

Instruction manual

FUTURA Egg-Quality-Measuring-System

Version 3/A + 2/A



Last revisited on April 21st, 2017

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1 Hardware

Please take all standard safety precautions when operating the FUTURA-Measuring-System. The measuring device is electrically connected to the housing of the used PC. This PC has to be in perfect technical condition. A defective PC or the AC outlet can potentially cause hazardous voltages at the measuring device. If there are any doubts about the installation, please consult a qualified electrician.

The data produced by this system, is only as accurate as the previously conducted calibration. Incorrect calibration may lead to significant errors in measurement. It is important to use utmost precision when carrying out the described calibration.

1.1 Connectors data processor (3/A)



- Connectors 1-4 are serial interfaces(RS232) and can be assigned user-defined.
- 5 Shell thickness measurement screw
- 7 Albumen-height-gauge
- 8 Power supply
- 9 Data link to PC or Notebook

1.2 Connectors data processor (2/A)



- 1 Port for the albumen-height-gauge
- 2 Serial Port for the electronic scale
- 3 Data link to PC or Notebook

1.3 Installation (3/A)

The port numbers for the data processor of the FUTURA 3/A are described in Chapter 2.1 "Connectors".

First connect your notebook or PC to the data processor (Port 9), using the light gray serial cable. If your PC has no serial port available, please use an USB adapter.

The following devices are optional and not necessarily included or available. Connect your electronic scale to port 1 of the data processor. Supply power to the electronic scale using the included AC adapter. Next the fracture-strength-meter has to be connected to port 2 of the data processor. This device also requires power supplied by an AC adapter.

The Balluf-color-sensor has to be plugged into port 3, the micrometer-screw into port 5 and the albumen-height-gauge into port 7.

Finally, power has to be supplied to the data processor, using port 8

1.4 Installation (2/A)

First connect your notebook or PC to the mini-data-processor using the light gray serial cable attached to the device. If your PC has no serial port available, please use an USB adapter. Then connect the albumen-height-gauge to port 2 of the mini-data-processor. Connect the electronic scale to port 1 and then using the included AC plug to the AC.

2 Software

The following chapter describes the installation and use of the FUTURA 3a 2011.

2.1 Installation

Insert the CD-ROM into your PC's CD-/DVD-/BD-drive and run the included "Futura_Setup.exe". A window will appear and an installation wizard will guide you through the FUTURA 3a 2011 installation. First select a language for the installation wizard:



Click "Next >" and follow the instructions on the display. It is recommended to use the default path for the location.



When the installation process is completed without error, the program has been successfully installed. Now the program is ready to be started. Otherwise, please contact support.

The units are preconfigured and generally do not need to be adapted. Although it is imperative to calibrate the albumen-height-gauge and the Balluf-color-sensor before use.

