Dansensor® CheckPoint® 3

User Guide EN

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Dansensor® CheckPoint® 3

User Guide

EN

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1. Introduction

Important!

Safety and Use

WARNING! Personnel operating and maintaining the device must be familiar with all aspects of its operation and be proficient in maintenance.
Such personnel should review the information in *"Safety and handling instructions" on page 83* to promote safety awareness.
Failure to follow the safety instructions could result in fire, electric shock, injury, or damage to CheckPoint 3 or other property.

- Prior to using the equipment, it is assumed that it has been properly installed and configured as described in this manual.
- Always refer to this manual before operating or maintaining the device.
- Observe all NOTES, CAUTIONS and WARNINGS - see *page 8* for details.

About this Manual

Intended Use of this Manual

- This manual describes the common use and maintenance procedures of the **Dansensor® CheckPoint 3** device.
  It is intended for the daily users and should be kept with the equipment for reference at all times.

Reservations

- This manual was written and illustrated using the best possible information available at the time of publication.
- Any differences between this manual and the equipment reflect improvements introduced after the publication of the manual.
- Changes, technical inaccuracies and typographic errors will be corrected in subsequent editions.
- As a part of our policy of continuous improvement, we reserve the right to alter design and specifications without further notice.

Notes, cautions and warnings!

Throughout the manual notes, cautions, and warnings are indicated with various icons and written in bold like the example below:

CAUTION! Never use hard tools or abrasive materials when cleaning any part of the device.

Explanation

NOTE! The operator should observe and/or act according to the information in order to obtain the best possible function of the equipment.

CAUTION! The operator must observe and/or act according to the information in order to avoid any mechanical or electrical damage to the equipment.

WARNING! The operator must observe and/or act according to the information in order to avoid any personnel injury.

Tips and recommendations

Tips, recommendations and “best practice” advises are indicated as shown in the example below:

TIP! The touch screen works best when you use the tip of a fingernail.

Dansensor® CheckPoint 3

Dansensor® CheckPoint 3 is a portable headspace gas analyzer for MAP packages. The device is based on an all-in-one concept, and together with MOCON Dansensor's new and innovative sensor technology it ensures accurate and reliable measurements every time.

The embedded easy-to-use WebGUI makes it easy to create and manage users and products and to set up product measurement details and general device settings and it enables the control of several CheckPoint 3 units in a production environment.

All measurement data can be saved in the device's database and exported for further analysis.

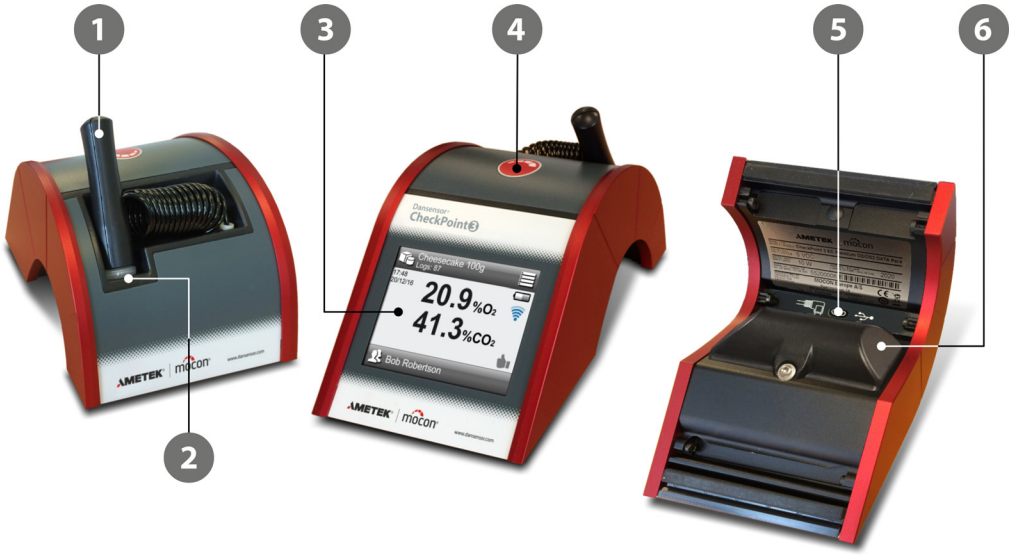
Models

3 different models are available:
Dansensor® CheckPoint 3 (basic), **Dansensor® CheckPoint 3 Premium,** and **Dansensor® CheckPoint 3 Premium w/Extended Data Pack**.

The table below shows the various configuration levels.

	CheckPoint 3 (Basic)		CheckPoint 3 Premium		CheckPoint 3 Premium Extended Data Pack	
	O_2	O_2/CO_2	O_2	O_2/CO_2	O_2	O_2/CO_2
O_2 sensor (S/EC)	●	●	●	●	●	●
CO_2 sensor		●		●		●
Simple gas alarms	●					
Individual product settings & gas alarms			●		●	
Users	0		10		100	
Products	1		100		1.000	
WiFi/Web Interface			●		●	
Data logging/data export			●		●	
Export of device settings			●		●	
Data collection			●		●	
No. of data collections			500/product		1.000.000	

Overview



1 **Sample gas hose w/needle**

2 **Needle retainer**
A small magnet in the needle retainer makes the needle snap into it and keeps it in place.

WARNING! Due to safety considerations the needle 1 should always be placed in the retainer after measuring.

3 **3.5" colour touch display**
For intuitive operation of the device by use of explanatory icons and easy understandable text messages and buttons.

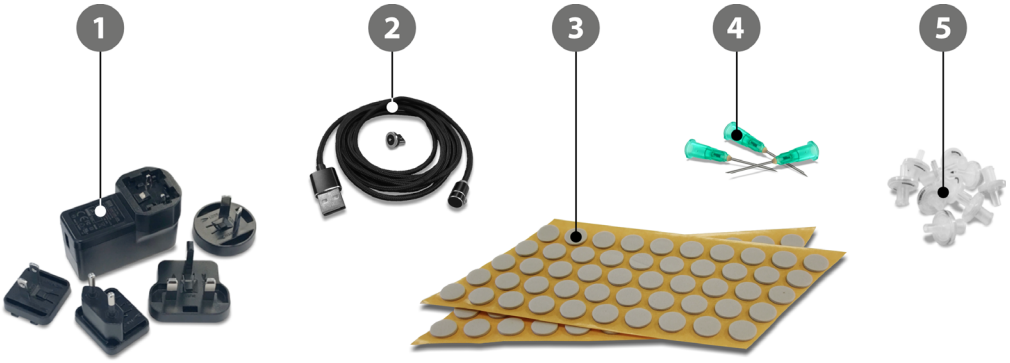
4 **The Button**
The button has the following functions:
- Switching device on (press and release)
- Switching device off (press and hold for 3 s.)
- Start measuring (press and release)
- Resetting of the device (press and hold for 8 s.)

5 **USB (Micro-B) connector**
The USB connector is only for charging use.

6 **Electro-chemical (EC) O_2 sensor compartment**
(Only on models with electro-chemical (EC) O_2 sensor)

Accessories

The following accessories are included with **CheckPoint 3**:



1 **Power supply w/ interchangeable plugs**

Plug				
Type	US	EU	AU	UK
Area/Country *	North America Thailand Taiwan	Europe	Australia New Zealand	United Kingdom Singapore Malaysia

* Compatibility is not limited to the indicated areas/countries.

2 **USB cable w/magnetic adapter**
Use cable to connect the device to the power supply 1 or to a PC for charging - see *"Charging and monitoring the battery" on page 20* for details.

3 **Septa (100 pcs.)**
When performing a measurement, a septum should be applied to the package in order to ensure a leak free gas extraction and to protect the package from tearing at the piercing point - see *"Measuring" on page 24* for details.

4 **Needles (10 pcs.)**
Needles are used to penetrate the package (and septum 3) to perform a test measurement - see *"Measuring" on page 24* for details.

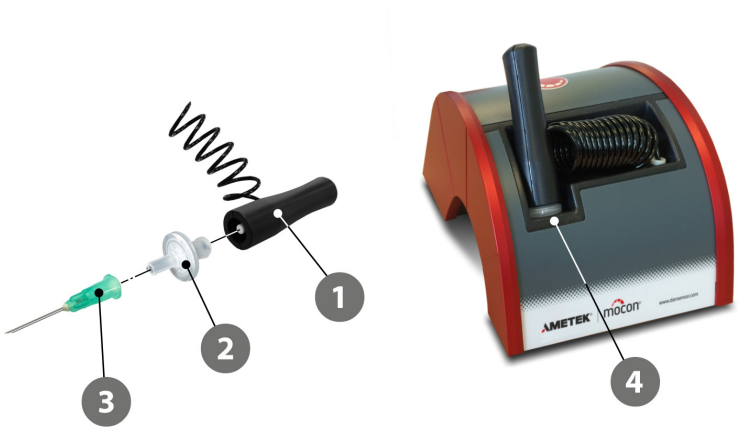
5 **Filters (10 pcs.)**
When performing a measurement, particles or fluids can enter the measuring system causing damage to the instrument. Therefore a filter must be installed between the needle 4 and the sample hose - see *"Assembling the sample gas hose" on page 12* for details.

Setting up

Assembling the sample gas hose

1. Equip the needle holder 1 with a filter 2 and a needle 3 then place the needle in the retainer 4.

WARNING! Due to safety considerations the needle should always be placed in the retainer after measuring.



Fitting the bumpers (option)

1. Fit the bumpers onto the side plates starting from the pointed front corner.
2. When fitting the bumpers in the bottom, make sure that the notches snap properly around the side plates keeping the bumpers in place (see details).

2. Operation and Maintenance

Basics

Switching on/off

- To switch the device on, simply press the button.
- To switch the device off, press and hold the button.
  The display will show...

...and then the device shuts down.

Restarting/resetting

If device freezes or something is not working right, try restarting the device by pressing and holding the button for approx. 8 s.

Touch screen

Except for the button on top of the device, all of the buttons you use are virtual ones on the touch screen.

CAUTION! The touch screen should only be finger touch operated. Pencils or metal tools can damage the touch sensitive film.

TIP! The touch screen works best when you use the tip of a fingernail.

Navigation

The graphic interface offers various elements for navigating through the menu structure and for making device settings.

Icons

For easy function recognition. Some icons work as buttons.

Screen buttons

The various types of screen buttons and their functions are listed below:

Button type	Function
	Opens a submenu
	Executes function
	■ Returns to the previous window. ■ Undo editing end return to previous window. ■ When editing a product, tapping the button will save the edited product when confirmed.
	Scrolls content up/down in current window
	Scrolls content left/right in current window
	(In top bar) Scrolls through pages in current window. Page indicator shows current page:  Page 1 of 3  Page 2 of 3  Page 3 of 3
	Adjust value up/down, e.g. display settings.

Parameters

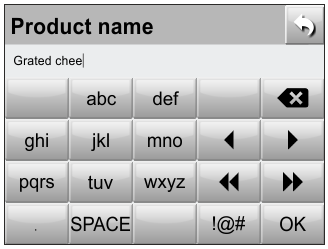
Setting up of products and various device settings involves the following parameter types:

Parameter type	Tap item to...
O2 sensor power time 45 sec	Edit parameter. An on-screen keyboard appears for input of text and/or numbers - see *"Typing" on page 15* for details.
Time format 24h	Toggle between options (e.g. 12h/24h)
Log measurements ☑	Enable/disable function (Check/Uncheck)

Typing

An onscreen keyboard lets you enter text when needed.

For example, when creating a new product, selecting the **Product name** parameter brings up the onscreen keyboard, where you tap keys to type.



To switch between numbers, upper- and lowercase characters, special characters, or symbols, tap the keyboard selection key to the left of the **OK** key. Please note that e.g. PIN code typing only offers a numerical keyboard.

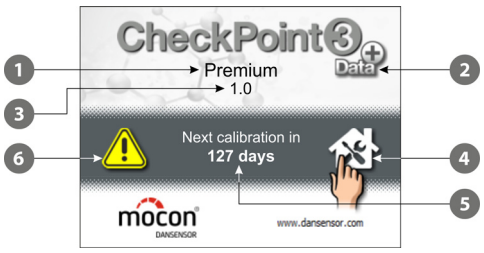
All typing keys except for the number keys holds 2 or more symbols or characters. Tap the respective key repeatedly until the required character appears.

The ⌫ key deletes the character to left of the cursor, the ◀ and ▶ keys move the cursor to the left or right respectively, and the ◀◀ and ▶▶ keys make the cursor jump to the beginning or end of the text respectively.

Tapping the **OK** key confirms the input and exits the keyboard, while tapping the ↩ key will discard the entered text and exit the keyboard.

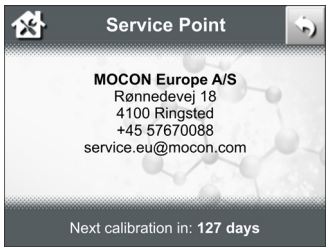
Splash screen

When the device is switched on, the splash screen is displayed for a few seconds while device is initializing.



The splash screen displays the following:

1. **Device model** (on basic models field is empty)
2. **Icon for Extended Data Pack** (**Premium** models only)
3. **Software version**
4. **Service Point**
   Tapping this icon will display the company information for your appointed service provider. Tap button to exit.



5. **Next calibration in/Calibration exceeded**
   Indication of days until next recommended calibration of the device's O_2 sensor, or by how many days calibration date has been exceeded.
6. **Calibration alert**
   Displayed when calibration date has been exceeded.

Login and access levels

(**Premium** models only)

Login levels

Different levels of login can be set up:

No login (default setting)	At start-up the device initializes and when finished it changes to show the measuring screen, ready for measuring. Current user is the default **User**.
User login required	At start-up the device initializes and when finished, you are taken to the **User** screen, from where you must select a user to go to the measuring screen, ready for measuring.
User login with ID	At start-up the device initializes and when finished, you are prompted to enter a valid **User ID**. When done you are taken to the measuring screen, ready for measuring.

NOTE! If you forget your User ID, you should create a new (ask a Supervisor).

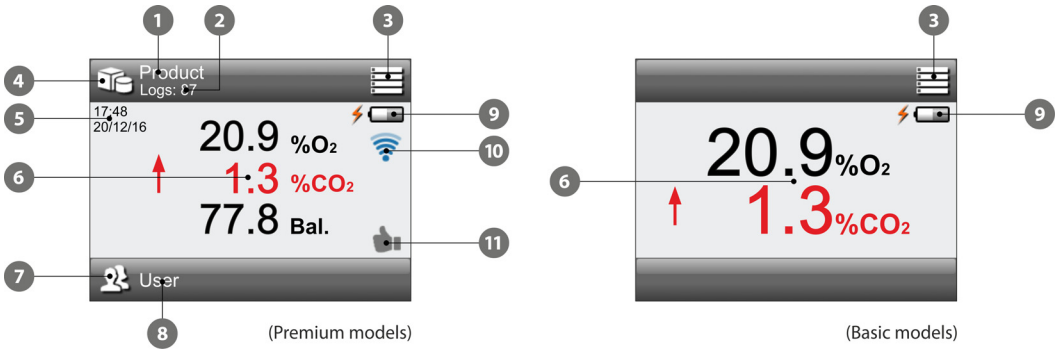
See *"Users" on page 61* for details about user and login settings.

