

CT / CTM / CTS / CTMS / CBT / CBTM / CTMC

# SERVICE MENU

## FOX2



## Modifications journal

Revision:	Date:	Modifications	Initials:
0	2011-06-15	Basic document, first edition	RZ
1	2011-08-08	Miscellaneous changes	RZ
2	2013-02-12	Complete revision	RZ
3	2013-07-24	Complete revision	TFO
4	2013-11-12	Rinse time changed	MST
5	2015-02-03	New functions added	MST
6	2015-06-03	Description of CF card change added	MST
7	2015-11-24	Self service mode added	MST
8	2016-02-26	Added instructions for machine configuration	RZ
9			
10			

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## 1. General handling

## 1. General handling

By entering different service codes you can enter different service levels:

User Level: Code 111111

Access to all menus, but with limited setting options. Only the user-specific settings are available.

Technician Level: Code 137900

Access to all menus and settings.

To access the different service levels please proceed as follows:

Note:

The service level can be exited at any time by touching the upper left display area.

1. Press and hold the status bar (top left corner).

The „Enter PIN“ window appears.

2. Enter the desired PIN and confirm with  .

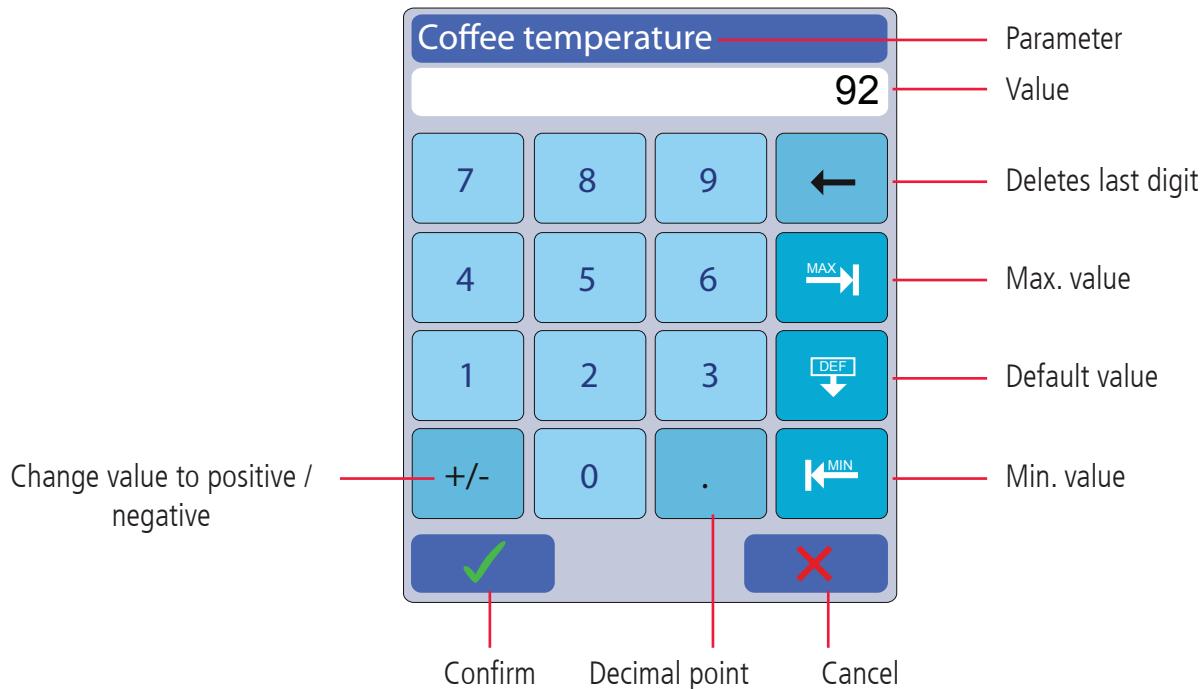


3. The following screen appears:



## 1. General handling

To change settings, enter the desired menu, tap on the parameter name and enter the new value in the popup-window. The popup-window is arranged as follows:

**Exit menu and save settings:**

To leave the menu and save the settings, tap the upper left display section. The following screen appears for a few seconds:



## 2. Settings

## 2. Settings



Here you can change common machine settings, e.g. the coffee temperature, the water connection or after which time the screensaver becomes active.

Parameter	Value	Action
Coffee temperature	92 °C	▲
Coffee readytemperature	80 °C	▼
Filteralarm	6 l	
Grounds alarm	300 g	
Service interval	1 kPort.	
Cleaning alarm	8	

## 2. Settings

The following settings are available:

Parameter	Default	Description
Coffee temperature	92 °C	<p>The parameter „Coffee temperature“ defines the maximum temperature in the coffee boiler.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>Indirectly, this setting also influences the milk products. A high rotational speed in the heating coils leads to a lower milk temperature and a low rotational speed leads to a higher milk temperature.</li> <li>If the temperature in the boiler sinks less than 10 °C below the preset value, the heating will clock the temperature up step by step. If the temperature sinks lower than 10 °C under the preset value, the heating heats up completely.</li> </ul>
Coffee readytemperature	74 °C	<p>The parameter „Coffee readytemperature“ defines the minimum water temperature in the boiler that has to be reached to dispense a product.</p> <p>If the water temperature is below the set temperature there will be a waiting time until the boiler has reached the programmed temperature. The message „Please Wait, Heating up“ appears on the display.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>After a cold start, the machine has to reach the preset value of the parameter „Coffee readytemperature“ again before a product can be dispensed.</li> <li>If the water temperature in the boiler sinks under that value, the heating heats up completely until the preset value is reached.</li> </ul>
Tubtemp	74 °C	The parameter „Tubtemp“ defines the maximum temperature in the brewed coffee tub.
Tubreadytemp	60 °C	<p>The parameter „Tubreadytemp“ defines the water temperature which is detected by the NTC in the brew tub. Is this temperature reached, brew products will be cleared and can be selected on the touchscreen.</p> <p><b>Note:</b></p> <p>If the water temperature in the boiler sinks under that value, brew coffee products are disabled. The heating then heats up completely until the preset value is reached.</p>
Autosteamtemperature	74 °C	<p>The parameter „Autosteamtemperature“ defines the temperature at which the „auto steam dispensing“ stops.</p> <p><b>Note:</b> As soon as the preset steam temperature is reached, the machine stops dispensing steam.</p>
Filteralarm	0 l	<p>The parameter „Filteralarm“ defines the amount of water that can be dispensed until the filter cartridge must be replaced. As soon as the defined amount is reached, the message „Change water filter“ is shown on the display. The life span of the water filter can be determined through a water test.</p> <p><b>To reset the counter after exchanging the filter cartridge:</b></p> <ol style="list-style-type: none"> <li>Enter menu „Statistics“.</li> <li>Tap on „Water quantity filter“ on the left side under „Total“.</li> <li>Confirm to reset the counter.</li> </ol> <p><b>Note:</b></p> <p>The machine can still be used despite the message.</p>

