LeakMatic II
User Guide EN

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LeakMatic II
User Guide

EN

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1. Introduction

Register your product

Thank you for purchasing a **Dansensor** product, we hope that the product will fulfill your needs.

In order to learn more about our customers and the markets we serve, we kindly ask you to fill out the product registration form available on-line at

www.dansensor.com/register

In return we can offer to send important product information to you.

About this manual

Intended use of this manual

- This manual describes the common use of the **LeakMatic II** 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.

Safety

To promote safety awareness the following should be observed:

- Prior to using and maintaining the device, you must
  - read the general "Safety Instructions" folder delivered with the device.
  - assure that the device has been properly installed and configured as described in the separate "Advanced User's Manual" delivered with the device.
  - familiarize yourself with all aspects of its operation and maintenance.
- Always refer to this manual before operating or maintaining the equipment.
- Observe all WARNINGS, CAUTIONS and NOTES (see below).
- In case of technical problems please contact your service provider.

Notes, cautions and warnings!

Throughout the manual notes, cautions, and warnings are indicated with different 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

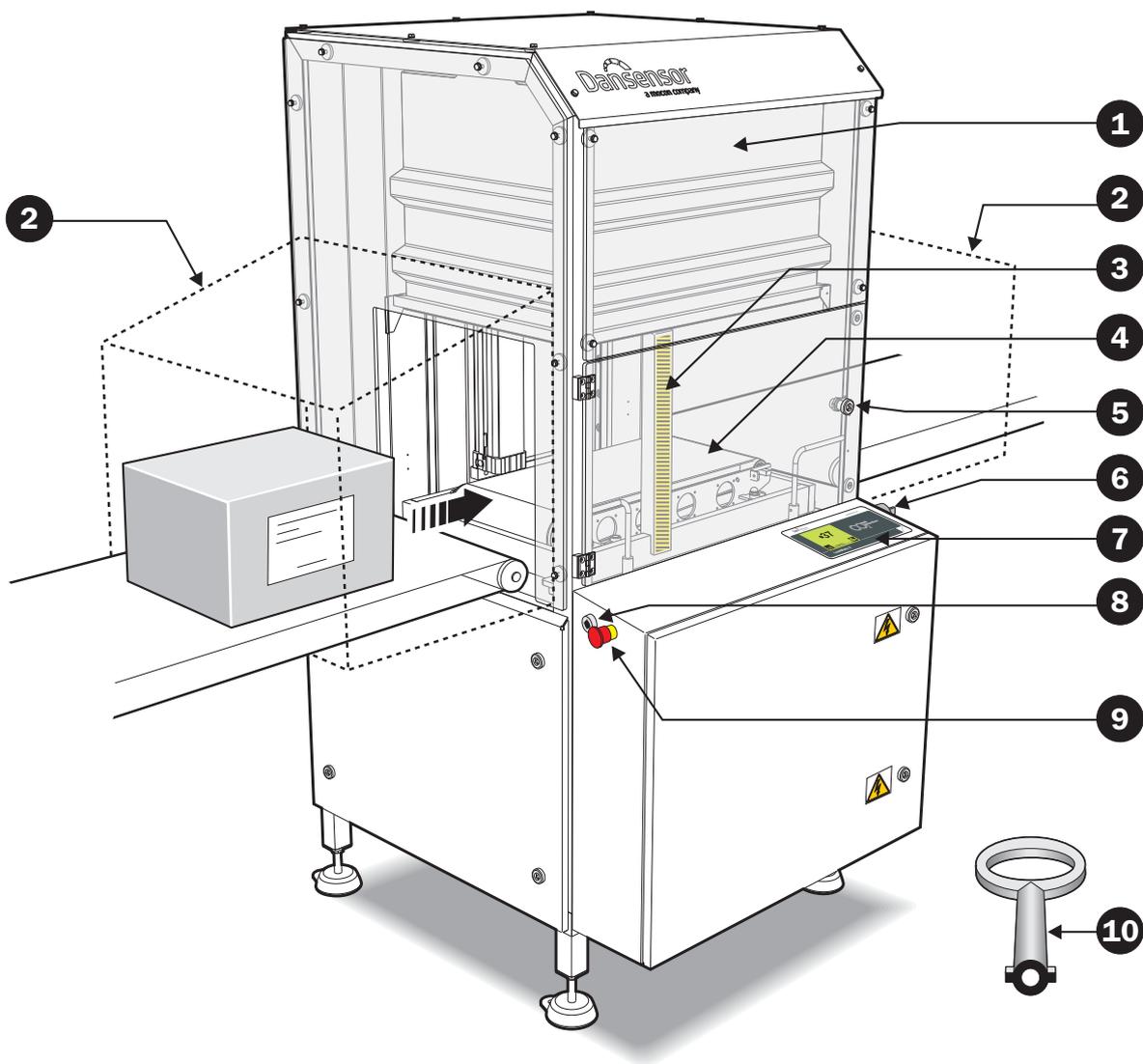> **NOTE! The operator should observe and/or act according to the information in order to obtain the best possible function of the equipment.**

