

EWM 1000 PLUS



General

Specification

EWM 1000 PLUS

Main Targets

- reduce the machine cost *
- increase of the configuration flexibility
- substitution of EWM 2000 traditional machines
- machines in 5kg and 6kg implementations
- extension of the same electronic solution in order to increase the electronic standardisation

* To reduce costs it is also planned to switch from EWM2000 (traditional machines) to the identical looking EWM1000 Plus appliances by using the Maintenance Level. That means the new EWM1000 Plus machine will have the same PNC like the substituted old EWM2000.

- **For revision of Maintenance Level see online PCBT in INTRANET**
<http://194.12.100.5/tse/train/default.html>

EWM 1000 PLUS

Characteristics

Power supply:	220/240V – 50/60Hz
Washing heater:	1950W on the tub with integrated NTC
Door lock devices:	- instantaneous with PTC for failure opening - traditional PTC
Motors:	Universal AC motor: - from 600 to 1150 rpm without half field - from 1200 to 1600 rpm with half field
Drum positioning syst.:	DSP only for Toploader
Unbalance control:	FUCS
Washing system:	ECO valve
Rinsing system:	traditional
Water level control:	2 levels by pressure switch (functional levels, foam detection and safety use)
Overflow detection:	1 safety level by pressure switch and aqua control system.
Water supply:	Only cold water

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Characteristics

Detergent drawer:

3 compartments (Pre-wash/Stain, Wash, Softner) with Stain in alternative with Prewash. Two valves.

4-compartments (Pre-wash, Bleach, Wash, Softner). Three valves.

4-compartments (Pre-wash, Wash, Bleach, Softner) where Prewash and Bleach are connected together. Two valves

User interface:

**all EWM2000 user interfaces available
excluded INPUT system.**

Buzzer:

optional

External EEPROM:

available for machine and cycle configuration

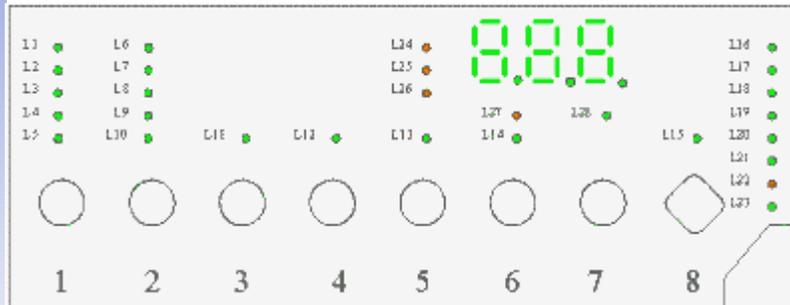
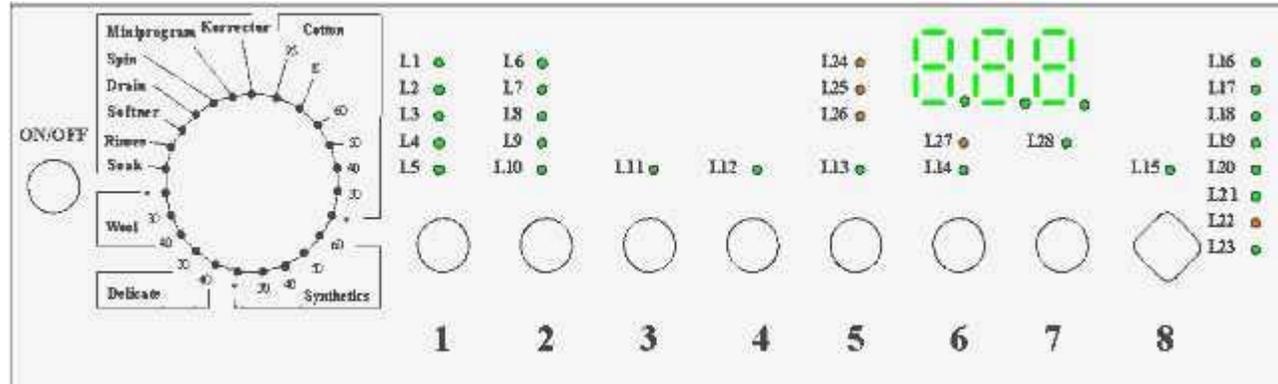
Serial port:

**DAAS-EAP communication protocol up to
38400 baud available for:**

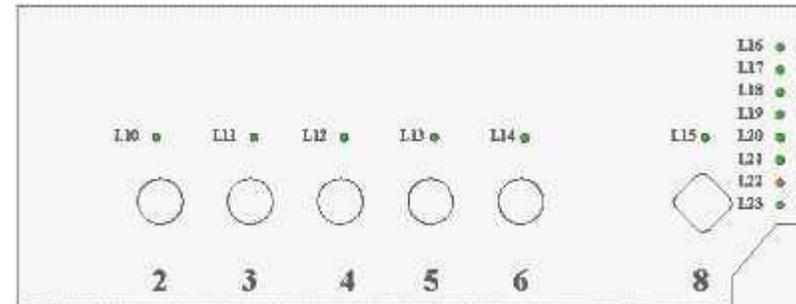
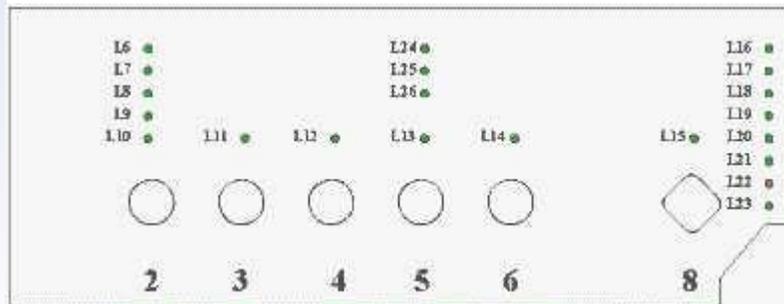
- Software configuration (external EEPROM)**
- Remote controlled mode (used for board/
appliance testing purposes)**
- FLASH memory programming**
- data acquisition for debugging purposes.**

EWM 1000 PLUS

Full SMD User Interface

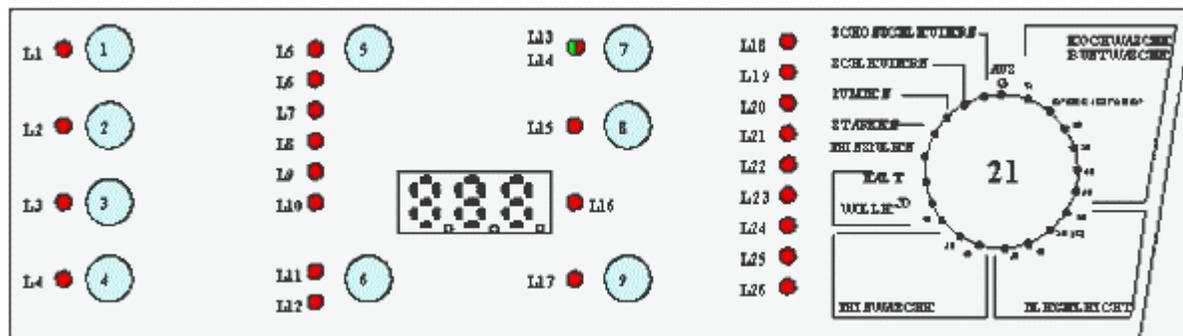


Configuration
Push buttons: max. 8 in line
Leds: max. 28 + 24 (digit)



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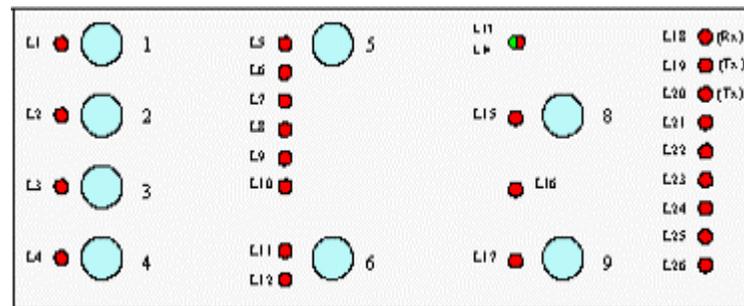
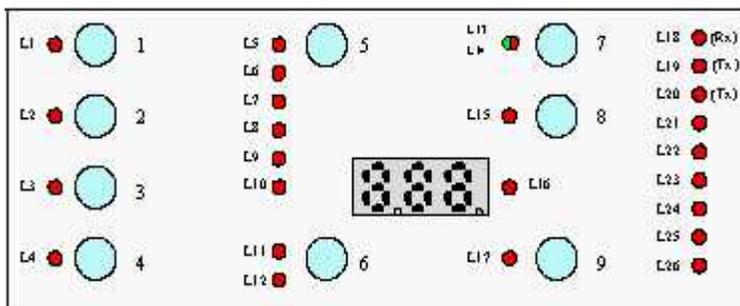
AEG User Interface



Configuration

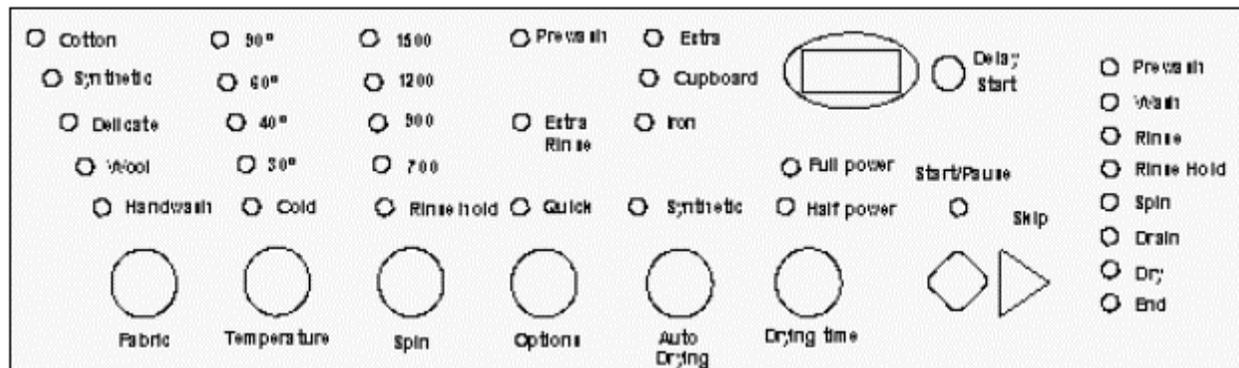
Push buttons: max. 9 vertical

Leds: max. 26 + 24 (digits)



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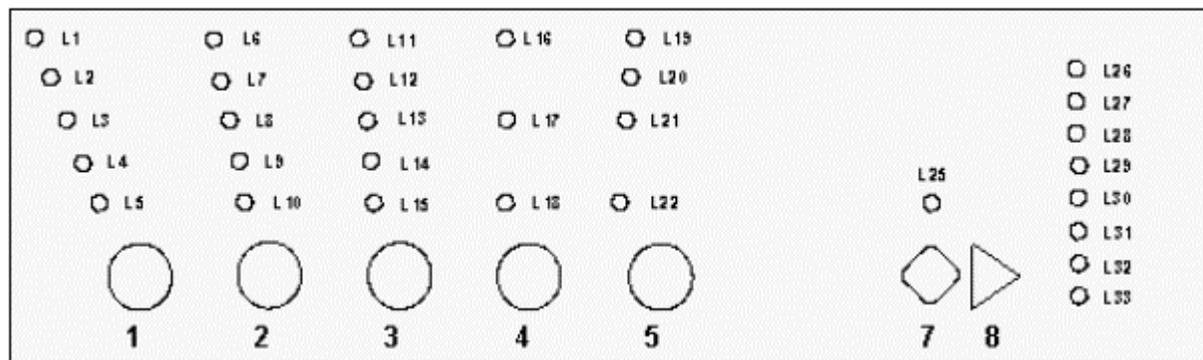
Delta3 User Interface



Configuration

Push buttons: max. 9 in line

Leds: max. 33 + 24 (digit)



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Option description

Option	Description
No Spin	Eliminates all spin phases of the cycle increasing the rinses number
Rinse hold	Stops cycle before final spin with water in the drum. To continue it's necessary to select a drain or spin cycle.

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Option description

Option	Description
Night cycle	<p>Eliminates all spin phases of the cycle, increasing the rinses number.</p> <p>Stops cycle before final spin with water in the drum eliminating the buzzer signal.</p> <p>To continue it's necessary to select a drain or spin cycle.</p>
Prewash	Adds the Pre-wash phase at the cycle beginning
Soak	TBD

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Option description

Option	Description
Stain	Adds the STAIN phase that consist on loading from PREWASH compartment (or from STAIN compartment, if present) of the drawer a special detergent after the 40°C bio phase end and extending the agitation by 5 minutes.
Normal	TBD
Daily	Changes the washing phase behaviour to have a good cycle performance in a shorter time (higher water consumption and longer water heating).

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Option description

Option	Description
Quick	Changes the washing phase behaviour to have a shorter cycle time (higher water consumption) and reduces the rinsing phase time (two rinses at high water level).
Economy	Changes the washing phase behaviour to have a cycle with better energy performance (Energy Label cycle for cotton 60 and 40) with a longer cycle time.
Sensitive	TBD

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Option description

Option	Description
Extra rinse	Adds two rinses to rinsing phase and reduces/eliminates the intermediate spin phases.
Bleach	Loads bleach detergent at first rinse from PREWASH compartment (or from BLEACH compartment, if present).
Half load	Eliminates one rinse.

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Option description

Option	Description
Easy Iron	In cotton programs it inserts an impulse spin profile and an anticrease phase after. In synthetic programs a cool-down after washing phase and an anticrease phase after final spin. For both Easy Iron increases the rinses number.

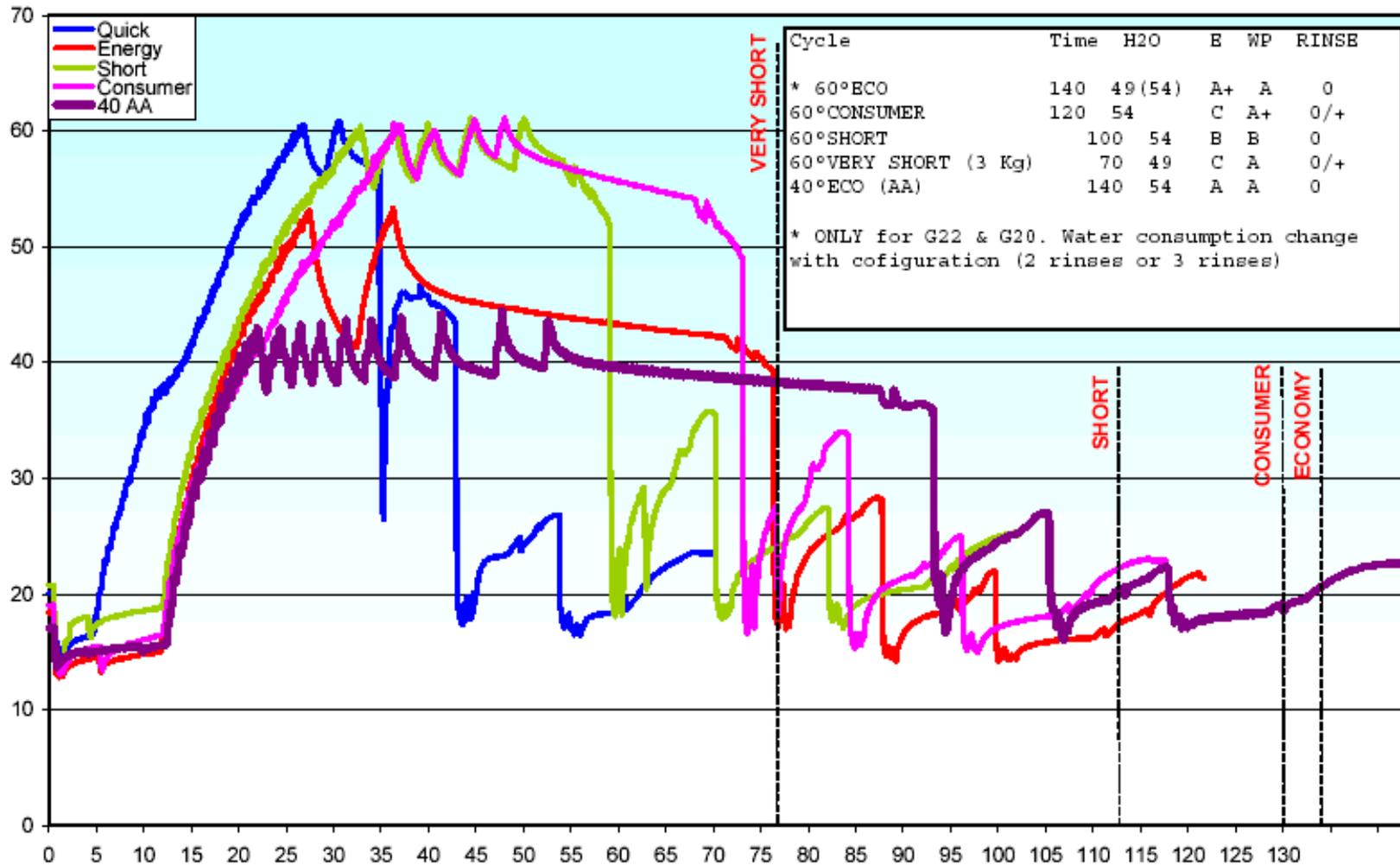
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Option description

Option	Description											
Spin reduction	Reduces the spin speed in all the spinning phases of the cycle.											
	Max spin speed	6 0 0	7 0 0	8 0 0	9 0 0	1 0 0	1 1 0	1 2 0	1 3 0	1 4 0	1 5 0	1600
	Cotton Spin red.	4 5 0	4 5 0	4 5 0	4 5 0	5 0 0	5 5 0	6 0 0	6 5 0	7 0 0	7 5 0	800
	Others Spin red.	4 5 0	450									

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washing cycles



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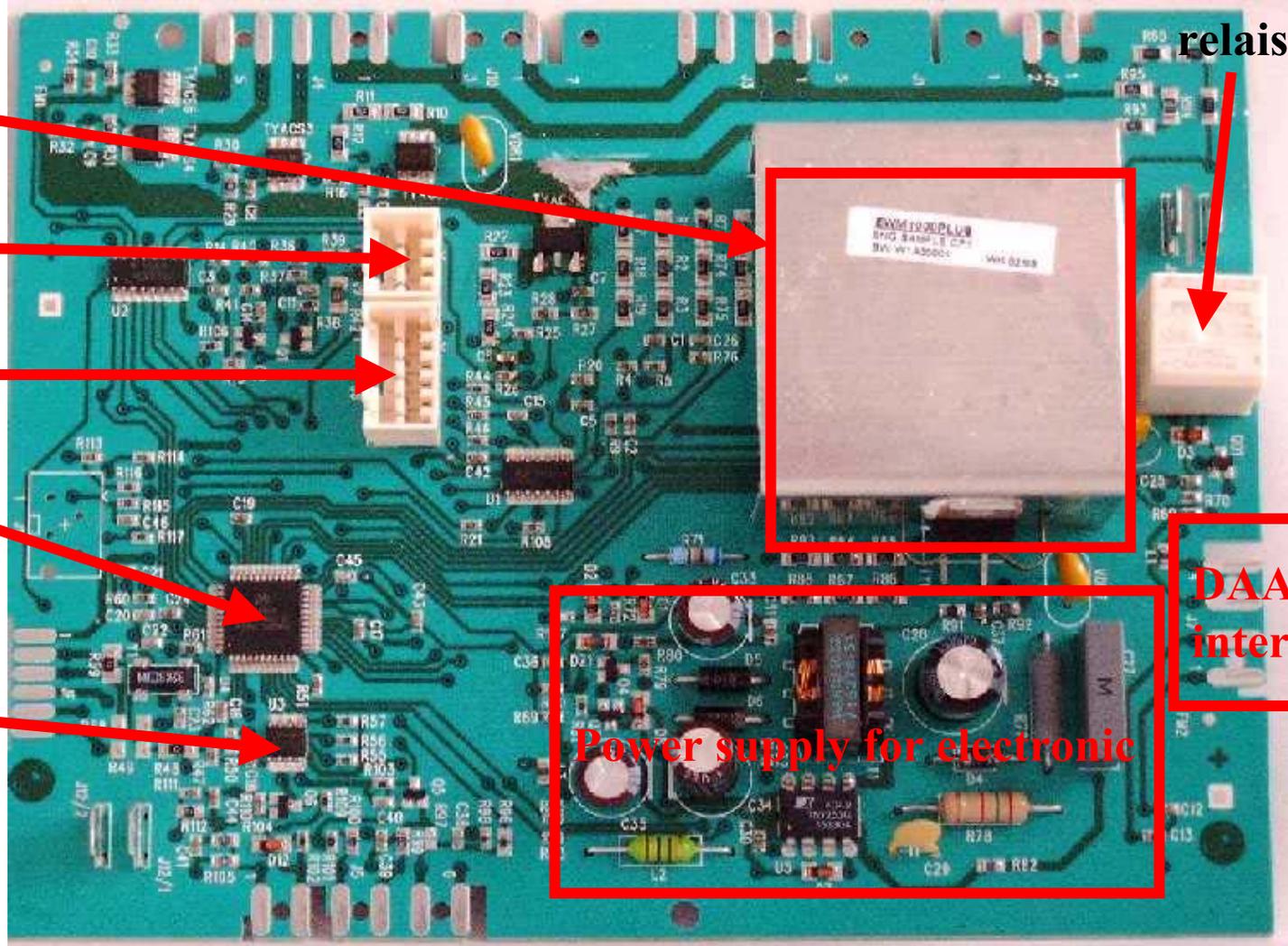
Functional Modes

- **user mode**
normal way to use the machine by customer
- **demo mode**
used in shops to show the customer how to set a washing cycle without load and draining water
- **diagnostic mode**
used by service engineers to test the machine
- **remote controlled mode**
used by service engineers to test the machine by connecting to Palm or Laptop

