

Latte Art Factory Software description

LAF Classic, LAF Bar
January 2023



Latte Art Factory Software description

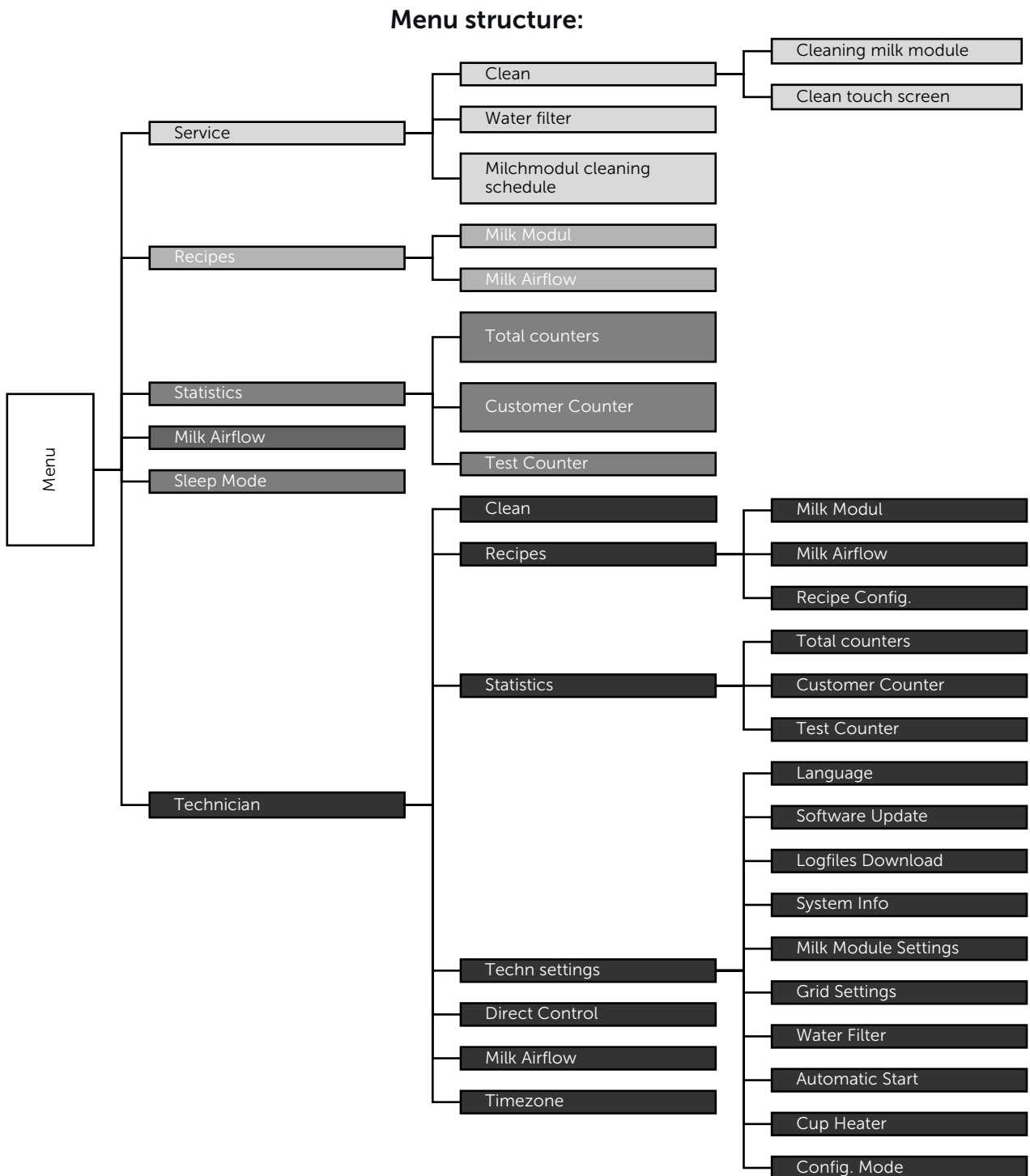
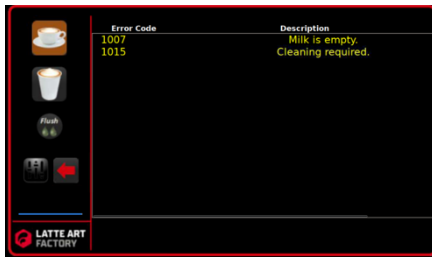


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1.1. Main screen



1.2. Info section

1. Main screen

The main screen is vertically split into 2 zones.

