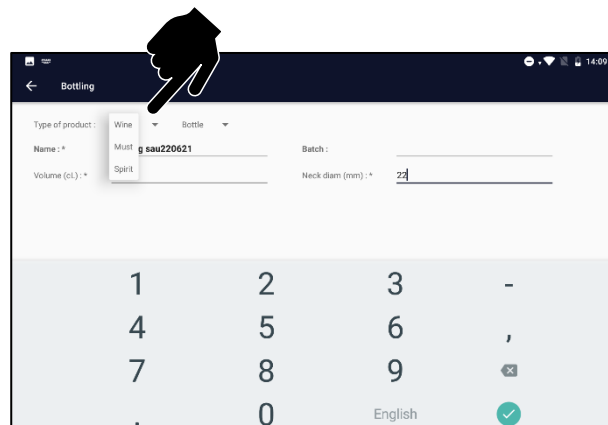
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3.3-4. Prepare Nomasense O₂ C300

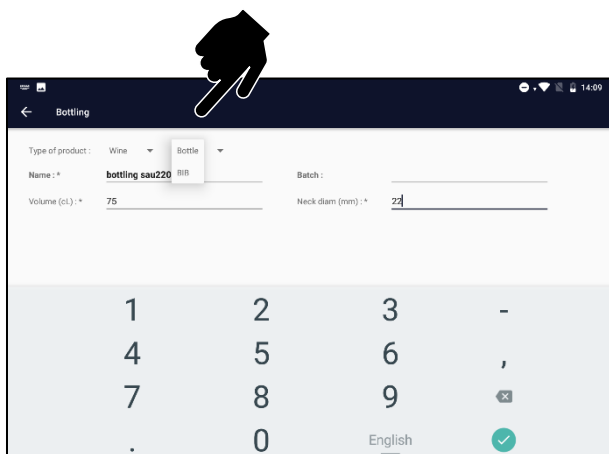
TPO (total package oxygen) measurement is only available in “Bottling” menu.



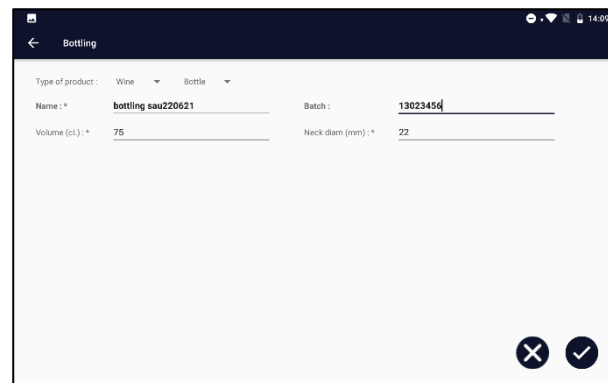
Select “Bottling” menu and press “New series”



Select the type of product (must/wine/spirit) in the drop list



Select BIB in the drop list



Enter a name/volume for BIB pouch.

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Type of product: Wine Bottle
 Name: * bottling sau220621 Batch: 13023456
 Volume (cl): * 75 Neck diam (mm): * 22

Buttons: [X] [✓]

Press “validate”

Type of product: Wine Bottle
 Name: * bottling sau220621 Batch: 13023456
 Volume (cl): * 75.0 Neck diam (mm): * 22.0

Control point	Type	Type of measurement	Calibration
+ [X] [✓]			

Buttons: [X] [✓] [add] [trash]

Press “add” to create a control point.

Type of product: Wine Bottle
 Name: * bottling sau220621 Batch: 13023456
 Volume (cl): * 75.0 Neck diam (mm): * 22.0

Control point	Type	Type of measurement	Calibration
bottle	Initial Tank Sight Tank Bottle	DO	tiens

Buttons: [X] [✓]

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

Type of product: Wine Bottle
 Name: * bottling sau220621 Batch: 13023456
 Volume (cl): * 75.0 Neck diam (mm): * 22.0

Control point	Type	Type of measurement	Calibration
bottle	Bottle	DO HSO TPO	tiens

Buttons: [X] [✓]

Select TPO for type of measurement.