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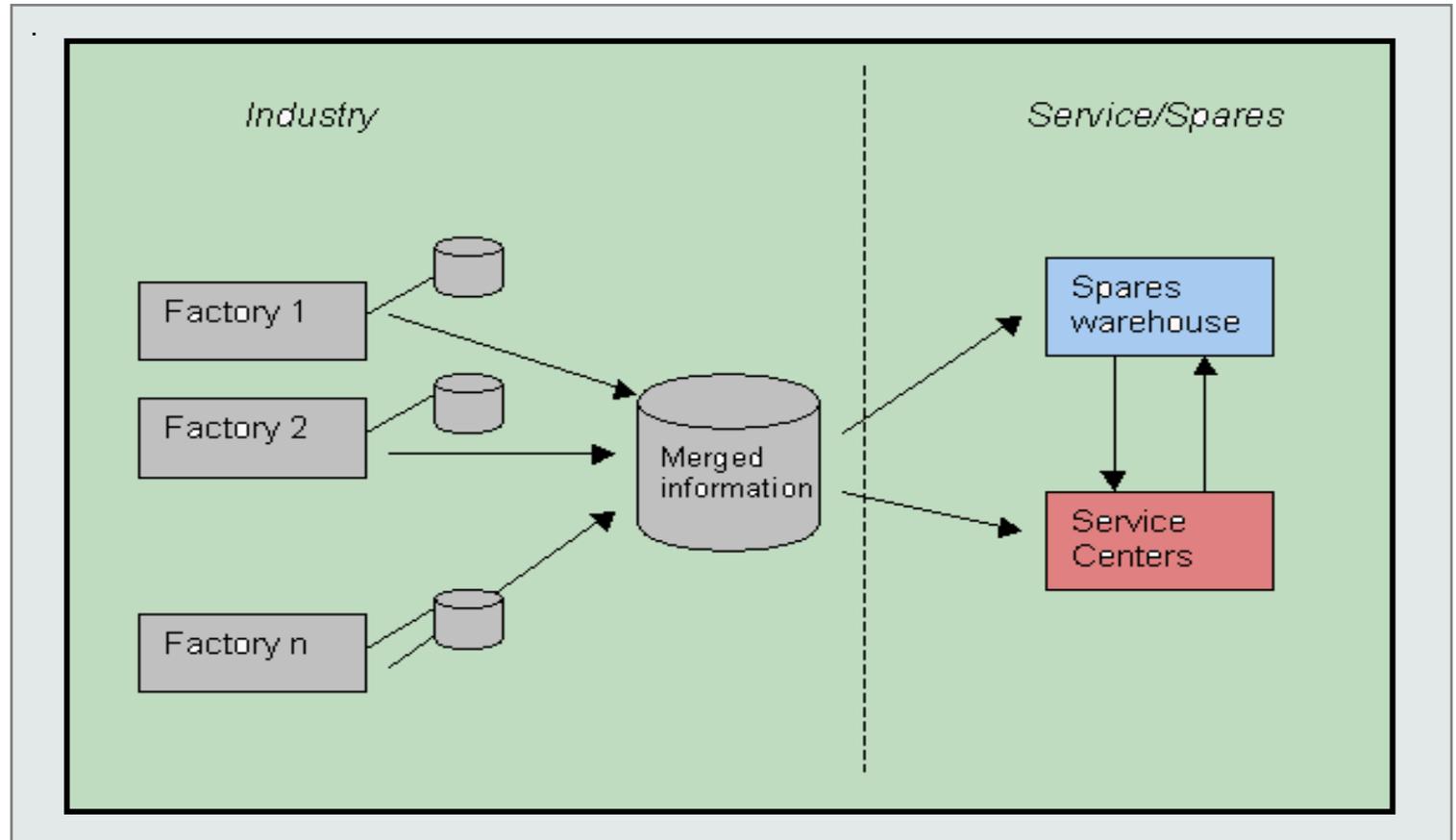
Main Board

- motor triac with heat sink
- connection to infra red leds
- connection to user interface
- micro processor
- external EEPROM
8 kByte



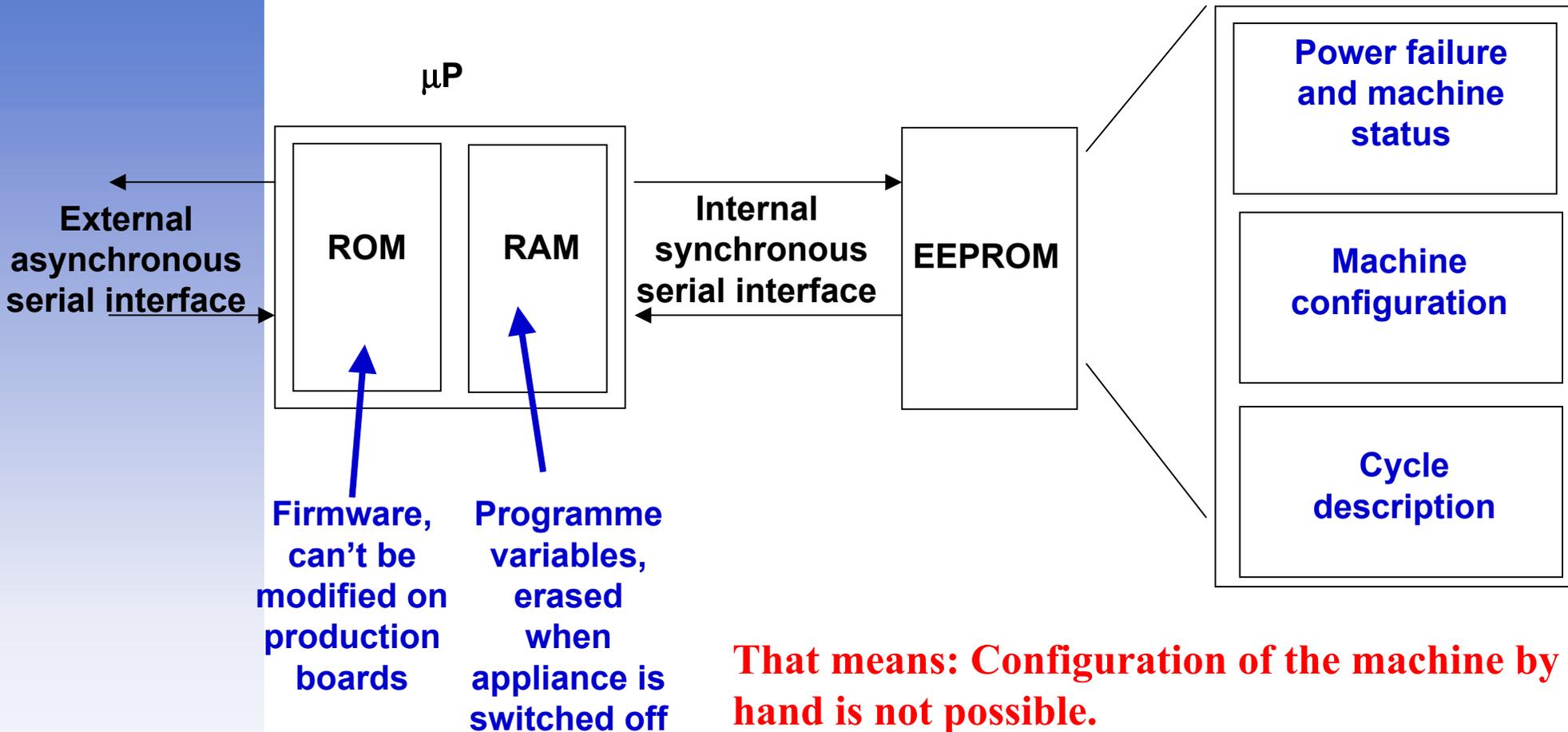
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Spare Board Configuration



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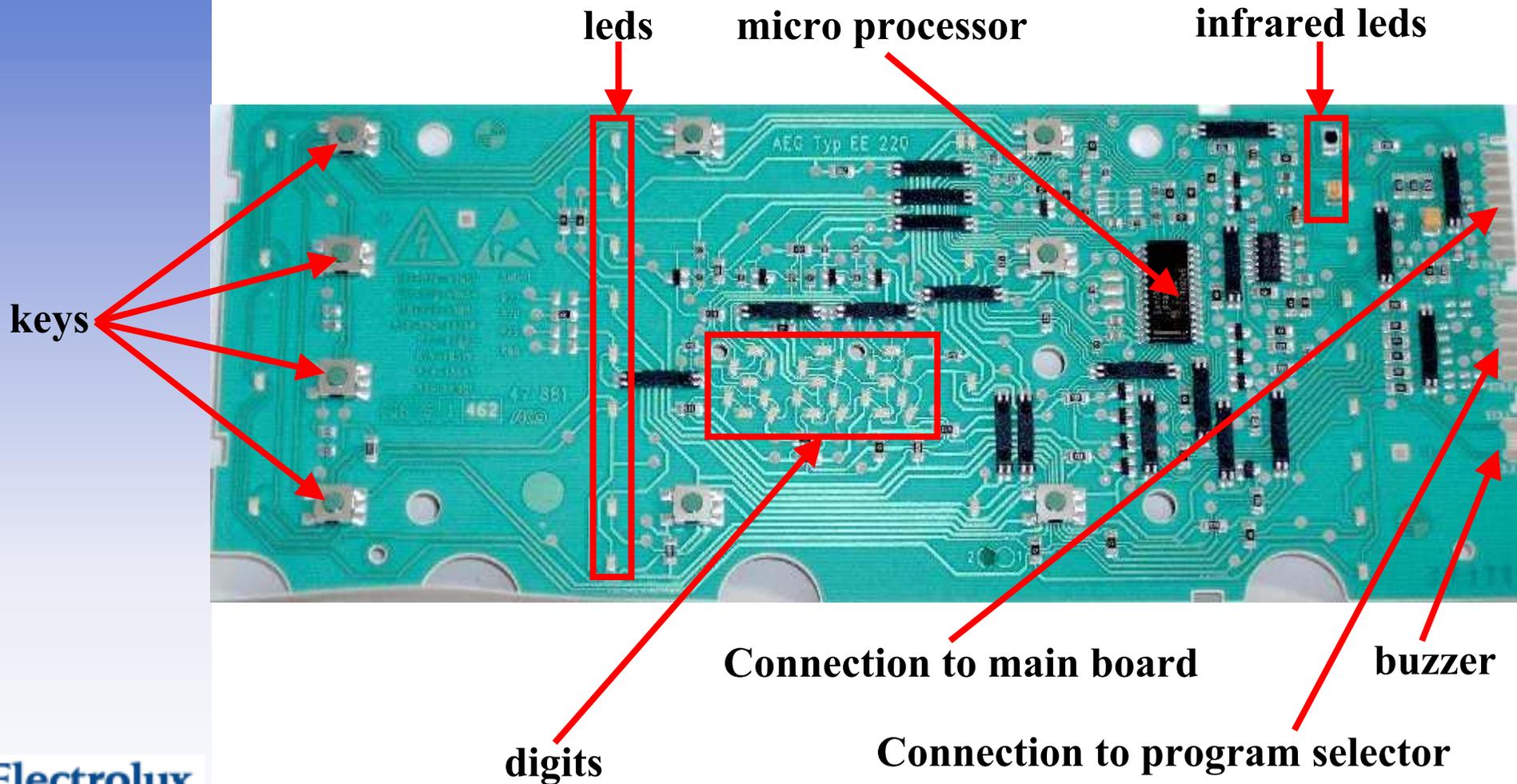
Soft-/Hardware Configuration



**That means: Configuration of the machine by hand is not possible.
Service has to order programmed spare parts.**

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AEG User Interface



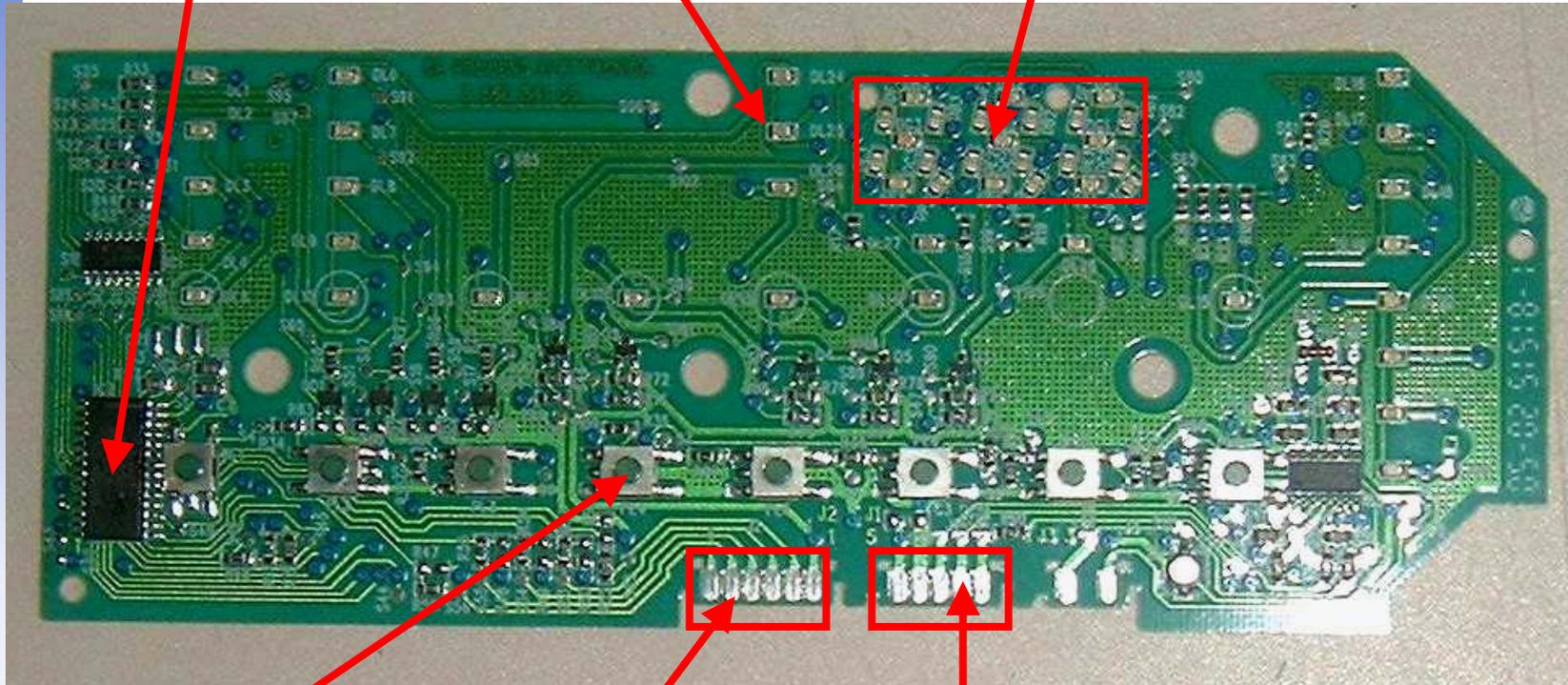
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Full SMD User Interface

microprozessor

led

3 digit display



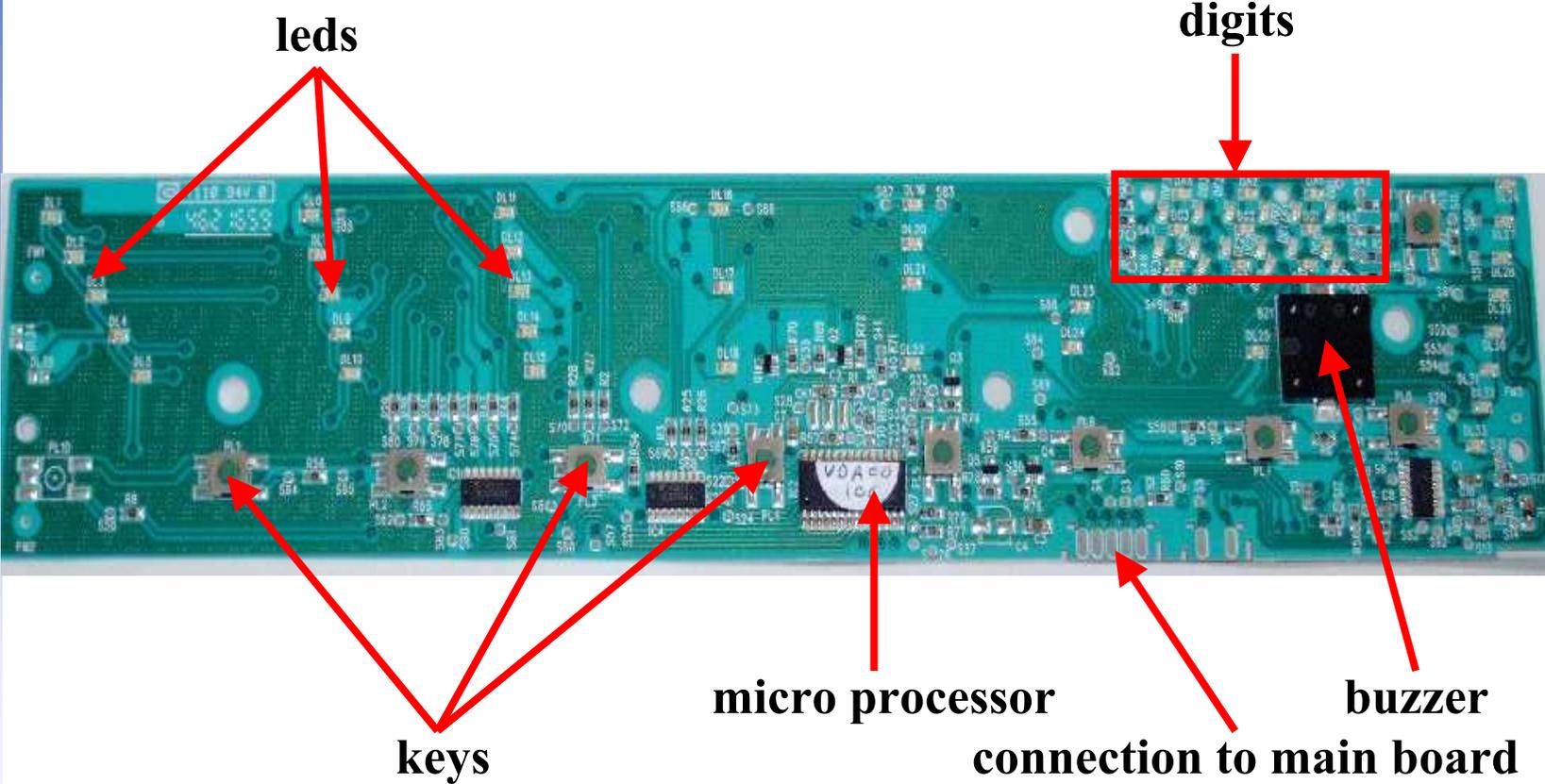
keys

connection to selector

connection to mainboard

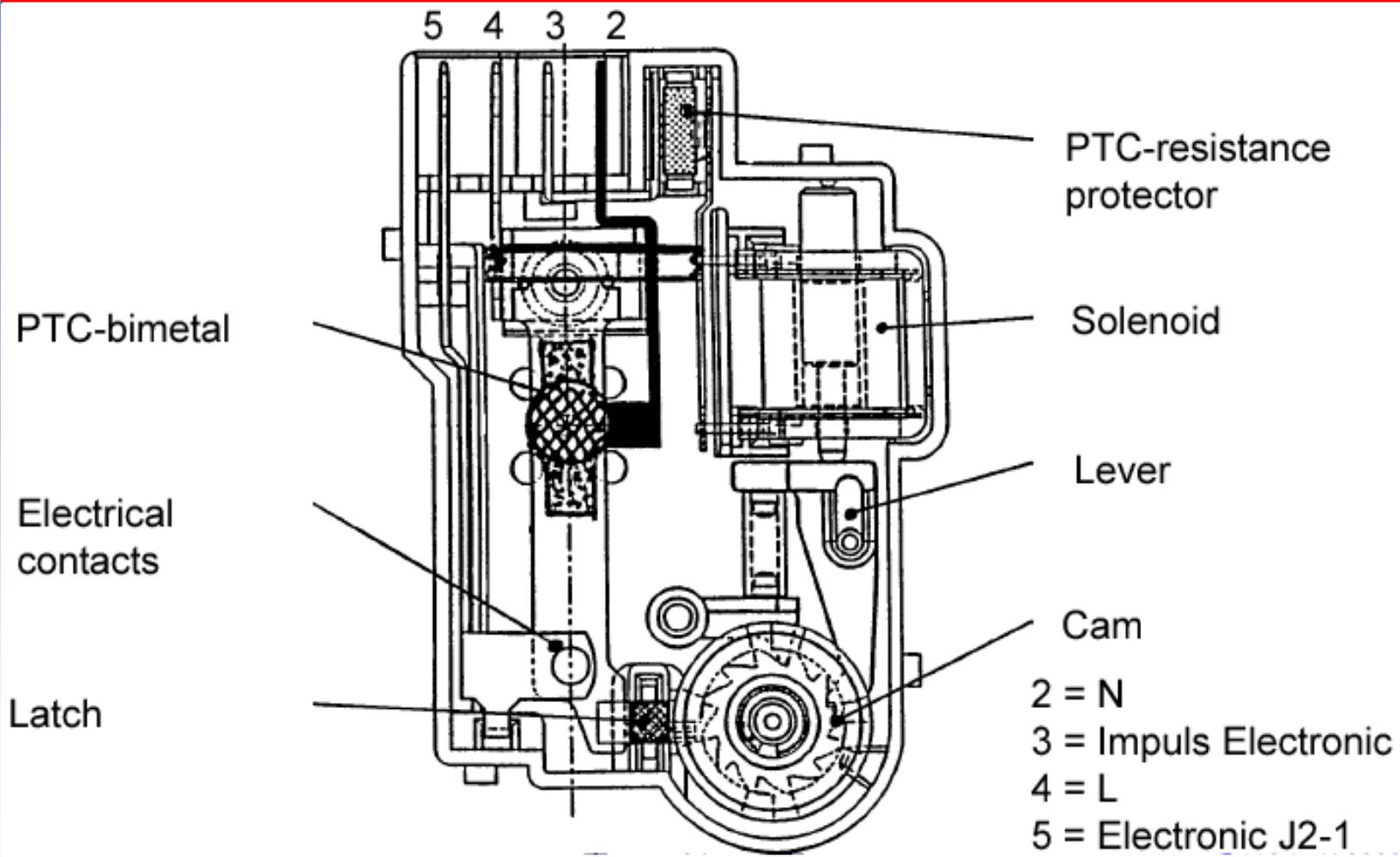
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Delta3 User Interface