## 2. Settings

Parameter	Default	Description
Grounds alarm	800 g	<p>The parameter „Grounds alarm“ defines the capacity of the grounds drawer. If the set value is exceeded, the message „Empty grounds drawer“ is shown on the display.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• If the coffee machine is not used often, it is recommended - for hygienic reasons - to set the parameter to a lower value to make sure the drawer is frequently emptied.</li> <li>• The setting „Not active“ is used when no grounds drawer is required and the coffee grounds fall through the bottom opening of the coffee machine’s chassis directly into a waste bin.</li> </ul>
Service interval	50 kPort.	<p>The parameter „Service interval“ defines the number (x1000) of brew cycles which can be performed before a service is required.</p> <p>As soon as the defined number is reached, the message „Service required“ is shown on the display.</p> <p><b>To reset the counter after service was performed:</b></p> <ol style="list-style-type: none"> <li>1. Enter menu „Statistics“.</li> <li>2. Tap on „Service counter“ on the left side under „Total“.</li> <li>3. Confirm to reset the counter.</li> </ol> <p><b>Note:</b> The machine can still be used despite the message appearing.</p>
Cleaning alarm	1000	<p>The parameter „Cleaning alarm“ defines after how many beverages the machine shows the message „Cleaning required“.</p> <p>Coffee cleaning cycle type 1: without milk dispensing</p> <p>The message „Cleaning required“ appears 46h after the first coffee product has been dispensed. The timer on the display will count down from 2h. If no cleaning cycle has been successfully performed after these 2 hours, the machine will be locked and no products can be dispensed.</p> <p>Coffee cleaning cycle type 2:</p> <p>The message „Cleaning required“ appears 22h after the first coffee product has been dispensed. The timer on the display will count down from 2h. If no cleaning cycle has been successfully performed after these 2 hours, the machine will be locked and no products can be dispensed.</p>

## 2. Settings

Parameter	Default	Description
Water supply	Freshwater	<p>With parameter „Water supply“ the type of water supply (freshwater or tank) can be set.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• If the machine is supplied with a water tank, the parameter „tank“ has to be activated so that the pump will be activated for the backwash and bypass.</li> <li>• Thermoplan recommends the use of an external booster water pump if the machine is equipped with a tank.</li> </ul>
Payment interface	Off	If a cash system is connected to the coffee machine, the interface in use (KMIP / KBOX / MDB / KMIP para / KBOX x2) can be set in the menu „Payment interface“ (see also Technical Manual section „Interface“).
Show product name	✓	If the parameter „Show product name“ is activated (✓) the product name will be displayed on the product selection screen. Otherwise (✗) no product names will be shown on the product selection screen.
Show product price	✗	<p>If the parameter „Show product price“ is activated (✓) the prices set in the menu „Product prices“ will be shown on the product selection screen.</p> <p><b>Note:</b> Product prices can also be set if there is no payment system used with the machine.</p>
Currency symbol	EUR	With the parameter „Currency symbol“ the desired currency symbol (CHF / EUR / \$ / £ / ¥ / SEK / empty) for the product prices can be selected.
Screensaver	✗	If the parameter „Screensaver“ is activated (✓), the screensaver appears on screen after a set period of time without using the touchscreen. A preset sequence of pictures is shown.
Screensaver on after	5 min	<p>The parameter „Screensaver on after“ defines the time (in minutes) to elapse for the screensaver to appear after the touchscreen has been used last.</p> <p><b>WARNING:</b> If the screensaver is activated, do not set the time in the parameter „Screensaver on after“ to 0! Otherwise it won't be possible to access the service menu because the screensaver will be started immediately!</p>
Screensaver interval time	5 s	The parameter „Screensaver interval time“ defines the time (in seconds) between individual screensaver-pictures.
Show Time	✗	If the parameter „Showtime“ is activated (✓), the time set in the menu „Regional Settings“ will be displayed on the product selection screen.
Refrigerator temperature	4.0 °C	The parameter „Refrigerator temperature“ regulates the inside temperature of the refrigerator.
Show fridge temperature	4.0 °C	Shows the refrigerator temperature in the top right corner of the display (only CTM RU).
Key layout	4x3	The parameter „Key layout“ changes the layout and amount of product keys shown on the display. 4x2: Shows two rows with four product buttons. 4x3: Shows three rows with four product buttons. 5x3: Shows three rows with five product buttons.
Dotposition x.xx	✓	If the parameter „Dotposition x.xx“ is activated (✓), the product prices will be displayed with a decimal place (e.g. 1.00). If inactive, the product prices will be displayed without a decimal place (e.g. 100).

## 2. Settings

Parameter	Default	Description
Cleaningalarm 1	00:00	Milk cleaning option 1: Settings: Cleaningalarm1 00:00, Cleaningalarm2 00:00  The message „Cleaning required“ appears 22 hrs after dispensing the first milk product. The 2 hrs countdown on the display starts. If no sucessfull cleaning cycle is carried out during these 2 hrs, the machine is locked and no products can be dispensed.
Cleaningalarm 2	00:00	Milk cleaning option 2: Settings: Cleaningalarm1 10:00, Cleaningalarm2 22:00  Cleaningalarm2 can be used to set a second milk cleaning cycle in 24 hrs. If Cleaningalarm1 is set to 10:00 then Cleaningalarm2 can be set to 22:00 ± 4 hrs. The message „Cleaning required“ appears 2 hrs before the set time runs out. If no sucessfull cleaning cycle is carried out during these 2 hrs, the machine is locked and no products can be dispensed.
Brewtimer 1 start	00:00	The value for „Brewtimer 1 start“ times the first daily brewing process.
Brewtimer 1 level	empty	„Brewtimer 1 level“ defines the amount of coffee, which will be prebrewed after brewtimer 1 has started the brewing process.
Brewtimer 2 start	00:00	The value for „Brewtimer 2 start“ times the second daily brewing process.
Brewtimer 2 level	empty	„Brewtimer 2 level“ defines the amount of coffee, which will be prebrewed after brewtimer 2 has started the brewing process.
Brewtimer 3 start	00:00	The value for „Brewtimer 3 start“ times the third daily brewing process.
Brewtimer 3 level	empty	„Brewtimer 3 level“ defines the amount of coffee, which will be prebrewed after brewtimer 3 has started the brewing process.
Brewtimer 4 start	00:00	The value for „Brewtimer 4 start“ times the fourth daily brewing process.
Brewtimer 4 level	empty	„Brewtimer 4 level“ defines the amount of coffee, which will be prebrewed after brewtimer 4 has started the brewing process.
Brewtimer 5 start	00:00	The value for „Brewtimer 5 start“ times the fifth daily brewing process.
Brewtimer 5 level	empty	„Brewtimer 5 level“ defines the amount of coffee, which will be prebrewed after brewtimer 5 has started the brewing process.
Brewtimer 6 start	00:00	The value for „Brewtimer 6 start“ times the sixth daily brewing process.
Brewtimer 6 level	empty	„Brewtimer 6 level“ defines the amount of coffee, which will be prebrewed after brewtimer 6 has started the brewing process.
Chocofan standby	40%	The parameter „Chocofan standby“ defines the ventilation capacity (rotational speed of the motor) when no chocolate products are being dispensed. The fan prevents moisture from getting into the chocolate powder.
Chocofan product	90%	The parameter „Chocofan product“ defines the ventilation capacity (rotational speed of the motor) when chocolate products are being dispensed.

## 3. Product Settings

## 3. Product Settings



In the menu „Product Settings“ the products can be customized to suit individual needs. Choose the product you like to change on the left-hand side. The product settings can then be customized on the right-hand side.

