Touch Display Programming

CONTENTS

PROGRAMMING

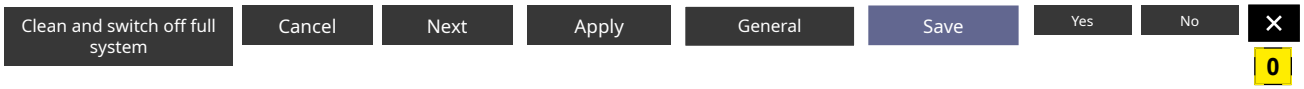
Controls and input methods

Tabs

Tabs divide up the functions of the coffee machine. They act as the main menu level. Clicking on a tab symbol takes the user to the corresponding menu. The meanings of the symbols are explained in „Übersicht der Registerkarten im Menü ***Service***“ auf Seite 10-8.

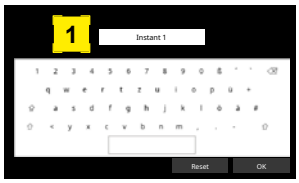
Input buttons

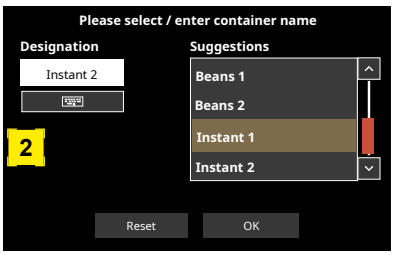
Input buttons either trigger an action directory or take the user to a lower-level menu. Most menu windows feature an X symbol [0] in the top right corner, which is used to close the window. To make things clearer, the X symbols are not shown on the windows in this chapter.

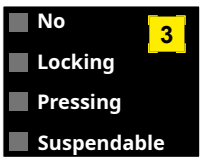


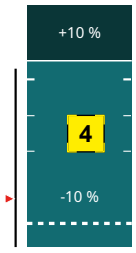
Parameter fields

Parameter fields are used to display or change texts and parameter values. Some fields, such as checkboxes, can be modified directly by clicking on them. With other fields, clicking on them opens another window, where the corresponding values for the field can be adjusted and then saved. Values can usually be entered via a keyboard window [1]. If a button is pressed for longer than 1 s, the special characters assigned to it appear. "Suggestion lists" [2] have been created for more complex fields; the user can select the value they want from this list and then save it. For optional settings, an option selection window [3] opens.









Graphical controls

With graphical controls, values can be changed directly using the on-screen symbol (example) [4]. Change the values by tapping or moving the elements, for example.

Overview of operation and menu navigation

The coffee machine features a touch display, where the controls or menu items can be selected and, where applicable, changed simply by touching them. Pressing the menu symbol [1] on the start screen takes the user to the coffee machine's operator menu [2] at one side of the screen. From here, the user can access the coffee machine's other submenus. If no button is pressed for approx. 5 seconds, the side menu closes again automatically. The side menu also closes if a menu page is tapped to select it or if one of the buttons is pressed there. The side menu can also be closed straightaway by pressing the double-arrow button [3].

Help side menu

The ***Help*** menu shows useful information on various topics such as how to clean the coffee machine.

Selection side menu

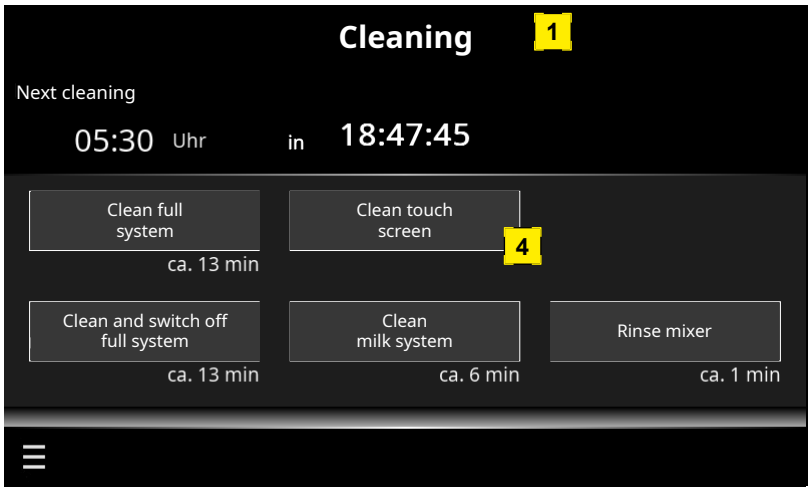
Pressing the ***Selection*** menu item closes the side menu and displays the start screen and product dispensing buttons in full again.

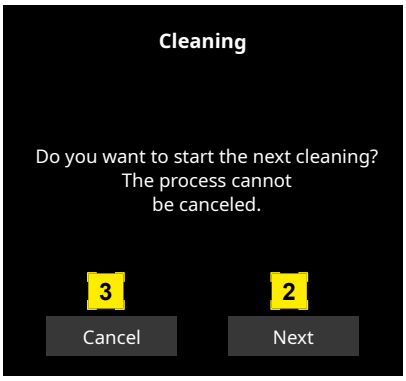
Cleaning side menu

Pressing the Cleaning menu item opens the cleaning screen.

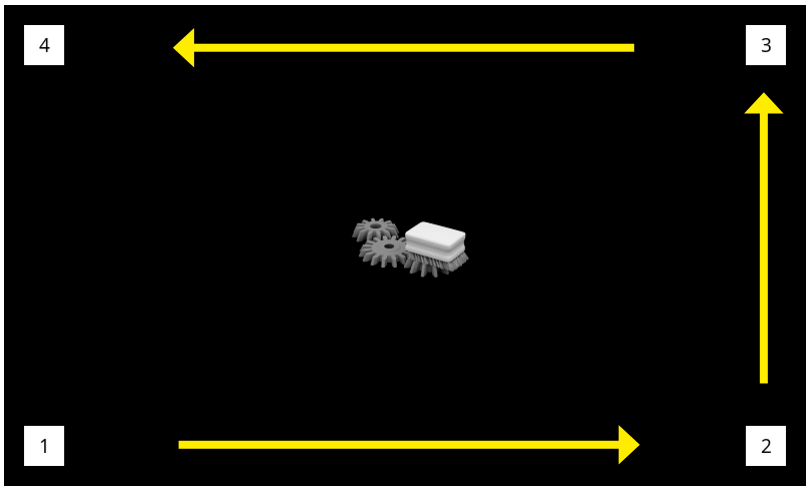
You can start the available cleaning programs on the cleaning screen [1]. The expected duration of a cleaning program is shown underneath the relevant button. This screen also indicates when the next cleaning operation must be performed.

After you have pressed a button for a particular cleaning program, a confirmation window appears, which you must acknowledge with Continue [2] in order to start the cleaning program. The operation cannot be canceled after this point. If you do not want to start the selected cleaning program, choose Cancel [3] instead.





The ***Clean touch screen*** button [4] can be used to lock the touch display so you can clean the screen without accidentally activating a button. Then tap the numbers 1, 2, 3, and 4 in order to reactivate the screen for operation.



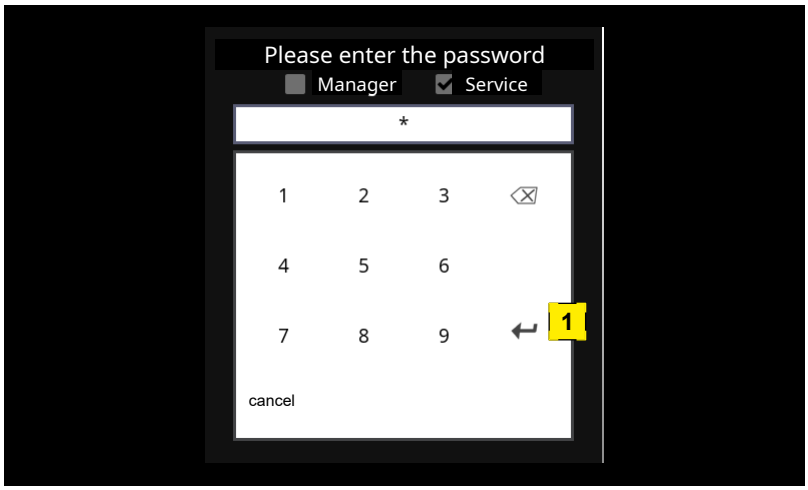
Service menu side menu

The ***Service menu*** contains two levels for operating and programming the coffee machine. Access to these levels is password-protected. To access the ***Manager*** menu or ***Service*** menu, check the relevant box, then enter the corresponding password using the number field.

The default password for the ***Manager*** menu is "1111".

The default password for the ***Service*** menu is "5049".

After entering the password, confirm it by pressing the ***Enter*** button [1]. The first screen of the ***Manager*** or ***Service*** menu will then appear. The main menu items are shown as tabs and look the same for both the ***Manager*** and ***Service*** menu levels. Some submenus and menu items are only visible on the ***Service*** level. This manual presents all the submenus and menu items, including those which are not visible in ***Manager*** mode, so as to provide a comprehensive description of every menu item. These menus and menu items (available in ***Service*** only) are marked in red to make things clearer.

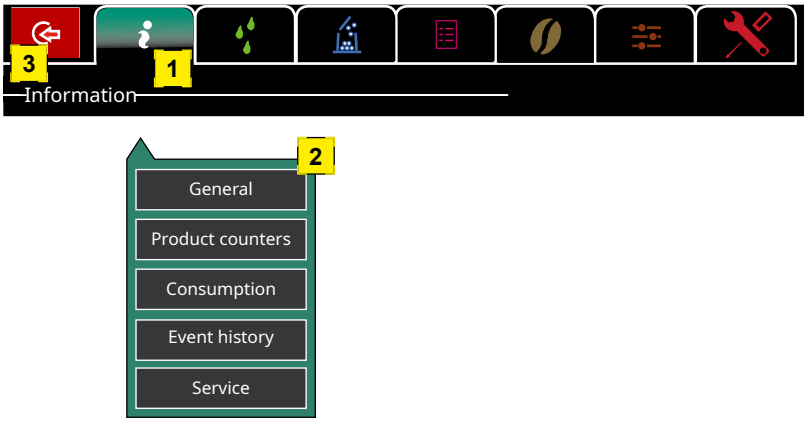


INFO

Tip: You can change the passwords in the „Parameter Betrieb“ auf Seite 10-25 menu. If you do not know the password, you can access the Service menu without a password by connecting a jumper plug. Then you can reset the password as you wish.

The main menu in the *Service* menu

The main menu consists of 7 tabs, whose categories are each represented by a corresponding symbol at the top of the screen. To switch to a tab, press the required symbol. The symbol corresponding to the tab that is currently active has a color gradient applied to its background (in this example, it is the first menu, ***Information*** [1]). The other, non-active tabs are shown in their respective menu color, on a black background. The corresponding submenus [2] are also shown in these same menu colors. Use the Exit symbol [3] to leave the Service menu and return to the start screen.



Overview of tabs in the *Service* menu

First of all, here is an overview of the main menu. The submenus and their content are then described in detail on the following pages.

