

Technical Manual

Costa Rica 14

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Certified Quality Tests:



Emissions

EN 55014-1
EN 55014-2
EN 61000-3-2
EN 61000-3-3
CISPR 14-1
CISPR 14-2
IEC 61000-3-2
IEC 61000-3-3

Security

EN 60335-1
EN 60335-2-15
IEC 60335-1
IEC 60335-2-15
IEC 60335-2-75

Associations:



Vending Association
Switzerland



German Vending
Association



European Vending
Association



Speciality Coffee
Association
of Europe

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Swiss made coffee machines

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1 Introduction

Welcome to our service team. Reading this manual you will find out how easy it is to take care of this modern coffee machine. The installation, service and repairing work must be done from an Aequator authorised technician.

Operating, programming, servicing and maintenance are explained in this manual. You will learn about safe and correct handling of the machine.

We do not assume any liability for damages caused by non-observance of the instructions or by improper handling of the machine.

It is impossible to treat all problems in this technical manual. If you need additional information or do not find your problem in the manual, do not hesitate to contact us at support@aequator.ch or via fax.



Generic warning



Hazard symbol High Voltage

1.1 Safety Instructions



For safety purposes, unplug the power connector for any operation inside the unit, e.g. cleaning!

The machine is constructed for safe operation, meeting advanced engineering standards.
The machine is produced in accordance with the valid CE regulations and ISO 9001.

However, the use of the machine may be dangerous if

- you do not follow the present instructions of operation carefully
- unauthorised staff installs, maintains or repairs the machine
- there is improper use of the machine, not according to the original purpose thereof.

The above may cause

- danger to correct, efficient, and reliable working of the machine
- danger to the payment system and to further assets of the operator or the user
- danger to life and limb

Concerning transport, installation, maintenance and repair please consult the latest edition of the following regulations and guidelines of your country:

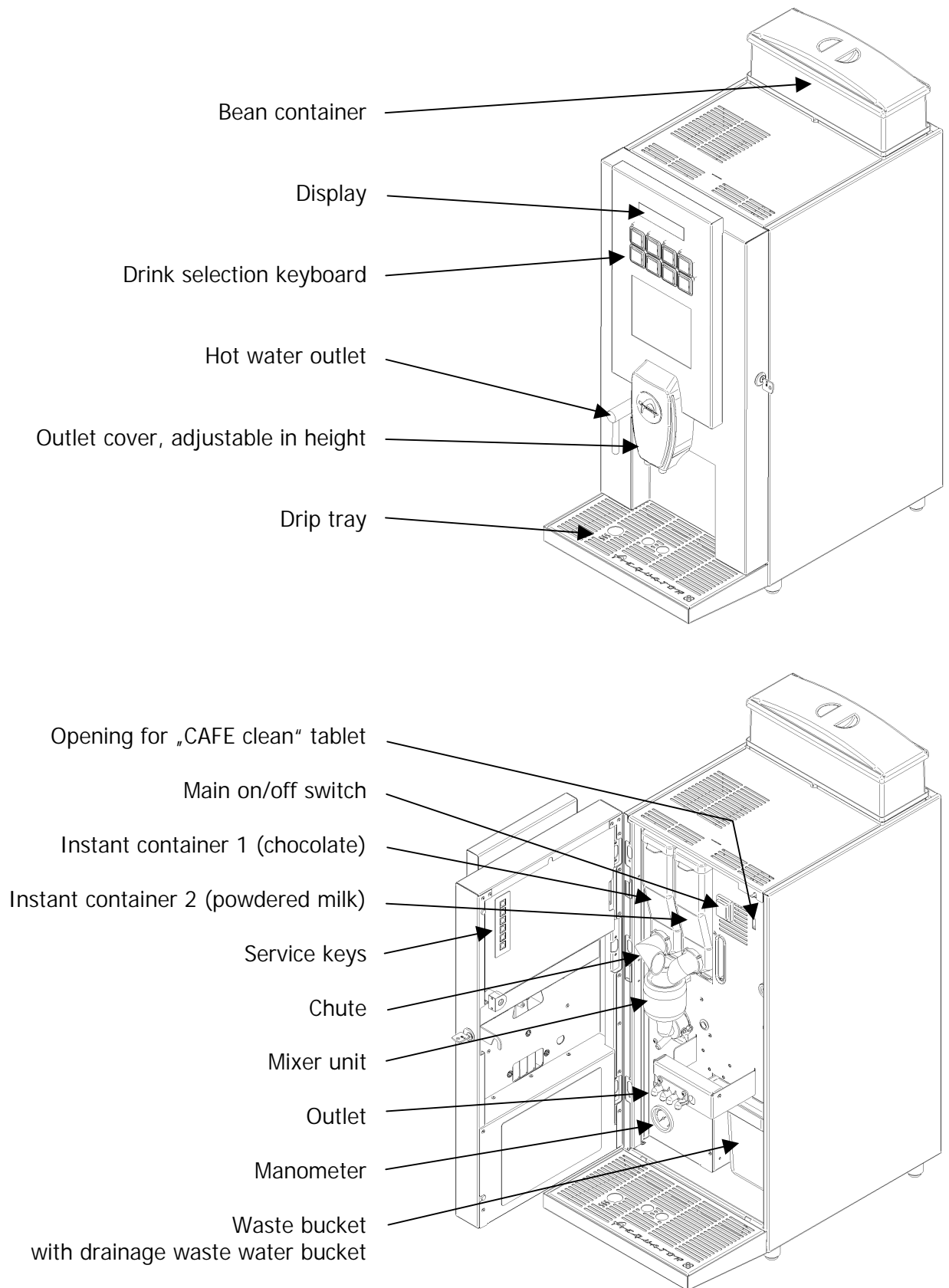
- Regulations of the federation of electro-technology
- EU – guidelines (in EU - countries)
- Regulations concerning the prevention of accidents
- Guidelines of the professional union
- Trade regulations

The following points are to be considered:

- The prepared drinks are hot.
- Some parts of the machine are hot.
- Some parts of the machine are under high pressure. (Hot water)
- The water flowing out during the cleaning process is hot.
- Any change or modification of the machine is prohibited.
AEQUATOR AG does not assume any liability in such a case.
- Store the machine in dry rooms and never in frosty environment.
- Transport it only in the original packing.



1.2 Projection of the Machine Costa Rica 14



2 Handling



The manufacturer does not assume any liability for damages caused by non-observance of the instructions below.

2.1 Installation

Please check before installing the machine:

- water connection
- electricity
- degree of hardness of the water

2.1.1 Unpacking the Machine

Check whether the machine is undamaged. If you have any doubts, do not operate the machine. Recycle the packaging material.



The machine complies with IP20 and must be operated in dry rooms only!

This table top machine must not be operated on the floor!

The machine must be placed on a horizontal surface, not exceeding 2 degrees inclination. Adjust the position with the adjustable feet.

2.1.2 Water Connection

Connect the machine to your drink water system, observing the legal regulations of your country.

The water pressure must be 0.1 to 0.8 MPa (1 to 8 bars).

Rinse the water tubes before connecting the machine, until the water is clean and clear, without dirt. Connect the machine using the hose delivered with the machine. Outside the machine there must be an easily accessible water tap to turn the water on and off.

2.1.3 Water Filter / Water Softener

The standard machine is delivered without filter no softener.

Phosphate filters may be used in case of hard water, or ion exchangers in case of very hard water.

A suitable water filter must be placed between the water connection and the machine.

The manufacturer does not assume any liability for damages caused due to missing or improper use of water filters or softeners respectively.

A volume counter is integrated in the machine to facilitate the handling of exchangers.

2.1.4 Electricity

The machine is constructed for a one phase voltage of 230V AC. Before operating the machine, make sure the specifications indicated on the label correspond to your electricity network:

- Is the voltage range within the legal limits?
- Can the fuses take the required maximum load, and is the disconnection from the net between phase and neutral conductor guaranteed with a distance of a minimum of 3 mm between the wires?

The main plug must be easily accessible.

The power cord is firmly connected to the machine and must only be removed and replaced by electrical engineers. The exclusive use of cables of type HO5 RR-F, HO5 RN-F, HO5 VV-F, HO7 RN-F, with wire size of 3 x 1.5 mm² is a must.

The electric safety of the machine is only guaranteed if duly connected to a network with proper earth connection.



This safety measure must be guaranteed. If you have any doubts, have your connection checked by an electrical engineer.

It is strictly forbidden to use adapters, multiple plugs or extension power cords.

Before operating the machine make sure that the water connection is properly installed and that the water tap is open.