Products		2/6
5. Milchkaffee		
6. Cappuccino		
7. Latte Macchiato		
8. Lattino		

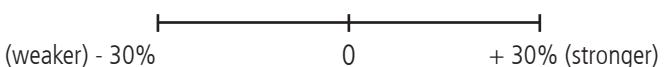
Latte Macchiato		1/9
Product name	Latte Macchiato	
Receipt	latte macchiato	
Default	1	
Multiple	1	
Coffee aroma M1 1 cup	0 %	
Coffee aroma M1 2 cups	0 %	

Test grinding  
Double product  
Change mill  
Test-coffee

The button „Test-coffee“ can be used to check the new settings without the need to exit the service menu before.

## 3. Product Settings

The following settings are available:

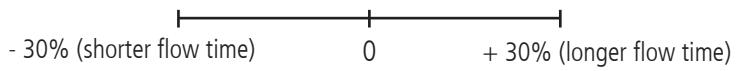
Parameter	Default	Description
Product name		The parameter „Product name“ defines the name displayed on the product key. The name can be defined independently of the recipe.
Recipe		The parameter „Recipe“ contains various predefined basic settings (eg. for coffee, espresso, cappuccino, etc.) which will be used as templates for the current product.
Default	2	The parameter „Default“ defines which grinder is used for the preparation of the recipe without selecting the „Change mill button“.
Multiple	1	<p>The parameter „Multiple“ is used to dispense the same product multiple times by pressing the product key only once.</p> <p>The multiple dispense feature can be programmed for each beverage individually. Example: If you assign 3 multiple beverages to a product, the product will be dispensed automatically three times in a row by pressing the product key once (uses the recipe defined for „1 cup“).</p> <p>Multiple beverages can also be dispensed by using the default button „Multiple“. Example: If one of the product keys is programmed with „Multiple“ it is possible to multiply 2 - 9 products dispensed, following the recipe for „1 cup“ by using the Double Product key.</p>
Coffee aroma M1 1 cup	0%	With the parameter „Coffee aroma“ the values for Prebrew Time, Relax Time and Press After Time are adjusted per cental in one step to brew the chosen recipe stronger or weaker.
Coffee aroma M1 2 cups	0%	The coffee aroma can be adjusted by decreasing (weaker taste) or increasing (stronger taste) the procentual value.
Coffee aroma M2 1 cup	0%	<p><b>Note:</b></p> <p>The coffee aroma depends on the customers specifications. The service technician adjusts all the parameters to achieve the best possible coffee quality. During a service visit, the technician can reset the parameters (0%) if necessary.</p>
Coffee aroma M2 2 cups	0%	<p>Tip: Change the aroma in 5%-steps and check the result.</p>  <p>(weaker) - 30%    0                                    + 30% (stronger)</p>

## 3. Product Settings

Parameter	Default	Description
Water quantity 1 cup	Depends on the recipe	The parameter „Water quantity“ defines the amount of water (in ticks) used for the product.  POD: The „Water quantity POD“ can only be defined for 1 cup.
Water quantity 2 cups		
Water quantity POD		
Milk quantity 1 cup		The parameter „Milk quantity“ defines the amount of milk (in seconds) used for the product.
Milk quantity 2 cups		
Foam quantity 1 cup		The parameter „Foam quantity“ defines the amount of milk foam (in seconds) used for the product.
Foam quantity 2 cups		
Outlettime		The parameter „Outlettime“ defines the amount of brewed coffee (in seconds) from the brew tank is used for the product.
Outletvalve		The parameter „Outletvalve“ defines the outlet from which the brew product is dispensed.
Use milk type 2	✗	If the parameter „Use milk type 2“ is activated (✓), the product will be dispensed with milk type 2. If only 1 type of milk is available, the product will be dispensed with this type of milk automatically. If inactive (✗), only milk type 1 will be used.  <b>Note:</b> <ul style="list-style-type: none"> <li>This parameter can only be activated in combination with the machine option „2 milk types“ and with the menu „Milk level mesure: Milk 1+2“. If „Milk 1+2“ is active, a new function button appears on the touchscreen.</li> <li>Generally, the „Mill change“ option will be replaced by the „Milk change“ option. The changeover works the same as for mill 1+2.</li> </ul>
Choco quantity	6.5 s	The parameter „Chocolate quantity“ defines the amount of chocolate powder-water-mix (in seconds) which will be used for the product.
Choco powder	100%	The parameter „Choco powder“ defines the capacity of the powder output (in %) during the defined amount of chocolate in seconds.

## 3. Product Settings

Parameter	Default	Description
Powder quantity M1 1 cup	Depends on the recipe	With the parameter „Powder quantity”, the grinding time of both mills can be adjusted. A individual amount of powder can be programmed for every recipe.
Powder quantity M1 2 cups		For this product to be dispensed, the 2x button must be pressed and *Allow double products“ must be active in the settings (see chapter 3.15).
Powder quantity M2 1 cup		The mill-change-button must be active or the recipe-setting must be on Default 2 (so that the product will be dispensed from mill 2).
Powder quantity M2 2 cups		
Prebrew time M1 1 cup		The parameter „Prebrew time“ defines the amount of water (in seconds) that is added to the dry coffee powder to release its flavours. This value is deducted from the parameter „Water quantity“ (in tics) that is set for this recipe.
Prebrew time M1 2 cups		The parameter „Prebrew time POD“ defines the amount of water (in seconds) that is added to the dry coffee powder to release its flavours. This value is deducted from the parameter „Water quantity POD“ (in tics) that is set for this recipe.
Prebrew time M2 1 cup		
Prebrew time M2 2 cups		
Prebrew time POD		
Relax time M1 1 cup		The parameter „Relax time“ defines the waiting time (in seconds) between prebrew time and the dispensing of the product.
Relax time M1 2 cups		<b>Note:</b> Setting a waiting time without prebrew time has no influence on the dispensed product.
Relax time M2 1 cup		
Relax time M2 2 cups		
Relax time POD		
Press after M1 1 cup		The parameter „Press after“ defines the level of compression of the coffee cake or the dry coffee powder. Setting this parameter can optimise the dispense/flow time of the product.
Press after M1 2 cups		
Press after M2 1 cup		
Press after M2 2 cups		