Access levels

When device is switched on (after power off) it is locked in **User** access level. **User** access only gives access to a limited number of functions and does not allow for parameter set-up.

To obtain full access you must change the device to **Supervisor** access level.
To do so select **Access level** from the main **Menu** - see *"Access level" on page 67* for details.

The Measuring screen



Items marked with an asterisk (*) are not available in the basic models.

1 **Active product ***	Currently selected product. To select another product, tap **Products** icon 4.
2 **Logs ***	Number of data logs in the database for the selected product.
3 **Menu icon**	Pressing this icon will take you to the “Main menu”. See *"Main menu" on page 47* for details.
4 **Products icon ***	Pressing this icon will take you to the “Active Product” menu for quick selection of a product. See *"Selecting a product for measuring" on page 27* for details.
5 **Time/Date ***	Current time and date.
6 **Measuring result**	Result of the recent measurement. Only values selected for display in the product setup are displayed - see *"New product" on page 51* for details. **Black** text indicates that the result is within limits or that no limits have been defined for this gas. **Red** text indicates that the gas concentration has exceeded the set alarm values. The arrow symbol to the left of the value indicates whether it is an upper or lower alarm.
7 **User icon ***	Pressing this icon will take you to the **User** list for selection of a user.
8 **Active user ***	Currently selected user. To select another user, press **User** icon 7
9 **Battery level**	Shows current battery level and charging progress during charging. See *"Charging and monitoring the battery" on page 20* for details.

10 Wi-Fi status *

Shows Wi-Fi connection type and/or Wi-Fi signal strength:

 Wi-Fi set to “Connect to Network”. Icon indicates signal strength.

 Wi-Fi set to “Connect to Network”, but Wi-Fi module is off.

 Wi-Fi set to “Create Network”

 Wi-Fi set to “Create Network”, but Wi-Fi module is off.

When **Wi-Fi fast access** is enabled in **Network** setup, the icon also acts as a button giving fast access to the Wi-Fi on/off setting. In this case the operator can turn the Wi-Fi module on/off without being logged in as **Supervisor**. See *"Network" on page 60* for details.

11 Measurement validity *

The icon shows the validity of the most recent measurement.
Tapping this icon within 30 s. after performing a measurement, will mark this measurement as invalid in the data log, and the icon will change from  to  .
The icon is only visible when **Invalid meas. fast access** is enabled in **Data log** setup, otherwise the function is only available from the **Data log** menu - see *"Data log" on page 53* for details.

Power saving

(**Premium** models only)

To save battery, the device has a 2-step power saving function:

1. After a certain time of inactivity, the device switches into power save mode by reducing the display's back light intensity.
2. After a certain time of inactivity in power save mode as described above, the device automatically switches off.

NOTE! If device's Wi-Fi module is switched on, the network activity will prevent the device from switching off, even though the set time runs out.

To "wake up" the device when in power save mode, simply touch the screen or press the button.

Power save settings are described in *"Power save" on page 64*.

Charging and monitoring the battery

WARNING! For important safety information about the internal, rechargeable lithium-ion battery and charging of the device, see *"Safety and handling instructions" on page 83*.

The battery icon in the upper right corner of the measuring screen shows the actual battery level or charging status:

Battery level 15 - 100%

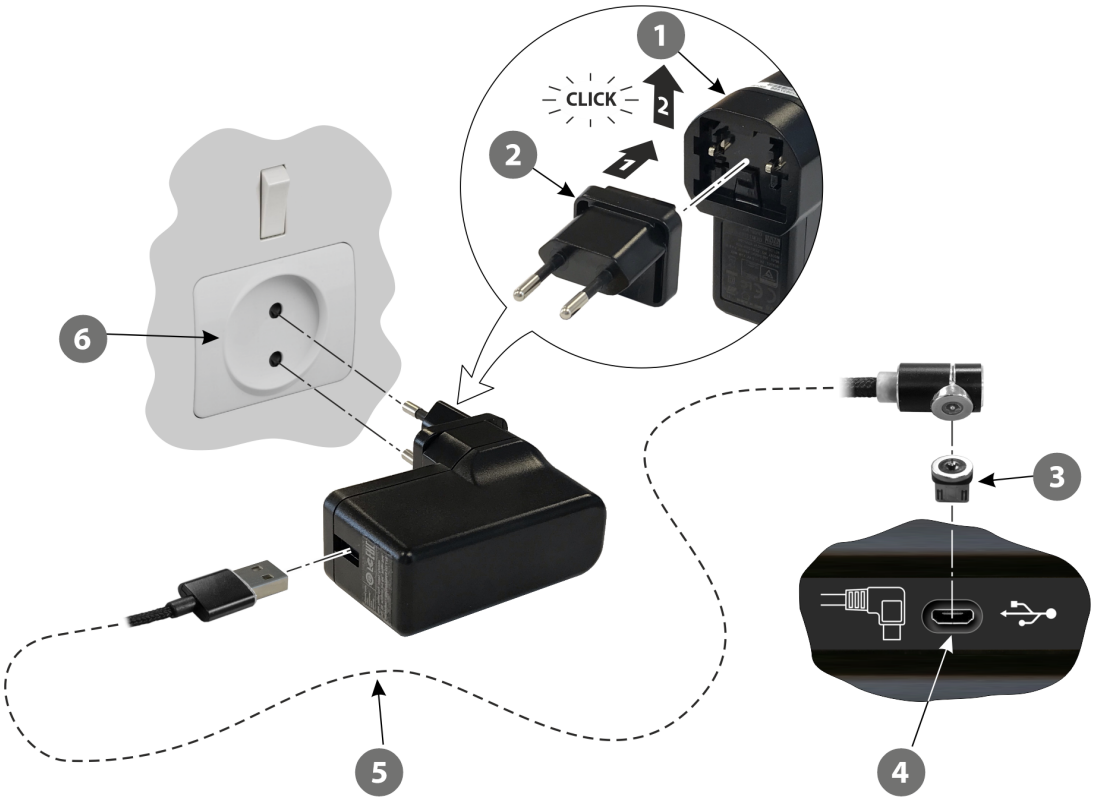
Battery level below 15% - recharging required.
The device may power off at any time.

Battery charging. Charging level is indicated as described above.

When you attempt to switch device on while battery level is below 5%, the following screen appears:

In this case you will need to charge the device.

Battery charging



1. Assemble the power supply ❶ with the appropriate plug ❷ (see detail) - see *page 11* for plug compatibility details.
2. Connect the magnetic adapter ❸ to the connector ❹ underneath the device.

CAUTION! Make sure that the adapter plug ❸ matches the orientation of the connector ❹.

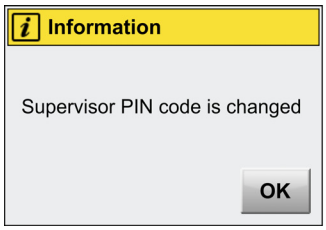
3. Connect the cable ❺ between the power supply ❶ and the connector ❸.
4. Connect the power supply to the main power outlet ❻.
5. When charging, if the device is switched on and showing the measuring screen, the battery indicator in the upper right corner of the display will show the charging progress.

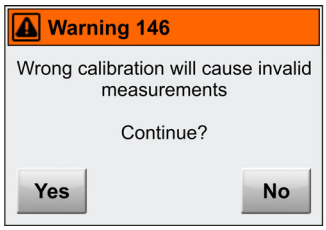
NOTE! You can also charge the battery by connecting the device to a USB 2.0 or 3.0 port on your computer using the cable ❺, but you should be aware that because the PC delivers so little power, the charging time can be up to 3 times longer than when using the supplied power supply ❶, and the battery may drain instead of charge, if device is used for measuring while charging or if the computer is turned off or in sleep or standby mode.

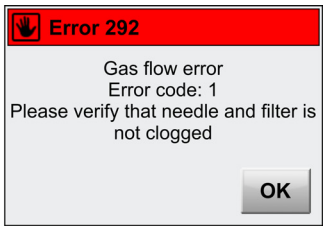
Pop-up messages

Three types of messages may occur:

- **Informations**
- **Warnings**
- **Errors**







Generally, the **Information** and **Warning** messages are self-explanatory and relates to user interface interaction. They must be acknowledged by tapping **OK** or by tapping **Yes** or **NO** to decide how to proceed.

Error messages are mainly related to the device itself. The **Error** message screen proposes the appropriate remedy to rectify the problem and must be acknowledged by tapping **OK**.
If one or more errors persist you should contact your service provider (see *"Diagnostics" on page 56*). In these cases, be sure to inform of error no. and error code.
A list of the most recent errors is available in the **Error log** from the **Data log** menu - see *"Data log" on page 53* for details.

Get started

When you start the device for the first time and before you start making measurements, it is recommended that you perform some basic device settings.

- **Select language**
  Go to **Menu ->** **Language** to select the language in which you want to view the different menus and messages - see *"Language" on page 75* for details.
- **Set up gas concentration alarms**
  - Basic models:

    Go to **Menu ->** **Alarm** to set values for when the measured gas concentrations should appear on the measurement screen as not acceptable - see *"Alarm" on page 48* for details.
  - **Premium** models:
    Gas concentration alarms are set individually for each product - see *"Products" on page 49* for details.

    NOTE! You may experience shorter measurement times if appropriate gas alarms have been set up.
- **Set up Products and Users**
  (**Premium** models only)
  From the factory a default user and a default product have been created, but we highly recommend that you create specific products and users, so that you can separate the different measurements later on for use in product statistics etc. - see *"Products" on page 49* and *"Users" on page 61* for details.
- **Perform Setup**
  Go through the parameters available in the **Setup** menu and make appropriate settings - see *"Setup" on page 58* for details.

Measuring

Getting the best measurement performance

There are a number of factors to take into consideration when measuring O_2 and CO_2 gases. The following guidelines should help you to obtain the best possible measurement accuracy and performance from the device.

The device uses either a ceramic solid-state (S) O_2 sensor or an electro-chemical (EC) O_2 sensor.
The electro-chemical (EC) O_2 sensor has some limitations compared to the ceramic solid-state sensor with regards to response time and lifetime.

The CO_2 sensor (if installed) is of the Non Dispersive Infrared (NDIR) type.

Both sensors are temperature- and pressure compensated in the software. However temperature compensation requires stabilizing internally for some time.

In spite of the above efforts there are still limitations to what can be physically achieved.
To get the most out of your device, we strongly recommend that you read these next pages to familiarize yourself with the various conditions, which may have impact on the measurements.

Dynamic Sample Time (DST)

NOTE! Only valid for devices with an electro-chemical (EC) O_2 sensor.

The DST function uses a variable measuring time to ensure that all measurements are as accurate as possible. Especially when measuring on packages with very different oxygen contents or if the device detects a large change in the oxygen concentration, it will automatically extend the measuring time, considering the oxygen sensor's response time. The extended measuring time can not exceed twice the nominal measurement time.

Explanation of the "Response time (T_{95})"

NOTE! Only valid for devices with an electro-chemical (EC) O_2 sensor.

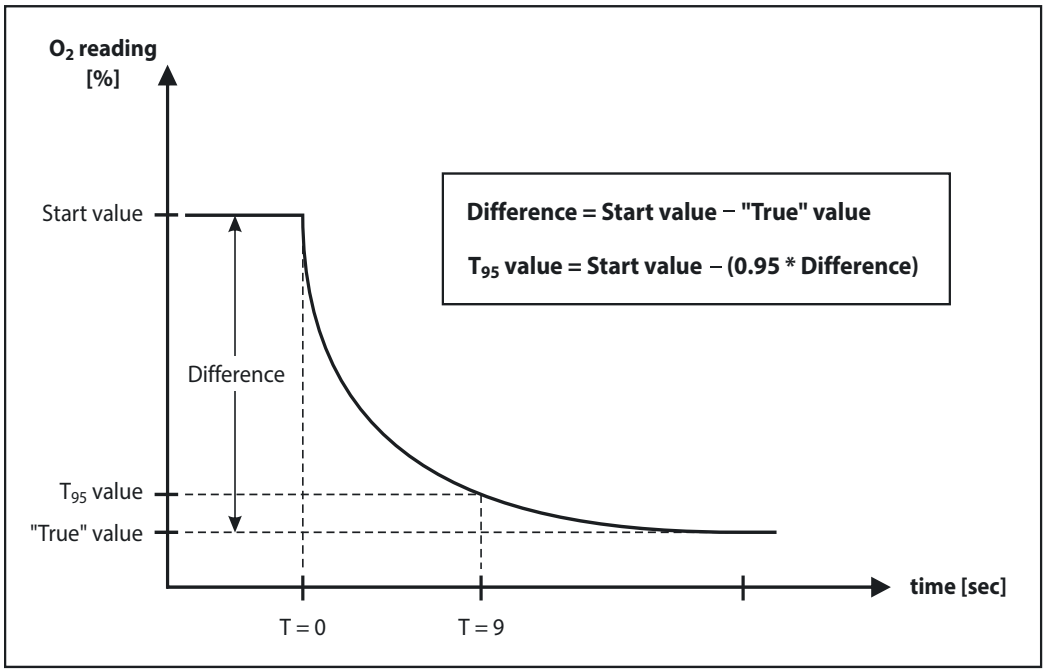
According to the specifications the electro-chemical (EC) O_2 sensor has a **Response time (T_{95})** of 9 sec.

This means that when performing consecutive measurements in areas with large differences in the O2 concentrations, the device will as a minimum reach 95% of the "true" value during the first measurement (9 sec.).

Example:

(See illustration below):

- Last measurement was performed in i.e. **20.9% O_2**
- The following value to be measured is **1.0% O_2**
- Difference is:
  20.9 - 1.0 = 19.9% O_2
- The expected read-out value after first measuring is:
  20.9 - (0.95 * 19.9) = 2.0% O_2



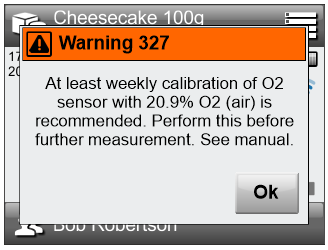
Consequently this means that if there is a large difference in the O_2 concentrations between two consecutive measurements, 2 or 3 measurements must be performed to obtain a more accurate result.

20.9% O_2 calibration

NOTE! Only valid for devices with an electro-chemical (EC) O_2 sensor.