2.1.5 New Machine Installation

How to install the new machine - Checklist:

- ☐ Water hardness: measure it, rinse, set and connect filter (particle/lime scale)
- ☐ Machine: connect water and electric power
- ☐ Coffee beans: fill in coffee beans
- ☐ Instant product: fill in chocolate
- ☐ Machine: switch on and confirm filling water system (for details see chapter 2.1.6)
- ☐ Time / date: set time & date → "operator menu"
- ☐ Language: set in → "Service Installation"
- ☐ Machine type: check whether correct in → "Service Installation" (only if you add a milk unit)
- ☐ No beans: set mode in → "Service Installation" (on = restaurant / off = self service)
- ☐ De-scaling volume: set in → "Service Installation", according to filter list
- ☐ Brewing speed: set in → "Service Ingredient" "Ingredient Brew Speed" the wished speed (for details see chapter 2.1.6)
- ☐ Recipes: assign recipes to the keys the customer desires → "Service Drink Assignment"
- ☐ Coffee: prepare 4 cups of coffee. Measure flow speed of the 4th cup.
- ☐ Chocolate drinks: prepare 2 chocolate drinks
- ☐ Produce two milk drinks
- ☐ Grinder 1: Set manual brewing speed (time pump operates) +/-2sec. in → "Service ingredient" → "Ingredient Grinder 1 Servo" (for details see chapter 2.1.6)
- ☐ Grinder 1: calibrate them, +/- 0.5g in → „Service ingredients“ → "Ingredient Grinder X Calib. (for details see chapter 2.1.6)
- ☐ Ingredient 1: calibrate them, +/-5% in → „Service ingredients“ → "Ingredient Instant X Calib." (for details see chapter 2.1.6)
- ☐ Recipes: adjust water volume, grams of ground coffee, PWM in → "Service Drink Settings"
- ☐ Recipes: test drinks, measure temperature of coffee
- ☐ Coffee temperature (82°C), set with slider (bar), approx. 2°C/step, in → "Service Temperature"(for details see chapter 2.1.6)
- ☐ Temperature fresh milk, set Milk PWM & Milk PWM foam → "Service Drink Settings"
- ☐ Offer drinks to the customer, let him/her try the drinks. Make sure they say they are good.
- ☐ Staff training: Explain how the machine works (see checklist below)
- ☐ Read error counter again

Staff Training:

- Daily cleaning:
 - brewer rinsing
 - put mixer cup and other parts in the dishwasher
 - put foamer outlet in the dishwasher
 - rinse and clean waste bucket, waste water container, and drip tray
- Weekly cleaning:
 - clean brewer with Cafe Clean, weekly or when machine tells you to do so
 - put mixer cup and other parts in the dishwasher
 - put foamer outlet in the dishwasher
 - rinse and clean waste bucket, waste water container, and drip tray
 - clean fan channel with moist cloth and dry it carefully.
- filling instant containers: - Instant containers must be taken out of the machine to be filled



2.1.6 Operation Steps

The water system of the machine is empty at delivery. Fill it before operating the machine.

1. Filling water system:

- Press a drink button
- If water flows out of the outlet, you could stop by pressing a drink button again.



Water will come out of the outlet, max. 0.2 l

2. Brewing speed:

- Measure the pump running time during a Coffee.
- Flow calculation: Divide cup volume (eg. 120ml) through the measured pump running time (eg. 15sec)
 $120\text{ml}/15\text{sec.} = 8\text{ml/sec.}$
- For brew speed high = good
- For brew speed normal or low = adjust grinder coarseness → „Service ingredient“ → „Ingredient grinder1 servo“ (grinder coarseness finer = brew speed slower)

3. Calibrate Instant

- Prepare scale and a container to catch the ingredients.
- Enter the service menu (see program diagram)
- Move forward to „service ingredients“
- Enter menu
- Move forward to „calibrate ingredients grinder 1“
- Calibrate the grinder following the display instructions
- Move forward to „calibrate ingredients grinder 2“
- Calibrate the grinder following the display instructions
- Move forward to „calibrate drink ingredients“
- Calibrate the ingredient motors following the display instructions

4. Calibrate Coffee:

- Make sure brew speed is right, before calibrating coffee
- Prepare scale and a container to catch the grinded coffee
- Run grinder calibration (→ „Service Ingredient“) two times (catch the grinded coffee below the brew unit)
- Measure the weight of the third calibration (catch the grinded coffee below the brew unit)
- Set amount and confirm with
- repeat process until difference is within +/- 0.5g

5. Machine temperature:

- Make sure brew speed is right, before setting the temperature
- Measure water temperature straight at the outlet, during coffee brewing
- Set machine temperature (bar), that coffee and temperature is between 82°C to 87°C (precise temperature depends to the coffee which is used)



2.2 Programming

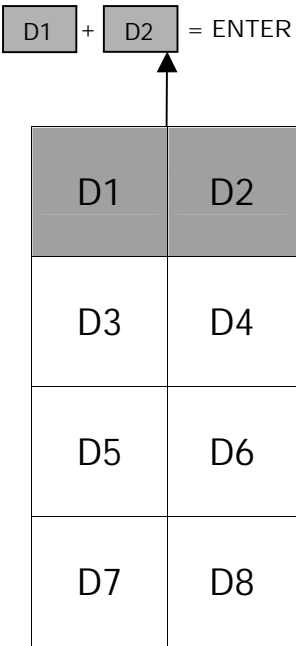
Basics

Keys	their functions
Service key 0	entering programming level
Drink buttons <D1>&<D2> simultaneously for 3 sec. ⏴	entering programming level
Drink buttons <D1>&<D2> simultaneously.....⏴	enter / confirm
Drink buttons <D1> – <D8>	entering code
Drink button <D1>	– backwards / value -
Drink button <D2>	+ forwards / value +

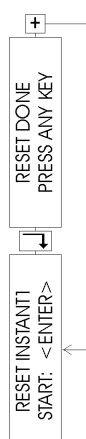
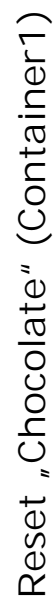
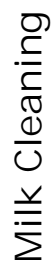
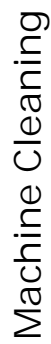
Service keys



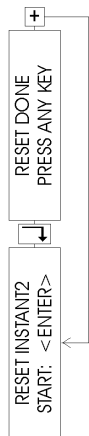
Drink selection buttons Costa Rica 14



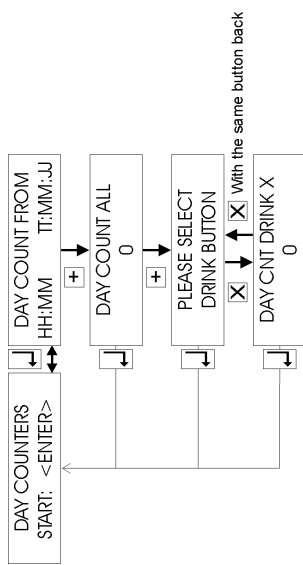
Brewer Rinsing



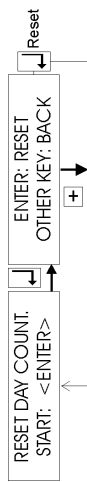
Reset „Milk“ (Container2)



