![Electrolux]

SERVICE MANUAL

FABRIC CARE

WASHING MACHINES FRONT / TOP LOADED & WASHER DRYERS
User Interface

POne   Diamond

EN

CONTENTS

The purpose of this Service Manual is to provide Service Engineers who are already familiar with the repair procedures with information regarding:

Washing machines / Washer dryers

fitted with **EWX11, EWX13, EWX14** electronic control systems.

This document describes the basic functional concepts of all User Interface types designed for:

➢ POne

➢ Diamond

For each aesthetic level, according to buttons/lights layout, specific electronic boards are provided.

Such boards are separated from the main power board that controls the appliance and communicates with it by means of MACS serial protocol.

The compatible main boards are based on:

	EWX11	EWX13	EWX14
POne		x	x
Diamond		x	x

The manual deals with the following topics:

o General characteristics

o Control panel

o Guide to diagnostics

DOCUMENT REVISIONS

Rev.	Date	Description	Author
00	01/2018	Document creation	Marcin Pluta

Information
"Safety"

- All the work to be performed inside the appliance requires specific skills and knowledge and may only be carried out by qualified and authorised Service Engineers
- This platform is not fitted with an ON/OFF switch. Before you access internal components, take the plug out of the socket to disconnect the power supply.
- Some of the components in the mechanical part could cause injuries, so wear suitable protection and proceed with caution.
- Always empty the appliance of all the water before laying it on its side.
- If the appliance has to be placed on its side for maintenance or another reason, lie it on its left side, to avoid the risk of any residual water falling onto the main circuit board.
- Never place the appliance on its right side (electronic control system side): some of the water in the detergent dispenser could leak onto the electrical/electronic components and cause these to burn.
- When replacing the heating element, replace it with one that has the same characteristics (2 thermal fuses) in order not to compromise the safety of the appliance. NEVER remove/ switch the NTC sensors between heating elements.

EWX11831 platforms is a new electronic control for <u>middle</u> and <u>high range</u> washing machines and wash/dryer with **Inverter** motor.

EWX13611 platform is a new electronic control for <u>low range</u> washing machines and wash/dryer with **Universa**l motor.

EWX14931 platform is a new electronic control for <u>high range</u> washing machines and wash/dryer with **Inverter** motor.

The new electronic controls are based at least in three electronic boards	EWX11	EWX13	EWX14
User Interface Board	x	x	x
Power Board	x	x	x
FCV motor control board	x		x
WD Satellite board	x	x	x
Water softener boards			x

The Power Board electronic controls have the purpose to:
- drive all the machine loads (valves, motor control board, pumps, heating element, door lock device, drum light, detergent dosage, WD heating element, drying fan).
- read the several inputs necessary to control the functionality (water levels, door status, motor speed, water temperature, power supply status, door positioning system, air temperature, weight sensor, filter positioning, flow sensor).
- manage a serial port to connect the machine to external devices for testing, configuration, remote control purpose (EAP protocol).

The **User Interface Board** electronic control has the purpose to:
- manage the user selections and the machine status display by driving Leds and LCDs, and by reading push buttons and/or rotary knobs,
- manage a serial port to allow connection to external devices for testing, remote control purpose (EAP protocol).

The purpose of this document is to describe the diagnostic architecture implemented on this electronic platform.

SYSTEM ARCHITECTURE

The machine can work in several functional modes:

- User mode

- Demo mode

- Electric test mode

- Special function mode

- Diagnostic mode

- Remote controlled mode

The last one can be set only by serial port using specific tools. All the other modes are available using the machine itself.

User mode is the normal way to use the machine to execute normal cycles (used by the end customer).

Demo mode is used in the shops to show to the customer how to set and execute a cycle without load/draining water.

Special function mode is used to show special parameters of the machine (for example the cycles/working hours counter – pay per wash architecture).

Electric test mode is used, on assembly line, to perform the electric safety tests according the International Standards.

Diagnostic mode is used by service/lab people to test the machine, read/reset alarms.

Remote control mode apart, the other functional modes can be set by configurable buttons combinations.

> ⚠️ **Information**
> Standardisation
>
> For standardisation reasons following the used configuration for buttons combination:
> - For each user interface it is START/PAUSE button and the closest one
> - If the key combination is recognised within 10 seconds since the machine was switched on (via On/Off button), a specific mode is entered according to the position of the main knob or according the program selected:
>   - Position 1: Diagnostic mode set
>   - Position 3: Demo mode set
>   - Position 5: Working hours counter

SERIES 6B – LEVEL K

LEVEL K

BUTTONS COMBINATIONS

Function	Button 1	Button 2
Child lock	3	2
Default Extra Rinse	2	1
Buzzer enable/disable	6	5
Demo mode	4	3
Diagnostic mode	4	3

LEVEL I

BUTTONS COMBINATIONS

Function	Button 1	Button 2
Child lock	3	2
Default Extra Rinse	2	1
Buzzer enable/disable	6	5
Demo mode	4	3
Diagnostic mode	4	3

LEVEL G

BUTTONS COMBINATIONS

Function	Button 1	Button 2
Child Lock	8	7
Default Extra Rinse	9 (7*)	8 (6*)
Soft Plus(**)	9	8
Buzzer enable/disable	7	2
Demo mode	2	1
Diagnostic mode	2	1
Water Softener	8	3
Fluff Clean(***)	8	3

(*) Default Extra Rinse combination buttons for Top Load range are 7+6

(**) Soft Plus combination available only on Top Load range

(***) Fluff Clean available only on washer-dryer range

LEVEL E

BUTTONS COMBINATIONS

Function	Button 1	Button 2
Child Lock	8	7
Default Extra Rinse	7 (9*)	6 (8*)
Buzzer enable/disable	7	2
Soft Plus(**)	9	8
Water Softener	8	3
Fluff Clean(***)	8	3
Demo mode	2	1
Diagnostic mode	2	1
Remote mode	5	4

(*) Default Extra Rinse combination buttons for Australian range and washer-dryer are 9+8

(**) Soft Plus combination is not available for Australian market and washer-dryer ranges

(***) Fluff Clean available only on washer-dryer range

LEVEL C

BUTTONS COMBINATIONS

Function	Button 1	Button 2
Child Lock	8	7
Default Extra Rinse	7 (10*)	6 (9*)
Buzzer enable/disable	7	2
Soft Plus (**)	10	9
Water Softener	8	3
Fluff Clean(***)	8	3
Demo mode	2	1
Diagnostic mode	2	1
Remote mode	5	4

(*) Default Extra Rinse buttons combination for washer-dryer range are 10+9, for other ranges the buttons are 7+6.

(**) Soft Plus combination is not available for washer-dryer range.

(***) Fluff Clean available only on washer-dryer range.

ON/OFF BUTTON

All the other aesthetics levels of AEG ONE range have a dedicated mechanical tact-switch button for On/Off function always present. The Off function does not disconnect the machine from the mains supply, but put the appliance in a special low power consumption mode. The 0-Watt power consumption circuit that completely disconnects machine from the mains supply is not supported in Project ONE AEG range based on EWX13 and EWX14 main board electronic platforms. The user has to unplug machine to disconnect mains power.

To switch on the appliance press shortly the On/Off button. The user interface plays the dedicated jingle and switches the lights and display on according to default programme.

To switch off the appliance, press and hold a bit longer (about 250 msec) the On/Off button. The user interface plays the dedicated jingle and all lights and display are switched off. All previously selected options and the possible program in progress are reset, so that at next machine switching on the default washing program is selected.

LOW POWER CONSUMPTION MODES

The machine is put in low power consumption mode to avoid wasting energy when the cycle is not running, in accordance with international standards in terms of energetic consumption normative.

The low power mode in this document is referenced as **Stand-Off**.

STAND-OFF MODE BEHAVIOUR

This mode applies to all UI levels where On/Off button is provided.

The appliance goes in Stand-Off mode when it is "virtually switched off" by pressing On/Off button or the user does not interact with control panel for 5 minutes during program setting up or after that cycle has finished (auto stand-by). The machine is "virtually switched off" because all LEDs and display are lighted off and buttons are disabled, but the electronic boards are supplied anyway.

To cut out mains supply the appliance needs to be unplugged.

The appliance exits Stand-Off mode when the user presses the On/Off button to switch machine on.

The Stand-Off mode works in two ways:

- **when pushing the Off button**, the electronics goes in stand-by after some time, after having set machine in safety conditions (motor stops, door is kept locked if already locked). Cycle is reset, previously selected options are cleared so that next machine switching on the default programme is prompt (and door unlocked if previously was locked);
- **after 5 minutes without interaction with the customer**, the user interface lights completely off and the electronics goes automatically in stand-by for energy saving purposes in accordance with power consumption norms. The selected programme and options are kept so that the next machine switching on the same programme is prompt, provided that the knob hasn't been moved in the meantime. In this way, if auto stand-by occurs in cycle end phase, the customer is aware the cycle finished normally and can restart it if desired. If auto stand-by occurs during programme setup, the cycle and options are kept anyway, in case customer takes more than 5 minutes to load and start the cycle. Automatic stand-by is disabled in case an alarm is displayed.

In the former case, switching machine off when door is locked, it is necessary waiting about 1-2 minutes before the door lock device is released.

PROGRAMME SELECTOR KNOB (LEVEL K)

The selector knob is used to select the desired washing programme or to reset the cycle in progress; it moves both in clockwise and counter clockwise direction.

It is of standard "absolute" type, that is the programme selection is done "pointing" the desired graphic with the knob index.

The number of position is 15 (reset position included) and it is not configurable.

The position ⏻ is reserved for the "Reset" function, which stops and resets the possible running programme. When the selector is in this position the user interface shows only three dashes ("- - -") on time digits to indicate that no program is selected.

Programmes layout around the main knob is configurable, with the following constraints:

- Temperatures are always selected separately, via dedicated pushbutton;
- The programme Cottons Economy (Energy Label) is compulsory;
- The programmes Drain and Spin (to drain only or spin only) are compulsory;

HI-FI SELECTOR

The program selector knob works as a Hi-fi selector.

The number of position is not configurable and it is always 10, since it is strictly linked to the program lights.

Programmes layout around the main knob is configurable, with the following constraints:

- Temperatures are always selected separately, via dedicated button;

Compared to a traditional absolute selector, the Hi-fi one has no index on the knob and no reset position. The knob itself doesn't point to any position in the control panel; hence the selected programme is indicated by the associated LED.

To reset a cycle in progress just press the On/Off button.

When the machine is switched on, the top LED position is selected by default (if no "special modes, e.g. diagnostic, return from power fails, demo mode etc). When the rotary is turned clockwise or anti-clockwise in setup, the corresponding LED of selected programme is lighted on and the display info changes accordingly.

BUZZER

A multi-tone buzzer is provided to sound in following cases:

- switching machine on and off, with 2 different short jingles;
- pressing a button, with a very short "click" sound;
- when a selection error occurs, with three very short "click" sounds;
- when the cycle is finished, for about 2 minutes with a specific sequence of beeps;
- when alarms/warnings occur, for about 5 minutes with a specific sequence of short beeps;
- when laundry overload is detected in case of Optisense 2.0/3.0 machines, double beep played once.

The buzzer can be active or not by configuration; anyway **the default factory setting has to be active** to meet the norms regarding eyesight handicap people. To deactivate it the specific push buttons combination has to be used (see "Buttons Combinations" paragraph).

When deactivated the buzzer doesn't play the cycle end melody, while sounds anyway in all other cases.

Volume level is pre-fixed and can't be changed by user. The behaviour is the same for all UI levels.

FAULTS/WARNINGS SIGNALS

SELECTION ERROR

The selection errors are noticed to customer by a specific buzzer melody.
The selection errors are given in following cases:

- when an incompatible option button with selected washing program has been pressed;
- when an option button is pressed or the selector is moved during the cycle execution.

During the first minutes of the cycle, the machine estimates the quantity of loaded laundry to better adapt the cycle profile and duration to effective load. This phase is called "Optisense". Depending to machine configuration (motor type) there are two types of Optisense, below described.

Optisense 1.0 (universal motor): the traditional way to estimate laundry load by monitoring the water fillings trend during the first 10-15 minutes of a washing program. The feedback is given by showing blinking in the display the "kg" symbol and ":" dot points of time digits (see figure below). Once laundry load is calculated, "kg" icon goes off, ":"dot points are steady and new cycle duration is updated on time digits.

 Grey icons not used, yellow circled icons flashing

Optisense 2.0 (inverter/PM motors): the laundry load is estimated by monitoring the motor movement for 30 seconds just after cycle start before water filling. During this time, the feedback is given by showing blinking in the display the "kg" symbol and ":" dot points of time digits, cycle time is steady. After calculation, motor stops and the cycle waits further 30 seconds before loading water and starting washing. On display, new cycle duration is updated with steady ":"dot points, while Optisense digits show for 30 seconds:

- nothing if laundry load is below the maximum declared weight for selected program;

- the maximum declared weight (e.g "9.0 kg max") with "max" symbol blinking if laundry overload detected (not showed on S6 level; showed also at cycle end in case of washer-dryer). Besides, the buzzer plays a double beep once to signalize the overload condition.

 Yellow circled icons flashing

During these 30 seconds the customer can put the machine in pause to unlock the door and possibly add or remove garments in case of overload; pressing start, the laundry load estimation will take place another time.

Washing machines equipped with weight sensor (**and instant door lock device with micro-switch that is necessary to sense the opening of door porthole**) show info concerning the amount of laundry inside the drum and the suggested detergent dosage.

The sensor works only when the machine is switched on in programme setup phase and the door porthole is opened. While loading the laundry the weight is shown in kilograms format with a precision of half a kilo.