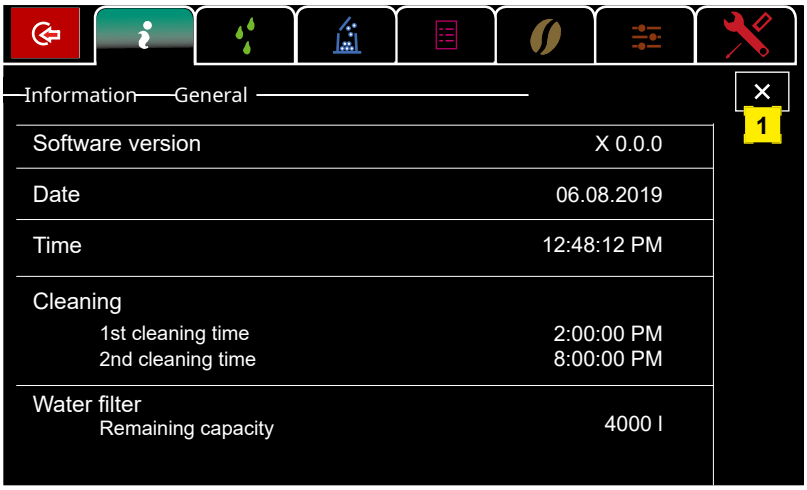
** Red available in Service only*

Symbol inactive	Symbol active		Submenus
		Information	General, Product counters, Brewing duration, Event history, Consumption, Service
		Cleaning	Clean full system, Clean touch screen, Clean brewing system, Clean and switch off full system, Rinse mixer, Clean milk system, RESET enforced cleaning, Switch off
		Filling levels	Filling level Beans 1 / 2, Filling level Instant 1 / 2
		Product selection	Add products and product groups to the product selection page, change, move, or clear
		Product parameters	General, Mixing sequence, Components, Billing
		Configuration	Mode, Time / Date, Language, Lighting, Cleaning
		Service menu	Machine variant, Machine parameters, Operating parameters, Water filter, Product dispensing, Pre-heating, Billing, Component test

The *Information* tab

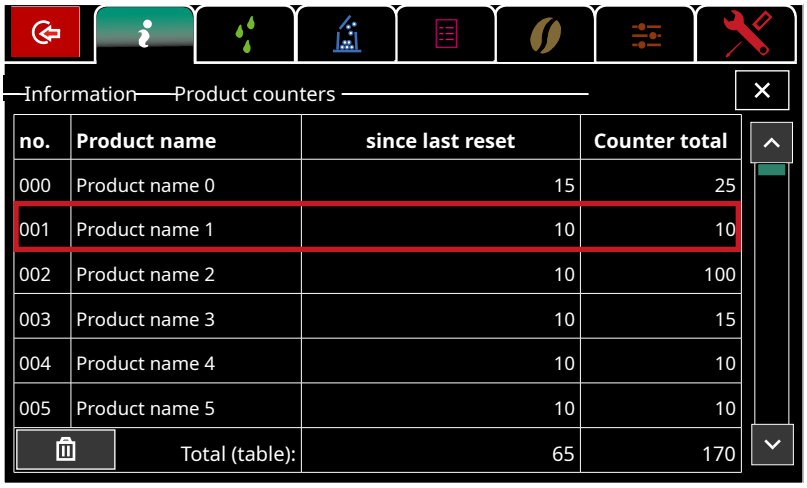
General submenu

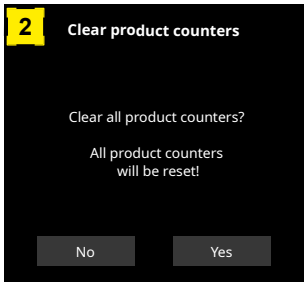
No settings can be made in this menu. General status information such as the ***Software version Date***, and ***Time*** is shown here. The set cleaning times are shown under ***Cleaning***. The ***Remaining capacity*** of the water filter that is fitted upstream of the coffee machine is shown under ***Water filter***. The X button [1] takes you back to the higher-level menu.



Product counters submenu

The day counters and total counters for the products being dispensed can be shown in this menu or the day counters can be cleared. Click on a product (red border) to reset its individual counter independently of the other products that are available. Before the reset is finally performed, you will see a message window [1], which you must then confirm with ***Yes*** to clear the counter. If no product is selected, all the available product counters can be reset. In this case too, before the reset is finally performed, you will see a message window [2], which you must then confirm with ***Yes*** to clear the counters.

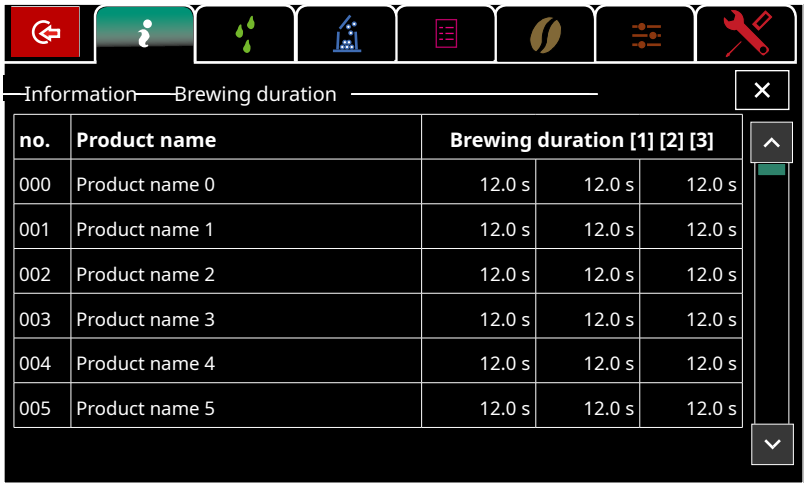




Brewing duration submenu

The brew durations for the coffee products being dispensed are shown in this menu.

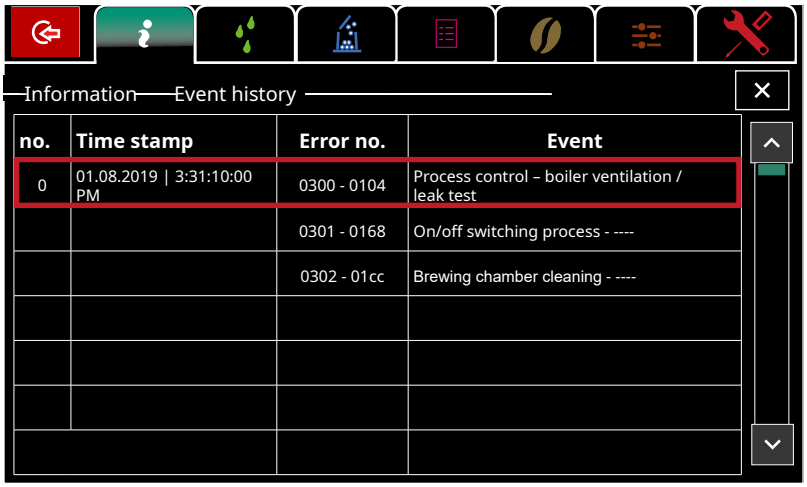
The last three brew durations for each product are shown in seconds.



no.	Product name	Brewing duration [1]	[2]	[3]
000	Product name 0	12.0 s	12.0 s	12.0 s
001	Product name 1	12.0 s	12.0 s	12.0 s
002	Product name 2	12.0 s	12.0 s	12.0 s
003	Product name 3	12.0 s	12.0 s	12.0 s
004	Product name 4	12.0 s	12.0 s	12.0 s
005	Product name 5	12.0 s	12.0 s	12.0 s

Event history submenu

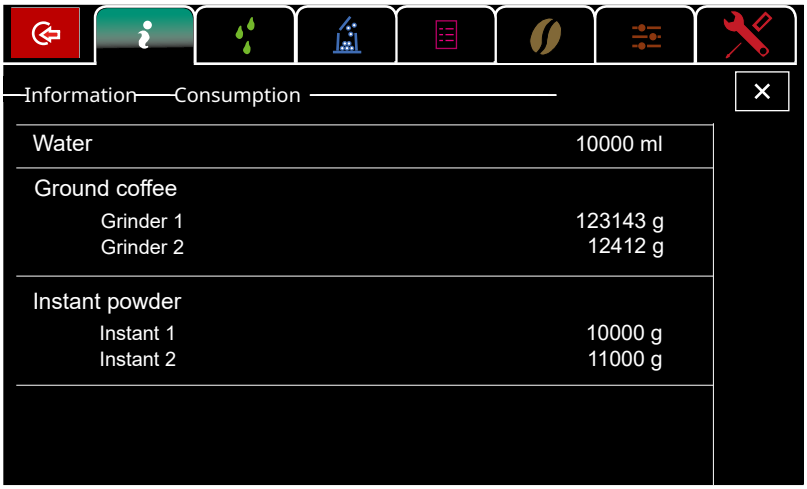
This menu logs the coffee machine's events and errors. Every logbook entry consists of a consecutive number and the time when the error occurred. An internal number indicates the work step during which the error occurred. The next column contains a description of the event in plain text. If an error entry is selected (red border), the subentries belonging to those error numbers are displayed. The subentries do not have their own numbers or time stamps.



no.	Time stamp	Error no.	Event
0	01.08.2019 | 3:31:10:00 PM	0300 - 0104	Process control – boiler ventilation / leak test
		0301 - 0168	On/off switching process - ----
		0302 - 01cc	Brewing chamber cleaning - ----

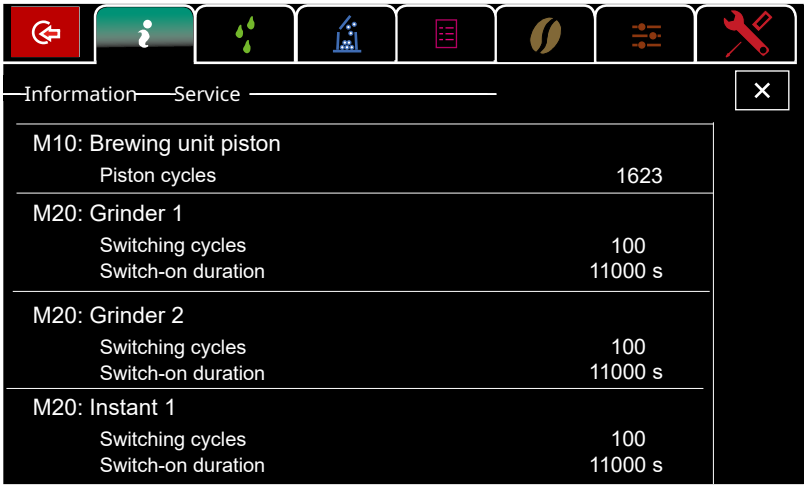
Consumption submenu

The usage statistics for raw materials such as water, ground coffee, instant powder, and milk are totaled and shown in this menu. These counters cannot be cleared and apply to the coffee machine's total lifecycle.