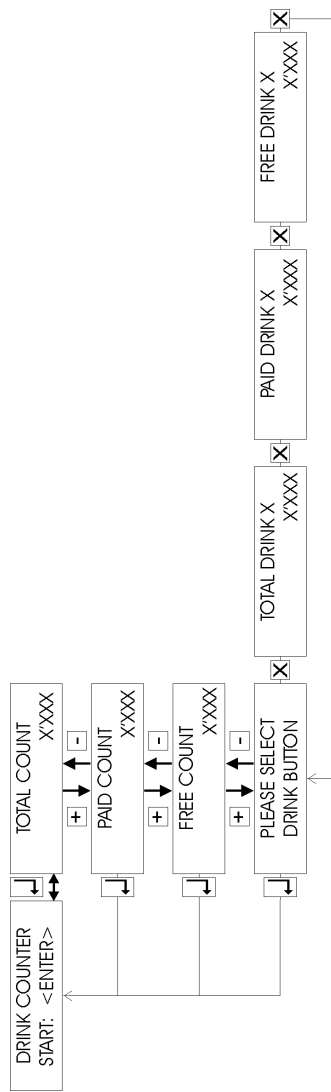
Day Counter



Reset „Day Counter“



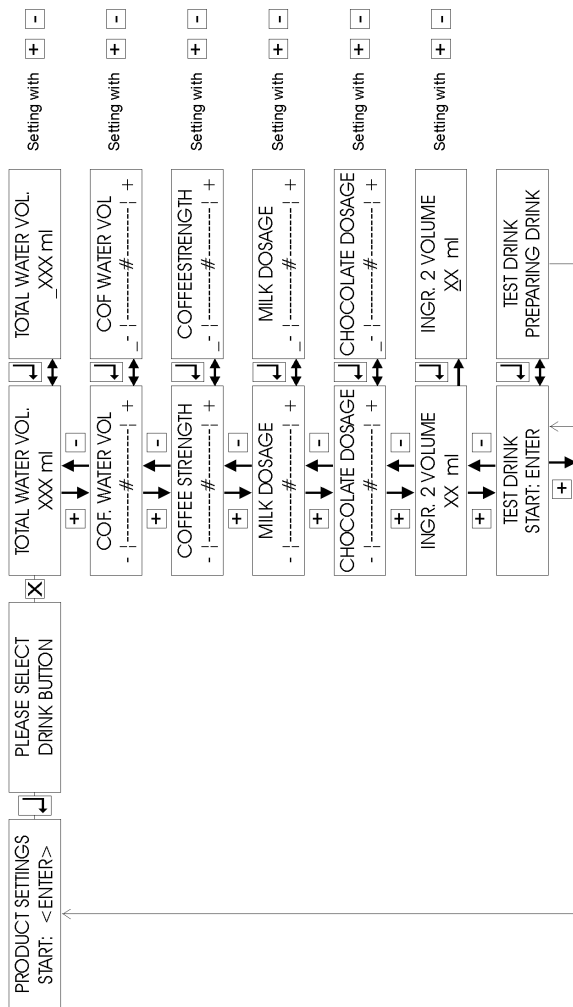
Drink Counter



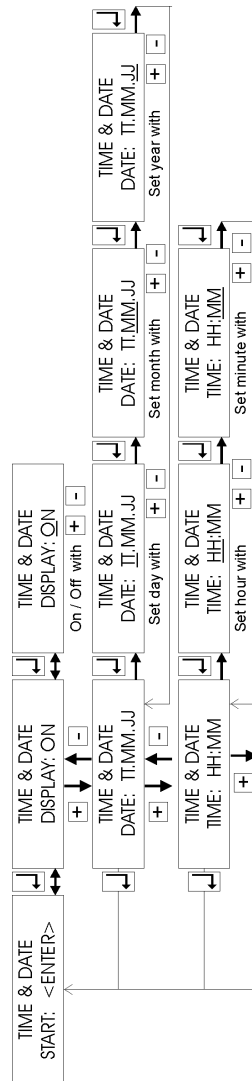
Change Cartridge



Product Settings



Time & Date



Enter Password



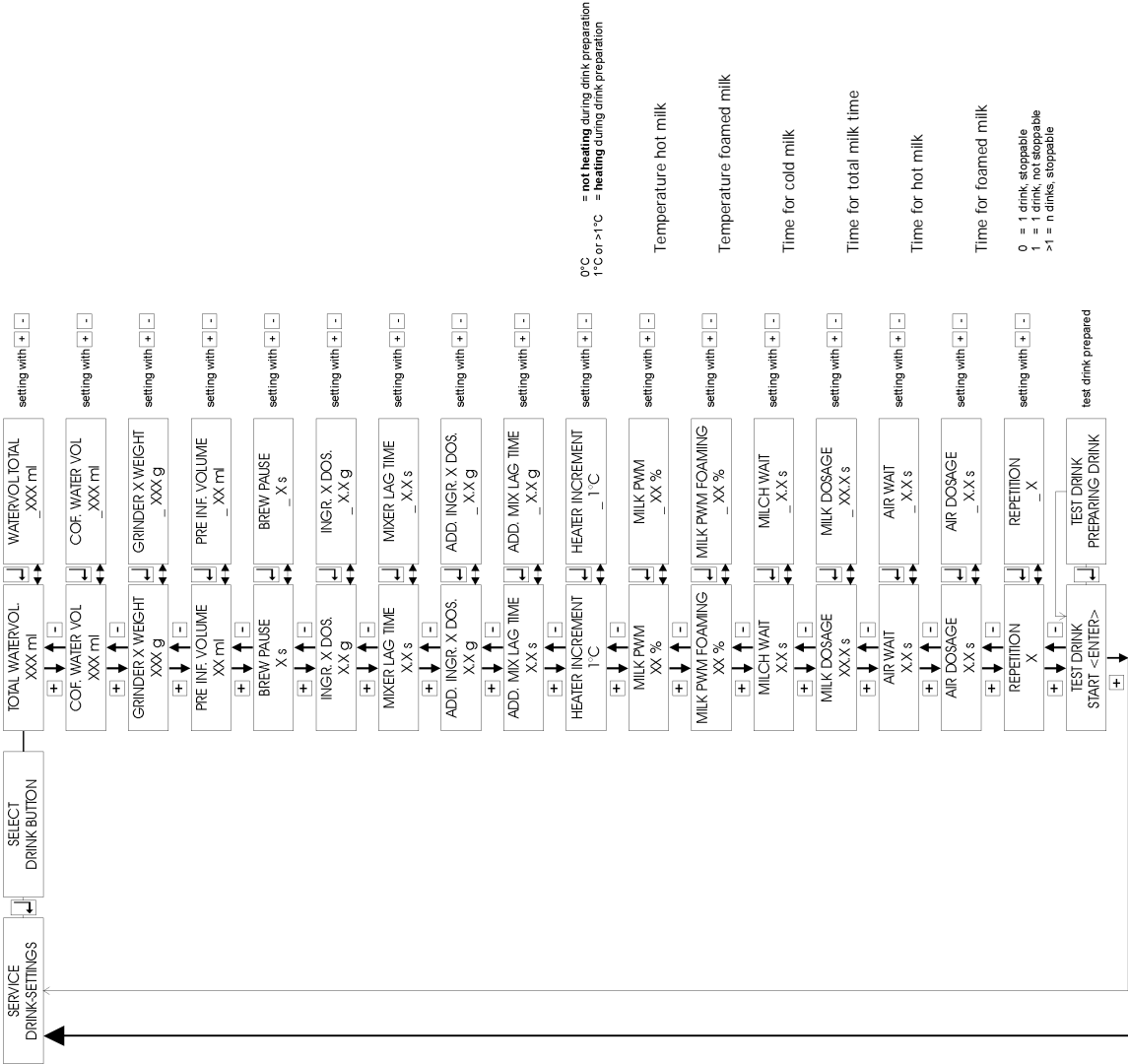
Exit





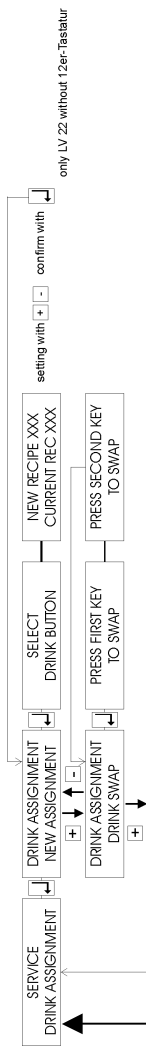
2.2.2 Engineers' Programs

Drink Settings

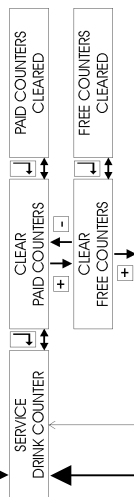


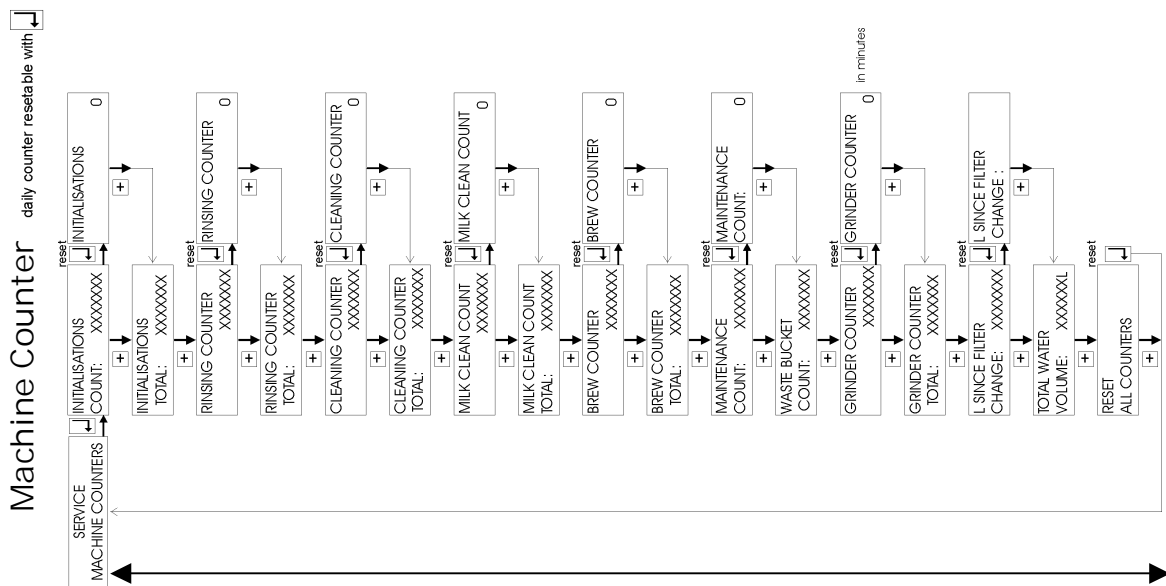


Drink Assignment



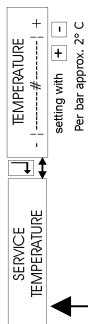
Drink Counter



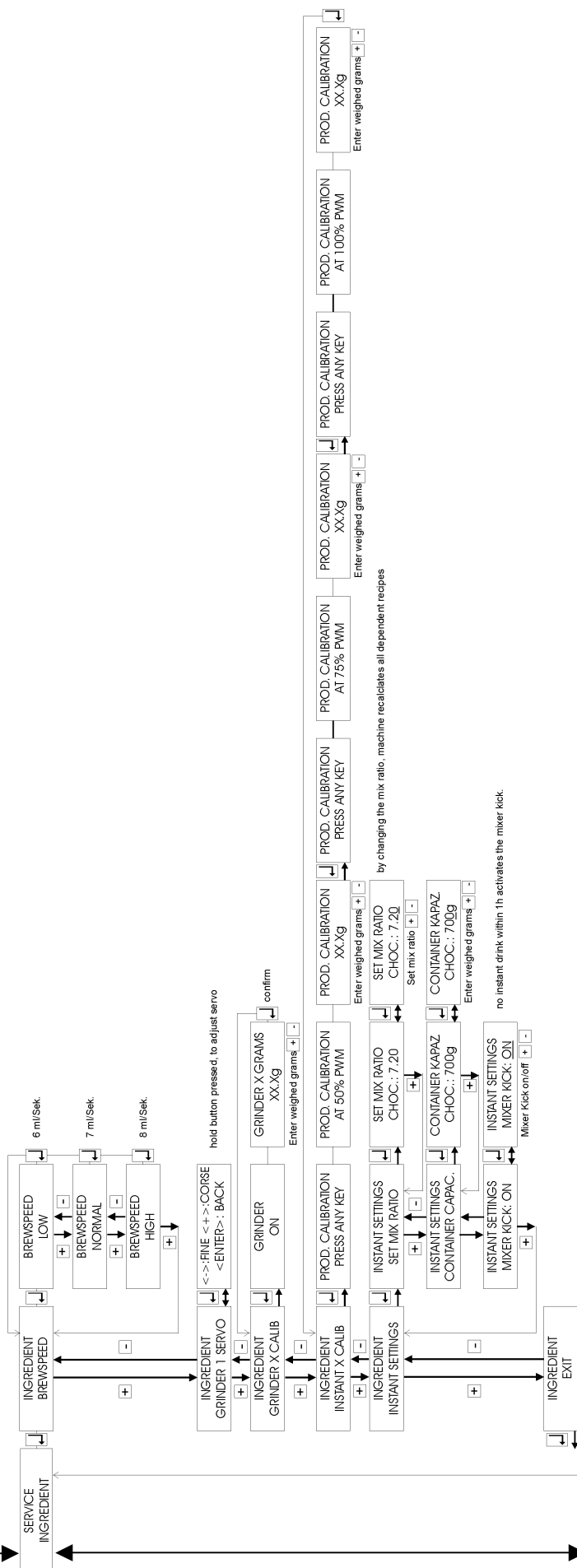




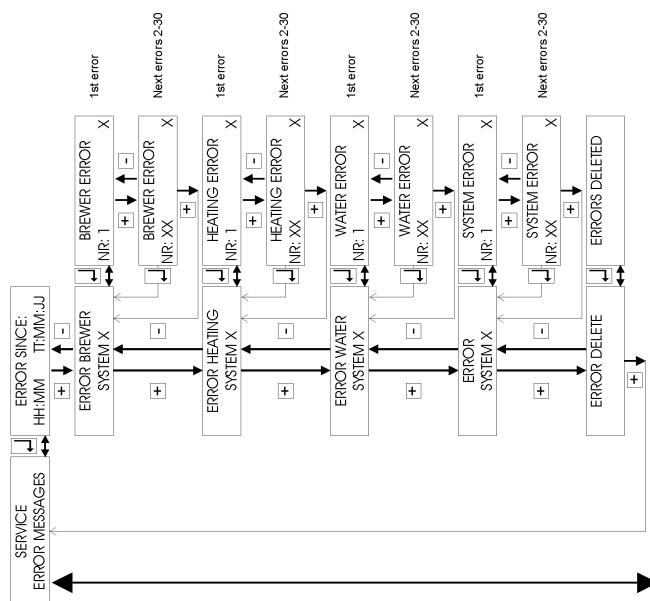
Temperature



Ingredient

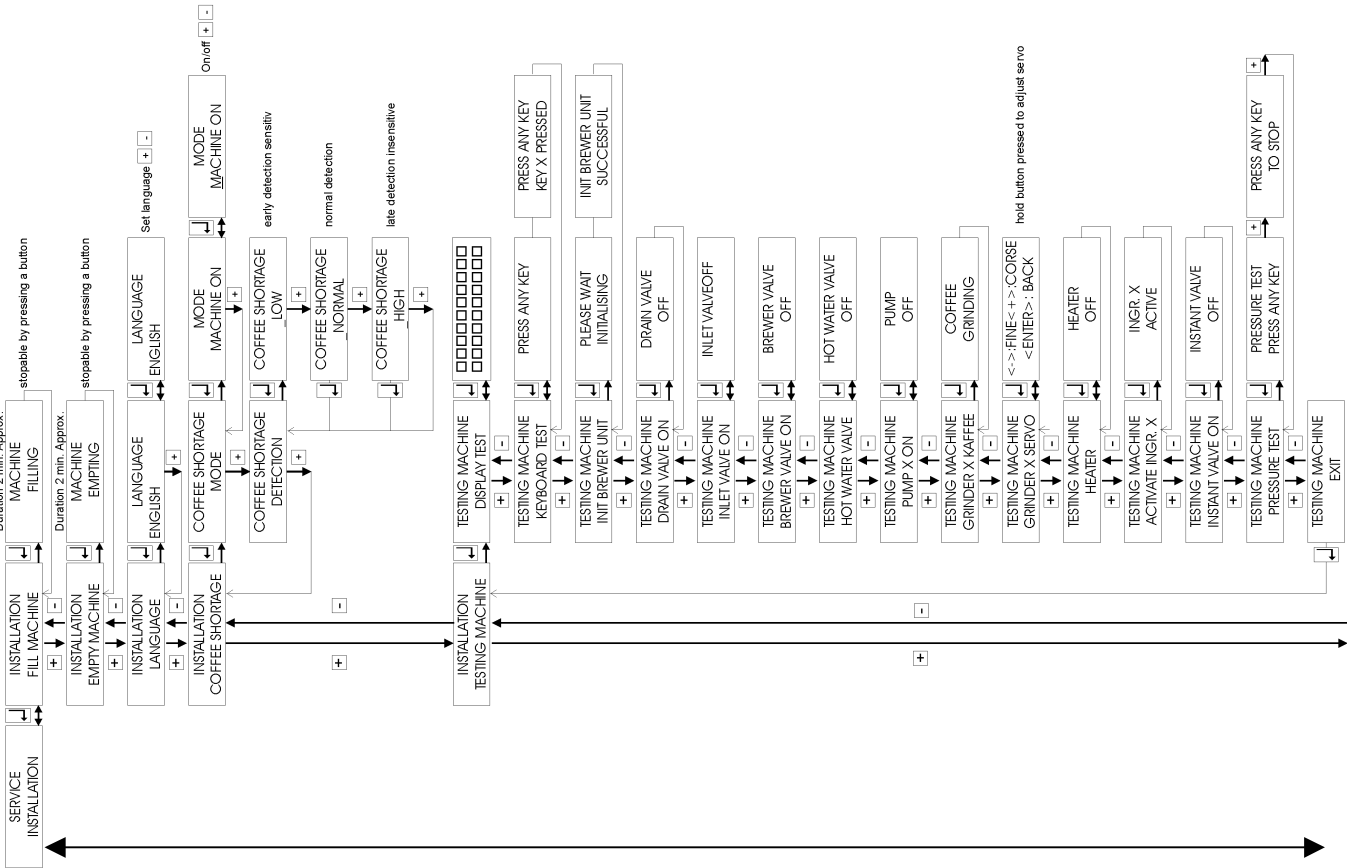


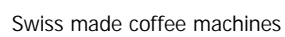
Error Messages





Installation





2.2.3 Drink Recipes

There are different groups of recipes. Within each group you may choose the individual drinks.
The basic recipes depend on the software.

The recipe groups described here will provide some basic information.

Functions:

The functions may be assigned to any button. Use the corresponding recipe numbers (0000 or 0001).
Function buttons cannot be used as drink buttons! Drink assignment is not possible.

Functions

0000	No key assignment
0001	Shift function (to enter the second assignment level)


Option: Define shift button

Use recipe number 0001 to assign the shift function to any button.

Press and hold the shift button for 3 seconds to cancel the shift function.

No drink assignment is possible on the shift button!

How to assign a second drink to a button, using the shift button:

1. Press shift button
2. Press button you wish to assign (e.g. coffee)
3. Choose recipe number (e.g. number 0402 for latte macchiato)
4. Confirm pressing <ENTER> 

Aequator standard recipes without liquid milk

100	Coffee
200	Espresso
300	Ristretto
400	Cappuccino
500	Coffee with milk
602	Coffee Choc
700	Chocolate
1200	Hot water



2.2.4 Recipe Parameter Description

Hot water:

TOTAL WATER VOL 367 ml	Total water volume
HEATER INCREMENT 10° C	Additional temperature for this drink
