Electrolux
Spares Operation

SERVICE MANUAL

DISHWASHER

DIVA

with EDW 2000

Dishwasher

DIVA

with
EDW 2000

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Spares Operation

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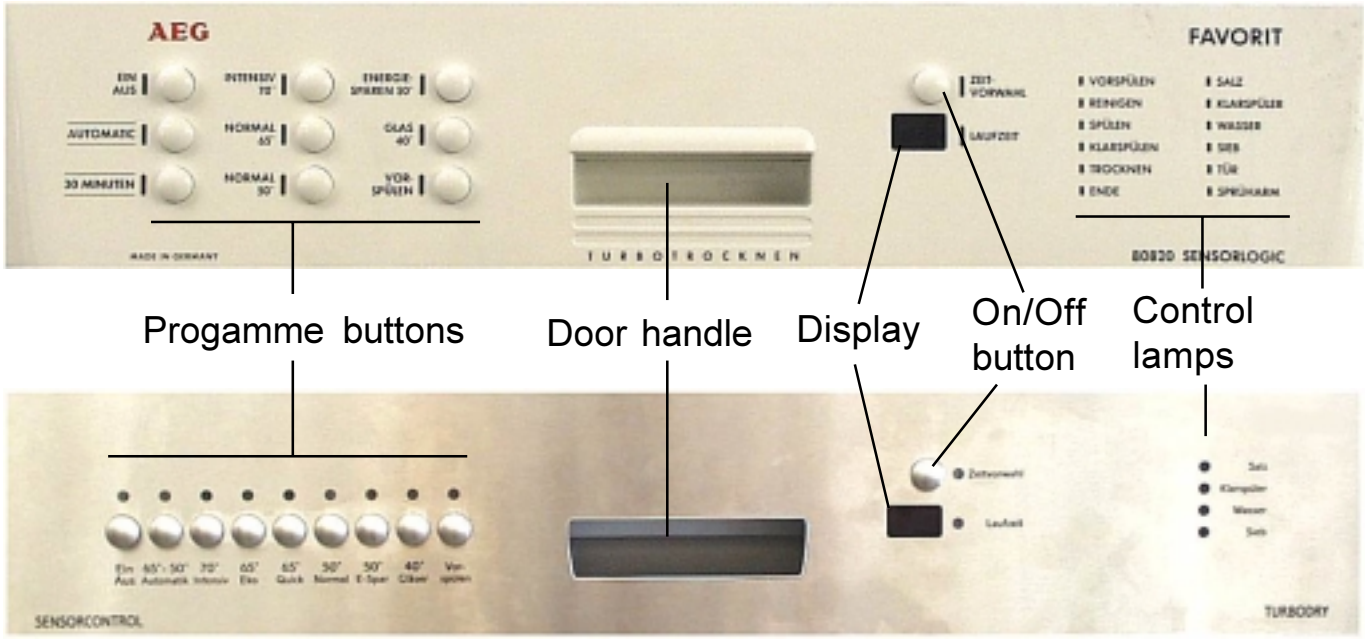
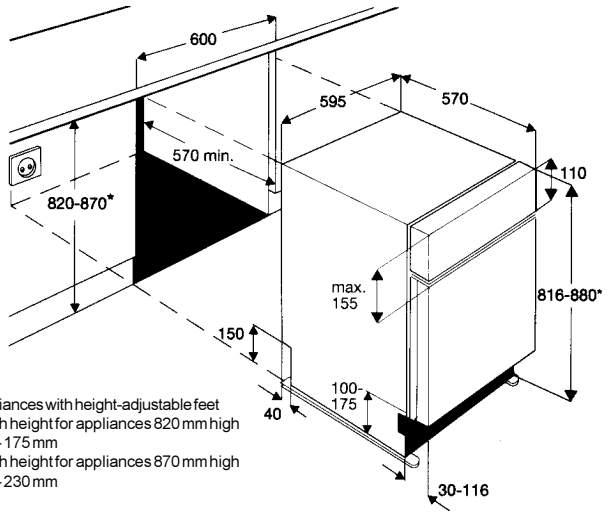
1. Control panels



2. Dimensions

Build-in dimensions for Integrated Dishwashers

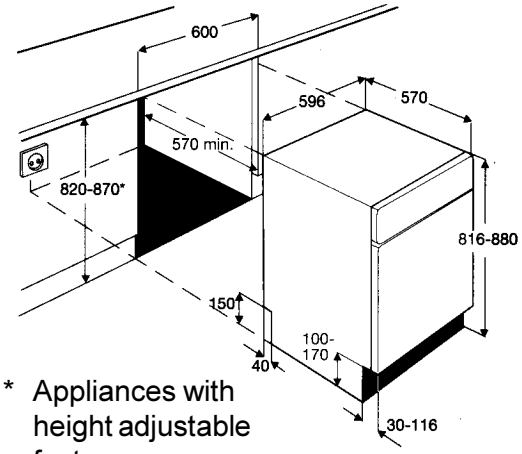
ÖKO-FAVORIT



* Appliances with height-adjustable feet
Plinth height for appliances 820 mm high
100 - 175 mm
Plinth height for appliances 870 mm high
150 - 230 mm

Build-in dimensions for Built-Under Dishwashers

ÖKO-FAVORIT



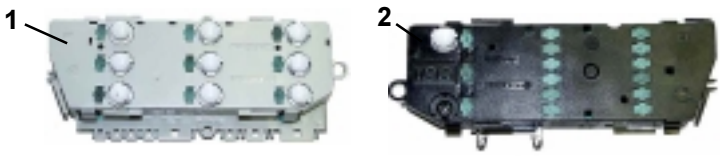
* Appliances with height adjustable feet

Dimensions for Freestanding Dishwasher

Height	**85 cm**
Width	**60 cm**
Depth	**60 cm**

Height with worktop removed 82 cm
Feet adjustment 1 cm

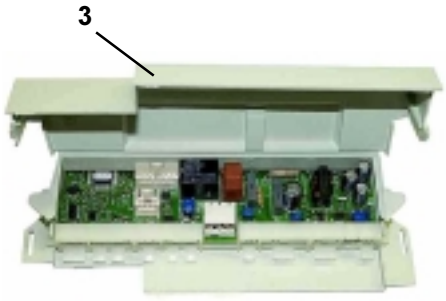
3. Components



3.1 Electronic

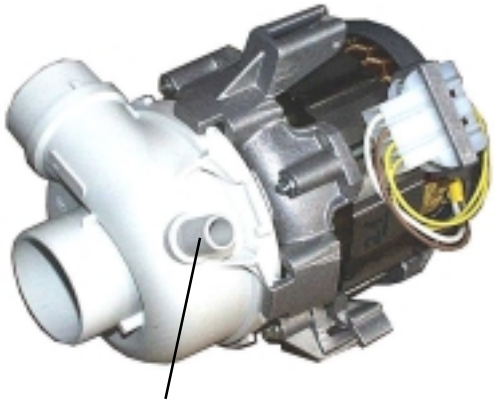
On electronic models, a micro processor controls all components, this is done using triacs. The electronic also memorizes all programme data.

Die Steuerelektronik besteht aus dem (1) Eingabe-, (2) Ausgabe- und (3) Steuerteil.



3.2 Circulation Pump

The circulation pump is driven by an asynchronous motor with an auxiliary winding. The auxiliary winding ist in circuit with a 3 mF capacitor. A tacho generator is used for speed control.
There are three speeds for rinsing.
2800 1/min, 2200 1/min, 1900 1/min, 1700 1/min, 1600 1/min,
Power output 50 W.



Only for models with ceiling Sprayarm

3.3 Drain Pump

The drain pump is driven by a synchronous motor.

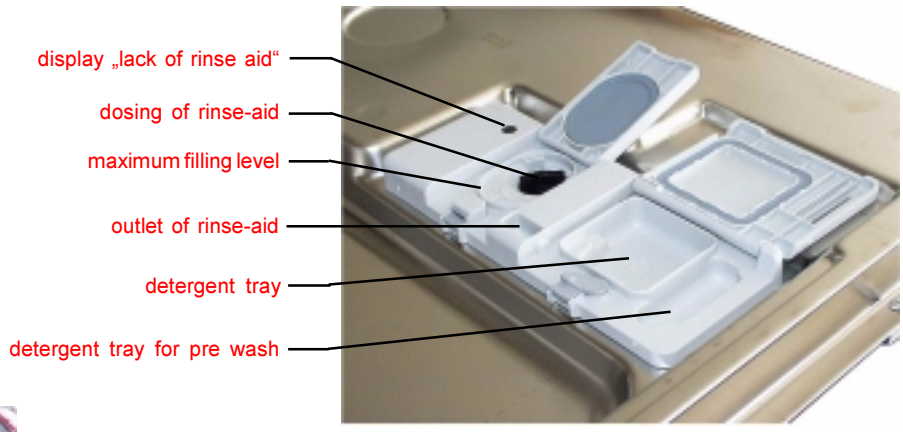
Power output 26 W.
Pump rate 15 l/min.

3.4 Flow Heater

The flow heater heats the water to the required temperature. During the wash cycle, water is contantly passing through the flow heater.

Power output	2000 W
Resistor	25 Ω
Protector	98 °C ± 5 K
Thermal fuse	260 °C

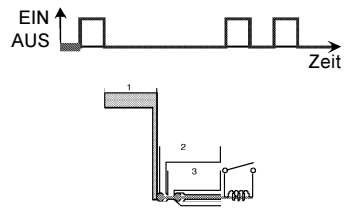
3.5 Detergent dispenser



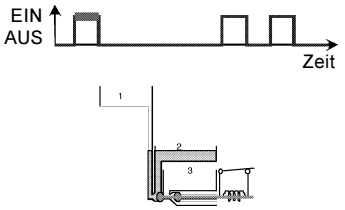
Dosing of detergent
prewash 10 ml
wash 20 - 30 ml
Dosing of rinse aid
position 1 - 6 2 ml - 7 ml
Capacity
140 ml

coil

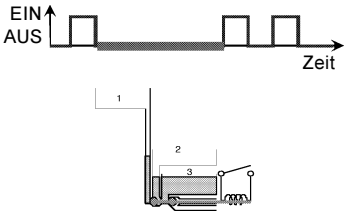
Spule



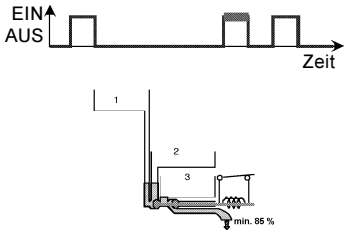
The detergent compartment 1 is filling corresponding to the set dosing quantity when the door is open. Possibly existing rinse-aid in compartments 2 and 3 flows back into the storage tank of the rinse-aid. The detergent trays are filled up. The door will be closed and the detergent for prewash will be rinsed out through the slots in the detergent dispenser cover.



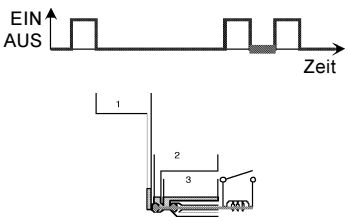
During the washing cycle the coil is switched on and the detergent compartment cover releases the detergent. The rinse-aid flows from compartment 1 into compartment 2.



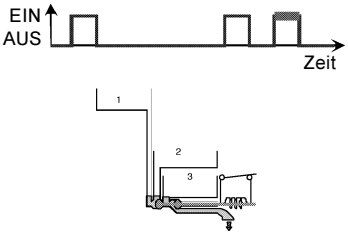
After switching off the coil, the rinse-aid flows from compartment 2 into compartment 3.



During the rinse cycle, the coil will be switched on when the rinse is warmed and the rinse-aid runs from compartment 3 into the rinse tank. At the same time, the remaining rinse-aid (15 %) runs from compartment 1 into compartment 2.



With the coil switched off, the rinse-aid flows from compartment 2 into compartment 3.



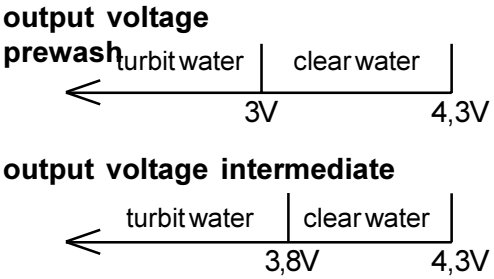
During the rinse cycle, the coil is always switched on twice. When it is switched on the second time, the remaining rinse-aid flows into the rinse tank.

3.6 NTC-Temperature sensor with integrated turbidity sensor

NTC	Temp.	Widerstand
	10°C	9653 Ohm
	25°C	4843 Ohm
	60°C	1204 Ohm
	90°C	445 Ohm

The turbidity sensor function is only activated in cycles “AUTO“

Function:
The input voltage with the turbidity sensor may be between 6 V and 11.4 V. (The measurements are described in detail in the chapter “Measuring Points at the Electronic Control (in the base)”). For a clear water the output voltage must always be 4.3 V. If that value differs due to soiling of the turbidity sensor after a longer operational period, the Easytronic plus recontrols the input voltage with the turbidity sensor automatically until the output voltage is 4.3 V. This happens during the final rinse cycle.
If the 4.3 V is not achieved within 8 seconds, the fault “C5” is stored in the fault memory. If the output voltage falls below 3 V in the prewash cycle and below 3.8 V in the intermediate rinsing cycle, turbid water will be detected. With the service test routine the turbidity sensor will be calibrated to 3.5 V not with water but with air. That corresponds to 4.3 V with water.

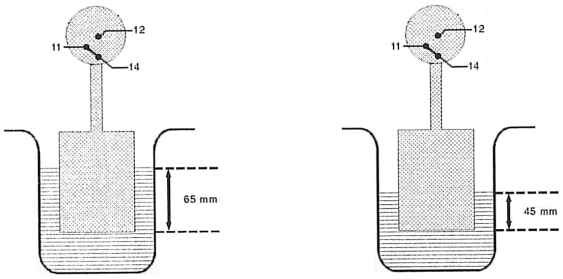


3.7 Pressure Switch

The pressure switch controls the water level.
Without water, contact 11 - 12 is closed.

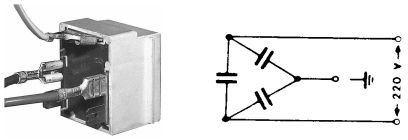
fN	Switch point with level	65 mm Ws
	Reset point with level	45 mm Ws

The pressure switch is not adjustable.



3.8 Interference Filter

The interference filter is connected in the terminal board parallel to the mains feed.



3.9 Spray arms

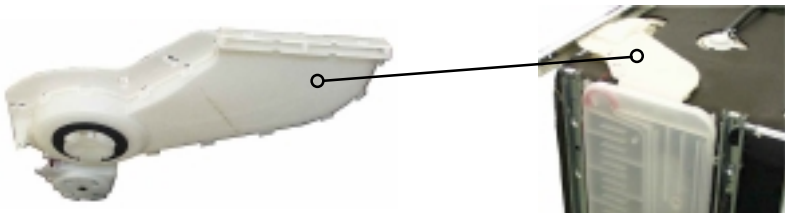
Celling spray arm

upper spray arm

lower spray arm

3.10 Drying

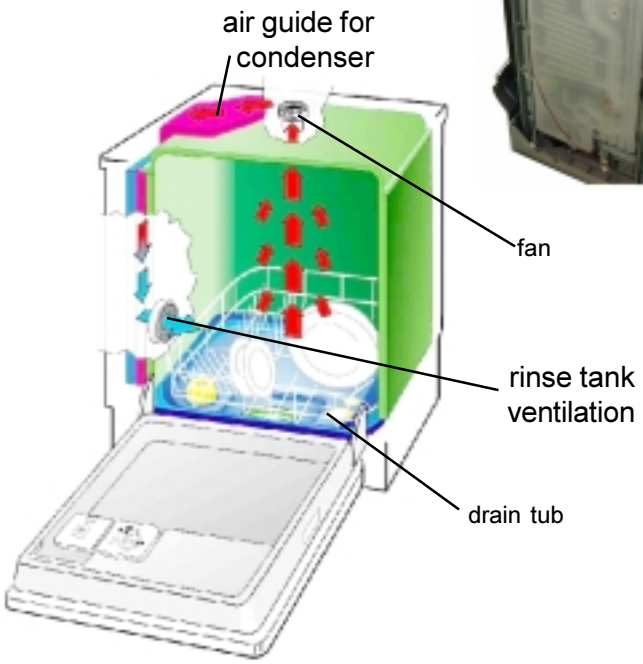
The new drying fan is located at the top on the rinse tank.



Function mode of the condensing drying

Rinse tank, fan and regenerating dosing with condenser form a closed circuit. The humid air is sucked from the top of the rinse tank and blown through an air guide between rinse tank and regenerating dosing. Thereby the air gets dry and the condensate is guided to the drain tub.

The dry air gets through the rinse tank ventilation into the rinse tank. During the drying phase, the condenser is additionally cooled with 1 liter of water.



Active Drying

Active Drying means the ventilation of a container without any movable parts
A plastic container is clipped into the opening in the container cover, from where a hose is passed to the appliance base.

Function

A small quantity of moist air and some condensate emerge from the hose. The condensate is collected in the base side sections where it will evaporate.
If a larger quantity of condensate should be present (due to many subsequent programme cycles) the hose end will be immerged, thus stopping both the convection and the condensating process in the hose.
Flooding of the sections is therefore excluded. Only very little moist air will be present.

3.11 Regenerating dosing with condenser

With every filling step, the condenser cools down due to the cold incoming water. Therefore another 1 liter of water is required during the drying cycle.

1. softener unit
2. regeneration dosage chamber

3.11.1 Water softening/regeneration

The water softening can be adjusted in 10 levels. The incoming water flows until positon 5 to 85 % through the softener which works according to the ion exchange principle. The ion exchanger is filled with small epoxy resin balls. The resins exchange the hardness constituents (calcium and magnesium), for sodium ions.

When all the sodium ions are used up, it is necessary to regenerate the softener. This is done by flushing a brine solution through the softener.

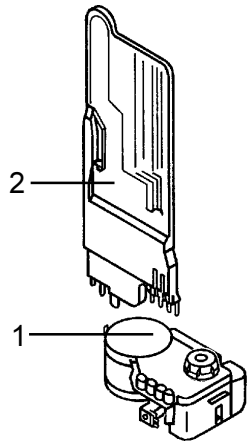
Afterwards the softener is washed out with fresh water and is now fully effective.

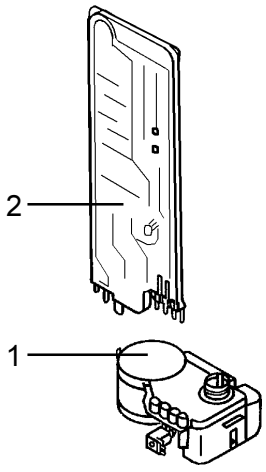
Depending on the water hardness, regeneration is only necessary after several wash cycles.

The remaining 15 % of water flow through the rinse tank ventilation directly into the appliance.

From setting of level 6, the whole water flows through the softener. For this purpose you also have to set mechanically from 0 to 1 with the regenerating dosing.

With the setting of level 9, it is additionally regenerated after the washing in a rinse cycle. With the settings 1 to 8, it is regenerated after the final rinse depending on need. The softening system is designed for a water hardness of up to 70 °dH.