The recommended sequence of operations to display the correct weight information, starting from machine switched-off and empty drum, is:
1. Switch machine on via On/Off button; default program info appear on display;
2. Turn program selector to desired program position, the max declared weight for selected program is showed on weight digits (e.g "9.0 kg max"); if door porthole is open after 3 seconds appears "0.0 kg" to indicate machine is ready to weigh the laundry;
3. Adjust washing options if desired;
4. If door porthole is closed at switch-on, the door must be opened to show the measured weight info;
5. Load the laundry, the weight info and cycle time are refreshed in the digits;
6. In case laundry weight is over the allowed maximum load (overload) the display shows for 3 seconds the declared maximum load for selected program with steady figures and the "max" symbol flashing. In this case some laundry should be unloaded until the measured value goes under maximum allowed (to ensure the washing performance);
7. Close the door, weight info is no longer displayed and detergent dosage info appears: the percentage is shown in digits together with the associated measuring cup and % symbols. **The detergent dosage percentage is calculated on the basis of the declared maximum load for the selected washing programme**. The max. value shown will be 100% irrespective of any degree of overloading;
8. Dose the detergent and press start button to begin the cycle. Now also the detergent info will disappear (weight and dosage information will no more displayed during the cycle).

If the selected programme is changed after step 5 (door is still open) the related max declared weight info is showed for 3 seconds, and in case the max. load is then exceeded the "max" symbol flashes. For example a 5 kg load or more in a Synthetics programme will give an overload warning, while 4.5 kg will not. In the same example, if the selected programme is changed after step 6 (the door has already been closed) the detergent dosage percentage would become 100% and the door should then be re-opened to check for possible laundry overloading.

Another instance of de facto changing the programme like going from Cottons to a more delicate programme would be if an automatic drying button is activated after the loading has started. If the door is still open, the max. weight info would change and any overload alert/warnings would be given as described above. If the door is already closed, the "100% detergent" message will be the only sign to the user to open the door to check the actual weight.

Switching the machine off and on via On/Off button will reset the weight sensor and the measure restarts from 0.0 kg; possible laundry inside drum is not taken in account, so the drum should be unloaded to allow the sensor's tare calibration.

The *Water Softener* feature is used to improve the washing performance by using softened water during the washing phase of the cycle. By pressing the *"Water Softener"* button combination the appliance enters a specific setting mode through which the user can:

- configure the *water hardness* value;
- enable the use of the softened water also during the *rinsing phase* of the cycle, to get an even better result;
- *disable* the Water Softener feature at all.

When the *Water Softener setting* mode has been entered all LEDs are switched off and the display shows the current status of the Water Softener feature:

- **POne**
  - wash phase icon to indicate the water softener is used in washing phase only;
  - "C0" on time digits to indicate the water hardness degree level

Pressing the lower button of key combination, the water softener mode changes: rinse phase icon is added to indicate the soft water is used also during the rinsing phase (fig.4). Pressing the button again the usage of soft water is disabled (fig.5).
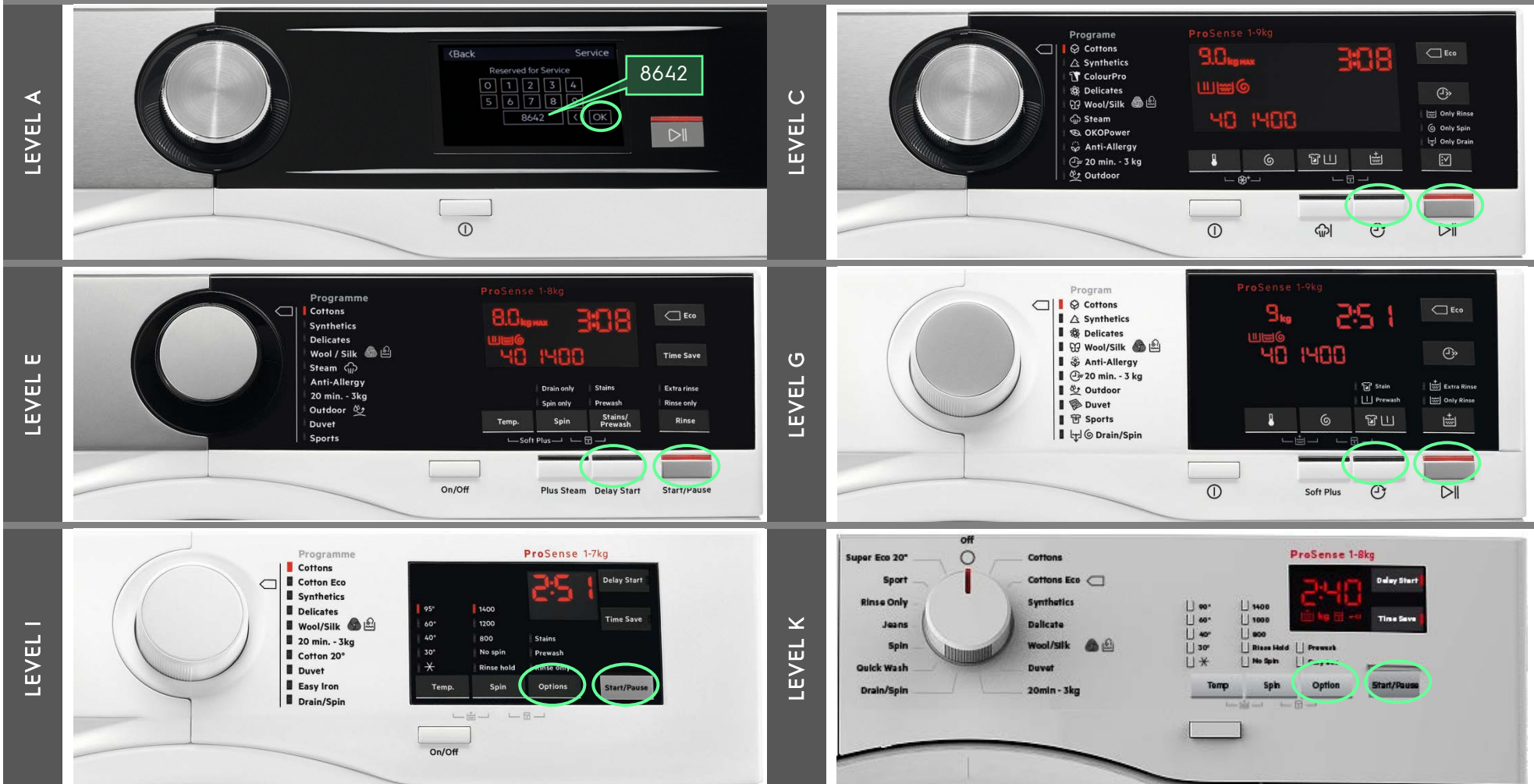Pressing the upper button of key combination, the water hardness degree changes from lower level C01 (fig.1), to C02, C03 (fig.2) up to highest level C07 (fig.3).

Once the setting is done, pressing the Start/Pause key to exit the mode, the normal program info is showed again.
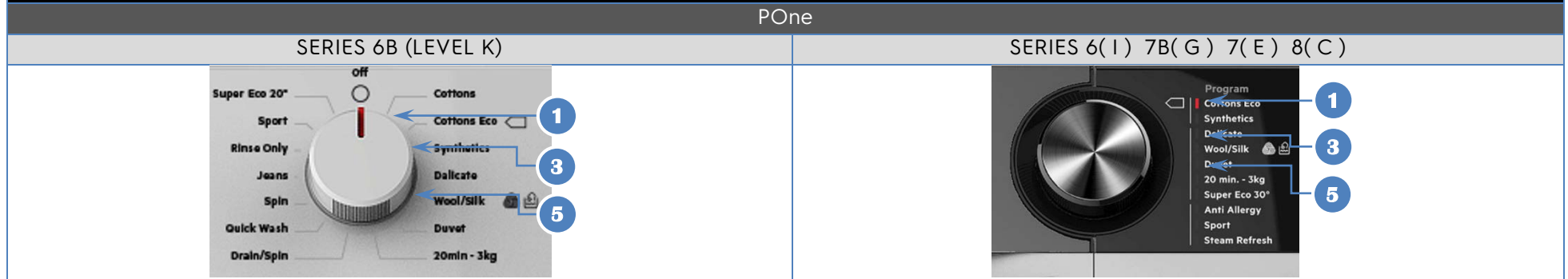

| Fig.1 | Fig.2 | Fig.3 | Fig.4 | Fig.5 |

POne - DIAGNOSTIC/DEMO MODE key combination highlighted in green

LEVEL A

‹Back   Service

Reserved for Service

0 1 2 3 4
5 6 7 8 9

8642   ‹ OK

8642

LEVEL C

Programe — ProSense 1-9kg
Cottons
Synthetics   9.0kg MAX   3:08
ColourPro
Delicates
Wool/Silk   40 1400
Steam
OKOPower
Anti-Allergy
20 min. - 3 kg
Outdoor

Eco

Only Rinse
Only Spin
Only Drain

LEVEL E

Programme — ProSense 1-8kg
Cottons
Synthetics   8.0kg MAX   3:08
Delicates
Wool / Silk   40 1400
Steam
Anti-Allergy
20 min. - 3kg
Outdoor
Duvet
Sports

Eco

Time Save

Drain only | Stains | Extra rinse
Spin only | Prewash | Rinse only

Temp. | Spin | Stains/Prewash | Rinse

Soft Plus

On/Off   Plus Steam   Delay Start   Start/Pause

LEVEL G

Program — ProSense 1-9kg
Cottons
Synthetics   9kg   2:51
Delicates
Wool/Silk   40 1400
Anti-Allergy
20 min. - 3 kg
Outdoor
Duvet
Sports
Drain/Spin

Eco

Stain | Extra Rinse
Prewash | Only Rinse

Soft Plus

LEVEL I

Programme — ProSense 1-7kg
Cottons
Cotton Eco   2:51
Synthetics
Delicates   Delay Start
Wool/Silk   95° 1400
20 min. - 3kg   60° 1200   Time Save
Cotton 20°   40° 800 Stains
Duvet   30° No spin Prewash
Easy Iron   * Rinse hold Rinse only
Drain/Spin

Temp. | Spin | Options | Start/Pause

On/Off

LEVEL K

Off

Super Eco 20"   Cottons — ProSense 1-8kg
Sport   Cottons Eco   2:40
Rinse Only   Synthetics
Jeans   Delicate   90° 1400   Delay Start
Spin   Wool/Silk   60° 1000   Time Save
Quick Wash   Duvet   40° 900
Drain/Spin   20min - 3kg   30° Rinse Hold Prewash
    * No Spin Only Rinse

Temp | Spin | Option | Start/Pause

Specific mode is entered according to the position of the main knob or according the program selected + DIAGNOSTIC MODE key combination pressed	
POne	
SERIES 6B (LEVEL K)	SERIES 6(I) 7B(G) 7(E) 8(C)

Position 1	Position 3	Position 5
DIAGNOSTIC MODE	DEMO MODE	WORKING HOURS COUNTER
Is selected by default at machine switching on, hence to enter in Diagnostic mode just press the diagnostic buttons combination.	To enter Demo mode: ▪ rotate the Hi-fi selector and wait for 3rd position related LED feedback before pressing keys combination	To enter Working Hours Display mode: ▪ rotate the Hi-fi selector and wait for 5th position related LED feedback before pressing keys combination
Time to set from machine switching on		
10 sec	10 sec	10 sec

Selecting the factory test cycles

In case of POne levels, to select the factory test cycles:

▪ turn program selector dial to a position
▪ rotate the Hi-fi selector and wait for related LED feedback for selected position.
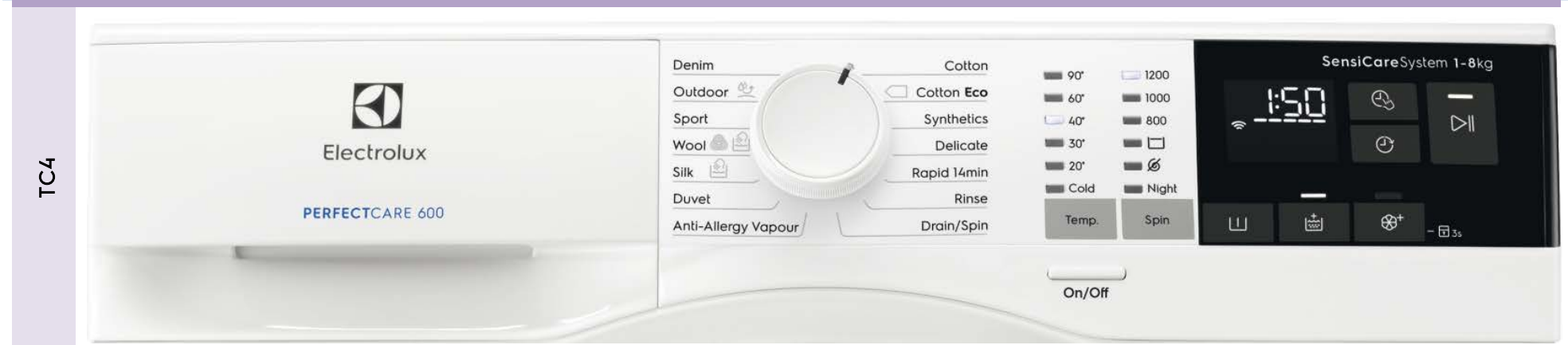
TC5 LEVEL
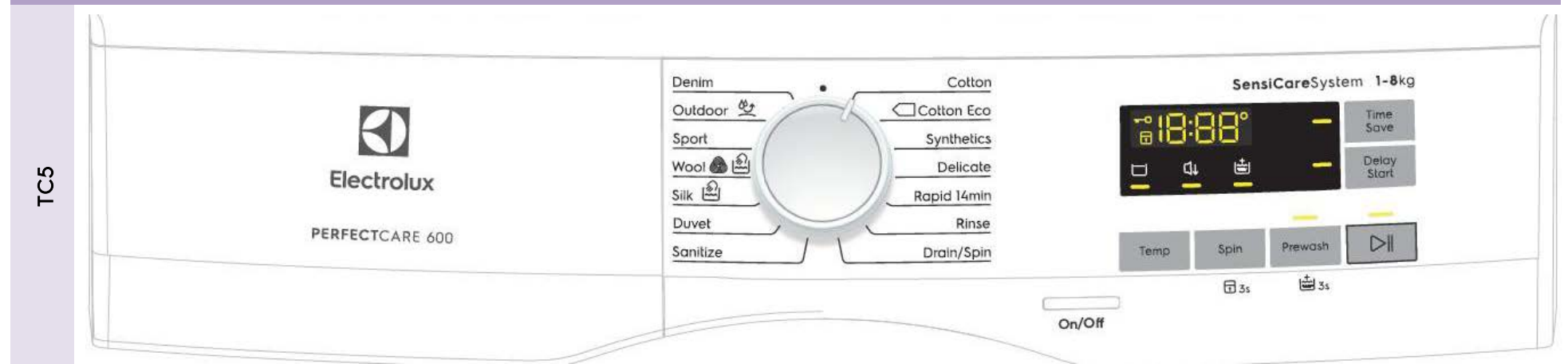
BUTTONS COMBINATIONS

