Instructions for use

NiloChecker

Dear Customer

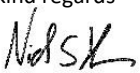
Thank you for buying the NIloChecker.

We have done our best to create a durable and precise instrument that will last for many years.

You will hopefully find the instrument easy to use, and an important companion for your future quality controls.

If you have any questions or concerns, please do not hesitate to contact us by email: contact@nilotech.eu or go to our website www.nilotech.eu/contact

Kind regards



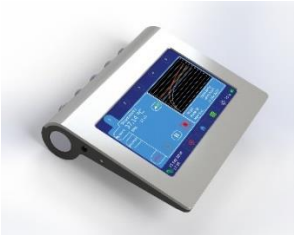
Niels Stengaard Hansen / CEO

Change log

Date	Version	Resp	Change
2020-02-19	0.12	NSH	Technical content OK, ready for EN review
2020-07-16	1.0	NSH	Nilochecker HW 1.0 FW 1.0.0

Content

In the Box



The NiloChecker instrument

Wall plug Adaptor with connectors for EU, UK, US and CN

USB cable for data transfer

This document

Instruction for use

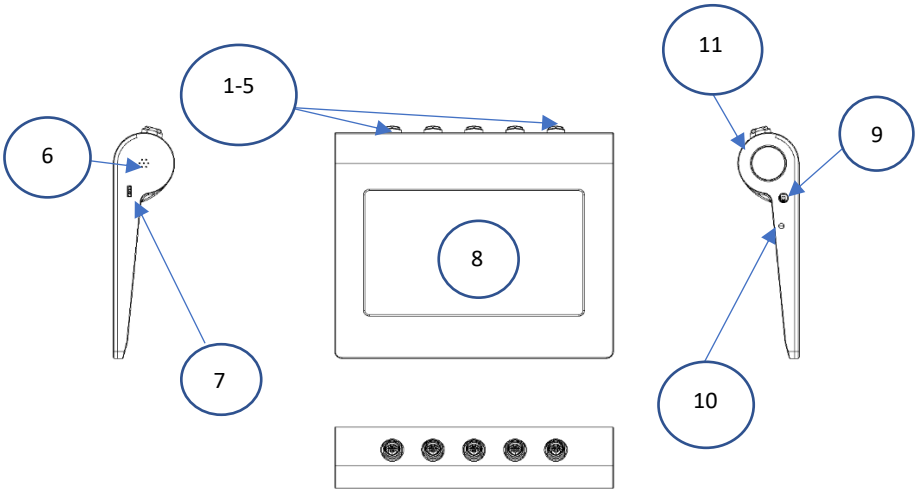
Symbols used in this instruction

Click or press here.

ATTENTION
Important warning or instruction.

NOTE
A useful hint about the use of the NiloChecker.

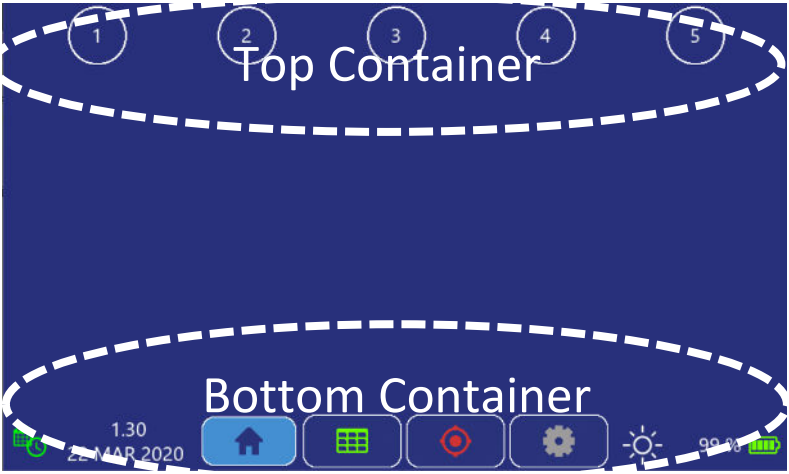
Basic physical layout



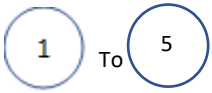
1-5	Measurement probe input 1-5.
6	Opening for sound signals.
7	USB port for Data transfer and service.
8	Touch screen.
9	Power input. Connect Wall Plug Adaptor for charging the device.
10	Charging indicator.
11	Power button.