The electro-chemical (EC) O_2 sensor is a wearing part as the chemistry inside wears out proportionally to the amount of O_2 it has been exposed to during its lifetime.
We therefore recommend that you perform a 20.9% O_2 calibration daily before starting measurements - see *"Calibrate: 20.9% O2" on page 69* for details.

If more than 7 days pass between calibrations, the following message appears on the screen:



Tap **OK** and then perform calibration before proceeding.

NOTE! If device is used entirely at very high O_2 concentrations above 20.9% the lifetime will be reduced proportionally. At O_2 levels up to 20.9%, the normal lifetime is approximately 9 months.

O_2 sensor temperature sensitivity

NOTE! Only valid for devices with an electro-chemical (EC) O_2 sensor.

Due to the sensor design the readout will be affected when moving the device from cold to warm temperatures or vice versa. Normally for compensation to work properly the device must be stabilized at the current ambient temperature for some time (up to 1-2 hours)

However if you cannot wait for this time, use short stabilizing time, for example 10-15 min., and perform a 20.9% O_2 calibration of the sensor right before each measurement series until device has stabilized. This will bring the calibration back in line with current response.

NOTE! When entering another ambient temperature area, the device must be calibrated again before use to ensure proper accuracy.

The sensor is also slower in response in cold environments so for better accuracy you should measure the values twice and skip first measurement (though the first measurement will comply with T_{95}).

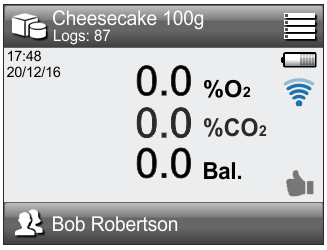
CO_2 sensor temperature sensitivity

The CO_2 measurements however has faster response when changing ambient temperature zones so if you are only interested in measuring the CO_2 values, you do not need to perform a 20.9% O_2 calibration, but can start the CO_2 measurements right away.

Selecting a product for measuring

(**Premium** models only)

1. In the measuring screen....



... tap the icon in the top left corner. This will bring up the **Active Product** screen. (This screen can also be reached by tapping the icon in the top right corner, and then select **Products** -> **Active Product**).

The **Active Product** screen lists all products in last used order with the currently selected product at the top (in orange).

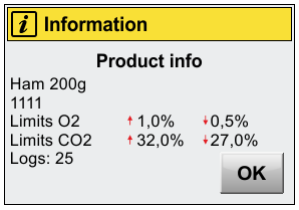
2. Use and keys to scroll through the list to find the appropriate product.

NOTE! If you have a large number of products, scrolling through the list may be quite time consuming. In this case you can use the "Find" function - see *"Find" on page 52* for details.

3. Once you have found the required product, tap it to select it and return to the measuring screen.

Show product info

From the products list you can have a quick view of a specific product's settings by pressing and holding the specific product for approx. 3 s.
This will bring up an **Information** window showing the **Product info** for the selected product.



Tap **OK** to close window.

Performing a measurement

1. Select appropriate product - see *"Selecting a product for measuring" on page 27*.

2. Place a septum ❶ on the product/package ❷ to be measured/analysed. This ensures leak-free gas extraction and thus accurate measuring.

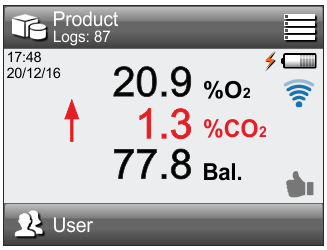
NOTE! When placing a septum on a package you should avoid seams and areas with labels and adhesives.

3. Penetrate the septum ❶ with the needle ❸ so that the gas can be sucked in from the package through the tip.

CAUTION! Make sure that the needle does not touch the product, fluid or anything else in the package, as this could soil the needle, hose or filter. If this happens, the needle, hose and filter must be cleaned or replaced to avoid destroying sensors or other items inside the device.

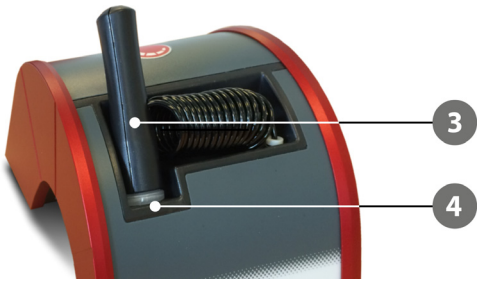
4. Press the button to start the measurement.

5. When measuring finishes, the result is shown on the screen.



If any alarm limits have been defined, the results are shown in different colors - see *"The Measuring screen" on page 18* for details.

6. If, for some reason, you wish to mark the measurement as invalid (if needle has fallen out of the package or if a wrong product has been selected, etc.), tap the icon. Now the measurement has been marked as invalid in the data log and the icon changes to . Please note that you must do this within 30 s. after the measurement has been performed, otherwise the measurement will automatically be marked as valid. You are also able to change back again within this time limit.
   If the icon is not available from the measuring screen, then the function is only available from the **Data log** menu - see *"Data log" on page 53* for details.
7. When finished, remove the needle 3 from the product package and place it in the needle retainer 4.



WebGUI

(**Premium** models only)

The built-in Wi-Fi module enables wireless access to the data on the device via the **WebGUI** interface.

The **WebGUI** should primarily be seen as a web-based version of the device's interface offering access by means of a larger screen and a keyboard that makes data administration much easier.

As on the device, the **WebGUI** allows you to e.g. create and edit products and users and to view measurement data and statistics, but in addition it also makes it possible to export and import products, users, measurement data, log data, and device settings.

Using the **WebGUI** requires the following:

- **A web browser on a computer or tablet.**
  See *"WebGUI compatible browsers" on page 85* for a complete list of compatible browsers.
- **A Wi-Fi connection between the device and a computer/tablet.**
  See *"Network connection" on page 31* for details.

Network connection

NOTE! Always consult your network administrator before making network settings, as incorrect settings can result in reduced or no network activity.

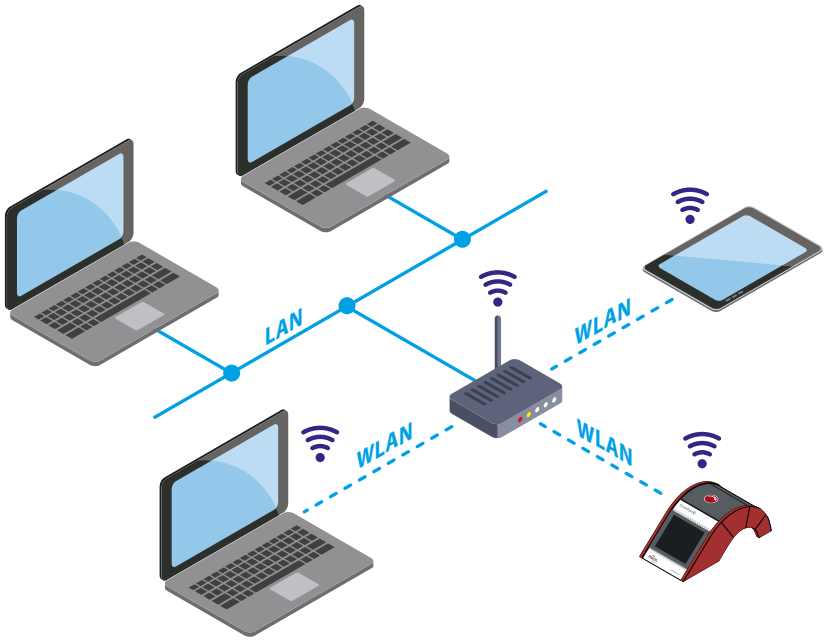
The **Network** setup function on the device offers 2 ways to establish the network connection between **CheckPoint 3** and the computer/tablet:

- **Connect to Network**
- **Create Network**

Connect to Network

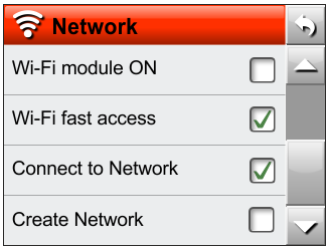
Requirements:

- An active "Access point" (Wi-Fi router) within the reach of **CheckPoint 3**.
- A computer or tablet connected to the active "Access Point" (via LAN or WLAN).



On CheckPoint 3:

1. Login as **Supervisor**.
2. Go to **Menu** -> **Setup** -> **Network**.



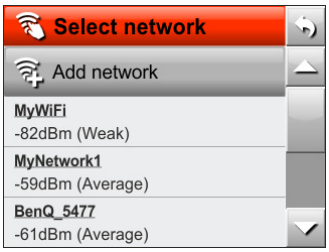
3. Make sure **Wi-Fi module** is off.
4. Select **Connect to Network**.

5. Select **Wi-Fi setup**.

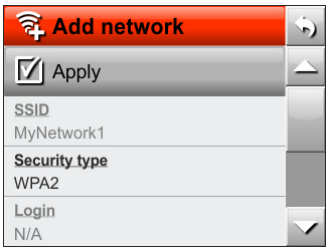
6. Change **Device name** in order to create a unique name, e.g. **CP3 Lab**.
   The device name is displayed when you connect with a browser. The name can be used to identify a specific device, if more than one device is connected on the same network.
7. Select appropriate **DHCP** setting, either **Enabled** (default) or **Disabled**.

NOTE! Before selecting the "Disabled" setting you should consult your network administrator, as incorrect settings can result in reduced or no network activity.

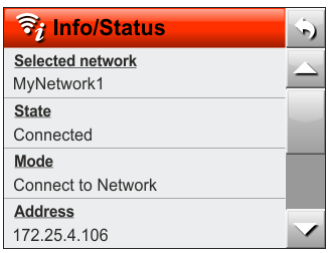
8. Return to the previous menu and switch **Wi-Fi module** on (wait a few seconds).
9. Once again select **Wi-Fi setup** and now press **Select network** (wait a few seconds while list of available networks is updated).



10. Select the network name of the "Access Point" you wish to connect to, e.g. **MyNetwork1**.



11. Enter **Password** (if needed).
12. Press ☑ **Apply**.
13. Return to **Network** screen and select **Info/Status**.



14. Confirm that **State** is **Connected**.
    (If **State** continues to say **Working** and/or **Address** is **0.0.0.0**, the network password is probably wrong).
15. Write down the acquired IP address from the **Address** field (e.g. **172.25.4.106**)

On the computer/tablet:

1. Open a web browser.
2. Type the IP address as acquired earlier (e.g. **172.25.4.106**) in the browser address bar, and press **Enter** to connect and start the **WebGUI** application.
3. Save the connection as a "Favorite" for later use (depending on the local network setup it may change).

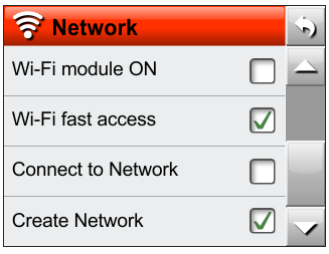
Create Network

Requirements:

- A computer or tablet with active Wi-Fi within the reach of **CheckPoint 3**.

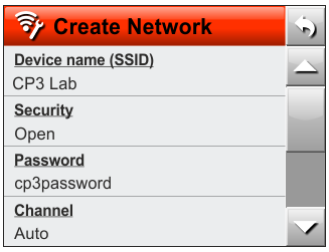
On CheckPoint 3:

1. Login as **Supervisor**.
2. Go to **Menu** -> **Setup** -> **Network**



3. Make sure **Wi-Fi module** is off.
4. Select **Create Network**.

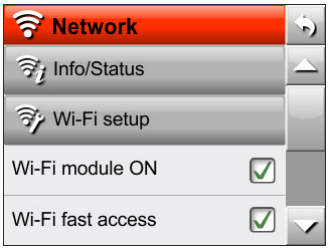
5. Select **Wi-Fi setup**.



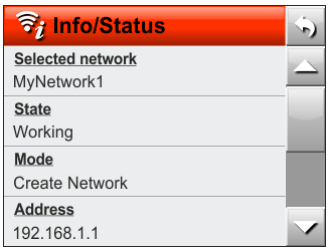
6. Change **Device name (SSID)** in order to create a unique name, e.g. **CP3 Lab**.

NOTE! It is very important that the created SSID is unique to make sure that no other device is creating an access point with the same SSID.

7. Tap **Security** to select either **Open** or **WPA2 PSK**.
8. Enter **Password** (if **Security** is set to **WPA2 PSK**).
9. Return to **Network** screen and switch **Wi-Fi module** on (wait a few seconds).



10. Select **Info/Status**.



11. Confirm that **State** is **Working**.
12. Write down IP address in **Address** (e.g. **192.168.1.1**)

On the computer/tablet:

1. Select the device network as set up above, e.g. **CP3 Lab**.
1. Open a web browser.
2. Type the IP address as acquired earlier (e.g. **192.168.1.1**) in the browser address bar, and press **Enter** to connect and start the **WebGUI** application.
3. Save the connection as a "Favorite" for later use.

Using the WebGUI

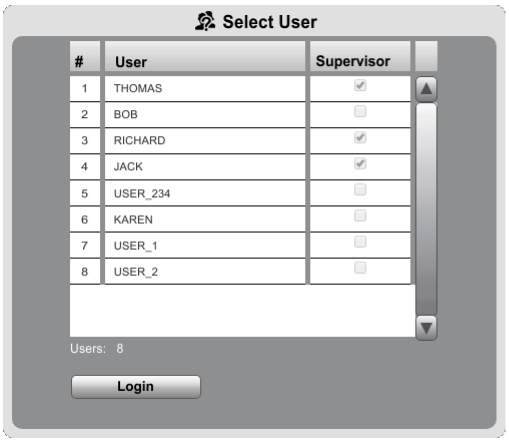
Once you have established a proper connection as described in *"Network connection" on page 31*, you can start the application.

NOTE! The device's current "Power save" settings have a great influence on the network connection, as this will be interrupted if the device turns off.
This does not happen if the device is connected to the PC with the USB cable. In this case the device may enter the "sleep" mode where display turns off, but the network connection is maintained.

In general, the **WebGUI** functions work like the corresponding functions on the device, and reference is therefore made to the descriptions of these functions. The **WebGUI** has, however, some additional functions, which will be described in the following.

Logging in

If **User Login required** or **Login with User ID** is selected, you will be prompted to either select a user from the user list or to enter a valid user ID.



General

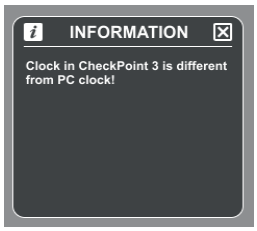
The top bar shows current date and time, the device ID and the current network name and battery status.

If changes are made, either on the device or on the **WebGUI**, the **Synchronize** button (where available) is used to synchronize these with each other.