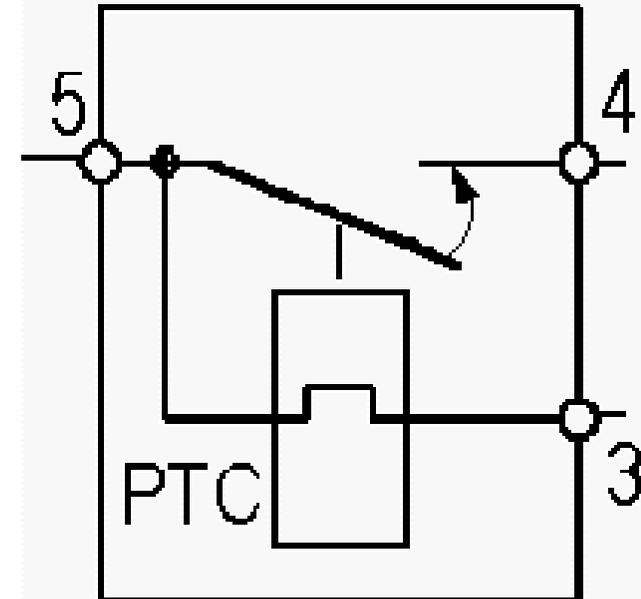
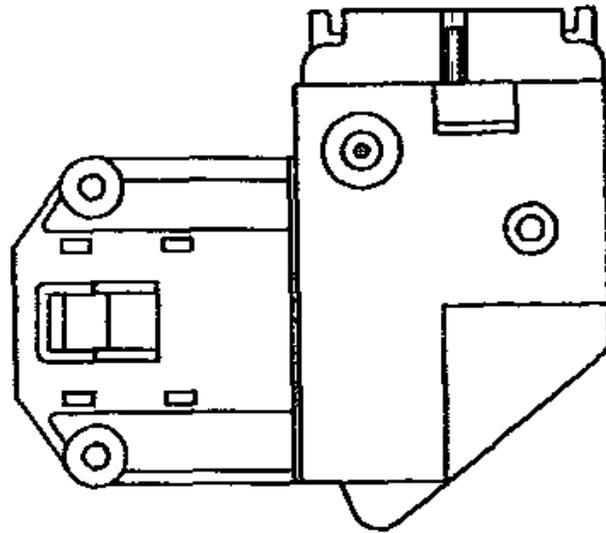
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IDOLO – Door Lock



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Traditional Door Lock With PTC



• When the washing program is started by pressing the START/PAUSE button, the bi-metal PTC (contacts 3-5) is powered by the triac on the PCB: after 2 – 4 seconds, this closes the switch (5-4) which powers the electrical components of the appliance (only if the door is closed).

- The door interlock prevents aperture of the door while the appliance is in operation.
- At the end of the washing program, the PCB disconnects the interlock from the power supply, but the door remains locked for 1 to 2 minutes (PTC cooling time).

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Door Lock

•Conditions necessary for door release

Before transmitting the door release signals, the main PCB checks for the following conditions:

- the drum must be stationary (no signal from the tachometric generator)
- the water level must not be higher than the lower edge of the door
- the temperature of the water must not exceed 40°C

•Automatic release device

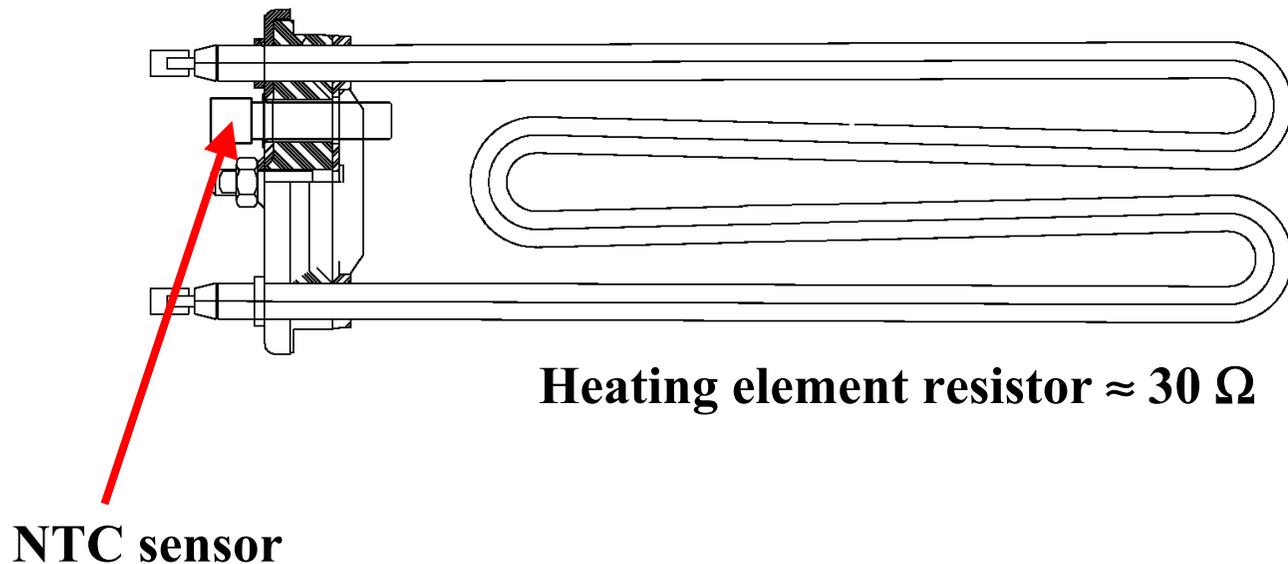
In the event of a power failure, if the appliance is switched off, or if the solenoid should malfunction, the bimetal PTC cools over a period of 1 to 4 minutes, and then releases the door.

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Heating Element With Integrated NTC Sensor

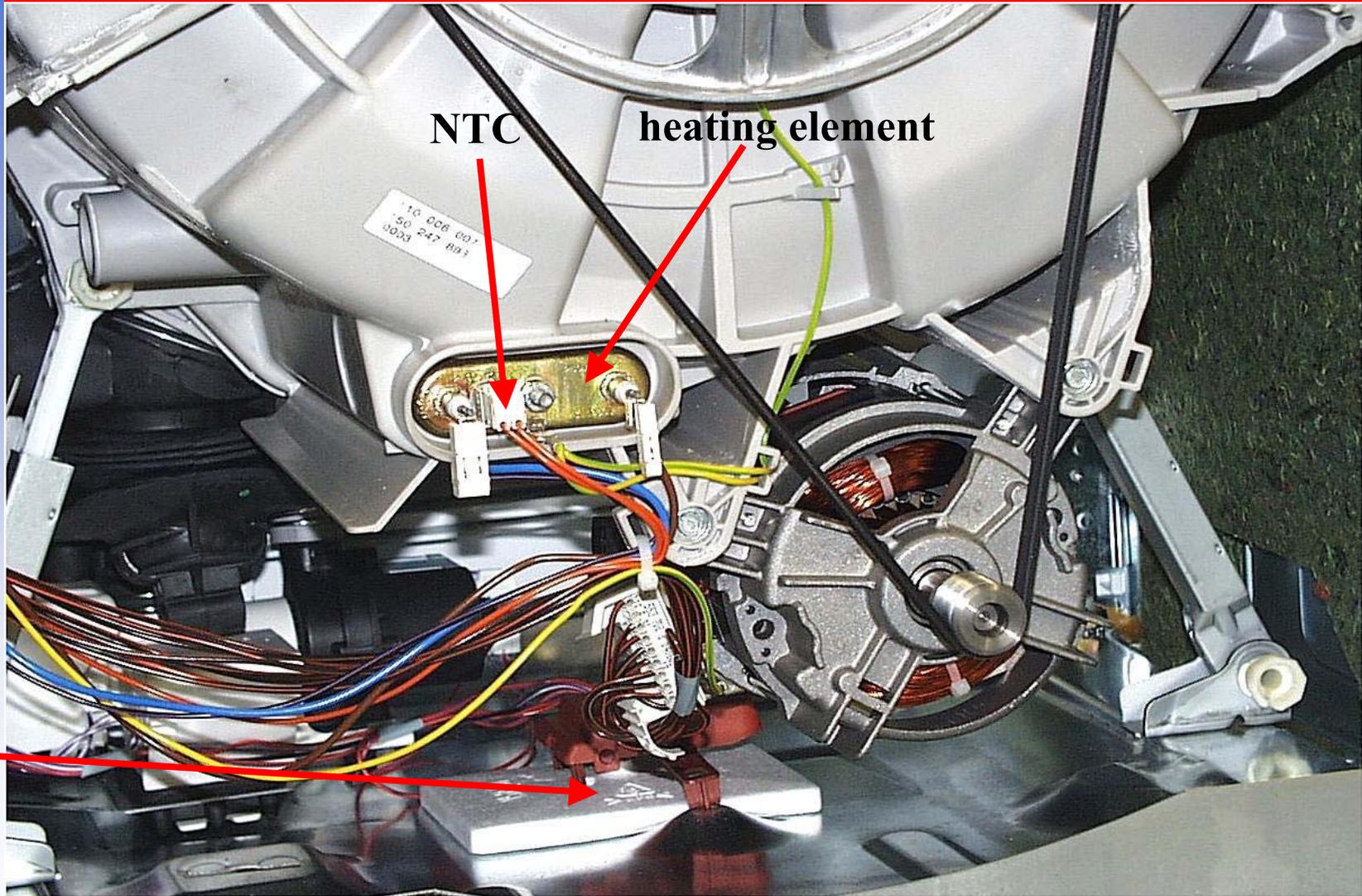
Heating element: max. 1950 W

Identical with heating elements in EWM 1000, EWM 2000, EWM 3000



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Heating element and anti flood switch



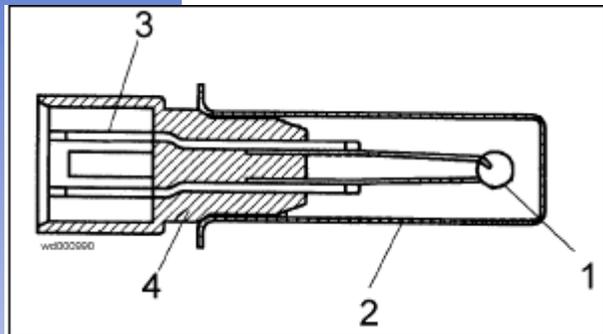
NTC

heating element

anti flood
micro switch

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NTC - sensor:



- 1 NTC - resistance
- 2 metal casing
- 3 contact pins
- 4 plastic insulation

temperature thresholds:

cotton cycle:

heating off : $T > 85^{\circ}\text{C}$

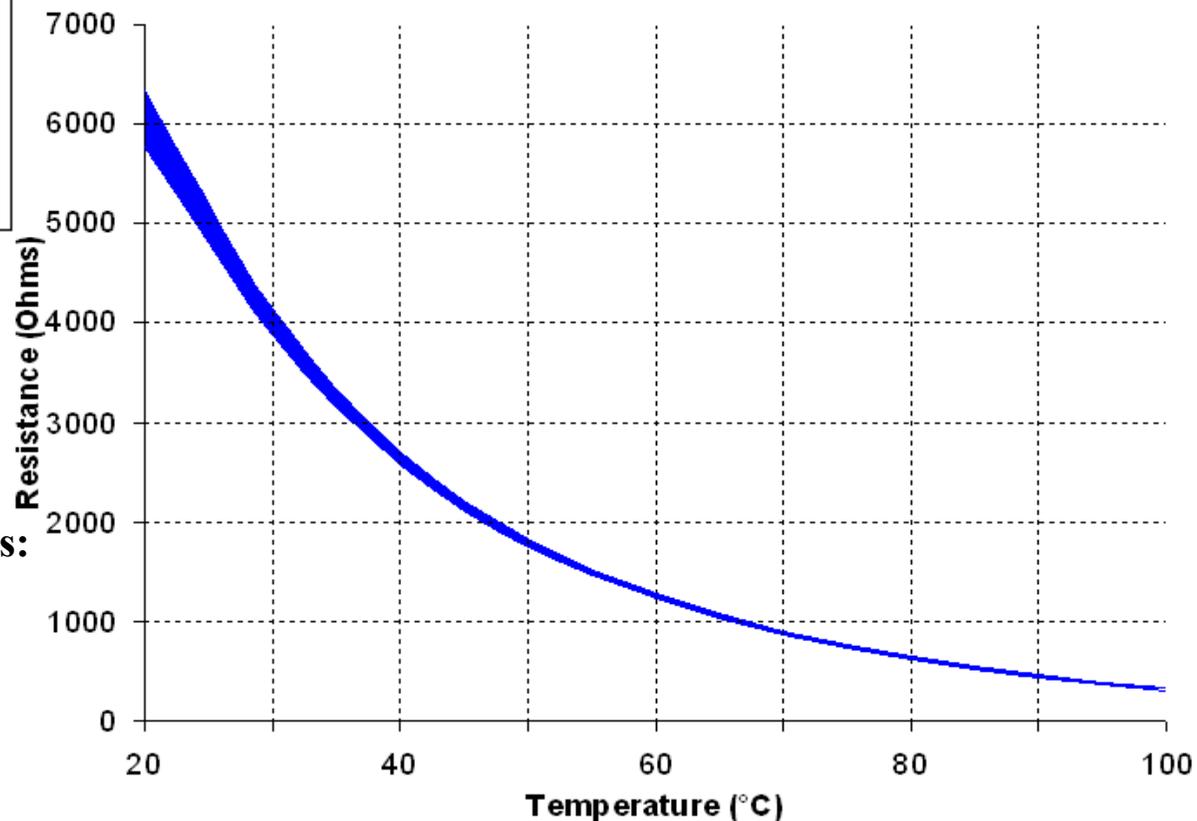
heating on : $T < 80^{\circ}\text{C}$

synthetic cycle:

heating off : $T > 69^{\circ}\text{C}$

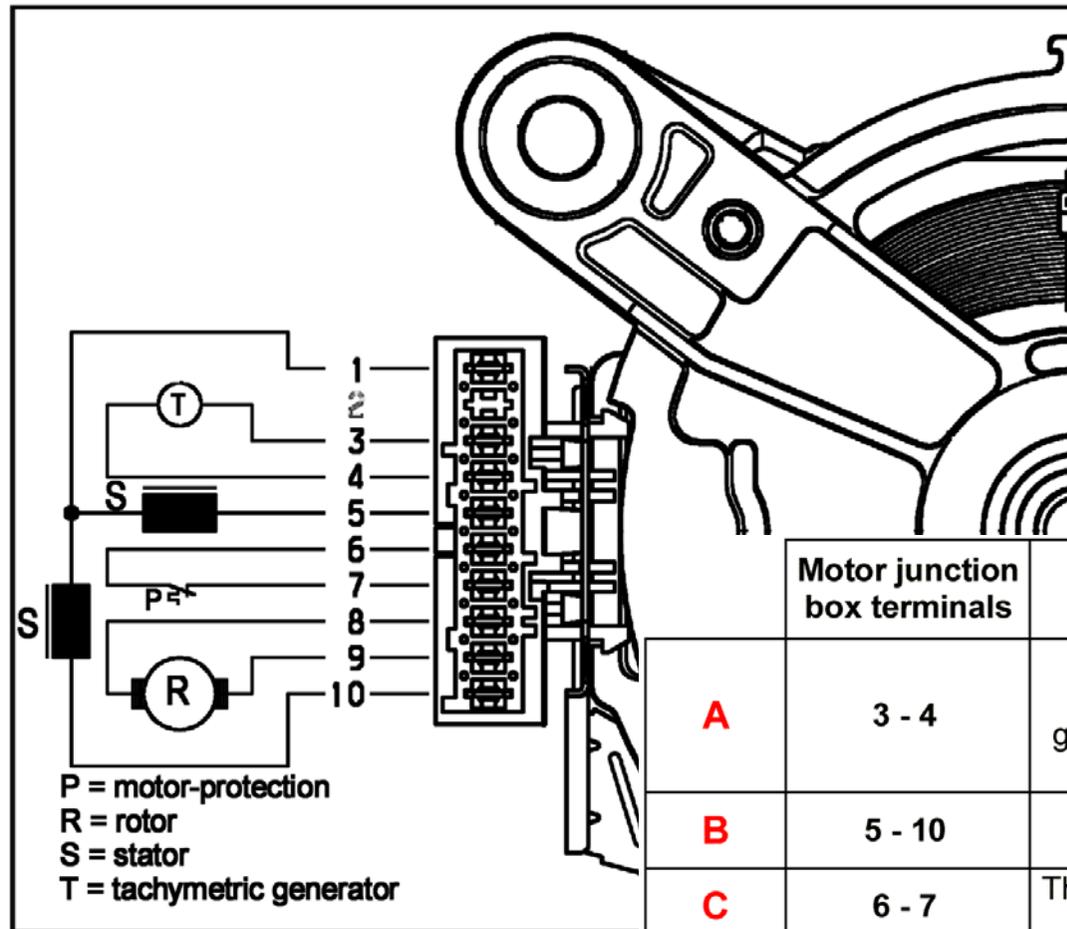
heating on : $T < 65^{\circ}\text{C}$

The NTC-sensor is identical to the NTC-sensor assembled in EWM 1000 and EWM 2000



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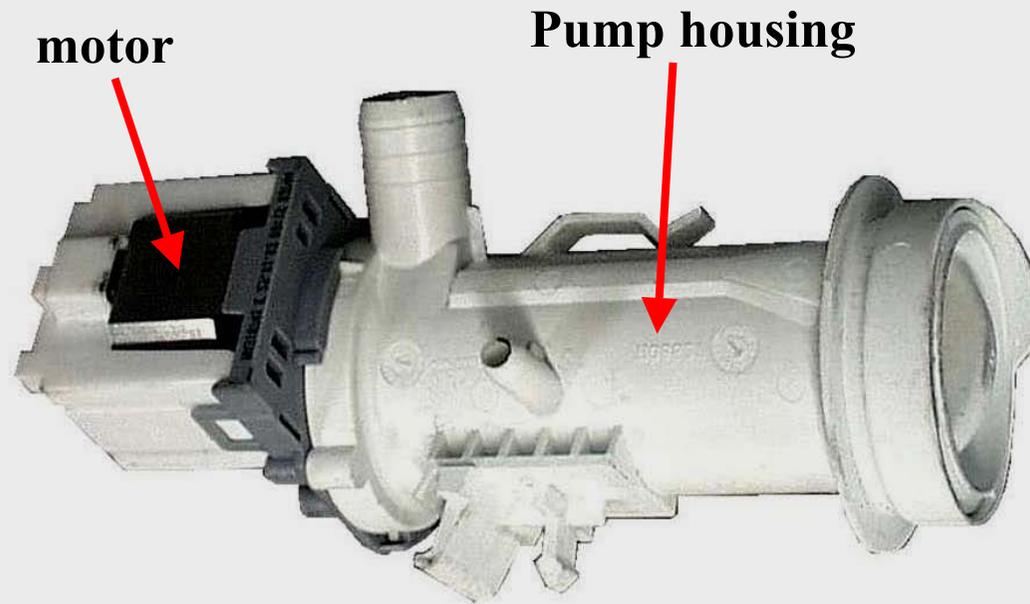
Motors



	Motor junction box terminals	Check of:	SOLE Motor [Ohms]	F.H.P. Motor [Ohms]	CE.SE.T.Motor [Ohms]
A	3 - 4	Tachymetric generator winding	171 ÷ 196	126 ÷ 147	64 ÷ 73
			469 ÷ 540		
B	5 - 10	Stator winding (all field)	1.0 ÷ 2.2	1.0 ÷ 3.0	1.0 ÷ 2.0
C	6 - 7	Thermo-protection (cut - off)	0	0	0
D	8 - 9	Rotor winding	1.5 ÷ 3.0	1.5 ÷ 3.0	1.5 ÷ 3.0
E	1 - 10	Stator winding (half field, terminal 1)	0.5 ÷ 1.0	0.5 ÷ 1.5	0.5 ÷ 1.0