Basic Screen layout

Each screen has a Top container and a bottom container which appears on all user screens. These containers continuously display important information and help you to quickly jump to another screen.



The circular buttons in the top container brings you to one of the measurement screens 1-5.

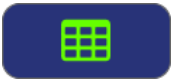


The NiloChecker shows the time in 24 hour format in lower left corner.
To set Time and date please refer to the chapter Getting Started

Ensure to have the correct time and date in the system. Otherwise the system may give wrong information about calibration status of probes.

Basic Screen layout

Click the home symbol to go to Home screen.
It is possible to follow all measurements simultaneously on the home screen.



Click on the Table symbol to access the Table screen
The table screen allows you to organize measurement results and the screen automatically present calculations of average and deviation values.

Click on the Target symbol to go to the Target edit and select screen.
The target is the instrument which you are checking with the NiloChecker.

Click the gearwheel symbol to jump to the Setup screen.
From the setup screen it is possible to set time, date and language and other system parameters.

Click on the brightness symbol to adjust screen brightness. Slide the knob vertically to adjust brightness. The slider and knob disappear after max 3 seconds or when you release your finger.

The battery symbol and level in percent, indicates the charging level of the battery

If the symbol turns red, please connect the adaptor immediately to avoid losing data.
You can use the NiloChecker while charging.

Getting Started

1. Connect the cable from the Wall Plug Adaptor to the power input.

Only use the original Wall Plug Adaptor supplied with the NiloChecker or a replacement, supplied by the manufacturer.

Charge the battery to at least 75%, before unplugging the power.

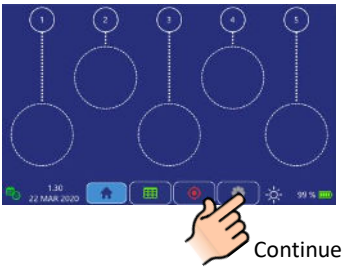
2. Power on the NiloChecker with a short press on the power button

Hold the power button pressed for 3 seconds, to power off the NiloChecker

3. Wait for home screen to appear

Click on the gearwheel symbol in the bottom container to show system screen

Home Screen:



Continued…

Getting Started

4. When you enter the system screen you will always see the System Information window.
   To set date, click on date symbol

5. Rotate Day, Month and Year wheels to place the actual date in the light blue bars. Click  button to accept.
   Click cancel  to return without saving any changes

6. To set time, click on time symbol

7. Rotate hour and minute wheels to place the actual time in the light blue bars.
   Click  button to accept.

Getting Started

8. To set language, click on language symbol

9. Rotate language wheel to place the preferred language in the light blue bar.
   Click  button to accept.

10. To go to system setting, click on the system setting symbol

11. The NiloChecker can shut down automatically to save energy.
    Rotate time wheel to select time from last interaction, to shut down.
    Click  button to accept

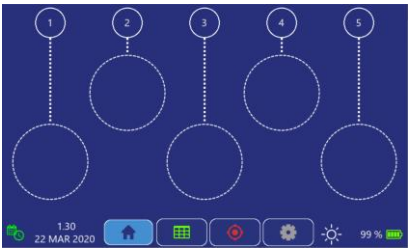
To start measuring go to the next chapter "Measurement, step by step"

Make a Measurement, step by step

This chapter gives you a short introduction to your first measurements with the NiloChecker.