Home

The **Home** screen shows the following information about the connected device:

If the below message appears, you should go to the **Date/Time/Units** tab on the **Setup** screen to synchronize the device time to the PC time - see *"Setup" on page 41* for details.



Products

The **Products** screen displays a list of all products and their settings. You can sort the products by **Name**, **ID**, **Data Coll.** or **Last used Date** by clicking in the respective header field.

The product with orange text is the product currently selected on the device.

Click on a product to select it and again to deselect it.

Select a product to **Edit**, **Copy** or **Delete** it.
The only function that works with multiple selected products is **Delete**.

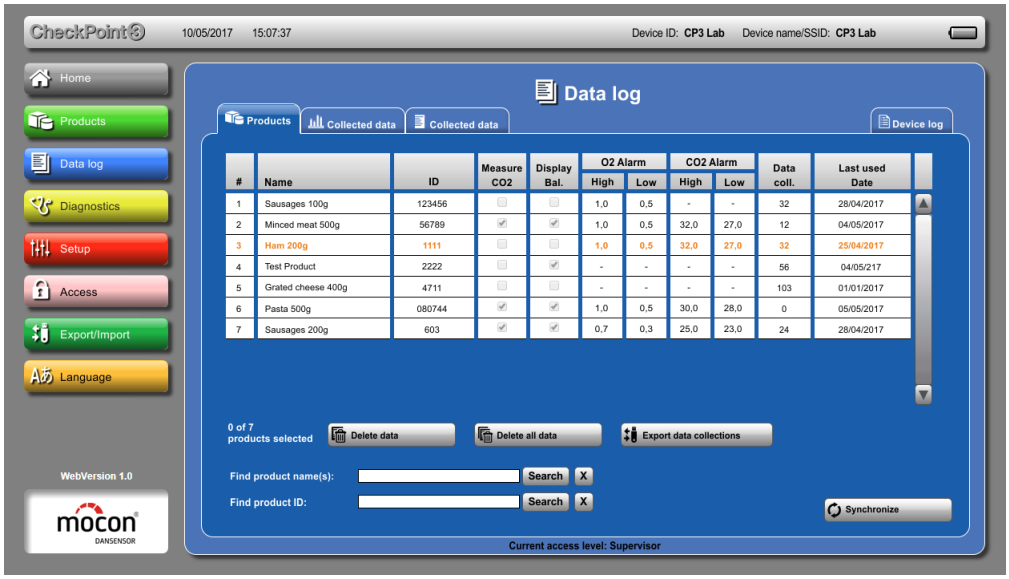
Find product name(s)/product ID:
Enter "t" in the respective search field to list all products containing "t" in their name or product ID, e.g. “Product1” and “DefaultProduct”.
Enter "10" in the respective search field to list all products containing "10" in their name or product ID, e.g. “Product_10” and "10008".

Searching for product names and ID’s can be combined.

Pressing **X** button deletes all text in the search box and displays the entire product list again.

Data log

The **Products** tab displays the same product list as described in *"Products" on page 37*. Only difference is that you are not able to select multiple products.

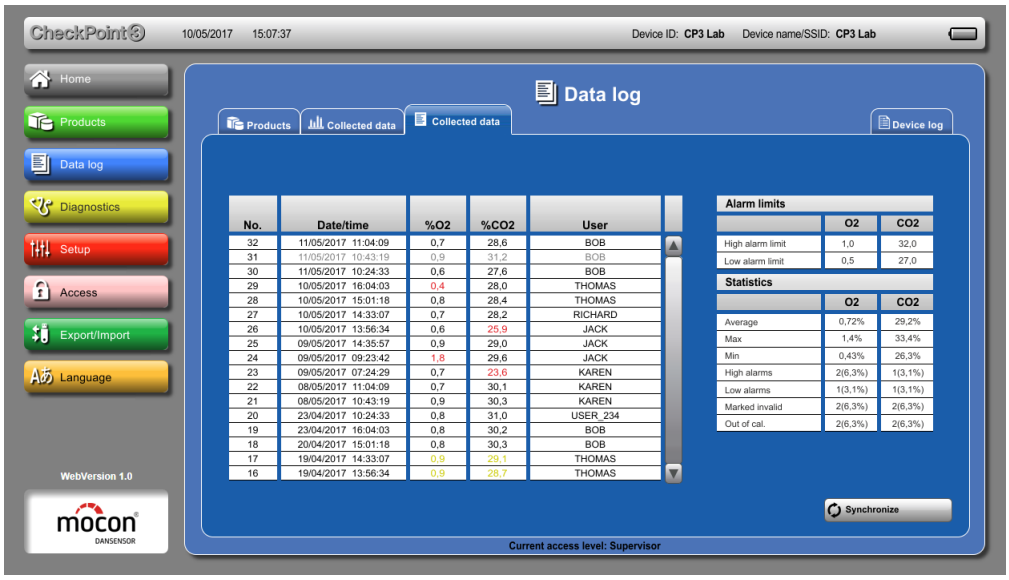


Select a product to **Delete data** or to **Export data collections** for this product. Export and import of data are described in *"Export/Import" on page 43*.

The **Collected data** tab shows the graphical overview of the data for the selected product. See *"Collected data" on page 54* for a description.

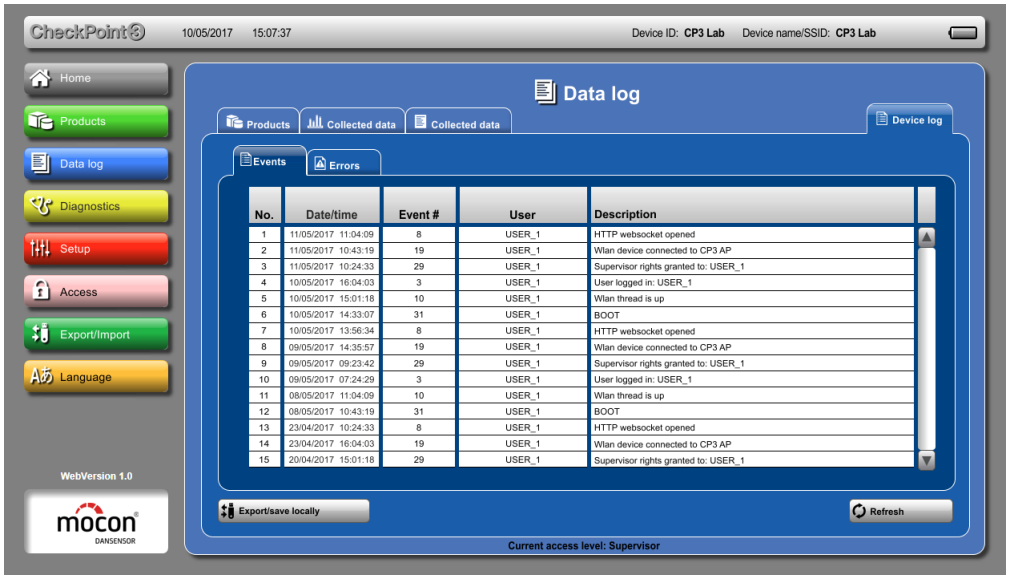
The tables to the right show the alarm limits for the product and the measurement statistics.

The **Collected data** tab shows the logged data in list form, with the latest entry on top.



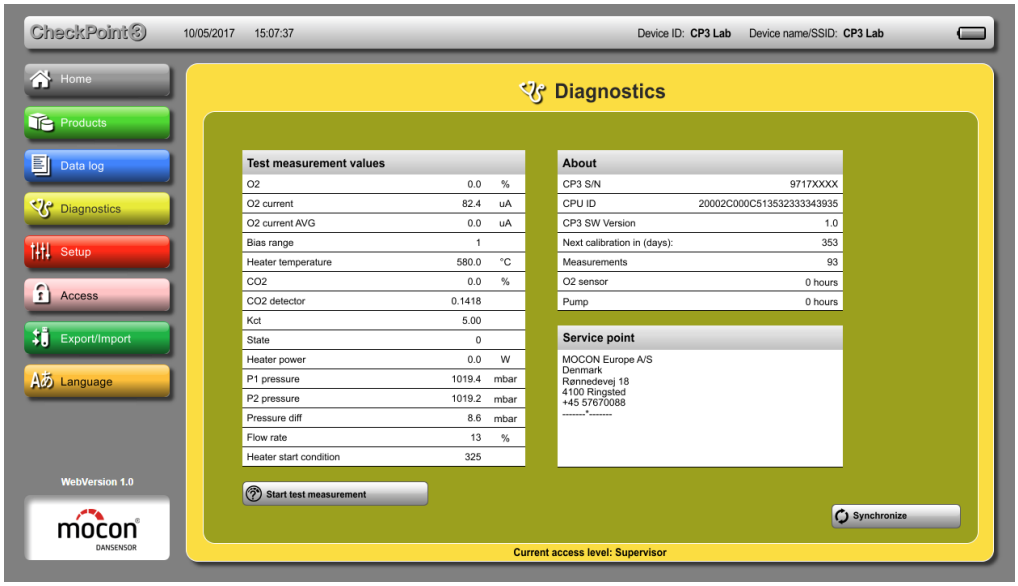
When changing from the **Collected data** tab to the **Collected data** tab, the rightmost entry from the graphs on the **Collected data** tab will be shown on top on the **Collected data** tab.
When scrolling up and down through the list on the **Collected data** tab and then changing back to the **Collected data** tab, the entry currently on top on the **Collected data** tab will be the rightmost entry on the graphs on the **Collected data** tab.

The **Events** and **Errors** tabs on the **Device log** tab display lists of the recent 2000 events and errors respectively.
If there are any problems with the device, these lists may contain valuable information and can thus be exported and sent to the service center for trouble shooting.

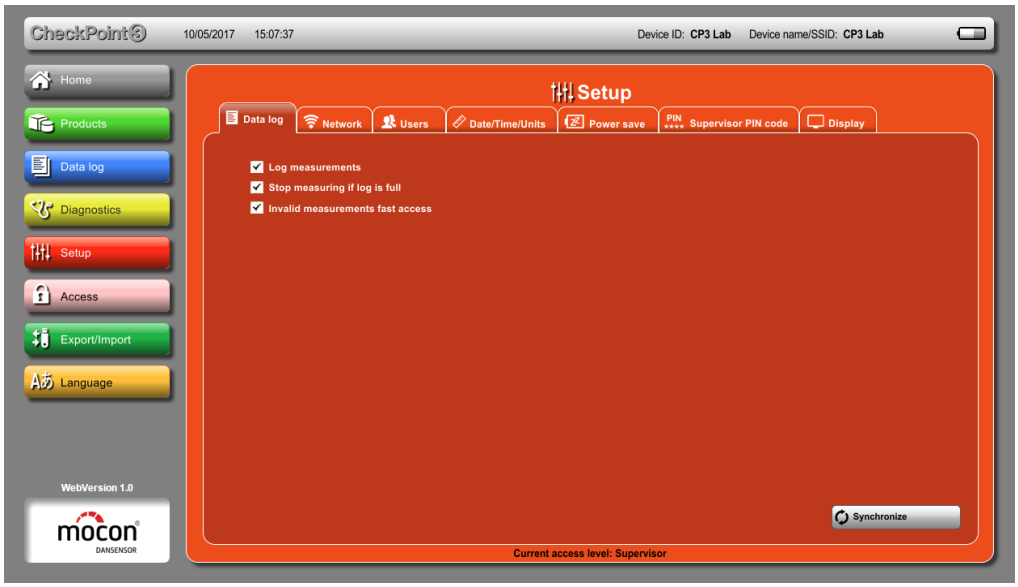


Diagnostics

To use the **Start test measurement** function from here, the **Test measurement** must also be selected on the device.



Setup



Applies largely to the corresponding functions on the device, but with the following differences:

Network — Only display of current network settings. Settings can only be made on the device.

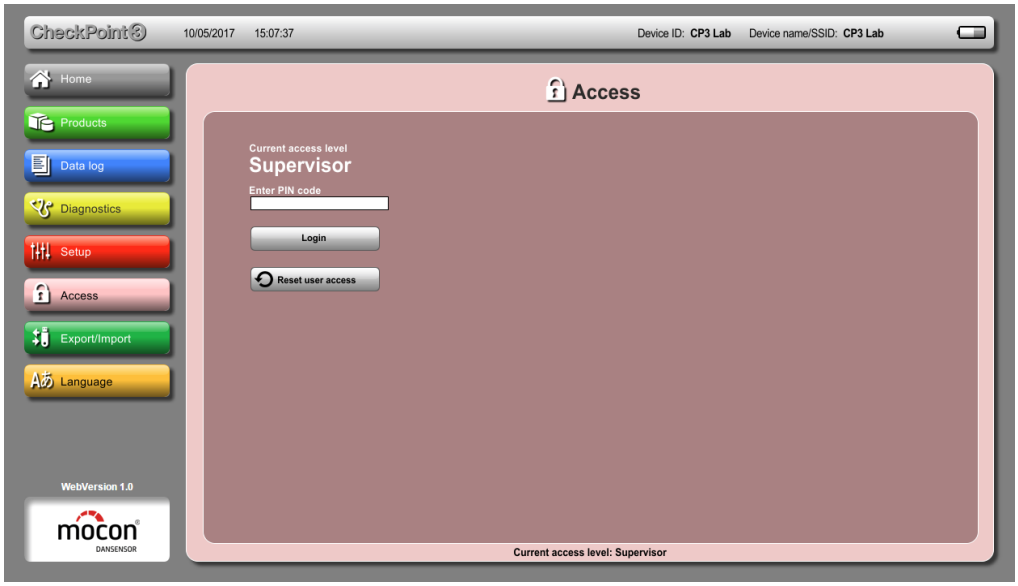
Users — Shows **User** list in "Last used" order, no sorting possible.

Date/Time/Units — **Check CheckPoint 3 time against PC time when connected:** If difference exceeds value as set in **Notify if difference is bigger than,** a warning pops up on the **Home** screen when launching the application.

To update time on the device, enter the time from the **PC time** field in the **Time** field on the left and press **Synchronize** to transfer this time to the device.