> **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.**

2. Operation

LeakMatic II overview

(See illustration opposite).

❶ Chamber   Air cylinder operated. Moves down over the product to create a vacuum measuring environment.
See "Working principle" on page 11 for details.

❷ Screens   The device must only be operated with screens covering the in- and outlet. The design of the screens must ensure that it is impossible to get into contact with the moveable or electrical parts of the device. The screens are not part of the delivery.

⚠ **WARNING! Operations requiring for the screens to be removed must only be performed by authorised personnel.**

❸ Safety bar   Use the safety bar to secure the measuring chamber while working in the area below the chamber.

❹ Conveyor   Moves product in and out of the device and positiones it underneath the chamber.
See "Working principle" on page 11 for details.
The external conveyors are not part of the delivery.

❺ Front door w/switch   If, for some reason, a product must be removed from the device manually, it can be done through the front door (open with key ❿).
The door is equipped with a switch which cuts off all power to motors, valves and pumps etc.

⚠ **WARNING! Always use the safety bar ❸ when working in the area below the chamber.**
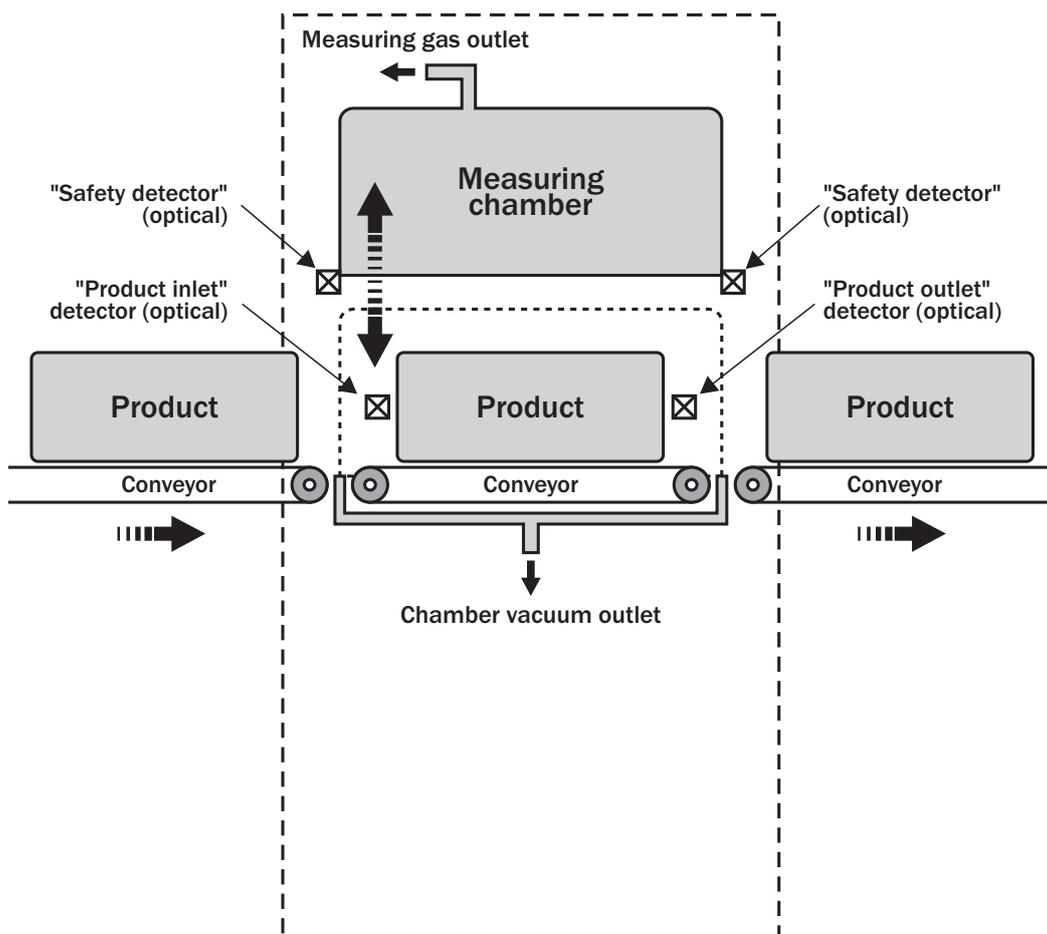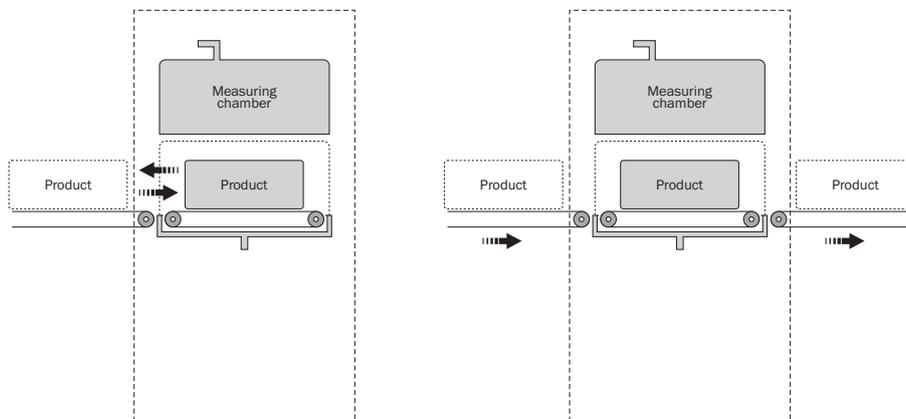
❻ Mains Switch   Switches main power On/Off.

❼ Control Panel   All operations and device settings are controlled from here.
See "The control panel" on page 12 for a detailed description.

❽ Beeper   When the device is switched on and ready to operate, the beeper sounds to inform the operator when operation starts.
Also a sound signal is given in case of a leak measurement which exceeds the leak level as set for the current product.

❾ Emergency Stop   In case of an emegency, push red knob to cut off all power to motors, valves and pumps etc.
To reset switch turn the red knob slightly clockwise.

❿ Front door key   Opens front door ❺.