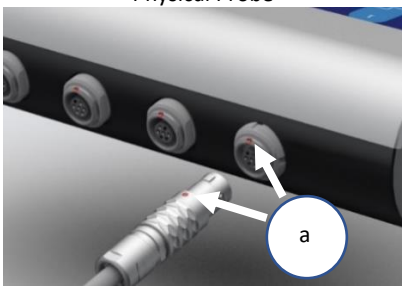
1. Power on the NiloChecker with a short press on the power button.

Home Screen:



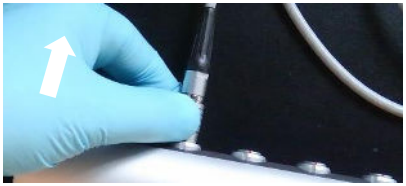
2. Wait for home screen to appear or click the home symbol  to go to the home screen

Physical Probe



Insert the probe connector (a) in any of the input connectors. Note that the red dot on the probe connector must align with the red dot on the input connector. You will hear a “click” when the connector is locked in place.
The NiloChecker starts to measure immediately.

Some probes will require “warm up” or time. The NiloChecker will write “0,00” until measurement data becomes available.

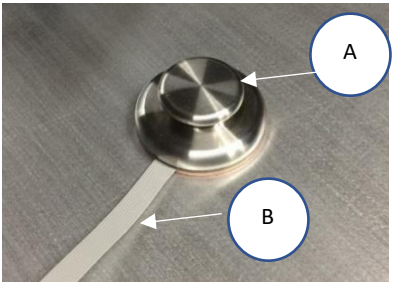


3. To unlock the probe, only grasp around the grooved part of the connector and pull it away from the device.

Make a Measurement, step by step

4. The figure to the left shows a temperature probe as an example.

!! Make sure temperature sensors always have good contact to the surface.
!! Avoid blocking any openings in gas sensors.



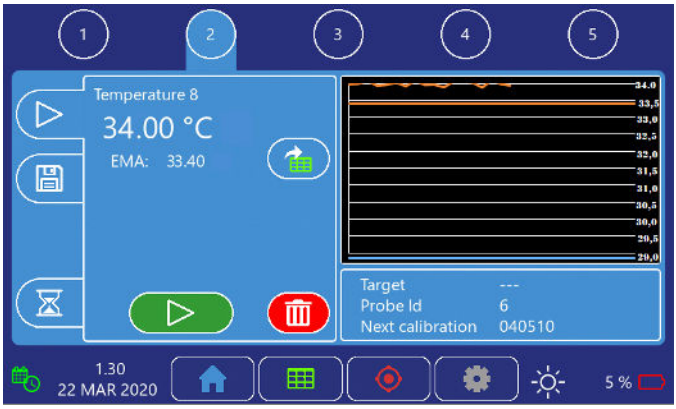
The Flat flexible cable (B) must pass through the door/lid of the chamber or compartment. The flat design prevents heat or gas loss during measurement.

5. Check on the screen that the dotted circle under the probe input has turned light blue.
   This shows, a temperature probe in input 1, measuring temperature in degrees Celsius

For using more than one probe, repeat steps 0, 4 and 5.

Make a measurement, step by step

Enter a measurement screen by pressing one of the round buttons 1-5 in the top container.
The measurement screen shows 3 boxes. See below.



Measure window is shown by default on the left side. It shows the current measurement type, in this case “Temperature”, the actual measurement value and the Exponential Moving Average EMA.

EMA is an average value where the latest measurements are weighted most. When EMA stabilizes, you will know that your measurement has reached a stabile state.

The Pause/play button / can stop and restart measurements

The Erase button will clear the current EMA value. See more in chapter: Measurement screen

Make a measurement, step by step

Use the graph to the right to get a visual indication of whether the measurement has entered a steady state. The graph visualizes the measurement. The horizontal line shows the EMA level. Note when measurement graph and EMA align.

For detailed information on how to measure, calculate averages and store data, please refer to the chapter Measurement screen

The Data window below the graph shows the current Target.. You can define and select Targets on the Target edit and select screen  .