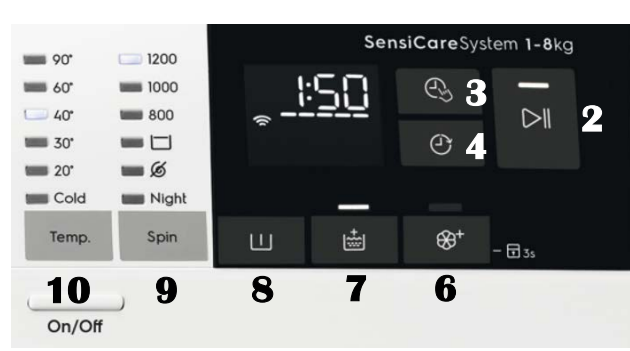| Function	Button 1	Button 2
Child lock	6[*]	6[*]
Extra rinse	5[*]	5[*]
Buzzer enable/disable	4	3
Demo mode	4	2
Diagnostic mode	4	2
Wi-Fi ON/OFF (**)	–	–

The keys combination marked with (*) is the graphical representation of the long pressure touch: it involves the same button number, listed in both columns.

(**)Wi-Fi ON/OFF is not applicable to this level.

BUTTONS COMBINATIONS

Function	Button 1	Button 2
Child lock	6	6
Buzzer enable/disable	10	9
Extra rinse	-	-
Demo mode	3	2
Diagnostic mode	3	2
Wi-Fi ON/OFF (*)	4	3

(*)Wi-Fi ON/OFF is provided for future use

BUTTONS COMBINATIONS

Function	Button 1	Button 2
Child lock	6	6
Buzzer enable/disable	10	9
Extra rinse	-	-
Demo mode	3	2
Diagnostic mode	3	2
Wi-Fi ON/OFF (*)	4	3

(*)Wi-Fi ON/OFF is provided for future use

BUTTONS COMBINATIONS

Function	Button 1	Button 2
Child lock	5	5
Buzzer enable/disable	10	9
Extra rinse	-	-
Detergent dosing setting (*)	6	5
Water Softener (**)	8	7
Demo mode	3	2
Diagnostic mode	3	2
Wi-Fi ON/OFF (***)	4	3

(*) Detergent dosing setting combination must be set only on machines with Weight Sensor present

(**) Water Softener combination must be set only on machines with Water Softener feature present

(***)Wi-Fi ON/OFF is provided for future use.

ON/OFF BUTTON

All the aesthetics levels of Elux Diamond range have a dedicated mechanical tact-switch button for *On/Off* function. The Off function does not disconnect the machine from the mains supply, but puts the appliance in a special low power consumption mode. The 0-Watt power consumption circuit that completely disconnects machine from the mains supply is not supported in Elux Diamond range based on EWX13 and EWX14 main board electronic platforms. The user has to unplug machine to disconnect mains power.

To **switch on** the appliance press shortly the *On/Off* button. The user interface plays the dedicated jingle and switches the lights and display on according to default programme.

To **switch off** the appliance, press and hold the *On/Off* button for 1 second. The user interface plays the dedicated jingle and all lights and display are switched off. All previously selected options and the possible program in progress are reset.

LOW POWER CONSUMPTION MODES

The machine is put in low power consumption mode to avoid wasting energy when the cycle is not running, in accordance with international standards in terms of energetic consumption normative. The low power mode in this document is referenced as **Stand-Off**.

STAND-OFF MODE BEHAVIOUR

In Stand-off mode the machine is "virtually switched off" because all LEDs and display are lighted off and buttons are disabled, but the electronic boards are supplied anyway.

To cut out mains supply the appliance needs to be unplugged.

The appliance exits Stand-Off mode when the user presses the *On/Off* button to switch machine on.

The Stand-Off mode works in two ways:

- **when pushing the *On/Off* button**, the electronics goes in stand-by after some time, after having set machine in safety conditions (motor stops, door is kept locked if it already was). Cycle is reset, previously selected options are cleared so that at next switching on the programme pointed by the selector knob is reloaded with its default settings (and door unlocked if previously was locked);
- **if the user doesn't interact with the appliance in any way for 30 seconds or 5 minutes, respectively in the case that the selector knob is pointing to the *Reset* position or another one**, the user interface switches off and the electronics goes automatically in stand-by. All the settings done by the user are remembered at the next switching on, provided that the knob hasn't been turned to another position meanwhile. In this way, if auto stand-by occurs in cycle end phase, the customer is aware that the cycle finished normally and can restart it if desired. If auto stand-by occurs during programme setup, the cycle and options are kept anyway, in case customer takes more than 5 minutes to load and start the cycle. Automatic stand-by is disabled in case an alarm is displayed.

In the event that the appliance is unplugged or the power line fails after the door was locked, the door will remain locked until the appliance is switched on again and safety conditions are verified (no water in the drum, motor stopped). Some appliances may provide a mechanical override to let the user open forcibly the door in case of black out or similar events.

PROGRAMME SELECTOR KNOB

The selector knob is used to select the desired washing programme or to reset the cycle in progress; it can be moved both in clockwise and counter clockwise direction. It is of standard "absolute" type, i.e. the programme selection is done "pointing" the desired graphic with the knob index.

The total number of positions is 15 and it is not configurable.

The **12 o'clock position** is reserved for the *Reset* function, which stops and resets any possible running programme. When the selector is in this position the time digits and, where available, temperature and spin speed digits are filled with dashes ("---") and the Start/Pause LED remains off meaning that no program is selected and the appliance can't be started.

Every other position recalls a program as specified in the Machine Configuration (MCF). The layout of the programmes around the main knob is configurable, with the following constraints:

- Temperatures are always selected separately, via dedicated pushbutton;
- The programme Cottons Economy (Energy Label) is compulsory;

BUZZER

A multi-tone buzzer is provided to sound in following cases:

- switching machine on and off, with 2 different short jingles;
- pressing a button, with a very short "click" sound;
- when a selection error occurs, with three very short "click" sounds;
- when the cycle is finished, for about 2 minutes with a specific sequence of beeps;
- when alarms/warnings occur, for about 5 minutes with a specific sequence of short beeps.

The buzzer can be active or not by configuration; anyway **the default factory setting has to be active** to meet

the norms regarding eyesight handicap people. To deactivate it the specific push buttons combination has to be used.

When deactivated the buzzer doesn't play the cycle end melody, while sounds anyway in case of button "click" and selection error/alarms occurrence.

Volume level is pre-fixed and can't be changed by user. The behavior is the same for all UI levels.

FAULTS/WARNINGS SIGNALS

SELECTION ERROR

The selection errors are signalled to customer by a specific buzzer melody and the TTE digits show "---" for 1 s.

The selection errors are given in following cases:
- when an incompatible option button with selected washing program has been pressed;
when an option button is pressed or the selector is moved during the cycle execution.

On the appliances without weight sensor, when a *Time Manager* program is run and the user didn't change the default *Time Manager* level, during the first minutes of the cycle the machine estimates the quantity of laundry in the drum to adapt the cycle profile and duration to the effective load through an algorithm called "Optisense". Depending on the characteristics of the appliance (configuration and motor type) it can be implemented in two versions:

Optisense 1.0: the laundry load is estimated by monitoring the trend of the water fillings during the first 10-15 minutes of the cycle. During this phase, on TC5 level the two dots of time digits blink, while any other level show a simple animation on the *Time Manager* bars placed below the time digits.

Once laundry load is calculated, the *Time Manager* bars go off (TC2/3/4), the time dots stop blinking (TC5) and new cycle duration is updated on time digits.

(end of Optisense phase)

Optisense 2.0/3.0: *(not available on TC5 level)* the laundry load is estimated by monitoring the motor movement between the start of the cycle and the first water filling (~30 seconds). During this time, the *Time Manager* bars play a simple animation just like Optisense 1.0. After calculation, motor stops and the cycle waits further 30 seconds before loading water and starting washing. On display, new cycle duration is updated and the *Time Manager* bars go off, while weight digits show for 30 seconds:

– nothing if laundry load is below the maximum declared weight for selected program;
– the maximum declared weight (e.g "9.0 kg max") with MAX symbol blinking if laundry overload.

 Red boxed icons flashing

During these 30 seconds the customer can pause the machine to unlock the door and possibly add or remove garments in case of overload; pressing start, the laundry load estimation will take place another time.

Washing machines not equipped with a weight sensor show the recommended load for the current program while the user is setting it up, regardless of the status of the door. As soon as the cycle is started, this field turns off; the recommended load might be shown again if the Optisense algorithm detects an overload.

 Washing machines equipped with a weight sensor show info concerning either the amount of laundry inside the drum and the suggested detergent dosage. The sensor works only when the machine is switched on in programme setup phase and the door porthole is opened. While loading the laundry the weight is shown in kilograms format with a precision of half a kilo.

The recommended sequence of operations to display the correct weight information, starting from machine switched-off and empty drum, is:

1. Switch machine on via *On/Off* button; default program info appear on display;
2. Turn program selector to desired program position, the max declared weight for selected program is shown on weight digits (e.g. "9.0 kg max"); if door porthole is open after 3 seconds "0.0 kg" appears to
3. indicate that the machine is ready to weigh the laundry;
4. Adjust washing options if desired;
5. If door porthole is closed at switch-on, it must be opened to show the measured weight info; Load the laundry; the weight info and cycle time are refreshed in the digits;
6. In the case that the laundry weight exceeds the allowed maximum load (overload) by more than 1 kg the display shows for 3 seconds the declared maximum load for selected program with steady figures and the "MAX" symbol flashing. In this case some laundry should be unloaded until the measured value goes under maximum allowed (to ensure the washing performance);
7. Close the door, weight info is no longer displayed and detergent dosage info appears. **The detergent dosage is calculated as a function of the current (measured) load and the maximum load declared for the programme,** being 30% the dosage associated to the minimum load and 130% the dosage associated to the maximum load (in case of overload, the percentage is anyway limited to 130%). If the user set a valid value in the "Detergent dosing setting" menu, the dosage will be expressed as an absolute volume in ml, else the dosage will be expressed as a percentage;
8. Dose the detergent and press *Start/Pause* button to begin the cycle. Now also the detergent info will disappear (weight and dosage information will no more displayed during the cycle).

If the selected programme is changed after step 5 (door is still open) the related max declared weight info is shown for 3 seconds, and in case the maximum load is then exceeded the "MAX" symbol flashes. For example a 5 kg load or more in a Synthetics programme will give an overload warning, while 4.5 kg will not. In the same example, if the selected programme is changed after step 6 (the door has already been closed) the detergent dosage percentage would become 130% and the door should then be re-opened to check for possible laundry overloading.

Another instance of de facto changing the programme like going from Cottons to a more delicate programme would be if an automatic drying button is activated after the loading has started. If the door is still open, the max. weight info would change and any overload alert/warnings would be given as described above. If the door is already closed, the "130% detergent" message will be the only sign to the user to open the door to check the actual weight.

Switching the machine off and on via *On/Off* button will reset the weight sensor and the measure restarts from 0.0 kg; possible laundry inside drum is not taken in account, so the drum should be unloaded to allow the sensor's tare calibration.

The *Water Softener* feature is used to improve the washing performance by using softened water during the washing phase of the cycle. By pressing the *"Water Softener"* button combination the appliance enters a specific setting mode through which the user can:

- configure the *water hardness* value;
- enable the use of the softened water also during the *rinsing phase* of the cycle, to get an even better result;
- *disable* the Water Softener feature at all.