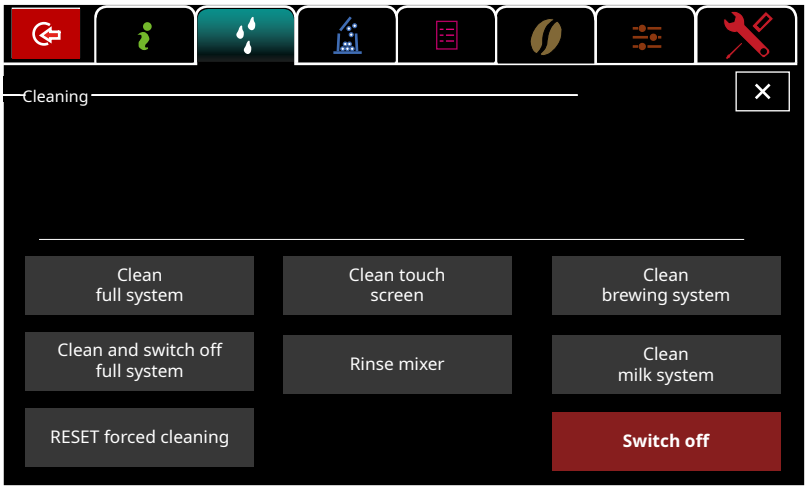
Service submenu

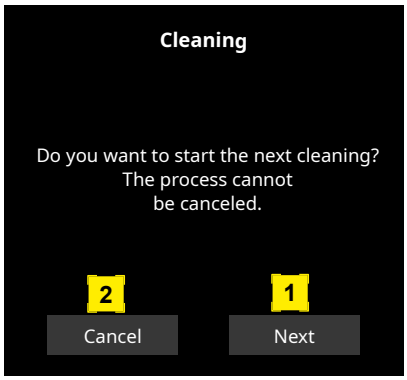
The switch-on frequency and switch-on durations of the coffee machine's electrical components over their lifetime are recorded in this menu.



The *Cleaning* tab

After you have pressed the start button for a particular cleaning program, a confirmation window appears, which you must acknowledge with Continue [1] in order to start the cleaning program. The operation cannot be canceled after this point. If you do not want to start the selected cleaning program, choose the ***Cancel*** button [2] instead.





Clean full system button

All activated systems, e.g., the brewing system and the milk system, are cleaned. After the cleaning programs end, the coffee machine is ready to dispense again.

Clean and switch off full system button

All activated systems, e.g., the brewing system and the milk system, are cleaned. Afterwards, the coffee machine enters standby.

RESET enforced cleaning button

An upcoming forced cleaning operation can be temporarily bypassed for service purposes.

Clean touch screen button

The ***Clean touch screen*** button [4] can be used to lock the touch display so you can clean the screen without accidentally activating a button. Then tap the numbers 1, 2, 3, and 4 in order to reactivate the screen for operation.

Rinse mixer button

The mixer of the instant system is rinsed with water to clear any powder residue.

Clean brewing system button

The brewing system is cleaned separately. Afterwards, the coffee machine is ready to dispense again.

Clean milk system button

The milk system is cleaned separately. Afterwards, the coffee machine is ready to dispense again.

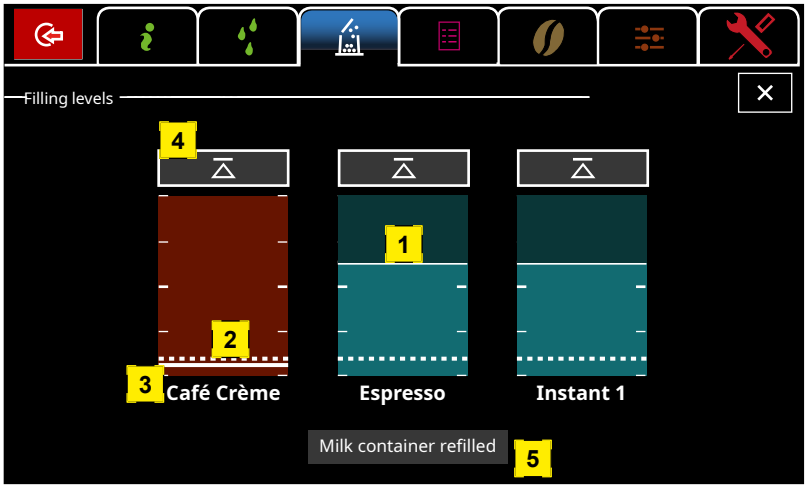
Switch off button

The coffee machine enters standby without being cleaned beforehand. It may be necessary to clean the coffee machine the next time it is switched on before using it.

The *Filling levels* tab

Filling levels main window

The main window of the ***Filling levels*** tab shows the filling levels of the supply containers used in the coffee machine in graphical format. In this example, you can see the ***filling levels*** for the Café Crème and Espresso bean containers, as well as the filling level for instant container 1.

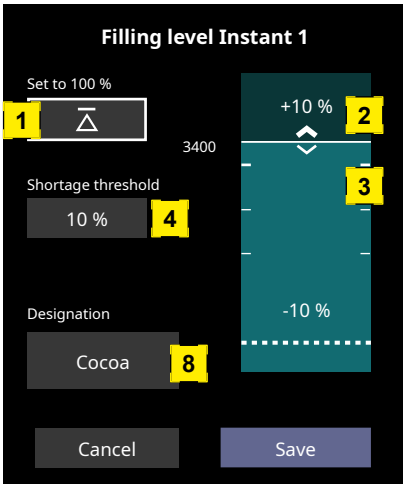


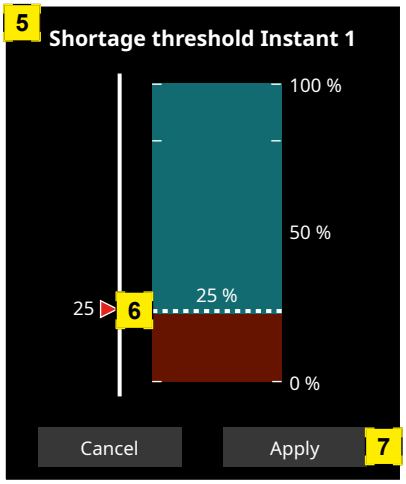
The solid white line [1] indicates the current filling level of the container. The dashed white line [2] indicates its shortage threshold. If the filling level drops below this value, the container concerned is shown in red. If the filling level drops below this value [3] during operation, a corresponding message and/or notification appears in the message dialog. Press the ***Milk container refilled*** button [5] to confirm that the milk has just been refilled. After this button is pressed, a milk suction process is started to refill the milk lines before the next milk product is dispensed.

If a container has just been completely refilled, the filling level indicator can be reset to full by pressing the arrow button [4] above the container symbol. See the "Filling levels settings" section on page 14 for information on how to set the filling level to a particular value.

Filling levels settings

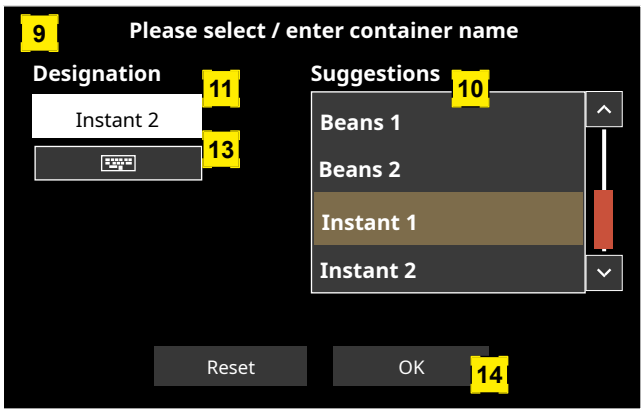
Click on a container symbol in the main window to open the settings menu for that container. Press the arrow button [1] to set the filling level for this container to 100 %, just as on the main screen. Each tap on the container symbol [2] above the solid white line increases the filling level by 100 g. Each tap on the container symbol [3] below the white line reduces the filling level by 100 g.

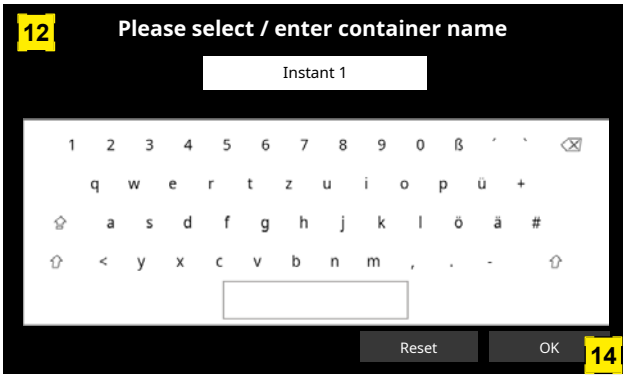




Click on the ***Shortage threshold*** field [4] to open another window [5] where you can adjust the shortage threshold. Move the red arrow [6] to adjust the shortage threshold to the required value. To save the value you have set, press the ***Apply*** button [7]. The window will then close and the Filling levels window is displayed again.

Click on the Designation field [8] to open another window [9] where you can change the designation for the contents of the container, e.g., "Beans 1" or "Cocoa". In this window you can select the required designation from a suggestion list [10] or enter it directly using a keyboard. Click on an entry in the suggestion list to transfer the selected term into the Designation field [11]. The keyboard [12] opens if you click on the Designation field or on the keyboard symbol [13]. To apply the settings, click on the ***OK*** button [14] in the keyboard field and on the container names screen.

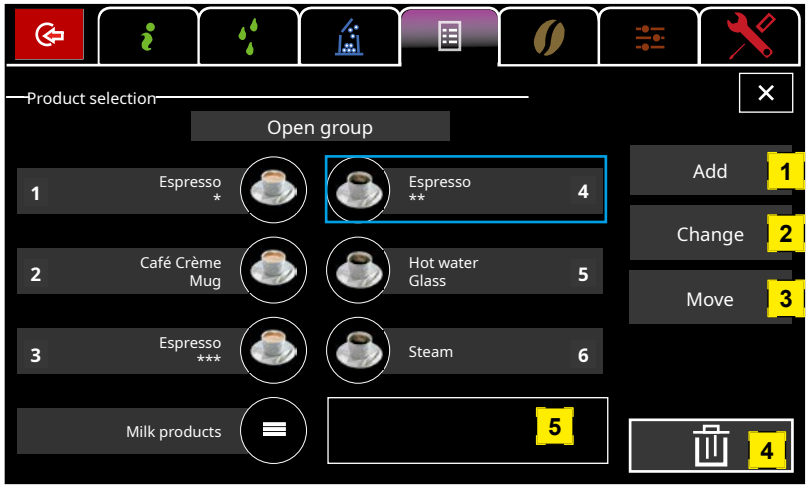




The *Product selection* tab

Button assignment main window

The assignment of buttons on the start screen can be configured in this window. An available product recipe can be assigned to a button, changed, or cleared. In addition, product groups can be assigned to buttons [1], changed [2], moved [3], or cleared [4]. A maximum of eight product or group buttons are possible. Each group can contain a further eight buttons or groups.