Access

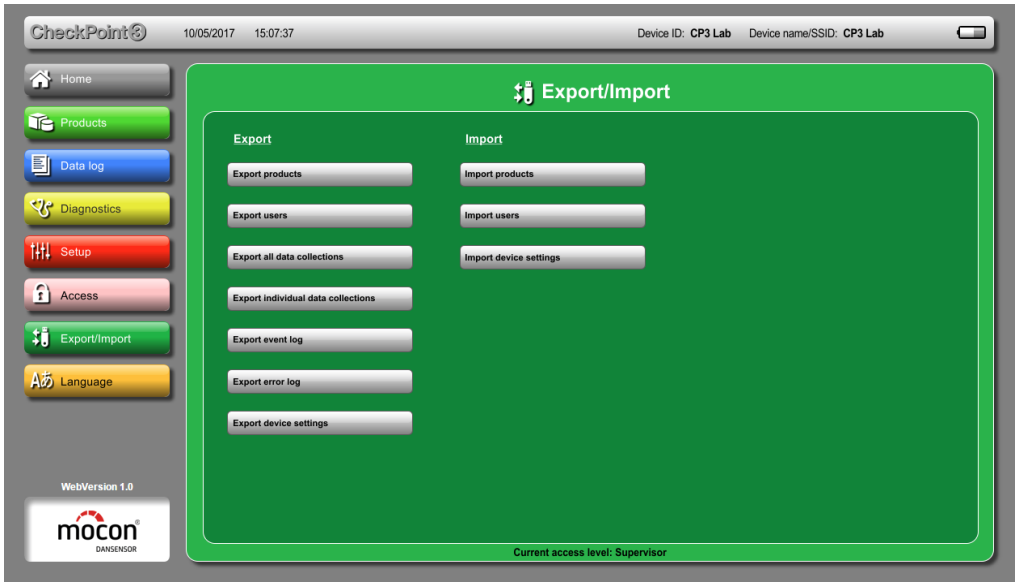
It is possible to have **Supervisor** access in the **WebGUI** while having only **User** access on the device (and vice versa).



Export/Import

The export/import functions are only available in the **WebGUI**.
From here you can export and import products, users, measurement data, log data, and device settings. All files are saved as semicolon separated **CSV** files.

NOTE! We recommend that you set up your browser to ask where you want to save export files, as this will give you better control over where these files are stored as well as their filenames.



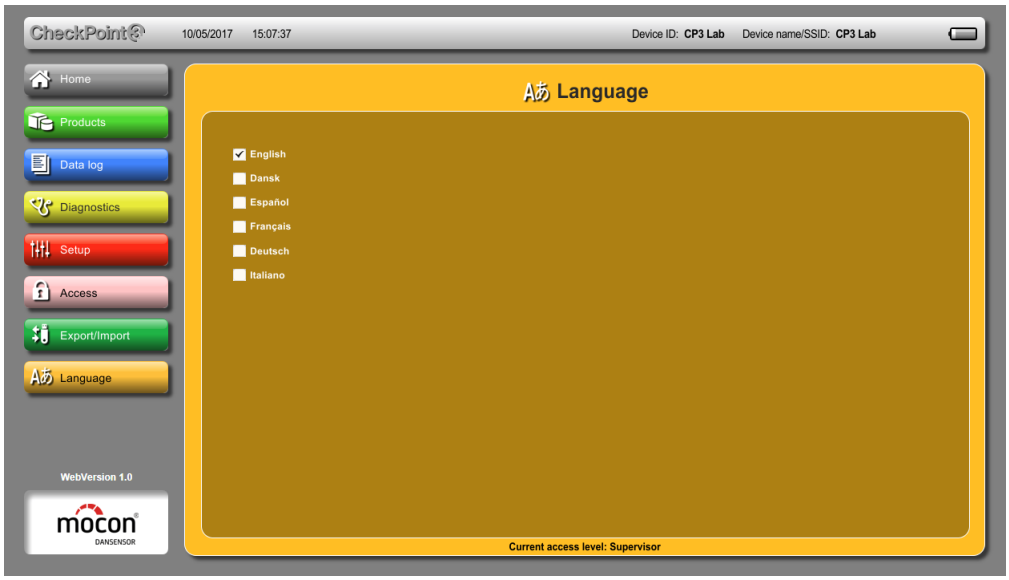
When using the "Export" functions the application proposes a file name containing information about the content, the date and time, and the device serial no.:
<content>_<date>_<time>_<serial no>.csv

Individual data log file names contain information about the specific product as well:
<content>_<product name>_<date>_<time>_<serial no>.csv

Pressing **Export individual data collections** will take you to the **Products** tab on the **Data log** screen, where you can select the specific product for which you want to export the logged data.

NOTE! Using any of the "Import" functions will delete/replace existing data from the device.

Aあ Language



When selecting a language all text throughout the WebGUI will be displayed in this language.

Cleaning and Maintenance

General

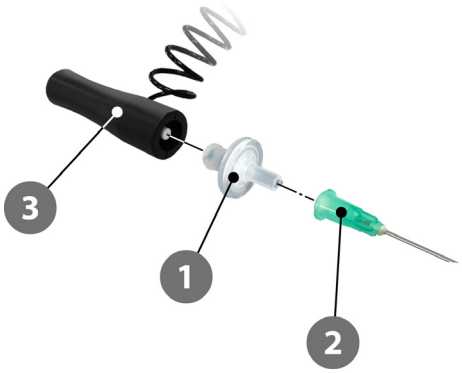
Performing cleaning and maintenance regularly reduces the chances of equipment failure.

CAUTION! Personnel performing any maintenance or cleaning must familiarize themselves with the information in *"Safety and handling instructions" on page 83* before attempting any of these procedures.

Cleaning

- Disconnect cable (if connected) and turn device off by pressing and holding the button for approx. 3 s.
- Clean all surfaces using a soft, lint-free cloth with a mild soap solution. Avoid getting moisture in openings.

Replacing filter, needle and measuring gas hose



During use of the device, dust will over time be sucked through the measuring gas system, and therefore the filter 1 will have to be replaced regularly.

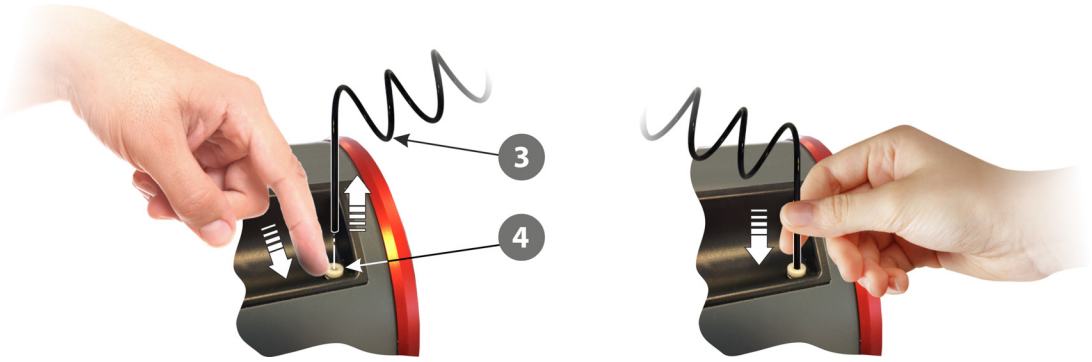
The needle 2 may sometimes touch the product being measured or the needle may suck fluid from the packaging from which the measurement is taken.
If this happens, it will be necessary to replace both the filter 1, the needle 2, and the hose 3.

If there is any dirt or fluid in the measuring gas hose 3, it should be replaced or cleaned using dry compressed air.

CAUTION! When using compressed air for cleaning, the hose must be disconnected from the device.

Replacing the hose

To replace the hose, do the following:



1. Push downwards on the sleeve 4 to release the hose 3, then pull the hose upwards and out of the connector.
2. Insert the new hose by pushing it as far as possible into the connector. Check for proper connection by pulling the hose slightly upwards.

CAUTION! The hose is soft and can be difficult to mount properly, so even though it cannot be pulled out, it does not mean that it is pressed correctly and completely into the connector. Therefore, we recommend that you perform the test as described below.

Check hose tightness

1. Remove the needle but keep the filter in place.
2. Go to **Diagnostics -> Test measurement**.
3. Read the values for **P1 pressure** and **P2 pressure**. These values show the current atmospheric pressure (about **1000 mbar**) and should be very close to each other.
4. Block the filter with your thumb and press the button to start a test measurement.
5. Check that the values for **P1 pressure** and **P2 pressure** are more than **250 mbar** lower than the atmospheric pressure (**300 mbar** for a new pump) - in this case lower than **750 mbar**.
   If this is not the case, the hose is not mounted correctly.

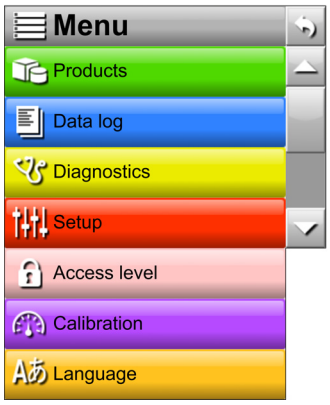
All of the parts can be ordered (and replaced) separately or as a complete kit.
See *"Consumable parts and options" on page 81*.

3. Menus and Settings

Main menu

Tapping the ☰ icon in the measuring screen brings up the main ☰ **Menu**.

(Premium models)



(Basic models)

On **Premium** models the menu items marked with an asterisk (*) are only available in **Supervisor** access level.

Alarm
(Basic models only)
Set up concentration alarm limits.
See *"Alarm" on page 48* for details.

Products *
(**Premium** models only)
Select, create, edit and delete products.
See *"Products" on page 49* for details.

Data log
(**Premium** models only)
View logged data for a product.
See *"Data log" on page 53* for details.

Diagnostics
Perform test measurements and view device serial nos., SW version and counters etc.
See *"Diagnostics" on page 56* for details.

Setup *
Setting of various device parameters.
See *"Setup" on page 58* for details.

Access level
(**Premium** models only)
Selection and administration of user access levels.
See*"Access level" on page 67* for details.

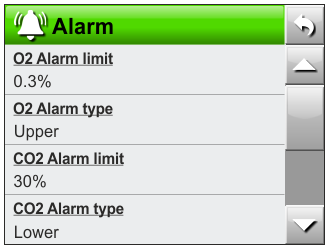
Calibration
(Models with O_2 (EC) and/or CO_2 sensors only)
Sensor calibration.
See *"Calibration" on page 68* for details.

Language
Change language of screens and menus.
See *"Language" on page 75* for details.

Alarm

(Basic models only)

Selecting **Alarm** from the **Menu** will display the list of available concentration alarm settings. Please note that the CO_2 alarms are only available on devices with a CO_2 sensor.



O2 Alarm limit — Set the appropriate value for the O_2 concentration (0.1 - 100%). Setting the alarm value to 0 will deactivate the alarm.

O2 Alarm type — Select whether the O_2 alarm should be "Off", an "Upper" alarm, or a "Lower" alarm.
If alarm type is set to e.g. "Upper", the measuring result will be displayed as having exceeded the set alarm limit if measured value is higher than the value set in "O2 Alarm limit".

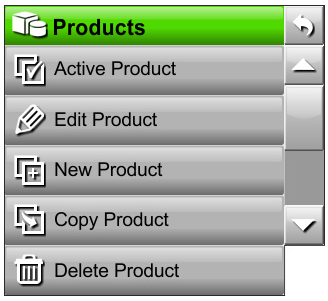
CO2 Alarm limit — See description for "O2 Alarm limit" above.

CO2 Alarm type — See description for "O2 Alarm type" above.

Products

(**Premium** models only)

Selecting **Products** from the main **Menu** will display a menu with the available product options. The total number of products that can be created depends on the device model - see *"Models" on page 9* for details.



Active Product

Select the product, you wish to perform measurements on.
See *"Active Product" on page 50* for details.

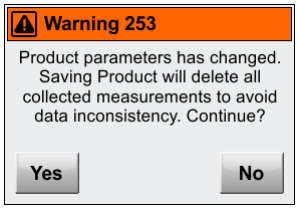
Edit Product

Edit an existing product.
Product settings are described in *"New product" on page 51*.

When having edited a product, a warning appears when exiting the function:

Tap **Yes** to save changes.

If data log contains measurements for the product with the old settings, this warning appears:



Tap **Yes** to delete old product measurements from the data log and return to the **Products** menu.

New Product

Creates a new, blank product.
See *"New product" on page 51* for details.

Copy Product

Use this function to create a new product that is similar to an existing product.

Make required changes to the new product, and when finished, a warning appears when exiting the function:

Tap **Yes** to save the new product and return to the **Products** menu.

Delete Product

When deleting a product both the product and the product's logged data are deleted.
The action must be confirmed before the product is deleted.

Active Product

This function allows you to select the product, you wish to perform measurements on.

1. Select **Active Product** (or tap the icon in the top left corner of the measuring screen).

   The appearing **Active Product** screen lists all products in "last used" order with the currently selected product at the top (in orange).
2. Use and keys to scroll through the list to find the appropriate product, then tap it to select it and return to the measuring screen.
3. If you have a large number of products, scrolling through the list may be quite time consuming.
   In this case use the **Find** function in the bottom of the screen - see *"Find" on page 52* for details.

New product

Creates a new, blank product. The following parameters can be set for a product:

TIP! If a new product will be very similar to an existing product, you might want to use the "Copy Product" function.

Product name	A unique product name (up to 32 characters).
Product ID	Unique product identification code (up to 32 characters).
Measure CO2	Select whether or not the measured CO_2 value should be displayed on the measuring screen. (Only applies to models with CO_2 sensor)
Display Balance	Select whether or not the balance value should be displayed on the measuring screen.
O2 high alarm limit **O2 low alarm limit** **CO2 high alarm limit** **CO2 low alarm limit**	Setting of the O_2 and CO_2 alarm limits (0.1 - 100%). Setting an alarm value to 0 will deactivate the alarm.

When finished, a warning appears when exiting the function:

Tap **Yes** to save the new product and return to the **Products** menu.

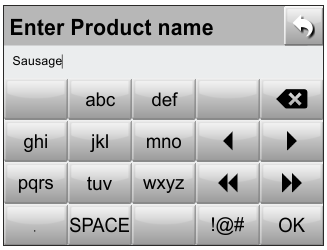
Find

The **Find** function in the bottom of the various products lists can be helpful if you have a large number of products thus making scrolling through the list quite time consuming.

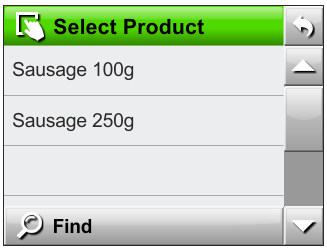
1. Tap the **Find** key to bring up the **Find Product** screen.

2. Select the appropriate product search method. Selecting either the **Name** or **Barcode** methods brings up a touch screen keyboard for keying in the product data.

NOTE! The "Barcode" search method will search for matching Product IDs.



3. Key in the product name (ex. **Sausage**) and confirm by tapping the **OK** key.
The **Select Product** screen will appear showing a list of all products with names starting with **Sausage**.