When the *Water Softener setting* mode has been entered all LEDs are switched off and the display shows the current status of the Water Softener feature:

- **Diamond**

The following picture represents the factory setting values (water hardness level = 4; softened water not used during rinses):
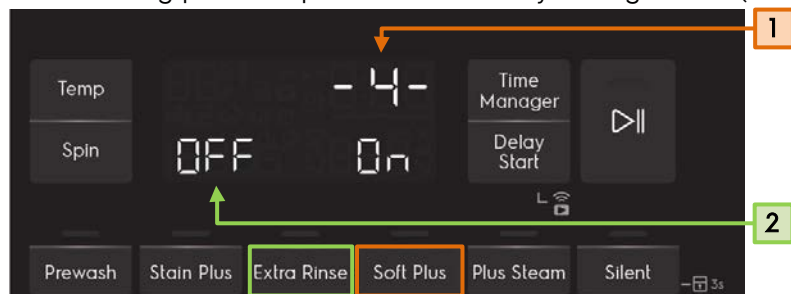
1 Softened water also for **rinses**
2 **Water hardness** level and general status of **Water Softener** feature

As long as this mode is enabled, the user can press the **left button** of the combination alone *Extra Rinse* to enable or disable the use of softened water during *rinsing phase*. The spin speed digits and the *Extra Rinse* icon will show the updated value in the following way:

Similarly, the user can set a different *water hardness* value, or even turn off the Water Softener feature at all, by pressing the **right button** alone *Soft Plus*. The hardness level is shown in the cycle time digits while the weight digits show the general status ("Off"/" On").
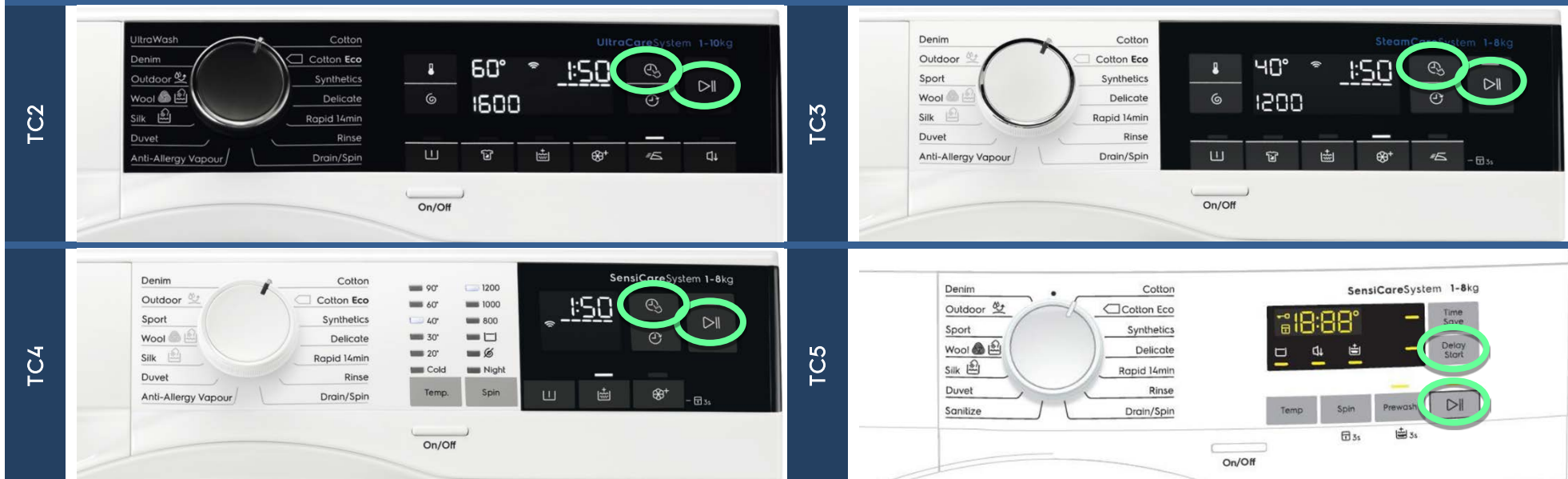

Any change in the settings is effective immediately.
The *Water Softener setting* mode is exited if the user doesn't press any key for 5 seconds.
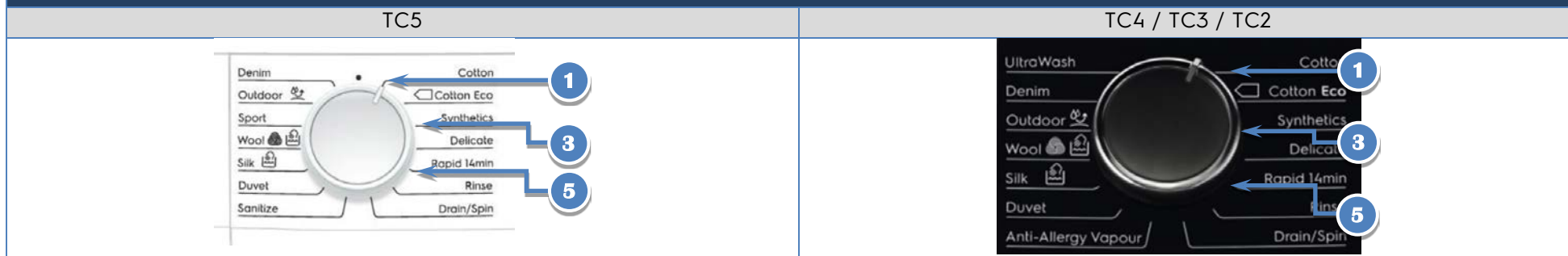
Diamond - DIAGNOSTIC/DEMO MODE key combination highlighted in green

TC2

TC3

TC4

TC5

Specific mode is entered according to the position of the main knob or according the program selected + DIAGNOSTIC MODE key combination pressed

DIAMOND	
TC5	TC4 / TC3 / TC2

Position 1	Position 3	Position 5
DIAGNOSTIC MODE	DEMO MODE	WORKING HOURS COUNTER
Is selected by default at machine switching on, hence to enter in Diagnostic mode just press the diagnostic buttons combination.	To enter Demo mode: ▪ turn the selector knob to the 3rd position	To enter Working Hours Display mode: ▪ turn the selector knob to the 5th position
Time to set from machine switching on		
10 sec	10 sec	10 sec

Selecting the factory test cycles		
DIAMOND		In case of Diamond levels, to select the factory test cycles: ▪ turn program selector dial to a position

Using a specific procedure, the operator can display the total operating time for the appliance, which is counted from the moment it is first switched on.
The unit can count up to a maximum of **6 550** hours of operating time.

- Only the operating time of normal programmes (and not diagnostic cycles) is counted
- The actual operating time for the cycle is counted (which does not include pauses, delayed start time, rinse hold time and soaking phases)
- The precision of the counter is 30 seconds per programme.
- Only whole hours of operation are counted (1hr and 59 min = 1hr)

⚠️	**Working hours** Dispplay
	▪ The thousands digit is showed only when value is over 999, the rule is valid for all platforms

	▪ Examples:
	   15 = Hr 0 15
	   150 = Hr 1 50
	   1550 = Hr 15 50

This time is displayed with a sequence of two digits at a time: the first two digits indicate thousands and hundreds, the second two digits indicate tens and units. For example, if the operating time is 6,550 hours, the display will show the following sequence:

	Phase 1	Phase 2	Phase 3
	For 2 sec it displays **Hr**	For 2 sec the following digits are displayed: • Thousands – 6 • Hundreds – 5	For the next 2 sec the following digits are displayed: • Tens – **5** • Units – **0**
Display	`Hr`	`65`	`50`

At the end of phase three (after the tens and units are displayed), the cycle is repeated.

To return to normal mode, either: switch the appliance off or press a button or turn the selector knob.

7 DEMO MODE

In the shops and exhibitions sometime it could be necessary to show to the customer the machine behaviour in set-up condition and also during cycle execution. The duration of a cycle execution is in any case too long for a brief show.

The Demo works in two ways: one interactive mode and one automatic loop.

The interactive mode enables the user to try the interface without activating the appliance. If no one has interacted with the interface for 3 minutes, or Start button hasn't been pushed, it proceeds to display an automatic loop instead, simulating the cycle execution only on display.

DEMO mode alters the execution of a cycle in such a way that these problems are avoided:
- In set-up state the machine behaviour is the same of the user mode one.
- During cycle execution all times are shorter.
- No water load/drain is executed: it means that if it's necessary to show machine running with water inside the drum, it's loaded by hand and never drained (no spin phases are executed in this case). All the user interface functionality is shown as in the normal condition (time to end …).

For top-loader appliances, while DEMO mode is active, only set-up phase is available (START/PAUSE button is disabled), since without the porthole the motor moving can't be seen and so it is useless.

ENTERING DEMO MODE

As described before, to enter in this mode the procedure is the following:
- Switch on the machine via On/Off button if present or turn program selector knob out of Off position and **do not press any other button**;
- Turn the selector in the 3rd position CW;
  in case of Hi-Fi type selector, the 3rd upper light of right side program LEDs switches on;
- Press and hold for some seconds the defined key combination (START/PAUSE and the closest one);
  - ☞ Within about 3 seconds the acknowledge of the operation is given by:
    - the text "dEM" blinking 3 times on cycle time digits
- In no acknowledge, switch machine off and repeat sequence from the beginning.

⚠️	**Information** "DEMO mode"
	▪ Once the DEMO mode is set, after each machine switching on DEMO mode is automatically recalled; this occurrence is signalled after some seconds from the start-up by the text "dEM" flashing 3 times.
	▪ To exit the DEMO mode the machine has to be unplugged from mains net.

8   DIAGNOSTIC MODE

This mode is used in several conditions:
- In factory assembly line to perform a manual test of the machine functionality (final assembly test).
- By service people to check for faults and repair the machine.
- In the labs to check the right machine functionality.

ENTERING DIAGNOSTIC MODE

As described before, to enter in this mode the procedure is the following:
- Switch on the machine via On/Off button if present or turn program selector knob out of Off position, and **do not press any other button**;
- Turn the selector in the 1st position CW;
  in case of Hi-Fi type selector, the 1st upper light of right side program LEDs switches on;
- Press and hold for about 3 seconds the defined key combination (START/PAUSE and the closest one);
  - Within about 3 seconds the UI shall enter the diagnostic mode; the acknowledge of the operation is given by all LEDs and groups of display icons switching on sequentially; otherwise, switch machine off and repeat sequence from the beginning.

⚠	**Information** "DIAGNOSTIC mode"
	▪ If the key combination is recognised within 10 seconds since the machine was switched on (via On/Off button), a DIAGNOSTIC mode is entered
	▪ To exit from DIAGNOSTIC mode it's sufficient to switch off the machine. ▪ According to the machine configuration, at the next machine switching on the electric test cycle may be activated. To stop it, switch off again the machine.

9   DIAGNOSTIC PROGRAM DEFINITION

In the 1st selector the User Interface test is performed; all LEDs or LCD symbols are lighted on sequentially to allow checking the outputs. For each LCD display a specific sequence of screens is performed in order to test all icons and backlight LEDs.

Pressing any button the associated LEDs and display icons are lighted on and the related position number is shown on cycle time (TTE) digits if present, till button is released; besides, the buzzer plays a single "beep" sound (mechanical switch) or "click" sound (touch sensor).

When the selector knob is moved the TTE digits show the "C" letter followed by the knob position code for about 2 seconds.

> ⚠️ **Information**
> Enter "last alarm display" or "electric test"
>
> After the diagnostic mode was entered, the same combination has the following functions:
> - In "last alarm display" selector position (the 11th counting clockwise) the last alarms are cleared.
> - In all other positions it sets the "electric test" mode at the next machine switching-on.

FOR ANY POSITION THERE IS A DIFFERENT TEST:

POSITION	VERSION			DESCRIPTION
1	EWX11	EWX13	EWX14	User Interface Test
2	EWX11	EWX13	EWX14	Water load from wash compartment
2 extended	-	-	EWX14	Water load from salt box, and pump activation (fast "Regeneration" process)
3	EWX11	EWX13	EWX14	Water load from prewash compartment
4	EWX11	EWX13	EWX14	Water load from softener compartment
5	EWX11	EWX13	EWX14	Water load from third electro valve
6	EWX11	EWX13	EWX14	Water load from fourth electro valve (hot electro valve if present)
7	EWX11	EWX13	EWX14	Wash heater activation and weight sensor test (if present)
7 extended	-	-	EWX14	Concentrated Wash pump activation (if present)
8	EWX11	EWX13	EWX14	Spin phase at 250 rpm with water in the tub (leakage test)
9	EWX11	EWX13	EWX14	Drain, level sensor calibration and spin phase at maximum spin speed
10	EWX11	EWX13	EWX14	Drying loads activation/Ultra Aqua Stop device/ Water softer device test
10 extended	-	-	EWX14	Niux/WI-FI test
11	EWX11	EWX13	EWX14	Last alarm display and possible reset

The test cycles are working only if:
– There is no communication error between main board and user interface.
– The machine is configured with a valid configuration (no configuration alarm).

▪ In case of MB-UI communication alarm, the only test available is the user interface test, because the user interface can be tested alone only supplying the 12 Volts.
▪ Pressing together the key combination during one of the diagnostic cycles (from position 2 to 10) the machine will set in electric test mode at the next power on.
▪ Pressing together the key combination in the last alarm display position (11), the alarm codes that were stored in memory will be reset.
▪ Pressing another valid key combination (the ones configured for Child Lock, Extra Rinse…) during one of the diagnostic cycles (from position 2 to 10) the factory default settings are restored, that is:
  o disable permanent modes/options such as Child Lock, Extra Rinse, Buzzer;

During the test the LCD will show some data concerning the cycle being performed. The details are explained in the following tables, which also specify, for each selector position, the purpose of the associated test, the components activated and the conditions under that the test is performed.

C01	USER INTERFACE TEST
Selector-test position:	**Position 1** in clockwise direction or in test sequence (TC1).
Purpose of test:	To test the functionality of all lights, switches and buzzer.
Activated components:	All LEDs, LCD display (if present) and buzzer
UI behaviour with display:	All LEDs in sequence, pushing a button correspondent LED is lighted on, the key number is showed on LCD and the buzzer sound. All LCD icons blink together ☞ *See the descriptions below*
UI behaviour without display	All led in sequence, pushing a button correspondent led is lighted on and the buzzer sound. ☞ *See the descriptions below*
Working conditions:	There isn't any control to run the test (always active).

TEST OF OUTPUTS

All visible LEDs are switched on singularly and sequentially for about 300 milliseconds.