Left side, service:



In-house drinks



To Go drinks



Flush milk outlet with cold water



Exit technician mode



Exit configuration mode



Settings



Active alarms and error messages

 Cleaning counter.

The machine will ask for cleaning when this bar turns grey (after 1 hour of total dispense time since the last cleaning).

Cafes with very high milk consumption might have to clean the LAF more than once a day. Daily cleaning resets the counter.



1.3 Product group

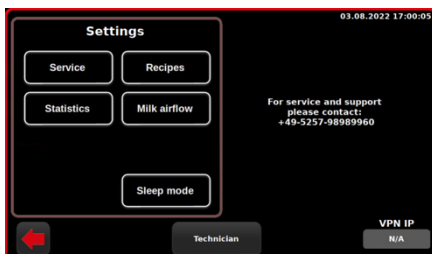
1. Main screen

Right side, drinks:

Swipe left / right – moving between pages

Swipe up / down – switching between Here and Togo drinks selection.

Short press on beverage icon opens the product group or starts dispensing if it is a single product. A product group can contain up to 9 drinks.



2.1 Settings menu

1. Main screen

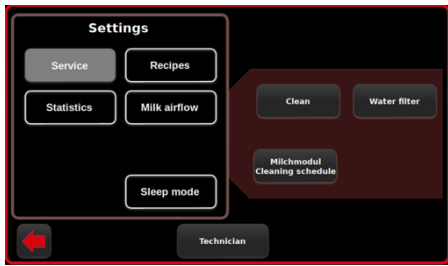
2. Settings



icon enters the settings menu. It is open to user and cannot be locked with a password. The top right corner shows the current date and time. If the date is wrong, connect the machine to the internet and it will be updated automatically. Changing the time is possible in [Timezone](#).

A message with the technical support phone number can be changed through a [language file](#).

The bottom right corner shows the VPN IP number which is used for remote connection. N/A = machine is not online.



2.2 Service

1. Main screen

2. Settings

2.2 Service

This menu is used to start a cleaning, change the cleaning schedule and set a water filter maintenance reminder.




2.3 Cleaning

1. Main screen

2. Settings

2.2 Service

2.3 Clean

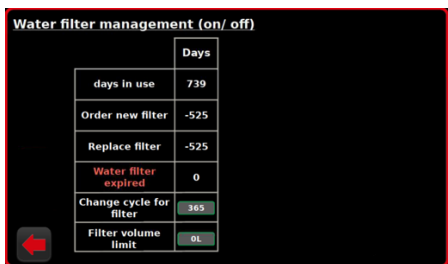
 starts automatic cleaning cycle, after showing two pages of short guidance.

! The machine needs two cleaning tablets, as shown in step 1!

The cleaning manual is available [here](#).

Once the cleaning is confirmed and started, drinks will stay blocked until the cleaning is finished successfully.

1.  icon locks touchscreen for 15 seconds



2.4 Water Filter

1. Main screen

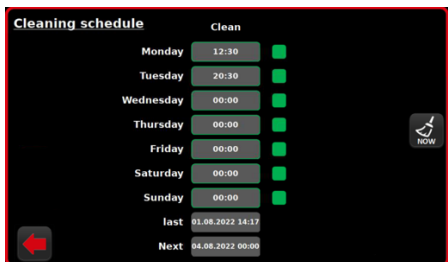
2. Settings

2.2 Service

2.3 Clean

2.4 Water Filter

Shows the lifecycle status of the water filter. It allows to set a reminder message on the main screen to replace the water filter after a certain period **365** (days) or volume **0L** (litres), whichever comes first. Counters can be reset in Technician menu.



2.5 Cleaning schedule

1. Main screen

2. Settings

2.2 Service

2.3 Clean

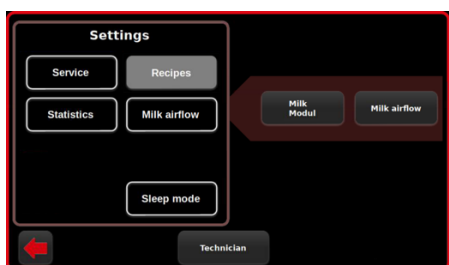
2.4 Water Filter

2.5 Milchmodul cleaning schedule

The cleaning cycle must be done at the end of every day of use. When cleaning is finished, the next is scheduled 3 days after. But as soon as one second of milk is dispensed, the next cleaning is automatically set to 24 hours after the first dispensing (if cleaning schedule is deactivated).