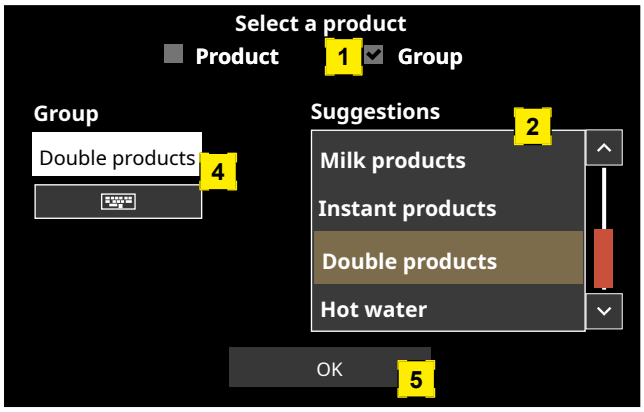


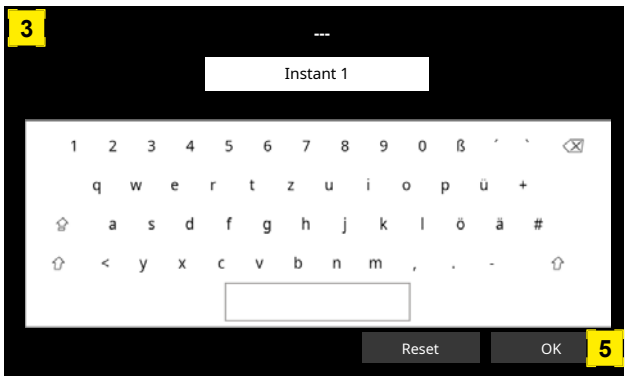
To edit an assigned or an unassigned button, first select it by clicking on it. If an unassigned button is selected, e.g., [5], the ***Add*** button [1] becomes active. Click on ***Add*** and the "Select a product" window [6] opens. In this window you can choose whether to assign a product [7] or a product group [8] to the selected unassigned button.

If you select ***Product*** [7], the list [9] of product recipes currently available in the coffee machine appears. If there is a very large number of products, you can use the buttons under ***Jump to*** [10] to skip to item 25, 50, 75, 100, or the last item in the list. Select the required product from the list and confirm it with ***OK*** [11]. The window closes again and the selected product is now available at the previously unassigned button.

If you select ***Group*** [1], a suggestion list [2] of group names appears. You can select a group name from this list or enter one directly using a keyboard. The keyboard [3] opens if you click on the Designation field or on the keyboard symbol [4]. If the information entered via the keyboard and the selection window are confirmed with ***OK*** [5], the windows close and the selected product group is now available at the previously unassigned button.

If you select a group button in the main window, the group can be opened using the ***Open group*** button, also in the main window. Eight further product buttons or groups can then be added to this group, as described above.





The *Product parameters* tab

Product list main window

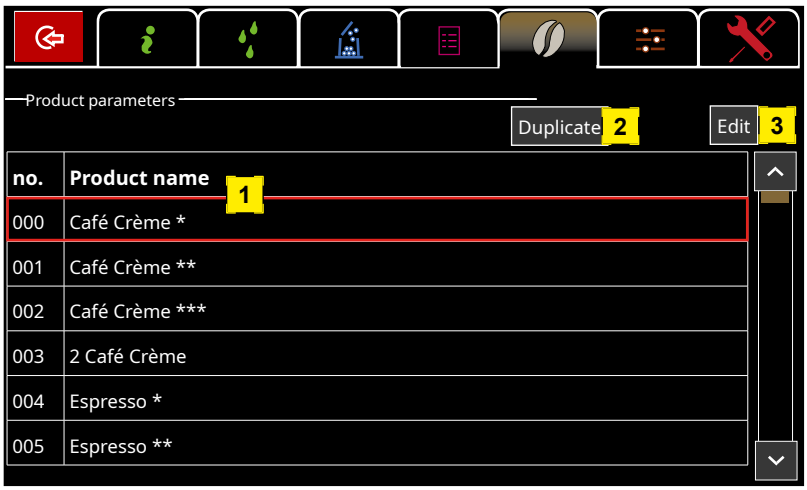
The coffee machine's product list [1] is shown in this window. The list has 128 items, which contain all the product recipes available in the coffee machine. The product recipes are preset at the factory to some extent, but can be modified and tailored to customer requirements as necessary. To adapt a product recipe, select the corresponding item in the list (red border) and press the ***Edit*** button [2].

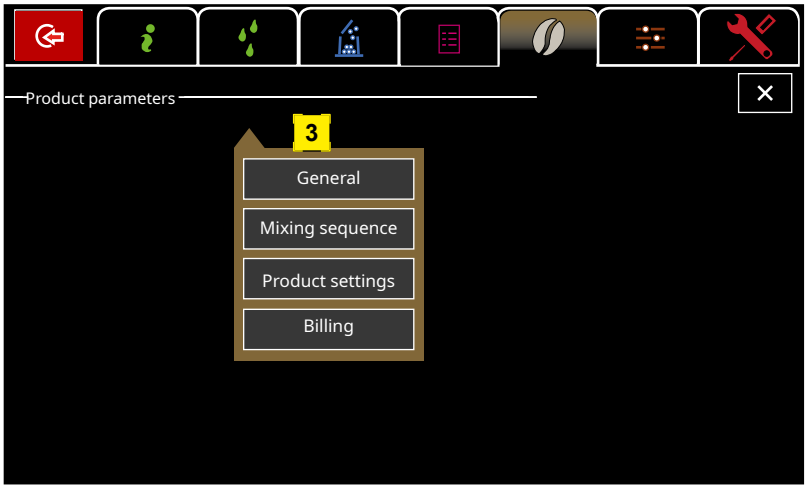
Product parameters main menu

Click on ***Duplicate*** [2] to duplicate an existing product recipe. The new product will be assigned the next available product number.

After you click on ***Edit*** [3], the ***Product parameters*** menu [3] opens.

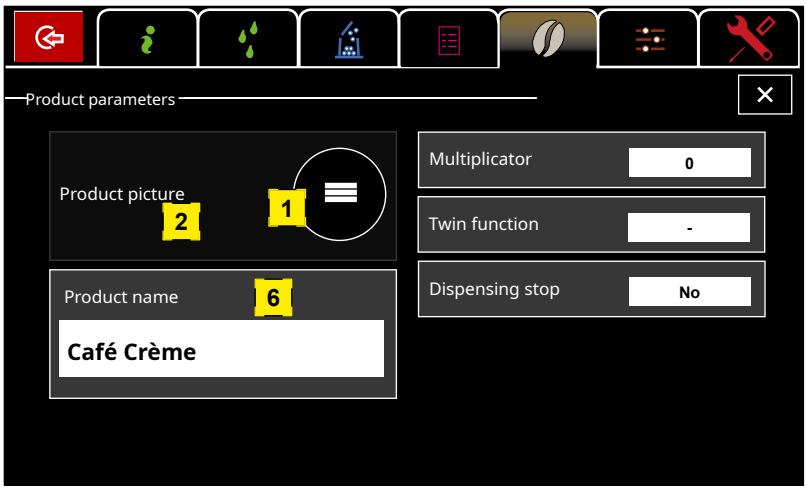
The submenus are used to configure a product recipe. The next few pages provide information on these submenus.

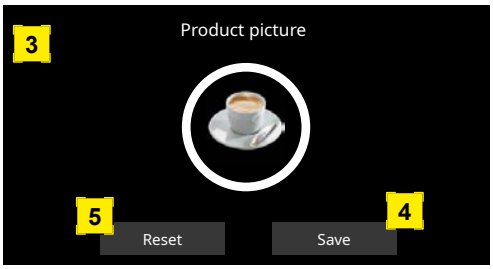




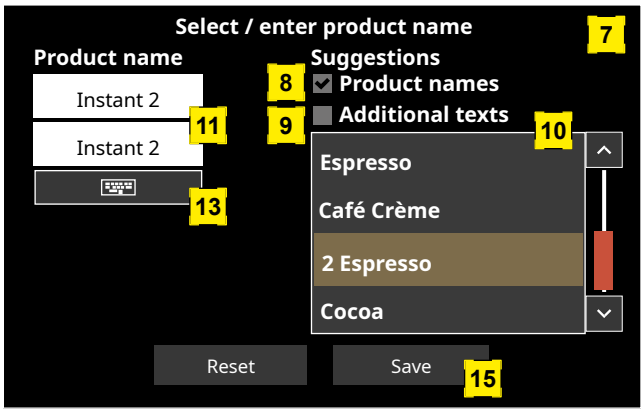
General submenu

General parameters relating to the product are set in this menu, e.g., the ***Product picture*** and the ***Product name***, which are then displayed on the button on the start screen. In a recipe's basic configuration, the group symbol [1] appears as the product picture.





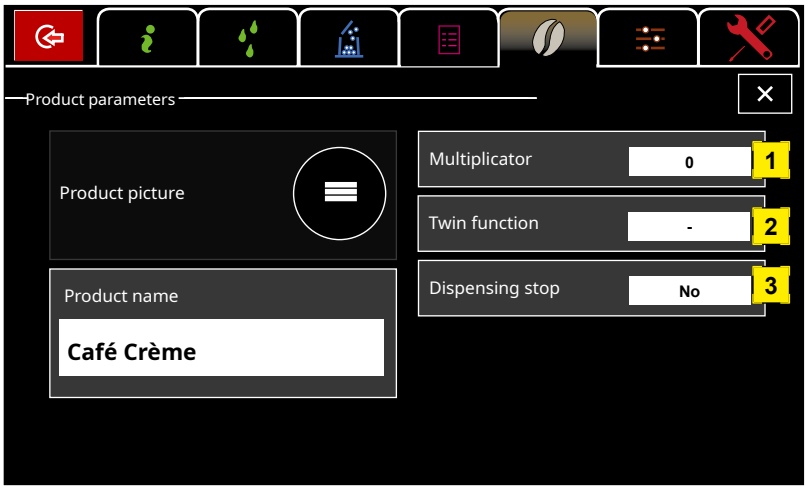
Click on the border around the product picture [2] to open the ***Product picture*** window [3]. You can select a product picture from the saved product pictures here. In this example, a cup symbol has been selected. Transfer the selected ***product picture*** and close the window by clicking on ***Save*** [4]. If you click on ***Reset*** [5] instead, the currently displayed ***product picture*** is removed and the most recently used ***product picture*** is displayed once again.



Click on the product name [6] to open the ***Select / enter product name*** window [7]. In this window you can select the required product name [8] and/or an additional text [9] from a suggestion list [10] or enter it directly using a keyboard. Click on an entry in the suggestion list to transfer the selected term into line 1 or line 2 of the Product name field [11], depending on which line was selected previously. The keyboard [12] opens if you click on the keyboard symbol [13]. To apply the settings, click ***OK*** [14] in the keyboard field and on the ***Save*** button [15] on the product names screen.

Product parameters >> Multiplicator

If the Multiplicator [1] is set to "0" and this product is selected, it will be dispensed once. The selected product can also be dispensed several times in succession by setting the multiplicator to the required value. This enables large receptacles to be filled with just one button press.



Product parameters >> Twin function

If the ***Twin function*** [2] is activated (box checked), you can choose to dispense a single product or a double product after the product itself has been selected.

Product parameters >> Dispensing stop

If the Dispensing stop [3] is set to "No", the selected product will be dispensed continuously until the end. The user cannot stop the product being dispensed.