REPETITION 1	0 = 1 drink, stoppable 1 = 1 drink, not stoppable 2 = n drinks, stoppable
TEST DRINK START <ENTER>	Preparing a test drink

Espresso:

TOTAL WATER VOL 40 ml	Total water volume
GRINDER WEIGHT 10.0 g	Amount of grinded coffee
PRE INF. VOLUME 10 ml	Volume for pre infusion
BREW PAUSE 2 s	Time for brew pause
HEATER INCREMENT 1° C	Additional temperature for this drink
REPETITION 0	0 = 1 drink, stoppable 1 = 1 drink, not stoppable 2 = n drinks, stoppable
TEST DRINK START <ENTER>	Preparing a test drink

Coffee:

TOTAL WATER VOL 381 ml	Total water volume
GRINDER WEIGHT 13.0 g	Amount of grinded coffee
HEATER INCREMENT 1° C	Additional temperature for this drink
REPETITION 0	0 = 1 drink, stoppable 1 = 1 drink, not stoppable 2 = n drinks, stoppable
TEST DRINK START <ENTER>	Preparing a test drink



Chocolate:

TOTAL WATER VOL 255 ml	Total water volume
INGR. 1 DOS. 35.4 g	Amount of dispensed ingredient 1
MIXER LAG TIME 1.0 s	Additional time mixer should run
HEATER INCREMENT 1° C	Additional temperature for this drink
REPETITION 0	0 = 1 drink, stoppable 1 = 1 drink, not stoppable 2 = n drinks, stoppable
TEST DRINK START <ENTER>	Preparing a test drink

Cappuccino:

TOTAL WATER VOL 70 ml	Total water volume
GRINDER WEIGHT 10.0 g	Amount of grinded coffee
PRE INF. VOLUME 0 ml	Volume for pre infusion
BREW PAUSE 0 s	Time for brew pause
HEATER INCREMENT 8° C	Additional temperature for this drink
MILK PWM 100 %	Milk pump speed during hot milk dispensing (slow = hotter milk / fast = colder milk)
MILK PWM FOAMING 78 %	Milk pump speed during milk foaming (slow = hotter milk / fast = colder milk)
STEAM WAIT 1.0 s	Cold milk dispensing time
MILK DOSAGE 13.6 s	Total milk dispensing time (cold milk time, hot milk time & foamed milk time,...)
AIR WAIT 1.5 s	Time of hot milk
AIR DOSAGE 8.5 S	Time of foamed milk
REPETITION 0	0 = 1 drink, stoppable 1 = 1 drink, not stoppable 2 = n drinks, stoppable
TEST DRINK START <ENTER>	Preparing a test drink



3 Servicing

3.1 Cleaning

Cleaning is compulsory with each servicing in order to prevent malfunctions and to enable the machine to work perfectly, without problems.