Type of product: Wine Bottle
 Name: * bottling sau220621 Batch: 13023456
 Volume (cl): * 75.0 Neck diam (mm): * 22.0

Control point	Type	Type of measurement	Calibration
bottle	Bottle	TPO	HSO dp 5m pst3bia

Buttons: [X] [✓]

Select the calibrations to use for DO and for HSO.
And press “validate”

Type: Bottling
 bottling sau220621

Control points: bottle Start

HSO HeadSpace (mm)

Interval: 1 Seconds
Temperature: Auto
Pressure: Auto

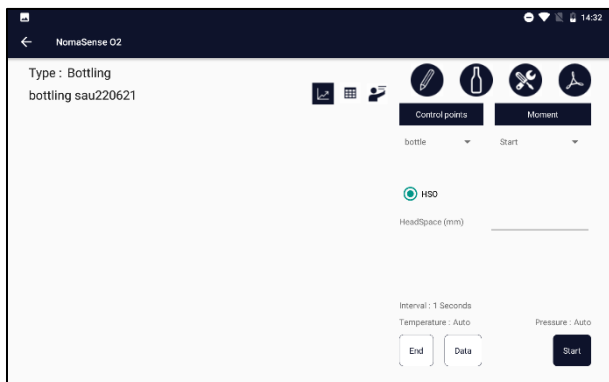
Buttons: [End] [Data] [Start]

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

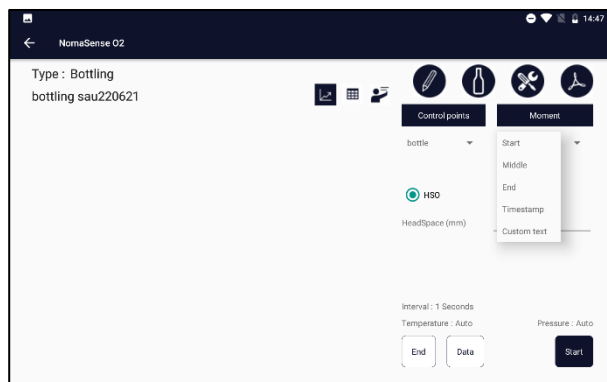
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3.3-5. Make measurements



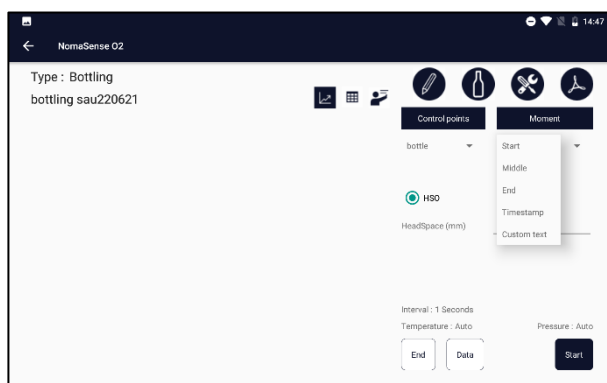
First measurement is always HSO



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"

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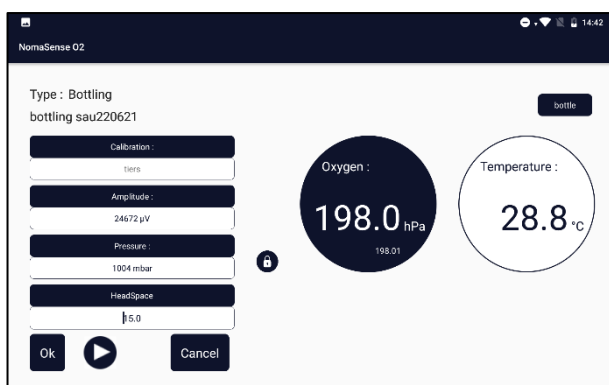


Place the optical fiber on the dot sensor.