## 3. Product Settings

Parameter	Default	Description
Bypass 1 cup	Depends on the recipe	The parameter „Bypass“ defines the amount of water (in %) which does not go through the coffee cake. With the parameter „Bypass“ the ratio between coffee and hot water can be regulated.  <b>Example:</b> If the value for „Bypass“ is set to 30%, 70% of the water defined in the parameter „Water quantity“ gets pumped through the ground coffee. The remaining 30% are directly dispensed into the cup.
Bypass 2 cup		
Airvalvedelay 1 cup		The parameter „Airvalvedelay 1 cup“ defines the time (in seconds) between the start of the brewing process and product dispense. During the programmed time, the valve at the outlet of the brew group remains closed to create an overpressure in the brewing chamber. If this value is „0“ the valve is opened during the entire brewing process.  <b>Note:</b> The parameter „Airvalveoption“ in the factory settings must also be activated.
Airvalvedelay 2 cups		The parameter „Airvalvedelay 2 cups“ defines the time (in seconds) between the start of the brewing process and the dispensing of the product. During the programmed time, the valve at the outlet of the brew group remains closed to create an overpressure in the brew chamber. If this value is „0“ the valve stays open during the entire brewing process.  <b>Note:</b> The parameter „Airvalveoption“ in the factory settings must also be activated.
Add milk		With the parameter „Add milk“ three different dispensing times can be selected for the milk or foam after choosing a milk product: <ul style="list-style-type: none"><li>• At the beginning: milk is dispensed before coffee.</li><li>• Meanwhile: milk and coffee are dispensed simultaneously.</li><li>• At the end: milk is dispensed after coffee.</li></ul>
Steamtime (max)		„Steamtime (max)“ defines the maximum duration the steam dispenser is on before it is switched off automatically.
Mill change allowed		The parameter „Mill change allowed“ makes it possible to use all the set parameters of mill 2 (resp. 1) if the selected product has mill 1 (resp. 2) deposited as default.
Double product allowed		With the parameter „Double product allowed“ it is possible to dispense the chosen product as a double product. Therefore press the „2X“- button. „X“ appears on the touch screen.
Functions		
Learn water quantity		With the parameter „Learn water quantity“ the water quantity can be adjusted manually. The dispensing starts when the button is pressed. As soon as the desired level of water is reached, the process can be stopped by pressing the same button again. The dispensed amount of water will be saved.
Learn milk quantity		With the parameter „Learn milk quantity“ the milk and milk foam quantity can be adjusted manually. The dispensing starts when the button is pressed. By pressing the same button again, the process is stopped and the amount of milk dispensed is saved. Now milk foam is dispensed. By pressing the button, the process is stopped and the value saved.

## 4. Product Prices

## 4. Product Prices



In this menu the prices for every product can be set. The prices will be shown on the product beverage screen and will be used when connected with a payment system.

## Note:

The following menu settings have to be checked and set:

## Settings

- Show product price
- Currency symbol

The following settings are available:

Parameter	Default	Description
Price for 1 cup, m-right	0	With the parameter „Price for 1 cup“ prices for every single product and way of dispense (1 or 2 cups, mill 1 or 2) can be assigned.
Price for 2 cups, m-right	0	
Price for 1 cup, m-left	0	
Price for 2 cups, m-left	0	
Price for 1 cup, POD	0	
Free product	✗	If the parameter „Free product“ is activated (✓), the product can be directly purchased for free over the touch screen.

## 5. Statistics

## 5. Statistics



The menu „Statistics“ shows useful information, like how often a product has been dispensed or the cleaning has been performed.



By pressing the products list the product counter can be deleted. All other counters can be cleared in the same way.

The following settings are available:

Parameter	Description
Total Operator	Number of all dispensed products (coffee / tea / brew / chocolate products). This counter can be reset by the operator or the technician.
Total Technician	Number of all dispensed products (coffee / tea / brew / chocolate products). This counter can only be reset by the technician.
Water for products	Amount of water (in liter) used for products.
Water for cleaning	Amount of water (in liter) used for cleaning.
Cleaning counter	Number of successful cleanings.
Cleanings interrupted	Number of interrupted cleanings.
Servicecounter	Number of brew cycles since last service.
Guaranteecounter	Number of dispensed products since machine installation (this counter can not be reset).
Milkcounter	Operating time (in minutes) of the milk pump for dispensing milk products.
Watercounter filter	Amount of water (in liter) flown through the water filter since last filter change.

## 6. Regional Settings

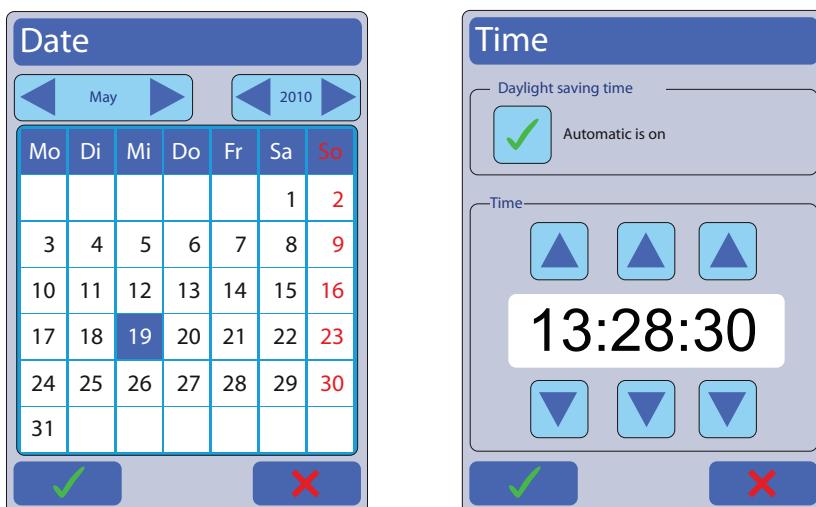
## 6. Regional Settings



Use this menu to change the screen language, date and time by pressing on the particular option.



By pressing on the date or time, a new window will appear, where you can set the current date and time and activate daylight saving time.



## 7. System Check

## 7. System Check



Use this menu to test the Inputs and Outputs of the machine. Pressing the name of an Output will start its function (e.g. pressing „Mill 1“ will start the mill on the left-hand side).

System Check	
Outputs	1/5
1. Grinder 1	
2. Grinder 2	
3. Coffeeheater	
4. Coffeepump	
5. Milkpump	
6. Brewvalve	

Inputs	1/2
1. Boiler temperature	95 °C
2. Ground Drawer detected	✓
3. Flowmeter ticks/sec	0
4. Brewing motor in endposition	✗
5. Motorrotation detected	✗
6. Beanhopper & panel ok	✓
7. Coffeecleaningkey	✓
8. Coffeecleaningtablet	✗

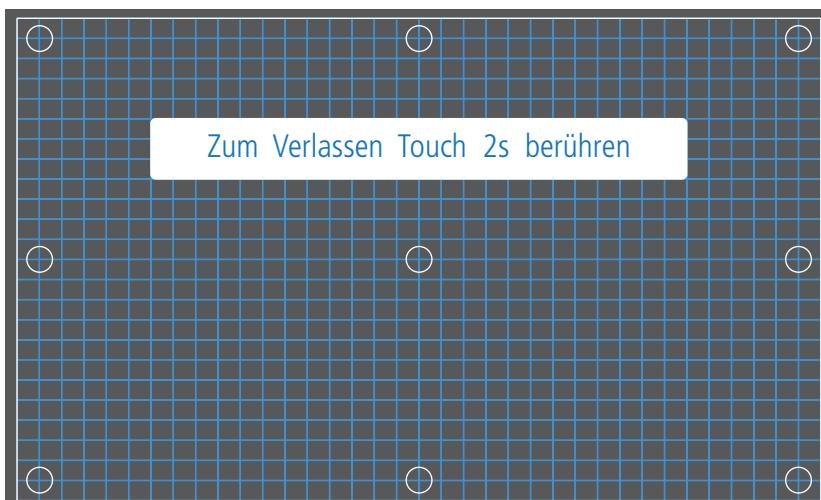
Touchpanel Test

**Note:**

If the menu „system check“ is open coffee boiler heating, fan (option), tub heating (CBT, CBTM), choco fan (CTMC) and steam boiler heating (CTS) are only activated if they are selected in „Outputs“.

Further information for testing the components can be found in Chapter 6 „Troubleshooting.“

In the same menu there is an option to check the touchscreen for functionality (not available for CTM RU). Press on „Touchpanel test“ to start the test-program, a grid will appear on the screen. After every touch on the screen a red „dot“ should appear on the same spot.



To exit the test-program touch the screen on any position for at least 2 seconds.