POne / Diamond

The displays are LED modules (not LCD displays with backlight LEDs) and all the icons are switched on together. There is no backlight diffusion test.

Each time a button is pressed the buzzer plays a "beep" and the display shows only the key code on the time digit display.

The buzzer plays a "beep" sound each time a button is pressed and the display shows only . display shows only the key code on time digits.

TEST OF INPUTS

Pressing a button the LEDs icons sequence stops, the associated button LEDs are lighted on, the button position is displayed; if program LEDs present (Hi-Fi selector), also the light corresponding to button position is switched on (e.g. button 1 – top right LED, button 8 – bottom right LED, button 9 - bottom left LED...).

Moving the selector the LEDs icons sequence stops, the display clears and shows only on TTE digits the "C" or "d" letter, according to diagnostic test selected (normal "C" or extended "d") followed by the knob position code, and if program LEDs present (Hi-Fi selector), also the light corresponding to knob position is switched on.
After about 2 seconds the LEDs icons sequence restarts if knob left in position 1 or after the 11th, diagnostic info is showed if other position selected.

C02 WASH COMPARTMENT TEST	
Selector-test position:	Position 2 in clockwise direction or in test sequence (TC1).
Purpose of test:	To test the water loading from WASH compartment.
Activated components:	Door lock device, wash electric valve, diverter (if present).
UI behaviour with display:	The clock digits report the actual water level (in mm) in the washing group.
Working conditions:	Door locked, water level lower then overload level, for max. 5 minutes.

d02 WATER SOFTENER TEST	
Selector-test position:	Position 2 in clockwise direction + "start/pause" button pressure
Purpose of test:	To test the water softener module functionality.
Activated components:	Door lock device, wash electric valve, water softener devices (diverter and pump).
UI behaviour with display:	The clock digits report the status of the density and level float (i.e. 0-0). Density on the left digit (if present in the display, "salt" symbol is lit when density is "1"). Level on the right digit.
Working conditions:	Door locked, 2 water loads of about 100cc into the salt box (if level float is in empty condition). Delay of 1 minute to allow the brine to fall down into the box. Diverter to drain position until empty condition.

C03	PREWASH COMPARTMENT TEST
Selector-test position:	**Position 3** in clockwise direction or in test sequence (TC1).
Purpose of test:	To test the water loading from PREWASH compartment.
Activated components:	Door lock device, prewash electric valve, diverter (if present)
UI behaviour with display:	The clock digits report the actual water level (in mm) in the washing group.
Working conditions:	Door locked, water level lower then overload level, for max. 5 minutes.

C04	SOFTENER COMPARTMENT TEST
Selector-test position:	**Position 4** in clockwise direction or in test sequence (TC1).
Purpose of test:	To test the water loading from SOFTENER compartment.
Activated components:	Door lock device, wash and prewash electric valves.
UI behaviour with display:	The clock digits report the actual water level (in mm) in the washing group.
Working conditions:	Door locked, water level lower then overload level, for max. 5 minutes.

C05	THIRD ELECTROVALVE TEST
Selector-test position:	**Position 5** in clockwise direction or in test sequence (TC1).
Purpose of test:	To test the water loading from third electrovalve.
Activated components:	Door lock device, third electric valve.
UI behaviour with display:	The clock digits report the actual water level (in mm) in the washing group.
Working conditions:	Door locked, water level lower then overload level, for max. 5 minutes.

C06	FOURTH ELECTROVALVE TEST
Selector-test position:	**Position 6** in clockwise direction or in test sequence (TC1).
Purpose of test:	To test the water loading from fourth electrovalve (hot electrovalve if present).
Activated components:	Door lock device, fourth electric valve.
UI behaviour with display:	The clock digits report the actual water level (in mm) in the washing group.
Working conditions:	Door locked, water level lower then overload level, for max. 5 minutes.

C07	WASH HEATER TEST
Selector-test position:	**Position 7** in clockwise direction or in test sequence (TC1).
Purpose of test:	To test the wash heater and weight sensor (if present)
Activated components:	Door lock device, heating element, wash electric valve if water level lower then 1st levels, diverter (if present), recirculation pump (if present). If the weight sensor is present an additional water load of 1 liter is executed in order to evaluate if the sensor is able to measure the extra quantity of water loaded.
UI behaviour with display:	The clock digits report the actual temperature (in °C) in the washing group as measured by the NTC.
Working conditions:	Door locked, water level greater then virtual AB level, for max. 10 minutes or up to 90°C water temperature.

d07 CONCENTRATED WASH PUMP TEST

Selector-test position:	**Position 7** in clockwise direction + "start/pause" button pressure
Purpose of test:	To test the concentrated wash pump (if present)
Activated components:	Door lock device, concentrated wash pump (if present).
UI behaviour with display:	The clock digits report the actual temperature (in °C) in the washing group as measured by the NTC.
Working conditions:	Door locked, water level greater then virtual AB level.

C08 TUB LEAKAGE TEST

Selector-test position:	**Position 8** in clockwise direction or in test sequence (TC1).
Purpose of test:	To verify possible water leakage of the tub
Activated components:	Door lock device, main motor and wash electric valve if water level lower then 1st level, diverter (if present).
UI behaviour with display:	The clock digits report the actual drum speed in rpm divided by 10.
Working conditions:	Door locked, water level greater then 1st virtual level, up to 250 rpm.

C09 DRAIN AND SPIN TEST

Selector-test position:	**Position 9** in clockwise direction or in test sequence (TC1).
Purpose of test:	To verify the machine during spin phase, the drain pump functionality, and pressure switch calibration procedure
Activated components:	Door lock device, main motor, drain pump.
UI behaviour with display:	The clock digits report the actual drum speed in rpm divided by 10.
Working conditions:	Door locked, water level lower then antifoam level (correspondent to anti-boil level), up to maximum speed.

C10 DRYING TEST (for WD only)

Selector-test position:	**Position 10** in clockwise direction or in test sequence (TC1).
Purpose of test:	To verify all the drying loads of the machine.
Activated components:	Traditional WD machines: Door lock device, drain pump, fan motor, condense valve, heating elements (half and full power). Heat Pump machines: Door lock device, drain pump, fan motor, compressor, fan cooler.
UI behaviour with display:	Air temperature on digits (in °C). Traditional WD machines: Toggle between upper and lower NTC temperature for traditional WD machines. Heat Pump machines: Toggle between input, output and capillary NTC temperatures. Beside the temperature value the display shows "I", "o" and "c" symbols respectively.
Working conditions:	Traditional WD machines: Door locked, water level lower than antiboiler level, up to 150°C measured on input NTC for max. 10 minutes. Heat Pump machines: Door locked, water level lower than antiboiler level - 10 secs of fan cooler activation; - 20 minutes with fan and compressor switched on and fan cooler working at temperature.

C10	ULTRA AQUA STOP DEVICE TEST
Selector-test position:	**Position 10** in clockwise direction or in test sequence (TC1).
Purpose of test:	To verify the Ultra Aqua Stop device.
Activated components:	Door lock device, Ultra aqua stop device and electro valves .
UI behaviour with display:	The display shows "---"
Working conditions:	To test the new device a new specific sequence has been designed: - Ultra Acqua Stop device activated for 22 seconds - Ultra Acqua Stop and wash electrovalve active for 6 seconds - Only wash valve activated for 6 seconds

C10	WATER SOFTER DEVICE TEST
Selector-test position:	**Position 10** in clockwise direction or in test sequence (TC1).
Purpose of test:	To test the water softener module functionality performing a complete regeneration process.
Activated components:	Door lock device, wash electric valve, water softener devices (diverter and pump).
UI behaviour with display:	The display shows "---"
Working conditions:	Door locked, water load to produce the brine and to regenerate the resins. Delay to allow the process to be complete, washing phase of brine box and drain.

d10	NIUX/WI-FI TEST
Selector-test position:	**Position 10** in clockwise direction + "start/pause" button pressure
Purpose of test:	To test the Niux board (if present)
Activated components:	Niux board (Wi-fi On/Off).
UI behaviour with display:	The display shows "---" Refer to 599 811-937 paragraph 11. WIFI TEST IN DIAGNOSTIC MODE
Working conditions:	

C11	LAST ALARM DISPLAY AND POSSIBLE RESET
Selector-test position:	**Position 11** in clockwise direction or in test sequence (TC1).
Purpose of test:	Display three latest alarms, starting from the most recent. last alarm and possible reset.
Activated components:	
UI behaviour with display:	Alarm complete code is showed in the format Exx (E 4 2)
UI behaviour without display:	🔴 Red and 🟡 yellow LEDs above Start/Pause button blink alternated according to alarm code

Please refer to LAST ALARM READING AND RESET for more information

In normal functioning mode, **to final user are shown only those warnings that he is able to manage** without the attendance of after sales service personnel.

These warnings are not considered permanent machine faults, but normally temporary faults due to carelessness of the user.
Such warnings are:

- *E10* - water tap closed
- *E20* - clogged draining filter
- *E40* - door porthole not properly closed
- *EF0*(*) - detergent over dosing

There are also other alarms that stop machine and cannot be managed by the final user, that are requested to be shown as warnings:

- *EF0*(*) - water leakage (managed by Aqua Control System)
- *EH0* - low mains voltage/irregular mains frequency
- *E91* - no communication between User Interface board and Main board
- *E92 / E93 / E94* - software configuration(*) EF0 code is used to show several alarms: water leakages, detergent overdosing, unbalanced laundry load.

All the other warnings are not showed to final user because in many cases they are "false alarms" due to temporary abnormal conditions that the user sometimes neither notices and that could be simply solved switching off the machine.

The complete set of alarms is showed only in diagnostic mode for final test in factory assembly line or for after sales service personnel.

⚠	**Information** Warnings
	- Buzzer sounds (regardless of configuration) on alarm presence only for warnings that are shown to final user (E10, E20, E40, E90, EF0), mains supply alarms excluded (EH0). - Buzzer sounds (also if deactivated by customer via buttons combination) with a specific sequence of 3 short beeps about every 20 seconds for maximum 5 minutes. - Stand-by mode is disabled on alarm presence only for warnings that are shown to customer. - Warning code is displayed as long as the fault condition is present. - For the first three codes (E10, E20, E40), the warning puts the machine in pause state: 　✦ **DIGITS DISPLAY** 　　the Start/Pause button **LED** blinks continuously. 　　The blinking times for the LED are: 0.5 sec lighted on, 0.5 sec lighted off.
	- In some rare cases, other warning codes could be displayed to the customer, such as E91 – communication failure between electronic boards; in this case if failure repeats after unplugging/plugging machine, after sales service needs to be contacted. - Alarm complete code is shown if the alarm belongs to the "Software Configuration" family, that includes also "Boards Communication" alarm, and "Mains Supply" family; this is in order to give the final user a valid indication of the alarm even if the configuration itself (needed to operate LEDs and Display) is damaged or missing.

DIGITS DISPLAY

Warnings are displayed on the **7-segments digits** display used to show the cycle time.

A specific code appears on digits while the buzzer sounds (also if deactivated by customer via buttons combination) with a specific sequence of 3 short beeps about every 20 seconds for maximum 5 minutes.

After the problem has been solved, pressing Start/Pause push button the warning code is not showed anymore, buzzer stops sequence and cycle restarts.

Standard warnings codes that can be showed to final user, with related actions to perform, are the following:

Displayed code	Warning condition
E10	*Water loading timeout. Check if water inlet tap is open*
E20	*Water draining timeout. Check if draining filter is clogged*
E40	*Door locking timeout. Check if door porthole is properly closed*
E91	*No communication between User Interface and Main boards. Switch off and on*
E92 / E93 / E94	*Software configuration. Main board has not been correctly programmed.*
EF0	*Aqua Control sensor active: water leakages / Detergent overdosing(*) (if configured)*
EH0	*Low mains voltage or irregular mains frequency (out of standard working range). Wait for stable mains supply conditions.*

Alarm example

After the problem has been solved, pressing Start/Pause push button the warning message is not showed anymore, buzzer stops sequence and cycle restarts.

One of the main requirements of the diagnostic system is to be transparent to the final user except for some most common warning related to the door handling and water inlet and drain management.

To increase the flexibility of the system it was introduced the possibility to enable/disable the alarms display by the machine configuration in order to cover requirement as field test context, particular countries requirement …

> ⚠️ **Information**
> Safe condition
>
> - In alarm condition, except when specified, the door is opened if there are safety conditions:
>   - Water level lower than specific level.
>   - Water temperature lower then 55°C.
>   - Motor steady stopped.
> - Some alarms require a drain cycle activation in order to put the machine in a safe condition and to open the door. This **safety drain cycle** has an automatic cool-down phase (when water temperature is over than 65°C) and drain pump activation until virtual AB level is empty with a timeout of 3 minutes.
> - Other alarms performs a **safety load cycle** (filling until 1 level) in order to cover the heating element and put the machine in a safe condition.

All alarms display is enabled during diagnostic test/cycles. They are displayed on the TTE digits of the display.

If the WM/WD is in normal mode and an alarm must be displayed according to the configuration:

➢ The START Led blinks regularly with a cadence of 0.5 s on – 0.5 s off.
➢ If a display is present the error code is drawn in the TTE digits using the format "E" + alarm family digit + "0".

If the WM/WD is in diagnostic mode and an alarm is raised, its code is always shown regardless of the configuration.

On platforms provided with a LCD the "Exx" code (E20, E30, etc) indication is shown in the TTE digits area.

> ⚠️ **Information**
> "Eb3" is shown like "EH3"
>
> Please note that writing an alarm code on the LCD panels, all occurrences of "b" are replaced by "H" in order to avoid mistaking the "6" symbol, so for instance "Eb3" is shown like "EH3".