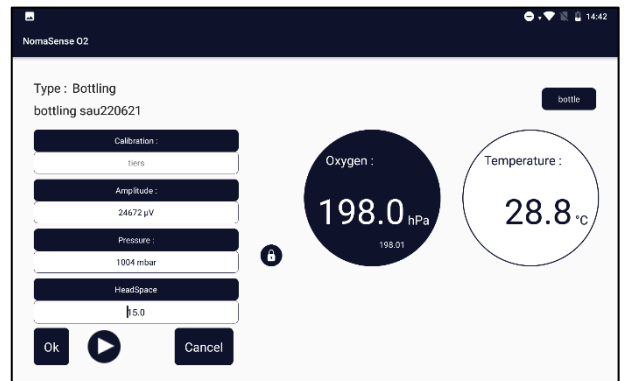


Measure the volume of the cone. Place the pouch on a plane surface and press it moderately to form the cone.

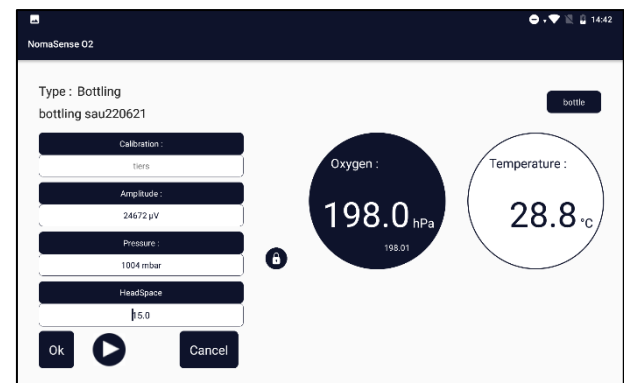
If you are using non transparent pouch, you have to remove non transparent layer. Roll the pouch between your fingers to separate the layers.



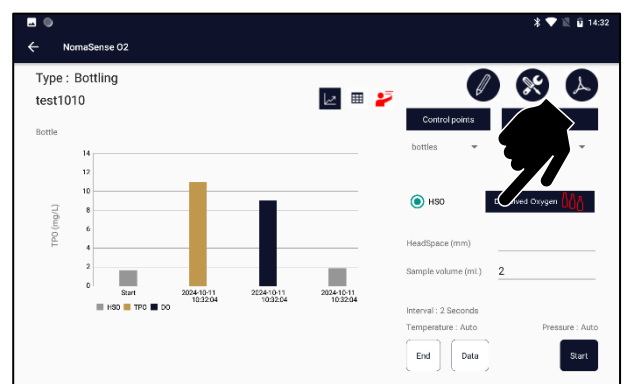
Press OK to save measurement.



Measure 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.

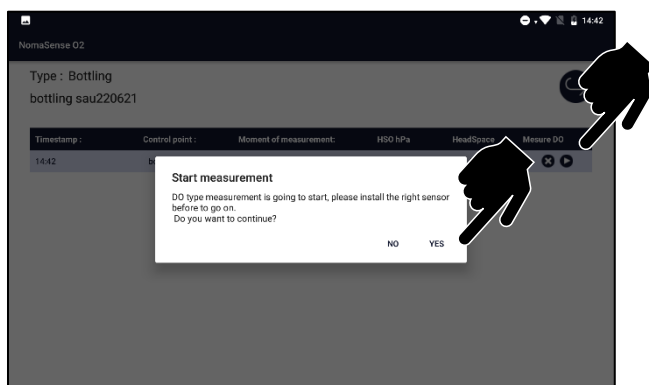


Press the red bottle icon to start OD measurement. Retrieve a BIB from the line without a sensor, pour some wine into a bucket and place the temperature probe in the wine.

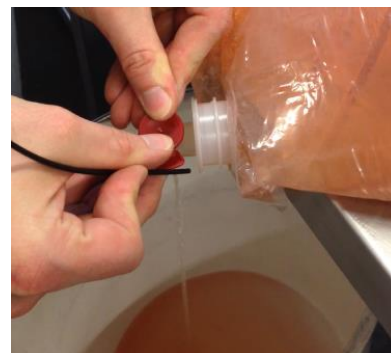
Or enter manually the wine temperature in the parameter menu.