Important "Next Calibration date".
If this shows "Overdue" instead of a date, the NiloChecker may give you less precise measurement values.
For more information see chapter: Calibration

Target edit- and select- screen

The Target function allow you to dedicate measurements to a certain target in your lab. For instance, will NiloChecker keep organizing all measurement you perform on your "Incubator1" at any time into one specific file in the internal memory. Then it is easy to export all measurement done today and earlier together.

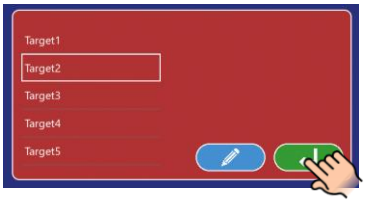
To enter this screen, click the target button  in the bottom container.

The NiloChecker will assign all measurements to the selected target until it is powered off or a new target has been selected.
This screen allows you to create new target names, edit existing names and assign a target to your current measurement.
Nilochecker will remember target names after power off.

Target edit- and select- screen

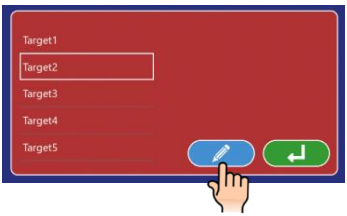
How to Select a Target
Use your finger to scroll the list.
Select the requested target by clicking on its name and a white frame around the target will appear.

Click the  button to transfer target name to measure page.



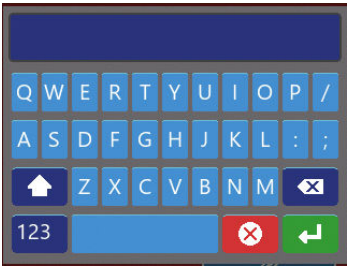
How to Edit a Target
If the target name is not available, click an empty field or a field you may want to change. Make sure you see a white frame around the target you have selected.

..and then click the button. 



A keyboard will appear.
Type a new name for a target instrument.

Finish by clicking  or cancel by 

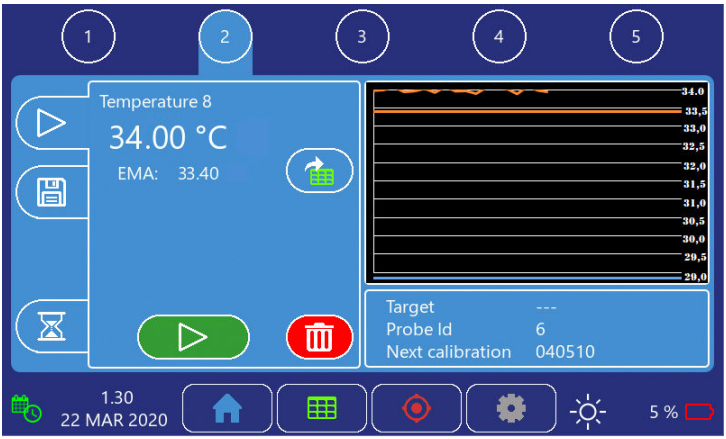


You can only name your target using letters a..z, A..Z or numbers 0-9. Target name can be max 8 characters long.

After editing the Target remember to select the target as described above, before measuring.

Measurement Screen

The measurement screen always appears with the measure window selected . Click on the tabs to the left to access storing or timer windows.



The measure window shows the continuous measurement value, in this example temperature.
Below the measurement value is the Exponential Moving Average (EMA) which is an average value weighing the latest measurement highest. This is especially valuable to indicate when a measurement reaches a steady level. See also chapter Measurement step by step

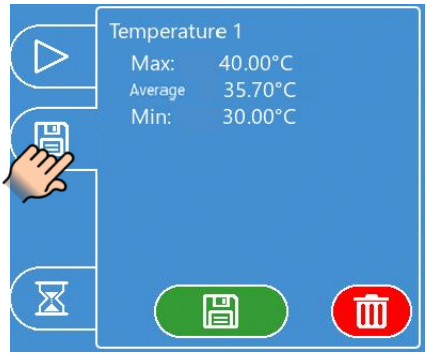
The Pause button will pause a measurement and the calculation of EMA. Measurements can be restarted by pressing the same button, now showing the play symbol: .The Erase button will clear the current EMA value.