- Clean the interior of the machine
- Clean the coffee slide
- Clean the fan and the ventilation channel
- Check and adjust the pressure of the pump (10 bars)

3.2 Service Work

Service Checklist:

- ☐ Error messages: check/delete
- ☐ Outlet: replace
- ☐ Instant containers: check condition
- ☐ Waste bucket: check condition
- ☐ Drain and hose: check condition, whether blocked
- ☐ Waste water container: check condition, clean
- ☐ Drip tray: check condition
- ☐ Bean hopper: check condition
- ☐ Fan: check -> replace it if necessary
- ☐ Outlet hoses and vent hose are to be replaced
- ☐ Brewing unit: replace
- ☐ Brewing motor cycles: check reading counter -> replace it if necessary
- ☐ Mixer unit: check mixer base, bowl adapter, seals, motor -> replace it if necessary
- ☐ Machine cleaning: do a whole machine cleaning (do not forget the fan channel)

Final Work Checklist:

- ☐ Modifications: install available modification kits
- ☐ Water hardness: check it, check filter (capacity exceeded!, setting, over 1 year old)
- ☐ De-scaling counter: reset if filter was replaced
- ☐ Maintenance/brewing counter: delete if brewing unit was replaced> message at 50'000!
- ☐ Other machine counters: delete if appropriate
- ☐ Pump pressure (9.5 – 10 bar) & machine leak test
- ☐ Hot water flow: check/best 10ml/sec.
- ☐ Instant water flow: check, best 11.5ml/sec. Minimum 10.5ml/sec. Instant rinsing time 100ml=8.7sec
- ☐ Coffee settings: brewing coffee 120ml=15-20s; espresso 40ml=12-15s; cups incl. double cups, Crema)
- ☐ Instant settings: test: How does the drink look, filling of the cup, etc.
- ☐ Error counter read/check/delete
- ☐ Clean machine -> incl. fan channel
- ☐ Colour damage: repair if possible
- ☐ Test drinks, let the customer try them
- ☐ Customer/staff training: Show them how to clean, fill containers, mixer cup etc.
- ☐ Read error counter again



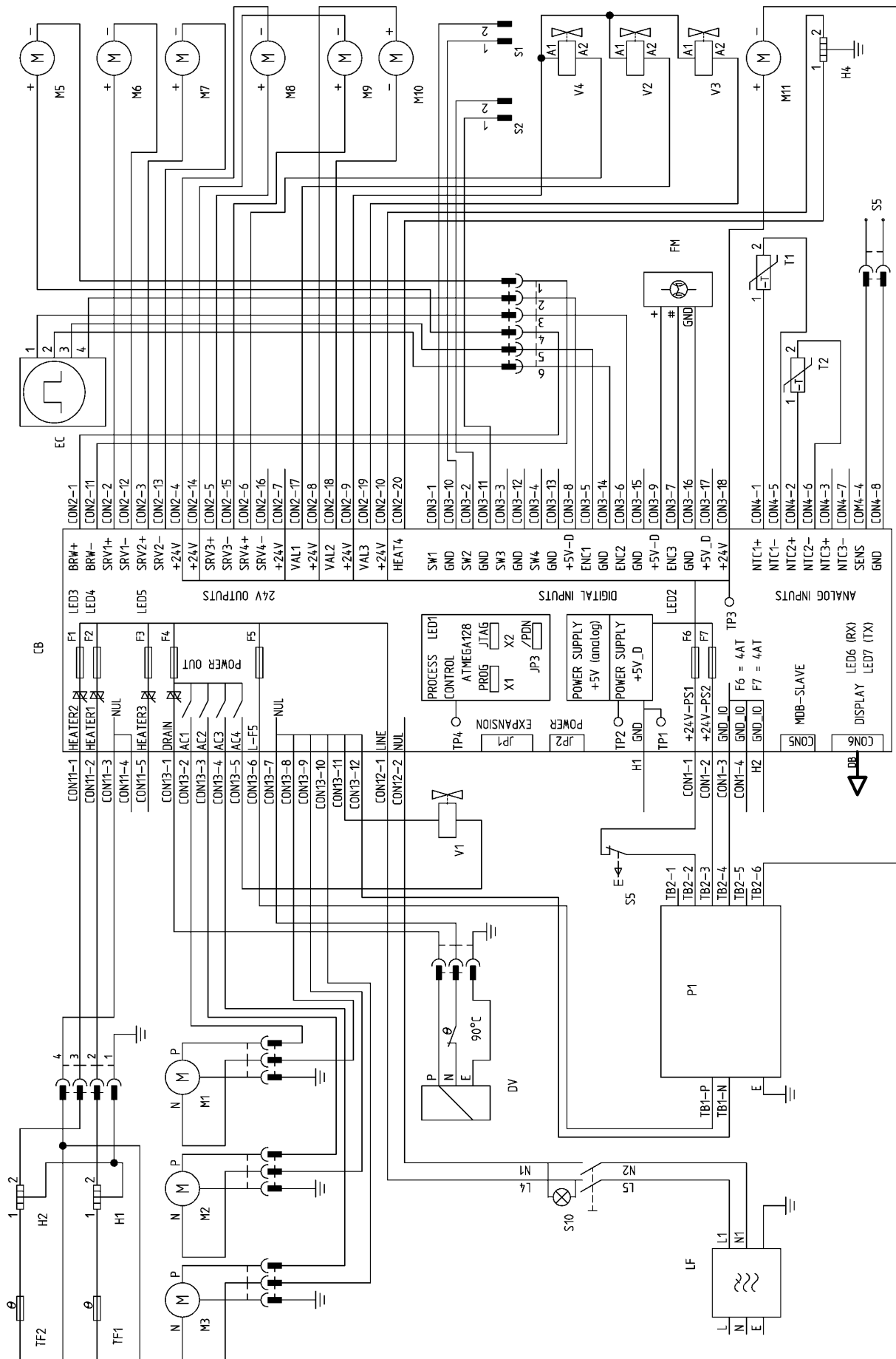
4 Error Messages and how to solve them

4.1 Error Messages

Error message	Code	Description / Meaning	Solution
HEATER FAULT SYS ERROR	EH 281	Over temperature limit reached	<ul style="list-style-type: none"> - Check Control board, if output may by has a short circuit to phase - Check overheating fuses at thermo block - Check NTC fitting to thermo block
HEATER FAULT SYS ERROR	EH 282	NTC temperature sensor not connected	<ul style="list-style-type: none"> - Check NTC cable and connectors - Check NTC - Check control board
HEATER FAULT SYS ERROR	EH 283	NTC temperature sensor is out of range or shorted	<ul style="list-style-type: none"> - Check NTC cable and connectors - Check NTC - Check control board
HEATER FAULT SYS ERROR	EH 284	No temperature rising at heating up	<ul style="list-style-type: none"> - Check control board fuses - Check overheating fuse - Check control board
WATER FAULT SYS ERROR	EW 184	Volume not reached until timeout (no flow, low flow)	<ul style="list-style-type: none"> - Check water supply - Check flow meter - Check lime scale in system
SELECT DRINK BREWER FAULT (SYS ERROR)	EM 140	Position is out of positive tolerance (range to wide)	<ul style="list-style-type: none"> - Check brewing unit - Check brewing motor
SELECT DRINK BREWER FAULT (SYS ERROR)	EM 141	Position is out of negative tolerance (range to short)	<ul style="list-style-type: none"> - Check brewing unit - Check brewing motor
SELECT DRINK BREWER FAULT (SYS ERROR EM142)	EM 142	Touch position out of wide tolerance range	<ul style="list-style-type: none"> - Check brewing unit - Check brewing motor
SELECT DRINK BREWER FAULT (SYS ERROR)	EM 144	Timeout at start (no moving if motor starts because blocked)	<ul style="list-style-type: none"> - Check brewing unit if blocked - Check brewing positioning sensor - Check control board
SELECT DRINK BREWER FAULT (SYS ERROR)	EM 145	Timeout at motion (target position not reached in given time because not stopping)	<ul style="list-style-type: none"> - Check brewing unit if blocked - Check brewing positioning sensor - Check control board
SELECT DRINK BREWER FAULT (SYS ERROR)	EM 146	Timeout at motion (target position not reached in given time because no more pulses)	<ul style="list-style-type: none"> - Check encoder from brewing unit
SELECT DRINK BREWER FAULT (SYS ERROR)	EM 147	Moving stopped (by motion motor over current)	<ul style="list-style-type: none"> - Check brewing unit if blocked - Check brewing motor
SELECT DRINK NO MILK UNIT	440	External boiler filling timeout Milk module	<ul style="list-style-type: none"> - Check water supply - Check water pump - Check inlet valve - Check niveau sensors - Check electronic board
SELECT DRINK NO MILK UNIT	441	External boiler heater defective Milk module	<p><u>No manometer pressure:</u></p> <ul style="list-style-type: none"> - Check overheating fuse - Check pressure switch - Check solid state relay <p><u>Manometer pressure ok:</u></p> <ul style="list-style-type: none"> - Check steam valve - Check NTC sensor - Check electronic board