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



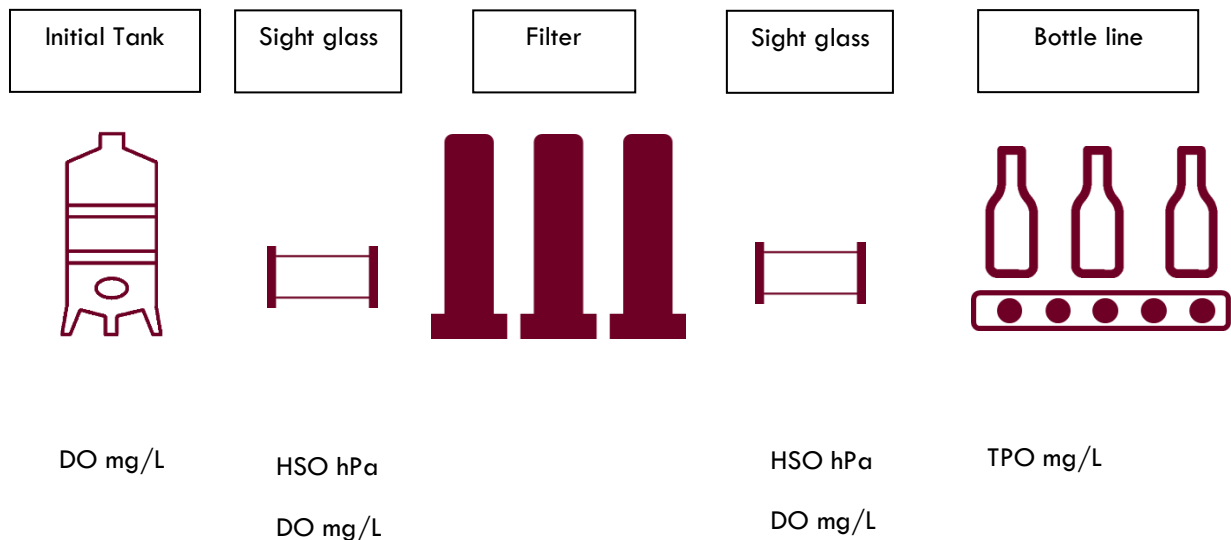
Even if the measure stopped, you can redo it pressing.












3.4- Audit a bottling line

3.4-1. Where, when and what?

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



Control Point	Start	Middle	End
Initial Tank	DO mg/L 	DO mg/L 	DO mg/L 
Sight Glass	HSO hPa or % O ₂ 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

3.4-2. How many bottles?

3.4-2.1. At the beginning of bottling

Pick up bottles 2 per 2.

- 2 first 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.

3.4-2.2. At 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.

3.4-2.3. At the end of bottling

Pick up bottles 2 per 2.

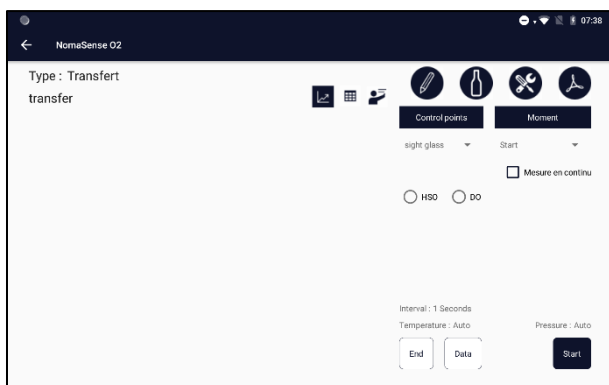
- 700 bottles before the end
- 500 bottles before the end
- 200 bottles before the end
- last revolution before the end