The menu above (figure 2.5) allows setting the exact timing for a cleaning reminder, instead of a 24H countdown. Green box on the right = activated, grey = inactivated.

Example (see picture 2.5): On Monday the machine has been cleaned at 13:00. Next is set to Thursday 00:00. Next morning a beverage is dispensed and Next is automatically changed to Tuesday 20:30



2.6 Recipes

1. Main screen

2. Settings

2.2 Service

2.3 Clean

2.4 Water Filter

2.5 Milchmodul cleaning schedule

2.6 Recipes

The user has full control over all recipes, including dispense times and foam texture. The Milk airflow button can be found four times throughout the menu for easy access, all four open the same settings page.



2.7 Recipe adjustment

1. Main screen

2. Settings

2.1 Service

2.3 Clean

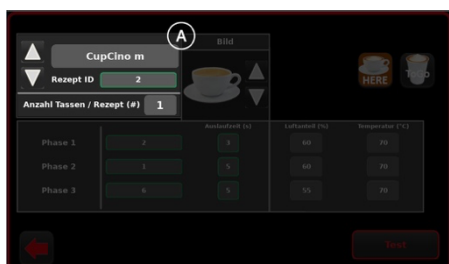
2.4 Water Filter

2.5 Milchmodul cleaning schedule

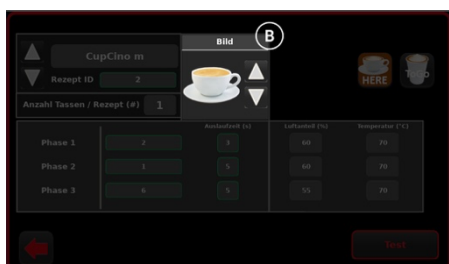
2.6 Recipes

2.7 Milk Modul


This menu is used to adjust single recipes that are present on the main screen. Changing the drinks layout, adding or removing recipes on the main screen check is done through Config mode.





1. Recipe Name [A]







2. Picture associated with Recipe [B]

1. [A] Pressing on the recipe name opens a keyboard to rename, then  saves the input.

Switching between recipes is done by   arrows or by pressing on Recipe ID and typing the recipe number. A list of Recipe IDs can be found in Counters.

Number of cups defines how many cups are written into counters with 1 dispensing. It cannot be changed from settings menu.

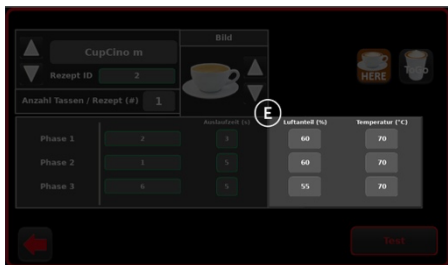
2. [B] Picture can be changed with   arrows from a preloaded library. Uploading custom images is currently not possible.
3. [C]   Every drink at Here section has a corresponding drink at ToGo, but their recipes are set separately and can have different names, foam settings and dispense times.



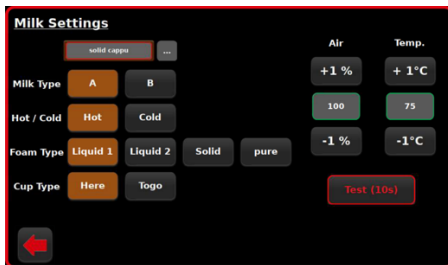
3. Categorise your drink as "Here" or "To go" [C]





4. Adjusting phases & liquid volume amounts [D]



5. Adjusting phases & liquid volume amounts [E]



2.8 Air settings

4. [D] Each drink has 3 dispensing phases. The middle column shows the milk foam type used in that phase. Pressing on it shows the list of foams available and pressing the  icon confirms the new selection. The right column shows **Dispense times** which defines the cup filling volume. Setting the value to 0 skips the dispensing phase.
5. [E] shows air and temperature settings of corresponding phases. Adjustments are done in **Milk Airflow** 

Main screen Settings

2.1 Service

2.3 Clean

2.4 Water Filter

2.5 Milchmodul cleaning schedule


2.6 Recipes

2.7 Milk Modul

2.8 Milk Airflow

The machine can save up to 32 milk foam settings.