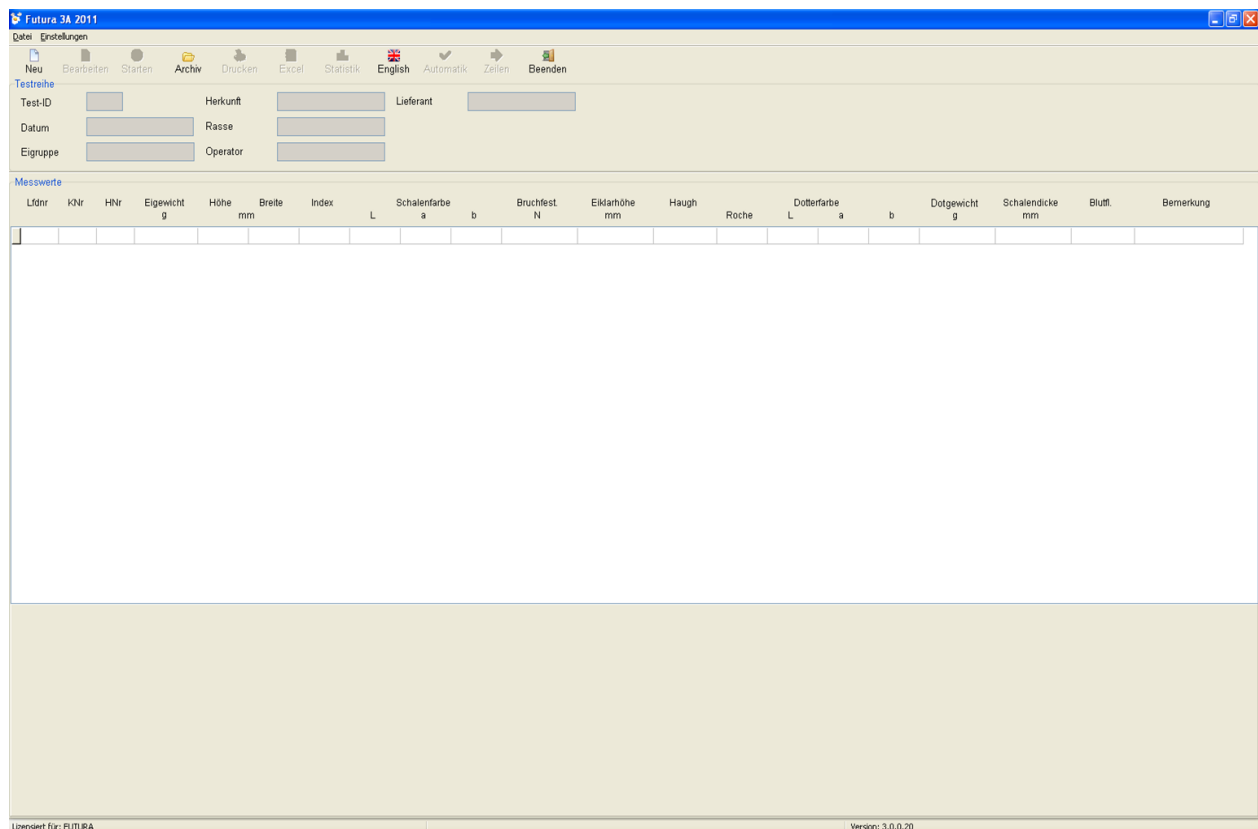
If you experience any problems during the installation or operation of the program, please contact:

Bröring Informationstechnologie
Stefan Bröring
Gewerbering 4
D-49393 Lohne
Tel. +49 4442 910436
Mail: stefan@broering.de
www.broering.de

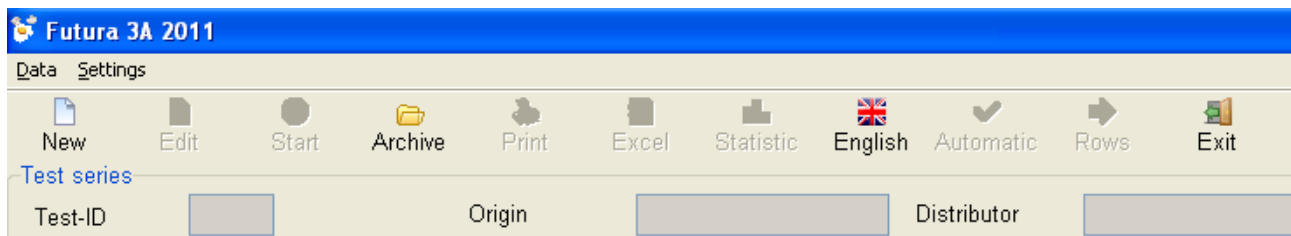


2.2 Starting the program

First check if all the equipment is turned on and supplied with electricity, then start the program. After starting the program, you will see the following screen:



The top part of the window contains two menu bars. The upper menu bar contains the following points:



- **Data:** Data saving, Exit program
- **Settings:** Setup device or select language

The lower menu bar contains the following points:

- **New:** Create a new test series
- **Edit:** Edit the data of the active test series
- **Start:** Start measuring cycle
- **Archive:** Open existing test series
- **Print:** Print the current values
- **Excel:** Save data into an MS-Excel file
- **Statistic:** Display statistics
- **English:** Set program language to English
- **Automatic:** Start/end automatic mode
- **Rows:** Change between row- and column-measurement
- **Exit:** Exit the program

2.3 Program operations

2.3.1 Create or edit a new test series

To create a new test series, click on "New" in the menu bar or press "F5". This opens the following window:

After the values are entered, they can be saved using the "Save" button and the measurements for the newly created tests series can be started. Clicking the "Delete" button will erased all values and new values can be entered. The "Cancel" bottom closes the window without saving the entries.