Measuring gas outlet

"Safety detector" (optical)

"Safety detector" (optical)

"Product inlet" detector (optical)

"Product outlet" detector (optical)

Measuring chamber

Product

Product

Product

Conveyor

Conveyor

Conveyor

Chamber vacuum outlet

Working principle

(See illustration opposite).

There are various ways to transport the test products in and out of the LeakMatic II:

- In and out through the right side
- In and out through the left side
- Pass through, right to left
- Pass through, left to right

Test sequence

- When the device is ready to test the next product, a signal is sent to the packing machine to start the conveyor and deliver the next product.
- When the product passes the "Product inlet" detector, the device's conveyor will lead the product into the correct position underneath the measuring chamber.
- Now the measuring chamber is lowered over the product and evacuated to a negative pressure (vacuum) determined by the product selected, e.g. 350mbar below current atmospheric pressure. This creates positive pressure in the product and if there is a leak, gas (CO_2) will ooze from the product out into the measuring chamber.
- Gas/air is sucked from the measuring chamber through the CO_2 sensor, which will detect an increase in the CO_2 concentration indicating a leak in the product.
- After each test the result is displayed on the screen - see "Output of measured values" on page 15.
- When test is complete, the pressure in the measuring chamber is equalized to atmospheric pressure and the chamber is then moved to its top position.
- The conveyor starts and leads the product out of the device and when the product passes the "Product outlet" detector, the conveyor receiving the tested product starts.
- If the product test result is "OK" the product is moved on to further handling.
- If the product test result is "Leak", the product must be rejected and removed from the production line in a suitable way.
- Now the device is ready to test the next product.