Milk Type A can be the main fridge or the left small container; milk type B can be the second fridge or the right small container. If the machine is used with a single fridge and only 1 type of milk, using Milk Type settings is recommended.

 opens a keyboard to rename the chosen milk setting. Air and Temperature (Temp.) are set individually for every milk foam type and names do not limit these settings (setting hot 70°C milk no foam under Cold Solid is possible). Maximum temperature is limited to 75 °C Air settings for latte art liquid foam is normally in the 65-80 °C range,

solid foam 90-99 °C. If the actual setting is far off the range stated above, running a Milk Calibration cycle is recommended. When Air quantity is set too high, milk flow comes interrupted and bubbly and “Error Code 7 Milk is empty” message might appear on the screen. For cold beverages the temperature is set to 0. ! Many plant-based drinks give the best foam texture with a temperature $\leq 65^{\circ}\text{C}$!

Total counters

Cup Type - Here

Cup Type - Togo

Product	Recipe ID	Numbers	Product	Recipe ID	Numbers
Cappuccino	1	0	Cappuccino	1	0
Cappuccino	2	0	Cappuccino	2	0
Cappuccino	3	0	Cappuccino	3	0
Cappuccino	4	0	Cappuccino	4	0
Latte Macchiato	5	0	Latte Macchiato	5	0
Latte Macchiato	6	0	Latte Macchiato	6	0
Latte Macchiato	7	0	Latte Macchiato	7	0
Latte Macchiato	8	0	Latte Macchiato	8	0
Latte Macchiato	9	0	Latte Macchiato	9	0
Latte Macchiato	10	0	Latte Macchiato	10	0
Latte Macchiato	11	0	Latte Macchiato	11	0
Latte Macchiato	12	0	Latte Macchiato	12	0
Latte Macchiato	13	0	Latte Macchiato	13	0
Latte Macchiato	14	0	Latte Macchiato	14	0
Latte Macchiato	15	0	Latte Macchiato	15	0
Latte Macchiato	16	0	Latte Macchiato	16	0
Latte Macchiato	17	0	Latte Macchiato	17	0
Latte Macchiato	18	0	Latte Macchiato	18	0
Latte Macchiato	19	0	Latte Macchiato	19	0
Latte Macchiato	20	0	Latte Macchiato	20	0
Latte Macchiato	21	0	Latte Macchiato	21	0
Latte Macchiato	22	0	Latte Macchiato	22	0
Latte Macchiato	23	0	Latte Macchiato	23	0
Latte Macchiato	24	0	Latte Macchiato	24	0
Latte Macchiato	25	0	Latte Macchiato	25	0
Latte Macchiato	26	0	Latte Macchiato	26	0
Latte Macchiato	27	0	Latte Macchiato	27	0
Latte Macchiato	28	0	Latte Macchiato	28	0
Latte Macchiato	29	0	Latte Macchiato	29	0
Latte Macchiato	30	0	Latte Macchiato	30	0
Latte Macchiato	31	0	Latte Macchiato	31	0
Latte Macchiato	32	0	Latte Macchiato	32	0
Latte Macchiato	33	0	Latte Macchiato	33	0
Latte Macchiato	34	0	Latte Macchiato	34	0
Latte Macchiato	35	0	Latte Macchiato	35	0
Latte Macchiato	36	0	Latte Macchiato	36	0
Latte Macchiato	37	0	Latte Macchiato	37	0
Latte Macchiato	38	0	Latte Macchiato	38	0
Latte Macchiato	39	0	Latte Macchiato	39	0
Latte Macchiato	40	0	Latte Macchiato	40	0
Latte Macchiato	41	0	Latte Macchiato	41	0
Latte Macchiato	42	0	Latte Macchiato	42	0
Latte Macchiato	43	0	Latte Macchiato	43	0
Latte Macchiato	44	0	Latte Macchiato	44	0
Latte Macchiato	45	0	Latte Macchiato	45	0
Latte Macchiato	46	0	Latte Macchiato	46	0
Latte Macchiato	47	0	Latte Macchiato	47	0
Latte Macchiato	48	0	Latte Macchiato	48	0
Latte Macchiato	49	0	Latte Macchiato	49	0
Latte Macchiato	50	0	Latte Macchiato	50	0

Reset

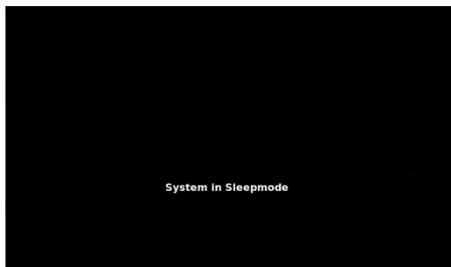
2.9 Counters

- 1. Main screen
- 2. Settings
 - 2.1 Service
 - 2.3 Clean
 - 2.4 Water Filter
 - 2.5 Milchmodul cleaning schedule
 - 2.6 Recipes
 - 2.7 Milk Modul
 - 2.8 Milk Airflow
 - 2.9 Counters

Following counters are available:

- Total
- Customer
- Test

All counters are manually resettable **Reset**. Non-resettable counters are not available in the current release.