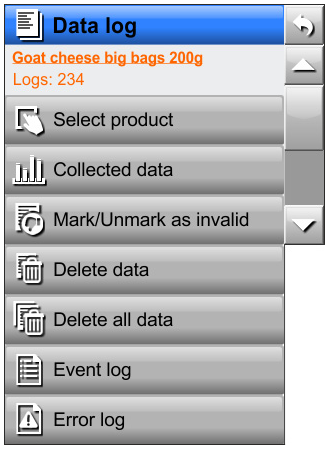


4. Tap the appropriate product to select it and return to the measuring screen.

Data log

(**Premium** models only)

From the **Data log** menu, you can read out and manage measurement data and event log and error log data for selected products.
The total number of data collections depends on the device model - see *"Models" on page 9* for details.



The **Data log** menu holds the following items:

Items marked with an asterisk (*) are only available in **Supervisor** access level.

Selected product — The product currently selected for data management. The field also shows the current number of data logs for the product. The default selected product is always the active product (product text is orange) but any other product can be selected by using the **Select Product** function.

Select Product — Select product for data management.

Collected data — Displays the logged data (if any) for the currently selected product
See *"Collected data" on page 54* for details.

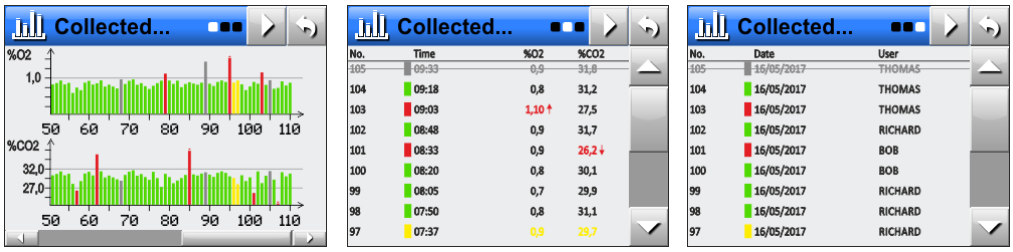
Mark/Unmark as invalid — Mark the most recent measurement as invalid in the data log. Please note that you must do this within 30 s. after the measurement has been performed, otherwise the measurement will automatically be marked as valid. You are also able to change back again within this time limit.

Delete data * — Deletes log data for the selected product.
The action must be confirmed before the data is deleted.

Delete all data *	Deletes log data for all products. The action must be confirmed before the data is deleted.
Event log	Displays an internal log file listing the last 2000 events. The log file can be exported for service use - see *"Export/Import" on page 43* for details.
Error log	Displays an internal log file listing the last 2000 errors. The log file can be exported for service use - see *"Export/Import" on page 43* for details.

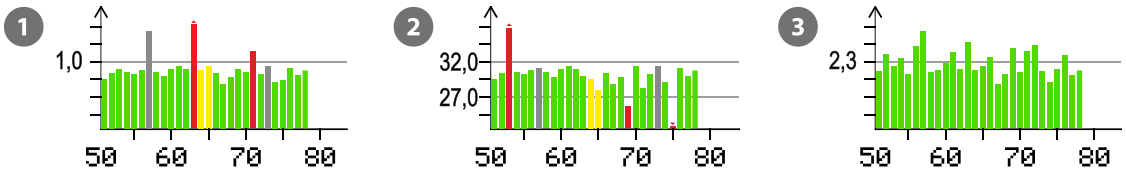
Collected data

Selecting **Collected data** from the **Data log** menu will display the logged measurement data for the selected product.



The collected data overview is divided into 3 pages (use › button to scroll through pages).

Page 1 shows a graphical overview of the data using bar charts.
The vertical axis shows the measured values and the horizontal axis shows the number of measurements.
If the product contains more than 60 data logs, a horizontal scroll bar is added in the bottom of the window.



The graph layout depends on the limits defined for the specific product:

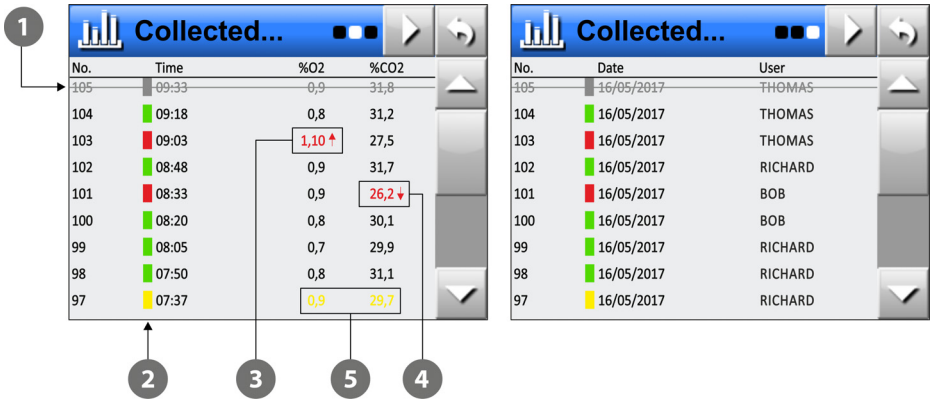
- Graph 1 shows layout when an upper limit (1,0) has been defined for the gas.
- Graph 2 shows layout when an upper limit (32,0) and a lower limit (27,0) has been defined for the gas.
- Graph 3 shows layout when no limits have been defined for the gas.
  The value displayed on the vertical axis (2,3) will be calculated as an average of the currently displayed values and scrolling through the logs will continuously update this value.

The graph bar colours indicate the following:

■	**Green**	The measurement is within limits.
■	**Red**	The measurement is outside limits.
■	**Grey**	The measurement has been marked as invalid by user or an error occurred while measuring.
■	**Yellow**	The measurement has been performed, even though sensor calibration interval has been exceeded.

A small arrow (▲ or ▼) on the top of the graph indicates that the measured value is either too high or too low to be displayed within the specified range of the current chart.

Page 2 and 3 show the logged data in list form, with the latest entry on top.
The list provides the following information:



1. The measurement has been marked as invalid by user or an error occured while measuring.
2. Colored markers indicate the overall status of the measurements.
   Priority is **Yellow** -> **Grey** -> **Red** -> **Green**, where **Yellow** has the highest priority.
3. Measured O_2 value is equal to or above the upper alarm limit setting.
4. Measured CO_2 value is equal to or below the lower alarm limit setting.
5. Sensor needs to be calibrated.

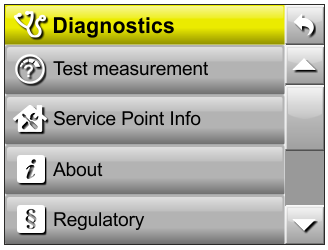
When scrolling from page 1 to page 2 (or 3) the rightmost entry from the graphs on page 1 will be shown on top on page 2 (and 3).
When scrolling up and down through the list on page 2 (or 3) and then back to page 1, the entry currently on top on page 2 (or 3) will be the rightmost entry on the graphs on page 1.

Scrolling through measurements jumps 50 logs at a time on page 1, so if you want to display a specific range of measurements, we recommend that you scroll to display the required range here and then change to page 2 (or 3) to examine the data.

The logged data can be exported - see *"Export/Import" on page 43* for details.

General data logging parameters are set in **Data log** from the **Setup** menu - see *page 59* for details.

Diagnostics



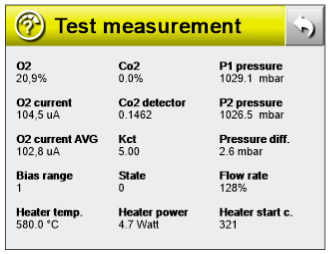
The **Diagnostics** menu holds the following items:

Test measurement

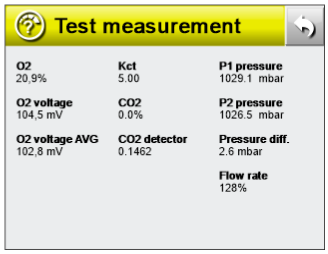
A test measurement can be performed to check the various measurement parameters.
A test measurement runs exactly as a normal measurement, but there will be no data logging.

Press button to start a test measurement.

(Models with solid-state O_2 sensor)



(Models with electro-chemical O_2 sensor)



When measurement runs, values such as measured gas concentrations and pressures are continuously displayed.
The test measuring will stop immediately when pressing the button or when exiting the **Test measurement** window.

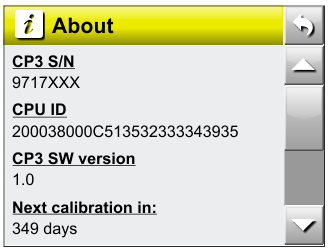
Service Point info

Displays the company information for your appointed service provider.

This window can also be invoked from the splash screen
See *"Splash screen" on page 16* for details.

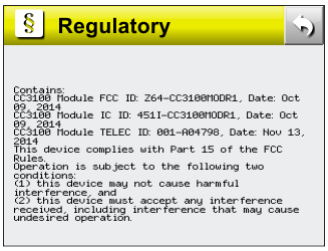
About

Displays a screen showing device information such as device serial no., CPU ID no., SW version and counters for next calibration, measurements, O_2 sensor and pump.



Regulatory

Displays a screen showing the compliance information for the built-in Wi-Fi module.



Setup

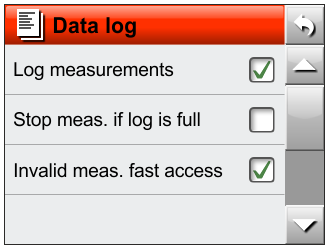
Selecting **Setup** from the **Menu** will display a menu with available set-up parameters.

The menu holds the following items:
Items marked with an asterisk are only available on **Premium** models.

Data log *	Opens the **Data log** setup screen See *"Data log" on page 59* for details.
Network *	Opens the **Network** setup screen See *"Network" on page 60* for details.
Users *	Opens the **Users** setup screen See *"Users" on page 61* for details.
Date/Time/Units	Opens the **Date/Time/Units** setup screen See *"Date/Time/Units" on page 63* for details.
Power save *	Opens the **Power save** setup screen See *"Power save" on page 64* for details.
Supervisor PIN code	Setting up the pin code required for changing from **User** access level to **Supervisor** access level. (See *"Supervisor PIN code" on page 65* for details).
Display	Opens the **Display** setup screen See *"Display" on page 66* for details.

Data log

This is where you make basic settings for the logging of data.



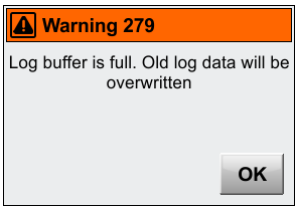
Log measurements

Select whether or not measurements should be logged.

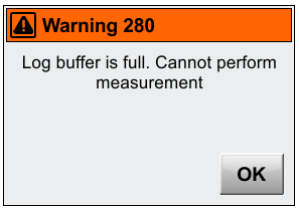
Stop meas. if log is full

Select whether or not measurements can be performed when data log is full.

If disabled (default):
When log buffer is full, a new measurement will overwrite the oldest ("Ring buffer" mode).
The first time the log buffer is full this warning appears:



If enabled:
When log buffer is full this warning appears:



In this case you must empty the log buffer using the **Delete data** or **Delete all data** function from the **Data log** menu - see *"Data log" on page 53* for details.

When the log buffer is full, this is indicated next to the no. of logs in the measuring screen.

Invalid meas. fast access

Select whether or not the (or) icon should be available directly from the measuring screen for marking a measurement as invalid directly on the measuring screen.
If disabled, the function is only available from the **Data log** menu - see *"Data log" on page 53* for details.

Network

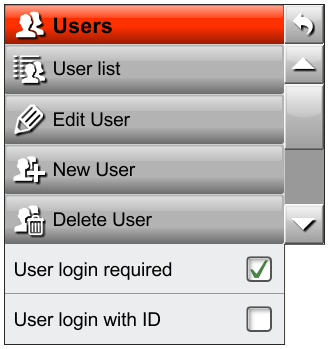
Selecting **Network** from the **Setup** menu will display a screen showing the network set-up parameters.

Info/Status	Opens the **Info/Status** screen displaying information about the currently selected network. See also *"Network connection" on page 31* for details.
Wi-Fi setup	Opens the setup screen for the currently selected network type. See also *"Network connection" on page 31* for details.
Wi-Fi module ON	Switches the Wi-Fi module on/off.
Wi-Fi fast access	Select whether or not the Wi-Fi icon in the measuring screen should act as a button, giving fast access to the Wi-Fi on/off setting. When enabled, the operator can switch the Wi-Fi module on/off without being logged in as **Supervisor**.
Connect to Network **Create Network**	Select required network connection type. Wi-Fi module must be switched off to change setting. See also *"Network connection" on page 31* for details.

NOTE! Always consult your network administrator before making network settings, as incorrect settings can result in reduced or no network activity.

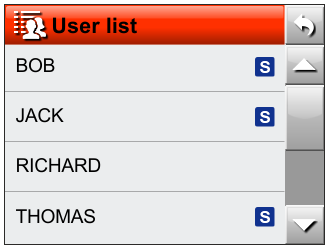
Users

From here the user database is maintained. You can see a list of existing users, edit the settings for an existing user, create new users or delete users.
The total number of users that can be created depends on the device model - see *"Models" on page 9* for details.



User list

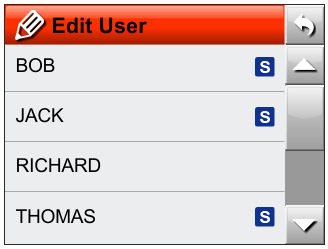
Displays a list of all users in alphabetical order:



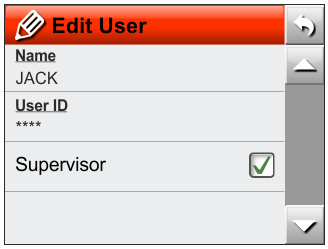
The S symbol indicates that user has **Supervisor** access when logging in using the **User ID**.

Edit User

Opens the **Edit User** screen.



The users are listed in “Last used” order.
Select user from the list.



Perform required changes.

New User	Creates a new, blank user profile. See *"New User" on page 62* for details.
Delete User	Delete user. The action must be confirmed before the user is deleted.
User login required **User login with ID**	Select the required type of login. See table below for details.

The login function is set up according to table below:

User login required	User login with ID	Function
☐	☐	**No login required (default setting)** At start-up the device initializes and when finished it changes to show the measuring screen, ready for measuring. Current user is the default **User**.
☑	☐	**User login required** At start-up the device initializes and when finished, you are taken to the **User** screen, from where you must select a user to go to the measuring screen, ready for measuring.
☑	☑	**Login with User ID required** At start-up the device initializes and when finished, you are prompted to enter a valid **User ID**. When done you are taken to the measuring screen, ready for measuring.
☐	☑	**Not possible!** Disabling **User login required** will automatically disable **User login with ID** as well.

New User

Creates a new, blank user. The following parameters can be set for a user:

Name	A unique user name (up to 25 characters).
User ID	Unique user identification code (up to 25 characters). The **User ID** is required to obtain **Supervisor** access.
Supervisor	Select whether or not the user should be able to obtain **Supervisor** access when logging in using the **User ID**. When enabled, the user is marked with a S symbol in the **User list**.