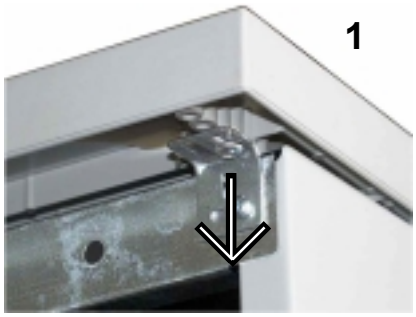


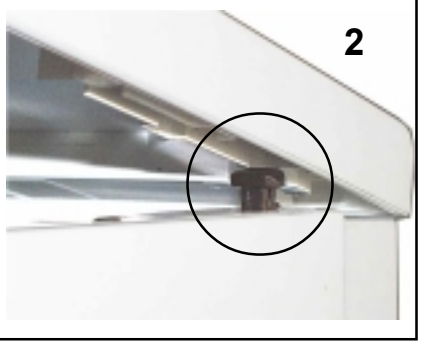
4. Service tips

4.1 Open the housing

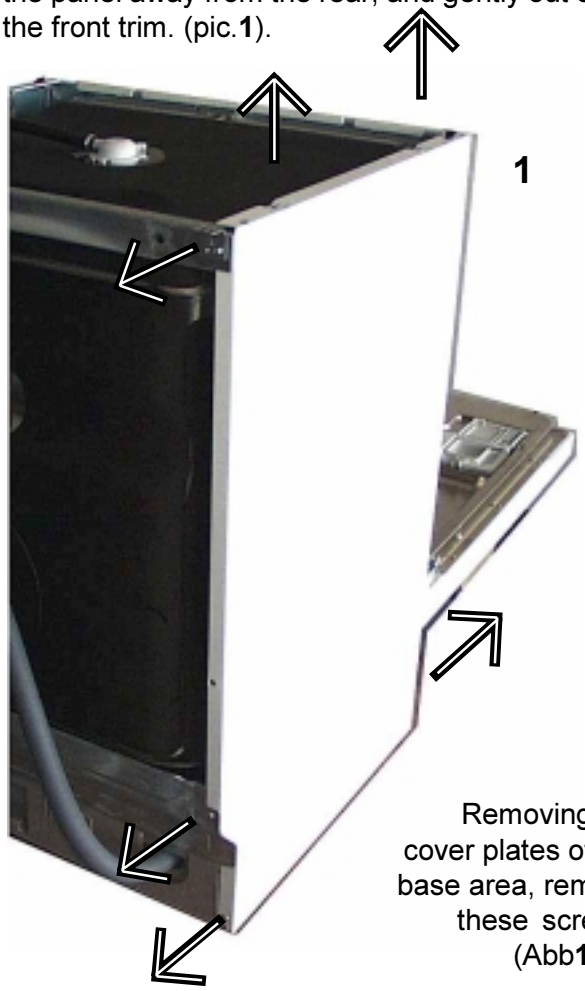
Remove the screws (Abb.**1**) of the upper plate on the left and right side.

Push the upper plate in front direction to remove the plate (Abb.**2**).

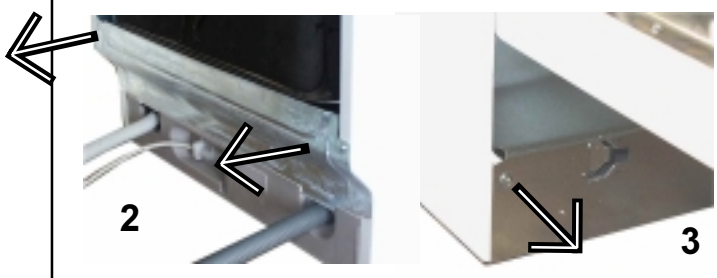




To remove side panel remove fixing screws, pull the panel away from the rear, and gently out of the front trim. (pic.**1**).



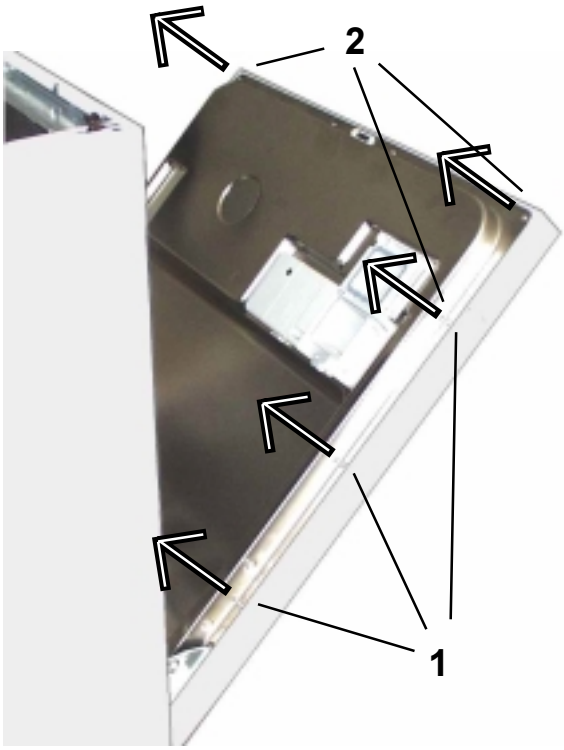
Removing the cover plates of the base area, remove these screwst (Abb**1**+**2**).



You need
Torx epuipment

Remove the screws (**1**) to pull the outer door away.

To remove the panel, remove the fixing screws (**2**) .

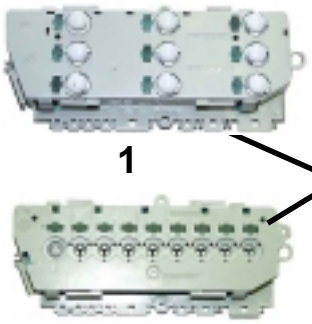


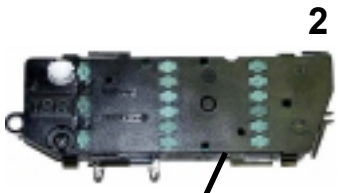
4.2 Position of Components

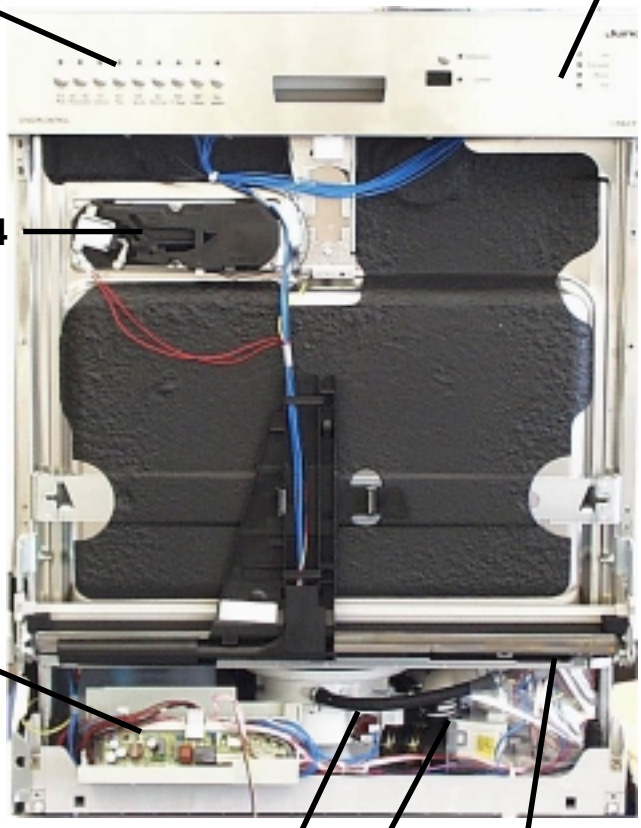
Detergent dispenser (**1**)
Spray arms (**2**)
Roof-mounted shower (**3**)
Salt container (**4**)
Filter (**5**)

Type plate (**6**)

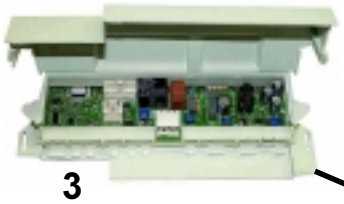
Electronic (input) (**1**) and electronic (display) (**2**) are clipsed.
Elektronik (power) (**3**) in the bottom area.



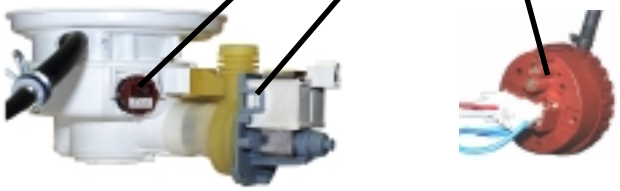




Detergent dispenser (**4**)



Thermal sensor (**5**)
Drain pump (**6**)
Pressure switch (**7**)

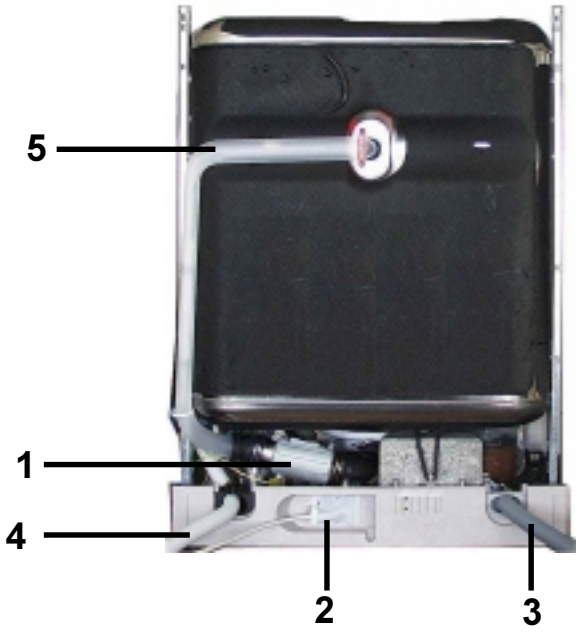


Back side view

- Flow heater (**1**)
- Terminal box (**2**)

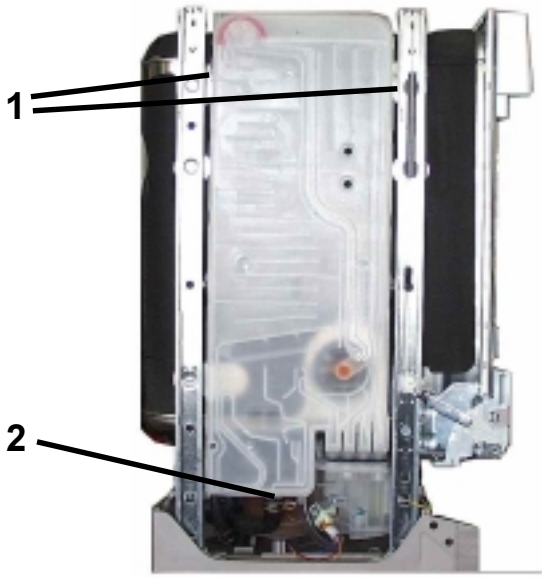
- Inlet hose (**3**)
- Drain hose (**4**)

- Water inlet for above spray arm (**5**)



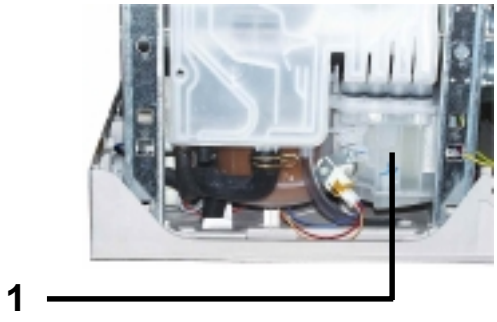
Removing the detergent dosage chamber:

- disengage locking tabs (**1**), disconnect hoses (**2**)
- holding the top of the chamber, pull upwards disengaging it from the softener.



Removing the softener unit :

- remove the securing nut located under the salt cap.
- press softener (**1**) down and remove it through the front from the base area
- CAUTION if accessible release reed switch.

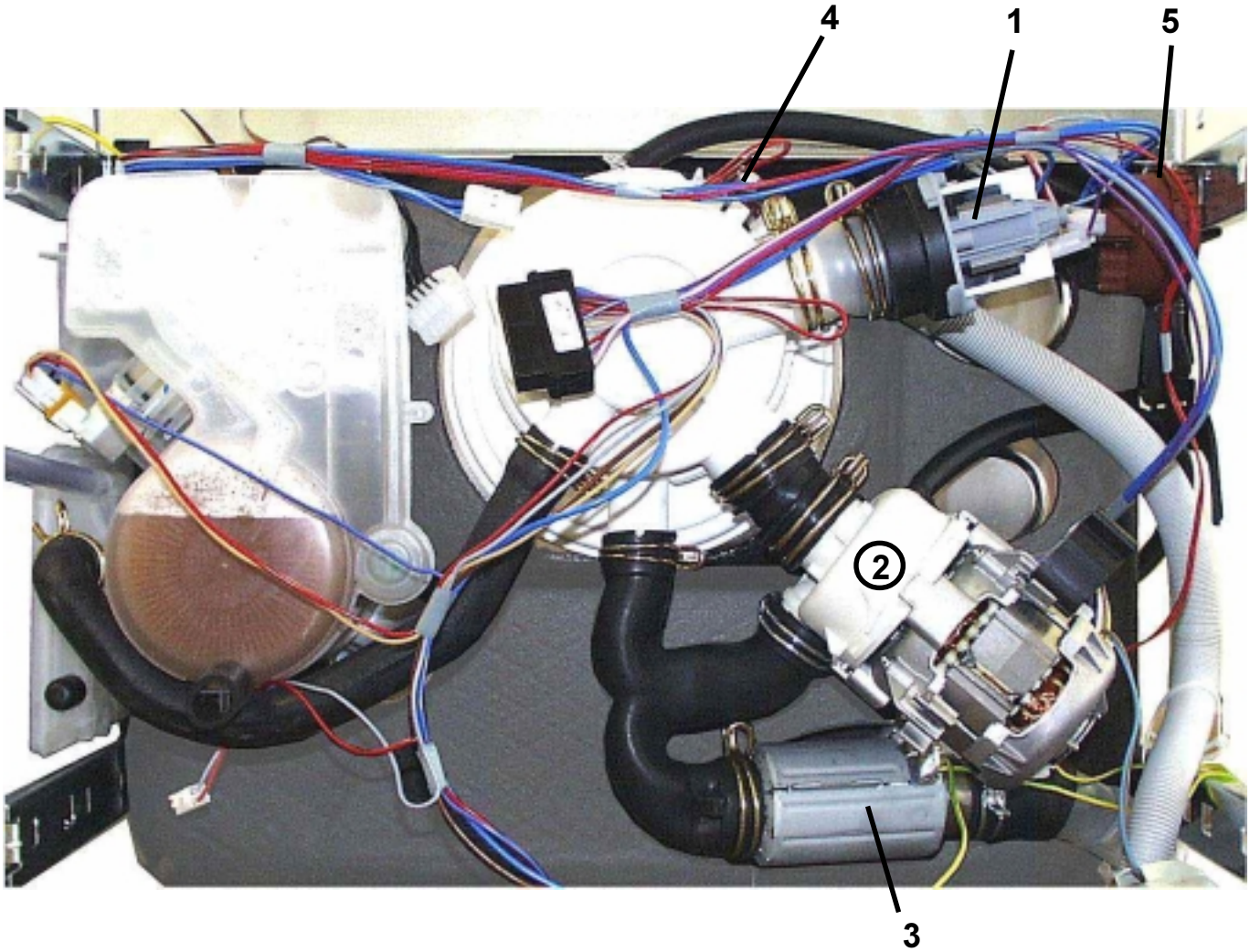


Removing the base :

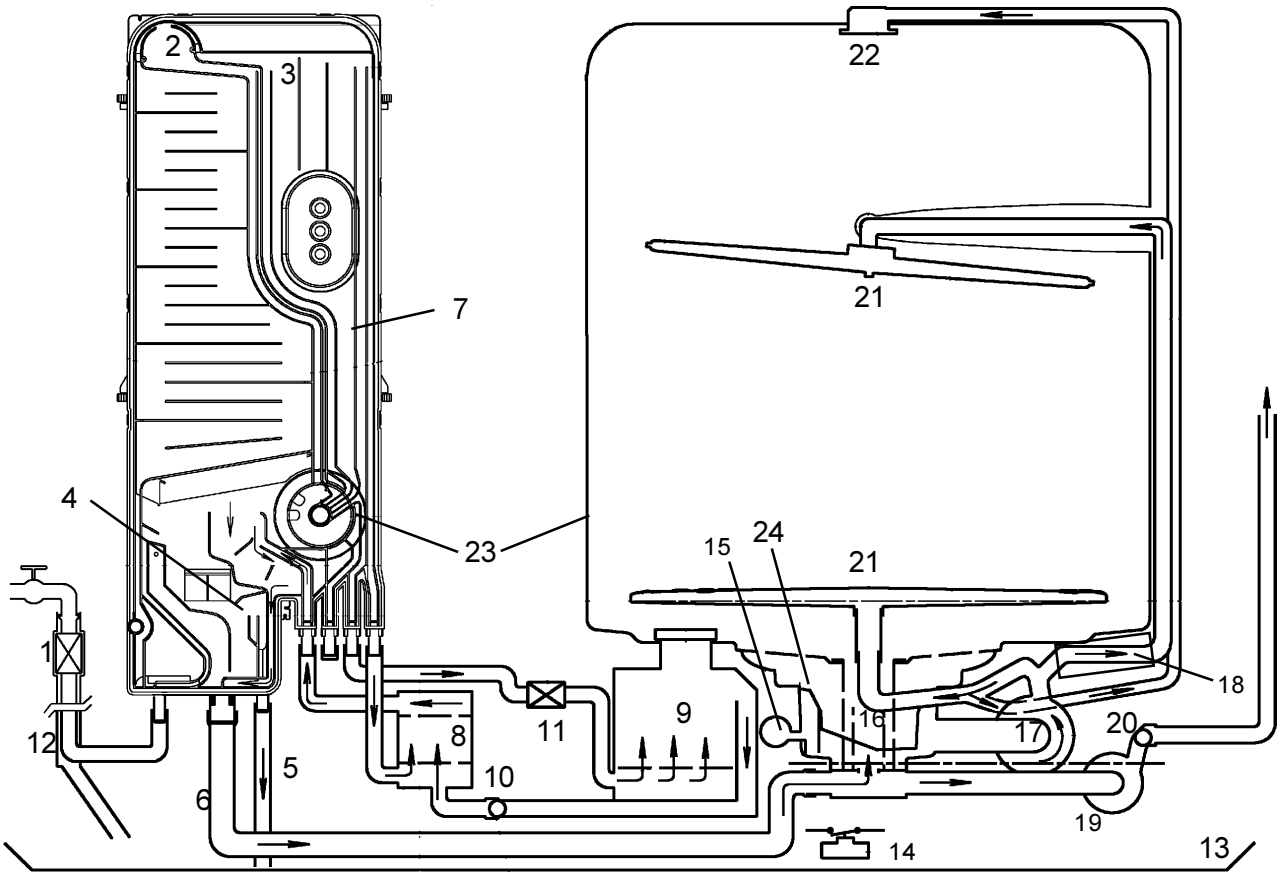
- remove side panels, rear panel and plinth panel
- gently release base fixing clips with a screwdriver (figure)
- take off base carefully and release circulation pump, electronic and heater relay
- disconnect the float switch

With base removed, following components are accessible:

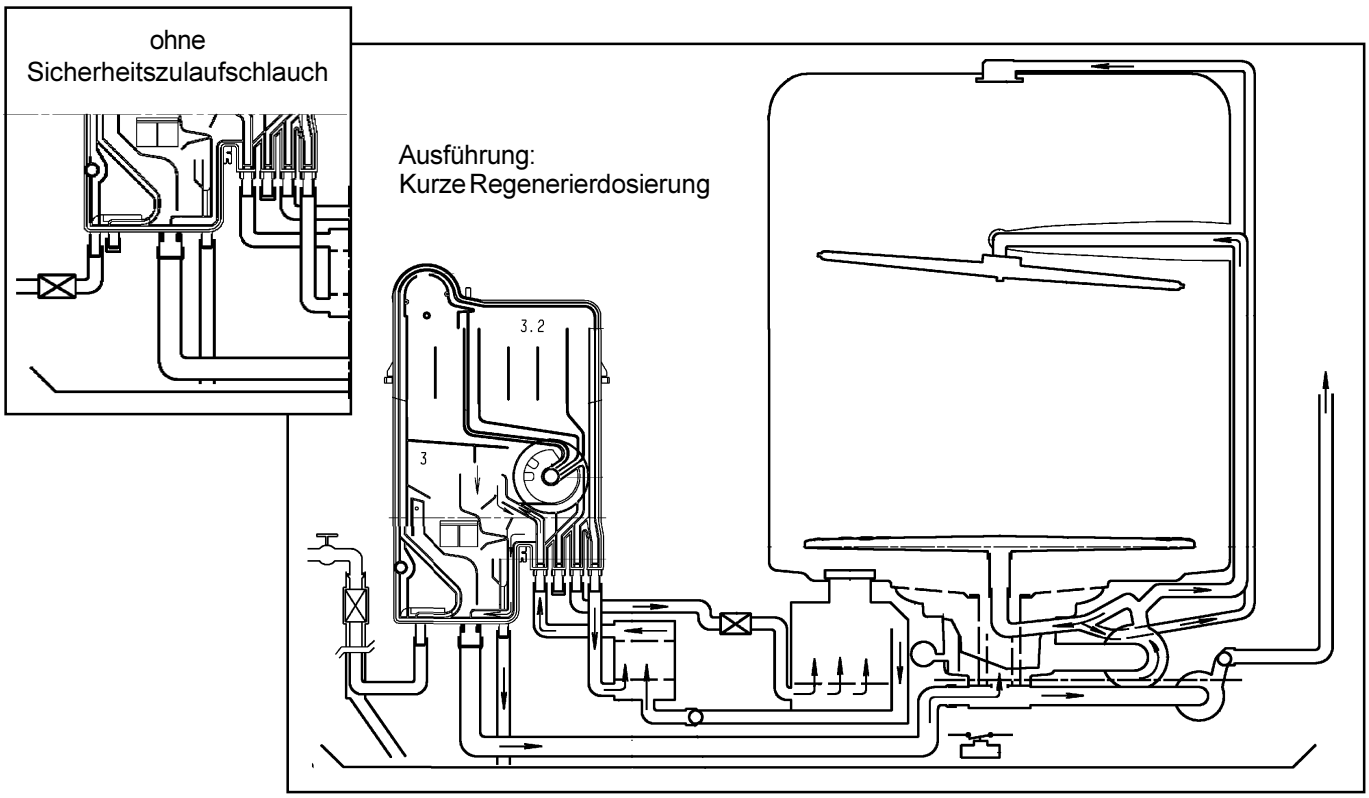
- Drain pump (1)
- Circulation pump (2)
- Flow heater (3)
- Temperature sensor / Turbidity sensor (4)
- Pressure switch (5)



5. Water Course Scheme



1	Inlet valve	9	Salt container	17	Circulation pump
2	Air break	10	Non-return valve salt container	18	Flow heater
3	Regeneration water dosage	11	Regeneration valve	19	Drain pump
4	Overflow safety level	12	Safety inlet hose	20	Non-return valve
5	Safety overflow	13	Base tray	21	Spray arms
6	Inlet to sump from regeneration dosage chamber	14	Float switch	22	Roof-mounted shower
7	Regeneration dosage chamber	15	Pressure switch	23	Tub vent
8	Softener	16	Filter	24	Sump assembly



5.1 All-Around Water Protection

Aqua-Control Inlet Hose

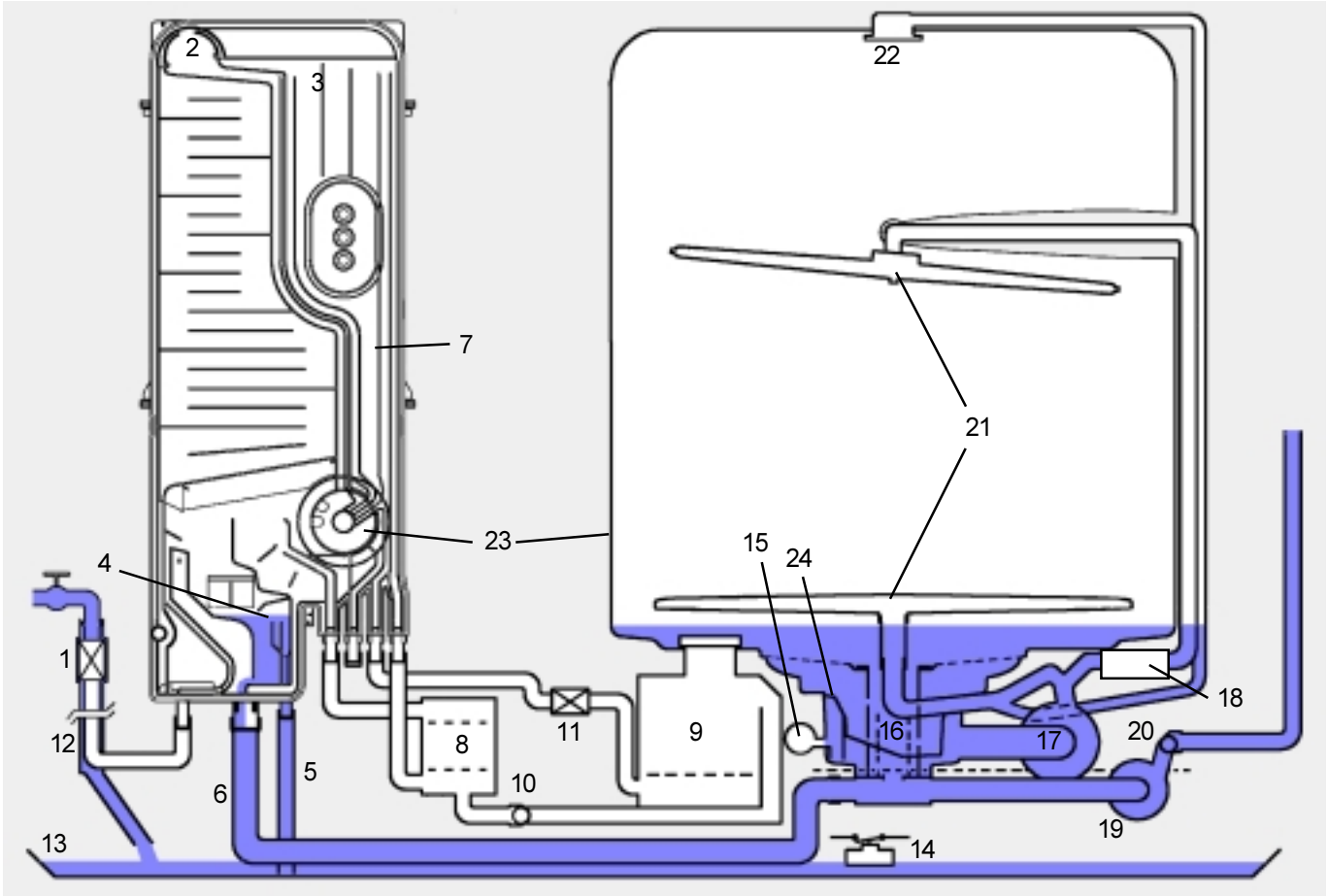
The inlet hose has a double-wall construction. The inner hose is equipped with a flow restrictor built into the tap connection, and has a flow rate of 4 litres per minute. The inlet valve (1) is located in the base of the dishwasher. The safety outer hose (12) is connected to the regeneration chamber. If the inner hose should burst, the water passes into the tub. The safety pressure switch activates the drain pump and decreases the waterlevel down to „normal“ level. An additional overflow protection is a defined overflow through the regeneration chamber. The water flows into the bottom tray and activates the float switch, which energises the drain pump. This drains the dishwasher preventing water damage.

Safety level

If the safety level is reached by over-fillling, the safety pressure switch starts the drain pump. The water is only drained until it has reached the normal level because the reset point of the safety pressure switch is above the switchpoint of the normal pressure switch.

Leakage Protection

The anti-flood switch in the base tray will activate the drain pump and drain the water from the tub in the event of an internal leakage. If the float switch is activated, all electric components are switched off except the electronic and the drain pump.



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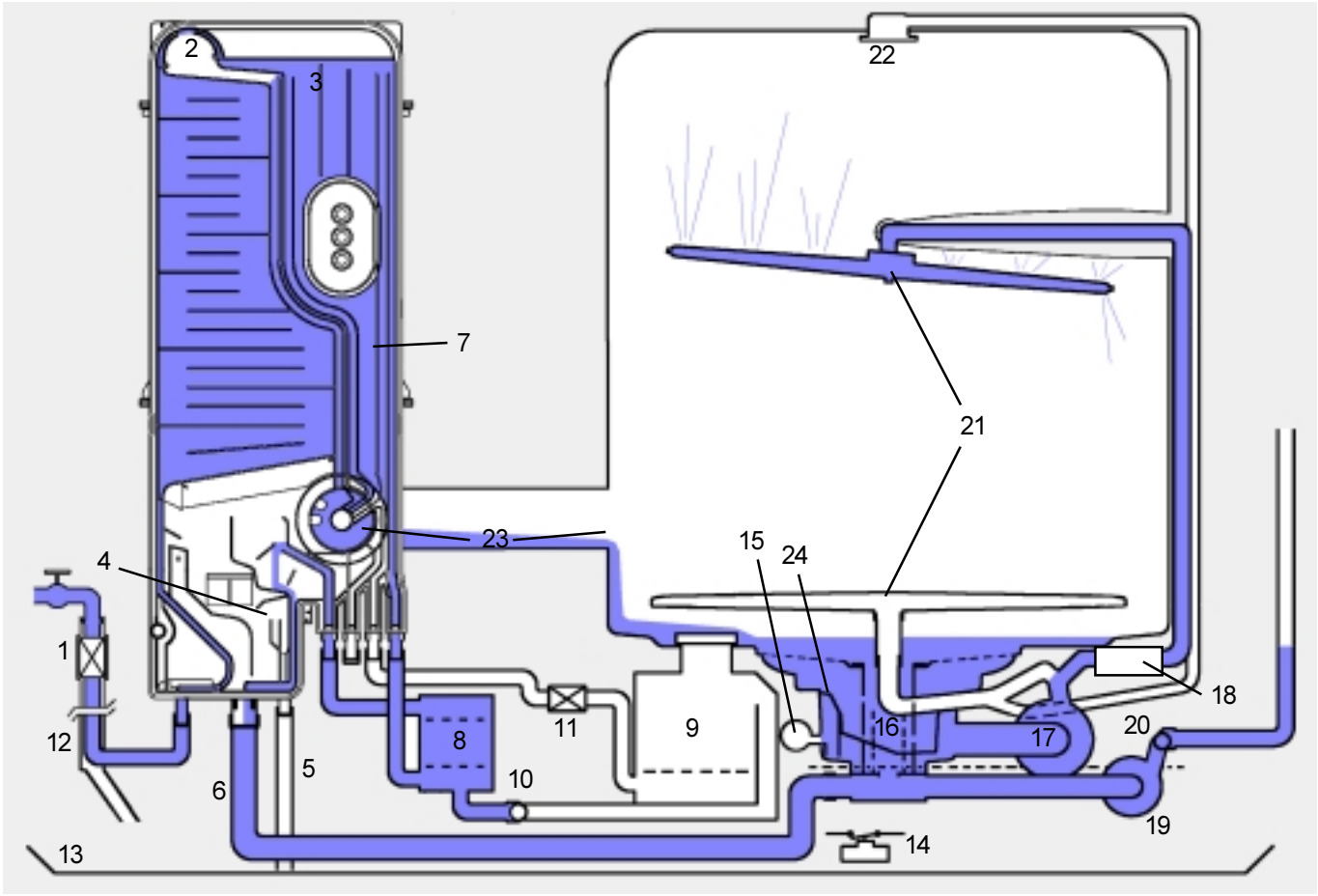
5	Safety overflow	13	Base tray	21	Spray arms
6	Inlet to sump from regeneration dosage chamber	14	Float switch	22	Roof-mounted shower
7	Regeneration dosage chamber	15	Pressure switch	23	Tub vent
8	Softener	16	Filter	24	Sump assembly

5.2 Water Inlet

The water flows into the regeneration dosage chamber (7) via inlet valve (1), over air break (2), into regeneration dosage chambers (3) into softener (8). At this point the water divides. 1/4 of the water enters the tub through the vent (23). 3/4 of the water enters the sump (24) through hose (6).

The level control chamber built into the sump operates the pressure switch (15).



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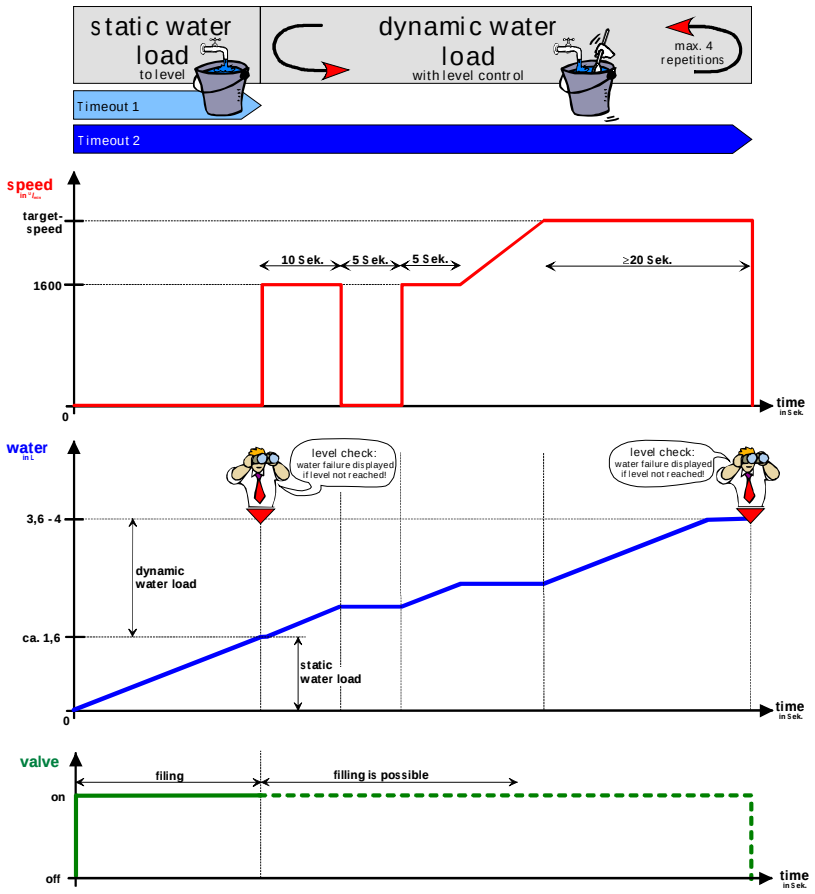
4	Overflow safety level	12	Safety inlet hose	20	Non-return valve
5	Safety overflow	13	Base tray	21	Spray arms
6	Inlet to sump from regeneration dosage chamber	14	Float switch	22	Roof-mounted shower
7	Regeneration dosage chamber	15	Pressure switch	23	Tub vent
8	Softener	16	Filter	24	Sump assembly

5.2.1 Water load steps (Example)



Static filling

- Static filling until pressure switch point.
  failure code:
  If this point isnt reached after max. 2 minutes (Timeout 1), a failure code is displayed and the program is stopped. The program phase display PPD-LED LD9 is blinking.

● LD9
○ LD10
○ LD11

Dynamic filling

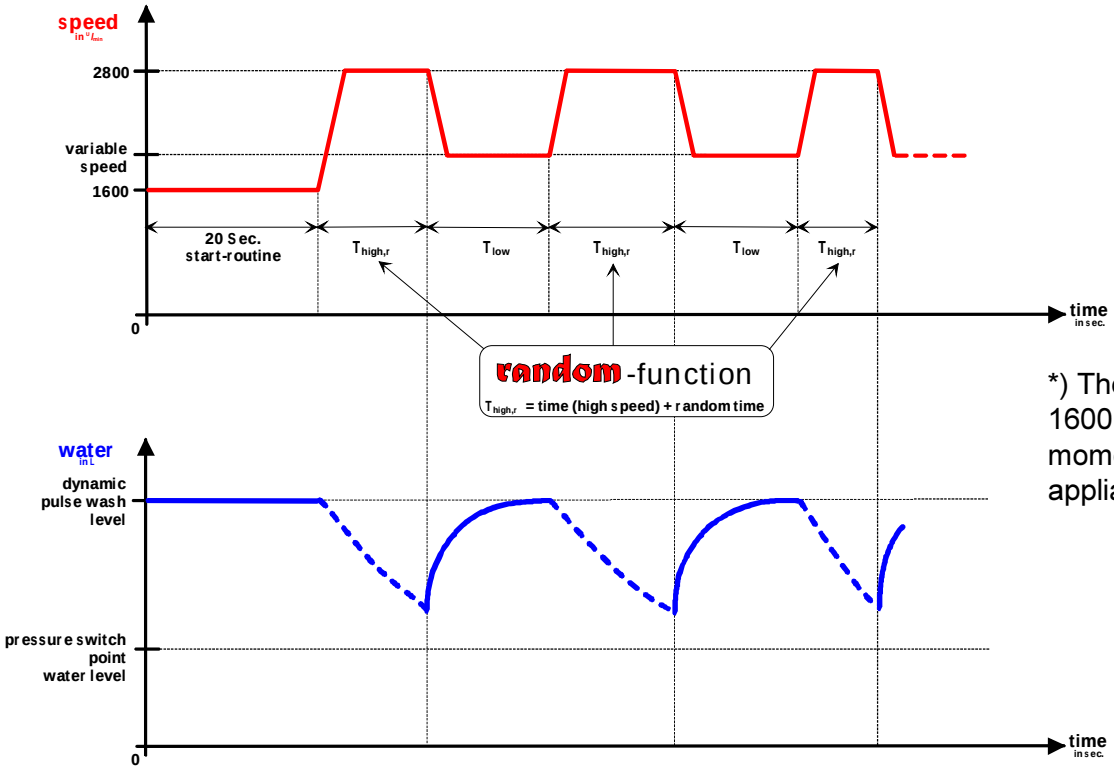
- 10 seconds filling at reduced circulation pump speed
- 5 seconds pause
- 10 seconds filling at reduced circulation pump speed
- filling with increasing circulation pump speed. As soon as the target speed has been reached, it is filled up to the pressure switchpoint.
  Failure code:
  If this dynamic switchpoint isn't reached within total 4 minutes (Timeout 2), the dynamic filling can be repeated 3 times. Only after non-successful repeating 3 times, a failure code is displayed and the program is stopped. The PPD-LED LD9 is blinking.

● LD9
○ LD10
○ LD11

*) The target speed is dependent on the subsequent pulse wash.

pulse wash	pulse 2800 1/min	Pause 1600 1/min	target speed in dynamic filling
1	0,9 sec	4,5 sec	2200 1/min
2	0,6 sec	3 sec	1900 1/min
3	0,3 sec	1,5 sec	1700 1/min

New pulse wash with „random“ functionality



*) The variable speed is 1600 1/min at the moment and equal to all appliances.

Random-function

$$T_{high,\,r} = T_{high} + T_{r}$$

$$T_{low} = T_{high,\,r} + \text{Ratio}$$

$T_{high,r}$	=	time for high speed (calculated with random funktion)
T_{high}	=	time for high speed (cycle definition)
T_{r}	=	random time
T_{low}	=	time for low speed
Ratio	=	factor for low speed (eeprom definition)

Circulation

The circulation pump (17) pumps the water simultaneously into the ceiling shower (22) and into both spray arms (21). The water is filtered in the sieves (16) and led to the circulation pump.