The control panel

Operating keys

The LeakMatic II screen has 20 transparent keys. The keys have been arranged in four rows with five keys each.

Icons are always used for keys to operate the device. An icon is an image or a text that indicates either a condition or a function that can be performed by pressing the icon (key).

Icons that indicate a function are shown in a black square. - see "Icons" below for details.

1 Touch-sensitive screen with text and icons

2 Icon indicating a key

Icons

A brief description of all icons used in the system:

	Next page		Previous page
	On-line measuring started		Stop on-line measuring
	Accept, OK, Enter, Yes		Abort, Cancel, No, Return
	Product list/select product list		Setup/print setup
	Select language		Name/text
	Lock/change code		Unlock (code 0000)
	One product		Printer/print
	Stop printing		Data logging
	Delete statistics		Delete all statistics for all products
	Print Semicolon-Separated Values (SSV) On/Off		
	Date setup		Time setup
	Statistics menu/print statistics		Diagnostics/print diagnostics
	Move cursor to the left		Move cursor to the right
	Delete the character to the left		Caps Lock
	Leak test		Device in standby mode
	Chamber up		Manual control

Start-up

When device is switched on by the main switch, it starts with a short self-test, and the display reads "Ready in xx sec" (xx indicates the remaining warm-up time in sec. counting down from 1 minute).

If on-line measuring has been activated ( ), measuring starts automatically when "Ready in xx sec" has counted down to zero. If on-line measuring has not been started ( ), the system enters "Standby mode".
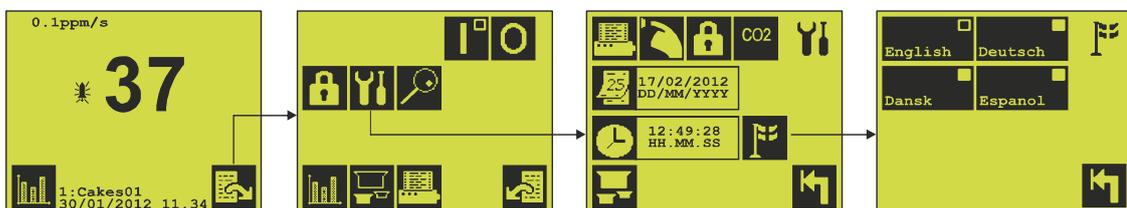
Screen contrast control

The screen contrast can be adjusted to achieve the sharpest picture. Contrast can only be adjusted in the output screen, i.e. when the screen shows the warm-up time remaining or the measuring results or in standby mode.

Brighter   Darker

Select language

It is possible to choose from several different languages. Once a language has been selected, all menus, error messages and printouts will use this language.

From the main screen, press , , to enter the language selection menu, then select preferred language.

If is not visible in the main menu, the device is locked. You should contact your supervisor for further help.
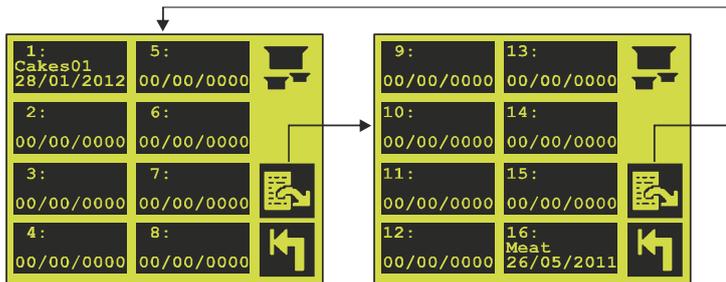
Selecting a product

The device can hold 16 products/setups.