Measurement Screen

During measurements, The NiloChecker stores minimum and maximum measured value and calculates average.
The values can be stored in the internal memory by pressing the store button.

When a measurement is paused the NiloChecker remembers the all values after measurement has been re-started again.

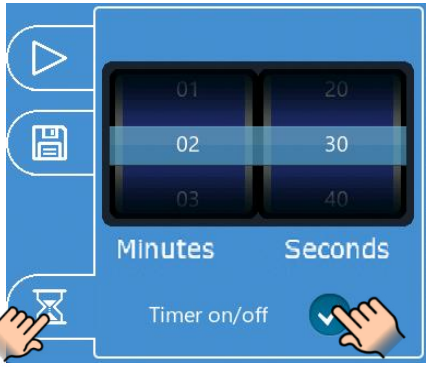
If a measurement is erased by pressing , all values are cleared



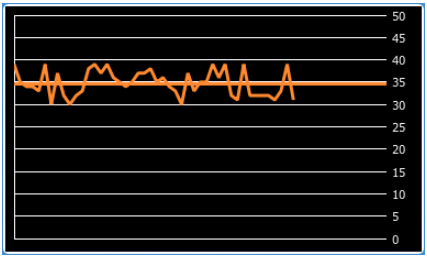
With the timer function activated, the NiloChecker stops the measurement automatically when the selected time interval has expired.
Select time interval in minutes and seconds by turning the wheels.

Click timer on/off symbol to activate or de-activate the timer function.

With the timer function de-activated the measurement continues until paused or stopped in the measure window.



Measurement Screen



The graph window shows the measurement in graph format.
This format is very useful to indicate how a measurement progress and when the measurement reaches a steady value.
The span of the horizontal time axis is equivalent to the timer interval, whether the timer function is activated or not.
The resolution on the vertical axis is set automatically.

For more information about the Target shown in the lower right window, please refer to the Target edit and select screen.
The probe ID is a unique identification number stored inside the probe memory.

Please provide probe ID if you need support from your distributor or the manufacturer.

The next calibration date is based on data stored inside the probe, by your calibration Service. Please ensure that your probe is calibrated before the next calibration date.
If the calibration date has passed the NiloChecker will write "Overdue"

Table Screen

The table Screen can be used to store measurements and calculate differences and average across measurements. That is for instance useful if you want to determine temperature in several locations across a warmed surface.

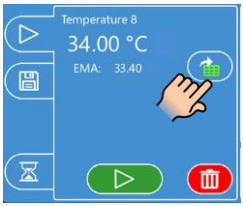
To enter the Table screen, click the table symbol  in the bottom container.
You will see a table with 18 cells.

You cannot type data into the table. Instead you transfer data from measurement pages.

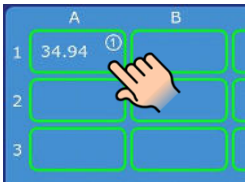
Important:
All measurements stored in the table will be lost when the instrument is powered of

1. Data can only be transferred from the measurement screen.

2. Click the “add to table” button next to the EMA value you want to transfer



3. This will bring up the table screen. The NiloChecker remembers the EMA value and wait for you to click one of the cells to transfer the EMA value to this particular cell.



You can place data in any cell.
The position or order of data input does not influence calculations.

You may want to place data, so the table resembles the physical position of your measurements.