Function of the new pulse wash with “random” functionality

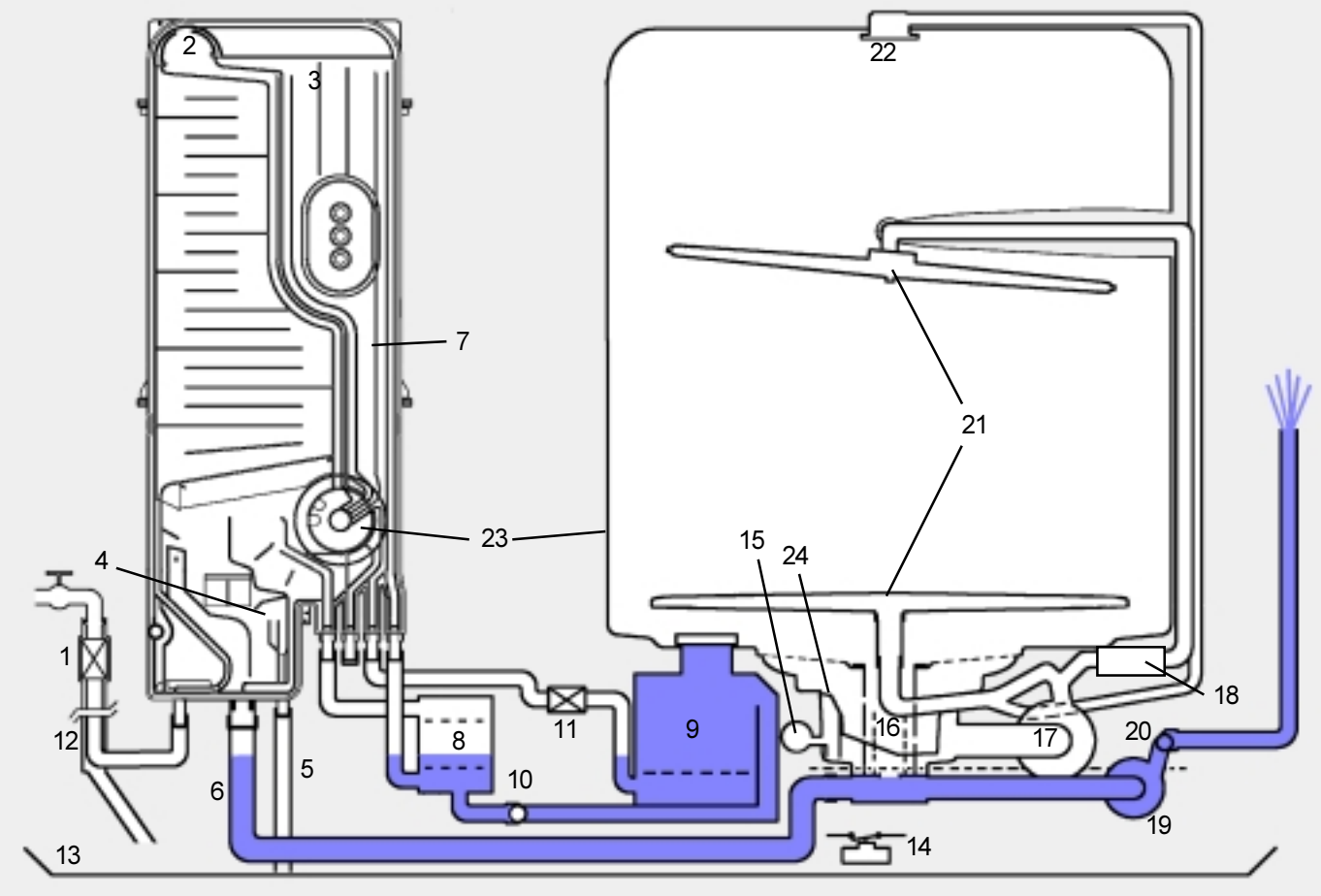
After the filling steps, the circulation pump is running at two rotational speeds.

Pulse Wash	Pulse time 2800 1/min		Pause 1600 1/min		Use with Wash Cycles
	Definitive Time	+ Random Time	Definitive Time	+ Random Time	
1	0.9 sec	0 - 0.3 sec	4.5	0 - 1.5 sec	prewash intensive
					wash intensive
2	0.6 sec	0 - 0.3 sec	3	0 - 1.5 sec	wash and intermediate wash
					prewash normal
3	0.3 sec	0 - 0.3 sec	1.5	0 - 1.5 sec	rinse

The ratio of pulse time and pause is always 1 : 5.

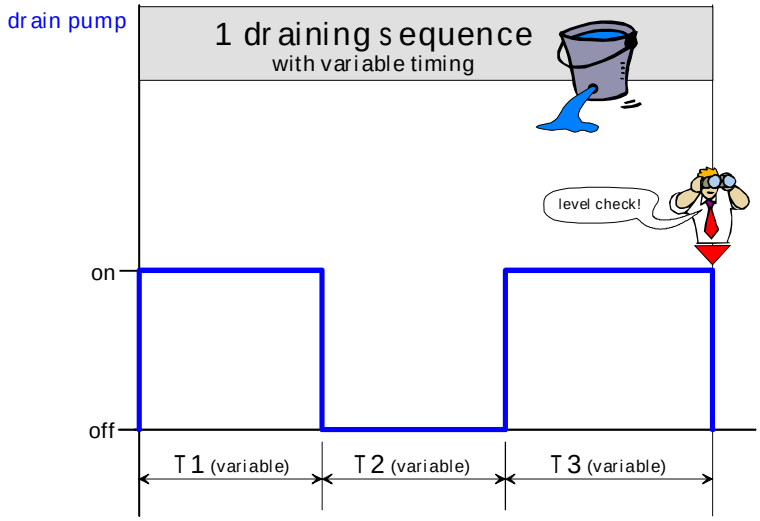
5.3 Draining

During the wash cycle the water is pumped out at various stages. First the draining water cleans the filters (16). The filters are open at the bottom which allows any soilage to be rinsed off sufficiently. There is a non-return valve (20) at the inlet connection to the drain pump (19). This valve prevents the water



1	Inlet valve	9	Salt container	17	Circulation pump
2	Air break	10	Non-return valve salt container	18	Flow heater
3	Regeneration water dosage	11	Regeneration valve	19	Drain pump
4	Overflow safety level	12	Safety inlet hose	20	Non-return valve
5	Safety overflow	13	Base tray	21	Spray arms
6	Inlet to sump from regeneration dosage chamber	14	Float switch	22	Roof-mounted shower
7	Regeneration dosage chamber	15	Pressure switch	23	Tub vent
8	Softener	16	Filter	24	Sump assembly

Sequence draining with pressure switch level check



Drain Cycle	T1	T2	T3
First draining before every wash cycle	45 sec	15 sec	20 sec
Draining after the wash cycles	30 sec	20 sec	10 sec

New draining with sequence draining

- The draining step contains of 3 time sequences.
  In the middle sequence, during time T2 the drain pump is stopped.

- At the end of the drain step, the water level is checked.

- If the switch back is reached, the drain step is terminated.
  If the switch back isn't reached, the drain step is repeated.

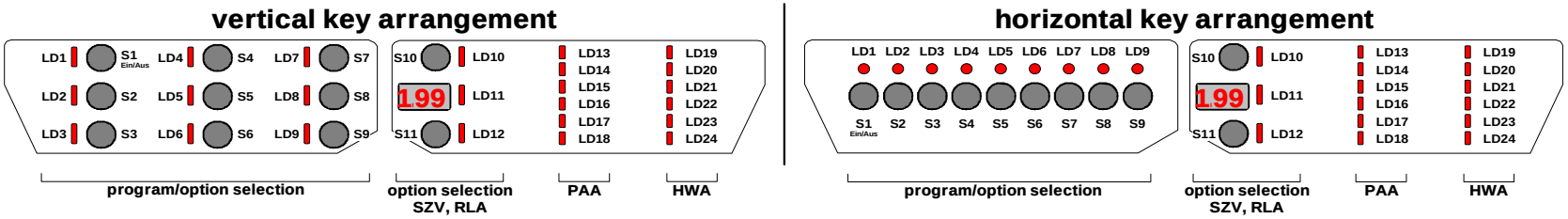
- A failure code is displayed, if after 2 drain steps, the switch back couldn't be reached.
  In this case, the program is stopped.

6.1. Inputs and outputs: keys, LEDs and lamps

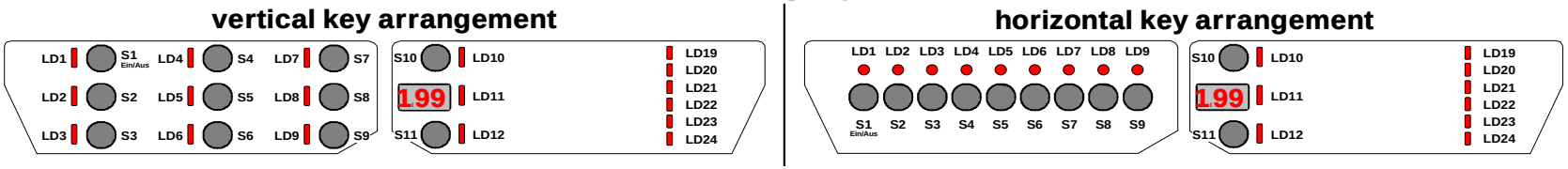
Arrangement and designation

The control class EDW2000 replaces the previous control classes Easytronic and Easytronic plus. For this reason there will be variants of appliances with combinations of display and PAA (program run display) in the output area (right side of the appliance). 3 possible variants have been represented in the outlines below.
In this connection, the subdivision into "program selection, option selection, SZV, RLA, RAA and HWA" represent the currently defined standard division.
In coordination with the Development Department it is possible to alter the assignment depending on variant in order to react to possibly coming design variants!

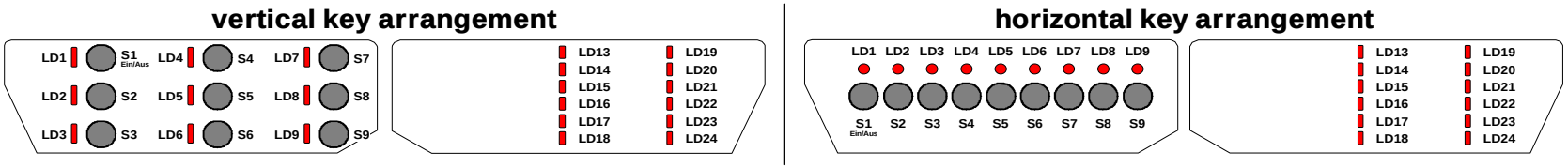
Variant 1: maximum equipment



Variant 2: with display, without PAA



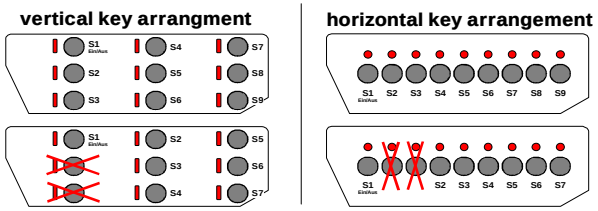
Variant 3: without display, with PAA



It is possible that one or more of the keys are not assembled due to the device definition.

In this case, counting is (starting from the left)from the first existing key.
The keys which are not assembled are not counted.

This device documentation always assumes that the full number of keys are assembled!
Reduced key assemblies are specially important with customer and service functions, as well as with the "Reset" function.



6.2. General information

- **Equipment in the panel area**
  (see description page B 1)

- **Variant-depending existing equipment:**
  - Up to 10 keys (S2 to S11) for the selection of programs or options with the corresponding LEDs. The alternatively available "SZV" key can only be programmed to the two keys (S10 or S11) of the output module.
  - Start-time preselection by 2.5-digit display with the corresponding confirmation LED.
    Indication between 1 and 19 hours (in steps of 1h)
  - Indication of remaining run time by 2.5-digit display with the maximum run time display "199"
  - Information displays (LD19 to LD24 are currently defined for that)
    - LED display for salt
    - LED display for rinse-aid
    - LED display for water
    - LED display for spraying arm
    - LED display for door
    - LED display for sieve
  - Program run time display (LD13 to LD18 are currently defined for that)
    - maximum 6-level display by LEDs possible
      e.g. prewash - washing - rinsing - final rinse - drying - end

  ⚠ All information LEDs resp. program run time LEDs are freely selectable depending on variant in agreement with the Development Department in order to react to possibly coming design variants.

  ⚠ **Positively necessary minimum equipment:**
  You always need, besides key S1 (ON/OFF), at least 3 program or option keys with pertinent LEDs in order to select all customer or service functions, e.g., adjustment of hardness range.
  You also absolutely need for output the display or the End LED.

- **Functions which can be adjusted variably by the customer via the control panel:**
  (see description page B 11-13)
  - Indication and alteration of water hardness.
  - Activation/deactivation of rinse-aid addition.
  - Activation/deactivation of signal sound for end.

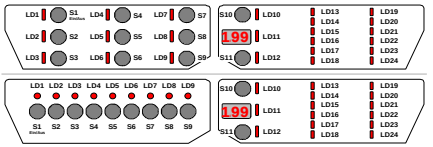
  Indication by means of display or "end" LED, depending on the equipment variant.

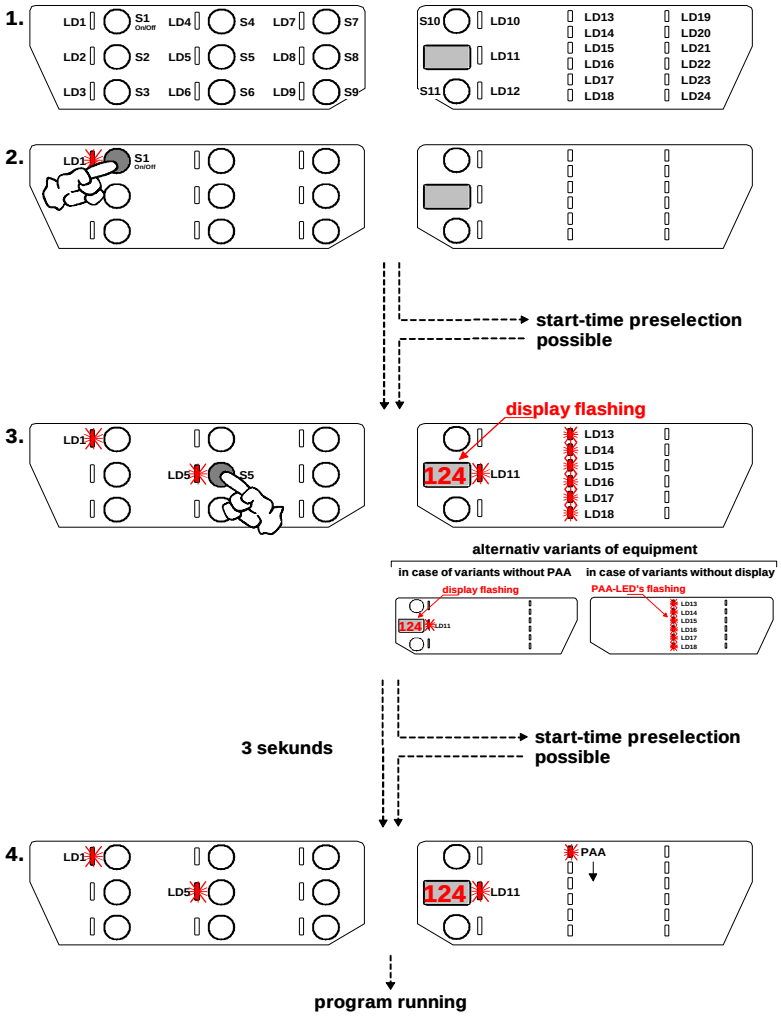
- **Miscellaneous:**
  - regeneration depending on need
  - manufacturing test routine
  - various service functions (fault memory, single actuator selection, LED test)
  - design of appliance for max. energy label AAA
  - alternatively with or without fan drying
  - aqua control system in different versions

    depending on electrical and mechanical components and the corresponding variant programming

- **Possible selectable program options:**
  - start-time preselection
  - half load "small quantity" as automatic system or with key
  - additional washing cycle
  - 3 in 1 (special tablet program)
  - sanitize

6.3. Input philosophy: program selection





1. Appliance in switched-off condition

2. Switch on appliance with ON/OFF key S1
   - Display LD1 with ON/OFF key is lit.
   - Appliance is in the prestart mode.
   - All program keys and the "SZV" (start-time preselection) key are unlocked and can be selected.
     - After the program selection it is also possible to select possibly available options as far as they are permitted for the program.

☞ *Selection of a start time possible*
(see description page B 4 / "Input philosophy start-time preselection")

3. Select program by pressing the corresponding key.
   - In addition to the LD1 display, the corresponding program LED and the run time LED are lit.
   - The run time to be expected is flashing.
   - All program-corresponding PAA LEDs (except the "end" LED) are lit.
   - With alternative equipment variants (see figure) it is possible that only the run time to be expected or only the PAA LEDs are flashing in the output area.

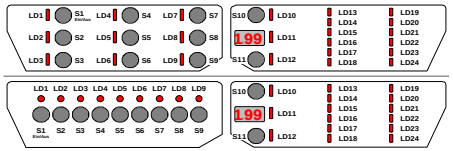
   Within 3 seconds it is possible to alter or additionally select an option at will.

Program starts automatically 3 seconds after the last key pressure

☞ *During these 3 seconds it is still possible to select a start time*
(see description page B 4 / "Input philosophy: start-time preselection")

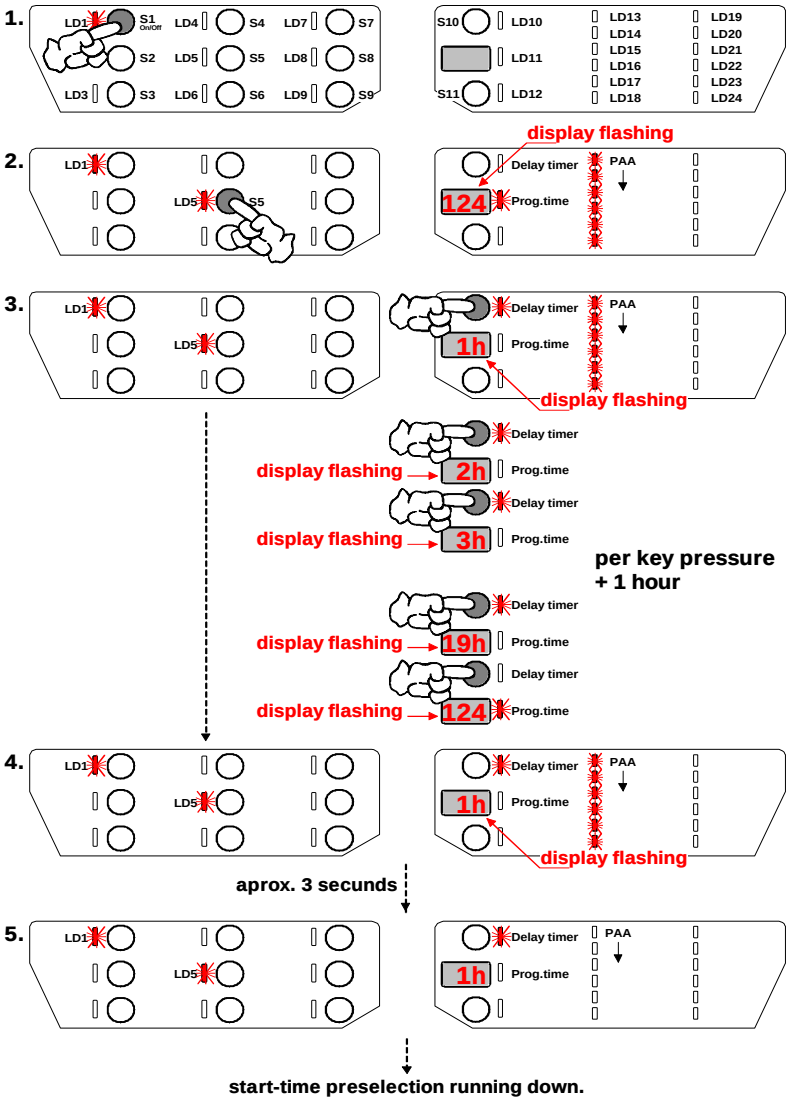
4. Program is running
   - Corresponding program LED is lit.
   - If available depending on variant, the run time is indicated in the display, the run time LED is lit.
   - With alternative equipment variants it is also possible that only the corresponding PAA LED is lit.