3.4-3. Additional measurements

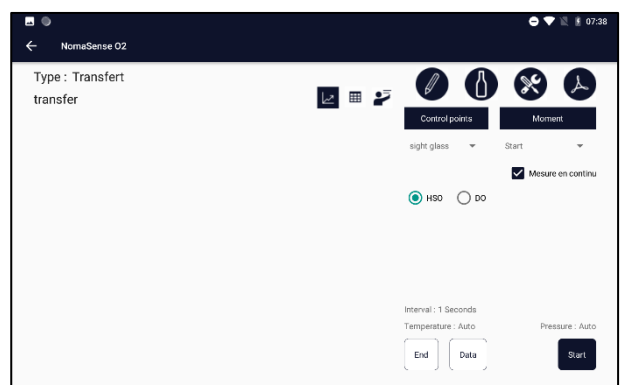
Control Point	Start	Middle	End
CO ₂ concentration	Each sampled bottle	4 bottles (min, max and average value of TPO)	Each sampled bottle
Bottle pressure (not compatible with TPO piercing system)	Each sampled bottle		Each sampled bottle

3.5- 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 round container adapter to make continuous measurements.



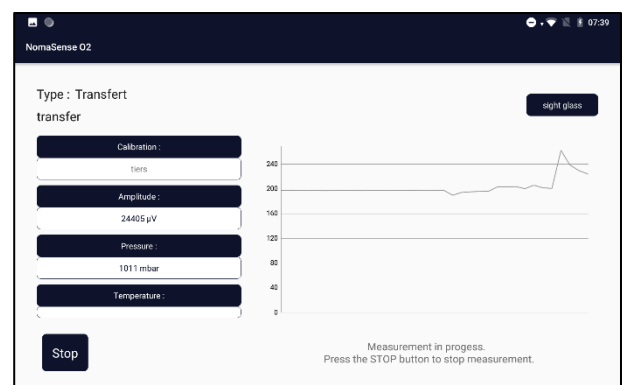
Select the control point and the moment of measurement (start or time stamp)



Select HSO and continuous measurement and press start.



Place the optical fiber on the sensor sport or use adapter for round container.



Then press "Stop" and "Save".

3.6- Recalibrate a sensor

In “calibration”/ Calibrations management : it is possible to see calibration status:

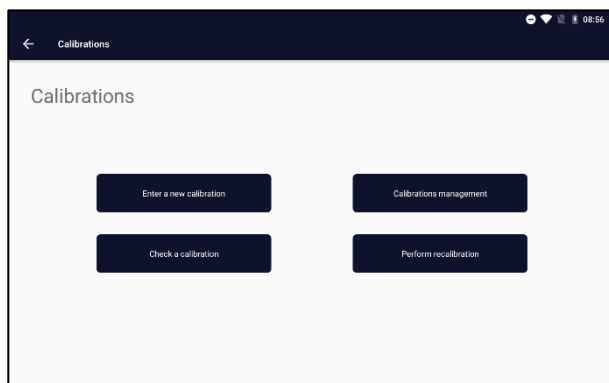


- Red flag, last calibration check wasn't passed → recalibration is needed
- Orange flag : calibration wasn't checked for a long time.
- No flag: everything is OK.

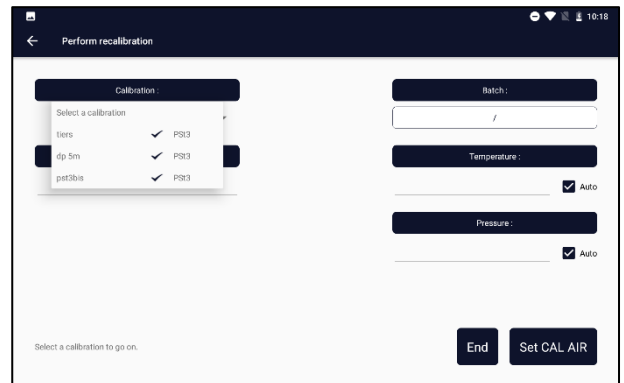
Before recalibrating a sensor, place the sensor and the temperature probe in the room where you will recalibrate it for half an hour. It will allow the system to be perfectly equilibrated and will ensure best conditions for recalibration. Sensor must be dry.