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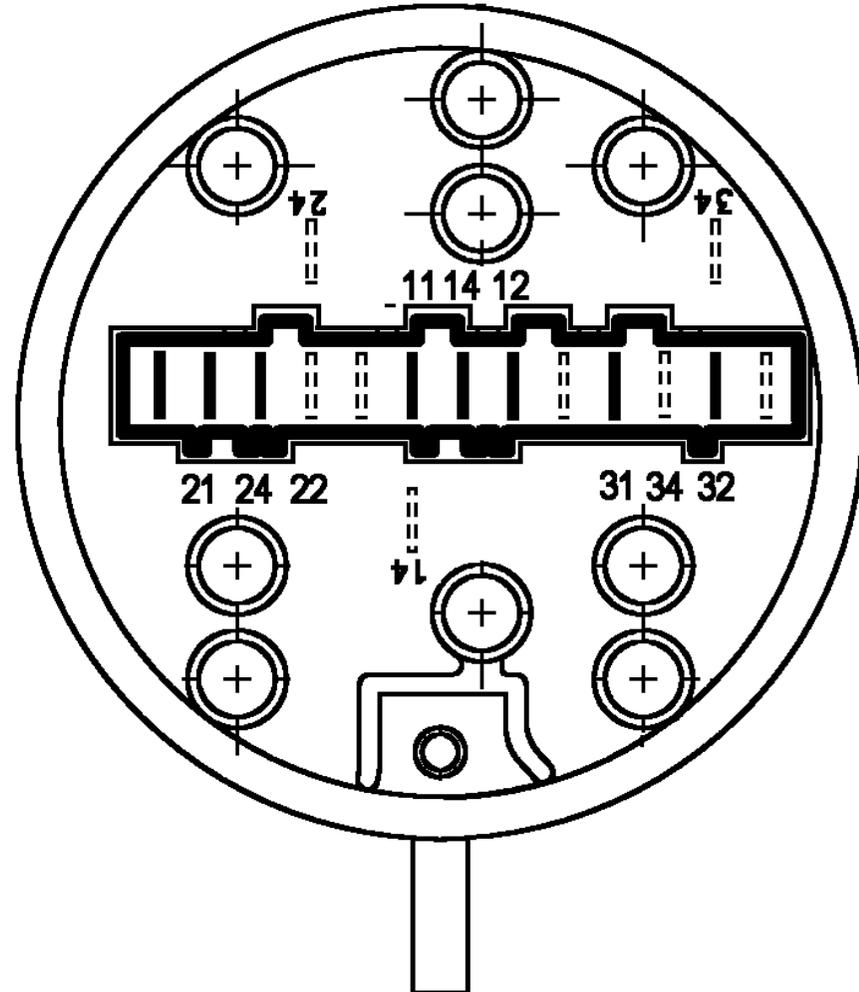
Drain Pump



Resistance about 170Ω

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Pressure Switch



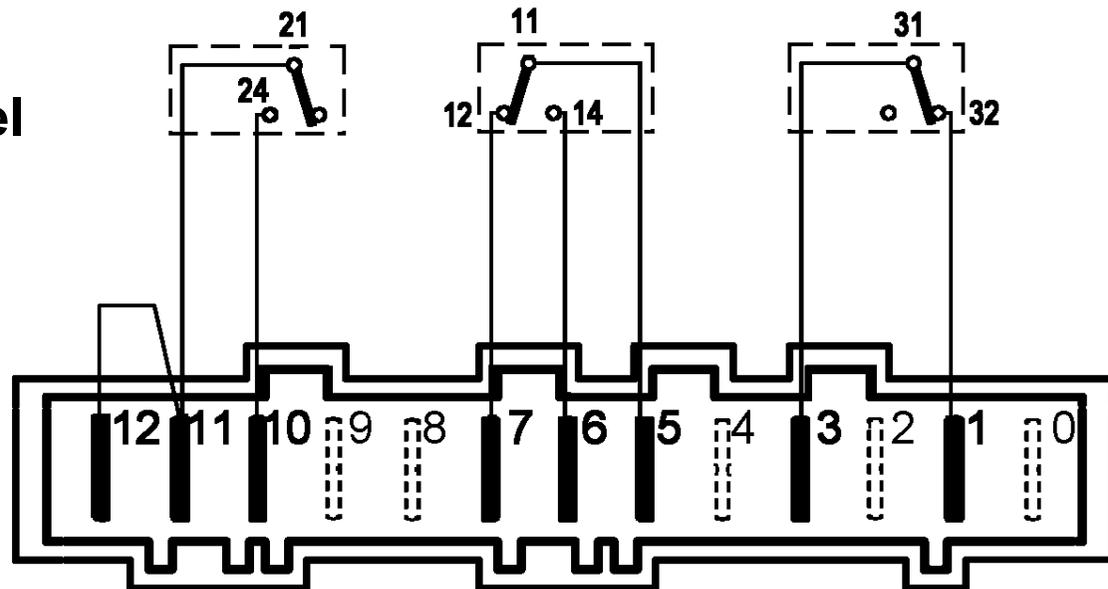
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Pressure Switch

11 - 14 (NO)
Antiboil / foam level

21 - 24 (NO)
"1st" level

31 - 32 (NC !)
Antiflood level
**NOT ON ALL
MODELS !!**



	Drum G20 (46 l) Eco-ball		Drum G19 (42 l) Traditional/ Eco-ball	
	Full (mm)	Refill (mm)	Full (mm)	Refill (mm)
Antiboil level	55± 3	35± 3	55± 3	35± 3
"1 st " level	80± 3	55± 3	90± 3	70± 3
Antiflood level	390± 15	240±50	390± 15	240±50

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Electric Valves

Optional 2 or 3 valves for water load

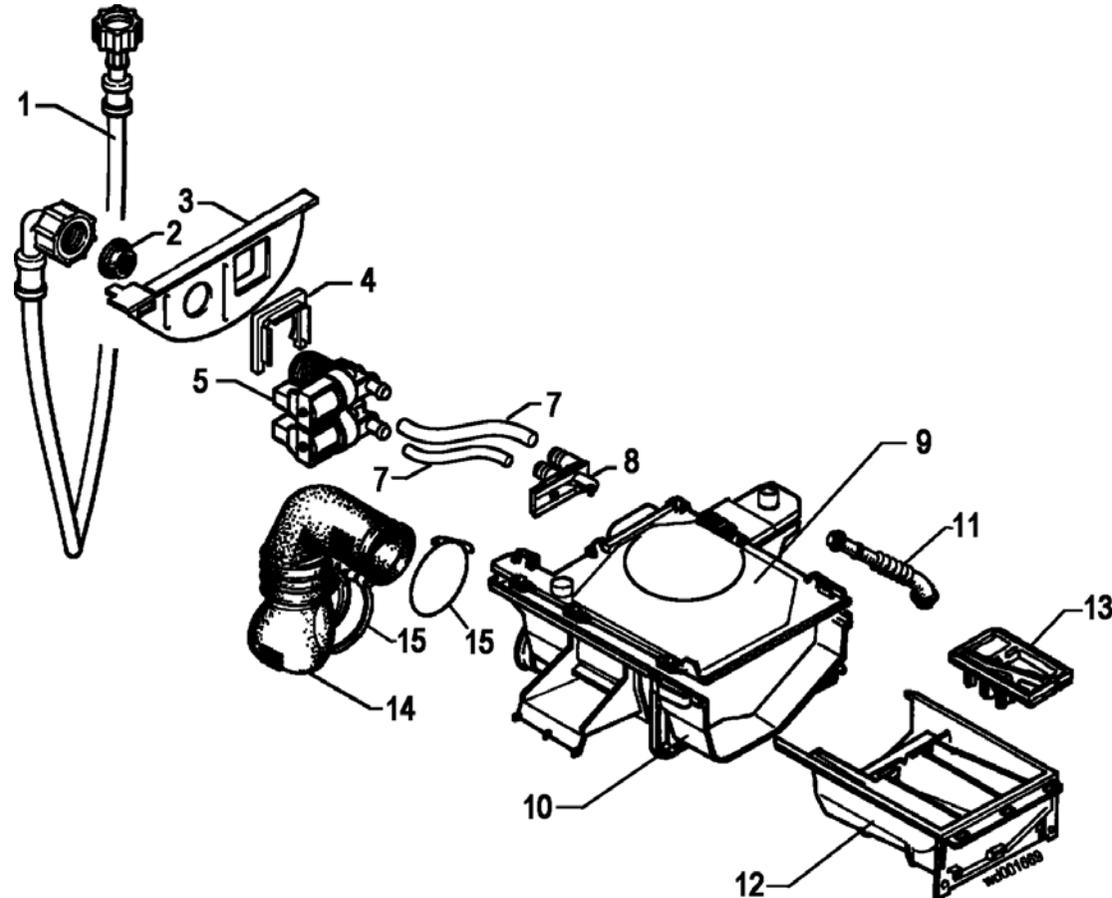


solenoid valve about 3.75 k Ω

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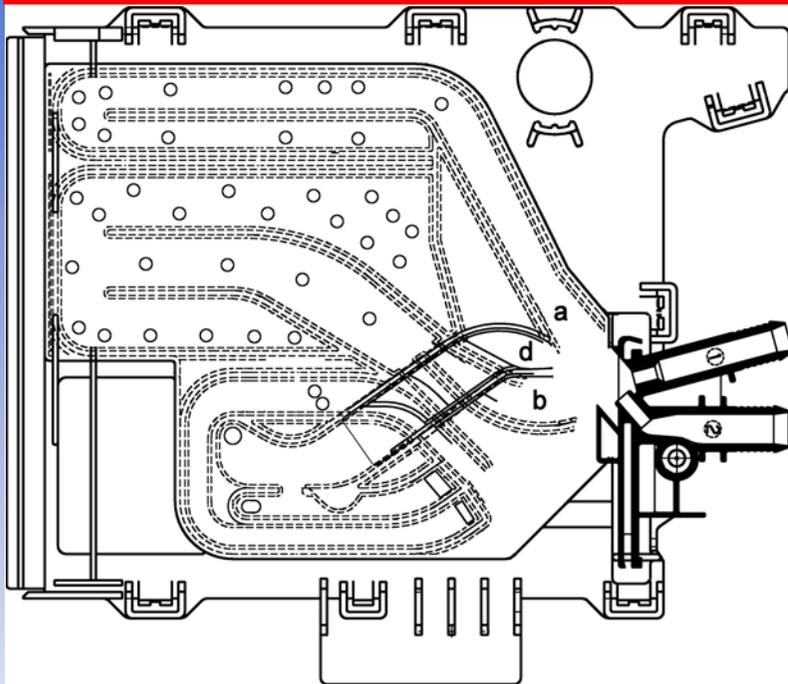
Detergent dispenser (short version)

1. water fill hose
2. gasket
3. strain relief for supply cable
4. valve support
5. 2-way inlet valve (cold water)
7. tubes
8. inlet piece
9. cover with water channels
10. detergent dispenser
11. vapour outlet
12. detergent drawer
13. siphon
14. detergent fill tube



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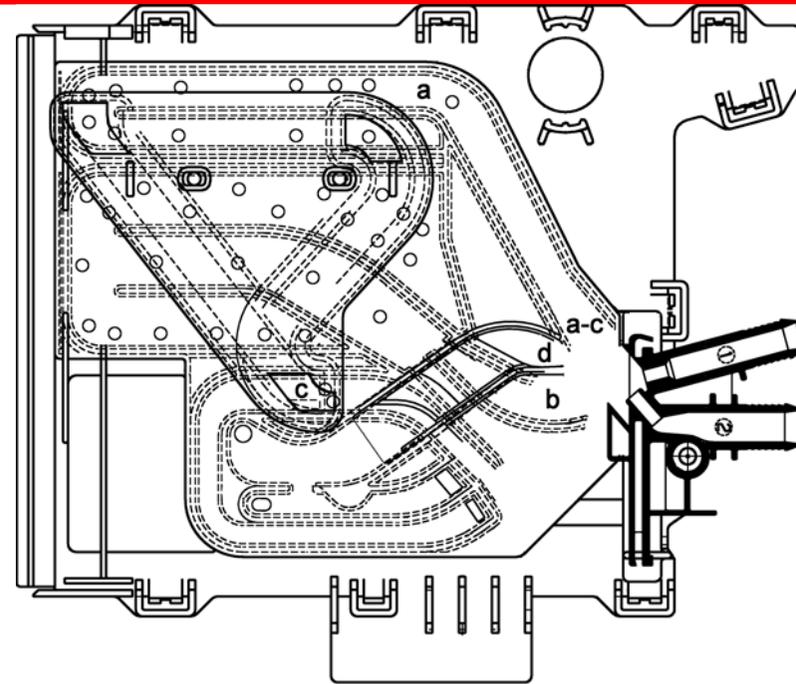
Detergent dispenser (short version)



with 3 compartments:

- a** prewash
- b** main wash

d fabric softener



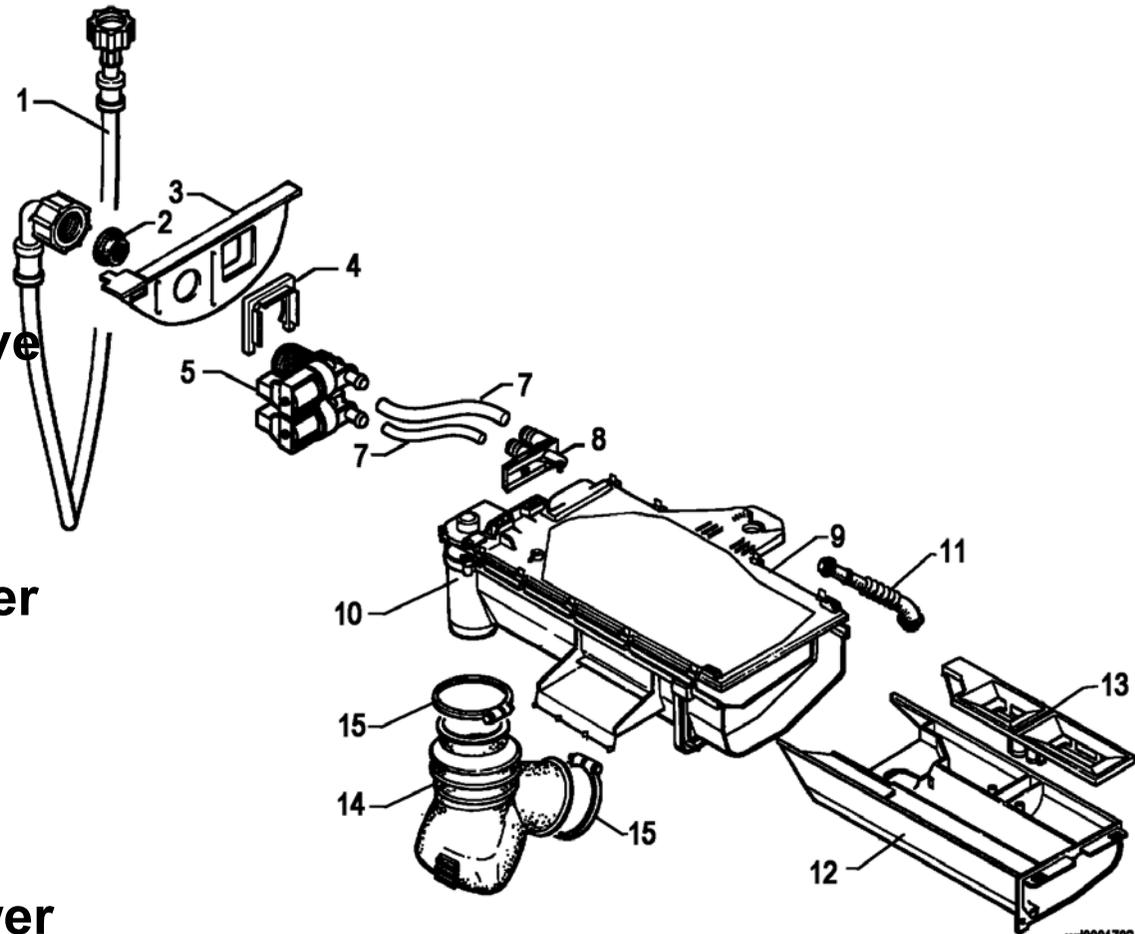
with 4 compartments:

- a** prewash
- b** main wash
- c** bleach
- d** fabric softener

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Detergent dispenser (long version)

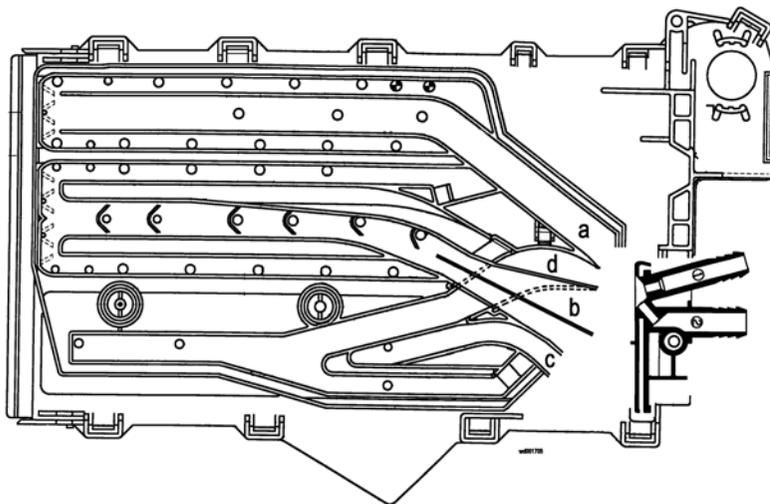
1. water fill hose
2. gasket
3. strain relief for supply cable
4. valve support
5. 2-way inlet valve (cold water)
7. tubes
8. inlet piece
9. cover with water channels
10. detergent dispenser
11. vapour outlet
12. detergent drawer
13. siphon
14. detergent fill tube



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Detergent dispenser (long version)

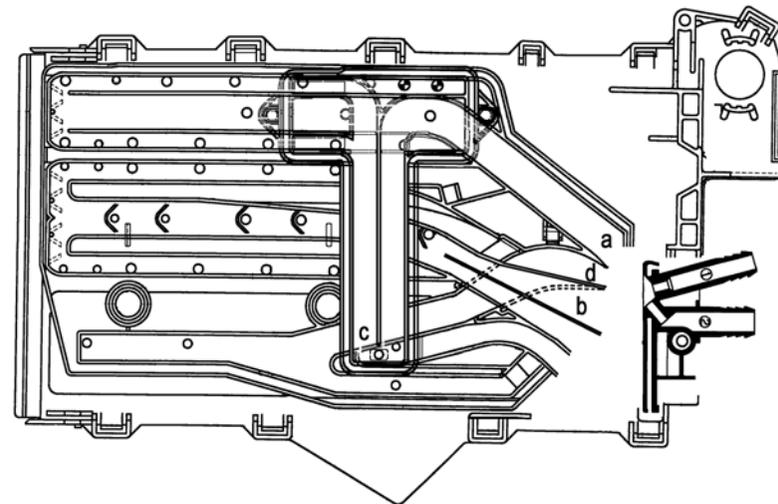


with 3 compartments:

a prewash

b main wash

d fabric softener



with 4 compartments:

a prewash

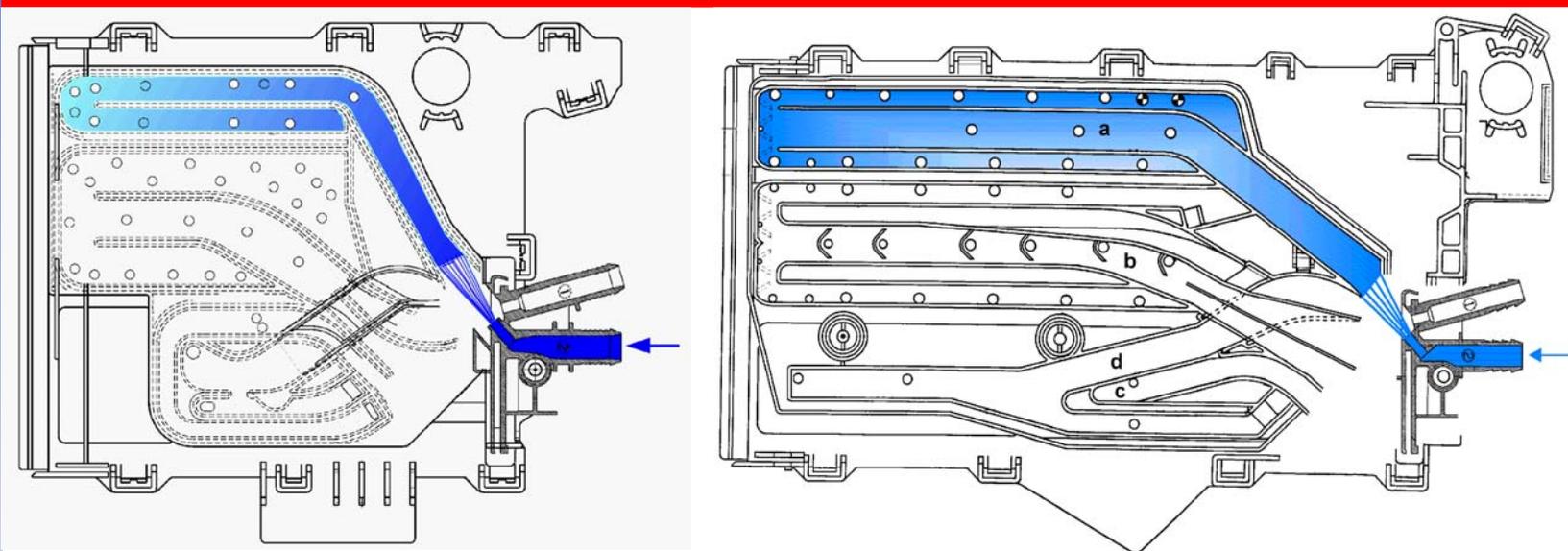
b main wash

c bleach

d fabric softener

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Water Fill: Prewash

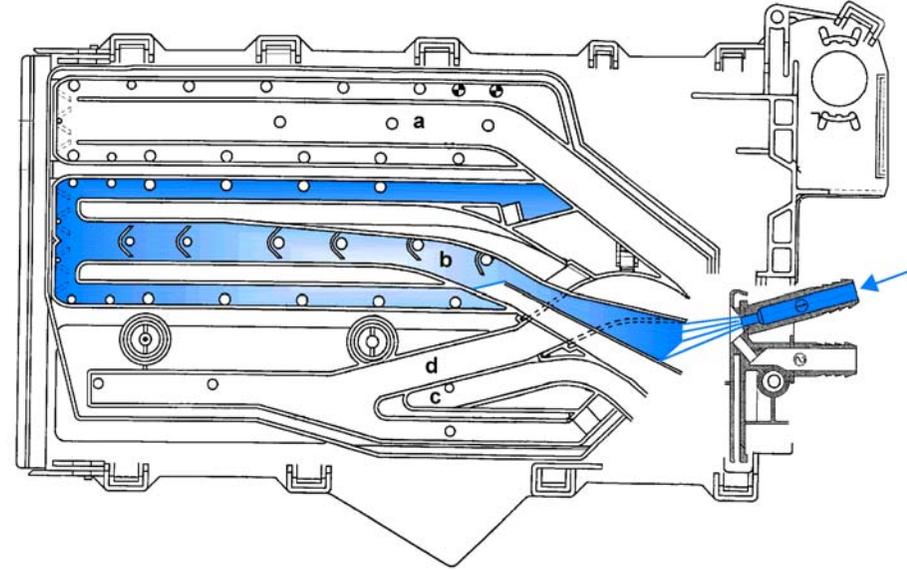
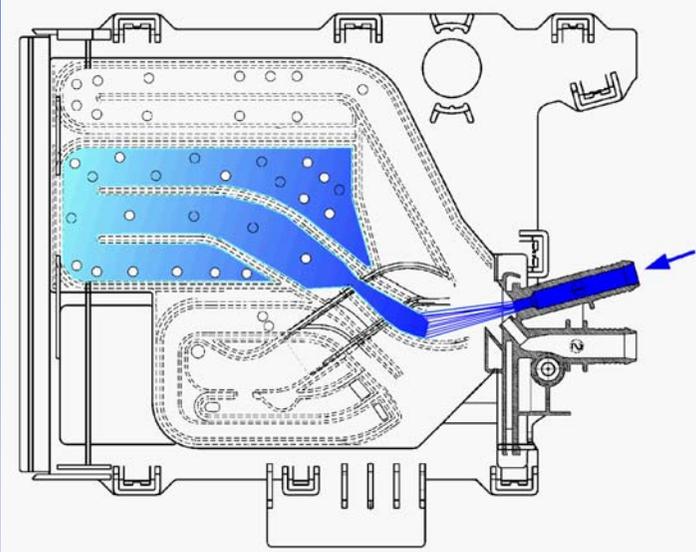


If the prewash solenoid valve is energized, water flows into the prewash compartment.