⚠ Program starts only when the door has been closed.



6.4.1. Input philosophy: select start time

(Variant A: time preselection after program selection



1. Switch on appliance with ON/OFF key S1
   - Display LD1 with the ON/OFF key is lit.
   - Appliance is in the "prestart" mode.
   - All program keys and the "SZV" key are unlocked and can be selected.
     - After the program has been selected you can also select possibly available options as far as they are permitted for the program.

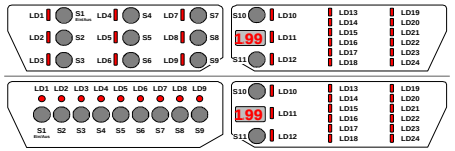
2. Select program by pressing the corresponding key.
   - In addition to the LD1 display the corresponding program LED and the run time LED are lit. The run time to be expected is flashing in the display, all program-corresponding PAA LEDs (except the "end" LED) are lit.
   - With alternative variants of equipment it is possible that only the run time to be expected or only the PAA LEDs are flashing in the output area.

3./4. Actuate the start-time preselection key within 3 seconds.
   - Display LD1 with ON/OFF key, program LED and "SZV" LED are lit
   - Set start time is flashing in the display.
   - All program-corresponding PAA LEDs (except the "end" LED) are lit.
   - With alternative variants of equipment (see figure) it is possible that only the run time to be expected or only the PAA LEDs are flashing in the output area.

   Any additional key pressure causes the start time scrolling by 1 hour
   1h - 2h - ... - 19h - indication of remaining run time (SZV=0h) - 1h - 2h - ...

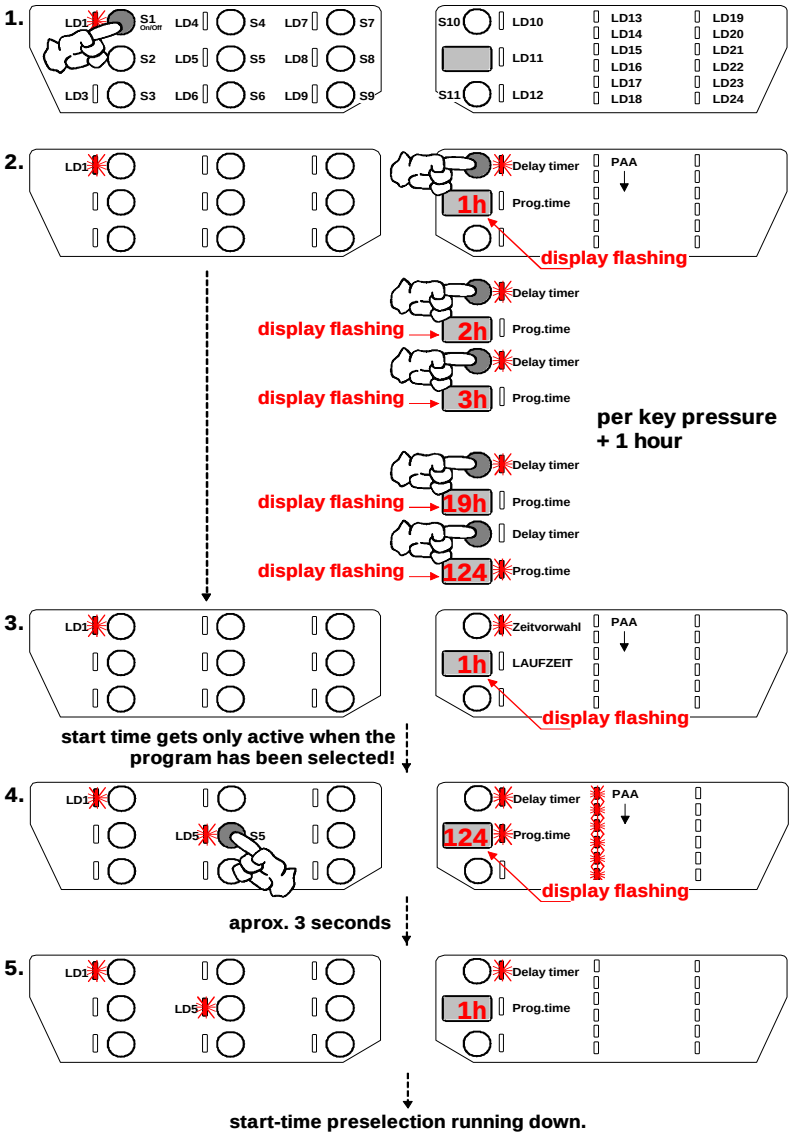
5. 3 seconds after the last actuation of the "SZV" key the set start time gets active and is running down
   - In addition to the LD1 display the corresponding program LED and "SZV" LED are lit. The start time is lit in the display.

⚠ Start-time preselection gets only active when the door has been closed!



6.4.2. Input philosophy: select start time

(Variant B: time preselection before program selection)



1. Switch on appliance with ON/OFF key S1.
   - Display LD1 with the ON/OFF key is lit.
   - Appliance is in the "prestart" mode.
   - All program keys and the "SZV" key are unlocked and can be selected
     - After the program has been selected you can also select possibly available options, as far as they are permitted for the program.

2. Actuate the start-time preselection key.
   - Display LD1 with the ON/OFF key is lit.
   - "SZV" LED is lit
   - set start time is flashing in the display.

   Any additional key pressure causes the start time scrolling by 1 hour
   1h - 2h - 3h - ... - 19h - display off (SZV=0h) - 1h - 2h - ...

3. Indication of "SZV" is flashing in the display until an additional washing cycle will be selected. The selected start time is not active until that time!

4. Select desired program by pressing the corresponding key.
   - In addition to the LD1 display, the corresponding program LED is lit.
   - The LEDs of the start time key and the run time LED are lit.
   - The run time to be expected is flashing in the display.
   - All program-corresponding PAA LEDs (except the "end" LED) are lit.

5. 3 seconds after the last key actuation the set start time gets active and is running down
   - In addition to the LD1 display the corresponding program LED and the "SZV" key are lit. The start time is indicated in the display.

⚠ Start-time preselection gets active only when the door has been closed!

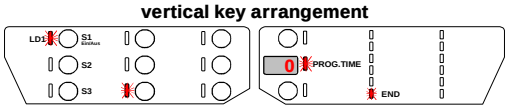
6.5. Input philosophy: program run

- **Cycle start**
  - 3 seconds after the last key actuation respectively after the set start time has run down, the selected washing cycle will start automatically when the door has been closed.
  - From that moment it is no more possible to select a time preselection resp. a program option.
    - ☞ *cancel resp. delete cycle*
      (see description page B 6 / "Delete cycle")
    - ☞ *change resp. alter cycle*
      (see description page B 7.2 / "Alter cycle")

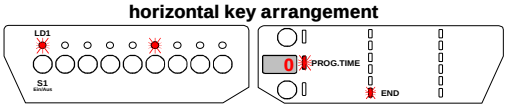
- **Cycle run**
  - **Appliances with display**
    - LED LD1, LED of the selected washing cycle as well as run time LED are lit during the whole cycle run.
    - The display indicates the still remaining washing time in minutes.
    - The run time is updated depending on the program. The update is executed in changing program parts. In doing so, the run time can correct in jumps downward or the indication is stopped until the time has been synchronized again.
    - Depending on the equipment of the appliance, the cycle run LEDs (PAA) indicate the currently active program part.
      For that the corresponding PAA LED is flashing up pulsating (2 sec. on / 400mS off).
  - **Appliances without display, but with PAA LEDs:**
    - LED LD1, LED of the selected washing cycle as well as run time LED are lit during the whole cycle run.
    - By means of the cycle run LEDs (PAA) the currently active program part is indicated.
      For that the corresponding PAA LED is flashing up pulsating (2 sec. on / 400mS off).

- **Cycle end**
  - **Appliances with display:**
    - The confirmation LED for the program key of the run-down cycle and the display LD1 of the ON/OFF key continue to be lit.
    - The display indicates "0" and the run time LED is lit.
    - If there is a cycle run display depending on the variant, also the "end" LED is lit.

vertical key arrangement

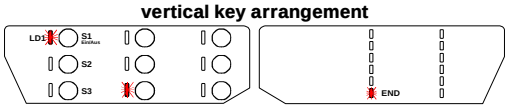


horizontal key arrangement

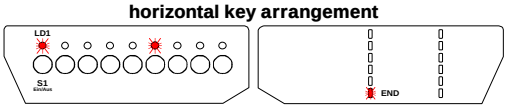


  - **Appliances without display, but with PAA LEDs:**
    - The confirmation LED for the program key of the run-down cycle and the display LD1 of the ON/OFF key continue to be lit.
    - The "end" LED is lit in the cycle run display.

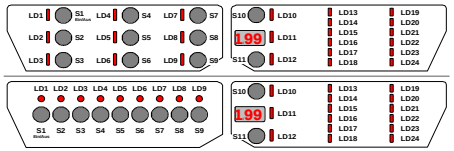
vertical key arrangement



horizontal key arrangement



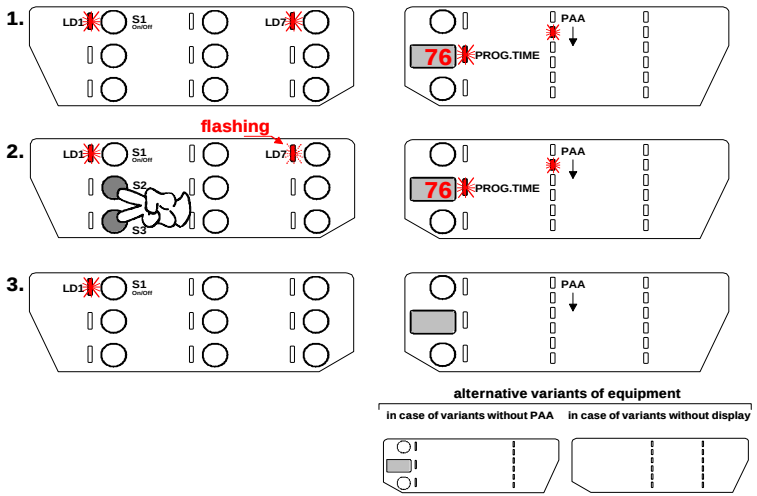
  - If the appliance is equipped with a buzzer and this one is activated, there will be an end signal when the cycle end has been reached, which is a whistling sound with the following interval: 15 seconds on - 3 minutes off - 15 seconds on - 3 minutes off - 15 seconds on - completely off The end signal is cancelled immediately by opening the door.
  - When the cycle end has been reached, it is possible to delete the run-down cycle by opening and closing the door. After closing the door, the appliance is automatically again in the "prestart" mode.
  - When opening the door all indications remain on the panel, as far as the appliance is not switched off by the ON/OFF key S1.
  - In order to switch off the appliance completely you have to actuate the ON/OFF key S1. The run-down cycle is deleted even in this case. All displays go out.



6.6. Input philosophy: delete program

A selected or already started washing cycle can be deleted during normal operation at any time.

- **Delete program (using the reset function)**



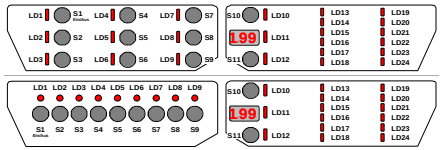
⚠ Reset function always with keys S2 and S3

1. Cycle running

2. Actuate reset keys S2 and S3 for about 2 seconds
   - Display LD1 with ON/OFF key and run time LED are lit.
   - Display LED of the running cycle starts flashing.

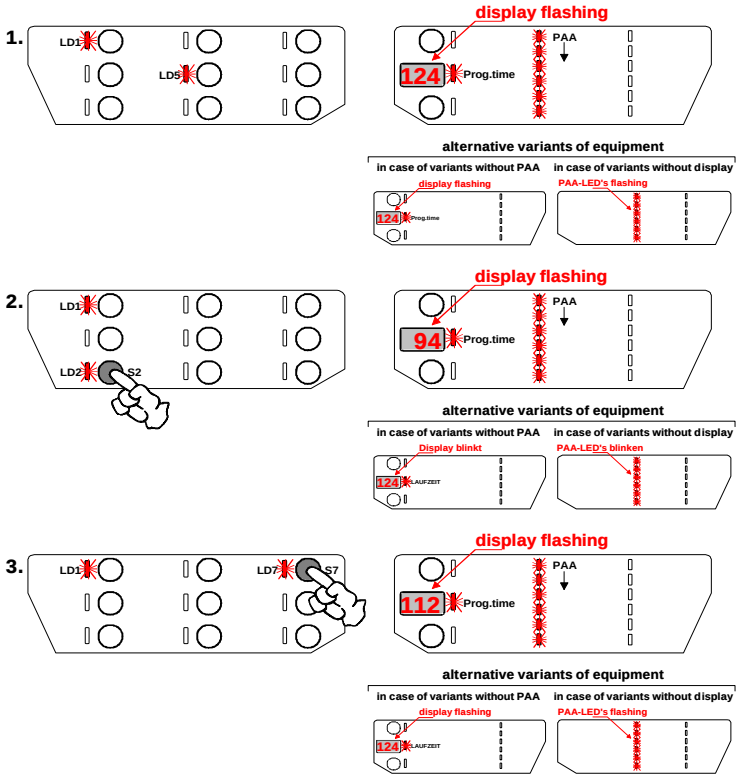
3. After about 2 seconds all displays, except LED LD1 of the ON/OFF key, go out. The program has been deleted.

⚠ **ATTENTION!**
In case of reduced key assemblies be sure to observe Description Page B 1.



6.7.1. Input philosophy: alter program

- **Alter program during the prestart phase**



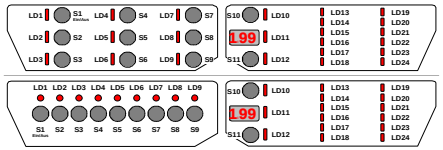
1. Program has been selected but did not yet start.
   - In addition to the LD1 display, the corresponding program LED and run time LED are lit.
   - Run time to be expected is flashing.
   - All program-corresponding PAA LEDs (except the "end" LED) are lit.
   - With alternative variants of equipment (see figure) it is possible that only the run time to be expected or only the PAA LEDs are flashing in the output area.
2. By pressing the new desired program key shortly it is possible to alter directly. Options already selected before are deleted and have to be selected anew.
   - LD1 display with ON/OFF key, new program LED and run time LED are lit.
   - Run time to be expected is flashing in the display.
   - All program-corresponding PAA LEDs (except the "end" LED) are lit.
   - With alternative variants of equipment (see figure) it is possible that only the run time to be expected or only the PAA LEDs are flashing in the output area.
3. After the last key actuation it still can be altered within 3 seconds. If no key is actuated any more during these 3 seconds, the program will start.

⚠ Program starts only when the door has been closed.

⚠ **Special feature when a start time was selected before!**

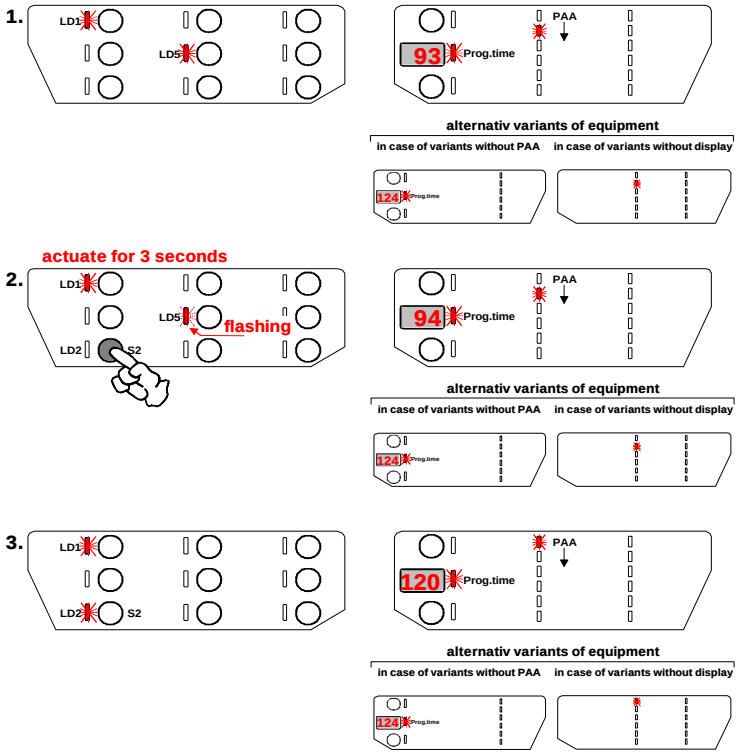
1. Program and start time have been selected but did not yet start.
   - LD1 display with ON/OFF key, program LED and "SZV" LED are lit.
   - Programmed start time is flashing in the display.
   - All program-corresponding PAA LEDs (except the "end" LED) are lit.
   - With alternative variants of equipment (see figure) it is possible that only the run time to be expected or only the PAA LEDs are flashing in the output area.
2. By pressing the new desired program key shortly it is possible to alter directly. The already selected start-time preselection is preserved after the alteration! Program options already selected before, however, are deleted and must be selected anew.
   - LD1 display with ON/OFF key, new program LED and "SZV" LED are lit.
   - Run time to be expected is flashing in the display for 2 sec., afterwards the start time is flashing again.

⚠ If the selected start time is already running down (the time is permanently lit in the display) you have to press the new desired program key a longer time (about 6 seconds) for alteration.



6.7.2. Input philosophy: alter program

- **Alter program after started cycle**



1. Cycle running
   - LD1 display with the ON/OFF key and the corresponding program LED are lit.
   - Depending on the appliance variant, the run time LED is lit and the run time
   - and/or by means of the program run LEDs (PAA) the active program part is/are indicated in the display.

2. Actuate the new desired program key (in our example S3) for about 6 seconds.
   - The displays remain as described under 1., but now the LED of the running program starts flashing.

3. After about 6 seconds the previous program LED goes out and the program LED of the new selected program is lit.
   - In addition to the LD1 display, the run time LED is lit.
   - The display indicates the run time to be expected anew.
   - Depending on the appliance variant, the corresponding program LED (PAA) indicates the currently active program part.

⚠ If a program is altered after an already selected cycle the new cycle starts generally from the beginning!
This is also indicated by the run time in the display by an increase of the run time.
Options already selected before will be deleted.

6.8. Input philosophy - interrupt program

Interrupt program

- Using the ON/OFF key S1 you can interrupt the program as long as you want.
  The same is valid for an interruption by opening the door.
- There is no deleting function integrated in the ON/OFF key S1.
- If the cycle is interrupted by using the ON/OFF key, all displays go out.
- The cycle run will be continued by switching on again using the ON/OFF key S1 resp. by closing the door, without that another key actuation becomes necessary.
  Information: The cycle will be continued with a short time delay.
- All displays and confirmations appear in the same condition as before the interruption.

What happens when opening and closing the door?

- **The appliance is switched on and is in the "prestart" mode**
  - After opening the door all indications keep to be displayed on the panel. The power supply of the electronic is fully guaranteed as long as the appliance remains switched on.
- **The door is opened during the running cycle**
  - After opening the door all indications keep to be displayed on the panel as long as the appliance remains switched on using the ON/OFF key S1.
  - After closing the door the appliance will start automatically and the cycle run will be continued.

⚠ Attention:

- When the 1st regeneration has been reached in the program part "drying" the following is valid:
  - When the door is open longer than 30 seconds, the program will be deleted.
    After closing the door, the appliance will be automatically again in the "prestart" mode. A new program could be selected again immediately.
  - Switching off the appliance by pressing the ON/OFF key S1 also deletes the current program from that moment.