Products are identified by means of a product number, from 1 to 16, and possibly a user-defined product name. The currently selected product is shown at the bottom of the measuring screen.

The product is assigned with the current date when selected. This information is used for statistics purposes.

To select a product do the following:

Press 🖥 in the main menu. Press 📖 to select one of the two pages.

Press a key to select the product to work on and subsequently collect statistics for. Products with a date indication other than 00/00/0000 have previously been selected and may contain collected statistics.

If you select one of these products, the system will ask "Reset statistics for this product? Yes/No". If you choose not to delete previously collected statistics when selecting the product, the old date is retained and subsequent measurements/statistics are added to the existing statistics.
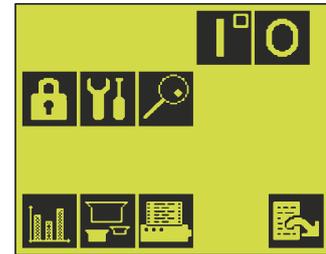
If you select a product with the 00/00/0000 date value, any statistics collected will be deleted and the current date and time will be recorded for the product. (The time value is shown in the measuring screen).

If product is displayed with date 00/00/0000 in the measuring screen, you must select it from the product list again to assign the current date to the product.

Start/stop measuring
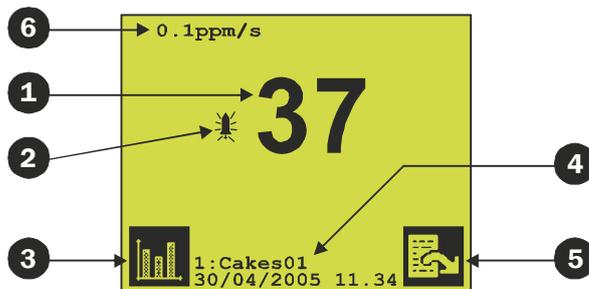
Measuring is started and stopped from the main menu.

- Press ▮ to start on-line measuring. The icon will change to ▮.
- The device will initiate the start-up sequence:
  - The display will show the text "=====STARTING=====" for app. 15 secs. then the whole display will flash and the beeper will sound and after another 5 secs. the conveyor starts and the display changes to show the text "==== READY ====".
  - If an external "Measure input" signal is present the device is now ready and all products entering the device are automatically tested.
  - If an external "Measure input" signal is not present, the display will say "No external measure signal" and device will not operate until it receives the signal.
- If the external "Measure input" signal disappears during operation, the measuring stops and the conveyor transports the current product out of the device and then it stops.
  The display will say "No external measure signal".
  When signal reappears, the device will initiate a short start-up sequence where the beeper sounds 5 secs. before the conveyor starts and the device is ready again.
- Press ◯ to stop on-line masuring and swith the device into "Standby" mode.

⚠ **WARNING! The display flashes and the beeper located on the top left side of the electronics cabinet gives a signal approx. five seconds before the device starts forwarding the product and closing the measuring chamber.**

Output of measured values

When measuring has been activated, the external measure signal transmitted to the device determines when measuring starts. After measuring, the result measured is displayed on the screen.

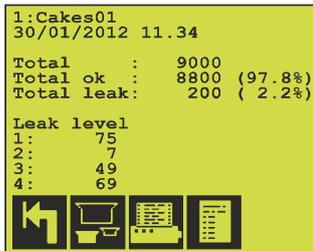① A measurement value is presented for each individual product

② If a measurement exceeds leak level 1, an acoustic signal sounds and an alarm bell is displayed to the left of the measured value.

③ Statistics menu

④ Number and name of product selected as well as date and time when the collection of statistics data for this product was started.

⑤ Main menu

⑥ Current ppm per second (only in Supervisor mode).