2.10 Sleep mode




- 1. Main screen
- 2. Settings
 - 2.1 Service
 - 2.3 Clean
 - 2.4 Water Filter
 - 2.5 Milchmodul cleaning schedule
 - 2.6 Recipes
 - 2.7 Milk Modul
 - 2.8 Milk Airflow
 - 2.9 Counters
 - 2.10 Sleep mode

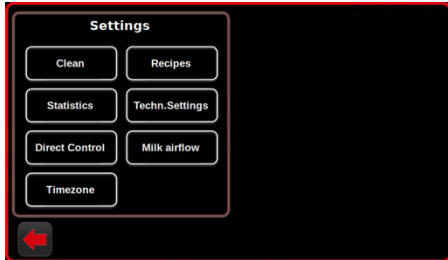
It puts the machine into sleep mode and deactivates the cup heater. Automatic sleep mode can be scheduled under Technician menu.



3.0 Password technician

1. Main screen
2. Settings
3. Technician

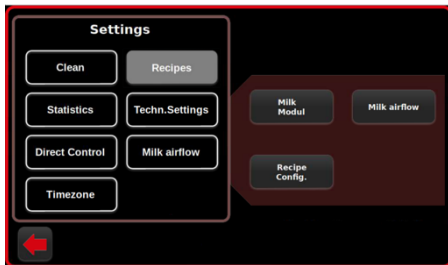
Technician settings are accessible through the button  in the main menu. The default password is 98998998,  to confirm. Once logged in, the machine will stay in the technician access level (will not ask to re-enter the password) until  icon is pressed on the Main screen or the machine gets rebooted.



3.1 Technician menu

1. Main screen
2. Settings
3. Technician
- 3.1 Clean

Duplicates the cleaning from part 2.3
For more info:
Setting | Service | Clean



3.2 Recipes

1. Main screen
2. Settings
3. Technician
- 3.1 Clean
- 3.2 Recipes
- Milk Modul
- Milk Airflow

Duplicate menus from part 2.6 - 2.8
For more info:
Setting | Recipes



3.2 Recipe Config

1. Main screen
2. Settings
3. Technician
- 3.1 Clean
- 3.2 Recipes
- Milk Modul
- Milk Airflow
- Recipe Config.

It is possible to transfer settings from one machine to the other with this submenu.



The USB-stick must be renamed to UPDATESTICK !



downloads settings from a machine. There is no message for

download finished! The USB stick is safe to remove 10 seconds after pressing the



button.



Paste doesn't function in the current version of the software, so to upload machine settings from a USB stick run: [Software update](#)



3.3 Counters

1. Main screen

2. Settings

3. Technician

3.1 Clean

3.2 Recipes

3.3 Statistics

Duplicates statistics menu from part 2.9

For more info:

[Setting | Service | Statistics](#)



3.4 Language

1. Main screen

2. Settings

3. Technician

3.1 Clean

3.2 Recipes

3.3 Statistics

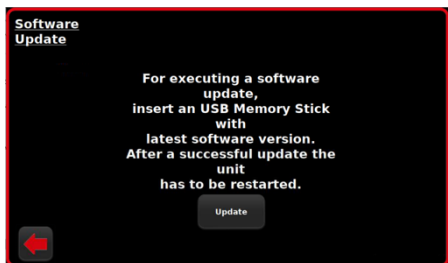
3.4 Techn. Settings

3.4.1 Language

Switches the language for the whole interface; drink names included.

If the desired language is not on the list, the translation form found

[here](#) is to be filled and sent to support@frank-buna.com



3.4.2 SW update

1. Main screen

2. Settings

3. Technician

3.1 Clean

3.2 Recipes

3.3 Statistics

3.4 Techn. Settings

3.4.1 Language

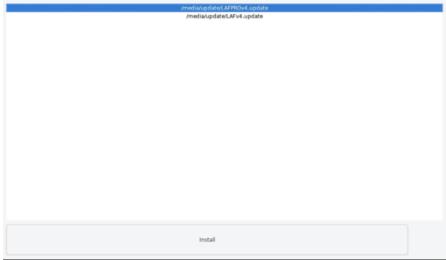
3.4.2 Software Update

This submenu is used to upload software updates and backup settings.