  (see description page B 3 / "Input philosophy program selection")

What happens in case of resp. after a power failure?

- In case of a power failure the appliance behaves as when switched off using the ON/OFF key.
  (see description above / under "Interrupt program")
- After the mains have returned the appliance behaves as after being switched on using the ON/OFF key S1.
- After a power failure the cycle will continue without any necessary key actuations.

6.9.1. Input philosophy - displays (part 1)

All displays are designed as LED displays and are available depending on the appliance variant.
If available depending on variant, start-time preselection and run time are indicated

⚠ for that see the figures of input and output parts page B 1 / "Inputs and outputs"

- **Displays for program selection and options**
  - Above resp. next to a program or option key there is generally a corresponding LED to confirm the selected function.
  - They are lit permanently during the whole cycle run.
- **Display for start-time preselection (SZV)**
  - The start-time preselection is indicated via a 2.5-digit display.
  - The display indicates the start time in hours.
  - The start time is counted down to 0h in steps of hours.
  - The possible start-time setting is displayed scrolling.
    1h - 2h - 3h - ... - 19h - 0h (SZV off) - 1h - 2h - ...
  - In addition to the start time in the display, also the confirmation LED next to the "SZV" key is flashing up.
  - When the start-time preselection has run down, the display indicates the run time to be expected of the selected washing cycle in minutes, the "SZV" LED goes out and the run time LED is lit.
- **Run time display (RLA)**
  - The remaining run time is indicated via a 2.5-digit display.
  - The display indicates the still remaining washing time in minutes.
  - The run time is updated depending on the program. The update is executed in changing program parts. In doing so the run time can correct downward in jumps, or the display is stopped until the time has been synchronized again.
  - If the display indicates a run time, the run time LED is lit additionally.
- **Program Phase Display (PAA)**
  - The program run display is executed via a maximum of 6 LED displays.
  - At the moment LEDs LD13 - LD18 are defined for the PAA:
  - Every LED indicates a program section (program part).
    e.g. prewash - washing - rinsing - final rinse - drying - end
  - The corresponding PAA LED is flashing up pulsating (2sec. on /400msec. off). Only the "end" LED is lit permanently.

6.9.2. Input philosophy - displays (part 2)

All displays are designed as LED displays and are available depending on the appliance variant.

⚠ for that see the figures of the input resp. output parts page B 1 / "Inputs and outputs"

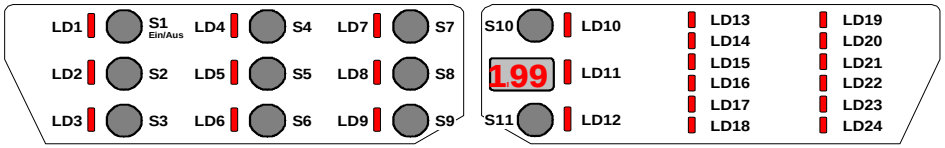
- **Information displays**
  - The LED position is depending on the programming of the variant.
    They can be programmed to any LED which is not programmed with a program or an option key.
  - The LEDs are lit permanently from switching on the appliance by the ON/OFF key S0, until the moment of the successful program start. Furthermore, the LEDs are lit when the cycle end has been reached until the appliance is switched off.
  - The display LEDs go out during the whole cycle run!
  - **LED display "salt"**
    - LED is lit in case of a lack of salt
    - LED goes out when salt has been refilled
      (Depending on the salt dissolution it can take some time until the LED goes out.)
      Information: The LED display "salt" goes out with hardness range setting 1 (no regeneration necessary - indication in the display "1 L")
  - **LED display "rinse-aid"**
    - LED is lit in case of a lack of rinse-aid
    - LED goes out after rinse-aid has been refilled
      Information: The rinse-aid addition can be deactivated completely by the customer depending on the variant. This also deactivates the LED display "rinse-aid".
      (see description page B 13 / "Deactivation of rinse-aid addition")

  ⚠ When the option 3 in 1 has been selected (special tablet option), neither the "salt" LED nor the "rinse-aid" LED is selected.

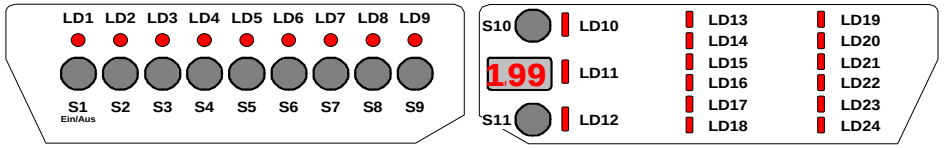
  - **LED display "water"**
    - LED is lit when there is no or too less water filling into the appliance.
      A reason for that can be, for example, a closed water tap.
    - The program is stopped and can be continued when the fault has been eliminated by actuating the program key.
      (see also description page B 19 / "Survey of fault displays - fault 10")
  - **LED display "spraying arm"**
    - LED is lit with a blocked middle spraying arm.
    - additionally acoustic signal
      (see description page B 19 / "Survey of fault displays - fault A0")
  - **LED display "door"**
    - LED is lit when the door is open
    - Goes out automatically when door will be closed.
  - **LED display "sieve"**
    - This LED is selected automatically after 20 washing cycles.
    - LED is lit when the internal counter has reached 20 at the cycle end.
    - Goes out when a new program has started - internal counter is reset to 0.

6.10. Short survey of all customer, service and aftersales service functions

vertical key arrangement



horizontal key arrangement



ATTENTION! In case of reduced key assemblies be sure to observe Description Page B1!

Who?	Which function?	Selection of special mode customer or service	Confirmation of the special mode	Call of special function	Detailled description
Customer	setting of water hardness	→ switch on appliance with ON/OFF S1 → press S2 and S3 simultaneously and keep them pressed until ...	... LEDs of keys S2 - S4 are flashing →	press key S2	see page B 11
	deactivation rinse-aid addition	→		press key S3	see page B 12
	deactivation signal sound	→ When calling the customer functions, generally no washing cycle must be selected		press key S4	see page B 13
manufacturing / service	readout of fault memory single actuator selection	→ press S2 and S4 simultaneously and switch on appliance with ON/OFF S1. Keep keys S2 and S4 pressed for another aprox. 4 seconds until ...	... LEDs of keys S2 - S4 are flashing →	press key S2	see page B 14
	LED test with integrated deletion of fault memory	→		press key S3	see page B 15
	manufacturing test routine	→		press key S4	see page B 16
	deactivation Pulse Wash	→		press keys S3 + S4, change S3	see page B 17
	additional washing cycle	→		press keys S2 + S3, change S2	see page B 18

Generally, no wash cycle may be selected when calling the customer functions!
ATTENTION: In case of reduced key assemblies be sure to observe Description Page B 1.

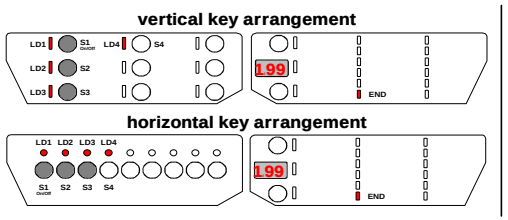
6.11. Service function / setting of water hardness:

General information

- Setting and changing the water hardness range is executed in all designs resp. key arrangements analogously.
- For that you always have to use keys S1, S2 and S3 independent of their variant-depending program load.
- **Key S2 is ALWAYS the "water hardness range key"**
- The water hardness range value 4 is preset by the manufacturer.
- With setting "1L" it is generally not regenerated.
- A salt addition is not necessary.
- A possibly existing "salt" LED is not selected.

Electronic and mechanical setting with the appliance:

- In addition to the "electronic" setting on the control panel described on the right you also have to pay attention to the mechanical setting in the appliance by the 2-step blending switch. (see for that the table for hardness range values)

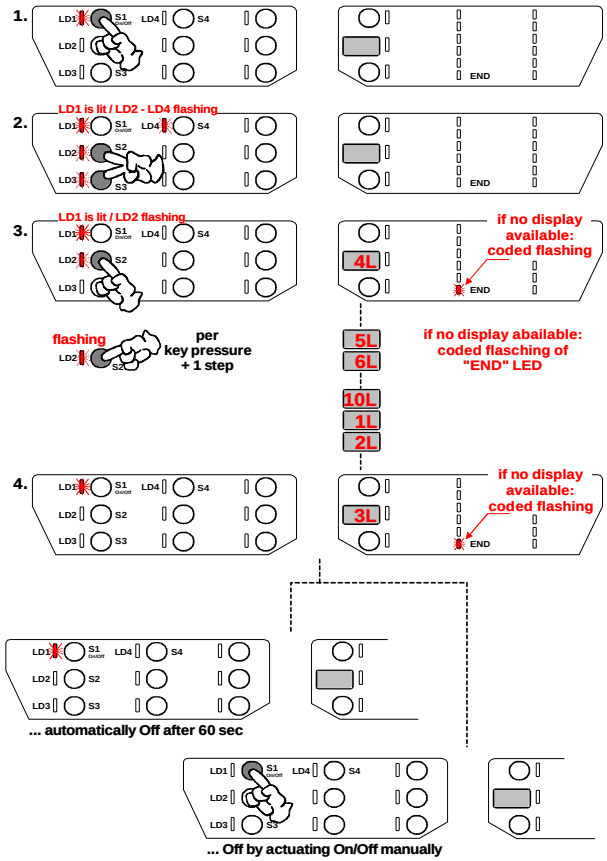


blending-switch

Table for hardness range values:

indication display	display End-LED	setting of hardness		water hardness							comment
	flashing acustic	elektronic	mechanic	in dH			in mmol/L			area	
1L	1 time	**1**			bis	4		bis	0,7	I	no regeneration
2L	2 times	**2**		4	bis	10	0,7	bis	1,8	I / II	
3L	3 times	**3**	**0**	11	bis	14	1,9	bis	2,5	II	
4L	4 times	**4**		15	bis	18	2,6	bis	3,2	III	
5L	5 times	**5**		19	bis	22	3,3	bis	3,9		
6L	6 times	**6**		23	bis	28	4,0	bis	5,0	IV	
7L	7 times	**7**		29	bis	36	5,1	bis	6,4		
8L	8 times	**8**	**1**	37	bis	42	6,5	bis	7,5		
9L	9 times	**9**		43	bis	50	7,6	bis	8,9		
10L	10 times	**10**		51	bis	70	9,0	bis	12,5		double regeneration

Calling / changing / saving the "electronic" hardness range value



Calling the function "set water hardness"

1. Switch on appliance with ON/OFF key S1
   LD1 display with ON/OFF key is lit.

2. Press keys S2 and S3 simultaneously until the confirmation LEDs LD2, LD3 and LD4 are flashing
   LD1 display with ON/OFF key is lit.

3. By actuating the function key S2 you now can call the water hardness function. The confirmation LED LD2 continues flashing, LEDs LD3 and LD4 go out.
   The set hardness range is indicated in the display.
   If there is no display existing depending on variant, the value is indicated by a coded flashing of the "end" LED.
   (see for that the table on the left side of this page!)

Changing the set hardness

By any other actuation of the function key S2 you can change the hardness range. This increases the value scrolling.
(4L - 5L - 6L - ... - 10L - 1L - 2L - ...)

Leaving the function

4. After the last key pressure of function key S2 you can leave the special program as follows.
   After 60 seconds all displays go out automatically, except LD1 of the ON/OFF key
   or
   the appliance is switched off by the ON/OFF key S1.

Saving the set water hardness

The selected hardness range is saved directly after any entry.

Generally, no wash cycle may be selected when calling the customer functions!
ATTENTION: In case of reduced key assemblies be sure to observe Description Page B 1.

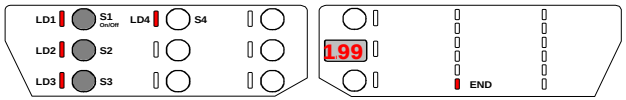
6.12. Customer function / deactivation of rinse-aid addition:

General information

The function rinse-aid deactivation does not exist generally and must be programmed in the software variant.

- Deactivation resp. activation of rinse-aid addition is executed in all designs and key arrangements analogously.
- For that you always have to use keys S1, S2 and S3 independent of their variant-depending program load.
- **The key S3 is ALWAYS the "rinse-aid deactivation key"**
- The rinse-aid addition is always set active by the manufacturer.
- If the rinse-aid addition is deactivated it means that no more rinse-aid is added via the detergent dispenser.
- Along with the deactivation, a variant-depending existing "rinse-aid" LED is deactivated generally.

vertical key arrangement



horizontal key arrangement

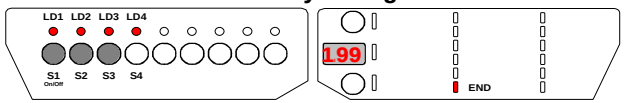
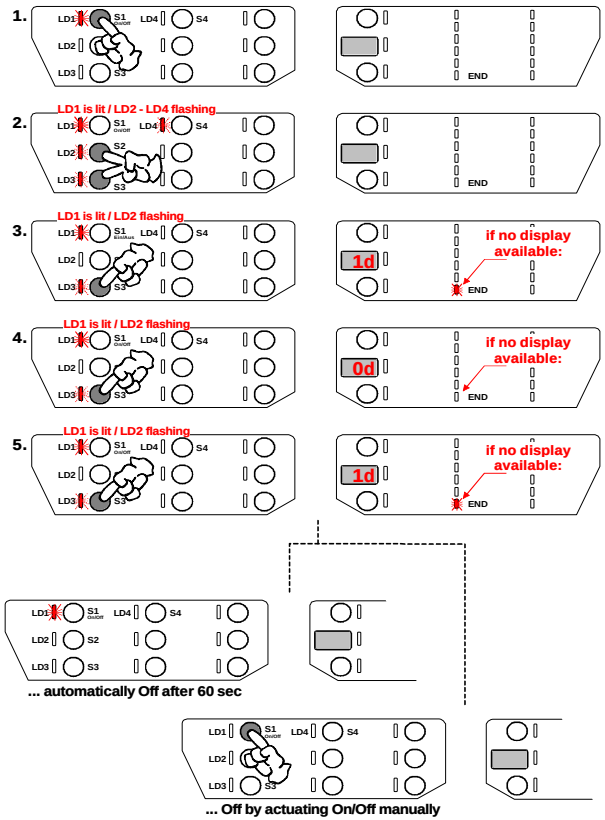


Table for indications of condition on/off:

indication		
display	**"END"-LED** if no display available on variant	**comment**
1d	on	rinse-aid addition on
0d	off	rinse-aid addition off

Calling / changing / saving the rinse-aid addition deactivation



Calling the function "deactivate rinse-aid addition"

1. Switch on appliance with ON/OFF key S1.
LD1 display with ON/OFF key is lit.

2. Press keys S2 and S3 simultaneously until the confirmation LEDs LD2, LD3 and LD4 are flashing
LD1 display with ON/OFF key is lit.

3. By actuating the function key S3 you now can call the function rinse-aid addition. The confirmation LED LD3 continues flashing, LEDs LD2 and LD4 go out.
The current condition whether the rinse-aid addition is active or not is indicated in the display. If there is no display available depending on variant, the value is indicated via the "END" LED.
(see for that the table on the left side of this page!)

Deactivation resp. activation of rinse-aid addition:

4. / 5. By any further actuation of the function key S3 you can activate resp. deactivate the addition alternating.

Leaving the function

After the last key pressure of function key S2 you can leave the special program as follows.
After 60 seconds all displays go out automatically, except LD1 of the ON/OFF key
or
the appliance is switched off by the ON/OFF key S1.

Saving the set condition

The condition is saved directly after any entry.

Generally, no wash cycle may be selected when calling the customer functions!
ATTENTION: In case of reduced key assemblies be sure to observe Description Page B 1.

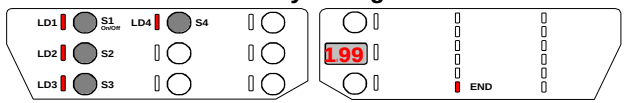
6.13. Customer function / deactivation of signal sound:

General information

The function deactivation of the signal sound does not exist generally and must be programmed in the software variant.

- Deactivation resp. activation of the signal sound is executed in all designs and key arrangements analogously.
- For that you always have to use keys S1, S2, S3 and S4 independent of their variant-depending program load.
- **The key S4 is ALWAYS the "signal sound deactivation key"**
- The signal sound at the cycle end is always set active by the manufacturer.
- If the signal sound is deactivated it means that in general no acoustic end signal will sound any more.
  The acoustic fault signals also cannot be heard any more!

vertical key arrangement



horizontal key arrangement

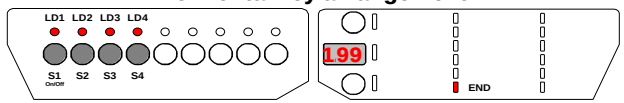
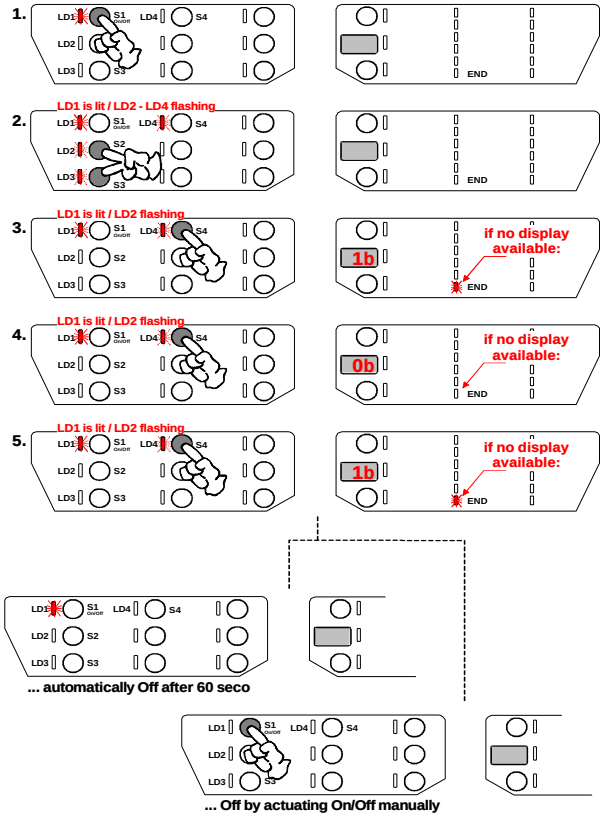


Table for indication of condition on/off:

indication		
display	**"END"-LED** if no display available depending on variant	**comment**
1b	on	signal sound (buzzer) on
0b	off	signal sound (buzzer) off

Calling / changing / saving the signal sound deactivation



Calling the function "deactive signal sound"

1. Switch on appliance with ON/OFF key S1
   LD1 display with ON/OFF key is lit.

2. Press keys S2 and S3 simultaneously until the confirmation LEDs LD2, LD3 and LD4 are flashing
   LD1 display with ON/OFF key is lit.

3. By actuating the function key S4 you now can call the function signal sound deactivation. The confirmation LED LD4 continues flashing, LEDs LD2 and LD3 go out.
   The current condition whether the signal sound is active or not is indicated in the display.
   If there is no display available depending on variant, the value is indicated by the "END" LED.
   (see for that the table on the left side of this page!)

Deactivation resp. activation of the signal sound:

4. / 5. By any further actuation of the function key S4 you can activate resp. deactivate the signal sound alternating.

Leaving the function

After the last key pressure of function key S4 you can leave the special program as follows.
After 60 seconds all displays go out automatically, except LD1 of the ON/OFF key
or
the appliance is switched off by the ON/OFF key S1.

Saving the set condition

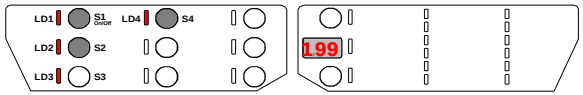
The condition is saved directly after any entry.