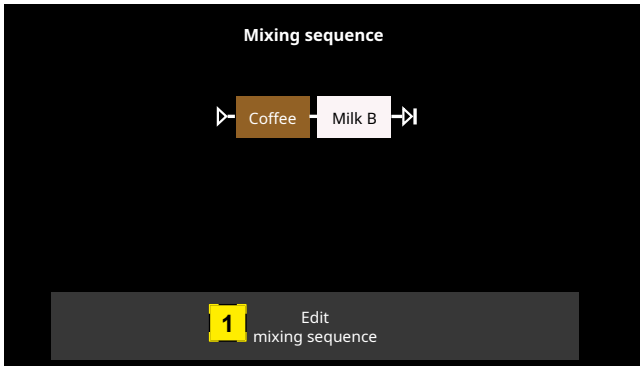
"Pressing" means that product dispensing starts when the product button is pressed and stops again when the button is released.

"Locking" means that product dispensing starts when the product button is pressed and can be stopped by pressing the button again.

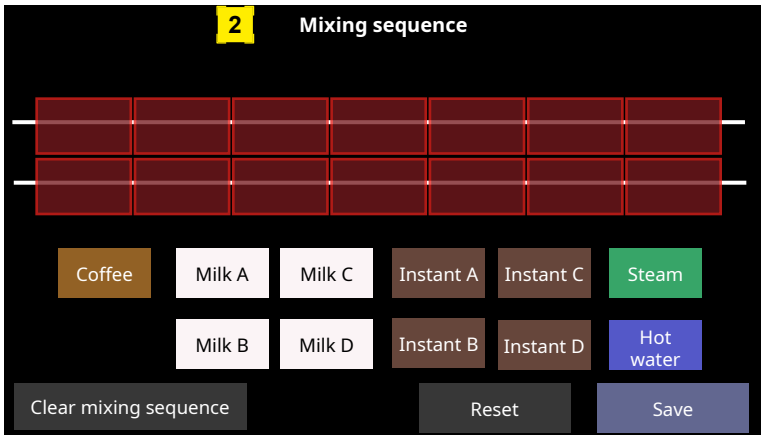
"Can be canceled" means that a product with a multiplicator > 1 can be canceled.

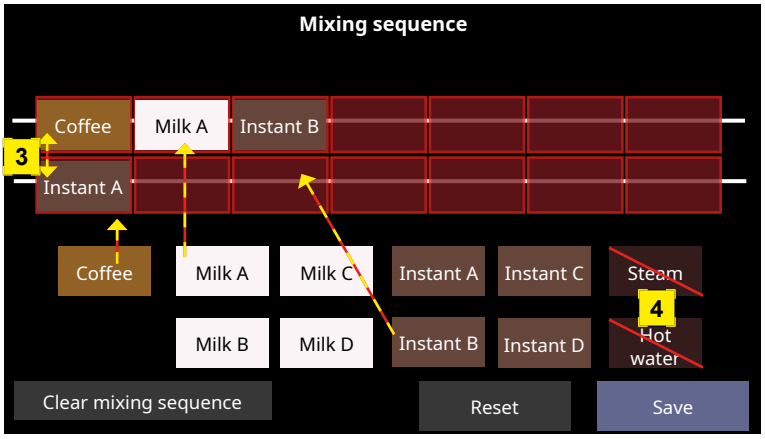
Mixing sequence submenu

In the ***Mixing sequence*** menu, you define which product components make up a product and the order in which those components should be dispensed.



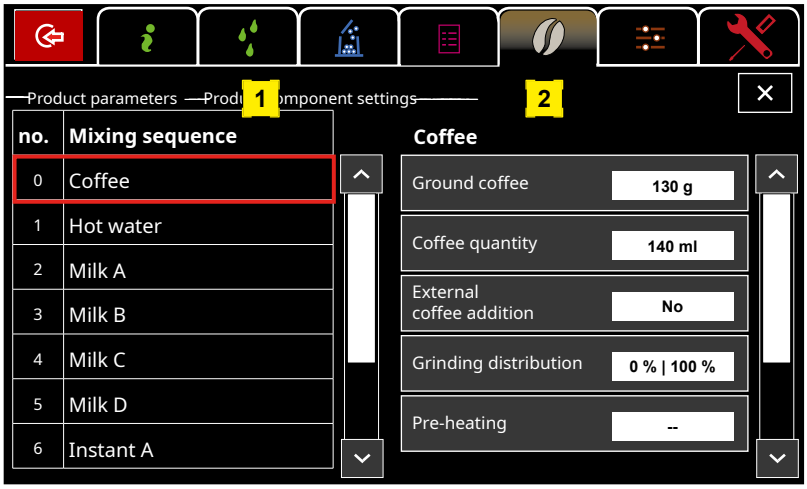
Click on ***Edit mixing sequence*** [1] to open the ***Mixing sequence*** configuration screen [2]. The components of a product can be defined here and put in the correct order. To do this, touch the required components and drag them to the desired position. When you take your finger off the screen, the component will stay in that position. If components should be dispensed at the same time, arrange them one above the other [3]. Components that cannot be combined with the components already used in the mixing sequence, e.g., steam and hot water in this example [4], are crossed through and cannot be moved into the mixing sequence. Save a new mixing sequence with ***Save***.





Product component settings submenu

The dispensing parameters for every component in the defined ***Mixing sequence*** are set in the ***Components*** menu. The list of components used in the recipe are shown in the mixing sequence on the left [1]. All the parameters [2] of the component currently selected in the list on the left (in this example: coffee, with a red border) are shown on the right-hand side.



The parameters for each product component are described in the table below. The parameters for milk components A–D are identical, which is why the parameters for ***Milk*** are described only once by way of example in the list. Likewise the parameters for instant components A–D are also identical, which is why the parameters for ***Instant*** are described only once by way of example in the list.

ACS light

Notes on recipes that are to be used for the *ACS light* function

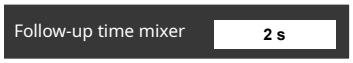
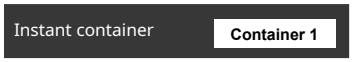
The ***ACS light*** function sets the grinding performance in [g/s] depending on the puck height during pressing out. Only products with a grinding distribution of 100 % at grinder 1 or grinder 2 can be used as reference products. It makes sense to choose the products that are used most often as reference products. The ground coffee quantity must be at least 6.0 g for ACS light to be active.

ACS light can be activated in the ***Operating parameters*** „ACS Light“ auf Seite 10-28 menu. You also access the settings for reference products via this menu. First of all, select the required reference product using the "Grinder x reference product ID" button.

Press the "Set grinder x reference product" button to access the settings for the selected reference product. To preset the grinding performance, products must be triggered here until the "Puck height" display turns green (95–105 %).

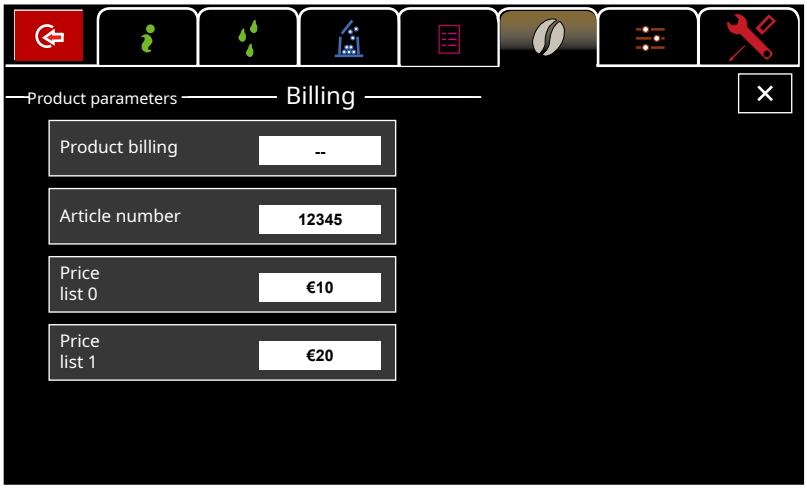
Parameters for *Coffee*	Description
Ground coffee 8 g	The amount of ground coffee that should be ground into the brewing unit for this product. The maximum amount of ground coffee that can be programmed for a product is 20 g.
Coffee quantity 140 ml	Here you can define the amount of water and coffee to use in brewing.

External coffee addition: No	If this parameter is set to ***Yes***, no coffee is ground into the brewing unit from a grinder to prepare this product. Instead, after the product has been started via the dispensing button, a message window prompts the user to add ground coffee. The ***Ground coffee*** and ***Grinding distribution*** parameters are therefore deactivated for this product recipe.
Grinding distribution: 0 % | 100 %	Here you can define which grinder will grind coffee into the brewing unit. On machines with two grinders, a mixed mode using both grinders is also possible. This menu is only active if ***External coffee addition*** is set to ***No***.
Pre-heating: --	If ***Pre-heating*** is activated, a pre-heating program runs prior to brewing if the brewing group is cold (due to a long standstill). The pre-heating program fills the brewing chamber with hot water, waits for a preset time, then empties the brewing chamber. The brewing process is carried out after that.
Bypass: 0 %	The ***Bypass*** parameter can be set within the range 0–100 %. The higher the value that is set, the earlier the bypass valve is actuated after brewing begins. The higher the value that is set, the more water bypasses the brewing chamber and goes straight into the cup. The brewing valve and bypass valve are switched on simultaneously for a while. This shortens the brewing process and dilutes the extracted coffee further with the water that is forced to bypass the brewing chamber. It can make sense to use the bypass function for products with a very large dispensing quantity, e.g., a mug or pot.
Tamping Tamping: 150 N	The brewing unit is closed, which pushes the ground coffee together with a certain amount of force. This "tamping" process is performed dry, with no water added.
Tamping Repressing: 850 N	"Re-tamping" takes place immediately after "tamping". Re-tamping is less efficient if no water is added. Therefore, a small amount of water should be added in advance using the "Pre-infusion" parameters.
Water amount pre-infusion: 0 ml	This is the amount of water injected into the brewing chamber to dampen the ground coffee before re-tamping is performed. This is because damp ground coffee tamps more easily and is distributed more evenly throughout the brewing chamber.
Waiting time pre-infusion: 0 s	This waiting time gives the ground coffee chance to swell. The swelling extends the dispensing time. For products with small water quantities (40–80 ml), pre-infusion can change the taste.
Parameters for *Hot water*	**Description**
Amount: 140 ml	Here you can define the amount of hot water to dispense.
Parameters for *Milk*	**Description applies to milk components A–D**
Amount: 140 ml	Here you can define the amount of milk to dispense.
Preparation: Warm milk	Here you can define how the milk or milk foam should be dispensed. If cold milk is selected, the next parameter ***Temperature*** is inactive.
Temperature: Standard	Here you can define at which temperature level the warm milk or the milk foam should be dispensed. The temperatures for the various levels are defined in the operating parameters. ***Warm***, ***standard***, and ***hot*** are the available options.

Parameters for *Instant*	Description applies to instant components A–D
	Here you can set the intensity of the instant beverage. To ensure the coffee machine complies with the value correctly, the delivery rate for the instant powder being used must be calculated and programmed in.
	Here you can define the amount of instant beverage component to dispense.
	Before the instant beverage is dispensed, the mixer unit can be wetted with water to stop deposits forming, for example.
	After the instant beverage is dispensed, the mixer unit can be rinsed to stop deposits forming, for example.
	The mixer starts running shortly before instant dispensing begins.
	The mixer continues running briefly after instant dispensing ends. Set this parameter to the same value as the water follow-up time.
	Here you can adjust the mixer speed, depending on whether the dispensing operation should create more or less foam. High speed values create more foam.
	Here you can set which instant container will be used to prepare the beverage. The options are Container 1, Container 2, or alternating, if the same powder is used in both instant containers.