## 8. Error History



The last 63 error messages are saved. The most recent error appears on top of the list which shows the date and time.

Error History	
1. Flow error	19.05.2011 08:50:06
2. Machine locked	18.05.2011 13:46:31

## 1.8 Factory settings



If problems appear after adjusting the parameters (e.g. Product parameters), the default settings of the machine can be restored. Other parameters (e.g. revolutions, rinse times etc.) can also be set in this menu.

Parameter	
Typ of machine	BW_3
Revolutions	
Coffeerevolution	1800 rpm
Tearevolution	1200 rpm
Bypassrevolution	1200 rpm
Milkrevolution	1400 rpm



It's important to save the parameters after adjusting them (Backup Data)!

A complete reset should only be done if its absolutely necessary. All the client-specific adjustments will be lost. Before switching off the machine, all the data must be saved on to a CompactFlash®-card (Backup Data).

## 9. Factory Settings

## 9. Factory Settings

Parameter	Default	Description
Machine type	Standard	<p>The parameter „Machine type“ is used to change the configuration of the machine.</p> <p>See p. 26 for detailed instructions and the changing settings and parameters.</p> <p><b>Note:</b> The selection window is only available, if more than one configuration is saved. To confirm the new values, press the button „Save -&gt; CPU“ to save your selection.</p>
<b>Revolutions</b>		
Coffeerevolution	1800 rpm	<p>The parameter „Coffee revolution“ is used to change the revolution for coffee products.</p> <p><b>Note:</b> Different revolutions have no influence on the coffee product because the pressure is regulated by the motor's bypass.</p>
Tearevolution	1200 rpm	<p>The parameter „Tea revolution“ is used to change the revolution for tea products.</p> <p><b>Note:</b> Different revolutions have no influence on the tea product because the pressure does not have an impact on tea products.</p>
Bypassrevolution	1200 rpm	<p>The parameter „Bypass revolution“ is used to change the revolution for the bypass.</p> <p><b>Note:</b> Different revolutions don't affect the bypass because the pressure does not have an impact on the bypass.</p>
Milkrevolution	1400 rpm	<p>The parameter „Milk revolution“ is used to change the revolution for milk products.</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• By changing the revolution, the outlet milk temperature rises (low revolution) or falls (high revolution). Additionally, too hot milk at the outlet leads to clogging of the heating coil or burning of the milk.</li> <li>• Careful: Altering the parameter „Coffee temperature“ also has an influence on milk- and foam temperature!</li> <li>• The amount of milk dispensed can vary significantly when changing the revolution because the milk output is timed.</li> <li>• The approximate temperature, measured on the outside of a plastic cup, is 70 °C +/- 3 °C.</li> </ul>
Foamrevolution1	1800 rpm	<p>The parameter „Foam revolution“ is used to change the revolution for milk foam products (using milk type 1).</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• By changing the revolution, the outlet milk foam temperature rises (low revolution) or falls (high revolution). Too hot milk foam at the outlet leads to clogging of the heating coil or burning of the milk foam.</li> <li>• Careful: Altering the parameter „Coffee temperature“ also affects the foam temperature!</li> <li>• The quality of the milk foam dispensed changes significantly if the revolution is changed. All associated parameters have to be readjusted (e.g. air quantity, foam quantity etc.).</li> <li>• The amount of milk foam dispensed can vary significantly when changing the revolution because the milk foam output is timed.</li> </ul>

## 9. Factory Settings

Parameter	Default	Description
Foamrevolution2	1800 rpm	<p>The parameter „Foam revolution“ is used to change the revolution for milk foam products (using milk type 2).</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• By changing the revolution, the outlet milk foam temperature rises (low revolution) or falls (high revolution). Too hot milk foam at the outlet leads to clogging of the heating coil or burning of the milk foam.</li> <li>• Careful: Altering the parameter „Coffee temperature“ also affects the foam temperature!</li> <li>• The quality of the milk foam dispensed changes significantly if the revolution is changed. All associated parameters have to be readjusted (e.g. air quantity, foam quantity etc.).</li> <li>• The amount of milk foam dispensed can vary significantly when changing the revolution because the milk foam output is timed.</li> </ul>
<b>Rinse &amp; cleaning</b>		
Cold start rinse	1.5l	<p>The cold start rinse is performed if the coffee boiler temperature is below 40 °C.</p> <p>Notice: During the cold start rinse, 1.5l of water are pumped through the coffee boiler to make sure it is filled up. This parameter can not be adjusted by the technician.</p>
Rinse Interval Coffee	5 min	The parameter „Rinse Interval Coffee“ sets the time (in minutes) that has to pass for the machine to automatically perform a short rinse after dispensing the last coffee product.
Rinse Interval Milk	5 min	The parameter „Rinse Interval Milk“ sets the time (in minutes) that has to pass for the machine to automatically perform a short rinse after dispensing the last milk product.
Min. Rinsetime after milk product	5 s	<p>This option is only active if e.g. a Cappuccino has a higher coffee content than milk content. Additionally, coffee and milk must be dispensed into the cup at the same time.</p> <p>If the coffee content is higher than the milk content, performing a rinse before dispensing is impossible because the water for the coffee is controlled by the flowmeter. The water for the milk rinse is also controlled by the flowmeter. This means that at least a minimal rinse must be performed, so that the milk doesn't clog the coil.</p>
Rinsetime after milk product	10 s	The parameter „Rinsetime after milk product“ sets the time (in seconds) in which the milk is pushed back into the refrigerator area. This rinse always performs after „Rinsetime after hot/cold milk product“.
Rinsetime after Milkbeverage hot	6.0 s	The parameter „Rinsetime after Milkbeverage hot“ defines the time (in seconds) in which the hot milk system is rinsed with hot water in direction of the drain. This aims to dispense the milk still residing in the system to be dispensed into the cup. Is the rinse time (in seconds) set too high, additional water will be dispensed into the cup after the milk. Is the parameter set too low, milk will be back-flushed down the drain.
Rinsetime after Milkbeverage cold	3.0 s	The parameter „Rinsetime after Milkbeverage cold“ defines the time (in seconds) in which the cold milk system is rinsed in direction of the drain. This aims to dispense the milk still residing in the system to be dispensed into the cup. Is the rinse time (in seconds) set too high, additional water will be dispensed into the cup after the milk. Is the parameter set too low, milk gets back-flushed down the drain.
Macchiato waittime	8 s	<p>With the parameter „Macchiato waittime“ the waiting time between the dispense of the milk and coffee for Macchiato products can be programmed.</p> <p>By default the waiting time is 8 seconds, i.e. by dispensing a Macchiato product the milk and milk foam will be dispensed first and 8 seconds later the coffee.</p> <p>During the delay, the milk has time to settle in the glass. When the coffee is added, the milk stays at the bottom of the glass and the milk foam will rise to the top together with the coffee.</p>
Milksucktime normal	4 s	This parameter sets the milk suck time for the first milk product that is dispensed after a restart or the cleaning of the machine.