A USB stick named UPDATESTICK and containing update files is plugged underneath the display. There are 2 ways on how the machine handles the updates:


1) before mid-December 2022:

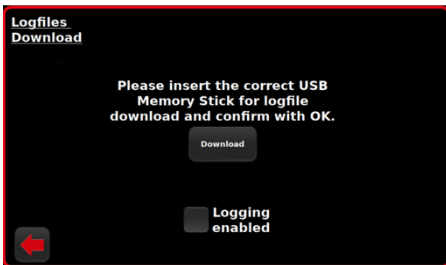
1. The USB stick has to contain usb_update.sh file and Application folder ([Downloadable here](#))



3.7.2 Update with bootloader

2. The update files are placed into an Application folder
 3. The update button activates the procedure
 4. When the interface "crushes" to static noise, it means the update is finished. After that, the USB stick is safe to remove, and a manual reboot is required.
- 2) after mid-December 2022:
1. The name.conf file is put into the root of a USB stick (not in a folder)
 2. Update opens special Bootloader interface
 3. .conf file will appear on the list
 4. Install starts updating procedure

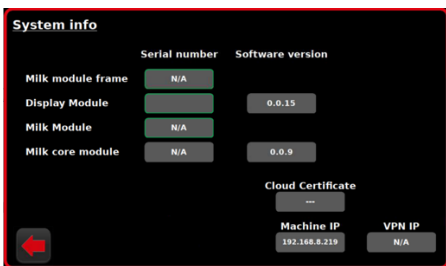
 icon on the bottom-right corner means update finished and manual reboot is required.



3.4.3 Logging

1. Main screen
2. Settings
3. Technician
 - 3.1 Clean
 - 3.2 Recipes
 - 3.3 Statistics
 - 3.4 Techn. Settings
 - 3.4.1 Language
 - 3.4.2 Software Update
 - 3.4.3 Logfiles download

The Machine does not record logs by default, because it would clog the memory over time. Logging is used in special cases for comprehensive troubleshooting. Activation of Logging enabled starts logging data from electric components (conductivity, temperature, current, etc). Upon disabling it, the logfile is created. Download makes a copy of all logfiles onto a USB stick.

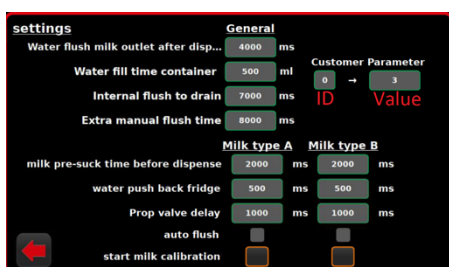


3.4.4 System info

1. Main screen
2. Settings
3. Technician
 - 3.1 Clean
 - 3.2 Recipes
 - 3.3 Statistics
 - 3.4 Techn. Settings
 - 3.4.1 Language
 - 3.4.2 Software Update
 - 3.4.3 Logfiles download
 - 3.4.4 System info

To the left there are serial numbers of modules (not available in SW 0.22). To the right: Software version and firmware ver. right under it. Machine IP number indicates that machine is connected to a network (modem). VPN IP means the LAF is online (connected to the internet). After switching the machine on, it may take up to 5 minutes for the

VPN IP to appear. The page does not auto-refresh itself and needs to be reopened to check the updated info.





3.4.5 Milk module settings

1. Main screen
2. Settings
- > 3. Technician
 - 3.1 Clean
 - 3.2 Recipes
 - 3.3 Statistics
 - > 3.4 Techn. Settings
 - 3.4.1 Language
 - 3.4.2 Software Update
 - 3.4.3 Logfiles download
 - 3.4.4 System info
 - 3.4.5 Milk module settings**

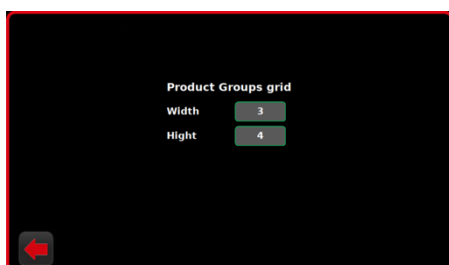
Allows to change different parameters, mostly related to water flushing between dispensing cycles.

To the right, Customer Parameter gives access to the rest of the internal machine parameters through their IDs.

Auto flush controls additional water flush when switching between A and B recipes. If not activated, the machine will block the milk B side drinks after dispensing the milk A drink, until the  button is pushed on the main screen (and block A after B). Switching on Auto flush removes the additional flush.

start milk calibration  performs automatic cycle to limit air valve opening for a given ingredient. Milk A and Milk B are calibrated separately. The result is stored as Customer Parameter ID 8 for milk A and ID 9 for milk B. Factory setting is 50 (35 for LAF Pro), which means Air Setting 100% will open the air valve for only 50% capacity. This way the customer will not be able to stall the machine with too much foam through recipe settings.