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

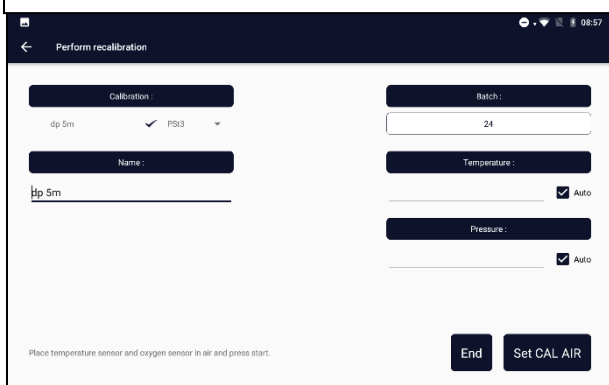
- Plug the dipping probe to be calibrated or an optical fiber.



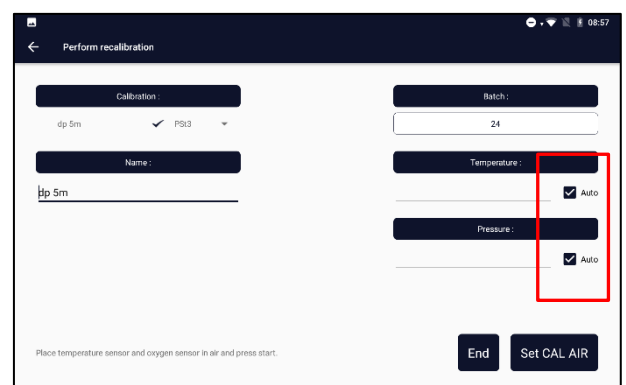
Open “Calibrations” menu
Select “Perform recalibration”



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.

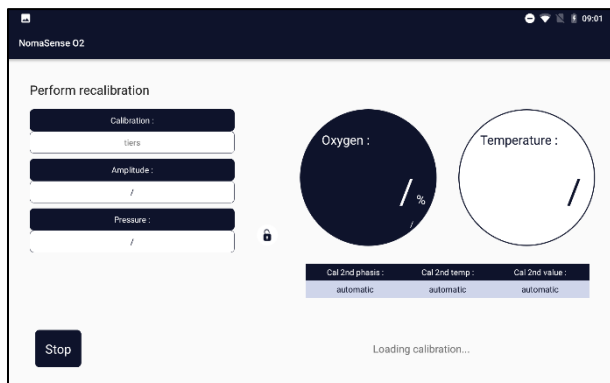


Let pressure and temperature in auto mode. It is possible to enter a value for these parameters but it is better to use the inbuilt sensor for pressure and the temperature probe. Press “Set CAL AIR” *

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

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The device loads the calibration.



Then adjust the led intensity and calibrations parameters.



The device checks the new calibration.



At the end, you can press Ok to Save calibration. Value of %O₂ must be between 19.5 and 21,5%. If not, a red flag will appear next to the name of the calibration.

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 10mm dot sensors should be used.

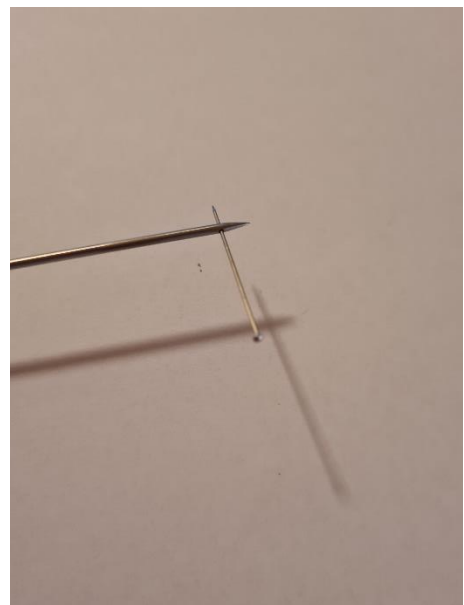
3.7- Unclog the needle of the piercing system

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's needle holes.

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