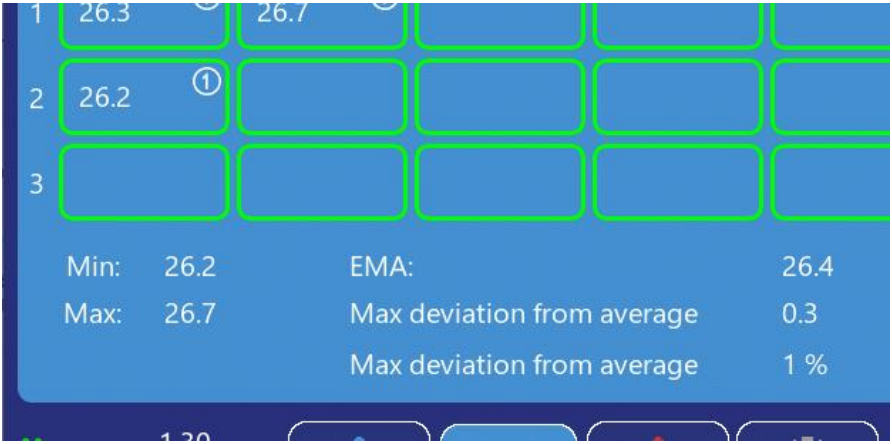
Table Screen

4. You can return to any measurement screen by clicking the probe number in the top.

To insert more data in the table please repeat steps 1-4. You can overwrite any cell by transferring a new value to the cell.

By clicking the reset button, you can clear all values in the table.

Table Screen



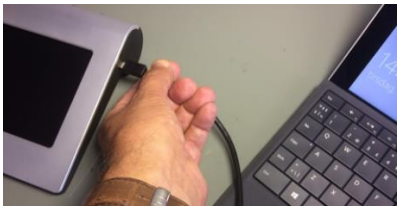
Explanation to the calculations shown in the lower part of the screen

Min:	The **minimum** value in the table
Max:	The **largest** value in the table
Average	The average value is calculated at any time from the formula: **sum of all values entered into table** **number of values entered into the table**
Max deviation from Average	the largest of: **Average – min** or **Max – Average**
Max deviation from Average in %	Max deviation from average in % is calculated at any time from the formula: **Max deviation from Average x100** **Average**

Export Measurement Data via USB

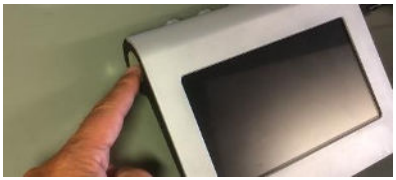
It is possible to export measurement data from the NIloChecker to your Windows PC via the USB cable that was delivered with the NiloChecker.

1) Make sure that the instrument has been turned off.



2) Connect the Micro USB connector on the right side of the NiloChecker

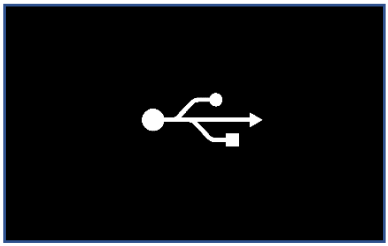
3) Connect the USB type A connector to your PC



4) Turn the NIloChecker on

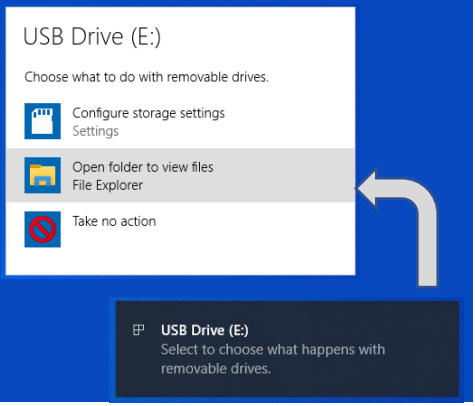
Export Measurement Data via USB

5) After restart the NiloChecker will be in USB mode and show a black screen with the USB logo