LAST ALARM READING AND RESET

The alarm indication is also used when the user interface (UI) enters LAST ALARM mode, that is when the user pushes the "special key" combination while the board is in normal mode or when the main knob is set to the 11th position while the board is in diagnostic mode.

⚠️	**Information** "last alarm reading and reset"
	▪ While this mode is set in diagnostic mode, it's possible to read the code of the three latest alarms, starting from the most recent. ▪ Each time the leftmost key in the "special key" combination is pressed, the UI starts displaying the following alarm code among those stored in memory. So, if this button is pressed once while the last alarm was being displayed, the last but one alarm is displayed instead; after the key is pressed again, the last but two alarm code is shown. ▪ Pressing at any time the rightmost key START/PAUSE button in the "special key" combination the displayed sequence comes back at once to the latest alarm. ▪ If the mode is entered by pressing the "special key" while the board is in normal mode, the UI displays only the last alarm. The mode exits if any of the keys from "special key" combination is pressed.
	▪ It's possible to reset Last alarm pressing the defined key combination (START/PAUSE and the closest one for every UI) when in Diagnostic mode with selector in 11th position.

E10

E11 – WASHING WATER LOAD TIMEOUT

This alarm will be set when the water load timeout has been exceeded.
As on the previous platform EWX11 and EWX13, the new EWX14911 has foreseen several timeouts depending on current water level amount. Precisely we have:
- 5 minutes of timeout from 0 to safety level (usually 35mm).
- 5 minutes of timeout from 35mm to AB level (usually 55mm).
- and 10 minutes of timeout from AB level to the target level defined on CTF.

This alarm forced a cycle pause, keeping the door closed.
This alarm can be reset pressing Start/pause button or resetting the current cycle.
It is not reset after a power fail.

E12 – DRYING WATER LOAD TIMEOUT

Water load timeout (10 minutes) expired during drying phase.
At the beginning of drying phases is performed a water load at specific level (configurable in CDL) in order to test water load circuit. If this level is not reached before timeout expiration the alarm is set.
This alarm forces a cycle pause keeping the door closed.
This alarm can be reset pressing Start/pause button or resetting the current cycle.
It is not reset after a power fail.

E13 – WATER LEAKAGE

The global load timeout has been exceeded.
This is a configurable timeout, calculated in order to avoid the reaching of the V_{max} water volume of the used group. The maximum water volume is a value depending on the group structure, while the time is calculated considering the inlet water flow. It is set after each draining phase and decreased every time a valve is activated, also during refilling.
This alarm forces a pause action, and the door will be kept closed.
This alarm can be reset pressing Start/pause button or resetting the current cycle.

It is not reset after a power fail.

E20

E21 – WASH WATER DRAIN TIMEOUT

This alarm happens when the water drain timeout (managed for each drain phase) has been exceeded.
The timeout is a configurable value set at the beginning of each drain phase and decreased until the pressure switch is on the empty state. The level checked during each drain phases is specific and used only to manage this alarm.
If the timeout has expired the pump is switched off for 1 minute while the pump can cool itself. After that the drain phase was repeated from the beginning.
The alarm will be set after 3 consecutive trials. The second attempt foreseen a pause of 10 minutes instead of 1 to avoid a useless temperature increase of the pump.
This alarm forces a cycle pause and it is reset coming back from a power fail.
This alarm can be reset also pressing Start/pause button or resetting the current cycle.
The alarm can be set according to water drain flow values.
The machine calculates the drain pump flow rate monitoring the water level every 5 seconds.
If the flow rate value decreases less a configurable threshold the alarm will be set.
For this new management we can configure the threshold and also the timeout.

E22 – DRYING WATER DRAIN TIMEOUT

This alarm is set if during drying phases the first level (virtual level) is reached. This condition can happen due to drain pump defective, drain pipe blocked up, dirty/blocked filter or drying condenser blocked up.
The alarm will be set after 3 consecutive trials. The second attempt foreseen a pause of 10 minutes instead of 1 to avoid a useless temperature increase of the pump.

This alarm forces a cycle pause and it is reset coming back from a power fail.
This alarm can be reset also pressing Start/pause button or resetting the current cycle.

EWX11, EWX13:
The alarm can be set according to water drain flow values.
The machine calculates the drain pump flow rate monitoring the water level every 5 seconds.
If the flow rate value decreases less a configurable threshold the alarm will be set.
For this new management we can configure the threshold and also the timeout.

E23 – DRAIN PUMP TRIAC FAILURE
There is an incongruent situation between the sensing of the triac that drives the drain pump and the output given by the microprocessor.

EWX11:
The situation can happen in two ways:
- The door is locked; the triac is driven by the microprocessor while the sensing gives him a high value. It can happen in one half wave of the power supply (diode mode) or in both half waves (driving circuit problems).
- The door is locked; the triac is not driven by the microprocessor while the sensing gives him a low value. It can happen in one half wave of the power supply (diode mode) or in both half waves (short circuit).

EWX13:
The situation can happen in two ways:
- the triac is driven by the microprocessor while the sensing reads a lower value.
It can happen in several ways :
  - the pump is disconnected (or the thermal protection is opened)
  - or the triac is not connected to the load (hardware fault on the board).
- the triac is not driven by the microprocessor while the sensing reads a lower value on the negative half wave of the signal.

It can happen when the triac is short circuited.

EWX14:
It can happen in several ways:
- the pump is disconnected (or the thermal protection is opened)
- or the triac is not connected to the load (hardware fault on the board).
- the triac is not driven by the microprocessor while the sensing reads a lower value (< 4,40 Volt) on the negative half wave of the signal. It can happen when the triac is short circuited.

The alarm appears if these situations persist for 3 seconds during 2 consecutive trials performed after a pause of 10 seconds.
If the machine is in set-up the alarm is set immediately after the first trial.

This alarm management performs the safety drain cycle and forces the door opening.
This alarm action is done only in case of triac not driven. In this case the pump can start properly and drain the water. In this condition we are able to open the door and remove the power to the pump. In the other case we don't perform the action (safety drain) to avoid useless overheating of the pump.
This alarm can be reset pressing Start/pause button, resetting the current cycle or switching off the machine.

E24 – DRAIN PUMP TRIAC SENSING FAILURE
The sensing of the drain pump triac gives to the microprocessor a signal out of the limits.
EWX11, EWX13:
With the new sensing circuit is not possible read continuously a signal fixed at 5 Volt (EWX11, EWX13) / a signal less 3.5 Volt (EWX14).
In fact when the pump is switched off on the negative half wave we have to read a signal closed to 0 Volts (EWX11, EWX13) / 5 Volts (EWX14).

This alarm management performs the safety drain cycle and forces the door opening.

This alarm can be reset pressing Start/pause button, resetting the current cycle or switching off the machine.

E25 – AQUA CONTROL SENSING FAILURE

The sensing of the aqua control system gives to the microprocessor a signal out of the limits.

With the new sensing circuit is not possible read continuously a signal fixed at 5 Volt.

In fact when the switch in opened on the negative half wave we have to read a signal closed to 0 Volts.

This alarm management performs the safety drain cycle and forces the door opening.

This alarm can be reset pressing Start/pause button, resetting the current cycle or switching off the machine.

E30

E31 – ELECTRONIC PRESSURE SWITCH FAILURE

Frequency coming from electronic pressure switch is out of acceptable limits for at least 5 seconds. The alarm will be set after 2 consecutive attempts performed after a pause of 10 seconds.

Valid values are 44.676 ÷ 36.130 Hertz.

This fault can be caused by a defective electronic pressure switch or due to wiring/main boards problems. This alarm is not active in set-up phase. This alarm forces a cycle stop with door locked and can be cancelled resetting the current cycle or switching off the machine.

E32 – ELECTRONIC PRESSURE SWITCH CALIBRATION PROBLEMS.

At every cycle start, the electronic control performs a calibration of electronic pressure switch.

This procedure is executed at the beginning of a new cycle (during initial draining step) and checks continuously the signal frequency coming from the electronic pressure switch.

If this signal changes continuously value (variation greater than 2 mm of water) until timeout expiration the alarm is set.

The timeout value is configurable on the GCF file and is called "ee_wc_lev_lscal_tout".

Possible causes of this alarm can be:
- Defective water inlet valves,
- Air trap system leaking,
- Pressure switch/sensor defective
- Wiring or main board defective

This alarm forces:
- a cycle pause
- and a new calibration on next cycle.

This alarm can be reset also pressing Start/pause button or resetting the current cycle.

Cannot be cancelled switching off the machine.

The calibration procedure is also forced after a diagnostic cycle or on the cycles executed after the set of this alarm. In this case, the machine will perform a calibration step at every change phase until the procedure ends with success.

E35 – WATER OVERLOAD

The overload pressure switch (virtual level managed by electronic pressure sensor) is on full state for a time longer than 15 seconds.

When the machine is in alarm situation, the door is locked; the drain pump is activated until we will reach the empty level (anti-foam virtual switches open) or, in any case, for 5 minutes.

In case of abnormal behaviour (the level never goes to empty state) the pump is turned off at least for 5 minutes. It's switched-on again when overload levels switches-on.

This alarm cannot be reset by switching off the machine or pressing Start/Pause button.

To clear the alarm is necessary reset the current cycle.

This alarm cannot be set during stand–off because the pressure switch in not powered by 5 Volts.

E38 – AIR TRAP CLOGGED

This alarm is set when we have no water level change during motor movement phases.

The alarm appears if the pressure remains stable for al least 30 seconds. This condition can be caused by different causes:

- a real air trap clogged,
- a level sensor pipe clogged,
- a motor belt broken,
- or due to a motor tachometer problem (broken wiring).

This alarm forces the heating phase skip.

This alarm cannot be reset switching off the machine or pressing Start/Pause button.

To clear the alarm is necessary reset the current cycle.

E40

E41 – DOOR OPENED

The door locking timeout has been exceeded or the door is opened.
The behaviour of the machine is different depending on the door lock device type:

- In case of the instantaneous one the timeout is 6 second. The machine tries other 3 times and only after the last attempt the alarm is set
- In case of the traditional one the timeout is 20 second.
- In case of the instantaneous one with internal micro switch the alarm appear immediately thanks to the presence of the internal micro switch able to detect if the door is opened.

This alarm forces a cycle pause and can be reset pressing Start/pause button or resetting the current cycle.
This alarm cannot be reset switching off the machine.

In top loader machines, when the alarm is already set, the machine tries for a configurable timeout to lock the door. This is done to avoid false alarms due to mechanical interferences. Usually this timeout is of 1 minute and in this period the door lock is activated every 5 seconds. During the attempts if the door is closed successfully the alarm is cancelled and the machine scan start the cycle normally.

E42 – DOOR LOCK DEVICE FAILURE

The door remains closed when the opening is requested (at the end of the cycle for example).
Even in this case, the behaviour of the machine is different depending on the door lock device type:

- In case of the instantaneous one, the machine tries for 5 times to unlock the door and only after the last attempt the alarm appears.
- In case of the traditional one the alarm appears after a 4 minutes and 15 seconds timeout.

The nominal time value necessary to open the traditional door lock device can be summarized in :

- ~45 sec. At a temperature of 20 C;
- ~70 sec. At a temperature of 65 C.

This alarm forces a cycle pause and can be reset pressing Start/pause button or resetting the current cycle.
This alarm cannot be reset switching off the machine.

E43 – DOOR LOCK DEVICE TRIAC FAILURE

There is an incongruent situation between the sensing of the triac that drives the door lock device and the output given by the microprocessor. The situation can happen in two ways:

- the triac is driven by the microprocessor while the sensing gives him a high value
- the triac is not driven by the microprocessor while the sensing gives him a low value. It can happen in one half wave of the power supply (diode mode) or in both half waves (short circuit).

The alarm appears if this situation persists for 3 seconds.
Before stopping the machine, if the door closed sensing is ON (DOOR_CLOSED_S = ON), a safety drain cycle is performed to empty the machine because the safety is compromised.
This alarm cannot be reset switching off the machine or pressing Start/Pause button.
To clear the alarm is necessary reset the current cycle.

E44 – DOOR CLOSED SENSING FAILURE

The door closed sensing is not working properly.
It has to give a sinusoidal wave to the microprocessor if the door is closed and a fixed value (2.5 Volts) if the door is open. If the microprocessor reads a value different from these for a time longer than 3 seconds (EWX11, EWX13) / 1 second (EWX14), the machine is in alarm situation.

Before stopping the machine and opening the door, a safety drain cycle is performed to empty the machine because the safety is compromised. When the machine is in alarm, a power fail force the repetition of the safety drain cycle from the beginning. To clear the alarm is necessary reset the current cycle or pressing Start/Pause button at the end of the safety drain.

E45 – DOOR LOCK TRIAC SENSING FAILURE

The sensing of the door lock triac gives to the microprocessor a signal out of the limits.
The limits are different depending on the half wave of the power supply and the value refers to the conversion steps of the A/D converter.

EWX11, EWX13:
In the positive half wave the high value is 250 and the low value is 103, while in the negative half wave the high value is 153 and the low value is 5 (values referring at 230 Volt).

EWX14:
In the positive half wave the limit value is 250, while in the negative half wave the limit is 5.

The alarm appears if the read value exceeds these intervals for a time longer than 1 second.

The alarm appears if the read value exceeds these intervals for a time longer than 1 second.
Before stopping the machine and opening the door, a safety drain cycle is performed to empty the machine because the safety is compromised. When the machine is in alarm, a power fail force the repetition of the safety drain cycle from the beginning. To clear the alarm is necessary reset the current cycle or pressing Start/Pause button at the end of the safety drain (EWX11, EWX13).