## 9. Factory Settings

Parameter	Default	Description
Milksucktime after milkrinse	4.0 s	The parameter „Milksucktime after milkrinse“ sets the length of time (in seconds) until the milk is directed to the outlet. If the parameter set too low, water will be dispensed into the cup before the milk. If the parameter is set too high, water and milk will be back-flushed down the drain before the milk is dispensed into the cup.
Milkfoam delay	3.4 s	The parameter „Milkfoam delay“ defines the time (in seconds) in which milk foam is directed into the drain before the set milk foam quantity in the product parameters is dispensed into the cup.  Note: This setting refers only to the recipe espresso macchiato.
Milklevel control	Milk 1 with level	The parameter „Milklevel control“ defines how the milk level on the milk suction hose will be checked.  The following options are available: 1. Milk 1: The measurement is only active for milk type 1 (suction hose without level control) 2. Milk 1+2: The measurement is active for milk type 1 and 2 (suction hose without level control) 3. Milk 1 with niveau: Milk type 1 will be checked and the message „Milk low“ appears on the display if the milk level is low.
Milklevel warning	✓	If the parameter „Milklevel warning“ is activated (✓), the message „Milk low“ appears before the message „Milk empty“. Milk products can be dispensed until the message „Milk empty“ appears. If this parameter is not active (✗), milk products can be dispensed until the message „Milk empty“ appears. In this case, the message „Milk low“ is not displayed.
Boilercleaning on	✗	If the parameter „boilercleaning on“ is activated (✓), a boiler cleaning is started as soon as the drawer has been removed. The message „Clean boiler“ appears. The boiler starts the cleaning as soon as the message is confirmed. The cleaning cycle can be stopped at any time.  Note: The water of the steam boiler is replaced by fresh tap water, so that no mineral sediments can form.
Standby temperature offset	0 °C	With the parameter „Standby temperature offset“ the value of the standby temperature can be set from 0 °C to 15 °C. For the first coffee product after the „Coffee rinse interval“ the coffee boiler increases the temperature by the value defined in „Standby temperature offset“ to compensate the cooling down of the brew chamber.  Note: The maximum coffee boiler temperature including Standby Temperature Offset must not be exceeded 99 °C (or the local boiling point).
Diverse		
Millposition	358	The parameter „Mill position“ defines the distance of the brewing chamber between the rear block (micro switch) and the mill position (opposite markings on the mills and the brew chamber). The set value equals the number of ticks measured by the acoustic sensor on the brewing chamber motor.
Voltagecontrol		With the parameter „Voltagecontrol“ the operating voltage tolerance is set. The operation is interrupted when the voltage falls under or over the set tolerance. If the value is set to „0“, the function is disabled.  Hinweis: This function is important if a transformer is installed in the machine. Otherwise the parameter may have an impact on the products.
Move brewing chamber		The parameter „Move brewing chamber“ operates as controlling function for the parameter „Mill position“. The brewing chamber moves the number of ticks set in the parameter „Mill position“ to reach the grinding position.

## 9. Factory Settings

Parameter	Default	Description
Drawer Time	5 s	If the message „Empty grounds drawer“ appears, the grounds drawer must be emptied and removed from the magnetic switch for at least the set amount of time. The grounds drawer can be put back in if the message „Grounds drawer missing“ appears. The parameter „Grounds drawer alert“ will be reset. If the grounds drawer is put back before the set time, the machine does not recognize it as emptied and the counter won't be set back to 0 g. The message „Empty grounds drawer“ will not disappear.
Sensor calibrate offset	-2 °C	The parameter „Sensor calibrate offset“ adjusts the actual milk temperature to the set value of the parameter „Autosteamtemperature“ if there is a difference.
Powermanagement on	✗	If the parameter „Powermanagement on“ is activated (✓), only one of the steam boiler's heating units is activated during the heating-up of the coffee boiler.
Energy saving mode	✓	If the parameter „Energy saving mode“ is activated (✓), the message „Cleaning completed, Standby“ appears after the daily cleaning. The coffee boiler's temperature drops and will not exceed 60 °C. As soon as the message on the screen is confirmed, the machine comes out of the energy saving mode and the boiler starts heating up to the temperature specified in the parameter „Coffee temperature“.
Selfservice	✗	<p>If the parameter „Self-service“ is activated (✓), the machine works in self-service mode and the function buttons are hidden.</p> <p>If the message „Please ask for assistance“ comes up on the display (milk empty, coffee beans empty, etc.), the center of the screen must be pressed for 5 seconds to close the message.</p> <p>To perform a cleaning, the service menu must be entered and left again. This will display the function buttons on the screen and the cleaning can be started. The function buttons are still visible after the cleaning, but will be hidden again after the first beverage has been dispensed.</p>
Reminder	✗	<p>By activating the function „Reminder“ (✓), multiple beverages can be selected in a row. The beverages will be automatically dispensed in order. The product which will be dispensed next is announced in the top left corner as „Next product: xxx“.</p> <p>If the machine has a payment system or is running in self service mode, this function must be disabled, because these modes do not allow for multiple beverages to be selected in a row.</p>
Priority special	✗	If the parameter „Priority special“ is activated (✓) and a priority product (e.g. Cappuccino) is selected while coffee is being brewed into the brew coffee tub, the priority product is dispensed immediately. After the product has been dispensed, the previous brewing process is resumed. If the parameter is not active, the priority product will be dispensed after the ongoing brewing process is finished.
Tankemptytime	50 s	The parameter „Tankemptytime“ defines the waiting time between draining cycles during the daily cleaning and the active parameter „Drain boiler after“, so that the water doesn't accumulate in the drain.
Niveau middle	4	The parameter „Niveau middle“ sets multiple tank levels.
Niveau max	6	The parameter „Niveau max“ sets multiple tank levels.
Grinder	2	<p>The parameter „Grinder“ defines the number of mills the machine's mechanical module is equipped with.</p> <p><b>Note:</b> CBT and CBTM can only run with mechanical modules equipped with 2 mills. Mill 2 is always set as default to brew into the brew tub.</p>
Milkkeyoption	✗	If the parameter „Milkkeyoption“ is activated (✓), the refrigerator must be equipped with a milk cleaning key for the milk cleaning tablets (see cleaning instructions for TCC). If the parameter is not activated, the machine can only be cleaned with the liquid cleaning agent Thermoblue (see cleaning instructions Thermoblue).
POD-Option	✗	If the machine is equipped with a POD, the function „POD-Option“ must be activated (✓).

## 9. Factory Settings

Parameter	Default	Description
Shot Timer	✗	The parameter „Shot Timer“ shows the brewing time of the product that is currently being dispensed on the screen. The brew time starts when the brew valve opens and finishes when the brew valve closes. The prebrew time and the relax time are also included in the brew time.
Airvalveoption	✗	If the parameter is activated (✓), the machine vents the brewing tube to prevent water washing back through the brewing chamber into the grounds drawer. This option is only available for BW3 CTS & CT.
Option °C/°F	✗	The milk temperature can be either shown in celsius or fahrenheit (not active (✗) = °C, active (✓) = °F).
Coldmilksucktime	3.0 s	The parameter „Coldmilksucktime“ sets the amount of time it takes (in seconds) for the milk to be directed to the outlet. Is the set time too short, water is dispensed into the cup before the milk. Is the set time too long, too much milk is directed to the outlet.
Brewer empty after	0	If there is a time set (> 0) in this parameter and if during this time no coffee product is dispensed, the machine starts to drain the prebrewed coffee from the tank and fills the tank again until the set level is reached.
Milkemptydelay	6.0 s	The parameter „Milkemptydelay“ defines the die suction time for the next product after the milk tank has been detected as „empty“ (for warm milk products).