2.3.2 Types of measurement

Two different types of measurement can be selected.

The **automatic mode** controls how and when the individual measurements are performed. If the automatic mode is active, the measurement readings are automatically accepted. Thus, if for example an egg is placed on the electronic scale, the system will read the weight without further confirmation by the user. If the automatic mode is off the user has to clicking on the "Measure" button to trigger the reading of the weight.

In addition, there are two types of measurement sequences. The system distinguishes between **row- and column-measurement**. Column measuring means that measurement proceeds vertically and first all measurements on one device are performed. The desired column has to be selected and then only this measurement is measured repeatedly.

Then it is possible to continue with normal row-measurement, that will proceed from device to device and measure a single egg at all stations.

2.3.3 Starting a measurement

The measurement is started by clicking on the "Start" button. This requires either a new test series to be created (see Section 2.3.1) or an already started test series to be loaded from the archive and continued (see Section 2.3.5). The measurement is performed using the previously set options (see 2.3.2 Types of measurement). The order in which the devices are addressed depends on the setting of the devices (see 2.5.1).

During the measuring process in the bottom of the screen the following detail (for example the albumen-height-gauge) appears:

EKH

Number 1

Eggnumber 1

10,9

Measure

✖ Abort

↺ Skip



The white field displays the value of the last measurement. In automatic mode, the "Measure" button is disabled, because the measurement is performed automatically. If the automatic mode is switched off, the measurement has to be triggered by clicking on the "Measure" button. The "skip" button means that the pending measurement is skipped and can be executed later. To abort the measurement click the "Cancel" button. The collected values are listed in the large table.

2.3.4 Statistic

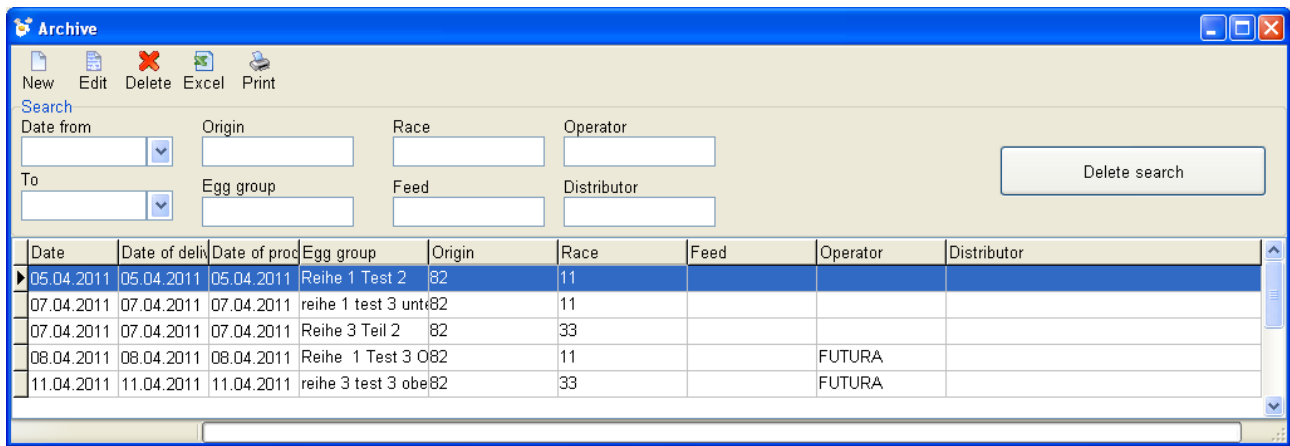
| Statistic | | | | | | |
|-----------------------|-------|----------|---------|--------|--------|--|
| | Count | Amount | Average | Max | Min | |
| ▶ Egg form index | 721 | 92865,26 | 128,80 | 140,94 | 116,62 | |
| Fracture N | 720 | 38619,36 | 53,64 | 83,84 | 15,26 | |
| Haugh | 720 | 52249,74 | 72,57 | 99,57 | 41,54 | |
| Hight mm | 721 | 41690,86 | 57,82 | 65,55 | 51,02 | |
| Hight of egg white mm | 720 | 4149,60 | 5,76 | 10,40 | 3,00 | |
| Shellthickness mm | 720 | 257,67 | 0,36 | 0,43 | 0,24 | |
| Wweigh of egg g | 720 | 46794,94 | 64,99 | 82,98 | 51,89 | |
| Width mm | 721 | 32377,65 | 44,91 | 49,20 | 41,62 | |

📄 Excel

✖ Close

The graphic shows an example of the statistical analysis of the current series of measurements. For every type of measurement (listed in the far-left column) the statistical characteristics and corresponding values are displayed. The number of measurements can vary.