Billing submenu

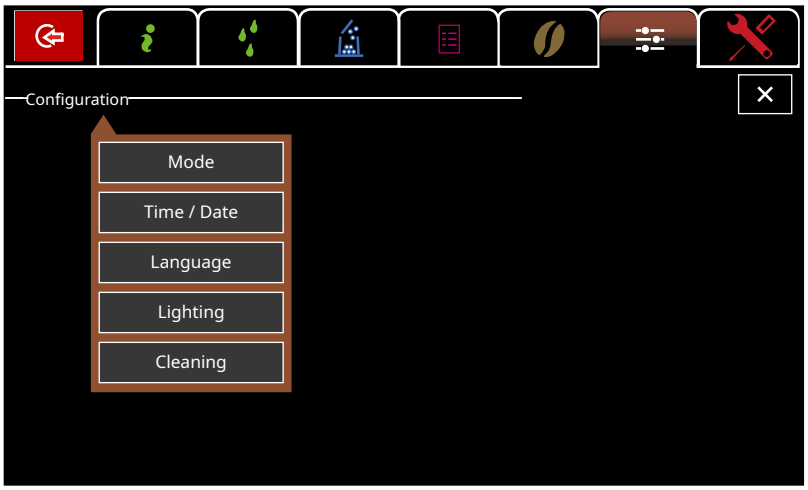
In this menu, a product is configured for the connected billing system. Here you can define whether the product should be billed or not. Select the setting "Yes" and the rest of the parameters will become active. You can assign an article number to the product. You can define two prices for the product, which are sent to the price lists for the connected interface.



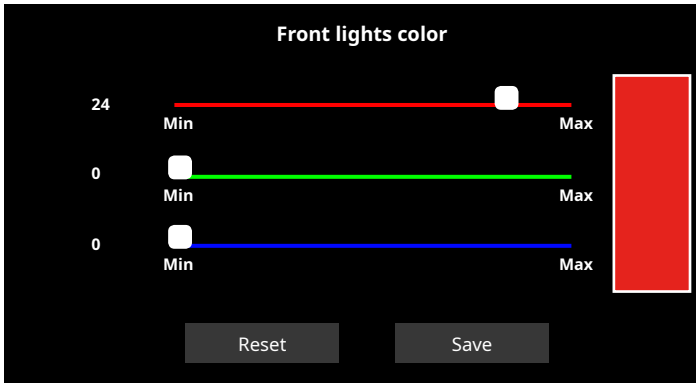
The *Configuration* tab

Configuration main window

Basic settings such as time, date, language, and cleaning times are made in the ***Configuration*** menu.



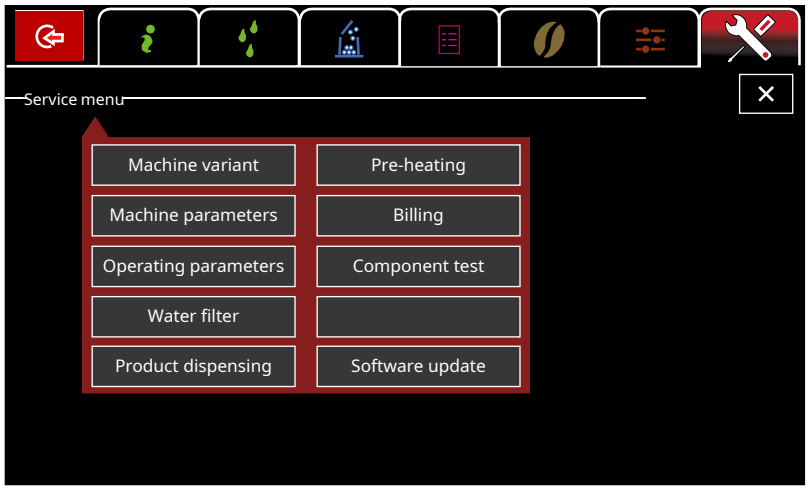
Parameters for *Mode*	**Description**
Clock on main view --	Here you can set whether the current time should be displayed on the main screen or not.
Operating mode Waiter	Here you can define whether the coffee machine should run in waiter mode or in "self-service operation". If self-service operation is selected, the ***"User" password required*** and ***Change password User*** parameters become active.
Change password Manager ****	Here you can change the password for accessing the Manager menu.
Change password Service ****	Here you can change the password for accessing the Service menu.
"User" password required --	If this parameter is activated, you can enter a password for the machine operator under ***Change password User***.
Change password User ****	Here you can change the password for accessing the User menu.
Parameters for *Time / Date*	**Description**
Machine time [HH:MM:SS] 10:30:00 AM	Here you can set the time for the coffee machine.
Machine date [DD.MM.YYYY] 01.09.2019	Here you can set the date for the coffee machine.
Daylight saving time --	Here you can activate or deactivate automatic daylight saving time.
Parameters for *Language*	**Description**
Language selection	A table of the languages available for the coffee machine is shown here. Select the relevant table row to apply the required language.
Parameters for *Lighting*	**Description**

Display brightness operation 80 %	Here you can set the brightness of the display while the coffee machine is operating.
Display brightness standby 80 %	Here you can set the brightness of the display while the coffee machine is in standby.
Display brightness dispensing lighting 80 %	Here you can adjust the brightness of the dispensing lighting.
Brightness front lights 80 %	Here you can adjust the brightness of the front lights.
Front lights color	Click on the ***Front lights color*** menu item to open the settings menu. Here you can adjust the different front light colors using the color sliders. 
Parameters for *Cleaning*	**Description**
1st cleaning time 12:30:00 PM	A reminder to run the first cleaning program will be shown at this time.
2nd cleaning time 6:00:00 PM	A reminder to run the second cleaning program will be shown at this time.
Cleaning interval Brewing system Daily	Here you can define how often the coffee system should be cleaned. The available options are ***Daily***, ***Every 2 days***, ***Every 3 days***, and ***Every 4 days***.

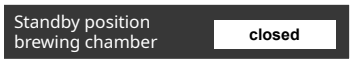
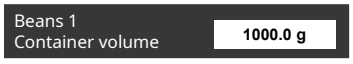
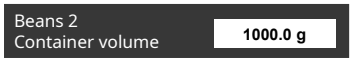
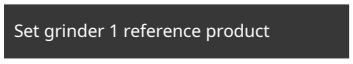
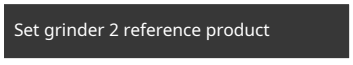
The *Service* tab

Service menu main window

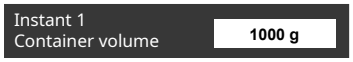
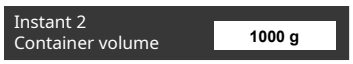
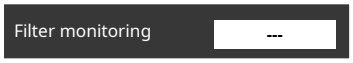
All technical settings relating to the coffee machine's hardware and software are configured in this menu. Only a service technician trained on this type of coffee machine may change these settings.



Parameters for *Machine variant*	**Description**	**Options** / *default*
Grinder 1 available ✔	If grinder 1 is available, this box must be checked.	✔
Grinder 2 available ✔	If grinder 2 is available, this box must be checked.	✔
Steam wand available ✔	If a steam wand is available, this box must be checked.	✔
Milk system available ✔	If a milk system is available, this box must be checked.	✔
Number of instant systems 2	This setting defines whether the coffee machine has one or two instant systems, or none (0).	2
Parameters for *Machine parameters*	**Description**	**Options** / *default*
Machine type/number 1234567 / 1234567890	The machine number found on the name-plate inside the door of the coffee grounds drawer can be entered via this parameter.	---
Flow meter value 1900 1/l	Not usually configured, only if there is a large difference in water pressure.	Standard: 1900 Imp/l
Valve mixing chamber 11.6 ml/s	The volume flow rate must be checked via the ***Component test*** menu and the value corrected in the event of deviations.	11.6 ml/s
Water temperature 92° C	This value can be adjusted if necessary.	92° C

	This parameter has a direct influence on the quantity of milk dispensed, the milk temperature, the consistency of the milk foam, etc. The default value therefore must not be changed.	1.6 bar
	This parameter must not be adjusted.	20 %
	Max. pressing force: 500–1500 N (actual max. pressing force = 1000 N). This parameter must not be adjusted.	1000 N
	The digit entered here relates to the number of coffee products. The setting ***Container*** may only be selected if the integrated container discharge option is in use.	30
Operating parameters for coffee	**Description**	**Options** / *default*
	Position of the brewing chamber when in the standby position.	*Filling position* / closed / closed (empty)
	From the set value, the grinder grinds the ground coffee into the brewing chamber in 2 intervals.	**10–15 g** / *12.5 g*
	The max. filling quantity is entered here. (Only change the default setting in exceptional circumstances.)	**500–6500 g** / *950 g*
	The max. filling quantity is entered here. (Only change the default setting in exceptional circumstances.)	**500–6500 g** / *950 g*
	The reference products can be set after the ACS has been activated. The reference products are cleared again if the ACS function is deactivated.	-
	Here you can select a product recipe to serve as the reference product for grinder 1 from the product list.	-
	Here you can select a product recipe to serve as the reference product for grinder 2 from the product list.	-
	Takes the user to the recipe menu of the reference product selected for grinder 1. See „ACS Light“ auf Seite 10-21.	
	Takes the user to the recipe menu of the reference product selected for grinder 2. See „ACS Light“ auf Seite 10-21.	

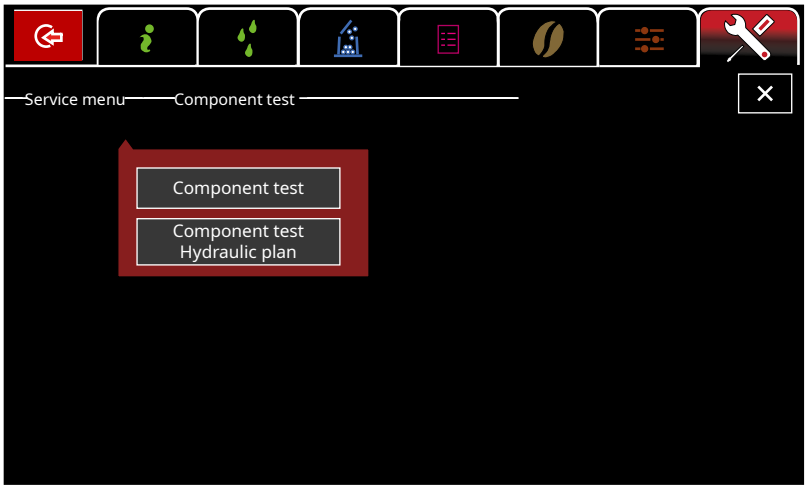
Operating parameters for milk	Description	Options / *default*
Suction duration 2.0 s	This time runs shortly before a product is dispensed in order to remove any rinsing water left over in the milk system from the previous dispensing operation.	
Start-up time cold milk 2.0 s	The start times for cold milk are used to build up the system pressure needed to prepare the products. During the start times, the diverter valve for milk dispensing is switched toward the drain and not switched to dispensing until afterwards.	
Start-up time warm milk 2.0 s	The start times for warm milk are used to build up the system pressure needed to prepare the products. During the start times, the diverter valve for milk dispensing is switched toward the drain and not switched to dispensing until afterwards.	
PWM warm milk warm 50 %	The PWM control value for warm milk in %: • Increasing value = lower temperature • Decreasing value = higher temperature	*30 %*
PWM warm milk standard 20 s	The PWM control value for standard warm milk in %. • Increasing value = lower temperature • Decreasing value = higher temperature	*Calibrate milk system*
PWM warm milk hot 20 s	The PWM control value for hot warm milk in %. • Increasing value = lower temperature • Decreasing value = higher temperature	*Calibrate milk system*
PWM general 60 %	This PWM value is used in the cleaning programs and must not be changed. The value is usually set to a level where the milk pump conveys 100 ml of cold water through the system in 10 s.	
PWM preparation cold milk 100 %	The PWM control value for cold milk in %.	*Calibrate milk system*
Start-up time foam 20 s	The start times for milk foam are used to build up the system pressure needed to prepare the products. During the start times, the diverter valve for milk foam dispensing is switched toward the drain and not switched to dispensing until afterwards.	
PWM foam warm 26 %	The PWM control value for warm foam in %. • Decreasing value = foam firmer and temperature higher • Increasing value = foam less firm and less warm	*Calibrate milk system*