## 10. Setting the machine configuration (machine type)

**10. Setting the machine configuration (machine type)**

By using the parameter „Typ of machine”, different pre-configured machines can be selected in the menu Factory Settings. The selection window is only available, if more than one configuration is saved.

If the type of machine is changed, the following settings and parameters will be overwritten with pre-defined values:

- General Settings
- Product Parameters
- Regional Settings
- Factory Settings

The Error History and the counters from the statistics menu are not modified and will not be reset.

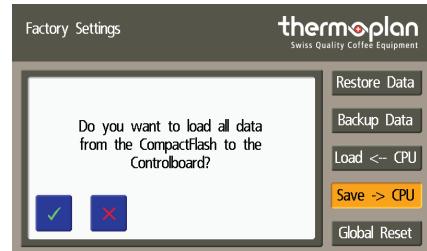
To choose a different machine type, proceed as follows:



Open menu „Factory Settings” and press on parameter „Typ of machine”.



Choose the desired machine configuration and press  to confirm.



Save your selection by pressing the button „Save -> CPU” and confirm with  . Exit the technician menu by pressing touching the screen twice on the upper left corner.

**Note:**

After changing the type of machine and adjusting the machine settings, perform a backup of your data („Backup Data”), see p. 3.20 and 3.30 for further information.

**Before performing the Backup, exit and enter the service menu again, to save all the previously adjusted parameters and values.**

## 10. Self service mode

## 10. Self service mode

## Self service mode without payment system

The self service mode can be activated by a service technician and works as follows:



The user interface still looks as usual after setting the self service mode.

The function buttons disappear after a product has been dispensed. The self service mode is now enabled.

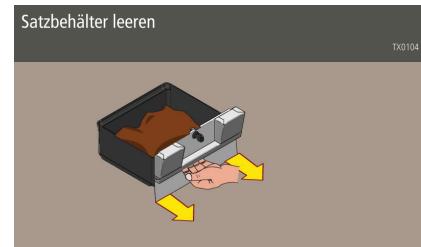
## Display messages



Display messages are now always shown with the message "Please ask for assistance".



Hold down button until the actual fault message appears (approx. 5 seconds).



The actual display message is now displayed.

## Restoring the function buttons



Enter the user menu to restore the function buttons. Press and hold "Ready" until the PIN input window appears (PIN 111111).



Exit the service menu right after entering it (touch surface at left top).



The function buttons are now available again until the next action (e.g. product dispensing, cleaning) is performed.

**Self service mode with payment system****Self service mode with payment system**

If the self service mode is activated, the function buttons disappear and the product keys are arranged across the screen.

To display the cleaning button, press and hold the display at the top left until the pin pad appears. Enter the code 123321 and the cleaning button becomes visible. The cleaning can now be carried out as usual.

In the menu "Self Service" four different modes can be selected:

- **off** -> Function is not active -> normal operating mode.
- **on** -> The function buttons are hidden. After selecting a product, the dispensing starts immediatly.
- **Self Kredit** -> If this mode is activated, the product can be configured. When paying, the payment system sends a maximum allowance first and then the product billing process is initiated.
- **Self Debit** -> If this mode is activated, the product can be configured. When paying, the machine sends the total invoice amount to the payment system and waits for it to process the payment. Only after the payment was successfull, the product starts dispensing.

Self Kredit/Debit allows for a payment system to be connected to the machine. If no payment system is connected, the payment request will not be displayed.



Product selection view in self service mode.

**Selection process in Self Kredit/Debit mode****Select grinder:**

This selection is only displayed when the option "Mill change allowed" is activated in the product recipe.

**Select milk:**

This selection is only displayed when the option "Use milk type 2" is activated in the product recipe.

**Select cup size:**

This selection is only displayed, when the option "Double product allowed" is activated in the product recipe. If a payment system is connected and the prices are programmed, the prices will show up on the product keys.



**Self service dispensing payment system****Start product:**

The selected cup size is displayed and after pressing "Start Productbeverage", the payment process is started.

**Payment:**

If a payment system is connected and activated, this screen is displayed. The coffee machine waits for an answer from the payment system. If the payment is successful, the product is dispensed. If the transaction is not successful, the order is aborted.

**Display during dispensing:**

During the dispensing of a product the following sequence is used:

**Display after product is dispensed:**

This screen appears when the product is finished and the next one can be selected. This screen disappears after 5 seconds.

**Display texts and texts on the buttons can be adjusted to suit every customers need.**

## 11. Description of the different functions

## 11. Description of the different functions

**1 Restore Data**

By pressing the button „Restore Data“ the previously saved data (button „Backup Data“) on the CF-card will be loaded and overwrite the existing data on the CF-card and EEPROM.

**2 Backup Data**

All settings (except product names) will be saved on the CF-card as backup.

**3 Load <- CPU**

The machine data on the EEPROM will be transferred to the CF-card. The backup files on the CF-card will not get erased or changed.

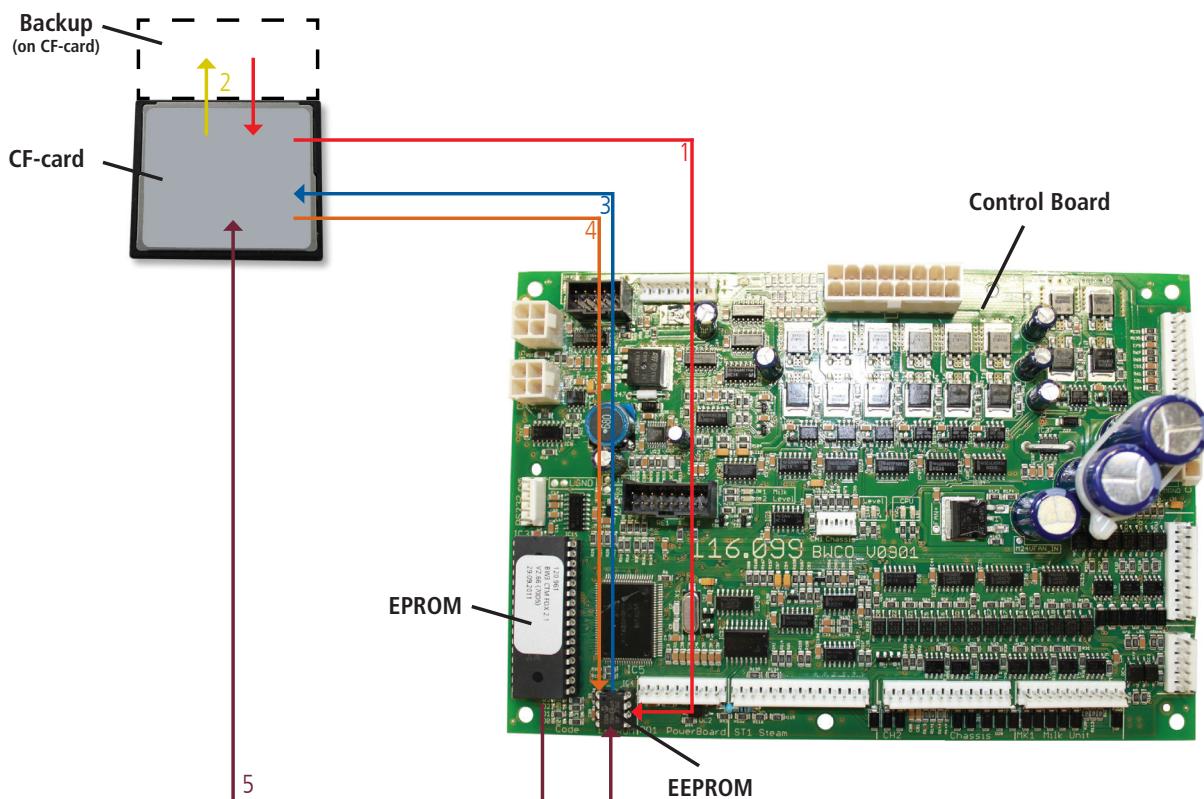
**4 Save -> CPU**

The current data on the CF-card will be transferred to the EEPROM. The backup files on the CF-card will not get erased or changed.