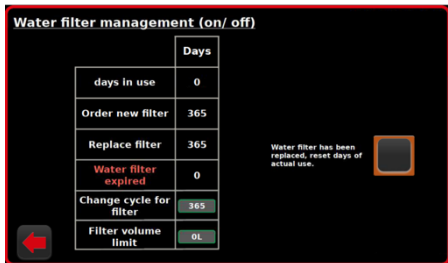
For detailed flushing parameters description there is a LAF Milk module settings description ([Download](#)).



3.4.5 Grid settings


1. Main screen
2. Settings
- 3. Technician**
 - 3.1 Clean
 - 3.2 Recipes
 - 3.3 Statistics
 - 3.4 Techn. Settings**
 - 3.4.1 Language
 - 3.4.2 Software Update
 - 3.4.3 Logfiles download
 - 3.4.4 System info
 - 3.4.5 Milk module settings
 - 3.4.5 Grid settings**

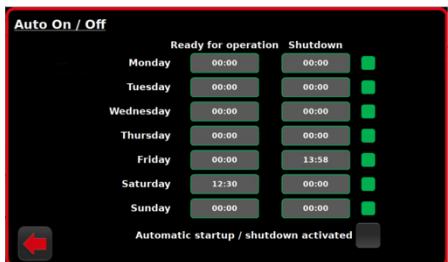
The Grid defines the template of drink's positioning on the main screen. The minimum is 1x1 (1 drink per page), the maximum is 5x5 (25 drinks per page). The images are automatically rescaled to fill the beverages menu area on the main screen (less drinks per page = bigger images)



3.4.7 Water filter management

1. Main screen
2. Settings
3. Technician
 - 3.1 Clean
 - 3.2 Recipes
 - 3.3 Statistics
 - 3.4 Techn. Settings
 - 3.4.1 Language
 - 3.4.2 Software Update
 - 3.4.3 Logfiles download
 - 3.4.4 System info
 - 3.4.5 Milk module settings
 - 3.4.6 Grid settings
 - 3.4.7 Water filter

It shows the lifecycle status of the water filter. It allows to set a reminder message to replace the water filter after a certain period 365 (days) or volume 0L (litres), whichever comes first. Water filter has been replaced  resets the water filter counters




3.4.7 Automatic start

1. Main screen
2. Settings
3. Technician
 - 3.1 Clean
 - 3.2 Recipes
 - 3.3 Statistics
 - 3.4 Techn. Settings
 - 3.4.1 Language
 - 3.4.2 Software Update
 - 3.4.3 Logfiles download
 - 3.4.4 System info
 - 3.4.5 Milk module settings
 - 3.4.5 Grid settings
 - 3.4.6 Water filter
 - 3.4.7 Automatic start

Auto On / Off puts the LAF into sleep mode and deactivates cup

heater.

Automatic start-up / shutdown activated  switches the whole schedule on/off (green = on).



SW ver 0.22 and under: sleep mode can sometimes cause CAN connection lost error (solved by reboot).



3.4.8 Cup Heater

1. Main screen

2. Settings

3. Technician

3.1 Clean

3.2 Recipes

3.3 Statistics

3.4 Techn. Settings

3.4.1 Language

3.4.2 Software Update

3.4.3 Logfiles download

3.4.4 System info

3.4.5 Milk module settings


3.4.5 Grid settings

3.4.6 Water filter

3.4.7 Automatic start

3.4.8 Cup Heater

The LAF & LAF Pro cup heater is controlled by the software. The LAF Bar does not have a cup heater. The second fridge with built-in cup heater is switched manually on its back.

Pressing on the **Heizung aktiviert** button till it lights up in green  switches the LAF's cup heater on. While the machine is in Sleep mode, the cup heater stays off.