By clicking the "Excel" button it is possible to save the displayed data to an **Excel file** in order to process it further. This file is generated by 3A FUTURA 2011, no MS Excel or similar software needs



to be installed on your PC. Additional software is only needed to open the Excel file later.

2.3.5 Archive

The archives can be opened from the main window by clicking on the "Archive" button. This will open the following window:

In the Archive window, all created test series are shown. These can be handled using the icons in the title bar. They can be edited by clicking "Edit" or deleted via the "delete" button. The "Excel" button exports all data from the archive into an Excel file, that can be saved to any location. By selecting multiple test series, they can be exported pressing the right mouse button. This way only the selected test series will be exported.

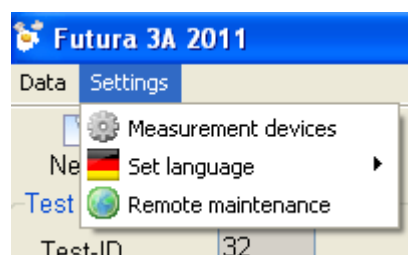
A new test series is created by pressing the "New" button as described in 2.3.1. The fields in the "Search" area can filter the data by various criteria. To reopen a test series from the archive and carry out further measurements, double-click on the desired row. The Archive window closes and the data is transferred to the main window.

2.3.6 Print

The "Print" function prints the currently selected test series with all its results. A window opens showing a preview of the page and options to select a printer and to configure it.

2.4 Settings

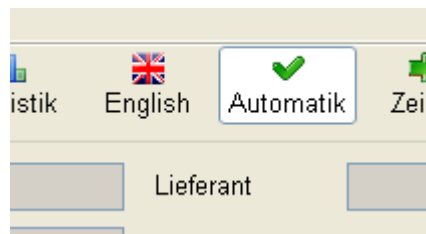
The settings are accessed via "Settings". The individual items (Measurement devices, Set language and Remote maintenance) are explained below.



2.4.1 Select language

The language used by the software can be changed here. All available languages will be shown in a new menu after clicking on "Select Language". Switch to the desired language by clicking on it. While the program is running it is possible to quickly switch to English by clicking the "English"

button in the menu bar of the main window.