Date/Time/Units

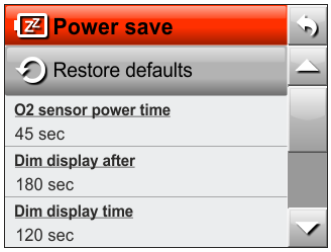
Selecting **Date/Time/Units** from the **Setup** menu will display a screen showing the various setup parameters for output formats and units.

Items marked with an asterisk are only available on **Premium** models.

Time *	Setting of current time (hh:mm:ss)
Date *	Setting of current date (using “Date format”)
Date format *	Setting of date format (DD/MM/YY or MM/DD/YY)
	"Time", "Date" and "Date format" are related to the real time clock setting in the device. The settings will have effect in all displays showing time and date.
Time format *	Setting of time format (12h or 24h)
Pressure unit	Setting of gas pressure read-out unit (mbar or psi)
Temp. unit	Setting of temperature read-out unit (°C or °F)
Decimal separator	Select whether decimal values should use “ . ” or “ , ” as decimal point.

Power save

Selecting **Power save** from the **Setup** menu will display a screen showing the various setup parameters for the device's power save function.



Restore defaults — Resets the settings of the 3 power save parameters below to the factory settings.

O2 sensor power time — Set the time for which the O_2 sensor remains heated and ready after the device has been switched on or after a measurement has been performed (0 - 999 s.).

Dim display after — Set the time of device inactivity after which the display switches into power save mode by reducing the display's back light intensity (10 - 999 s.).

Dim display time — Set the time of device inactivity in power save mode as described above until device automatically switches off (10 - 999 s.).

NOTE! If device's Wi-Fi module is switched on and there is network activity, this will prevent the device from switching off, even though the set time runs out.

NOTE! If device is connected to a PC via the USB cable, it does not automatically switch off, but display turns off.
If the cable connection is interrupted while the device display is off, the unit will switch off immediately.

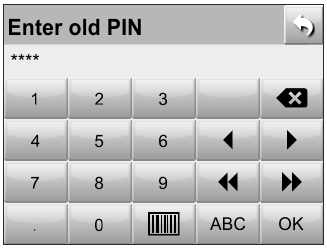
To "wake up" the device when in power save mode, simply touch the screen or press the button.

PIN **** Supervisor PIN code

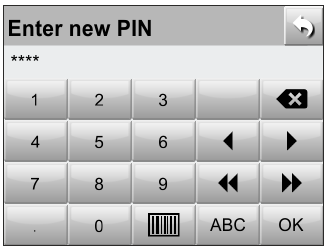
Use this function to change the PIN code required for changing from **User** access level to **Supervisor** access level.

To change the PIN code, do the following:

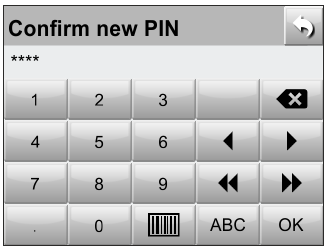
1. In the **Setup** menu select PIN **** **Supervisor PIN code**.
   This screen appears:



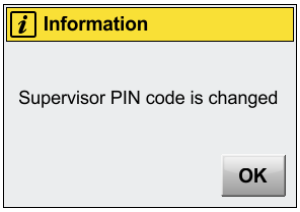
2. Enter current PIN code and tap **OK**.



3. Enter new PIN code and tap **OK**.



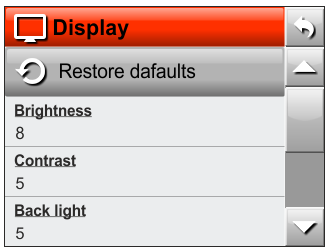
4. Enter new PIN code again and tap **OK**.



5. Tap **OK** to confirm. PIN code has now been changed.

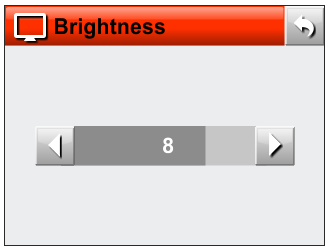
Display

The **Display** parameters are all related to the display readability.



Restore defaults	Resets the settings of the 3 display parameters below to the factory settings.
Brightness	Adjust display brightness (1-10).
Contrast	Adjust display contrast (1-10).
Backlight	Adjust display background light (1-10).

Selecting a parameter, e.g. **Brightness**, brings up a window....

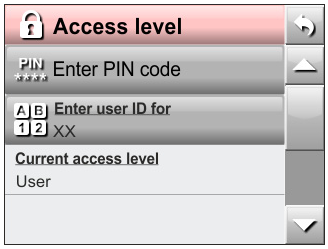


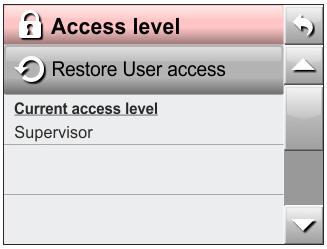
...where value can be set from 1 to 10 by tapping the buttons.
Setting impact is seen while adjusting.

Access level

When device is switched on (after power off) it is locked in **User** access level. **User** access only gives access to a limited number of functions and does not allow for parameter set-up.

To obtain full access you must change the device to **Supervisor** access level.
To do so select **Access level** from the **Menu**.





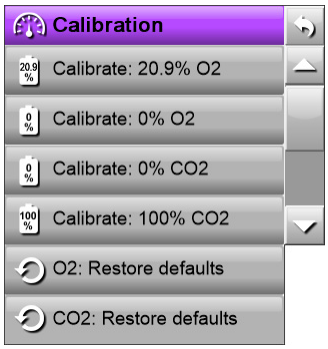
Tap **Enter PIN code** to open a touch screen keyboard and enter the pin code for **Supervisor** access level. From the factory the pin code is set to **"0000"**.
The **Supervisor** pin code can be changed to one of your own selection - see *"Supervisor PIN code" on page 65* for details.

For best safety and correct operation of device, you can easily return the device to **User** level access to restrict access to extended menu items. To do so either tap **Restore User access** in the **Access level** screen or power the device off and on.

Calibration

NOTE! Models with O_2 (EC) and/or CO_2 sensors only.

The **Calibration** menu holds the following items:



Items marked with an asterisk are only available when you are logged in as **Supervisor**.

Calibrate: 20.9% O2	Perform 20.9% O_2 calibration. See *"Calibrate: 20.9% O2" on page 69* for details.
Calibrate: 0% O2 *	Perform 0% O_2 calibration. See *"Extended calibration" on page 71* for details.
Calibrate: 0% CO2 *	Perform 0% CO_2 calibration. See *"Extended calibration" on page 71* for details.
Calibrate: 100% CO2 *	Perform 100% CO_2 calibration. See *"Extended calibration" on page 71* for details.
O2: Restore defaults *	Resets device to factory calibration settings.
CO2: Restore defaults *	Resets device to factory calibration settings.

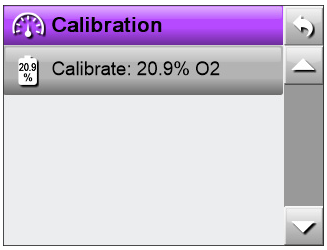
Calibrate: 20.9% O2

NOTE! Only valid for devices with an electro-chemical (EC) O_2 sensor.

NOTE! To compensate for sensor wear, it is recommended to perform the 20.9% calibration of the O_2 sensor preferably every day but at least once a week as a minimum before starting measurements.

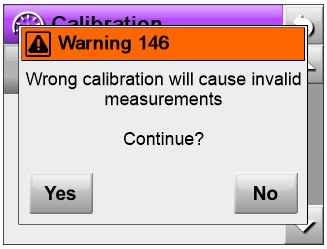
Also when moving the device from cold to warm temperatures or vice versa, you should allow the device to stabilize - see *"O_2 sensor temperature sensitivity" on page 26* for details.

1. From the **Calibration** screen...



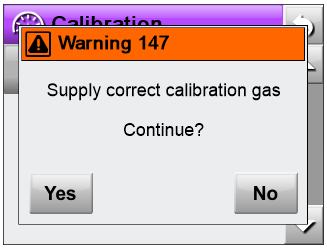
...select **Calibrate: 20.9% O2**.

2. The following warning appears:



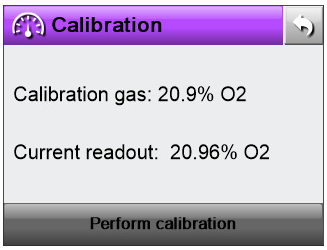
Tap **Yes**.

3. When the next warning appears...



...place needle on the table next to the device to make sure that it measures the surrounding O_2 content, then tap **Yes**.

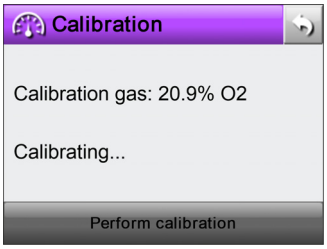
4. The pump starts to suck gas through the device and the current readout is displayed.



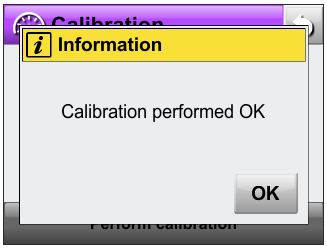
NOTE! The pump will run for approx. 3 min. and if you do not tap "Perform calibration" within this time, the pump stops, and the device returns to the "Calibration" start screen without performing any calibration. The same happens if you press the button or tap the button in the upper right corner.

When readout has stabilized, tap **Perform calibration**.

5. Now the calibration is saved...



...and the following message appears.



6. Tap **OK** to confirm and then tap twice to return to the measuring screen.

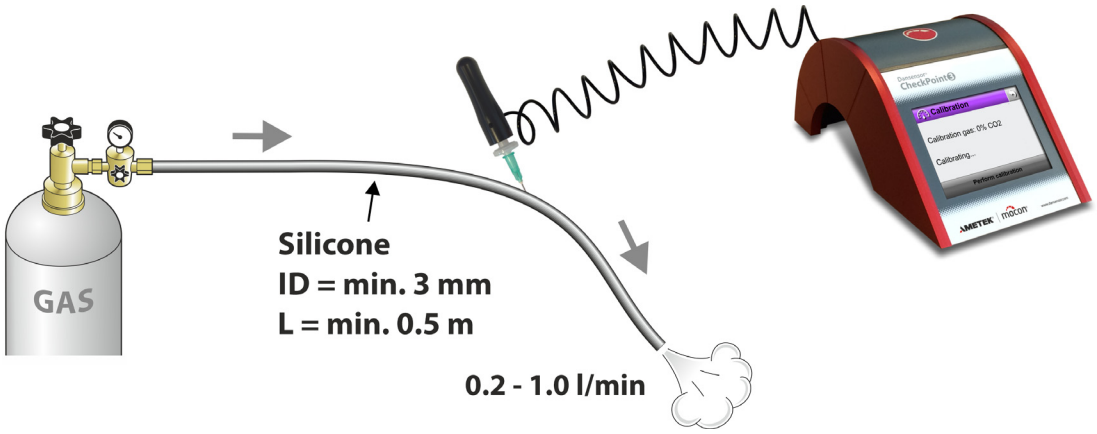
Extended calibration

Except for the daily/weekly 20.9% O_2 calibration and the annual factory calibration, the device normally does not require further calibration.
If, though, the device measurements deviate more than +/- 3% when measuring gas with a known CO_2 content, the **Calibrate: 0% CO2** and **Calibrate: 100% CO2** functions should be used.

The **Calibrate: 0% O2** function is used in connection with the replacement of the electro-chemical (EC) O_2 sensor.

NOTE! The extended calibration functions requires for special skills and the access to certified calibration gasses. Invalid calibration compromises measurement results.

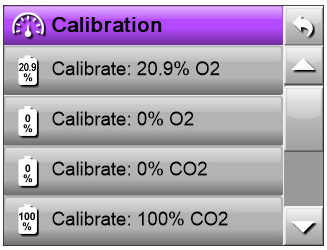
NOTE! When using gas from bottles, e.g. for the 100% CO_2 calibration, the calibration gas must not be forced through the device.
Instead you must let the needle suck the gas from an overflow to which between 0.2 and 1.0 l/min. is supplied (see below).



Calibrate: 0% O2

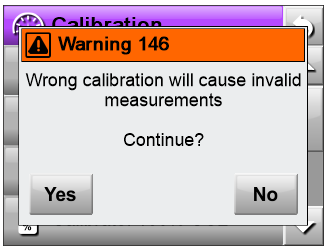
NOTE! For the 0% O_2 calibration, 100% N_2 or 100% CO_2 can be used.

1. From the **Calibration** screen...



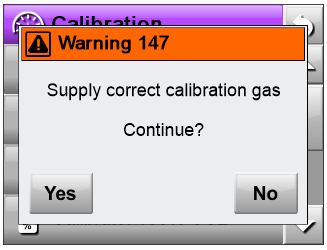
...select **Calibrate: 0% O2**.

2. The following warning appears:



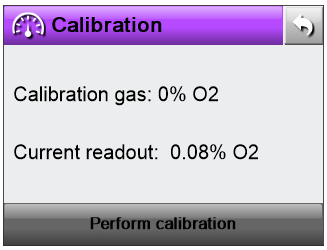
Tap **Yes**.

3. When the next warning appears...



...make sure that the needle is exposed to the appropriate calibration gas, and then tap **Yes**.

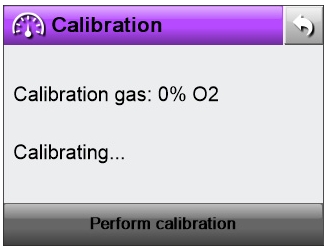
4. The pump starts to suck gas through the device and the current readout is displayed.



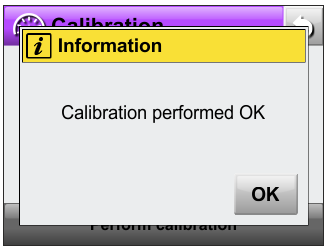
NOTE! The pump will run for approx. 3 min. and if you do not tap "Perform calibration" within this time, the pump stops, and the device returns to the "Calibration" start screen without performing any calibration. The same happens if you press the button or tap the button in the upper right corner.

When readout has stabilized, tap **Perform calibration**.

5. Now the calibration is saved...



...and the following message appears.

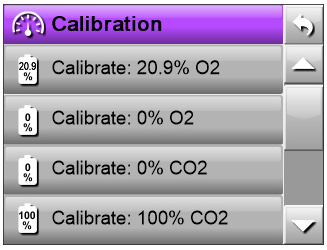


6. Tap **OK** to confirm and return to the **Calibration** start screen.

Calibrate: 0% CO2

NOTE! For the 0% CO_2 calibration, 100% N_2, technical air or atmospheric air can be used.
When using atmospheric air, please ensure that there is no increased or unstable CO_2 concentration in the surrounding air, as this may result in erroneous measuring at relatively high CO_2 measurements.
Carry out any such calibration far away from the CO_2 application area.