	The PWM control value for warm foam in %. • Decreasing value = foam firmer and temperature higher • Increasing value = foam less firm and less warm	*Calibrate milk system*
	The PWM control value for hot foam in %. • Decreasing value = foam firmer and temperature higher • Increasing value = foam less firm and less warm	*Calibrate milk system*
Operating parameters for instant	**Description**	**Options** / *default*
	The delivery rate for the various instant powders used in instant container 1 can be entered here.	*Weigh out*
	The delivery rate for the various instant powders used in instant container 2 can be entered here.	*Weigh out*
	The capacity of instant container 1 can be entered here.	*550 g*
	The capacity of instant container 2 can be entered here.	*550 g*
	Minimum value for the PWM so instant motor 1 can start up under load without problems. Please do not change these values.	*7 %*
	Minimum value for the PWM so instant motor 2 can start up under load without problems. Please do not change these values.	*7 %*
Parameters for *Water filter*	**Description**	**Options** / *default*
	Here you can define whether filter monitoring should be active. If filter monitoring is activated, the coffee machine notifies the user that the water filter is due to be changed when the entered date is reached, or if the remaining filter capacity reaches 0 l (whichever comes first).	---
	If filter monitoring is active, you can enter the date of the next water filter replacement here. Click on the date field to open a calendar selection menu.	---
	You can enter the remaining capacity of the water filter in liters here. See the corresponding tables from the filter manufacturer for the relevant values.	---
Parameters for *Pre-heating*	**Description**	**Options** / *default*

	If pre-heating is activated, the brewing unit is pre-heated with hot water after the machine has been at a standstill for a certain period.	---
	If no more product has been removed for the set time, the brewing chamber is pre-heated before the next product is dispensed.	---
	The hot pre-heating water remains in the brewing chamber for the set time.	---
	Number of pre-heating processes.	---
Parameters for *Billing*	**Description**	**Options** / *default*
	You can activate a connected billing system here.	---
	You can select the billing mode here. The available options are ***Off***, ***On***, ***Free of charge***, and ***Service***.	*Off*

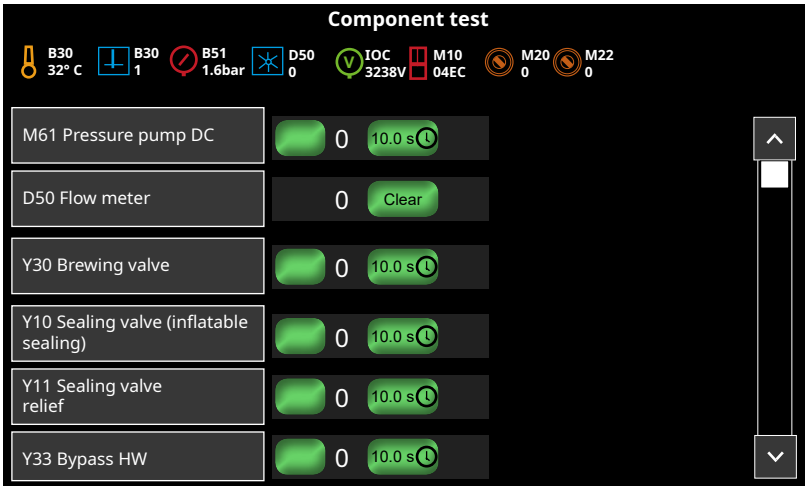
Component test main menu

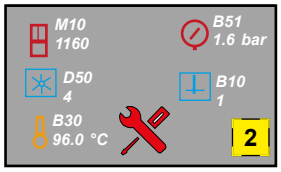
During the component test, you can check the statuses of the analog and digital inputs. All components, such as pumps, valves, and grinders, can be switched on and off for testing. This is done with a switch function or, for some tests such as measuring the flow rate of a valve, on a time-controlled basis. The PWM-controlled motors, such as the piston motor, can also be moved in one direction or the other according to the PWM value setting.



Component test main window

To make installation easier, e.g., with door open or cover removed, the safety loop in the coffee machine can be temporarily bypassed with a jumper plug. The jumper plug is temporarily attached to SV 111. A transparent notification window [1] appears and remains on screen for as long as the jumper plug is connected. The controls can still be operated through this window, although the window can also be moved if necessary. If it is moved outside the left edge of the screen, the machine status is displayed in this window [2].





The status line at the upper edge of the window displays the status of the key inputs in real time.

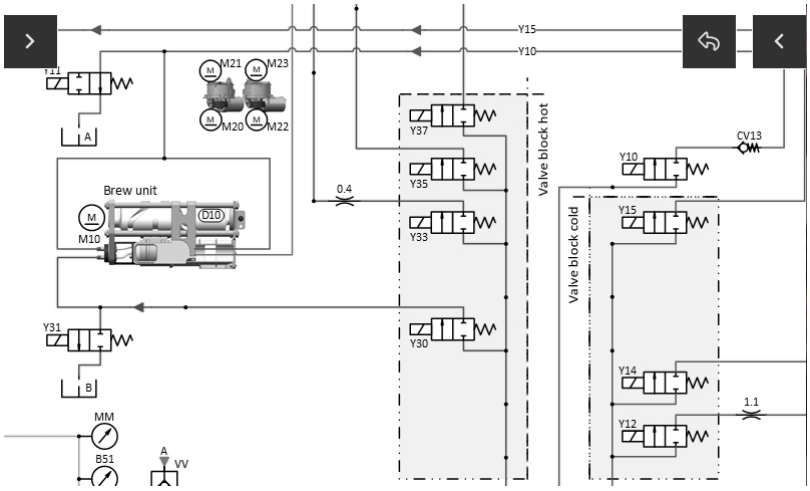
***Component test* menu**	**Control / value**	**Functions**
M61 Pressure pump DC	0 10.0 s	Left button = On / Off Right button = On 10 s
D50 Flow meter	0 Clear	Left button = On / Off Right button = Set to 0
Y30 Brewing valve	0 10.0 s	Left button = On / Off Right button = On 10 s
Y10 Sealing valve (inflatable sealing)	0 10.0 s	Left button = On / Off Right button = On 10 s
Y11 Sealing valve relief	0 10.0 s	Left button = On / Off Right button = On 10 s
Y33 Bypass HW	0 10.0 s	Left button = On / Off Right button = On 10 s
B10 AD SBO level	0.1 - 0x0000 RAW	Filling level SBO + AD raw value HEX
Y12 Filling valve SBO	0 10.0 s	Left button = On / Off Right button = On 10 s
M20 Grinder 1	0 10.0 s	Left button = On / Off Right button = On 10 s
M22 Grinder 2	0 10.0 s	Left button = On / Off Right button = On 10 s
B30 AD CBO temperature	96° C - 0x0000 RAW	Temperature CBO + AD raw value HEX
B51 AD SBO pressure	1.6 bar - 0x0000 RAW	Pressure SBO + AD raw value HEX
S50 Grounds drawer available	1/0	Safety loop switching state
S51 Door closed	1/0	Safety loop switching state
S52 Instant cover available	1/0	Safety loop switching state
Y10 Sealing valve (inflatable sealing)	0 10.0 s	Left button = On / Off Right button = On 10 s
Y11 Sealing valve (relief)	0 10.0 s	Left button = On / Off Right button = On 10 s
Y12 Filling valve SBO	0 10.0 s	Left button = On / Off Right button = On 10 s
Y15 Rinsing valve milk	0 10.0 s	Left button = On / Off Right button = On 10 s

Y14 Cleaning valve milk		Left button = On / Off Right button = On 10 s
Y30 Brewing valve		Left button = On / Off Right button = On 10 s
Y31 Relief valve Brewing chamber		Left button = On / Off Right button = On 10 s
Y33 Bypass HW		Left button = On / Off Right button = On 10 s
Y35 Hot water valve CBO		Left button = On / Off Right button = On 10 s
Y37 Instant valve		Left button = On / Off Right button = On 10 s
Y50 Diverter valve coffee		Left button = On / Off Right button = On 10 s
Y70 Diverter valve milk		Left button = On / Off Right button = On 10 s
Y73 Air valve milk		Left button = On / Off Right button = On 10 s
Y90 Steam valve milk		Left button = On / Off Right button = On 10 s
Y91 Steam valve Steam wand		Left button = On / Off Right button = On 10 s
D10 Piston position		Incremental encoder value HEX
D50 Flow meter CBO		Flow meter value HEX
M10 Brewing unit Piston motor		Left button = On / Off Right button = Change in direction Yellow button = Pulses to zero
M20 Grinder 1		Left button = On / Off Right button = On 10 s
M22 Grinder 2		Left button = On / Off Right button = On 10 s
M40 Instant 1		Slider = PWM 0–100 % Left button = On / Off Right button = On 10 s
M41 Instant 2		Slider = PWM 0–100 % Left button = On / Off Right button = On 10 s
M42 Mixer motor instant		Slider = PWM 0–100 % Left button = On / Off Right button = On 10 s
M61 Pressure pump DC		Left button = On / Off Right button = On 10 s
M65 Milk pump		Slider = PWM 0–100 % Left button = On / Off Right button = On 10 s