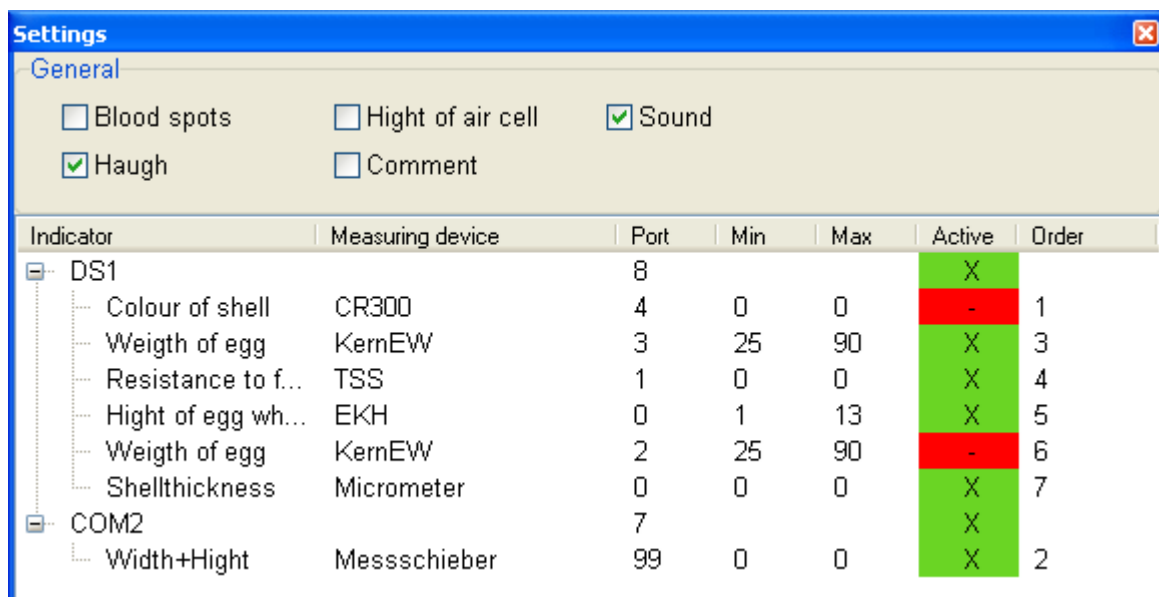


2.4.2 Remote maintenance

The menu item "Remote maintenance" button launches additional software of Bröring. This serves to provide a technician access to your PC via the Internet. Use this only after consulting with an employee of Bröring Informationstechnologie.

2.4.3 Measurement devices

The item "Measurement devices" in the settings menu opens the following window:



Here the basic settings for the operation of the system are made. In the "General" tab at the top global options can be configured.

Blood spots: Creates the possibility to enter the value for "blood spots" manually

Height of air cell: Creates the possibility to enter the "Height of air cell" manually

Comment: Creates the possibility to write a "comment" manually

If the box for "sound" is checked the program confirms each measurement with a beep. The item "Haugh" activates or deactivates the automatic Haugh-calculation. If active values are entered directly into the table.

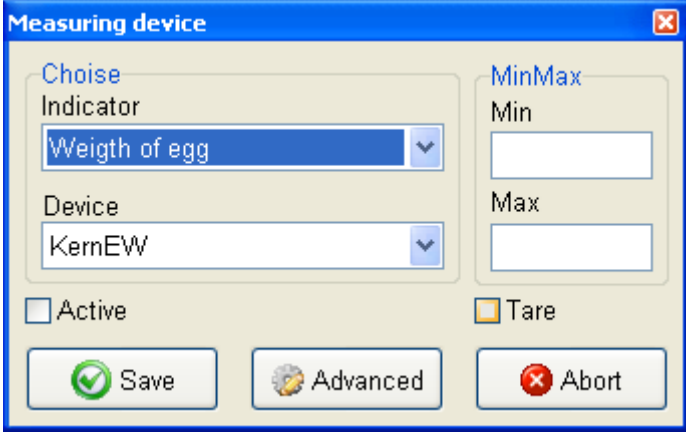
By right clicking in the white window, a menu opens listing all executable functions. Devices can be edited, deleted or calibrated separately and new devices can be added. The procedures are described in chapter 2.5.

2.5 Measurement devices

The FUTURA 3A 2011 works with several optional measurement devices. These may need to be configured in the program as described below.

2.5.1 Create and edit

A new measurement device can be added from the "Settings" window. Simply right click into the white window and select the option "measuring device new" from the menu. This will open the following window:

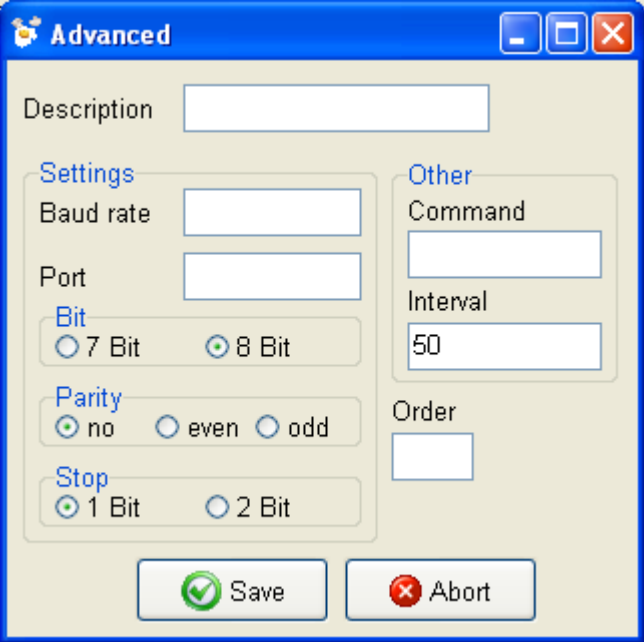


The "Measuring device" dialog box is used to configure a new measurement device. It features a "Choise" section with a dropdown menu for "Indicator" (currently set to "Weigth of egg") and another dropdown for "Device" (currently set to "KernEW"). To the right, the "MinMax" section contains input fields for "Min" and "Max" values. Below these are two checkboxes: "Active" (unchecked) and "Tare" (checked). At the bottom, there are three buttons: "Save" (with a green checkmark icon), "Advanced" (with a gear icon), and "Abort" (with a red X icon).

When creating a new device, the indicator (the indicator is what is to be measured) has to be set. Also, the device (the measuring device corresponding to the indicator) has to be selected and set with Min and Max values to be accepted by the program.

If the "active" box is checked the device will be used in the test series after saving. Otherwise it will not be considered.

The advanced settings are accessed by the "Advanced" button. Here the settings for the communication between a measuring device and the data processor can be configured. These values are preset. Change this setting only after consulting the support team.



The "Advanced" dialog box is used to configure communication settings. It includes a "Description" text field at the top. Below it, the "Settings" section contains fields for "Baud rate" and "Port", and radio buttons for "Bit" (7 Bit and 8 Bit, with 8 Bit selected), "Parity" (no, even, and odd, with no selected), and "Stop" (1 Bit and 2 Bit, with 1 Bit selected). The "Other" section contains a "Command" text field, an "Interval" text field (set to 50), and an "Order" text field. At the bottom, there are "Save" (with a green checkmark icon) and "Abort" (with a red X icon) buttons.

2.5.2 Calibration

Before working correctly some devices have to be calibrated. This process is explained in the following chapters.

2.5.2.1 Albumen height gauge

The albumen height gauge transfers an electrical voltage to the data processor. This value is transferred to the PC and the program. To evaluate the correct albumen height, you have to calibrate the albumen height gauge. This should be repeated every other month or if the location of the devices is changed, if it has been transported, repaired, if the software is newly installed and so on.

For the calibration, you need:

- The albumen height gauge
- The data processor
- The calibration plate (4mm, 7mm, 9mm steps)
- A flat surface (e.g. the FUTURA assessment work table).
- And a PC with the ready installed Software.

First clean everything necessary (especially the working table, the albumen height gauge and the calibration plate).

Place the calibration plate on the working table and put the albumen height gauge over it:



First put the albumen height gauge in neutral position.

Simply place the albumen height gauge on the table and leave the probe tip in the top position.

Then click the “measure” button.

If you get an error message at this point, there is a problem with the communication between PC and data processor.



After this the probe tip has to be place at the **top** of the calibration plate.

Place the probe tip accordingly and press the tip down to the top position of the calibration plate. Confirm again with the "Measure" button.



Next place the probe tip to the middle position of the calibration plate. Follow the same procedure as for the top position.



Repeat this again with the **lowest** position.

After this procedure, the albumen height gauge is calibrated. Check if the calibration is correct by measuring the steps of your calibration plate. Compare the values on the PC with the calibration plate or something else.:

- Highest position: 9.00 mm
- Middle position: 7.00 mm
- Lowest position: 4.00 mm

The deviation should be less than ± 0.02 mm.