With the **STAINS** option (can't be selected simultaneously with **PREWASH**), the compartment will be used for the stain remover.

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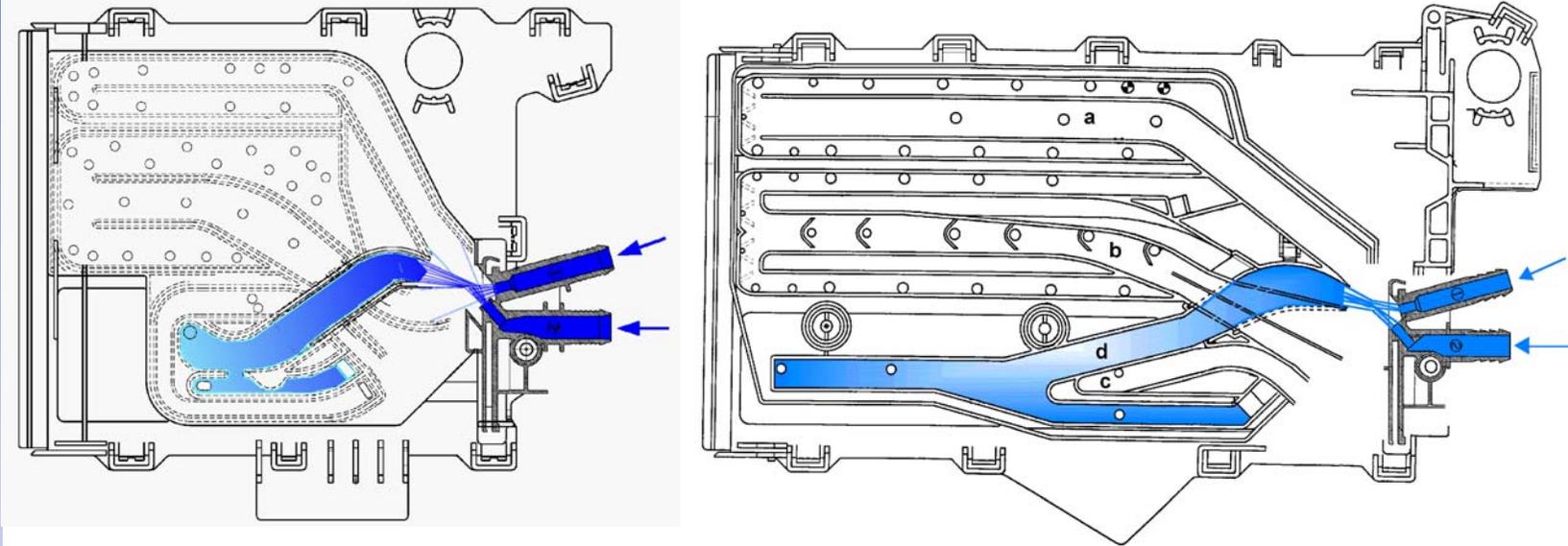
Water Fill: Main Wash



If the main wash solenoid valve is energized, water flows into the main wash compartment

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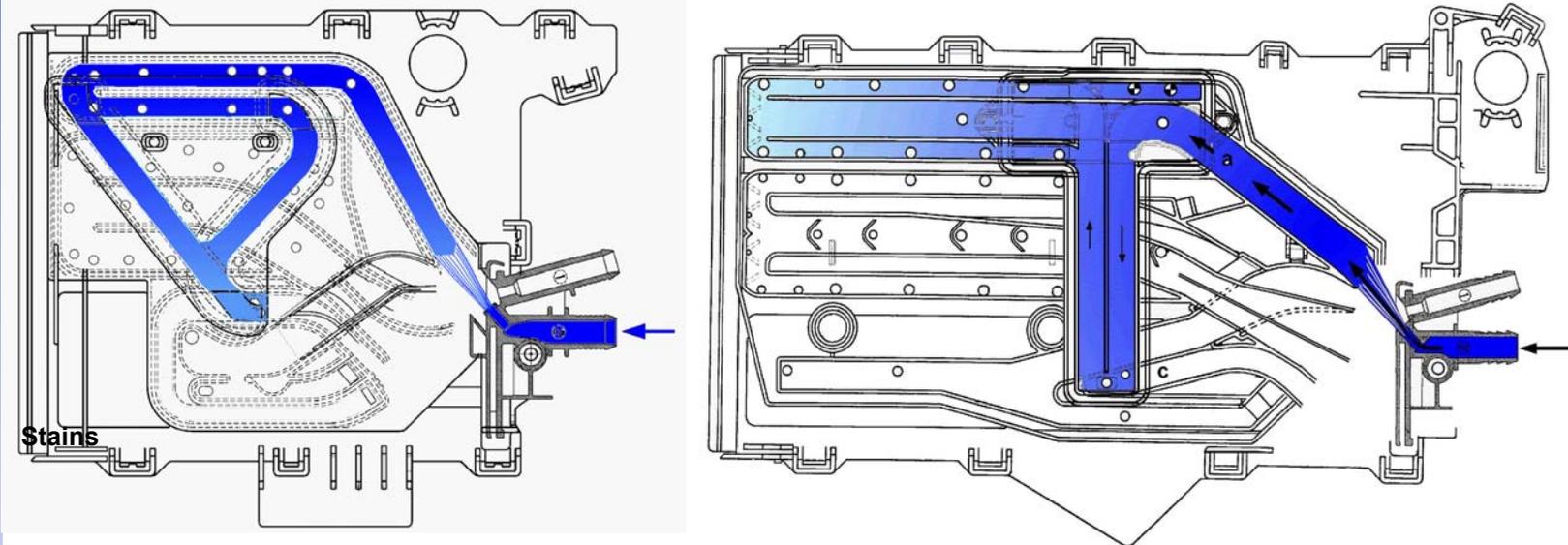
Water Fill: Softener



**If both solenoid valves are energized,
the jets deviate each other, and
water flows through the middle channel
into the fabric conditioner compartment**

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Water Fill: Prewash Or Bleach / Stain



The prewash solenoid valve is energized, and water flows both into the prewash, and into the bleach compartment

This means that the **PREWASH and **BLEACH** options can't be selected simultaneously !**

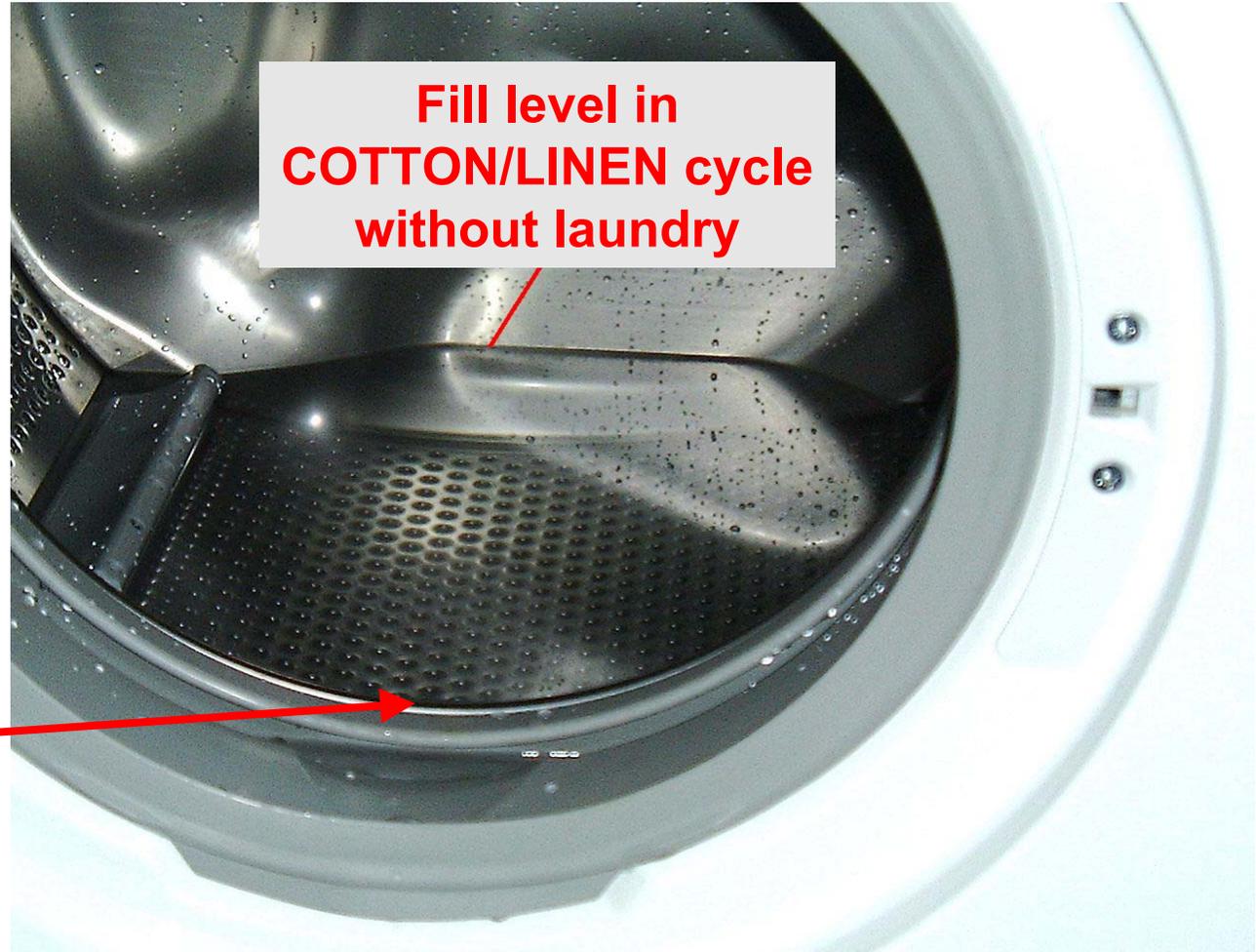
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Water Fill Control

- In the first fill step, water is filled until the antiboil contacts closes
- In the second fill step, the electronic measures the time Δt elapsed between closure of antiboil and “1st” level contacts, and calculates the flow rate = volume AB to L1 / Δt
- After this, an additional quantity defined in the programme tables is filled
- This fill is time-controlled, based on the calculated flow rate

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Water Fill Control



Fill level in
COTTON/LINEN cycle
without laundry

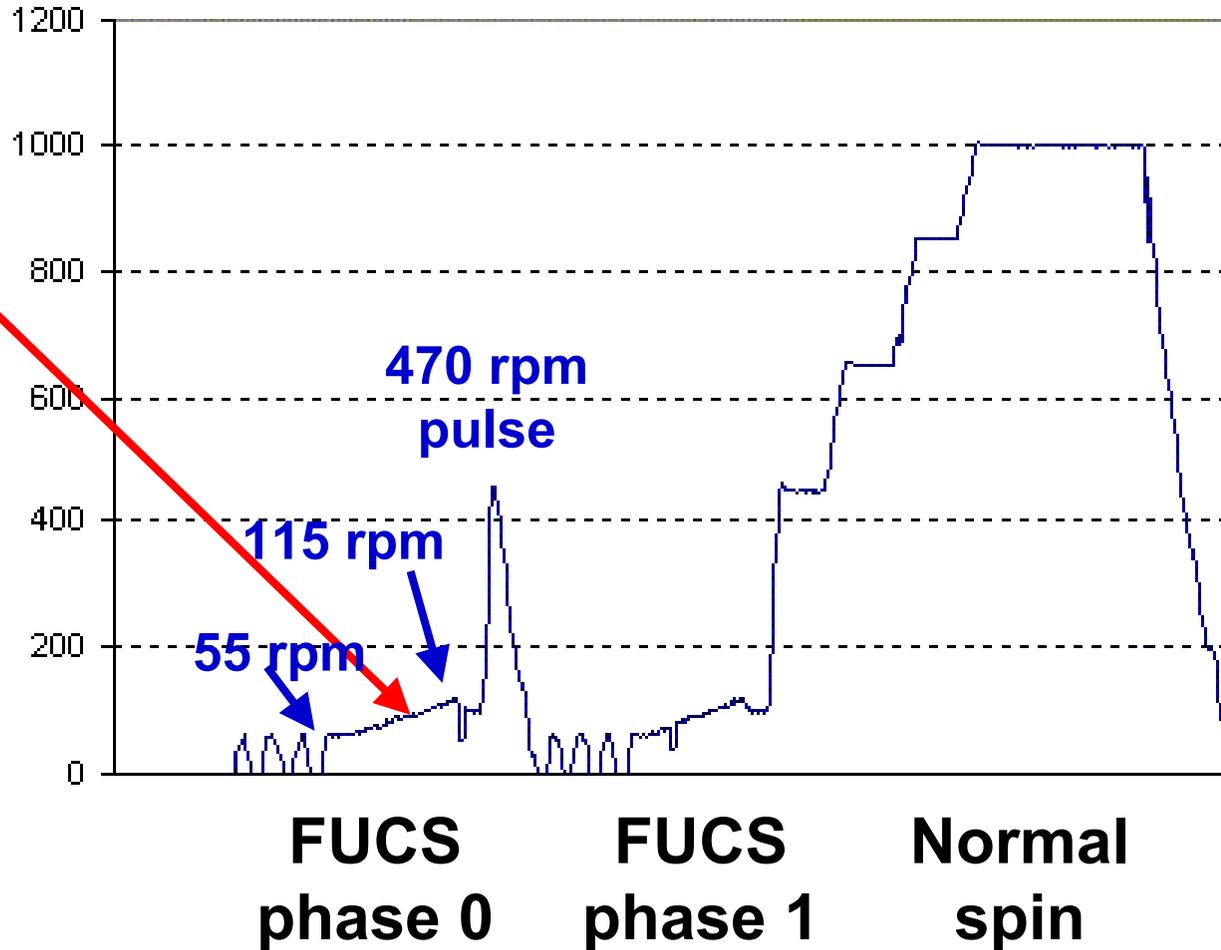
approximately
to edge of drum
(slightly below,
or above)

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Fast Unbalance Control System

In this phase speed is increased by 2 rpm every 300 ms if unbalance below limit, or decreased by 2 rpm if unbalance is above limit.

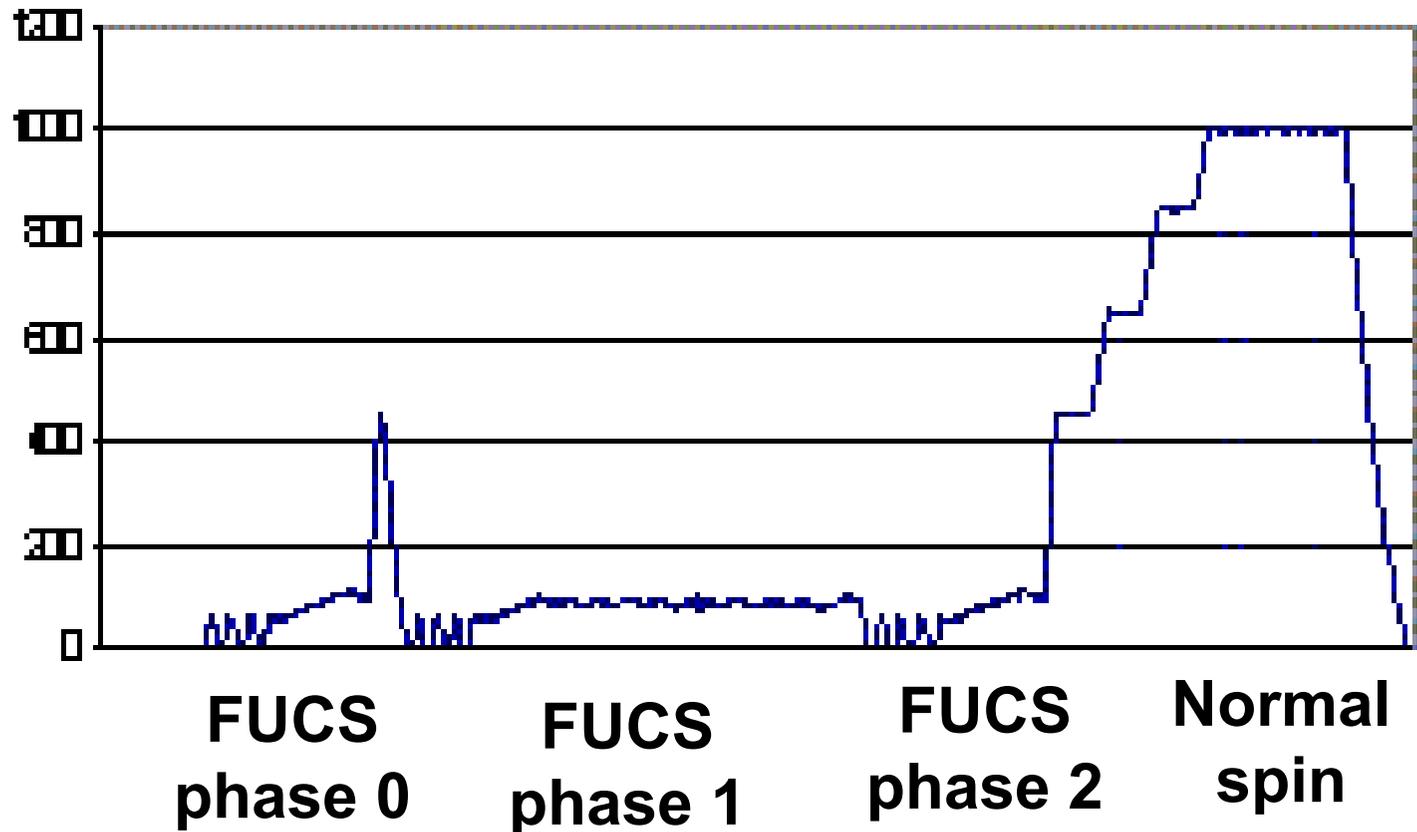
Balance after first attempt



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Fast Unbalance Control System

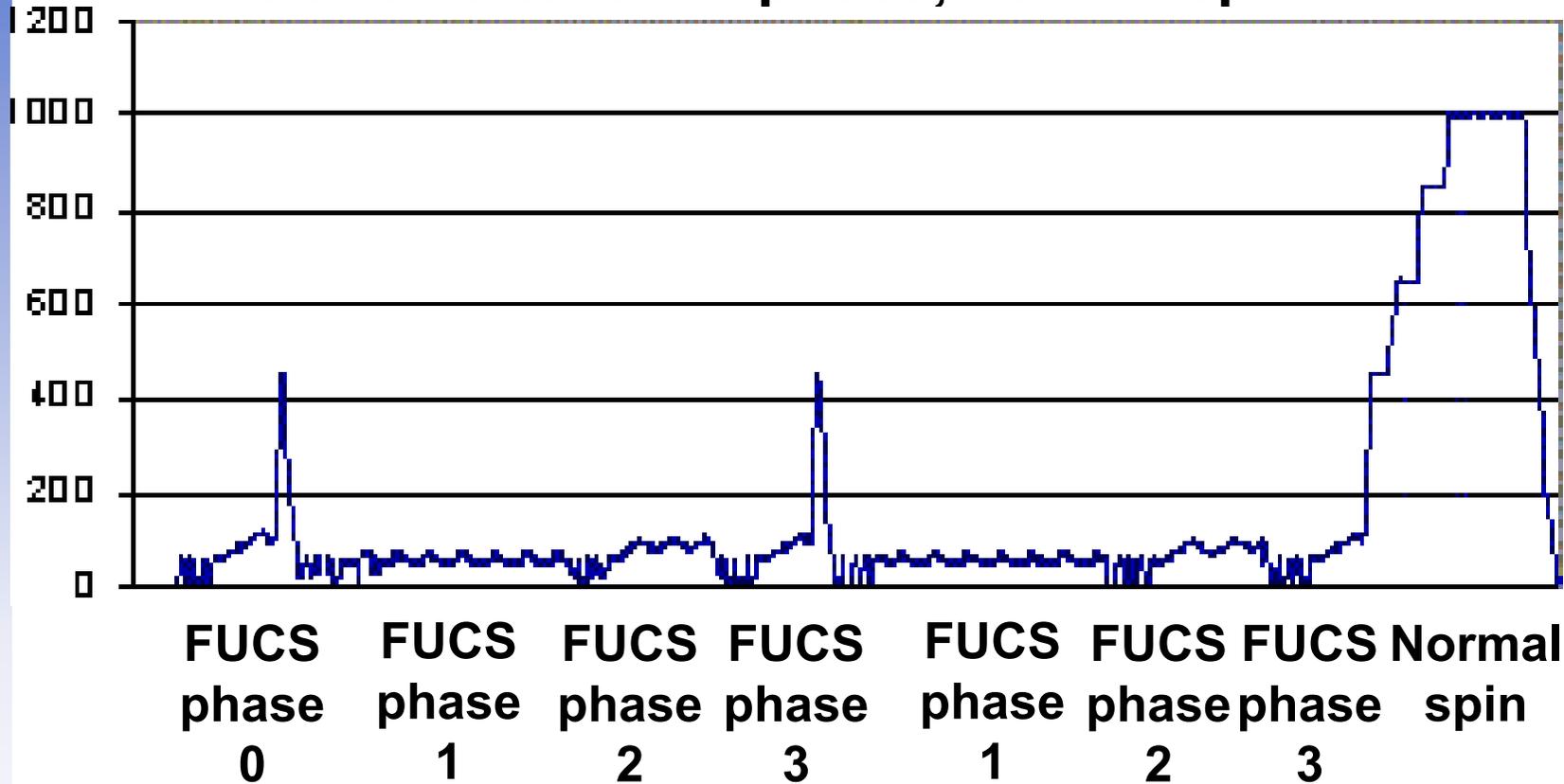
Balance after second attempt



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Fast Unbalance Control System