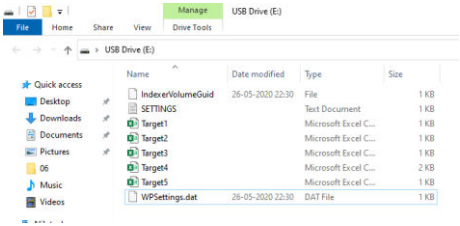


6) First time you connect NiloChecker to your Windows PC, it will show a black box in lower right corner. Click on this and Windows will prompt you select what to do with the USB drive. Select “Open folder to view files”

You will only need to do this the first time you connect the NiloChecker to the same PC



7) Windows will show the File manager after the NiloChecker has been detected.
The Drive name is “USB drive”.
The drive letter (E:), may be different on different PCs.
All files are saved as comma separated values (.csv) files.
The files may be opened in Excel, Wordpad or Notepad.
In this case we used Excel, and the PC remembers that to the next time.



Export Measurement Data via USB

Measurement data will show up nicely organized in Excel.
Below is an example where data form “Target1” is shown.

The 2 upper lines are data from single measurements of CO_2 and O_2

Below are data form the table screen where max, min and averag has been calculated and are being presented with the raw data.

This format makes it easy to organize data and/or transfer data to a report.

	A	B	C	D	E	F	G	H	I	J
1	Date	Time	Probe ID	Sensor	Type	Unit	Min	Average	Max	
2	06-06-2020	12:48	Gas_proto_2	1	%O2	%O2	20,909	20,946	20,979	
3	06-06-2020	12:48	Gas_proto_2	2	%CO2	%CO2	0,019	0,041	0,07	
4										
5	Date	Time	Min	Max	Average	Deviation	Deviation%			
6	06-06-2020	17:17	36,55	38,88	37,69	1,20	3%			
7		A	B	C	D	E	F			
8	1	38,71	38,88							
9	2	37,45	37,54							
10	3	36,55	36,98							
11										

Cleaning and maintaining the NiloChecker

Cleaning NiloChecker

Clean the NiloChecker by using a soft cloth either dry or wiped in a mild detergent.

Never immerse the instrument into liquid.
Do not use alcohol.

Cleaning Probes

Clean the probes by using a soft cloth either dry or wiped in a mild detergent.

Note that some of probes have openings for gas or air. Be extra careful not to spill liquid into these openings or by other means harm sensors behind.
Do not use alcohol.
Never immerse any probe into liquid.

Calibration

Unlike most other instruments in the market, the NiloChecker does not contain any parts which needs to be calibrated. However, to maintain a high precision of your measurements it is recommended to have your probes calibrated regularly. The calibration interval depends on the type of probe.

You will never have to send the NiloChecker for calibration. It means you can continue using the instrument with other probes.

If you provide a spare probe or sign up for Nilotech's replacement service, (available within EU) you will always be able to make measurements even though one probe is sent out for calibration

Probe calibration date.

The Next calibration date is shown in the lower right corner of the measurement screen.
Please make sure to have your probe calibrated before that date. This will ensure highest precision measurements.

What is calibration and why is it needed

All electronic components and sensors change properties over time. This is called drift. Though Nilotech only use highest quality components and sensors in the probes, the drift may result in less precise measurements over time.
Fortunately, all probes have been manufactured so they can be compensated for the drift. During calibration, the output from the probes are compared to a precise reference. Compensation values may be programmed into probe to compensate for the drift.

Calibration

How often must probes be calibrated

The calibration interval, which is the time between each calibration, depends on the type of probe.
Some are more stable over time than others.
Typical calibration interval is 12-24 months.
The calibration date and a calibration interval has been programmed into the probe memory by the manufacturer.
The calibration house can change this interval and may propose do so.

How to calibrate

The calibration service you will need, depends on the type of probes you have.
Some probes you can calibrate yourself with the right equipment.
Calibration service providers often offer to calibrate more than one type of probes.

Probes CANNOT be calibrated using the NiloChecker instrument.
You will need an interface and a Microsoft Windows App, provided by Nilotech.

More information on
www.nilotech.dk/calibration