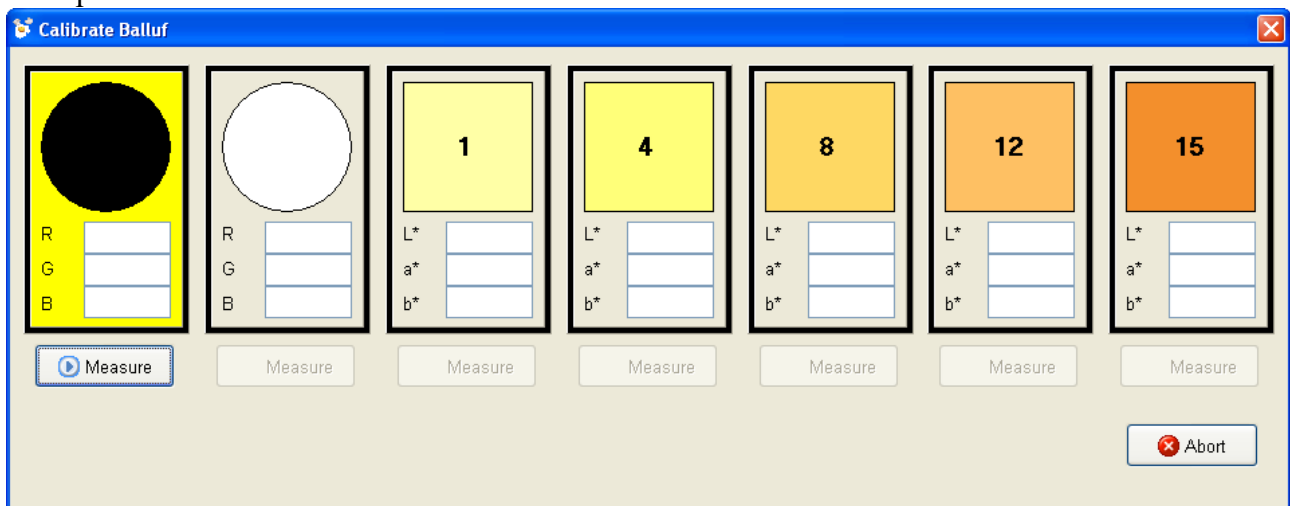
2.5.2.2 Balluf-color-sensor

To determine the correct yolk color the Balluf-color-sensor has to be calibrated. Calibration should be repeated daily. Additional calibration is needed after every change of location, each transport, software installation, repairs etc.

For the calibration of the Balluf-color-sensor the following is required:

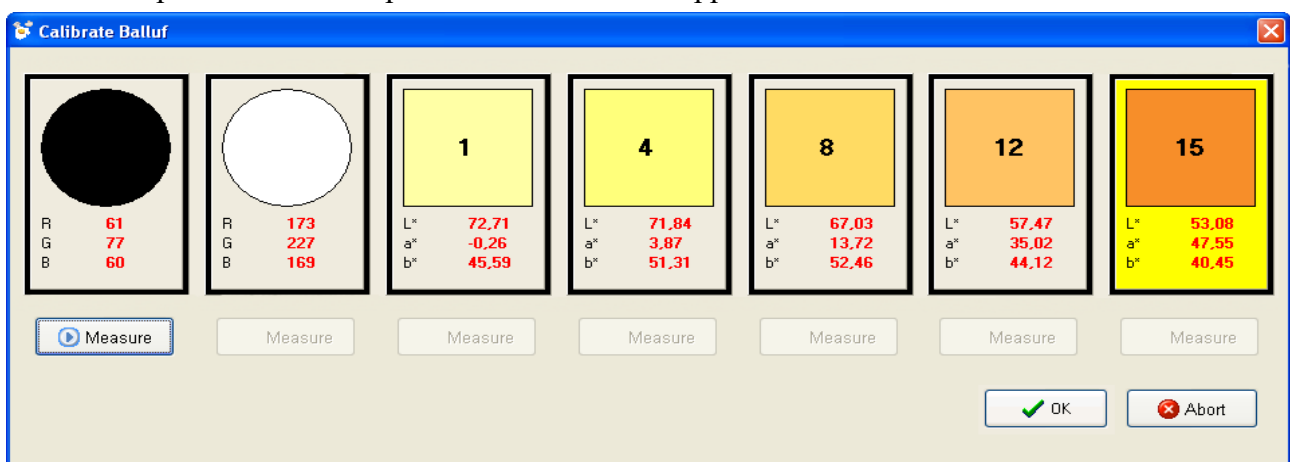
- The Balluf-color-sensor
- The yolk color fan
- The FUTURA data processor
- The s/w balance board

Now place the s/w balance board black side down on the color sensor and click "Measure".