**5 Global Reset**

The factory settings on the EPROM will be transferred to the EEPROM and the CF-card. The backup files on the CF-card will not get erased or changed.

The following graphic shows the different ways of data streams by using the according function:



## 12. Change CF card

## 12. Change CF card

The following steps are necessary to change a CF card.

**Important:** The machine has to be completely switched off before you begin.



Open the cover of the machine and remove the CF card.



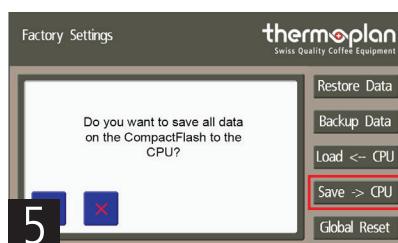
Insert the new CF card and close the cover. Now switch the machine back on.



Press and hold „Ready“ until you're asked to enter the PIN. Enter the Technician-Level-Code 137900 and confirm with .



Open „Factory Settings“ in the service menu.



Press „Save -> CPU“. Question: „Do you want to save all data on the CompactFlash to the CPU?“. Confirm with .



All settings are saved to the machine.



Close service menu -> Touch the screen twice on the top left. CF card change is completed. The machine is ready for operation.

## 13. Replacing defective CPU

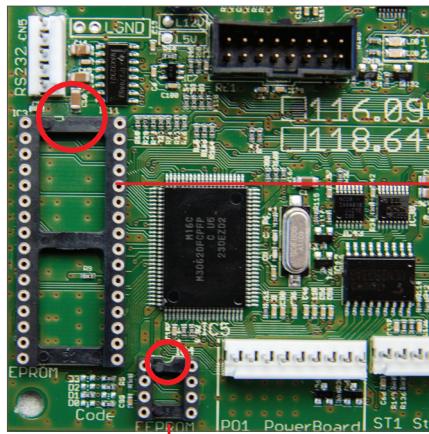
## 13. Replacing defective CPU

When changing the CPU EPROM and EEPROM of the installed CPU should be removed and installed on the new CPU to save the installed settings and data.

## NOTICE

CPU damage by incorrect insertion of the EPROM or EEPROM!

- When inserting the EPROM or EEPROM make sure the notches on the board and the notches of the EPROM and EEPROM are in the same positions (see markings).



EPROM slot without EPROM

EEPROM slot without EEPROM

1. Shut down the machine.
2. Remove the mechanical module.
3. Remove the covering of the CPU.
4. Remove the EPROM + EEPROM carefully by using the EPROM-tool.
5. Install the EPROM and EEPROM on the new CPU. Make sure the notches on the board and the notches of the EPROM and EEPROM are on the same positions (see markings).
6. Remove the new CPU to the coffee machine and remove the covering.
7. Remove the mechanical module.



## 13. Replacing defective CPU



1

Save your settings on a CF-Card!



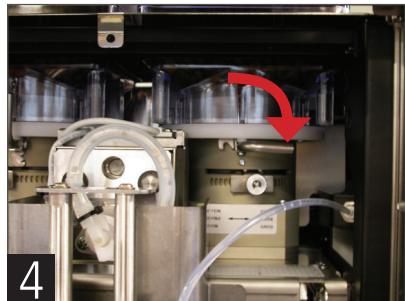
2

Remove the grounds drawer and turn off the machine. Use the appliance key to remove the front panel of the machine.



3

Use the holes (left and right) to lift up the front. Push the two latches with your fingertips. Lift up the front to the top position and release the latches.



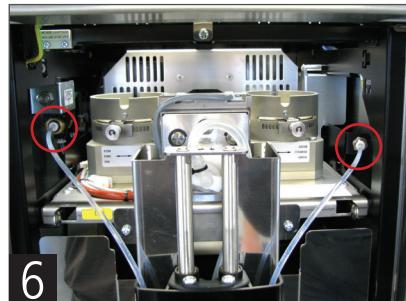
4

Turn the lever of the bean hopper 90° clockwise to unlock it. Do this with both bean hoppers.



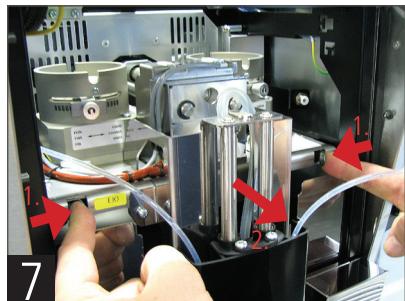
5

Use both hands to pull out the two bean hoppers.

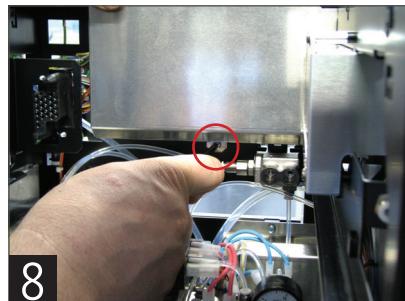


6

Disconnect the two tubes which lead into the coffee outlet

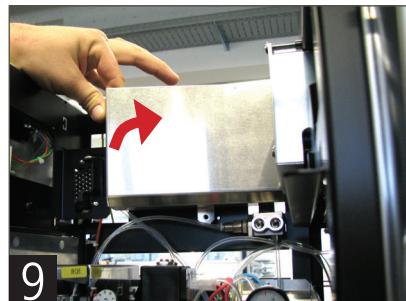


Push in the two latches on the mechanical module and pull out the whole module



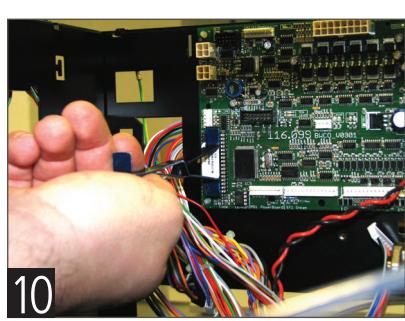
8

Remove the screw located directly under the CPU-cover



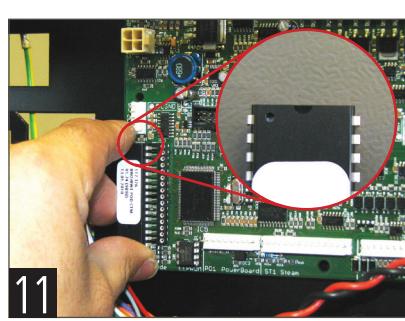
9

Remove the CPU-cover.



10

Disconnect all wires on the control board. Carefully remove the EPROM with a suitable tool and mount the new EPROM.



11

Take care that you mount the EPROM in the correct position and all pins fit in the right holes!



12

Perform all the steps in reversed order to reassemble your machine. Save your settings from the CF-Card back to the machine (EPROM)!