E50

E51 – MOTOR TRIAC SHORT CIRCUIT

There is an incongruent situation between the sensing of the triac that drives the motor and the output given by the microprocessor.
This alarm respect of previous platforms can be detected only with door closed.
The motor triac sensing gives to the microprocessor a low value but the angle of the motor triac driving is less than 4000.
The value of the sensing refers to the conversion steps of the A/D converter. In both half waves the high value is 153 and the low value is 103 (values referring at 230 Volt).
The angle of the motor driving is a value that indicates how long the triac is kept on for each half wave, the value goes from 0 to 10000 and so the peak of the half wave is reached at 5000.
The machine is in alarm if this situation persists for 0.5 sec. The alarm appears immediately in set-up with door closed and in diagnostic phase, but only after 5 trials during a normal cycle. This procedure is done in order to cool the system (motor and triac) and is composed by 5 trials separated by 5 minutes of pause except the last one that is separated by 20 minutes of pause.
If the machine is still in the alarm situation the alarm code is memorized and the machine is stopped in safety condition.
To clear this alarm is necessary switch off the machine.

E52 – NO TACHOMETER SIGNAL

EWX13:
This alarm can be set in two different ways according to motor status: running or stopped (motor triac switched off).
- First condition: Motor Running.
  No signal coming from tachometer during motor driving.
  The machine goes in alarm condition when the motor is driven for a configurable time and the microprocessor is not able to detect any tachometer signal. The timeout is different depending on the step of the drum movement and configurable in the range 1800÷3000 ms.
- Second condition: Motor stopped (motor triac not driven)

Thanks to the introduction of a new electronic circuit the tachometer generator can be tested before the starting of each movement phase. The circuit verifies if the tachometer is connected and not damaged (opened). It this way can be avoided any dangerous motor starting without speed feedback that can cause cabinet hits, jumps, etc.

EWX11, EWX14:
While motor is running, this alarm is set because of bad tachometer signal for example due to a no perfect connection of tachometer (unsettled contacts) or a high level of electromagnetic noise. When this condition is detected the Motor Control SW power off the motor and goes into a safety state waiting for an alarm reset command from MB.

The alarm in both conditions appears only after 5 trials during a normal cycle. The first 4 trials separated by 5 minutes (time necessary to cool the thermal protection) and the last one after 20 minutes. If the machine is still in the alarm situation the alarm code is memorized and the machine is stopped in safety condition.

After the second trial, if the problem is still present, we try to change the motor movement. The motor will run with delicate movement to try to finish the cycle. This feature is configurable (enable or not) and is active only during prewash, washes and rinse phases on cotton and synthetics cycles.
To clear this alarm is necessary switch off the machine (EWX11, EWX13, EWX14) or reset the current cycle (EWX11, EWX14).

E53 – MOTOR TRIAC SENSING FAILURE
The sensing of the motor triac gives to the microprocessor a signal out of the limits.
The limits are different depending on the half wave of the power supply and the value refers to the conversion steps of the A/D converter.
 In the positive half wave the high value is 250 and the low value is 103, while in the negative half wave the high value is 153 and the low value is 5 (values referring at 230 Volt).

The alarm appears if the read value exceeds these intervals for a time longer than 1 second.
This alarm cannot be reset switching off the machine.
To clear the alarm is necessary reset the current cycle.

E54 – MOTOR DIRECTION RELAY FAILURE
The voltage value read on the motor triac sensing is too high.
When the door is closed, the triac is not driven and all the relays are opened the board has to read a low voltage value, given by the internal pull-up.
The machine is in alarm if this situation persists for a time longer than 3 seconds.
The alarm appears only after 5 trials during a normal cycle. The first 4 trials separated by 5 minutes (time necessary to cool the thermal protection) and the last one after 20 minutes. If the machine is still in the alarm situation the alarm code is memorized and the machine is stopped in safety condition.
This alarm cannot be reset pressing Start/Pause button.
To clear the alarm is necessary reset the current cycle or switch off the machine.
This alarm is disabled in Electric test mode.

E57 – FCV CURRENT TRIP FAILURE
A sudden inverter current rising is occurred. It could be due to either a short circuit between motor phases or an electronic damage. The level of this threshold (15A) is set by the hardware. This is a hardware protection.
The Motor Control Board power off the motor via hardware, than the DSP SW goes into a safety state.
The alarm appears only after 5 trials during a normal cycle. Every trial is separated by 2 minutes of pause where the FCV board is switched off. At the end of last trial if the machine is still in the alarm situation the alarm code is memorized, the machine is stopped and the door will be opened.
To clear this alarm is necessary switch off the machine or reset the current cycle.

E58 – FCV OVER CURRENT FAILURE

A sudden abnormal motor phase currents is occurred. It could be due to an abnormal or an over load of the motor. Furthermore, the wiring and an electronic damage can cause this alarm too. The level of this software threshold (6A) is configurable via MB. The Motor Control Board power off the motor via software, than the DSP SW goes into a safety state waiting for an alarm reset command from MB.

The alarm appears only after 5 trials during a normal cycle. Every trial is separated by 10 seconds of pause where the FCV board is switched off. At the end of last trial if the machine is still in the alarm situation the alarm code is memorized, the machine is stopped and the door will be opened. To clear this alarm is necessary switch off the machine or reset the current cycle.

E59 – FCV NOT FOLLOWING FAILURE

No tacho signal for 3 seconds after new speed target different from zero. It occurs at the motor start up. It could be due to either motor wiring (motor phases and/or tachometer) or electronic damage. If the problem is on tachometer circuitry (wiring or electronic) the Motor Control board supplies the motor with a current limited to about 4 Arms. Under this condition, it runs at very low speed (~200rpm of motor) until the software protection power off the motor. Therefore, DSP SW goes into a safety state waiting for an alarm reset command from MB.

The alarm appears only after 5 trials during a normal cycle. Every trial is separated by 10 seconds of pause where the FCV board is switched off. At the end of last trial if the machine is still in the alarm situation the alarm code is memorized, the machine is stopped with the door locked. To clear this alarm is necessary switch off the machine or reset the current cycle.

E5

E5A – FCV HEATING FAILURE

It occurs when the Heat Sink temperature goes above a configurable threshold (88°C) for a configurable time (1s). In this case, it is due to either an over load conditions or electronic damage. Otherwise, it could be causes by the opening of the NTC. This condition is detected after the measured temperature stays at very low value (-11°C) for more than 20 seconds.

Under these conditions, the Motor Control Board power off the motor via software, than the DSP SW goes into a safety state waiting for an alarm reset command from MB. The reset of alarm is enabled only if the heat sink temperature goes within allowed temperature range.

The alarm appears only after 5 trials during a normal cycle. Every trial is separated by 2 minutes of pause. At the end of last trial if the machine is still in the alarm situation the alarm code is memorized, the machine is stopped in safety conditions.

To clear this alarm is necessary switch off the machine or reset the current cycle.

E5B/E5H – FCV UNDER VOLTAGE FAILURE

It occurs when the dc bus voltage goes below a configurable threshold (175V) for a configurable time (5ms). This alarm can happen if the Motor Control board is not properly supplied due to either bad wiring or mains out of range. Furthermore, electronic could be damaged.

Under these conditions, the Motor Control Board power off the motor via software, than the DSP SW goes into a safety state waiting for an alarm reset command from MB. The reset of alarm is enabled only if the dc bus voltage goes above a second voltage threshold (225V).

The alarm appears only after 5 trials during a normal cycle. Every trial is separated by 10 seconds of pause where the FCV board is switched off. At the end of last trial if the machine is still in the alarm situation the alarm code is memorized, the machine is stopped in safety conditions.

To clear this alarm is necessary switch off the machine or reset the current cycle.

E5C – FCV OVER VOLTAGE FAILURE

It occurs when the dc bus voltage goes above a configurable threshold (430V) for a configurable time (5ms). It could be due to an electronic damaged.

Under these conditions, the Motor Control Board power off the motor via software, than the DSP SW goes into a safety state waiting for an alarm reset command from MB. The reset of alarm is enabled only if the dc bus voltage goes below a second voltage threshold (420V).

The alarm appears only after 5 trials during a normal cycle. Every trial is separated by 10 seconds of pause where the FCV board is switched off. At the end of last trial if the machine is still in the alarm situation the alarm code is memorized, the machine is stopped in safety conditions.
To clear this alarm is necessary switch off the machine or reset the current cycle.

E5D – FCV UNKNOWN MESSAGE FAILURE

It is set when FCV cannot receive and/or transmit a message for more than 2 seconds. It is due to the communication wiring or an electronic damage.
The alarm appears only after 5 trials during a normal cycle. Every trial is separated by 10 seconds of pause where the FCV board is switched off. At the end of last trial if the machine is still in the alarm situation the alarm code is memorized, the machine is stopped in safety conditions.
To clear this alarm is necessary switch off the machine or reset the current cycle.

E5E – FCV- MOTHERBOARD COMMUNICATION FAILURE

There are communication problems in between FCV control board and Motherboard.
Problems could be due to Hardware (problems on connectors for example disconnection, on FCV or mother board) or due to disturb (burst on wiring).
The alarm appears after 25 seconds of missing communication.
When the alarm is set the machine is stopped in safety conditions.
This alarm cannot be reset by switching off the machine or pressing Start/Pause button.
To clear this alarm is necessary reset the current cycle or switch off the machine.

E5F – FCV FAULT ALARM

FCV control board is continuously asking for configuration parameters due to a repetitive hardware reset.
The alarm appears only after 5 trials during a normal cycle. Every trial is separated by 10 seconds of pause where the FCV board is switched off.

At the end of last trial if the machine is still in the alarm situation the alarm code is memorized, the machine is stopped in safety conditions and the door opening is forced.
This alarm cannot be reset pressing Start/Pause button.
To clear this alarm is necessary reset the current cycle or switching off the machine.

E60

E61 – WATER HEATING TIMEOUT

The water heating timeout has been exceeded.
The timeout is a configurable parameter of the cycle description. It is set at the beginning of each heating phase and decreased until the target temperature is reached.
This alarm forces the heating phase skip.
The alarm is not active in this platform.

E62 – WATER OVERHEATING

The temperature read by the washing NTC is over then 88°C for a time longer than 5 minutes.
In order to maintain the machine in safety condition, a safety drain cycle is performed (of course with a cool-down phase before and the door opening is forced.
This alarm cannot be reset switching off the machine.
To clear this alarm is necessary reset the current cycle or pressing Start/Pause button.

E66 – HEATING ELEMENT RELAY FAILURE.

EWX11:
There is an incongruent situation between the heater relay sensing and the status of the heater Neutral relay.
This fault can be detected only with door closed and due to the hardware configuration of the board we can have 2 different fault conditions:
-   with Neutral Relay closed and Line relay switched off the sensing circuit reads a signal in the following range :
    Main voltage/2 <= Heater Sensing < (Main voltage – Main voltage/16)

- with both relays switched off the heater sensing reads a signal less than
  (Main voltage/8)

EWX13, EWX14:
There is an incongruent situation between the heater relay sensing and the status of the heater relay that connects the washing or the drying heating element.
This fault can be detected checking the congruence between the relay status and two different sensing (one for the washing and one for the drying heating element).(EWX13) / the heater relay sensing (EWX14).
This allows the detection of all possible faults conditions (relay not driven, relay contact glue closed or opened, sensing damaged)

If the heaters relay sensing remains in the faulty conditions for a time longer than 3 seconds, some component might be damaged and the safety of the machine is compromised.
When the fault condition is recognized the following actions will be done:
- a safety load procedure in order to cover the heating element comprehensive of a cool-down water load (if the temperature if greater than 65°C).
- and the door opening to leave the machine in a safety condition.

To clear this alarm is necessary switch off the machine or reset the current cycle.

E68 – GROUND CURRENT LEAKAGE
The voltage value read by Heater Relay sensing is out of limits.
This can happen if we have a ground current leakage through the heating element (washing or drying heater), or other components.
EWX11:
According to the hardware configuration of the board we can detect a current leakage versus Neutral only with door closed, whereas the current leakage detection versus Line is always active.
The alarm appears if the read value exceeds some thresholds for a time longer than 10 seconds.
In detail the conditions to set the alarm are:

- with door opened if the heater sensing circuit reads a signal greater than
  Main voltage/2 + Main voltage/8 + Main voltage/16
- or with door closed and both relays switched off if the heater sensing circuit reads a signal:
  Greater than (Main voltage – Main voltage/16)
  Or
  Less than (Main voltage/2 – Main voltage/16)
With these thresholds we are able to detect a leakage less than:
- ~ 90 KΩ versus Line
- ~ 120 KΩ versus Neutral
This alarm doesn't stop the machine as on the previous platform but only skip the heating phases (with both relay switched off the machine is in safety conditions).
This alarm cannot be reset switching off the machine.
To clear the alarm is necessary reset the current cycle or pressing Start/pause button.

EWX13, EWX14:
According to the hardware configuration of the board a current leakage can be detected only with door unlocked.
The alarm appears if the read value exceeds some thresholds for a time longer than 12 seconds.
In detail the conditions to set the alarm are:
- if the heater sensing circuit reads a signal greater than
  Main voltage/2 - Main voltage/16 + 75
- or if the heater sensing circuit reads a signal less than
  Main voltage/2 – Main voltage/16 - 45

With these thresholds we are able to detect a leakage less than:
- ~ 80 KΩ (EWX13) / 90 KΩ (EWX14) versus Line
- ~ 50 KΩ (EWX13) / 60 KΩ (EWX14) versus Neutral

EWX13
This alarm stops the machine; perform a safety water load in order to cover the heating element and force the door opening.

To clear the alarm is necessary reset the current cycle or pressing Start/pause button or switch off the machine.

EWX14
This alarm stops the machine and maintains the door opened.
To clear the alarm is necessary reset the current cycle or switch off the machine.