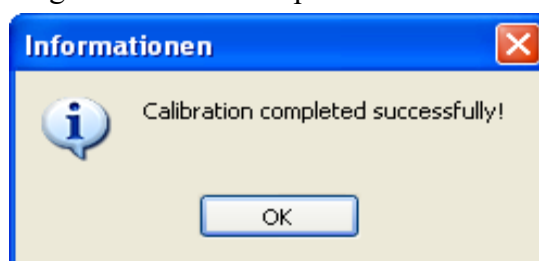


The measured color values (red, green and blue) are displayed and the white side is selected. Next repeat the previous steps with the white side and then with the color fans 1, 4, 8, 12 and 15.

Once all steps have been completed an "OK" button appears and values are entered.



Finish the calibration by clicking on "OK". At this point the successful calibration is confirmed:

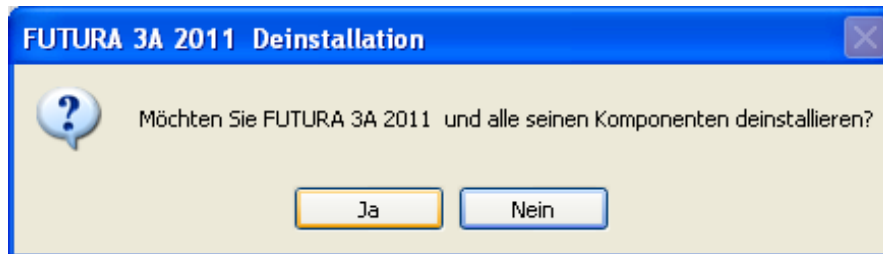


2.5.2.3 FUTURA Egg Shell Tester

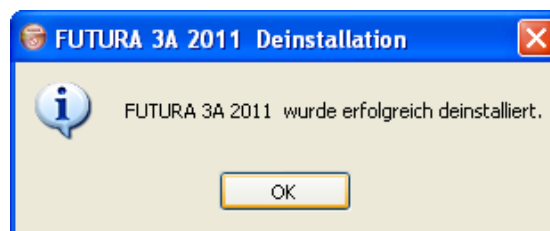
For information on the FUTURA Egg-Shell-Tester (FEST) please consult the specific manual for the device.

2.6 FUTURA Uninstall

To uninstall the FUTURA 2011 3A open the Windows Start menu under Programs → Bröring → FUTURA 3A and select the "Uninstall" option. Answer the following safety query with "Yes":



After the uninstall is complete the following window appears:



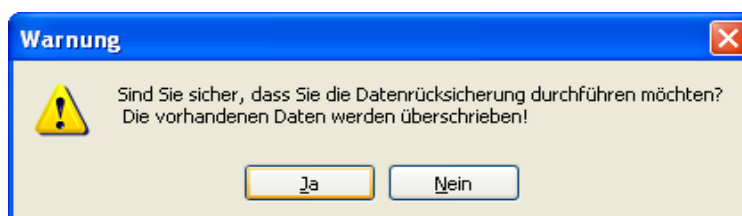
The program and all its components are now removed from the computer.

2.7 Backup



To **create a backup**, select from the top menu bar "File" and then "Backup". A new window opens where you can select the location for the backup file. Once a location is selected, click on "Save" and a backup file is created in that location. If the process was completed properly, a confirmation window appears.

To **restore a backup**, select from "File" the option "Restore backup". First, the following security question appears:



Confirm the warning with "Yes" to restore a backup of old data.

WARNING: The operation cannot be undone.

If the operation is continued, a new window appears, where a backup file to be restored can be selected.

3 Errors

While the program is operating, errors are caught and understandable error messages are displayed for troubleshooting. If there are problems you cannot solve on your own, please note the error message and contact Bröring Informationstechnologie.

4 Mode of operation

The Data is transferred via a serial interface (RS-232 or V24) to a PC. For this a standard 9-pin Sub-D-Connector is used. The system can be operated on any serial port. If no serial port is available, a USB to serial adapter can be used.

The albumen height gauge consists of a position sensor which works like a linear-potentiometer. This potentiometer is connected to an AD-Converter, with 12-bit resolution. The data from the scale is transmitted via the same serial interface. The system is designed for operation with a standard PC-System without any modification.

5 System requirements

- Currently supported operating systems are Microsoft Windows XP (Service Pack 3), Microsoft Windows 7 and Microsoft Windows Vista
- minimum display resolution of 1024x768