4.2 Electrical Connection Diagram Costa Rica 14

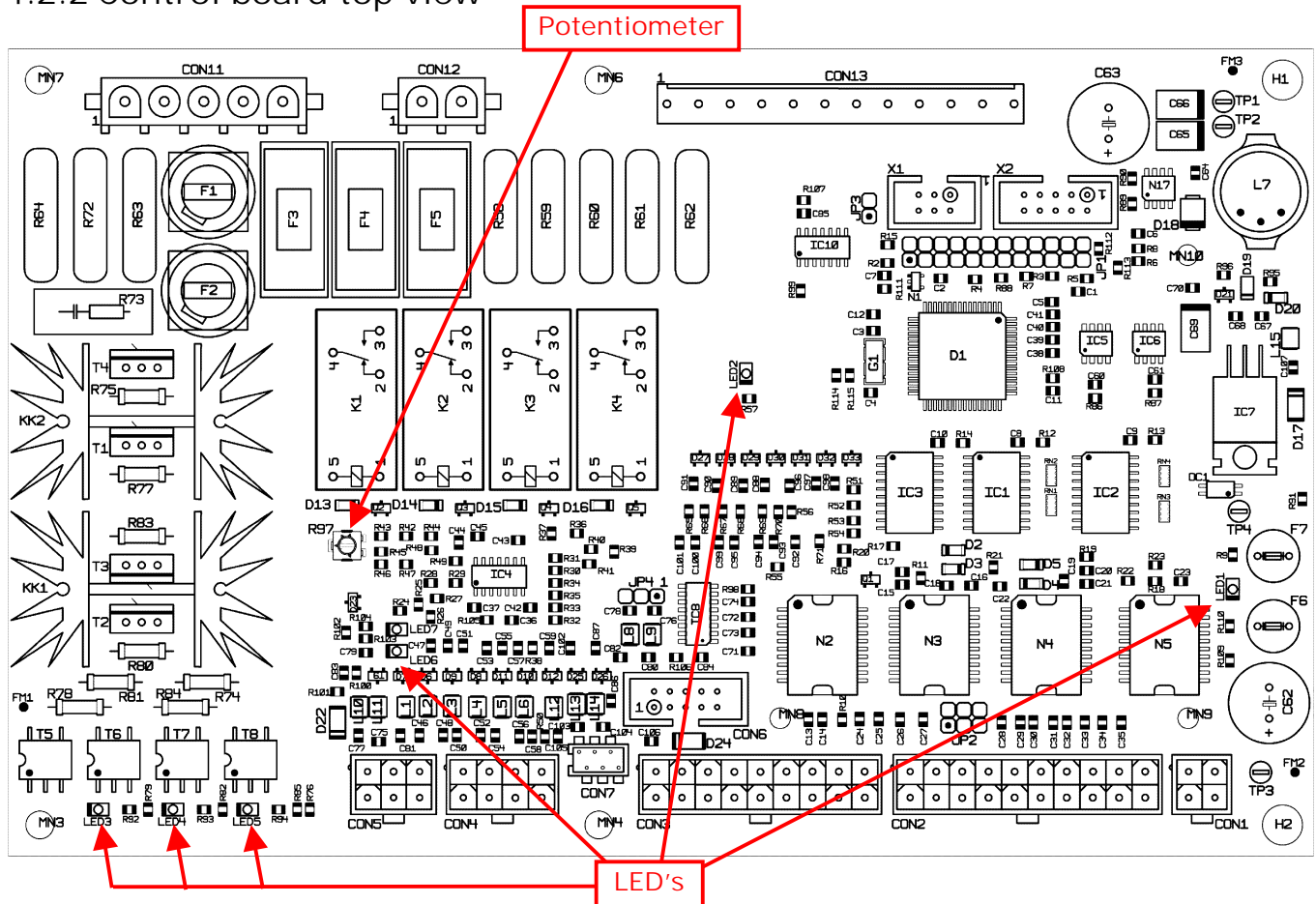


4.2.1 Description of the Electrical Connection Diagram Costa Rica 14

Pos.	Costa Rica 14 item
CB	Control Board 2
DB	Connector display board
DV	Drain valve
EC	Encoder
FM	Flow meter
H1	Thermo block 1
H2	Thermo block 2
H4	Valve block
LF	Grid filter
M1	Grinder motor 1
M2	Grinder motor 2
M3	Pump motor
M5	Brewer motor
M6	Servo motor 1
M7	Servo motor 2
M8	Ingredient motor 1
M9	Ingredient motor 2
M10	Mixer motor
M11	Fan motor
P1	Power supply 230V AC/24VDC
S5	Door switch
S5	Sensor waste water
S10	Main switch
T1	Temperature sensor thermo block 1
T2	Temperature sensor thermo block 2
TF1	Thermo fuse heater1
TF2	Thermo fuse heater2
V1	Hot water valve
V2	Inlet valve
V3	Brewer valve
V4	Instant valve



4.2.2 Control board top view



LED's

Pos.	Name	Function	Colour
LED1	RUN	System running 1Hz interrupt	yellow
LED2	FLOW METER	Flow meter impulse (water flow)	yellow
LED3	HEATER 1	Heater 1 ON	yellow
LED4	HEATER 2	Heater 2 ON	yellow
LED5	HEATER 3	Heater 3 ON	yellow
LED6	RXD	Serial data receiving	yellow
LED7	TXD	Serial data transmitting active	yellow

Potentiometer

Pos.	Name	Function
R97	DRIP TRAY	Adjusting drip tray sensor

Test points

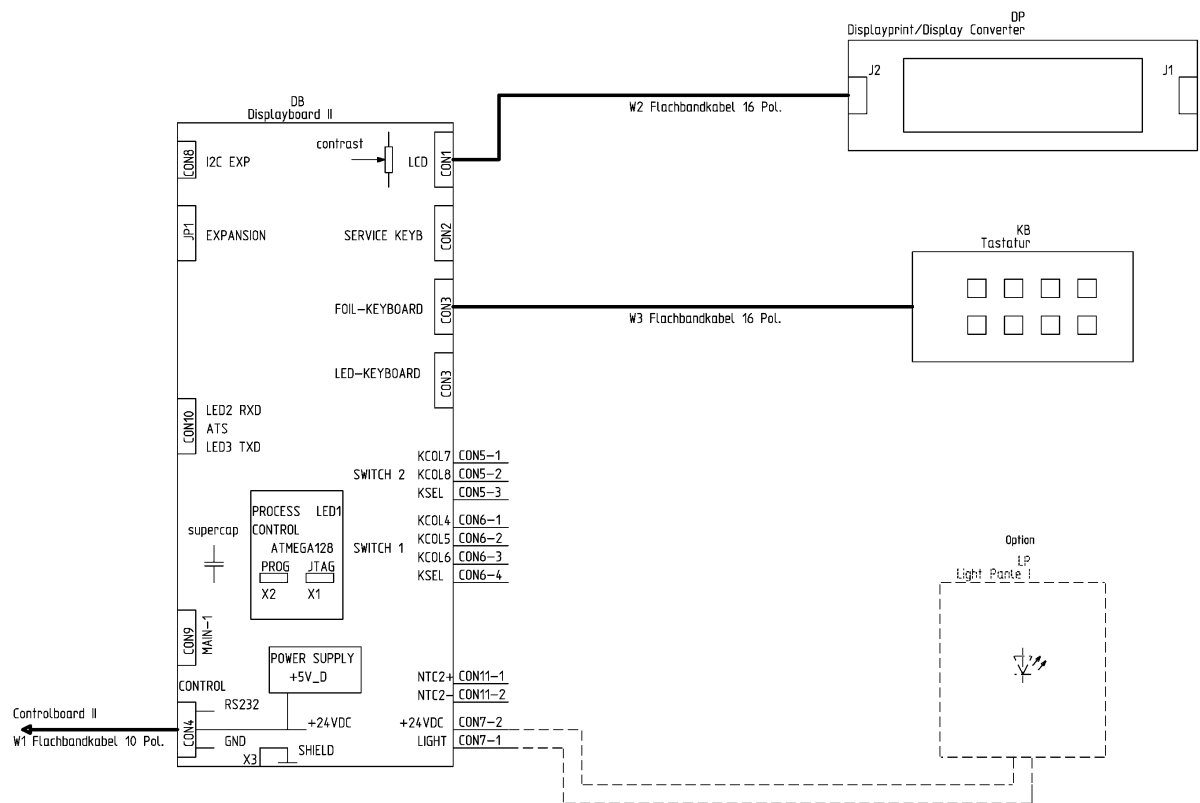
Pos.	Name	Function	Pegel
TP1	GND	System ground	0 VDC
TP2	+5V_D	+5VDC supplying logic points	+5.0 VDC
TP3	+24V	+24VDC supplying power output	+24 VDC
TP4	TEST	Test output	5V Logic

Fuses

Pos.	Name	Function	Value
F1	HEATER 2	Power supply heater 2	10AT
F2	HEATER 1	Power supply heater 1	10AT
F3	HEATER 3	Not in use	10AT
F4	Miscellaneous	Drain valve, pump, grinder, inlet valve	10AT
F5	Power supply	Power supply 24V DC	4AT



4.3 Electrical Console Diagram Costa Rica 14

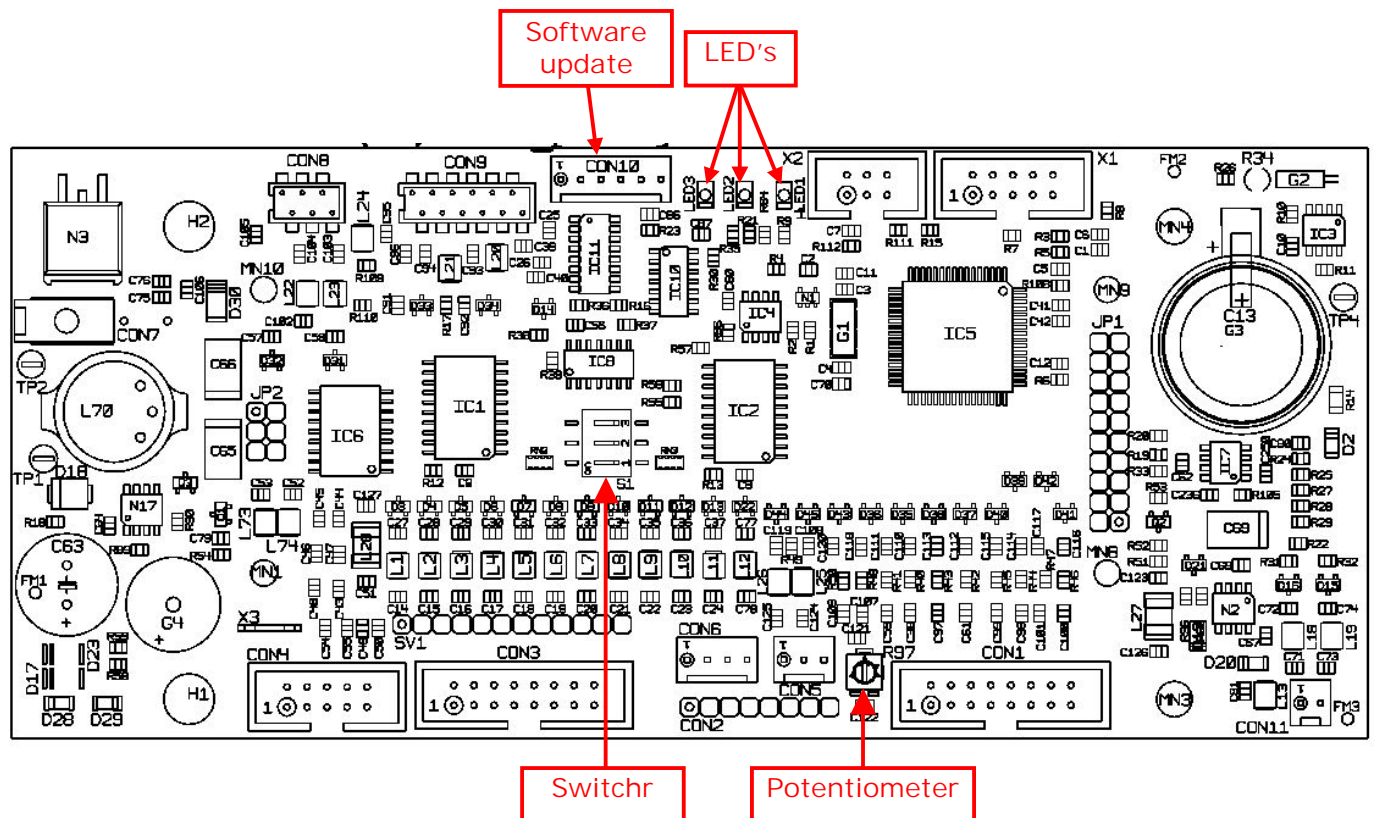


Description of the Electrical Console Diagram

Pos.	Rio 14 description	
DB	Display board	
DP	LCD-Display	
KB	Key board	
LP	LED Light panel	
W1	Ribbon cable 10pol	Display board - control board
W2	Ribbon cable 16pol	Display board – display
W3	Ribbon cable 16pol	Display board – key board