6.14.1. Service function / readout of fault memory and single actuator selection:

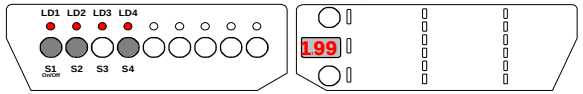
General information

- Calling the service functions is executed in all designs resp. key arrangements analogously.
- For that you always have to use keys S1, S2, S3 and S4 independent of their variant-depending program load.
- In the service function mode, key S2 is ALWAYS responsible for the function "readout of fault memory" and "single actuator selection".

vertical key arrangement



horizontal key arrangement

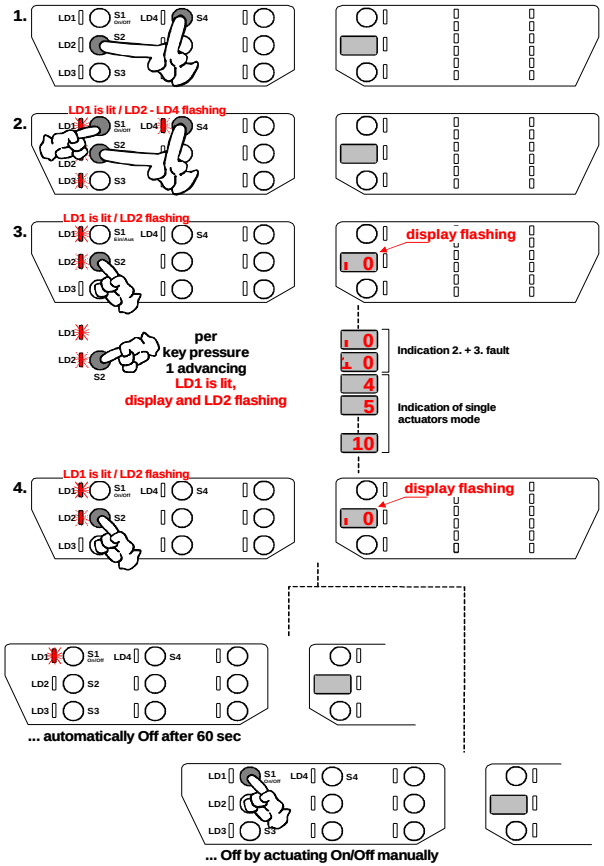


- A considerable difference regarding the output is represented by appliance variants with resp. without display.
  For this reason, this page describes the output for appliances with display.
  Page 14.2. describes the output for appliances without display.

Always applicable:

In order to call the totality of service functions always first press the function keys S2 and S4 prior to switching the appliance on by means of ON/OFF switch S1!
Keep the keys pressed for abt. 4 seconds in order to activate the function. This procedure is intentionally distinguished from those for the customer functions.
ATTENTION: In case of reduced key assemblies be sure to observe Description Page B 1.

Calling above-mentioned service function (appliances with display)



Calling the functions
"readout of fault memory" and "single actuator selection"

1. Press keys S2 and S4 simultaneously and ...

2. ... and switch on the appliance by ON/OFF switch S1.
For that keep the keys S2 and S4 pressed simultaneously until the 3 confirmation LEDs LD2, LD3 and LD4 are flashing. (about 4 seconds) The LD1 display with ON/OFF key is lit.
(A temporary flashing up of LEDs is possible and no fault!)

3. / 4. By actuating the function key S2 you now can call the function.
The confirmation LED LD2 is flashing and the ON/OFF LED continues to be lit, LEDs LD3 and LD4 go out.
The first value of the fault memory is indicated in the display.
The display indication is flashing.
By any further actuation of the function key S2 it is possible to call the next step and indicate it in the display as follows.
2. actuation: Display of second value of the fault memory
3. actuation: Display of third value of the fault memory
(see description page B 19 / "Survey of fault displays")
4. actuation: Display "4" - selection of regeneration valve
5. actuation: Display "5" - selection of drain pump
6. actuation: Display "6" - selection of valve
(filling to level - if level already existing, no filling)
7. actuation: Display "7" - selection of heating
(only when level detected)
8. actuation: Display "8" - selection of circulation pump
9. actuation: Display "9" - selection of detergent dispenser
10.actuation: Display "10" - selection of drying fan
11.actuation: Display "11" - selection of auto-dosing
(is currently not used)
12.actuation: Display "12" - selection of water hardness sensor
(is currently not used)
All positions can be called scrolling as many times as one wants.

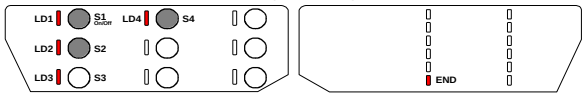
The various steps are switched onward manually by pressing the key. If the function key S2 is not pressed within 60 seconds, the service function is left automatically. All displays except the LD1 LED of the ON/OFF key go out. It is also possible to leave the function by switching off the appliance using the ON/OFF key S1.

6.14.2. Service function / readout of fault memory and single actuator selection:

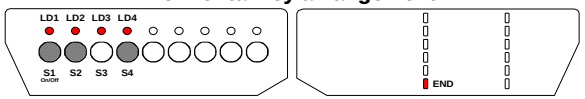
General information

- Calling the service functions is executed in all designs resp. key arrangements analogously.
- For that you always have to use keys S1, S2, S3 and S4 indepedent of their variant-depending program load.
- In the service function mode, key S2 is ALWAYS responsible for the functions "readout of fault memory" and "single actuator selection".

vertical key arrangement



horizontal key arrangement

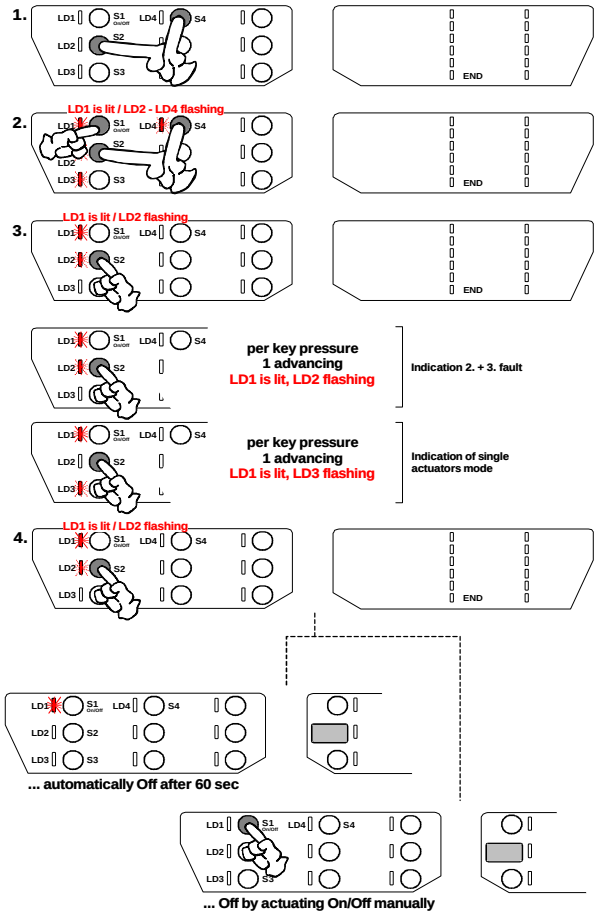


- A considerable difference regarding the output is represented by appliance variants with resp. without display. For this reason, this page describes the output for appliances without display.
  Page 14.1. describes the output for appliances with display.

Always applicable:

In order to call the totality of service functions always first press the function keys S2 and S4 prior to switching the appliance on by means of ON/OFF switch S1!
Keep the keys pressed for abt. 4 seconds in order to activate the function. This procedure is intentionally distinguished from those for the customer functions.
ATTENTION: In case of reduced key assemblies be sure to observe Description Page B 1.

Calling above-mentioned service function (appliances without display)



Calling the functions
"readout of fault memory" and "single actuator selection"

1. Press keys S2 and S4 simultaneously and ...

2. ... and switch on the appliance by ON/OFF switch S1.
For that keep the keys S2 and S4 pressed simultaneously until the 3 confirmation LEDs LD2, LD3 and LD4 are flashing. (about 4 seconds). The LD1 display with ON/OFF key is lit.
(A temporary flashing up of LEDs is possible and no fault!)

3. / 4. By actuating the function key S2 you now can call the function.
The confirmation LED LD2 is flashing and the ON/OFF LED continues flashing, LEDs LD3 and LD4 go out.
The first pressure on key S2 is indicated by the "END" LED.
By the second and third key pressure on S2 it is possible to read out the second and third value of the fault memory.
(see description page B 19 / "Survey of fault displays")
From the 4. key pressure onward on key S2 the LED LD2 goes out and the LD3 starts flashing.
Now you can call the single actuators one after the other.

4. actuation: selection of regeneration valve
5. actuation: selection of drain pump
6. actuation: selection of the valve
(filling to level - if leavel already existing, no filling)
7. actuation: selection of heating
(only when level detected)
8. actuation: selection of circulation pump
9. actuation: selection of detergent dispenser
10.actuation: selection of drying fan
11.actuation: selection of auto-dosing
(is currently not used)
12.actuation: selection of water hardness sensor
(is currently not used)

All positions can be called scrolling as many times as one wants.

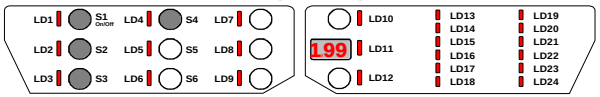
The various steps are switched onward manually. If the function key S2 is not pressed within 60 seconds, the service function is left automatically. All displays go out except the LD1 LED of the ON/OFF key. It is also possible to leave the function by switching off the appliance using the ON/OFF key S1.

6.15. Service function / LED test with integrated deletion of the fault memory:

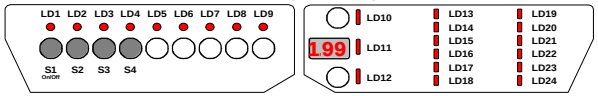
General information

- Calling the service functions is executed in all designs resp. key arrangements analogously.
- For that you always have to use keys S1, S2, S3 and S4 independent of their variant-depending program load.
- In the service function mode, key S3 is ALWAYS responsible for the function "LED test with integrated deletion of the fault memory".

vertical key arrangement



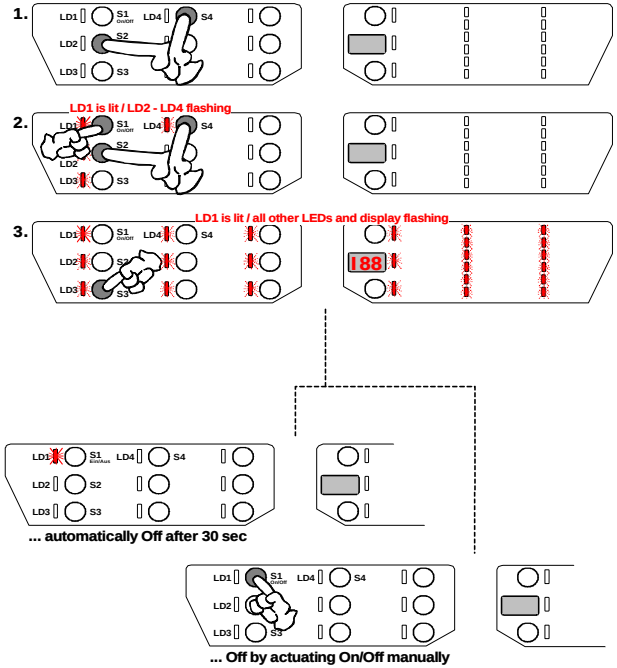
horizontal key arrangement



Always applicable:

In order to call the totality of service functions always first press the function keys S2 and S4 prior to switching the appliance on by means of ON/OFF switch S1!
Keep the keys pressed for abt. 4 seconds in order to activate the function. This procedure is intentionally distinguished from those for the customer functions.
ATTENTION: In case of reduced key assemblies be sure to observe Description Page B 1.

Calling above-mentioned service function



Calling the functions
"LED test with integrated deletion of the fault memory"

1. Press keys S2 and S4 simultaneously and ...

2. ... and switch on the appliance by ON/OFF switch S1.
   For that keep the keys S2 and S4 pressed simultaneously until the 3 confirmation LEDs LD2, LD3 and LD4 are flashing. (about 4 seconds) The LD1 display with ON/OFF key is lit.
   (A temporary flashing up of LEDs is possible and no fault!)

3. By actuating the function key S3 you now can call the function.
   All LEDs (except LD1) and "188" in the display are flashing about 30 seconds.
   Furthermore, if available depending on variant and if active, the signal sound is indicated during the whole flashing time.

Leaving the function / deletion of the fault memory

When all above-mentioned LEDs resp. the display have been flashing for about 30 seconds, the function will be left automatically. The appliance is in the "prestart" mode again. The function can be left even earlier by switching off the appliance by the ON/OFF key S1.

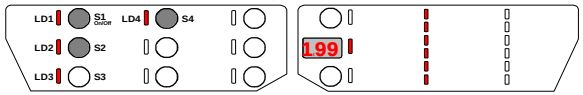
In any case, the service fault memory is deleted.

6.16. Service function / manufacturing test routine:

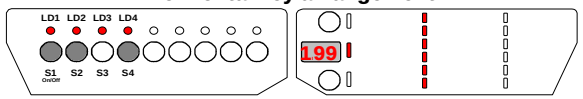
General information

- Calling the service functions is executed in all designs resp. key arrangements analogously.
- For that you always have to use keys S1, S2, S3 and S4 independent of their variant-depending program load.
- In the service function mode, key S4 is ALWAYS responsible for calling the "manufacturing test routine"

vertical key arrangement



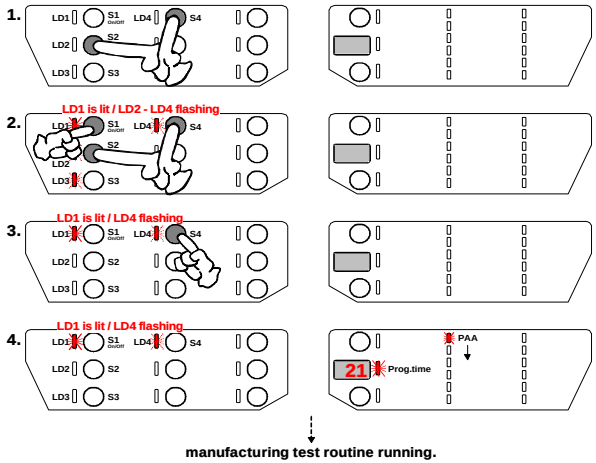
horizontal key arrangement



Always applicable:

In order to call the totality of service functions always first press the function keys S2 and S4 prior to switching the appliance on by means of ON/OFF switch S1!
Keep the keys pressed for abt. 4 seconds in order to activate the function. This procedure is intentionally distinguished from those for the customer functions.
ATTENTION: In case of reduced key assemblies be sure to observe Description Page B 1.

Calling above-mentioned service function



Calling the function "manufacturing test routine"

1. Press keys S2 and S4 simultaneously and ...

2. ... and switch on the appliance with ON/OFF switch S1.
   For that keep the keys S2 and S4 pressed simultaneously until the 3 confirmation LEDs LD2, LD3 and LD4 are flashing. (about 4 seconds) The LD1 display with ON/OFF key is lit.
   (A temporary flashing up of LEDs is possible and no fault!)

3. By actuating the function key S4 you now can call the manufacturing test routine. The confirmation LED LD4 is flashing and the ON/OFF LED continues to be lit, LEDs LD2 and LD3 go out.

4. The test routine starts automatically.
   Following displays are available depending on the variant of equipment.
   The run time LED is flashing up.
   The display indicates the presumable run time.
   The corresponding PAA LEDs are lit.

From that moment the same input philosophy is valid for the manufacturing test routine as for normal washing cycles, but the program LED LD4 is flashing until the end of the manufacturing test routine.

- ☞ *cycle run and cycle end*
  (see description page B 5)
- ☞ *delete cycle in advance*
  (see description page B 6)
- ☞ *interrupt program*
  (see description page B 8)

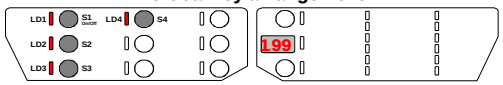
6.17. Service function / disconnection pulse wash

General information

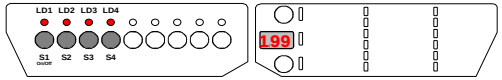
- Calling the Service Functions is similar with all designs or key arrangements.
- Always use the keys S1, S2, S3 and S4 independently from their program assignment depending on the model.
- In service function mode, you can ALWAYS call the Pulse Wash function by using keys S3 and S4. Use key S3 to modify the setting.

- From works settings, Pulse Wash is always set to be active.

vertical key arrangement



horizontal key arrangement



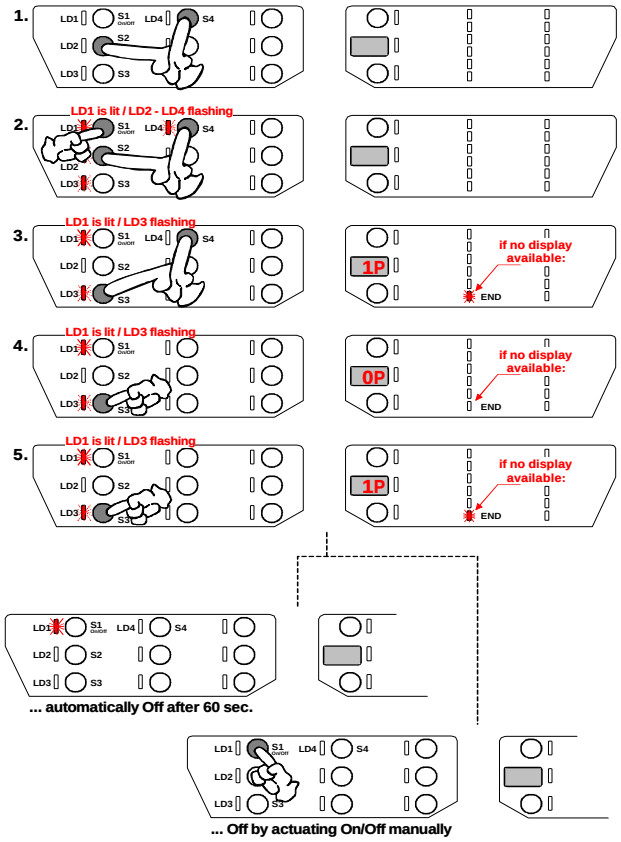
- **If you deselect Pulse Wash the rot.speeds of the circul. pump are always increased to "High Pulse Speed".** Water consumption slightly increases. Extension of time is possible depending on the temperature.
- **Table for the indication of on/off status:**

indication		
display	**"End"-LED** if no display available depending on variant	**comment**
1P	on	Pulse Wash is activ
0P	off	Pulse Wash is switched off

Always applicable:

In order to call the totality of service functions always first press the function keys S2 and S4 prior to switching the appliance on by means of ON/OFF switch S1!
Keep the keys pressed for abt. 4 seconds in order to activate the function. This procedure is intentionally distinguished from those for the customer functions.
ATTENTION: In case of reduced key assemblies be sure to observe Description Page B 1.

Calling above-mentioned service function



Calling the function "Switch OFF Pulse Wash"

1. Simultaneously press S2 and S4 and ...

2. ... switch on the appliance with ON/OFF switch S1.
Keep keys S2 and S4 pressed simultaneously until the 3 acknowledging LEDs LD2, LD3 and LD4 are flashing. (for abt. 4 seconds). Indicator LD1 at ON/OFF key lights up.
(Short-time illumination of LEDs is possible and does not constitute any fault)

3. Simultaneously press S3 and S4 until the acknowledging LED LD3 is flashing. LEDs LD2 and LD4 will go dark.
Indicator LD1 at ON/OFF key is lit.
The current status whether Pulse Wash is active or not is indicated in the display. If there is no display available on the model, the value is indicated by means of LED "End"
(also refer to Table left on this page)

Switching the Pulse Wash Function on or off:

4. / 5. Any further activation of function key S3 will switch the addition alternately on or off.