1. From the **Calibration** screen...



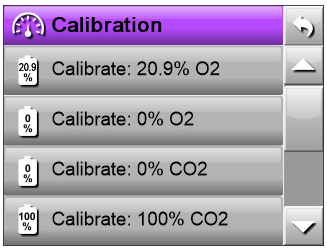
...select **Calibrate: 0% CO2**.

2. Now follow procedure as described for the 0% O_2 calibration on *page 72*, making sure to expose the needle to an appropriate calibration gas.

Calibrate: 100% CO2

NOTE! Always calibrate 0% CO_2 before you calibrate 100% CO_2.

1. From the **Calibration** screen...



...select **Calibrate: 100% CO2**.

2. Now follow procedure as described for the 0% O_2 calibration on *page 72*, making sure to expose the needle to an appropriate calibration gas.

Aあ Language

Selecting Aあ **Language** from the **Menu** will display a screen listing the available languages.

When selecting a language all text throughout the menus will be displayed in this language.

4. Technical Information

Technical specifications

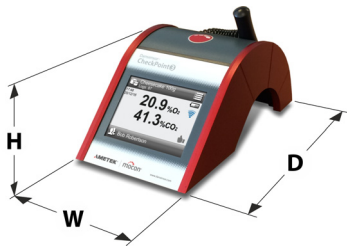
Electrical specifications

Power supply	Input: 100 - 240 VAC, 50 - 60 Hz, 0.4 A Output: 5 V - 2 A, max. 10 W	
Battery	Type:	Lithium-Ion (LiOn) 5200 mAh
	Expected life[1]:	Approx. 1½ year
	Measurements per charge:	Approx. 2000
	Charging time:	Max. 5 hours

[1] *At 10 hours daily use (no Wi-Fi activity)*

Mechanical specifications

Analyzer	Size:	75 x 100 x 175 mm (H x W x D)
	Weight:	Approx. 0.7 kg



Box of one analyzer	Size:	295 x 135 x 355 mm (H x W x D)
	Weight:	Approx. 2.1 kg
IP Class	IP20	
Ambient temperature	Operation:	0 to 40°C, < 95% RH, non-condensing
	Storage:	- 20 to 60°C, < 95% RH, non-condensing
Ambient pressure	Operation:	800 to 1100 mbar
Gas inlet	Sample hose:	L=600 mm, Ø0.5 mm
	Sample type/connector:	Needle 0.8x16 mm
	Filter/water trap:	External filter 0.22 µm

Connectivity

USB	Micro-B USB (2.0)	(For charging only)
Wi-Fi	b/g/n, "Create Network" or "Connect to Network" Mode WPA2, WPA2 Enterprise	

Sensors

O_2 Sensor (S)

Sensor type	Ceramic solid-state
Range	0 - 55%, measurements >55% will be cut off
Resolution	0.1% O_2
Accuracy	±(0.1% O_2 [1] + 2% of readout) 1% O_2 --> 0.88 - 1.12% O_2 50% O_2 --> 48.9 - 51.1% O_2 "Steady State" measurement
Measuring time	From 7 s. Measurement time is automatically adjusted if sensor is not fully heated, when measurement range is adjusted or when measuring high O_2 concentration. Sample pumping time is always 7 s. T_{95} = 5 s @ 1013 mbar
Startup time	Operational after 5 s., fully heated after 8 s.
Service calibration interval	12 months

[1] *23°C, "Low Ox MAP"*

O_2 Sensor (EC)

Sensor type	Electro-chemical
Range	0 - 100%
Resolution	0.1% O_2
Accuracy	±(0.25% O_2 [1] + 2% of readout) 1% O_2 --> 0.73 - 1.27% O_2 80% O_2 --> 78.15 - 81.85% O_2 "Steady State" measurement
Measuring time	From 7 s to 14 s. Measuring time is automatically adjusted by DST functionality: DST adds extra 7 s. if O_2 reading deviates more than 14% O_2 from start, or DST calculates need for extra measuring time (0-7 s) based on O_2 reading. T_{95}= 9 s @ 1013 mbar
Startup time	Operational instantly
Service calibration interval	12 months

[1] *23°C, "Low Ox MAP"*

CO_2 Sensor

Sensor type	Non Dispersive Infra Red (NDIR), single beam, temperature compensated
Range	0-100%
Resolution	0.1% O_2
Accuracy	±2.0% CO_2 in range 0 to 20% ±3.0% CO_2 in range 20 to 100% **NOTE! High concentrations of Argon influences accuracy of CO_2 readings.** **The CO_2 value will appear to be slightly lower than actual value (app. -2-4%).**
Measuring time	7 s. T_{95}= 7 s. @ 1013 mbar
Startup time	Operational instantly
Service calibration interval	12 months

Sampling

Sample gas	O_2, CO_2, Ar or N_2, < 95% RH, non-condensing
Sample flow	38 - 52 standard ml/min. Nominal flow 45 standard ml/min.
Sample gas temperature	0 to 40°C
Sample pressure range	Ambient pressure ± 50 mbar (verified at 1013 mbar ambient pressure)
Typical sample volume	Models with solid-state O_2 sensor: 5 ml Models with electro-chemical O_2 sensor: 5 - 11 ml

Standard factory calibration specification

Calibration gasses (O_2)	Models with solid-state O_2 sensor: 0%, 20,946% (balance N_2), 50% (balance CO_2) Models with electro-chemical O_2 sensor: 0%, 20,946% (balance N_2)
Calibration gasses (CO_2)	0%, 25%, 60%, 100% (balance N_2)
Ambient temperature (CO_2)	5, 15, 25, 35°C
Calibration gas accuracy	< 2%
Measurement gas flow	38 - 52 standard ml/min
Ambient temperature	25°C ± 5°C
Ambient relative humidity	35 - 65% RH
Ambient pressure	1013 hPa ± 50 hPa

Specification conditions

Ambient temperature	+25°C
Ambient pressure	1013 hPa
Measurement gas temp.	+25°C
Ambient relative humidity	40% RH
Meas. gas relative humidity	<10% RH
Measurement gas flow	45 ml/min

NOTE! All gas concentrations are specified in volume percent.

User Interface

Display type	3.5" colour touch display with back-light QVGA (320 x 240 pixels) 256 colours
Functions	Multi language text and icons Supported languages: EN, DE, FR, ES, IT, DA Membrane key on top

Conformity

- CE marking requirements for Europe
- Complies with EU RoHS regulation (part of CE marking)
- China RoHS Phase I marking requirements, EFUP=15 years

Consumable parts and options

Ordering items

When ordering any of the below listed items please state carefully the item number, the item specification and the number of items wanted and send the order to your spare parts dealer.

Available User Guides

All user guides are available on:

- USB, User guides, CheckPoint 3, Cpl. . . . . P/N 340492

Consumable parts

- Kit, Standard Consumables, CheckPoint 3, Ser. Cpl. . . . . P/N 360408
  - 1 x Septum, ø15mm (1000 pcs.) grey
  - 1 x Sampling kit, CheckPoint 3
  - 1 x Needle kit Ø0.8 x 16mm (10 pcs.), Cpl.
  - 1 x Filter, sample gas 0.2µ, water trap (10 pcs.), Cpl.
- Filter, sample gas 0.2µ, water trap (10 pcs.), Ser. Cpl. . . . . P/N 310335
- Filter, sample gas 0.2µ, water trap (100 pcs.), Ser. Cpl. . . . . P/N 310339
- Needle kit Ø0.8 x 16mm (10 pcs.), Ser. Cpl. . . . . P/N 340532
- Needle kit Ø0.8 x 16mm,SS (12 pcs.), Ser. Cpl. . . . . P/N 340566
- Sampling kit, CheckPoint 3, Ser. Cpl. . . . . P/N 340516
- Septum, ø15mm, grey (100 pcs.), Ser. Cpl. . . . . P/N 310336
- Septum, ø15mm, grey (1000 pcs.), Ser. Cpl. . . . . P/N 310337
- Septum, ø15mm, grey (10000 pcs.), Ser. Cpl. . . . . P/N 220157

Options

- Adaptor, Universal AC/DC Power supply + cable, Ser. Cpl. . . . . P/N 340529
- Protective cover, left + right CP3, Ser. Cpl. . . . . P/N 350510
- Cable, USB to micro USB 90° magnetic, Ser. Cpl. . . . . P/N 380451

Appendix

Safety and handling instructions

WARNING! Personnel operating and maintaining the device must be familiar with all aspects of its operation and be proficient in maintenance.
Such personnel should review the following precautions to promote safety awareness.
Failure to follow the safety instructions could result in fire, electric shock, injury, or damage to CheckPoint 3 or other property.

NOTE! The manufacturer cannot be held responsible for any damage caused by incorrect operation or maintenance of the device.

Handling and maintenance

- Be sure to disconnect electrical power and unplug the unit before performing any cleaning or maintenance.
- When operating or maintaining the equipment always obey the relevant rules and regulations for workers safety.
- Handle the device with care. It is made of metal, glass, and plastic and has sensitive electronic components inside.
- The device can be damaged if dropped, burned, or crushed, or if it comes in contact with liquid.
- Do not use a damaged device, such as one with a cracked screen, as it may cause injury.
- Do not cover the device with a cloth or piece of plastic to protect it from dust, as this prevents free air circulation around the device and might lead to overheating.
- Do not expose the device to heavy moisture or heat and keep it away from direct sunlight.
- If you're concerned about damaging the device or scratching the device surfaces, consider using the protective bumpers - see *"Consumable parts and options" on page 81* for details.

Repairing

- Don't open the device and do not attempt to repair it yourself, as this may damage it or may cause injury to you.
- If device is damaged, malfunctions, or comes in contact with liquid, contact your authorized MOCON service provider.

Needles

- Never block needles.
- Replace needles if they get clogged (e.g. when cutting through septa).
- Do not expose the needles to liquids.

Battery and charging

- Do not attempt to replace the lithium-ion battery yourself - you may damage the battery, which could cause overheating and injury. The battery should be replaced only by your authorized MOCON service provider.
- Charge the device with the included power supply, power plugs, and USB cable.
- When charging, make sure the USB cable is fully inserted into the power supply before you plug the it into a power outlet.
- If using other third-party cables and power plugs, make sure that they are compatible with USB 2.0 or later, and that the power supply and plugs are compliant with applicable country regulations.
- Replace damaged cables immediately. Using damaged cables or chargers, or charging when moisture is present, can cause fire, electric shock, injury, or damage to the device or other property.

Prolonged heat exposure

- The power supply comply with applicable surface temperature standards and limits. However, even within these limits, sustained contact with warm surfaces for long periods of time may cause discomfort or injury.
- Use common sense to avoid situations where your skin is in contact with the power supply when it is plugged into a power source for long periods of time. For example, do not place it under a blanket, when it's plugged into a power source.
- It's important to keep the device and the power supply in a well-ventilated area when in use or charging.

Explosive atmospheres

- Charging or using the device in any area with a potentially explosive atmosphere, such as areas where the air contains high levels of flammable chemicals, vapours, or particles, may be hazardous. Obey all signs and instructions.

Cleaning

- Never use hard tools or abrasive materials when cleaning any part of the device.
- Never use cleaning agents containing chlorinated solvents or acetic or phosphoric acid. These constitute a health hazard and could damage the device.
- Avoid getting moisture in openings.
- When using compressed air for cleaning, make sure that item has been disconnected from the device.

Using connectors, ports, and buttons

- Never force a connector into a port or apply excessive pressure to a button, because this may cause damage that is not covered under the warranty.
- If the connector and port don't join with reasonable ease, they probably don't match. Check for obstructions and make sure that the connector matches the port and that you have positioned the connector correctly in relation to the port.

Operating/storing temperatures

- The device is designed to be operated and stored in the temperatures ranges as specified in *"Mechanical specifications" on page 77*. The device can be damaged and battery life shortened if stored or operated outside of these temperature ranges.
- Avoid exposing the device to dramatic changes in temperature or humidity.

WebGUI compatible browsers

The **WebGUI** has been tested for compatibility with the following PC/tablet browsers:

- Firefox 52 (Windows 7, 8, 10)
- Google Chrome 56 (Windows 7, 8, 10)
- Internet Explorer 11 (Windows 8)
- Edge (Windows 10)
- Safari (iPad, iOS 9.3.1)
- Safari (Mac mini, OS X 10.11.6)
- Google Chrome 52 (Android 4.4)

Toxic and Hazardous Substances or Elements

(For China RoHS compliance)

See table on the next page.

CheckPoint 3

Hazardous Substances
有害物质

Component Name (组件名称)	Lead (Pb) (铅)	Mercury (Hg) (汞)	Cadmium (Cd) (镉)	Hexavalent Chromium (Cr(Vi)) (六价铬)	Polybrominated Biphenyls (PPB) (多溴联苯)	Polybrominated Diphenyl Ethers (PBDE) (多溴二苯醚)
Metal enclosure with labels (带标签的金属外壳)	O	O	O	O	O	O
Solid-state O_2 sensor assembly (固态 O_2 传感器组件)	X	O	O	O	O	O
Electro-chemical O_2 sensor assembly (电化学 O_2 传感器组件)	X	O	O	O	O	O
Sensor CO_2 Infrared assembly (红外 CO_2 传感器组件)	X	O	O	O	O	O
Lithium battery (锂电池)	O	O	O	O	O	O
Plastic top with foils and LCD display (带有铝箔和 LCD 显示屏的塑料顶盖)	O	O	O	O	O	O
Pump (泵)	O	O	O	O	O	O
Mounting hardware (screws, feet, magnets, hoses) (安装硬件（螺钉、支脚、磁铁、软管）)	O	O	O	O	O	O
Internal cables (内部电缆)	O	O	O	O	O	O
Wi-Fi module (Wi-Fi 模块)	O	O	O	O	O	O
Printed circut board assembly (Main PCB) (印刷电路板组件（主 PCB）)	O	O	O	O	O	O
Fittings (配件)	X	O	O	O	O	O
Sample hose kit (样品软管套件)	O	O	O	O	O	O

This table is prepared in accordance with the provisions of SJ/T 11364.
O: Indicates that the content of the hazardous substance contained in all of the homogeneous materials for this part is below the limit requirements of GB/T 26572.
代表该零件所有均质材料中的有害物质含量低于 GB/T 26572 的限制要求。
X: Indicates that the content of the hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirements of GB/T 26572.
代表该零件所用的至少一种均质材料有害物质含量高于 GB/T 26572 的限制要求。

P/N 340486-H
11/2021

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