Display Board Top View



Switch

Pos.	Name	Function
S1	selection switch 3 pin	

LED's

Pos.	Name	Function	Colour
LED1	RUN	Real time Process active	yellow
LED2	RXD	Serial data receiving	yellow
LED3	TXD	Serial data transmitting active	yellow

Potentiometer

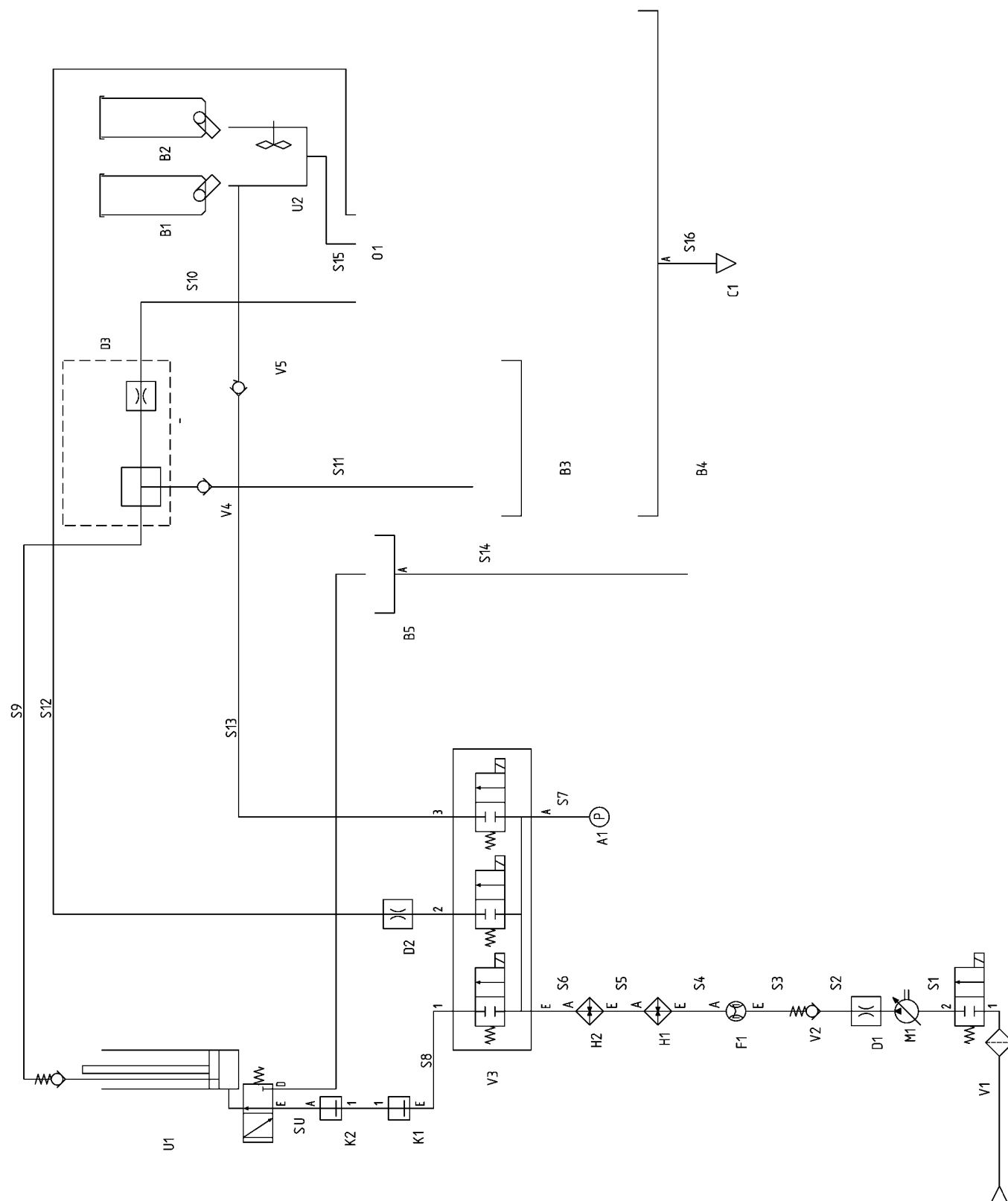
Pos.	Name	Function
R97	Contrast	Display

Connectors

Pos.	Name	Function
Con1	LCD	LCD-display
Con3	Keyboard	Matrix keyboard
SV1	Keyboard	Matrix foil keyboard
Con4	Control board	Connector to control board
Con7	Backlight	Backlight 24VDC
Con8	Keyboard	I ² C keyboard
Con9	Main board	Connector to main board
Con10	ATS	Data connector, software update display and control board II



4.4 Water Flow Diagram COSTA Rica 14



4.4.1 Description of the Water Flow Diagram Costa Rica 14

Pos.	Costa Rica 14 description	Costa Rica 14
	Water connection	¾" Gas
A1	Pressure manometer	-1 bis 24 bar
B1	Ingredient container 1	
B2	Ingredient container 2	
B3	Waste bucket	
B4	Drip tray	
B5	Waste water container	
C1	Waste water connection	Ø 13 mm
D1	Nozzle	0.7 mm
D2	Hot water smoothing	
F1	Flow meter	" outside
H1	Thermo block	1400W
H2	Thermo block	1400W
M1	Pump	
S1	Inlet valve - Pump	
U1	Brewing unit	
U2	Mixer	
V1	Inlet valve	180°
V2	Clap valve	
V3	3 valve module	
V4	Clap valve	
V5	Clap valve	



5 Tips & Tricks



Disconnect the power cord from the mains before starting any work inside the machine !

Repairs Checklist:

- ☐ Error messages: read, analyse -> repair errors
- ☐ Service staff: talk with them, ask about other errors, their desires
- ☐ Fan: check -> replace if life expectancy is reached
- ☐ Brewing unit cycles: check reading counter -> replace it, if necessary
- ☐ Brewing motor cycles: check reading counter -> replace it, if necessary
- ☐ Mixer unit: check mixer base, seals, motor -> replace it, if necessary

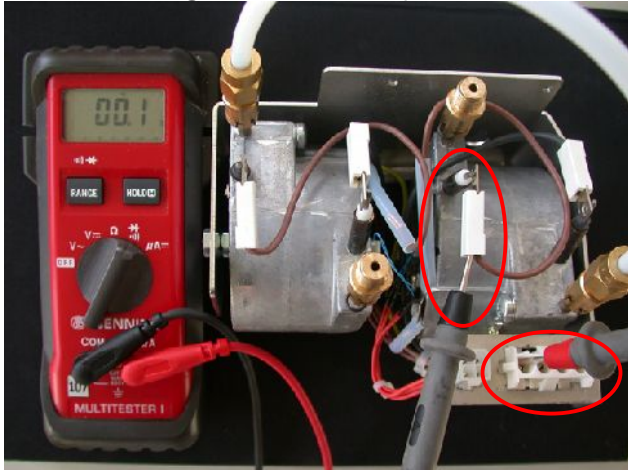
Final Work Checklist:

- ☐ Modifications: install available modification kits
- ☐ Water hardness: check it, check filter (capacity exceeded!, setting, over 1 year old)
- ☐ De-scaling counter: reset if filter was replaced
- ☐ Maintenance/brewing counter: delete if brewing unit was replaced> message at 50'000!
- ☐ Other machine counters: delete if appropriate
- ☐ Pump pressure (9.5 – 10 bar) & machine leak test
- ☐ Hot water flow: check/best 10ml/sec.
- ☐ Instant water flow: check, best 11.5ml/sec. Minimum 10.5ml/sec. Instant rinsing time 100ml=8.7sec
- ☐ Coffee settings: brewing coffee 120ml=15-20s; espresso 40ml=12-15s; cups incl. double cups, Crema)
- ☐ Instant settings: test: How does the drink look, filling of the cup, etc.
- ☐ Error counter read/check/delete
- ☐ Colour damage: repair if possible
- ☐ Test drinks, let the customer try them
- ☐ Customer/staff training: Show them how to clean, fill containers, mixer cup etc.
- ☐ Read error counter again