Abandoning the function

After the last activation of function key S3 you can leave the special program as follows:
After 60 seconds automatically all indications will go dark, except for the LD1 of the ON/OFF key
or
you switch the appliance off by means of ON/OFF key S1.

Saving the status settings

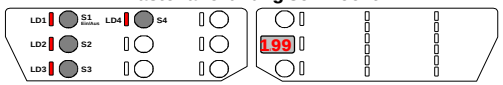
Immediately after each input of data, the currently valid status will be saved.

6.18. Service function / additional rinsing process

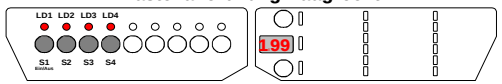
General information

- Calling the Service Functions is similar with all designs or key arrangements.
- Always use the keys S1, S2, S3 and S4 independently from their program assignment depending on the model.
- In service function mode, you can ALWAYS call "Selection of an Add. Wash Cycle" with key combination S2 and S3. Use key S2 to modify the settings.
- From the works settings, no additional wash cycle is set.

Tastenanordnung senkrecht



Tastenanordnung waagrecht



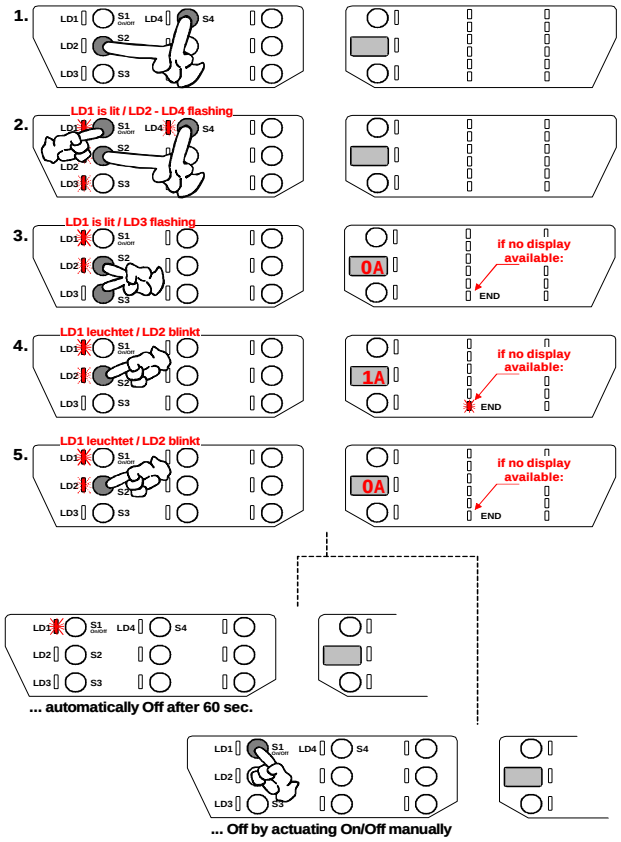
- **If this function is activated, an additional wash cycle is ALWAYS added, except for "prewash extra".**
  This will extend program run times up to about 10 minutes. This additional wash cycle will be executed until the function is deactivated again.
- **Table for the indication of on/off status:**

indication		
display	**"End"-LED** if no display available depending on variant	**comment**
1d	on	Additional wash cycle selected
0d	off	No addititonal wash cycle

Always applicable:

In order to call the totality of service functions always first press the function keys S2 and S4 prior to switching the appliance on by means of ON/OFF switch S1!
Keep the keys pressed for abt. 4 seconds in order to activate the function. This procedure is intentionally distinguished from those for the customer functions.
ATTENTION: In case of reduced key assemblies be sure to observe Description Page B 1.

Calling above-mentioned service function



Calling the function "Additional Wash Cycle"

1. Simultaneously press S2 and S4 and ...

2. ... switch on the appliance with ON/OFF switch S1.
Keep keys S2 and S4 pressed simultaneously until the 3 acknowledging LEDs LD2, LD3 and LD4 are flashing. (for abt. 4 seconds). Indicator LD1 at ON/OFF key lights up.
(Short-time illumination of LEDs is possible and does not constitute any fault)

3. Simultaneously press S2 and S3 until the acknowledging LED LED LD3 is flashing. LEDs LD3 and LD4 will go dark. Indicator LD1 at ON/OFF key is lit.
The current status whether the additional wash cycle is activated or not, is indicated in the display. If no display is available on this model, the value is indicated by means of the "End" LED.
(also refer to Table left on this page)

Switching this function on or off:

4. / 5. Any further activation of function key S2 will switch the addition alternately on or off.

Abandoning the function

After the last activation of function key S2 you can leave the special program as follows:
After 60 seconds automatically all indications will go dark, except for the LD1 of the ON/OFF key
or
you switch the appliance off by means of ON/OFF key S1.

Saving the status settings

Immediately after each input of data, the currently valid status will be saved.

Overview Errors Displayed

Applicable for EDW1500 / 1503 (VGA) -- EDW1100 / 1003 (VGA) -- EDW2000

Error Name	Display on Screen EDW 1500	Display by END LED 2Hz / 5sec. Pause EDW1100	Acoustic Indication No.of Beeps 2Hz / 5sec. Pause If available for this model	Error Display visible for Customer** Display PAA	 AK	Call Error Memory (Service) Display PAA	 AK	Output via Indicator Lamp If available for this model	Short Explanation	What happens?
Water tap closed	E10	1 x flashing	1 x	☺	☺	☺	☺	LED Water	Switchpoint of pressostat is not reached after max. 60 secs. (only in programme steps incl. Filling up to level!)	Programme stops and can be continued after error remedy by pressing the programme key. If fault is not corrected and programme key is pressed, the machine runs dry until next subprogramme.
Drain pump	E20	2 x flashing	2 x	☺	☺	☺	☺	---	Reset point of pressostat is not reached after max. 120secs. Programme stop.	Programme stops and can be continued after error remedy by pressing the programme key.
Aqua-Control	E30	3 x flashing	3 x	☺	☺	☺	☺	---	Aqua-Control System switches off solenoid directly.	Programme stops and restarts automatically when error has terminated.
Recycling pump Triac short-circuit	E50	5 x flashing	5 x	☺		☺	☺	---	Tacho signals are recognized although rec. pump is not selected.	Programme stops and water is filled up until reset point of pressostat
Heating	E60	6 x flashing	6 x			☺	☺	---	During heating, temperature rise by min. 1.5K is not detected within 3min.	Programme is continued until its end without heating function!
NTC Sensor	E70	7 x flashing	7 x			☺	☺	---	NTC short-circuit or break.	Programme is continued until its end without heating function!
EEPROM	E80	8 x flashing	8 x	☺ ?				---	Communication error with ext. EEPROM	
Check sum MCF / CCF	E90	9 x flashing	9 x			☺	☺	---	Check sum (model programming) MCF or Check sum CCF not OK. Only recognized after switching on!	Programme selection not possible. On/Off LED is on
Sprayarm blocked	EA0	10 x flashing	10 x		☺	☺	☺	LED Spray arm	At programme start and each subprogramme start, also after door open/close or mains failure, spray arm rotation is checked and evaluated.	Error display until sprayarm speed is recognized, or if no control.
Turpidity sensor	Eb0	11 x flashing	11 x			☺	☺	---	The turbidity signal required for calibration is not reached with 15secs.	Always recognition of turbidity. Programme sequence is adapted accordingly.
Communication error	EC0	12 x flashing	12 x			☺	☺	---	Communication failure with User Interface.	Machine stops, waiting until communication is cleared.
Tacho	Ed0	13 x flashing	13 x			☺	☺	---	Recycling pump selected, but no tacho signal recognized for 5 + 20 secs	Recycling pump without control, heating off. This function is checked again on each step.
Filling time error	EF0	15 x flashing	15 x			☺	☺	---	Time limit during filling exceeded	Programme is completed until next subprogramme without level. No further filling up of water top up. Error is reset after one complete drain cycle.

** = If 7-Segment display available, no PAA error display/Sound error display generally with VGA, with other machines depending on model

List of Possible Error Causes

Code	Possible error causes		
i10	No or not enough water let in		Water tap is closed or faulty No water pressure, pressure too low or changing Screen in front of inlet valve clogged Flow governor at inlet valve faulty Inlet valve faulty Inlet valve deenergized (faulty wiring or no activation by electronics) Inlet hose bent Softener system clogged (by filling detergent into salt compartment, for instance)
	Machine runs dry (Siphon effect)		Upright installation without upright assembly kit Connection height of the discharge hose is lower than 30cm above appliance base Connection w/o siphon or air chamber
	Water level inside appliance is not detected		Pressure controller faulty Pressure controller hose obstructed, bent or leaking Pressure controller wiring is faulty Screens in the appliance clogged (also check spray arm nozzles for clogging)
i20	Water is not pumped off		Fault with discharge pump Discharge pump deenergized (faulty wiring or no activation by electronics) Obstruction/blocking (filters in the appliance, discharge opening in discharge trough, discharge pump, discharge hose, siphon, cover plug at siphon connection not removed during first commissioning) Discharge hose bent or connection height above 100cm Ball valve in discharge trough glued / blocked (discharge pump does not aerate)
	Water level inside appliance is not detected		Pressure controller faulty Pressure controller hose obstructed or bent Insulation fault with heating element
i30	Water remains in base trough	Leakage	Leakage at recipient, discharge trough, hose system (e.g., Y-type hose), regeneration dosage etc.
		Overflow	Inlet valve faulty (does not close) Water inlet too high (faulty flow governor at inlet valve) Connecting hose regenerating dosing to discharge trough blocked Water inlet channels in regeneration dosing unit blocked Screens in the appliance clogged (also check spray arm nozzles for clogging) Pressure controller faulty Pressure controller hose obstructed, bent or leaking Pressure controller wiring is faulty Foam production in the appliance (splashed rinsing liquid / leaking dosing unit or con-compatible detergent / rinsing agent used)
	Base trough is dry		Inlet valve or wiring electrically interrupted
i50	Motor triac short-circuit		Faulty electronics
i60	No rise in temperature		Heating element faulty Heating element deenergized (faulty wiring or no activation by electronics)
i70	NTC signal faulty		Thermal sensor defect Wiring faulty (e.g. short-circuit or interruption)
i80	Check sum error EEPROM		Mains filter defect Faulty electronics EMC problem
i90	Check sum error model programmation		Faulty electronics
iA0	Upper spray arm does not rotate		Blocking by dishes or cutlery basket Nozzles clogged (drive nozzles at spray arm extremities) Spray arm leaking (welding seam) Spray arm bearing blocked (dirt, foreign bodies) Screens in the appliance clogged Bellows at connecting pipe not sealed at recipient rear wall (bellows not contacting/glued together) Circulating pump does not reach full power (nominal speed is not reached due to winding influence) Too little water in appliance - for possible causes see Error codes i10 and iF0 Foam production in the appliance (splashed rinsing liquid / leaking dosing unit or con-compatible detergent / rinsing agent used)
	No spray arm detection		No magnet in spray arm Spray arm detection sensor faulty Wiring faulty
ib0	turbidity signal faulty		turbidity sensor defect Wiring faulty turbidity sensor dirty Foam production in the appliance (splashed rinsing liquid / leaking dosing unit or con-compatible detergent / rinsing agent used)
ic0	communication faulty		Faulty electronics Wiring faulty
id0	Circulation pump no function		Circulating pump / capacitor defect Circulating pump deenergized (faulty wiring or no activation by electronics)
	No tacho signal recognized		Tachometer generator defect Wiring faulty
iF0	Time limit during filling exceeded		Problem with water inlet in general - see Error code i10, pipette effect in particular (also look for an error memory entry i10) Problem by incomplete pumping in previous program cycle (remaining water) - see Error code i20 (also look for an error memory entry i20) Improper loading, e.g. big item (pot, bowl is reversed and fills with water) Foam production in the appliance (splashed rinsing liquid / leaking dosing unit or con-compatible detergent / rinsing agent used)

Wire harness (door)
111 11 57-00

Wire harness (base)
111 11 47-00

Connections (door)
646.144 365; DE 2.1
646.144 366; FE11
646.144 374; EQ2
111 11 56-00; EZ2.1

Connections (base)
111 11 09-00; KRGM
111 11 51-00; EM2.2
111 11 52-00; EMV4
111 11 53-00; EM2.3
111 11 54-00; ETTS4

INPUT MODUL
E (EM1)
EE5 | DE2.1 | ME2 | ZE2 | S5 | QE2 | E5 | FE11
DE2.1/646.144 365
EZ2.1/111 11 56-00
EQ2/646.144 374
FE11/646.144 366
DOOR LOCK
Z (b6)
OUTPUT MODUL
F (SZV)
D (s7,s8) DISPENCER
02 (b62) RINSE AID
111 11 57-00
HE1 EARTH
0 (b95) SPRAY ARM SENSOR
DOOR

DRYER
M (m18)

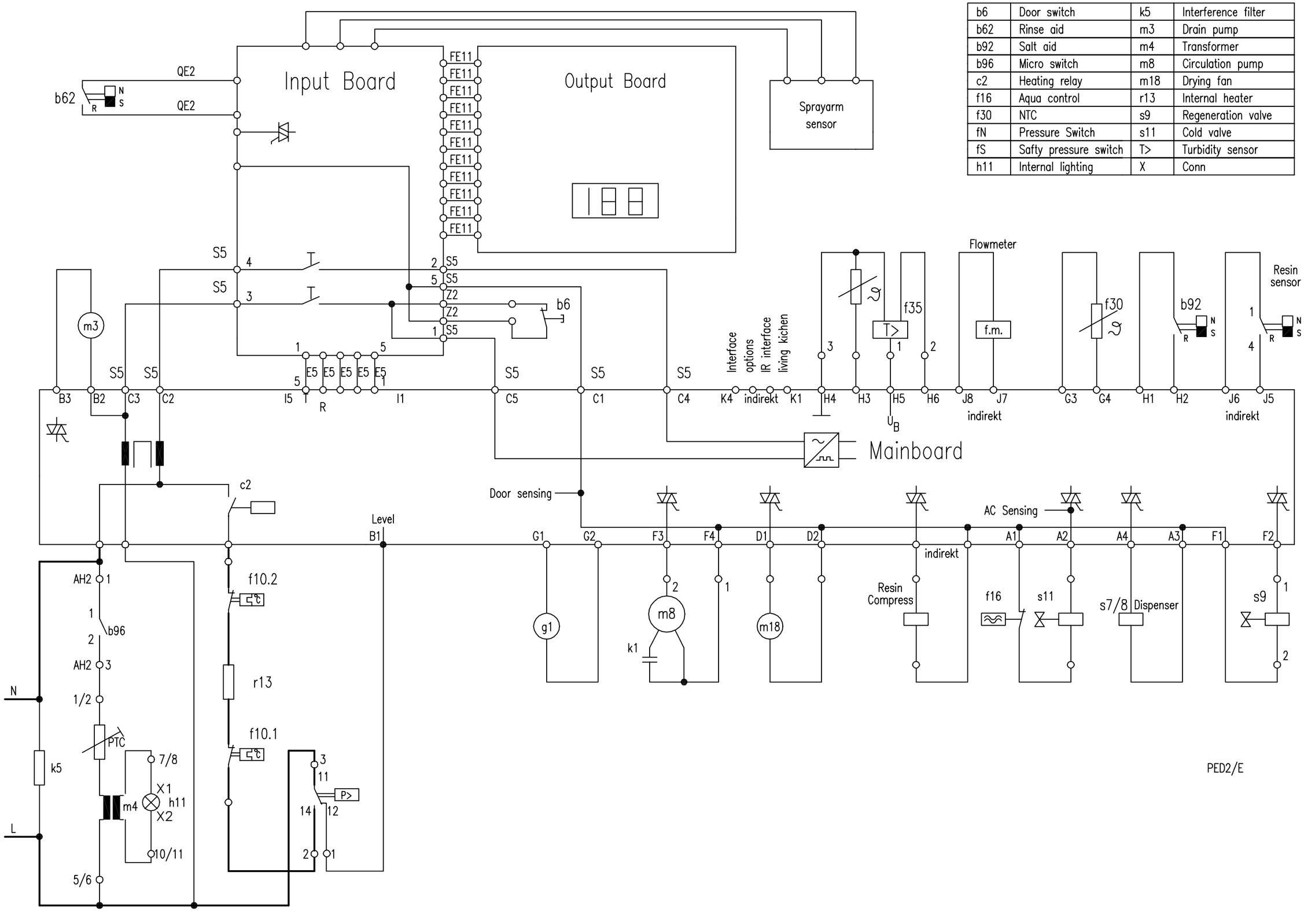
MAIN BOARD
E (ES)
A | B | C | D | E | F | G | H | I
ELV/111 11 48-00
EM3/111 11 49-00
EM2.2/111 11 51-00
EMV4/111 11 52-00
EM2.3/111 11 53-00
ETTS4/111 11 54-00

111 11 47-00

KRGM/111 11 09-00
EARTH
A (ASW) POWER CORD
FILTER K (k5)
R (r13, f10) HEATER
K (k1)
M (m8) CIRC. PUMP
TACHO (gt)
TRAFO J (m4)
Primärseite
Sekundärseite
LAMP H (h11)
SWITCH S (b96)
INTERNAL LIGHTING
FLOAT SWITCH L (f16)

TG1.1/111 11 60-00
HE1 EARTH
V (s11) COLD VALVE
V (s9) REG. VALVE
02.1 (b92) SALT AID
T/TS (f30/35) NTC/TURB. SENSOR
P (m3) DRAIN PUMP
N (fN) PRESSURE SWITCH

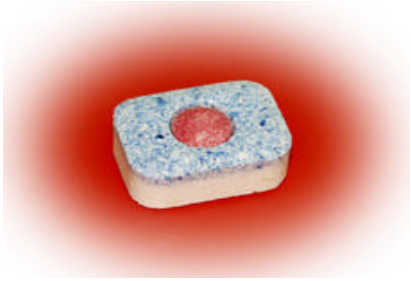
b6	Door switch	k5	Interference filter
b62	Rinse aid	m3	Drain pump
b92	Salt aid	m4	Transformer
b96	Micro switch	m8	Circulation pump
c2	Heating relay	m18	Drying fan
f16	Aqua control	r13	Internal heater
f30	NTC	s9	Regeneration valve
fN	Pressure Switch	s11	Cold valve
fS	Safty pressure switch	T>	Turbidity sensor
h11	Internal lighting	X	Conn



111 10 30-00

1. The New Options

• Selection by using option key - "3 in 1"



General information

- If you add option "3 in 1" to a wash cycle ...
  - ... water hardness setting is automatically adjusted to lowest grade (water hardness 1) device-internally. There is no regeneration.
  - ... LED Salt is switched off.
  - ... rinse-aid dosing is switched off.
  - ... LED rinse-aid is switched off.

To which programmes can you add this option?

- "3 in 1" can be selected with all wash cycles, except for the two programmes
  - ... prewash extra
  - ... Warm Plates

What are the changes during the programme run?

- All short cycles (such as E-L-R, ...) are prolonged by about 5 to 7 minutes.
- All intermediate wash cycles are also shorter.
- Rinse-aid is with at least 65°C or 68°C.
  Drying time is reduced by about 10 to 20 minutes if possible.
- All Energylabel programmes (AAx, BAB, ...) contain at least one cleaning temperature of 55°C

• Selection by using option key - "Sanitize"

To which programmes can you add this option?

- "Sanitize" can be added to all wash cycles.

What are the changes during the programme run?

- In the last wash cycle, heating up to 68°C and maintaining this temperature for at least 10 minutes.
- This brings about a longer programme run time depending on the programme and the temperature each.