3.4.9 Config mode activation

1. Main screen

2. Settings

3. Technician

3.1 Clean

3.2 Recipes

3.3 Statistics

3.4 Techn. Settings

3.4.1 Language

3.4.2 Software Update

3.4.3 Logfiles download

3.4.4 System info

3.4.5 Milk module settings

3.4.5 Grid settings

3.4.6 Water filter

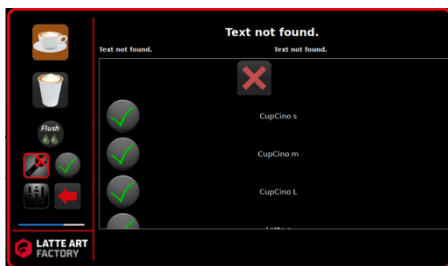
3.4.7 Automatic start



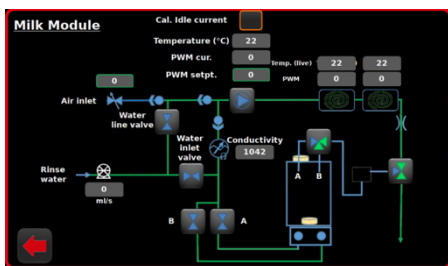
3.4.9 Conf. m. main screen



3.4.9 (1) Conf. m. PGs



3.4.9 (2) Conf. m. drink replacement




3.5 Direct control

3.4.8 Cup Heater

3.4.9 Config. mode

The configuration mode enables changing the drinks menu layout on the main screen: addition and removal of product groups (PG), changing PG composition and renaming it.

The green box  near the "Konfigurationsmodus aktiviert" means the mode is enabled.

After that all the template adjustments are made from the Main screen. Beverage menu is composed of Product groups (PG) which contain 1-9 single drinks (SD) inside. **Here** and **ToGo** pages are linked, changes in one are automatically transferred to the other.

Press and hold on the PG icon till it becomes lit figure 3.4.9 (1) is used to replace the PG with another one. It evokes a list of PGs available:

 to select;  to remove PG, leaves a blank space in its place.

 = add PG on an empty spot.

Short press on PG opens it, figure 3.4.9 (1)



 = rename the PG.

! Changing the PG's picture is currently not possible! It will be available with the desktop "menu configurator" app (not released as of November 2022)

The PG contains up to 9 SDs inside. Pressing and holding on the SD evokes a list to replace or delete the drink figure 3.4.9 (1).

Changing names and pictures of an SD is possible in the [Recipes](#) menu.

A PG with only 1 SD in it will behave as a SD (dispensing will start with a single push on it). In this case the main screen will still show the picture of a PG, but the name will be taken from the SD inside it.

 on the left side near  Menu button = finish editing and exit Configuration mode.

1. Main screen

2. Settings

3. Technician

3.1 Clean

3.2 Recipes


3.3 Statistics


3.4 Techn. Settings

3.5 Direct control


Direct control is a powerful diagnostics tool. It allows to activate most of the machine's components.

Switchable components:

 2-way valve

 3 way valve

 Air valve (set 1-100% to activate)

 Pump (set PWM Setpt. % and press the icon to activate)

Non-switchable:



Flowmeter



Conductivity sensor




Check valve



Flow through heater (FTH)



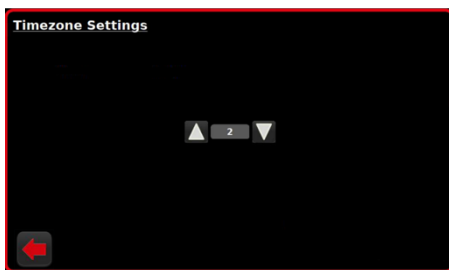
Restrictor (FTH outlet)

Cal. Idle current  starts calibration procedure for pump current (to be performed if "Milk is empty" error is not displayed properly). !



Remove milk container before starting the calibration!

Do it 2 times in a row to make calibration more precise.



3.6 Timezone

1. Main screen

2. Settings

3. Technician

3.1 Clean

3.2 Recipes

3.3 Statistics

3.4 Techn. Settings

3.5 Direct control

3.6 Timezone

Timezone is GMT+ value set in this menu. The current date and time on the machine are displayed on the top-right corner in [Settings menu \(Pic 2.1\)](#)

The date is updated automatically when the LAF connects to the internet

1. Main screen

2. Settings

3. Technician

4. Errors list

Code	Message
1001	Couldn't start cleaning process.
1002	Couldn't stop cleaning process.
1003	Flush failed.
1004	Abort failed.
1005	Invalid recipe data.
1006	Preheat failed.
1007	Milk is empty.
1008	Couldn't abort calibration.
1009	Cleaning heating timeout.

1010	No cleaning Pill.
1011	Water is not available.
1012	Calibration failed.
1013	Water filter expired.
1014	Send Parameter failed.
1015	Cleaning required.
1016	Flush required.
1017	Database error.
1018	Milk module is busy.
1019	Configuration mode is active.
1020	Start Idle calibration failed.
1021	Idle current calibration failed
1022	No CAN connection.

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