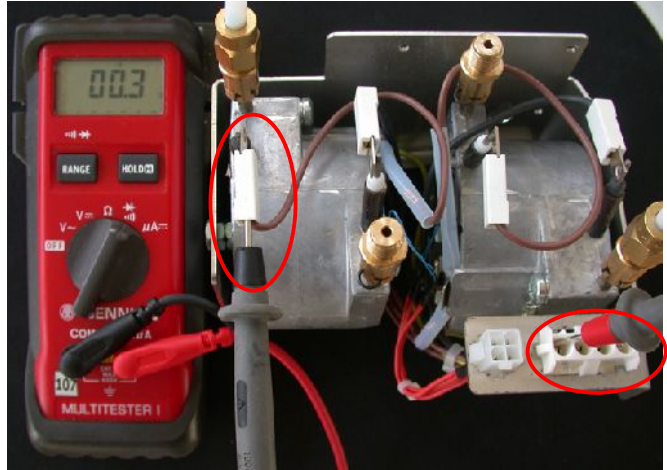


Easy Measuring / How to Do it

Overheating fuse: continuity test



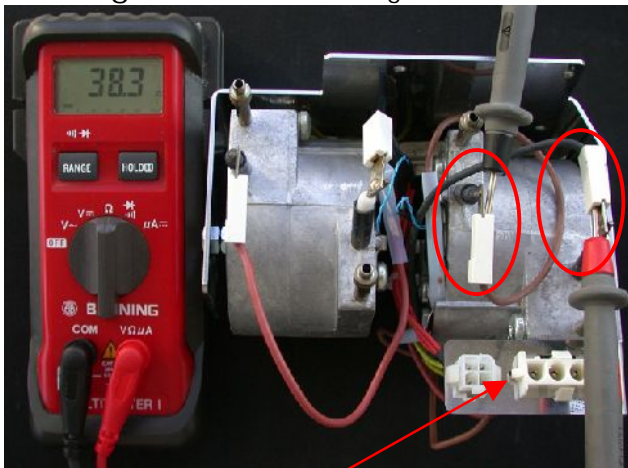
Overheating fuse thermo block 1



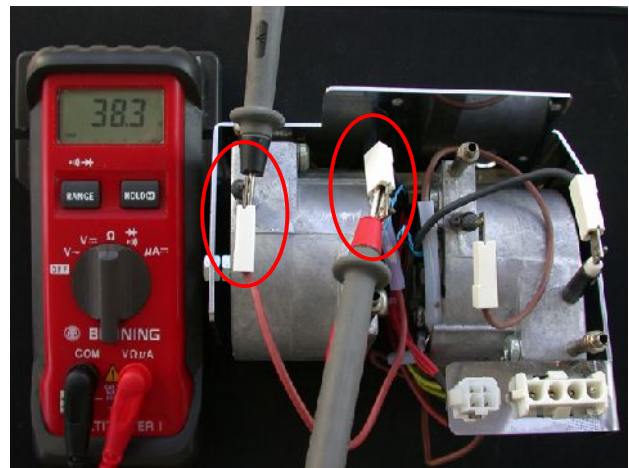
Overheating fuse thermo block 2

Separate thermo block from mains. The value must not exceed 2 Ohms.

Heating coil: Ohm measuring



Heating coil thermo block 1



Heating coil thermo block 2

Unplug power connector from thermo block. The heating coil of the thermo block should have 38 Ohm approx.

Resistance values (examples):

1.0kW = 1000W, 230VAC, $R = 52,9\Omega$

1.2kW = 1200W, 230VAC, $R = 44,1\Omega$

1.4kW = 1400W, 230VAC, $R = 37,8\Omega$

2.0kW = 2000W, 230VAC, $R = 26,5\Omega$

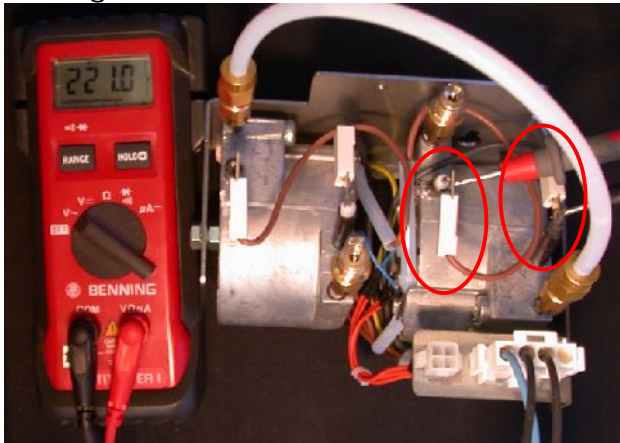
3.0kW = 3000W, 230VAC, $R = 17,6\Omega$

4.0kW = 4000W, 400VAC, $R = 40,0\Omega$

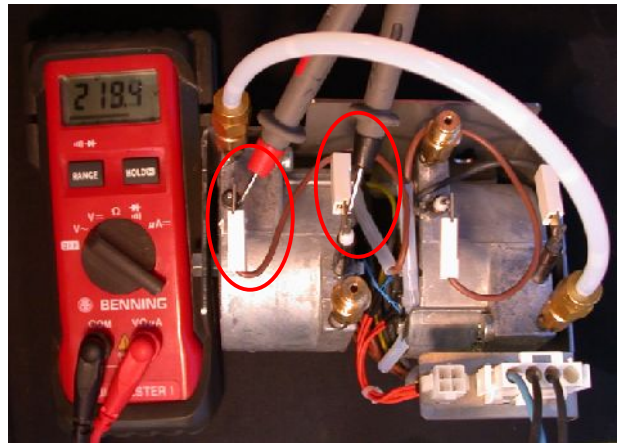


Caution high voltage!

Voltage measurement:



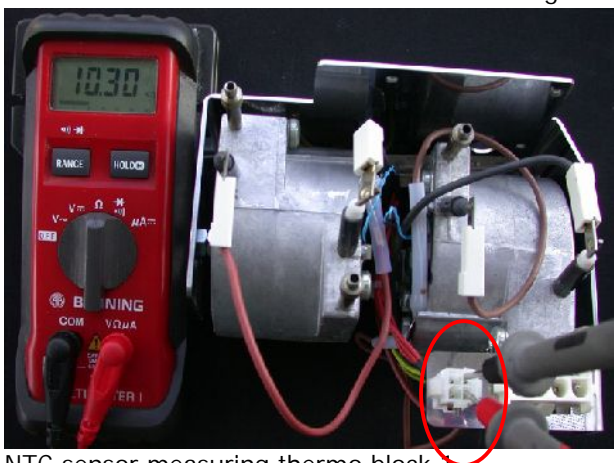
Voltage thermo block 1



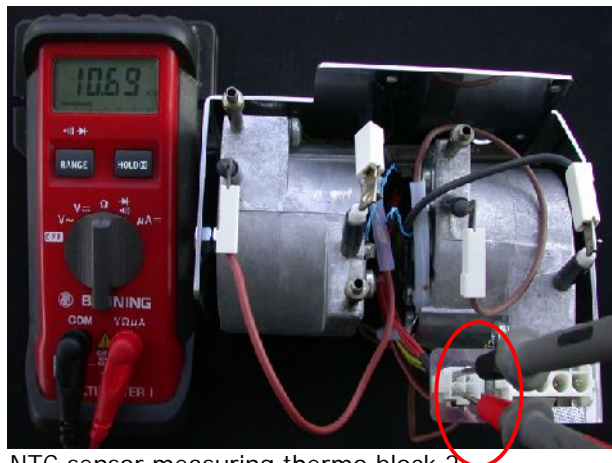
Voltage thermo block 2

If multi meter is connected, switch on machine and start heater test "Service Installation" "Installation testing machine"

Thermo block NTC Sensor: measuring resistance



NTC sensor measuring thermo block 1



NTC sensor measuring thermo block 2

The NTC resistance depends on the temperature. 20°C = approx. 10-12kOhm / 80°C = approx. 0.4-0.6kOhm

Input voltage measurement (24V): voltage measurement VDC



To measure voltage, the machine must be switched on.



6 Technical Data

Costa Rica 14:

Dimensions:

Width:	320 mm
Depth:	550 mm
Height:	810 mm

Weight:

Total weight:	50 kg
---------------	-------

Water

Fresh water connection	3/4" Gas outside
Fresh water hose	3/8" Gas inside
Length of fresh water hose	1.5 m
Water pressure	0.1–0.8 MPa (1-8 bar)

Elektrik

Operating voltage:	230 V 50 Hz
Fuse protection	13 A
Maximum power	3 kW

Conditions:

Working temperature	5-40° C
Never expose your machine to temperatures below freezing.	



7 Declaration of Conformity

EU-Konformitätserklärung **EU Declaration of Conformity** **Déclaration de conformité UE**

Hiermit erklären wir, dass die Kaffeemaschine
We herewith declare that the coffee machine
Nous déclarons que la machine à café

Linea Gastro 14

auf die sich diese Erklärung bezieht, mit folgenden Normen übereinstimmt:
to which this declaration relates is in conformity with the following standards:
à laquelle se réfère cette déclaration, est conforme aux normes suivantes:

Sicherheit / Security / Sécurité

EN 60335-1, 2004; IEC 60335-1, 2001
EN 55014-2, 2002; CISPR 14-2

DIN EN 60335-2-15, 2003; IEC 60335-2-15, 2002

DIN EN 60335-2-75, 2003; IEC 60335-2-75, 2002

Emissionen / Emissions

EN 55014-1, 2003; CISPR 14-1

DIN EN 61000-3-2, 2001; IEC 61000-3-2
DIN EN 61000-3-3, 2002; IEC 61000-3-3

gemäss den Bestimmungen folgender Richtlinien:
following the provisions of the following directives:
conformément aux dispositions des directives suivantes:

EMV / electromagnetic compatibility / compatibilité électromagnétique	2004/108/EG
Niederspannungsrichtlinie / low voltage / basse tension	73/23/EG
Maschinenrichtlinie / machinery / machines	2006/42/EG
Druckgeräte richtlinie / pressure equipment / équipement sous pression	97/23/EG
"RoHS" Restriction of the use of certain hazardous substances in electrical and electronic equipment	2002/95/EG
"WEEE" Waste Electrical and Electronic Equipment	2002/96/EG

Arbon, May 2009

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Manfred Meyer
Geschäftsführer
CEO / directeur général



8 Your Service Partner