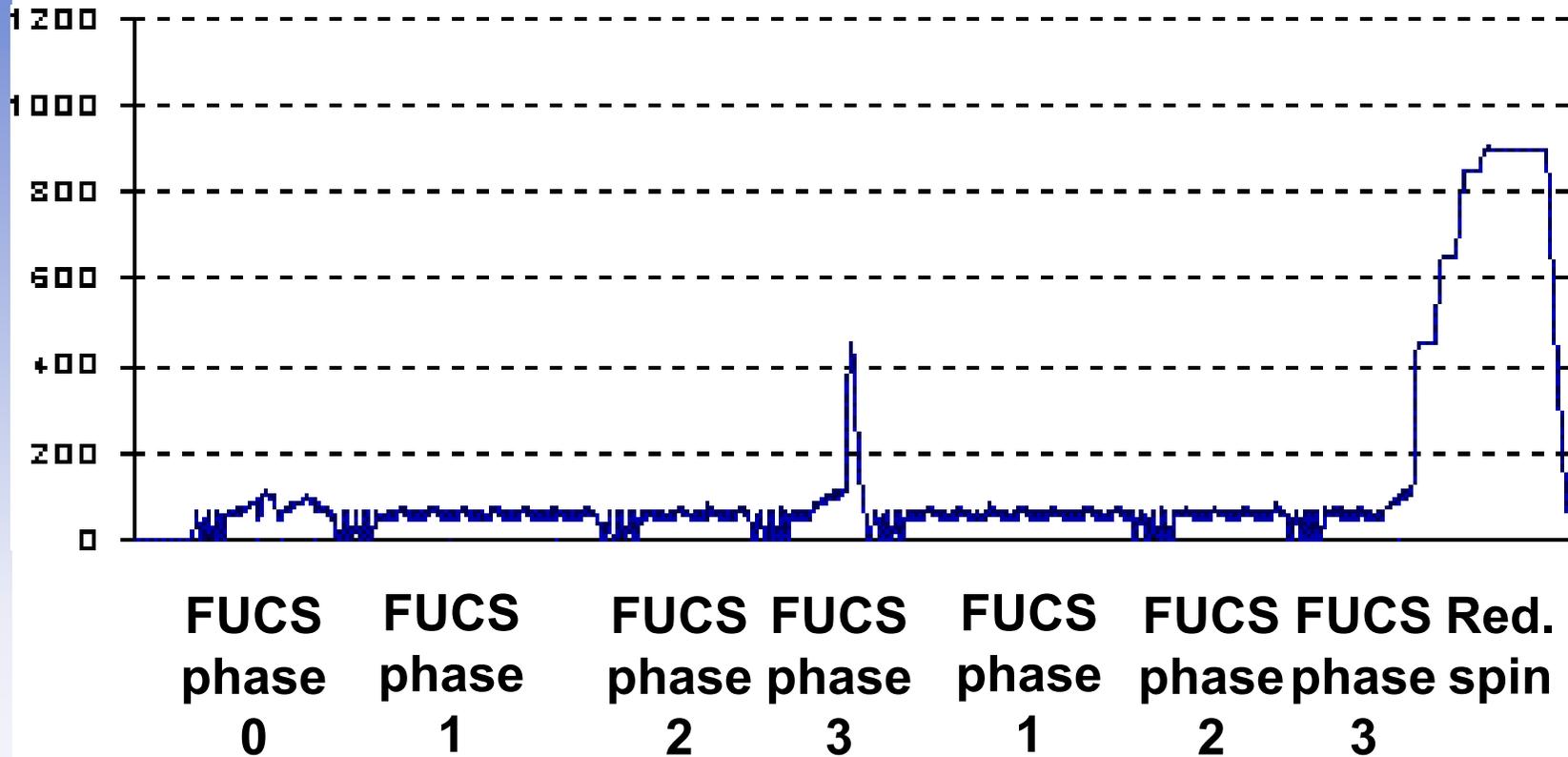
Balance after third phase, normal spin



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Fast Unbalance Control System

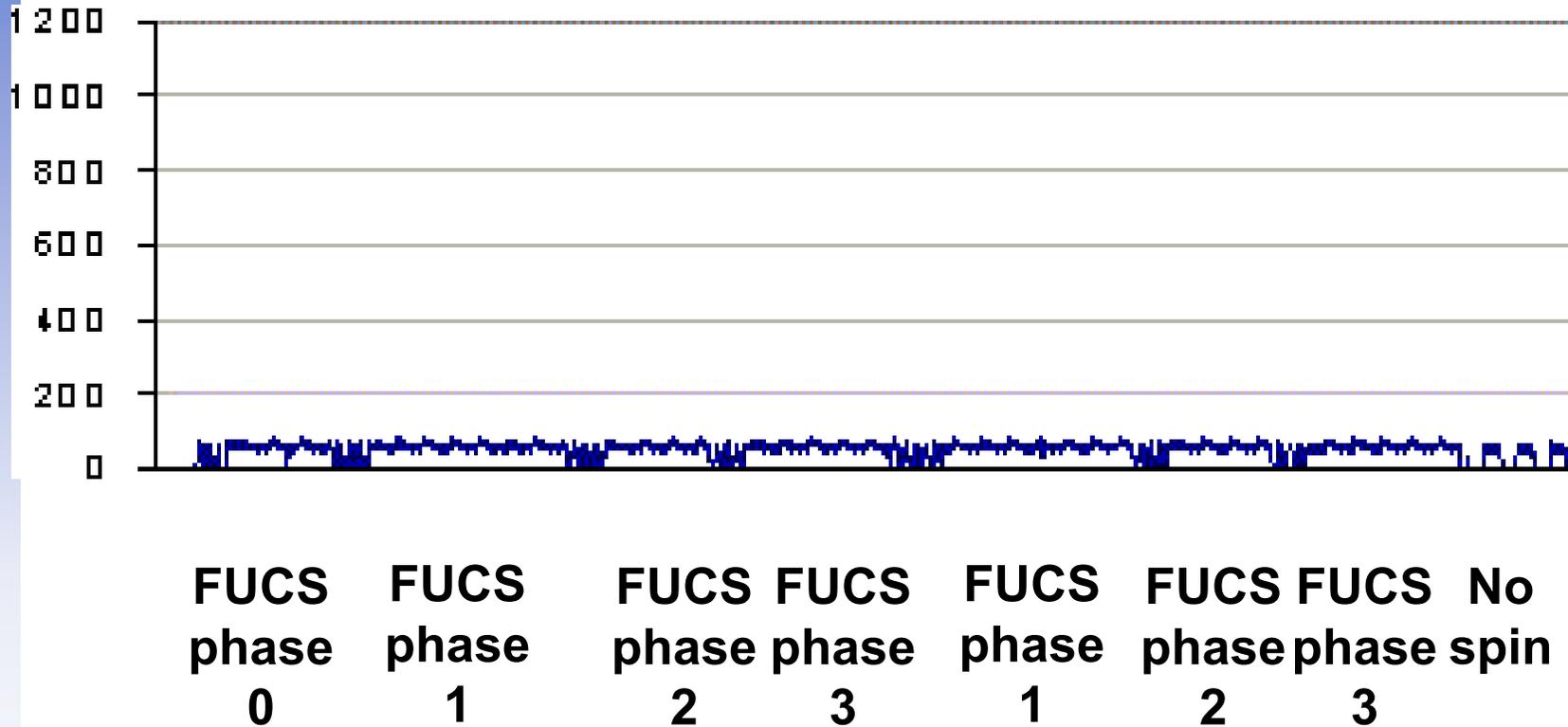
Some unbalance after third phase, reduced spin



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Fast Unbalance Control System

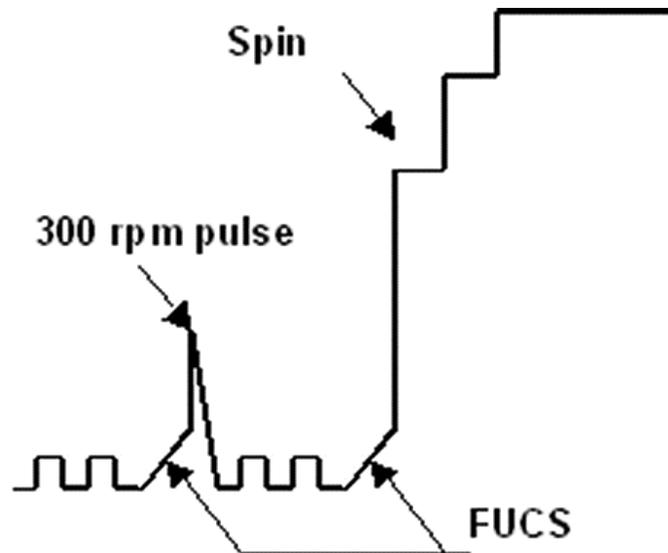
Unbalance after third phase, no spin



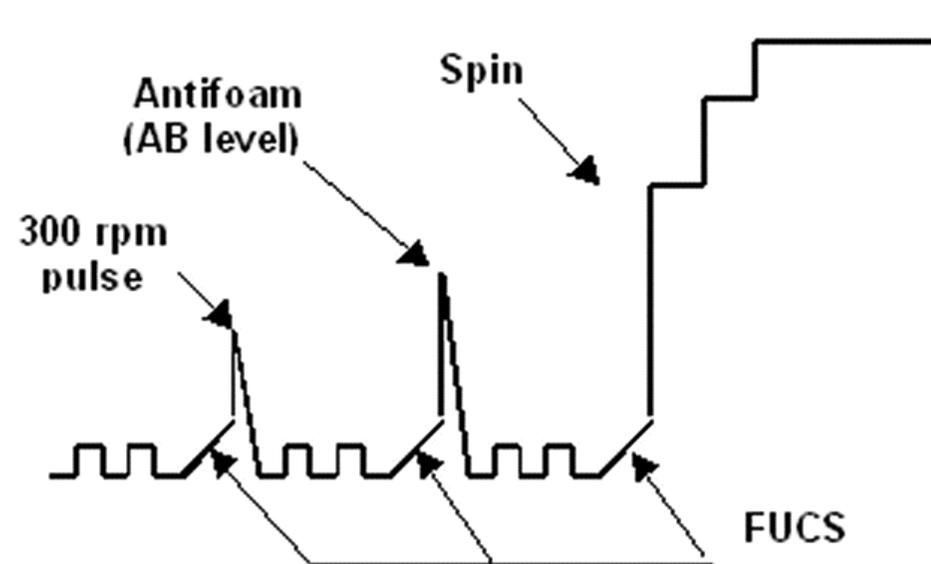
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Foam control

Spin without foam



Spin with some foam



AB level on “full”, spin discontinued with drain pump operating, until AB returns to “empty”.

After 5 attempts, the spin phase is skipped, and an additional rinse inserted.

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Diagnostic Mode

To enter in this mode the procedure is the following:

- Press the defined key combination (**START/PAUSE** and **any other key for Full SMD user interface, Key 1 and 2 for AEG user interface**) with machine switched off and keeping them pressed switch on the machine rotating the main selector in the 1st position CW.
- Within 5 second phases led blinks to give the acknowledge of the operation.
- Press the push button 7 and 8 corresponding to **Diagnostic Mode for Delta3 user interface** and switch on the machine.

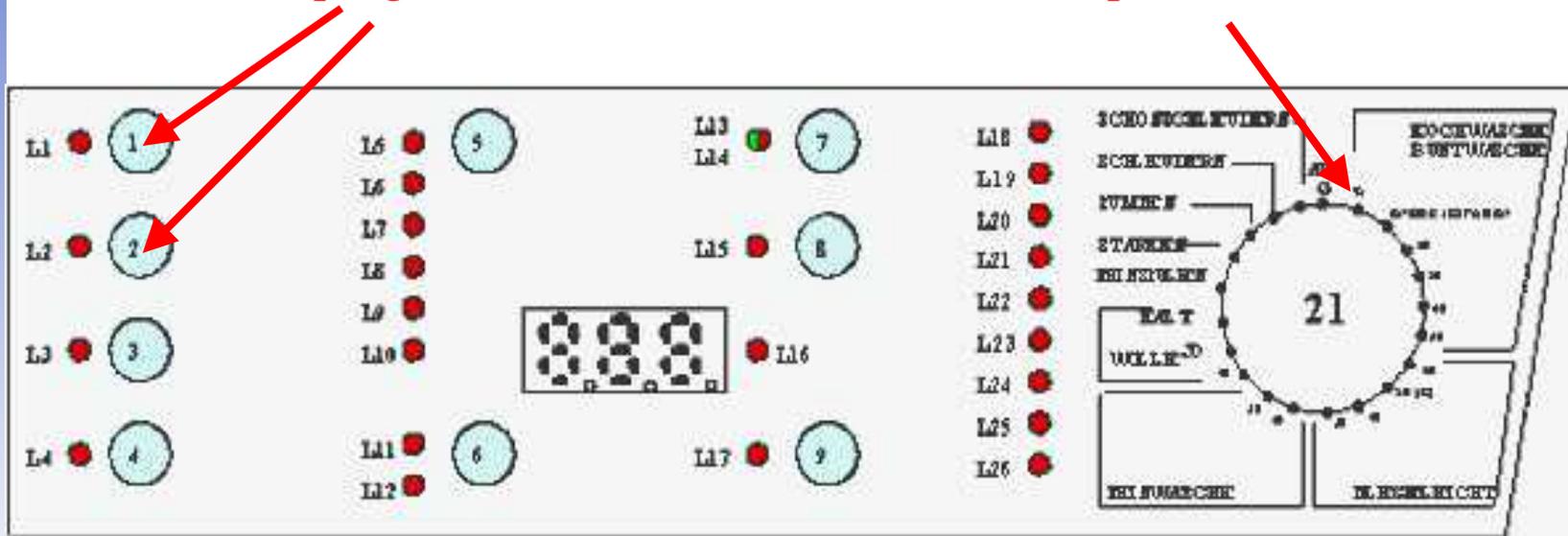
To exit from DIAGNOSTIC mode it's sufficient to switch off the machine.

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Diagnostic Mode

Activation of diagnostic mode with AEG user interface

Press key 1 + 2 simultaneously and switch the program selector in the first clockwise position



Within 5 seconds the diagnostic mode is started and the led test will be executed in position 1.

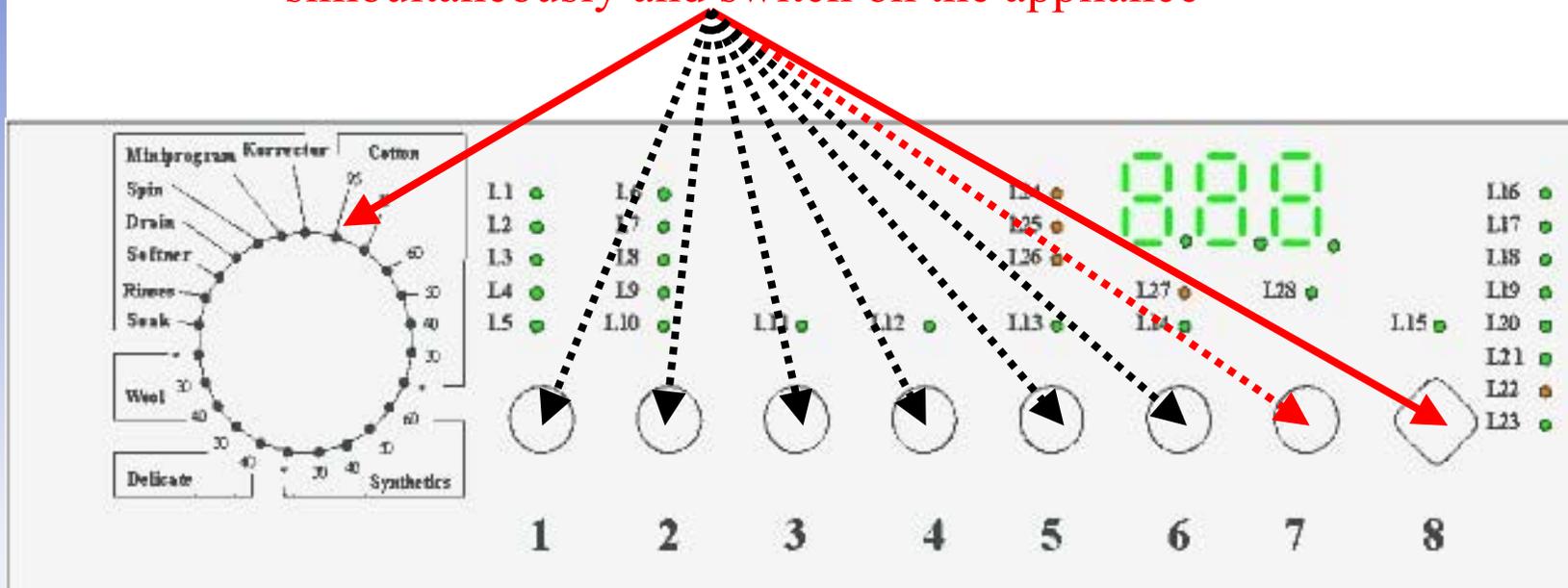
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Diagnostic Mode

Activation of diagnostic mode with full smd user interface

Press key 8 and any other key

simoultaneously and switch on the appliance



Within 5 seconds the diagnostic mode is started and the led test will be executed in position 1.

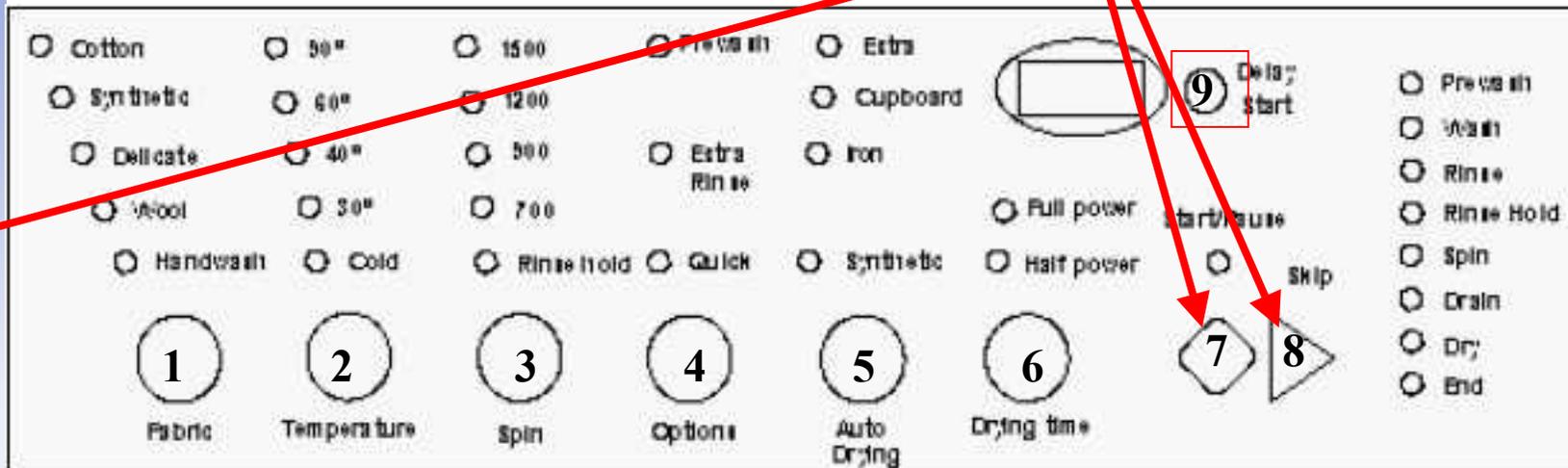
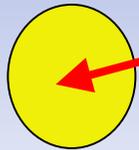
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Diagnostic Mode

Activation of diagnostic mode with Delta3 user interface

Press keys 7 and 8 simultaneously
And switch on the appliance

ON/OFF



Within 5 seconds the diagnostic mode is started and the led test will be executed in position 1.

EWM 1000 PLUS

Diagnostic Mode

Executed tests:

For user interface with selector (Full smd and AEG):

In this 1st selector position starts the User Interface test cycle; all led are lighted on sequentially, and pressing any key the correspondent led is lighted on.

Moving in clockwise direction, for any position there is a different tests:

Position 1: User interface test cycle

Position 2: Water load from wash compartment.