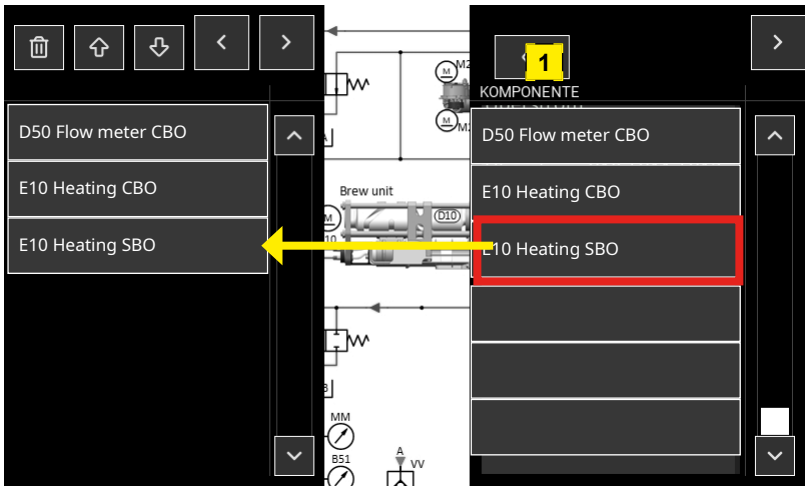
M72 Motor air pump Coffee		Left button = On / Off Right button = On 10 s
M80 Instant fan		Left button = On / Off Right button = On 10 s
E10 Heating CBO		Left button = On / Off Right button = On 10 s
E21 Heating SBO		Left button = On / Off Right button = On 10 s
H21 Outlet lighting left		Slider = 0–255 Left button = On / Off Right button = On 10 s
H22 Outlet lighting right		Slider = 0–255 Left button = On / Off Right button = On 10 s
H31 Stripes lighting red		Slider = 0–255 Left button = On / Off Right button = On 10 s
H31 Stripes lighting green		Slider = 0–255 Left button = On / Off Right button = On 10 s
H31 Stripes lighting yellow		Slider = 0–255 Left button = On / Off Right button = On 10 s
H31 Stripes lighting blue		Slider = 0–255 Left button = On / Off Right button = On 10 s
Buzzer		On / Off
LED red I/O control board		On / Off
LED green I/O control board		On / Off
24V billing system		
I/O control board 24V Power supply voltage	238 V - 0x0000 RAW	Voltage + AD raw value HEX
Power supply Power consumption 24V	0.0 mA - 0x0000 RAW	Current + AD raw value HEX

Component test / Hydraulic plan main window

This menu window presents the coffee machine's hydraulic plan in miniature form. Click on a particular part in the hydraulic plan and hold down to move it to the visible area of the screen. When you touch the hydraulic plan, arrow symbols appear in the top left and right corners of the screen for opening side menus.



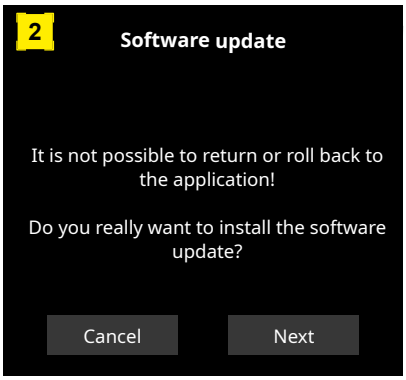
Press the right-hand arrow symbol to open these menus. A list of all the components involved in the component test opens in the right-hand section of the menu. If you select a component (red border), you can move it to the list on the left-hand side by clicking on the arrow above it [1]. You can achieve the same result by dragging list items with your finger.



If you close the side menus, a control appears in the "Component test" menu for each component that has been moved to the list on the left. The components can now be controlled as usual by pressing the symbols.

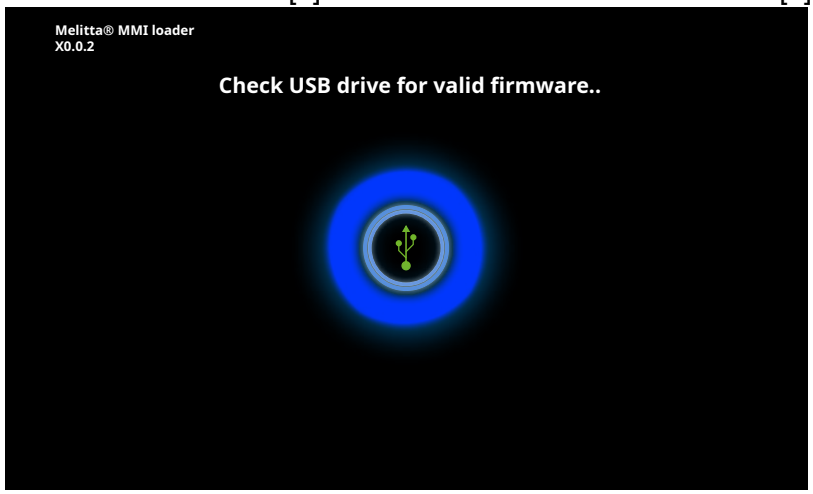
Software update main menu

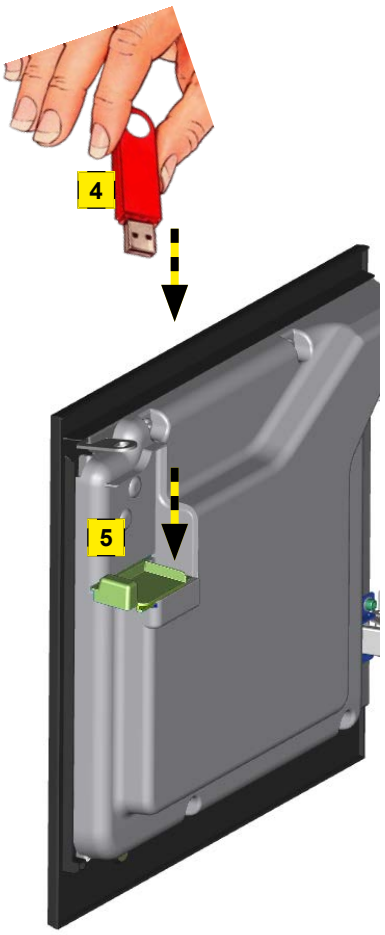
Press the ***Software update*** button [1] to perform a software update. This message then appears [2]:



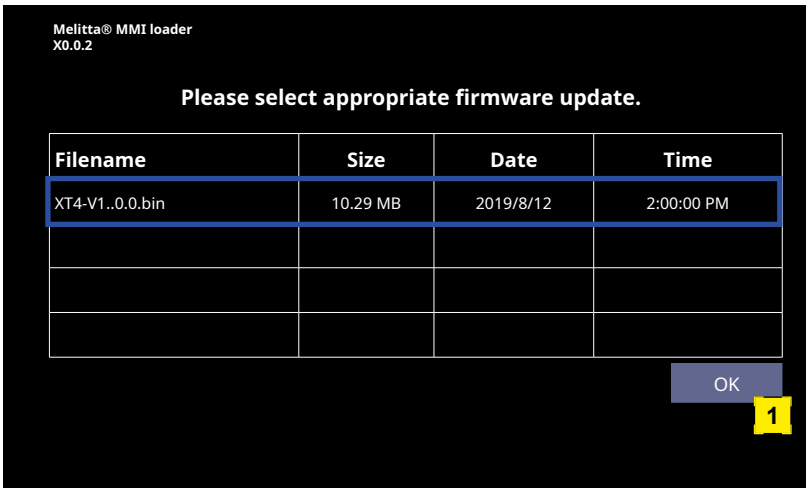
The screen [3] is displayed until the USB drive containing the new software is inserted.

Insert the USB drive [4] into the side of the touch screen [5].

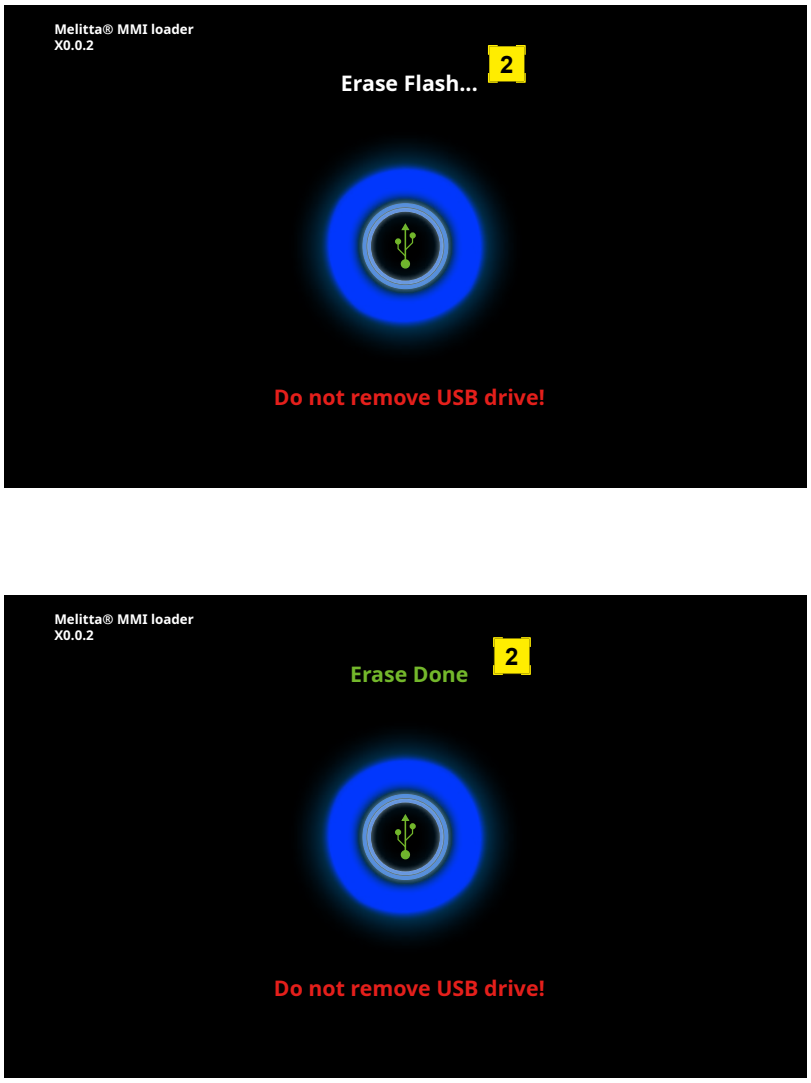




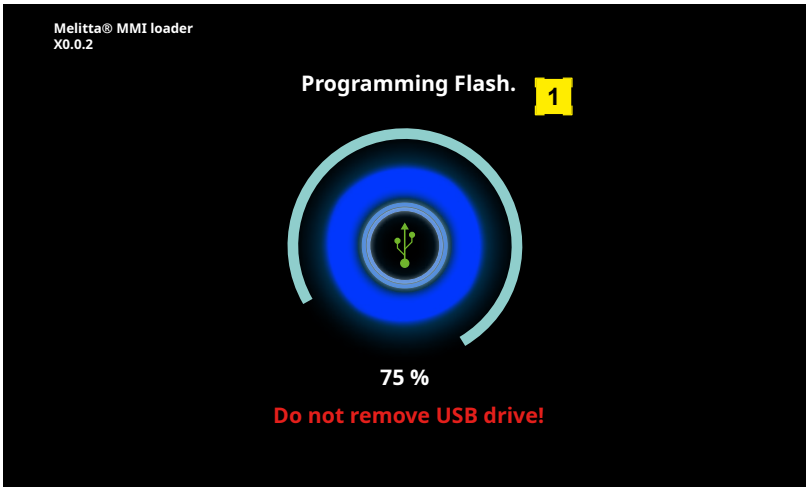
In the next window, select a file for the update. The selection is highlighted by a blue border. Press the ***OK*** button [1].



The program memory is being erased [2], do not remove the USB drive.



The software update is being performed [1].



10 MB take approx. 120 s,
whereas larger updates take longer

The software update is complete, the USB drive can be removed.