Product statistics

The statistics collected can be displayed by pressing [icon] in the main menu or in the output screen. The product number, name, and date is displayed at the top. The related product statistics are presented below.
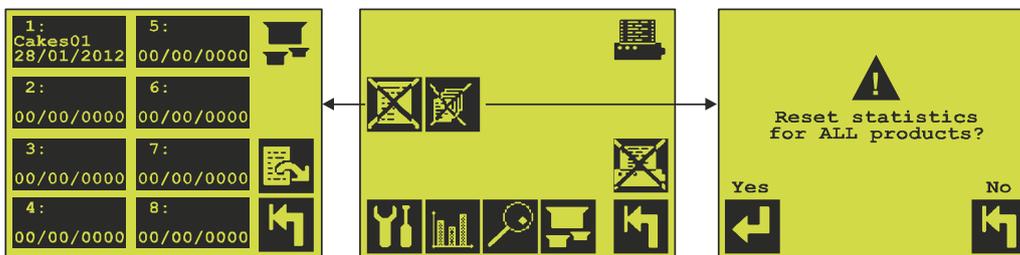
In general, the currently selected product is displayed first.

```
1:Cakes01
30/01/2012 11.34

Total    :    9000
Total ok  :  8800 (97.8%)
Total leak:   200 ( 2.2%)

Leak level
1:       75
2:        7
3:       49
4:       69
```

Total	Total number of tests performed.
Total ok	No leak was detected in this number of products out of the total number of tests performed.
Total leak	Leaks were detected in this number of products out of the total number of tests performed.
Leak level	Number of leaks specified by leak level.
[icon]	Select new product for presentation of statistics
[icon]	Print current page.
[icon]	Go to data log output screen. See "Data logging" on page 17.

Delete statistics for one/all product(s)

To delete statistics for individual products, press [icon] in the main menu to go to the printout menu.

Delete statistics for one product

Press [icon] to delete statistics for one product. Pressing [icon] displays the product menu where you can select a product. Before deleting statistics, the system will ask "Reset statistics for this product? Yes/No".

Delete statistics for all products

Press [icon] to delete all statistics for all 16 products. If you press [icon], the system will ask "Reset statistics for ALL products? Yes/No".

Data logging

The device remembers the last 3,825 measurements exceeding Leak level 1.

Press ▐▌ and ▤ (start from the main menu) to go to the data logs.
New logs are added at the bottom of the display.

```
DATE/
TIME      PROD.   LEVEL   LEAK
09.59.16   16      1       14
11.34.01   16      4      999
23.01.39    1      1       21
07.14.44    1      2       42
09.59.59    1      1       27
15.00.03    1      2       55
19.23.19    1      4      100
20.23.19    1      1       22
20.23.24    1      2       41
28/01/2012
```

DATE/TIME	This column shows the date and time of the event. At the bottom of the page you can see the date of the event shown on the line just above.
PROD.	The number of the product selected at the time of leak detection.
LEVEL	Leak level exceeded.
LEAK	Measuring result.
▨ and ▨	Next/previous page.
Page 3	Go to page. Numerical page number entry. Valid page number range is 1 to 425.
▨	Go to data log printout menu.

Print data logs

Press ▨ in the data log menu, and the following print menu appears:

Current screen	
Product from this screen	
From current page to last log	
From current page to first log	

Current screen	Only log data from the screen displayed are printed.
Product from this screen	The LeakMatic II prints all log data with the same product number.
From current page to last log	Data are printed from the displayed page to the latest (most recent) data log.
From current page to first log	Data are printed from the displayed page to the first (oldest) data log.
⊠	Stop printing. This icon is only displayed when the system is printing.

3. 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" on page 6 before attempting any of these procedures.

System check

The correct function of the LeakMatic II should be checked regularly. Please refer to the "Advanced User's Manual" for details about the test.

Cleaning

All of the device's surfaces must only be cleaned using a mild soap solution and a wrung cloth.

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

Cleaning the screen

Before cleaning the screen, you can lock it briefly as follows:
In the measuring screen, press the upward and downward contrast control keys simultaneously. All icons are removed, and the touch-sensitive screen is inactive for approx. 10 seconds. The time remaining is indicated by a count-down in the lower right corner. During this period you can clean the screen without activating any functions.

WARNING! Use only water or a mild soap solution to clean the film covering the keys.

Messages and errors

All messages and error messages are displayed in the measuring screen and in the main menu.

All messages and errors are described in the "Advanced User's Manual" and should be reported to the supervisor for further actions.