Position 3: Water load from prewash compartment.

Position 4: Water load from softner compartment.

Position 5: Water load from 3rd valve.

Position 6: Wash heater activation.

Position 7: Spin phase at 250 rpm with water in the tub (leakage test).

Position 8: Drain and spin phase at max. spin speed.

Position 9: Drum positioning (for top-loaders).

Position 10: Last alarm display and possible reset.

EWM 1000 PLUS

Diagnostic Mode

Executed tests:

For user without selector (Delta3 user interface):

In Diagnostic Mode, pressing the push button 1 and 2 you activate leds from 1 to 10 enabling different tests:

LED 1: User interface test cycle

LED 2: Water load from wash compartment.

LED 3: Water load from prewash compartment.

LED 4: Water load from softner compartment.

LED 5: Water load from 3rd valve.

LED 6: Wash heater activation.

LED 7: Spin phase at 250 rpm with water in the tub (leakage test).

LED 8: Drain and spin phase at max. spin speed.

LED 9: Drum positioning (for top-loaders).

LED 10: Last alarm display and possible reset.

EWM 1000 PLUS

Diagnostic Mode

Last alarm reading and reset

In diagnostic mode, rotating the selector in the 10th clock wise position or using led 10 for Delta3 user interface, it is possible to read the last alarm memorized on main board EEPROM.

Delete last alarm in this situation



To reset the saved last alarm press the defined key combination START/PAUSE and any other key for Full SMD user interface, key 1 and 2 for AEG user interface and press push buttons 7 and 8 when led 10 is used for Delta 3 user interface.



Display will show E 00

EWM 1000 PLUS

Diagnostic Mode

A T T E N T I O N ! ! !

To exit from DIAGNOSTIC mode it's sufficient to switch off the machine.

According to the machine configuration it is possible that the electric test cycle will be activated with the next switch on of the machine. In the display will appear „ELE“

To stop it, switch off the machine again.

EWM 1000 PLUS

Demo Mode

To enter in demo mode the procedure is the following:

Press the defined key combination (START/PAUSE and any other key for Full SMD, Key 1 and 2 for AEG) with machine switched off and keeping them pressed switch on the machine rotating the main selector in the 2nd position CW.

Within 5 second phases leds flash to give the acknowledge of the operation.

Press the push button 1 and 3 corresponding to Demo Mode for Delta3 user interface.

To exit from DEMO mode it's sufficient to switch off the machine.

For top-loader appliances in DEMO mode only set-up phase is available (START/PAUSE button is disabled). To exit from DEMO mode it's necessary to perform again the procedure used to enter in.

EWM 1000 PLUS

Alarms

Alarm management is active only during cycle execution (except for overload alarm, configuration alarms, voltage/frequency monitor alarms and some other particular alarms).

In normal user mode only the alarm family code is shown to the customer.

The complete alarm code can be read in the diagnostic mode only.

Alarms are displayed on the display and on end cycle phase led flashing many times correspondent to the alarm family code and on START/PAUSE Led the alarm number of the family (for example an E53 alarm is shown flashing 5 times 0.4s ON, 0.4s OFF with a pause of 2.5 seconds on END CYCLE led and 3 times on START/PAUSE led).

During the cycle the standard key combination is used to display the complete machine last alarm. Last alarm is memorized on the main board EEPROM in order to give to Service personnel the possibility to know the cause of the machine failure.

EWM 1000 PLUS

Alarms

Alarm display EWM 1000 PLUS

All EWM 1000 PLUS washing mashines with display will show the alarm code on the time to end display.

The alarm will be shown as **E X Y** e.g. **E51**

E = Error

X = alarm family

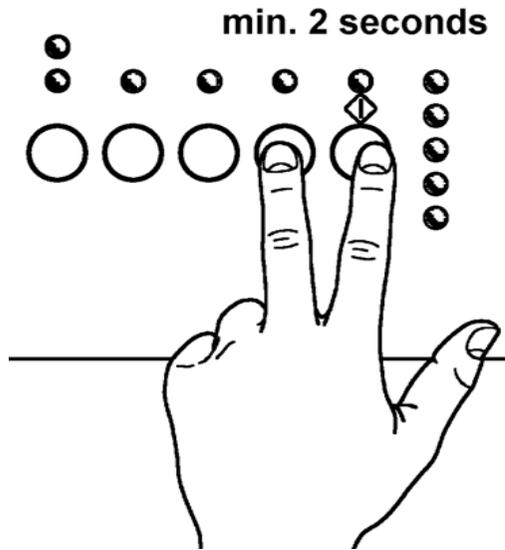
Y = alarm number

EWM 1000 PLUS

Alarms

Example: Quick reading of alarm codes

- The last alarm can be read even if the machine is not in the diagnostic mode:



- Press **START/PAUSE** and any option pushbutton simultaneously for at least **2 seconds**
- All LEDs extinguish and then show the full alarm code
- The sequence will be repeated as long as the 2 pushbuttons are kept depressed

EWM 1000 PLUS

Alarm family E10

- **Alarm code:** E11
- **Alarm description:** water load problems during washing cycle
- **Fault condition:** water load timeout expired (load timeout for level water loads)
- **Possible fault:**
 - water tap closed or water flow too low
 - water inlet valve defective
 - air trap system leaking or clogged
 - pressure switch defective
 - wiring or main board defective
- **Action / status of machine:** cycle paused with door locked
- **Reset / key:** START

EWM 1000 PLUS

Alarm family E10

- **Alarm code:** E13
- **Alarm description:** water leakage
- **Fault condition:** global water load timeout expired (the max. water volume reached)
- **Possible fault:**
 - water flow too low
 - water inlet valve defective
 - air trap system leaking or clogged
 - pressure switch defective
 - wiring or main board defective
- **Action / status of machine:** cycle paused with door locked
- **Reset / key:** START

EWM 1000 PLUS

Alarm family E20

- **Alarm code:** E21
- **Alarm description:** water drain problems during washing cycle
- **Fault condition:** water drain timeout expired (measured for each drain phase)
- **Possible fault:**
 - drain pipe blocked up
 - blocked / dirty filter
 - drain pump defective
 - pressure switch defective
 - current leakage to earth on heater
 - main board or wiring defective
- **Action / status of machine:** cycle paused
- **Reset / key:** START

EWM 1000 PLUS

Alarm family E20

- **Alarm code:** E23
- **Alarm description:** drain pump triac failure
- **Fault condition:** Incongruence between drain pump triac sensing and triac status
- **Possible fault:**
 - drain pump defective
 - wiring or main board defective
- **Action / status of machine:** safety drain cycle activation
stop of the cycle with door opened
- **Reset / key:** ON / OFF , RESET

EWM 1000 PLUS

Alarm family E20

- **Alarm code:** E24
- **Alarm description:** drain pump triac sensing failure
- **Fault condition:** input voltage value always
- **Possible fault:** main board defective
- **Action / status of machine:** safety drain cycle activation
stop of the cycle with door opened
- **Reset / key:** ON / OFF , RESET

EWM 1000 PLUS

Alarm family E30

- **Alarm code:** E33
- **Alarm description:** anti boil – 1st level switches incongruent
- **Fault condition:** anti boil level OFF and 1st level ON or any other incongruent signal from the two switches
- **Possible fault:**
 - pressure switch defective
 - current leakage to earth on heater
 - wash heater defective
 - wiring or main board defective
- **Action / status of machine:** safety drain cycle activation
stop of the cycle with door opened
- **Reset / key:** ON / OFF , RESET

EWM 1000 PLUS

Alarm family E30

- **Alarm code:** E35
- **Alarm description:** water overload
- **Fault condition:** overload pressure switch ON for a time longer then 15 seconds
- **Possible fault:**
 - water inlet valve defective
 - air trap system leaking
 - pressure switch defective
 - wiring or main board defective
- **Action / status of machine:** cycle blocked
water drain up to anti boil level or max. 5 minutes with door locked.
- **Reset / key:** ON / OFF , RESET

EWM 1000 PLUS

Alarm family E30

- **Alarm code:** E36
- **Alarm description:** anti boil sensing failure
- **Fault condition:** input voltage value on micro processor always to 0V or 5V
- **Possible fault:** main board defective
- **Action / status of machine:** cycle blocked with door locked
- **Reset / key:** ON / OFF , RESET

EWM 1000 PLUS

Alarm family E30

- **Alarm code:** E37
- **Alarm description:** 1st level sensing failure
- **Fault condition:** input voltage value on micro processor always to 0V or 5V
- **Possible fault:** main board defective
- **Action / status of machine:** cycle blocked with door locked
- **Reset / key:** ON / OFF , RESET

EWM 1000 PLUS

Alarm family E30

- **Alarm code:** E39
- **Alarm description:** HV1 level sensing failure
- **Fault condition:** input voltage value on micro processor always to 0V
- **Possible fault:** main board defective
- **Action / status of machine:** cycle blocked with door locked
- **Reset / key:** ON / OFF , RESET

EWM 1000 PLUS

Alarm family E40

- **Alarm code:** E41
- **Alarm description:** door opened
- **Fault condition:** door lock timeout expired (15seconds)
- **Possible fault:**
 - door lock device defective
 - wiring or main board defective
- **Action / status of machine:** cycle paused
- **Reset / key:** START

EWM 1000 PLUS

Alarm family E40

- **Alarm code:** E42
- **Alarm description:** door lock device failure
- **Fault condition:** door opened during cycle execution (timeout 15s) or door locked when opening (timeout 4 minutes)
- **Possible fault:**
 - door lock device defective
 - wiring or main board defective
 - current leakage to earth on heater
- **Action / status of machine:** cycle paused
- **Reset / key:** START

EWM 1000 PLUS

Alarm family E40

- **Alarm code:** E43
- **Alarm description:** door lock device triac failure
- **Fault condition:** incongruence between door lock device triac sensing and triac status
- **Possible fault:**
 - door lock device defective
 - wiring or main board defective
- **Action / status of machine:** IF DOOR_CLOSED_SENSING=ON
➔ safety drain cycle activation cycle blocked
- **Reset / key:** ON / OFF , RESET

EWM 1000 PLUS

Alarm family E40

- **Alarm code:** E44
- **Alarm description:** door closed sensing failure
- **Fault condition:** input voltage value on micro processor always to 0V or incongruence with drain pump triac sensing
- **Possible fault:** main board defective
- **Action / status of machine:** if door is closed then safety drain cycle activation
cycle blocked
- **Reset / key:** ON / OFF , RESET

EWM 1000 PLUS

Alarm family E40

- **Alarm code:** E45
- **Alarm description:** door triac sensing failure
- **Fault condition:** input voltage value on micro processor always to 0V or 5V
- **Possible fault:** main board defective
- **Action / status of machine:** IF DOOR_CLOSED_SENSING=ON
→ safety drain cycle activation
cycle blocked
- **Reset / key:** ON / OFF , RESET

EWM 1000 PLUS

Alarm family E50

- **Alarm code:** E51
- **Alarm description:** motor triac short circuit
- **Fault condition:** activation of short circuit motor triac
- **Possible fault:**
 - main board defective
 - current leakage on motor/wiring
- **Action / status of machine:** cycle blocked after 5 trials
- **Reset / key:** ON / OFF , RESET

EWM 1000 PLUS

Alarm family E50

- **Alarm code:** E52
- **Alarm description:** no tachometer signal from motor
- **Fault condition:** no signal from tachometer over the time limit
- **Possible fault:**
 - motor defective
 - wiring or main board defective
- **Action / status of machine:** cycle blocked after 5 trials with door locked
- **Reset / key:** ON / OFF , RESET

EWM 1000 PLUS

Alarm family E50

- **Alarm code:** E53
- **Alarm description:** motor triac sensing failure
- **Fault condition:** input voltage value on micro processor always to 0V or to 5V
- **Possible fault:** main board defective
- **Action / status of machine:** cycle blocked
- **Reset / key:** ON / OFF , RESET

EWM 1000 PLUS

Alarm family E50

- **Alarm code:** E54
- **Alarm description:** motor relay burned (always closed)
- **Fault condition:** voltage level on short circuit motor triac sensing too high when all relays switched off
- **Possible fault:**
 - main board defective
 - current leakage on motor/wiring
- **Action / status of machine:** cycle blocked after 5 trials
- **Reset / key:** ON / OFF , RESET

EWM 1000 PLUS

Alarm family E60

- **Alarm code:** E61
- **Alarm description:** insufficient heating during washing cycle
- **Fault condition:** washing heating timeout expired
- **Possible fault:**
 - washing NTC defective
 - wash heater defective
 - wiring or main board defective
- **Action / status of machine:** heating phases skipped
- **Reset / key:** ---

EWM 1000 PLUS

Alarm family E60

- **Alarm code:** E62
- **Alarm description:** overheating during washing cycle
- **Fault condition:** washing NTC temperature over 88°C for a time longer than 5 minutes
- **Possible fault:**
 - washing NTC defective
 - wash heater defective
 - wiring or main board defective
- **Action / status of machine:** safety drain cycle activation
stop of the cycle with door opened
- **Reset / key:** ON / OFF RESET

EWM 1000 PLUS

Alarm family E60

- **Alarm code:** E66
- **Alarm description:** heating element relay failure
- **Fault condition:** incongruence between anti boil and K1 status
- **Possible fault:**
 - main board defective
 - current leakage to earth on heater
- **Action / status of machine:** safety drain cycle activation
stop of the cycle with door opened
- **Reset / key:** ON / OFF RESET

EWM 1000 PLUS

Alarm family E70

- **Alarm code:** E71
- **Alarm description:** washing NTC failure
- **Fault condition:** voltage value out of limits (open circuit or short circuit)
- **Possible fault:**
 - washing NTC defective
 - wiring or main board defective
- **Action / status of machine:** heating phases skipped
- **Reset / key:** START

EWM 1000 PLUS

Alarm family E70

- **Alarm code:** E74
- **Alarm description:** water NTC in wrong position
- **Fault condition:** the wash temperature does not increase
- **Possible fault:** - wash NTC out from its correct position in the tub
- **Action / status of machine:** heating phases skipped
- **Reset / key:** START

EWM 1000 PLUS

Alarm family E80

- **Alarm code:** E82
- **Alarm description:** wrong selector reset position detection
- **Fault condition:** reset position code read on selector out of power fail management
- **Possible fault:**
 - Wrong configuration data on EEPROM
 - main board defective
- **Action / status of machine:** ---
- **Reset / key:** ON / OFF , RESET

EWM 1000 PLUS

Alarm family E80

- **Alarm code:** E83
- **Alarm description:** wrong selector reading
- **Fault condition:** selector position code value not supported by the configuration data
- **Possible fault:**
 - Wrong configuration data on EEPROM
 - main board defective
- **Action / status of machine:** reset cycle
- **Reset / key:** START

EWM 1000 PLUS

Alarm family E90

- **Alarm code:** E91
- **Alarm description:** user interface – main board communication error
- **Fault condition:** communication problem between user interface and main board
- **Possible fault:**
 - wiring defective
 - user interface defective
 - main board defective
- **Action / status of machine:** cycle blocked
- **Reset / key:** ---

EWM 1000 PLUS

Alarm family E90

- **Alarm code:** E92
- **Alarm description:** user interface – main board incongruence error
- **Fault condition:** protocol between user interface – main board not aligned
- **Possible fault:** - main board incompatible with user interface

- **Action / status of machine:** cycle blocked
- **Reset / key:** ---

EWM 1000 PLUS

Alarm family E90

- **Alarm code:** E93
- **Alarm description:** machine configuration error
- **Fault condition:** incongruent values on configuration data at power on (checksum error)
- **Possible fault:**
 - wrong configuration data on EEPROM
 - main board defective
- **Action / status of machine:** cycle blocked
- **Reset / key:** ON / OFF , RESET

EWM 1000 PLUS

Alarm family E90

- **Alarm code:** E94
- **Alarm description:** cycle configuration error
- **Fault condition:** incongruent values on configuration data at power on (checksum error)
- **Possible fault:**
 - wrong configuration data on EEPROM
 - main board defective
- **Action / status of machine:** cycle blocked
- **Reset / key:** ON / OFF , RESET

EWM 1000 PLUS

Alarm family E90

- **Alarm code:** E95
- **Alarm description:** communication error between micro processor and and extern. EEPROM
- **Fault condition:** error detected during external EEPROM data read/write
- **Possible fault:** - main board defective
- **Action / status of machine:** cycle blocked
- **Reset / key:** ON / OFF , RESET

EWM 1000 PLUS

Alarm family E90

- **Alarm code:** E97
- **Alarm description:** incongruence between selector and cycle configuration
- **Fault condition:** program code read from selector table not found in the cycle table
- **Possible fault:**
 - wrong configuration data on EEPROM
 - main board defective
- **Action / status of machine:** cycle blocked
- **Reset / key:** ON / OFF , RESET

EWM 1000 PLUS

Alarm family EA0

- **Alarm code:** EA1 (only for top load machines)
- **Alarm description:** DSP system failure
- **Fault condition:** no drum position sensing during motor activation
- **Possible fault:**
 - wiring or main board defective
 - DSP sensor failure
 - main motor belt broken
- **Action / status of machine:** skip of the drum positioning phase
- **Reset / key:** ---

EWM 1000 PLUS

Alarm family EB0

- **Alarm code:** EB1
- **Alarm description:** power supply frequency out of limits
- **Fault condition:** power supply period lower/higher than configured values
- **Possible fault:** - wrong or disturbed power supply line
- **Action / status of machine:** cycle blocked by power fail management
- **Reset / key:** ---

EWM 1000 PLUS

Alarm family EB0

- **Alarm code:** EB2
- **Alarm description:** power supply voltage too high
- **Fault condition:** MAIN_V sensing input voltage value on microprocessor to 5V
- **Possible fault:**
 - wrong or disturbed power supply line
 - main board defective
- **Action / status of machine:** cycle blocked
- **Reset / key:** ---

EWM 1000 PLUS

Alarm family EB0

- **Alarm code:** EB3
- **Alarm description:** power supply voltage too low
- **Fault condition:** MAIN_V sensing input voltage value on microprocessor lower than configured value
- **Possible fault:**
 - wrong or disturbed power supply line
 - main board defective
- **Action / status of machine:** cycle blocked by power fail management
- **Reset / key:** ---

EWM 1000 PLUS

Alarm family EF0

- **Alarm code:** EF1
- **Alarm description:** filter clogged warning
- **Fault condition:** difficulties to drain, anti boil switch not open after an established time
- **Possible fault:** - filter clogged
- **Action / status of machine:** alarm is displayed at the end of cycle when the problem appears in 3 drain phases in successively
- **Reset / key:** START

EWM 1000 PLUS

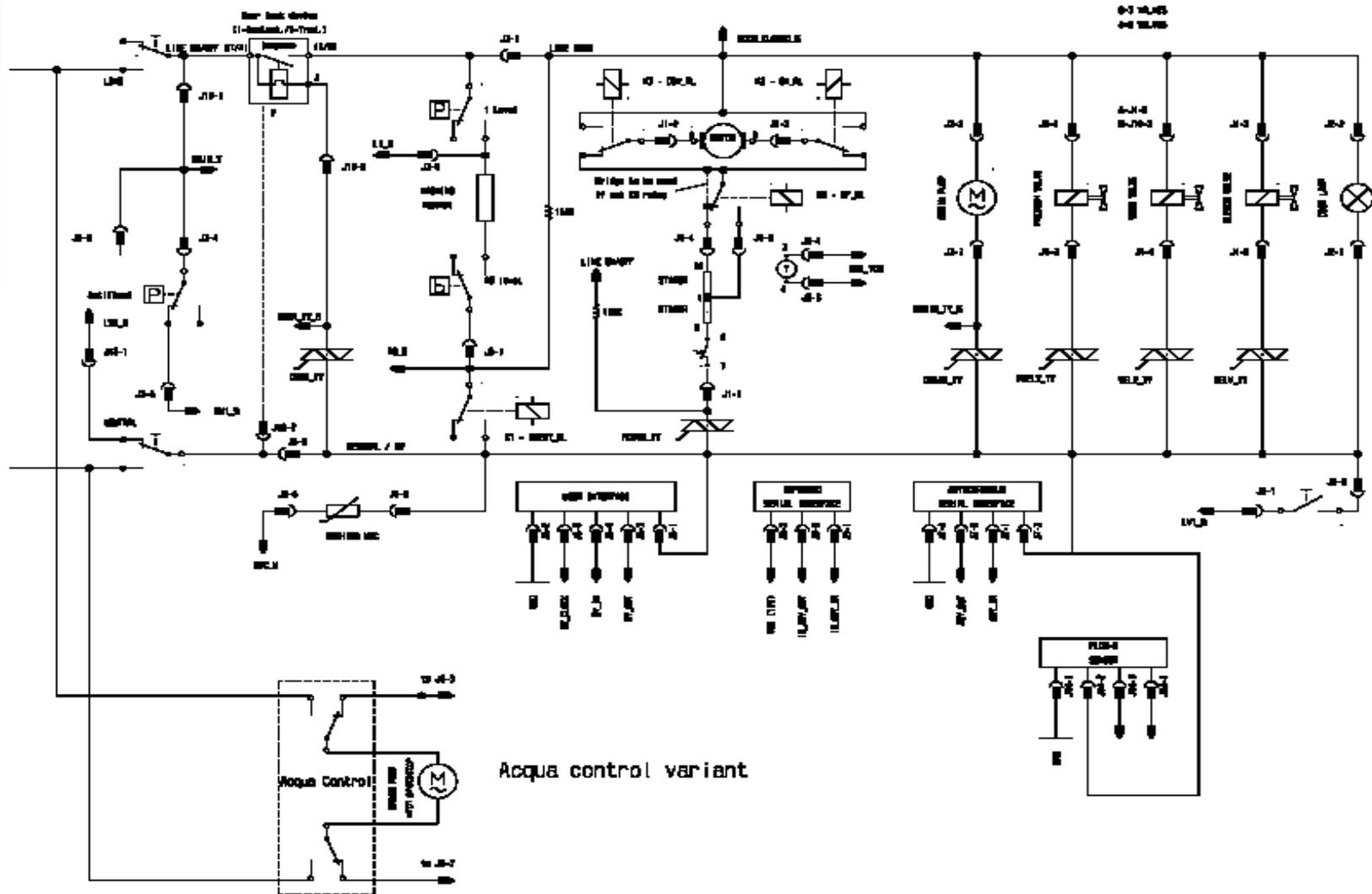
Alarm family EF0

- **Alarm code:** EF3
- **Alarm description:** aqua control warning
- **Fault condition:** DRAIN_TY_S „low“ when triac not activated and aqua control configuration is set
- **Possible fault:**
 - water in the basement
 - **drain pump triac short circuit**
- **Action / status of machine:** drain pump activated
- **Reset / key:** ON / OFF , RESET

Attention: In machines with aqua control system this alarm can also appear when the drain pump triac is in short circuit. It is not possible to distinguish the one alarm from the other in this configuration.

EWM 1000 PLUS

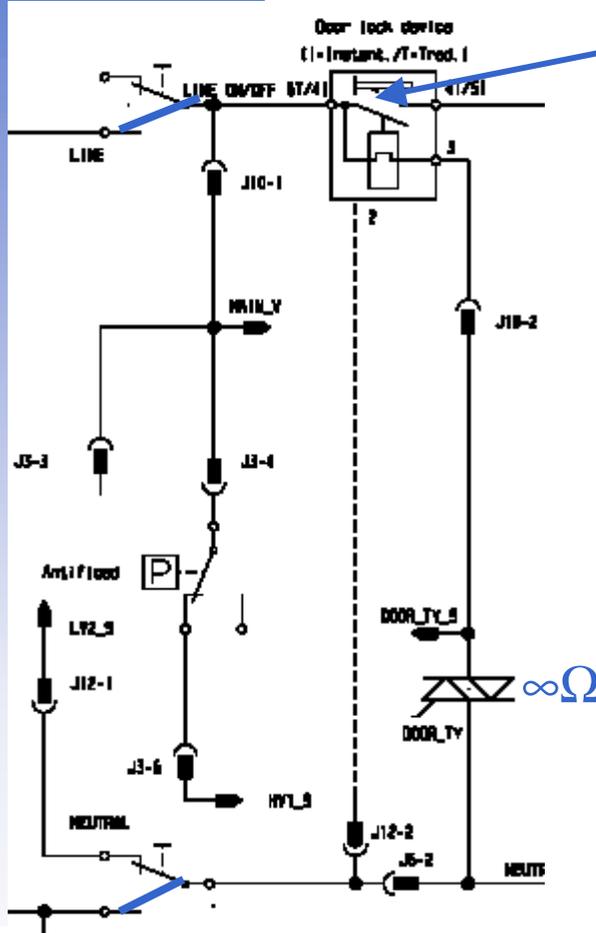
Wiring



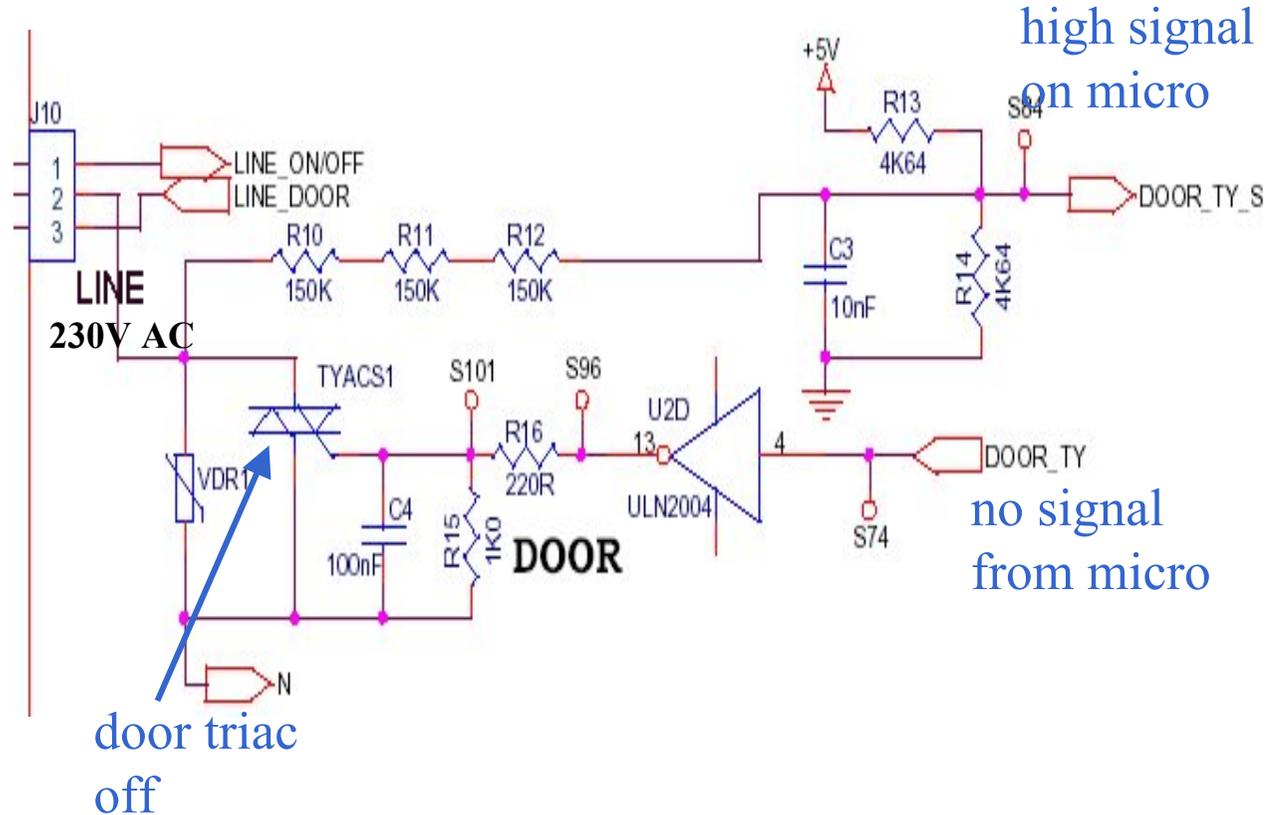
EWM 1000 PLUS

Alarms

Example alarm E43: door lock device triac failure 1



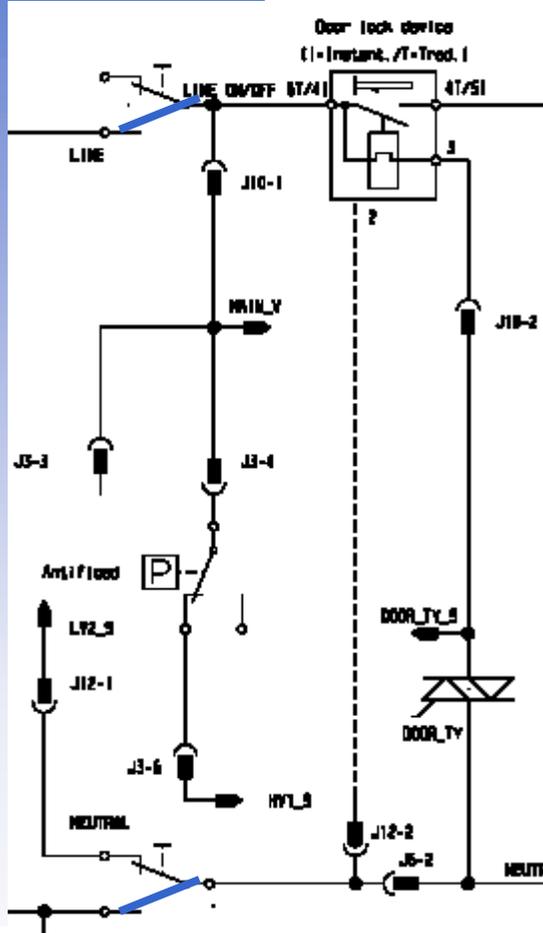
normal situation: door opened



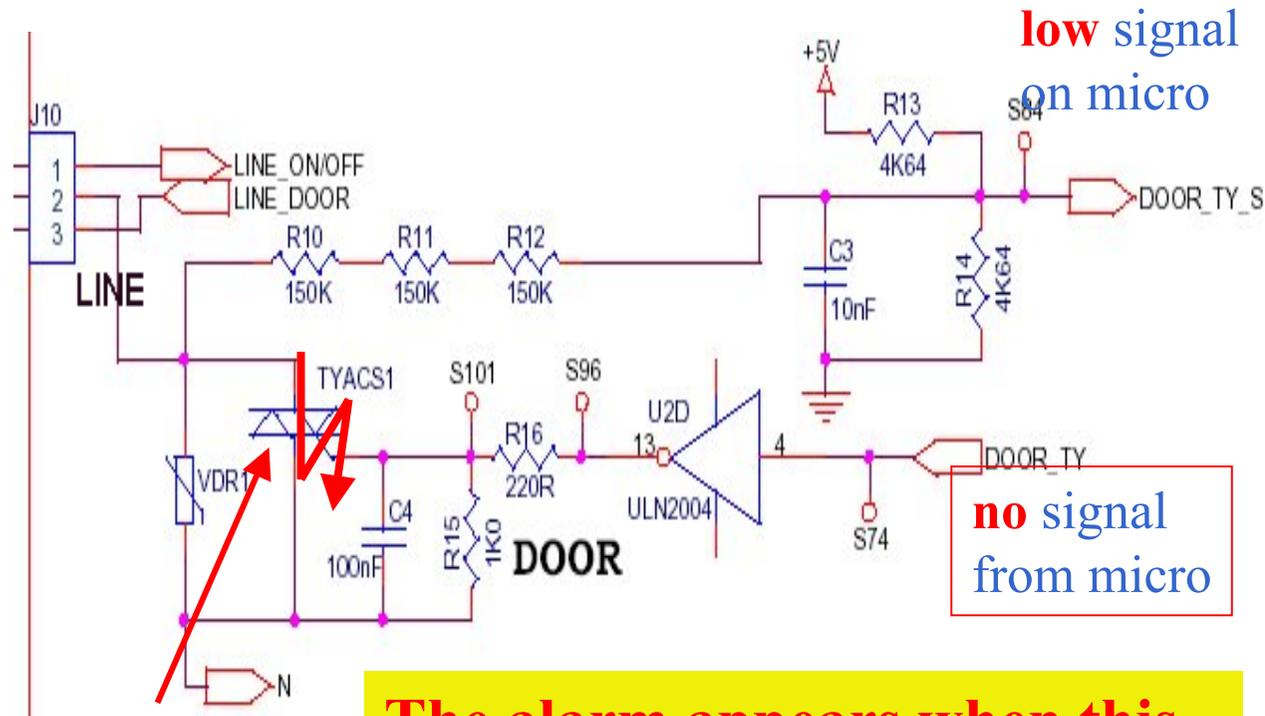
EWM 1000 PLUS

Alarms

Example alarm E43: door lock device triac failure 3



failure situation: door triac short circuit



Door triac
Short circuit

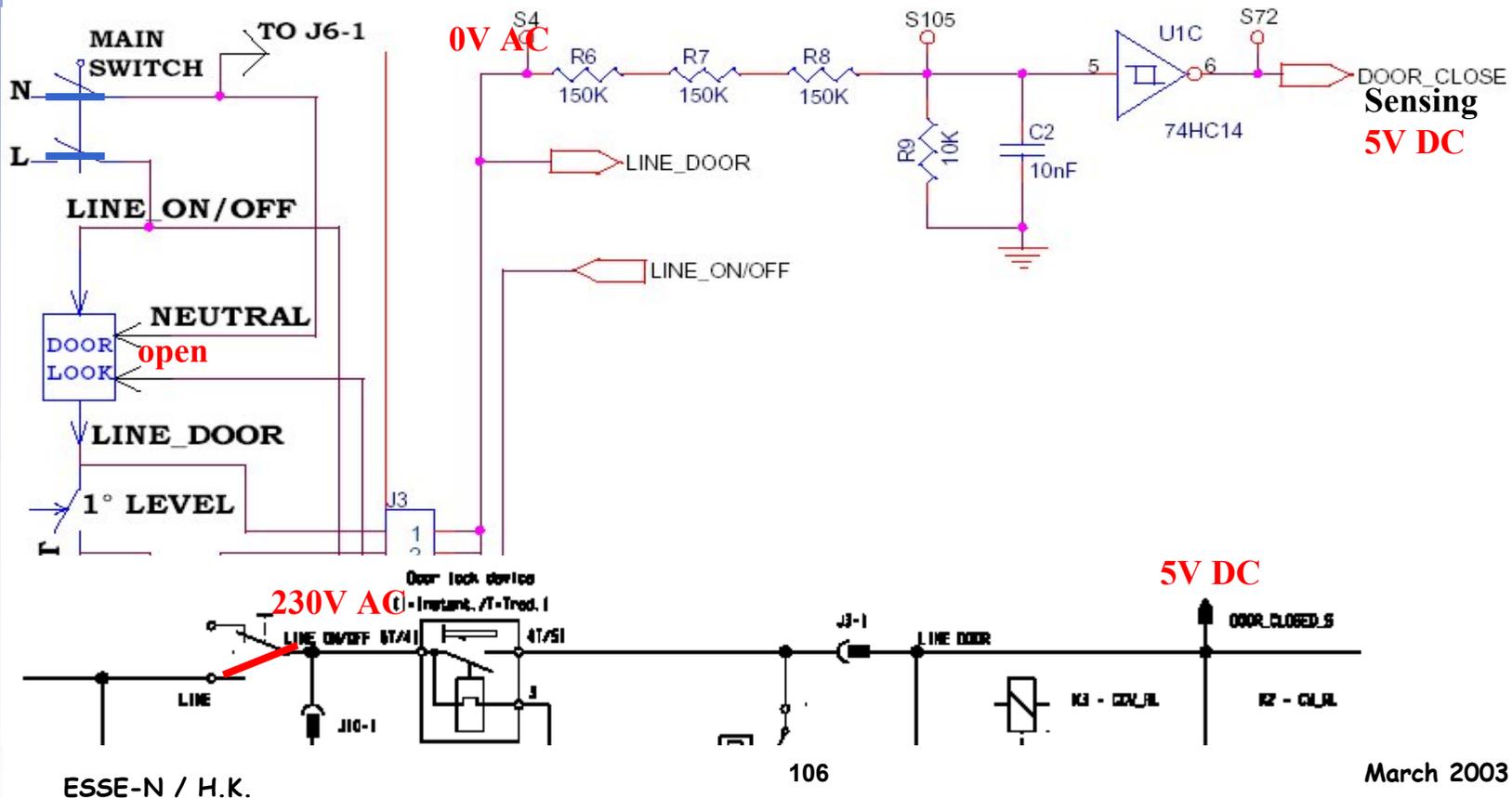
The alarm appears when this
Situation persists for 3 seconds

EWM 1000 PLUS

Alarms

Example alarm E44: door closed sensing failure 1

normal situation: door opened

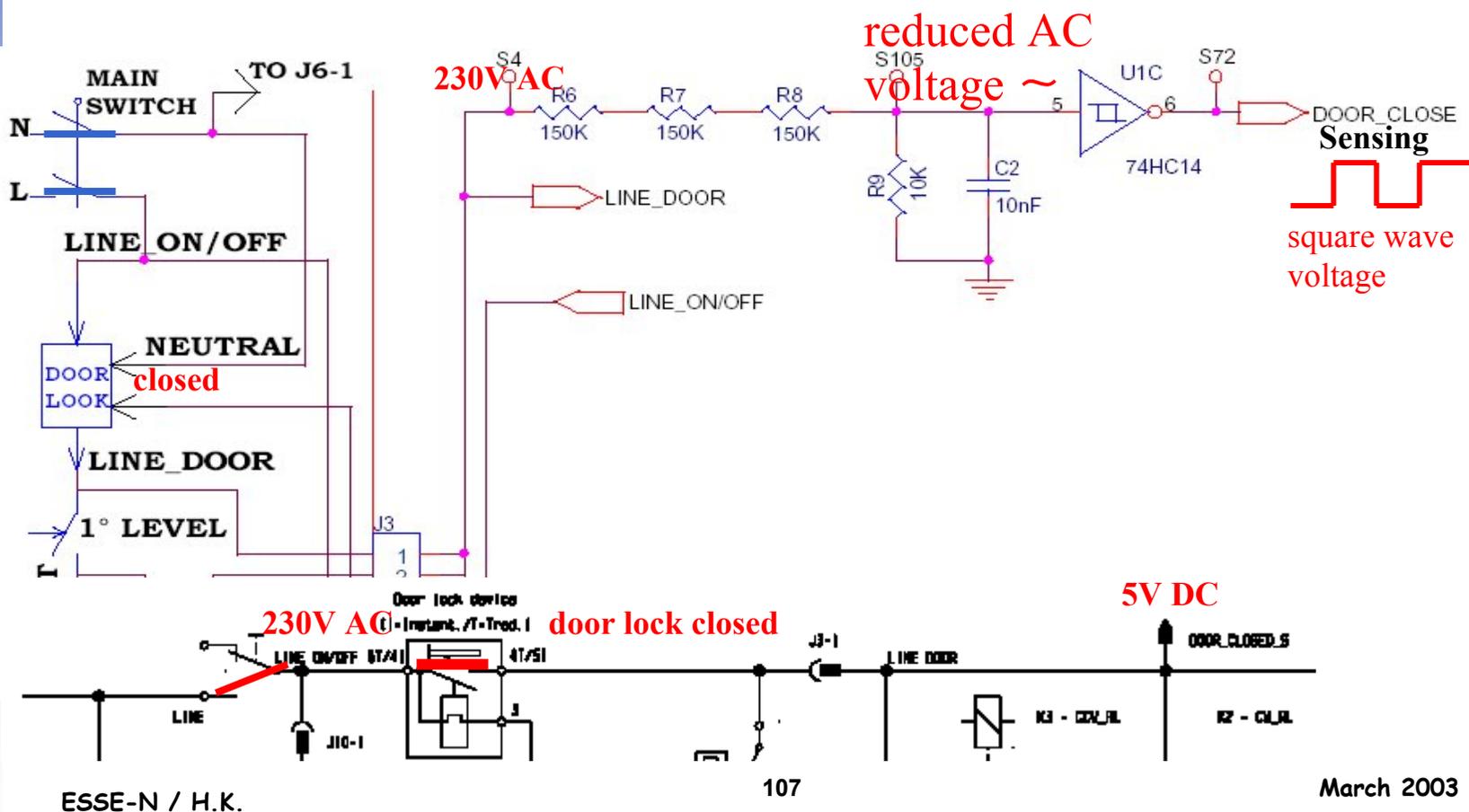


EWM 1000 PLUS

Alarms

Example alarm E44: door closed sensing failure 2

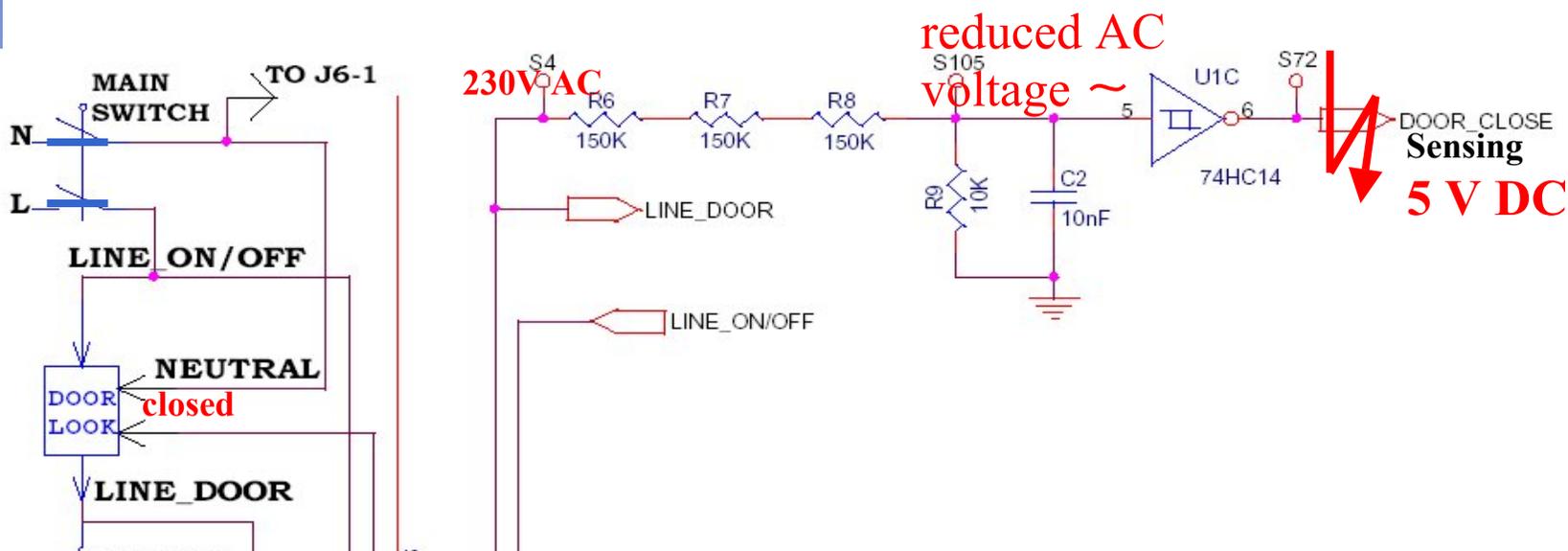
normal situation: door closed



EWM 1000 PLUS

Alarms

Example alarm E44: door closed sensing failure 3
failure situation: door closed



The door closed sensing is not working properly.
This sensing is used with a normally open switch.
It has to give a square wave to the microprocessor if the door is closed and a fixed high value if the door is open. If the microprocessor reads a value different from these for a time longer than 3 seconds, the machine is in alarm situation.