E69 – HEATING ELEMENT OPENED

As on the previous alarm the voltage value read by Heater Relay sensing is out of limits when the cycle is in execution and the heating element is not powered.
This can happen due to a faulty component (some heating elements can open at the end of heating phase) or really due to the thermo-fuses protection.
The alarm appears if the read value exceeds a specific range for a time longer than "E69 timeout".

EWX11:
In detail the condition to set the alarm is:
- door closed, both relays switched off and sensing signal between
  Main voltage/2 + Main voltage/8 + Main voltage/16
  and
  Main voltage/2 - Main voltage/16
"E69 timeout" is fixed in 10 seconds, but we can have 2 different behaviours according to machine status. In particular:
- during diagnostic cycles after that timeout the alarm is set immediately,
- whereas in normal cycle mode the alarm will be set only if the temperature, during heating phases, remains stable for 10 minutes consecutives.

EWX13, EWX14:
In detail the condition to set the alarm is:
- door closed, both relays switched off and sensing signal greater than
  Main voltage/2 - Main voltage/16 + 55
  or less than
  Main voltage/2 - Main voltage/16 + 75

"E69 timeout" is fixed in 10 seconds, but we can have 2 different behaviours according to machine status. In particular:
- during diagnostic cycles after that timeout the alarm is set immediately,
- Whereas in normal cycle mode the alarm will be set after a retrial when the heating element is activated for 10 seconds and after that was switched off and re-tested. If the faulty condition still persist the alarm will be set.

EWX11, EWX13, EWX14:
To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of cycle or simply switching off the machine.

EWX11, EWX13:
Note: during diagnostic cycles an "E69 alarm" can happen if the machine has a current leakage from ~ 560 KΩ to ~ 120 KΩ versus Neutral. In this case is necessary to check firstly the heating element and then the entire machine to identify the source of the current leakage.

E6

E6A – HEATER RELAY SENSING FAILURE

The sensing of the heater relay gives to the microprocessor a signal out of the limits:
- greater than 250 A/D steps (fixed to 5 Volts) (EWX11);
- or greater than 10 A/D steps on the negative half wave (sensing floating) (EWX11, EWX13, EWX14).
Appliances equipped with ultra Aqua Stop device can set this alarm if the valve is broken or the wiring is damaged (EWX14).
The alarm appears if the read value exceeds these intervals for a time longer than 2.5 seconds.
This alarm block the cycle keeping the door locked.
This alarm is enabled also with the machine in stand-off state as the other relay alarms
This alarm cannot be reset pressing the Start/Pause button.
To clear the alarm is necessary reset the current cycle or switch off the machine.

E6B – HEATING WD RELAY FAILURE

EWX11:

There is an incongruent situation between the heater relay sensing and the status of the heater Line relay.

This fault, according to the hardware configuration of the board can be detected in 2 different ways:

- If the Line Relay is opened and the heater sensing circuit reads a signal greater than :
  (Main voltage – Main voltage/32)
- Or if the door is closed and both heater relays are switched on and the heater sensing circuit reads a signal less than
  (Main voltage/16)

If the heater relay sensing remains in these conditions for a time longer than 3 seconds, some component might be in a faulty condition and the safety of the machine is compromised.

When the fault condition is recognized we will perform one of the following actions:

- safety water load procedure in order to cover the heating element, a cool-down water load if the temperature if greater than 65°C and the door will maintained closed to leave the machine in a safety condition.

To clear this alarm is necessary switch off the machine or reset the current cycle.

EWX13:

There is an incongruent situation between the heater relay sensing and the status of the heater WD relay.

This fault, according to the hardware configuration of the board can be detected in several different ways:

- For WM machines:
- if the WD Relay is opened and the heater relay sensing circuit reads a signal less 10 steps;
- or if the WD Relay is closed and the heater relay sensing circuit reads a signal greater than 10 steps.
- For WD machines:

- if the WD Relay is opened and the heater relay sensing circuit reads a signal less 10 steps or the Line WD relay sensing reads a signal less than 10 steps;
- if the WD Relay is closed and both the heater relay sensing and the heater wd relay sensing circuit reads a signal greater than 10 steps.

If the heater WD relay sensing remains in these conditions for a time longer than 4 seconds, (2 seconds in diagnostic mode) some component might be in a faulty condition and the safety of the machine is compromised.

When the fault condition is recognized the machine was stopped and the door was opened.

To clear this alarm is necessary switch off the machine or reset the current cycle or press a key at the end of safety cycle execution.

E70

E71 – WATER NTC FAILURE

The voltage value read on the NTC sensing is out of limits and it means that the NTC sensor is in open circuit or in short circuit.

The limits are referred to the conversion steps of the A/D converter, the high value is 250 and the low value is 5.

The alarm appears if the read value exceeds this interval for a time longer than 5 seconds.

This alarm forces the washing heating phases skip and the door will be maintained closed.

To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of cycle.

This alarm is not active in set–up phase.

This alarm cannot be reset switching off the machine.

E72 – OUTPUT DRYING NTC FAILURE

The voltage value read on the NTC sensing is out of limits and it means that the NTC sensor is in open circuit or in short circuit. The limits are referred to the conversion steps of the A/D converter, the high value is 250 and the low value is 5.

The alarm can be set also if the temperature does not change of a configured number of degrees in a configured time during a drying step.

This alarm forces the drying heating phases skip.

To clear the alarm is necessary reset the current cycle or pressing start/pause button at the end of cycle.
This alarm cannot be reset switching off the machine.
This alarm is not active in set–up phase.

E73 – INPUT DRYING NTC FAILURE

The voltage value read on the NTC sensing is out of limits and it means that the NTC sensor is in open circuit or in short circuit. The limits are referred to the conversion steps of the A/D converter, the high value is 250 and the low value is 5.
The alarm can be set also if the temperature does not change of a configured number of degrees in a configured time during a drying step.
This alarm forces the drying heating phases skip.
To clear the alarm is necessary reset the current cycle or pressing start/pause button at the end of cycle.
This alarm cannot be reset switching off the machine.
This alarm is not active in set–up phase.

E74 – WATER NTC IN WRONG POSITION

If the wash NTC is not in its correct position on the tub and so during a heating phase the wash temperature does not increase.
The alarm is set if the wash temperature does not increase of a configured number of degrees in a configured time during a heating step.
This alarm forces the heating phases skip.
To clear the alarm is necessary reset the current cycle or pressing start/pause button at the end of cycle.
This alarm cannot be reset switching off the machine.

E75 – DRYING CAPILLARY NTC FAILURE

The voltage value read on the NTC sensing is out of limits and it means that the NTC sensor is in open circuit or in short circuit. The limits are referred to the conversion steps of the A/D converter, the high value is 250 and the low value is 5.
This alarm forces the drying heating phases skip.
To clear the alarm is necessary reset the current cycle or pressing start/pause button at the end of cycle.

This alarm cannot be reset switching off the machine.
This alarm is not active in set–up phase.

E76 – DRYING AUXILIARY NTC FAILURE
Not present

E80

E83 – WRONG SELECTOR POSITION READING
The code read on the selector is not supported by the configuration data.

E84 – RECIRCULATION PUMP TRIAC SENSING FAILURE
The sensing of the recirculation pump triac gives to the microprocessor a signal out of the limits.
With the new sensing circuit is not possible read continuously a signal fixed at 5 Volt (EWX13) / a signal less 3.5 Volt.(EWX14).
In fact when the pump is switched off on the negative half wave we have to read a signal closed to 0 (EWX13) / 5 (EWX14) Volts.
This alarm management performs the safety drain cycle and forces the door opening.
This alarm can be reset pressing Start/pause button, resetting the current cycle or switching off the machine.

E85 – RECIRCULATION PUMP TRIAC FAILURE
There is an incongruent situation between the sensing of the triac that drives the drain pump and the output given by the microprocessor.
EWX13:
The situation can happen in two ways:
- the triac is driven by the microprocessor while the sensing reads a lower value.
  It can happen in several ways :
  ▪ the load is disconnected (or the thermal protection is opened)
  ▪ or the triac is not connected to the load (hardware fault on the board).
- the triac is not driven by the microprocessor while the sensing reads a lower value on the negative half wave of the signal.

It can happen when the triac is in short circuit.

EWX14:
It can happen in several ways:
- the pump is disconnected (or the thermal protection is opened)
- or the triac is not connected to the load (hardware fault on the board).
- the triac is not driven by the microprocessor while the sensing reads a lower value (< 4,40 Volt) on the negative half wave of the signal.
It can happen when the triac is short circuited.

The alarm appears if these situations persist for 3 seconds during 2 consecutive trials performed after a pause of 10 seconds.
If the machine is in set-up the alarm is set immediately after the first trial.

This alarm management performs the safety drain cycle and forces the door opening.
This alarm can be reset pressing Start/pause button, resetting the current cycle or switching off the machine.

E86 – SELECTOR CONFIGURATION TABLE ERROR

This alarm will be set by UI if the area containing the configuration thresholds for the selector is missing or corrupted.
This alarm doesn't allow cycle start.
To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of cycle or simply switching off the machine.

E87 – USER INTERFACE MICROCONTROLLER FAULT

This warning is set when the user interface fails a certification protection check.
On UI with a faulty microcontroller memory will be set.
The alarm is not displayed.
To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of cycle or simply switching off the machine.

E90

E91 – COMMUNICATION ERROR BETWEEN UI AND MOTHERBOARD

There are communication problems in between User Interface and Motherboard.
Problems could be due to Hardware (problems on connectors for example disconnection of user interface or of the motherboard) or due to noise (burst on wiring).
In this case the cycle doesn't start if the problem is detected at the power-ON.
The alarm is displayed on the display.
To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of cycle or simply switching off the machine.

E92 – USER INTERFACE MOTHER BOARD PROTOCOL INCONGRUENCE

The communication protocol in between user interface and motherboard is not aligned. This could be due to incompatible configuration between user interface and motherboard. This alarm is checked at the power-ON and the machine is stopped.
The alarm is displayed on the display.
To clear the alarm is necessary to switch off the machine.

E93 – MACHINE CONFIGURATION ERROR

There is an incongruent situation between the stored checksum and the calculated one at the power-on of the machine.
The configuration saved on the FLASH is divided into 3 parts, each one with a separated checksum. One of them is the machine configuration; the others are related to the cycle.
At the power-on, during the reading of the configuration, the machine calculates the checksum and compares it with the written one.
When an error condition is detected the machine is blocked.
The alarm is displayed on the display.

E94 – CYCLE CONFIGURATION ERROR

There is an incongruent situation between the stored checksum and the calculated one at the power-on of the machine.
Differently from the E93 the checksum of the cycle configuration is divided into two parts and so the machine has to check both.
When an error condition is detected the machine is blocked.
The alarm is displayed by led and display.

E97 – INCONGRUENCE BETWEEN SELECTOR AND CYCLE TABLES CONFIGURATION

The program id value read from the selector table, contained in the machine configuration data area, is not available in the cycle table contained in the cycle configuration data area.
This situation can be caused by a read error from FLASH or by a wrong configuration file selected for the appliance configuration.
When an error condition is detected the machine is blocked.
To clear the alarm is necessary switch off the machine or reset the current cycle.

E98 – FCV AND MB PROTOCOL INCONGRUENCE

The communication protocol between FCV and motherboard is not aligned.
This could be due to incompatible configuration between FCV and motherboard.
This alarm is checked at the power-ON of FCV and the machine is stopped.
To clear the alarm is necessary switch off the machine or reset the current cycle.
This alarm cannot be reset pressing the start/pause button.

E9

E9C – USER INTERFACE WRONG CONFIGURATION

Configuration wrongly or not received correctly by UI
To clear the alarm is necessary reset the current cycle or pressing start/pause button at the end of cycle or simply switching off the machine.

E9E – USER INTERFACE TOUCH FAILURE

User Interface touch sensor not working.
To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of cycle or simply switching off the machine.

EA

EA1 – DSP SYSTEM FAILURE

The electronic positioning system is not giving any signal to the microprocessor during the positioning phase for a time longer than 10 seconds, or is giving continuously the signal for a time longer than 10 seconds during a drum movement.
The DPS gives to the microprocessor a signal once at drum turn. The timeout is set at the beginning of each positioning phase and after each signal, and decreased until another signal is sensed.
The positioning phase is skipped when alarm condition is detected.

EA6 – DSP DOOR OPEN ALARM

EWX11, EWX13:
This alarm is set when we read no impulses coming from DSP and the motor is running at e speed lower than 35 rpm.
If during the movement we don't detect a change of DSP status, we change the motor direction. If also in this conditions no impulses coming from the DSP after the second trial we stop the machine and set the alarm.
The fault condition usually can happen at the beginning of cycle when user has forgotten to close the door lid.
In this condition when motor starts to run causes belt exit, so after the third trial the alarm will be set.

EWX14:
Each time the lid was closed, at the cycle start, the PB performs a particular movement in order to check if the drum doors are properly closed.
If at the end of the movement at 100 rpm the number of tachometer impulses measured is less a configurable threshold the alarm is set.

The fault condition usually can happen at the beginning of cycle when user has forgotten to close the door lid. In this condition when motor starts to run causes the belt exit.

This alarm forces a cycle pause and can be reset pressing Start/pause button or resetting the current cycle.

EAA – NIUX SSH SERIALIZATION ALARM

Missing/not correct Niux serialization data informations.

Production process failed due to some reasons:

- Missing or not properly saved PNC/ELC/S_N
- NIU SSH protocol session not properly closed.

The alarm is showed on the display and the communication through the Niux board is disabled.

To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of cycle or simply switching off the machine.

EAB/EAH – NIUX COMMUNICATION ALARM

There are communication problems in between User Interface and Niux board.

Problems could be due to Hardware (problems on connectors for example disconnection of user interface or of the Niux board) or due to noise (burst on wiring).

In this case the user is not able to communicate to the appliance by "My AEG" App.

The alarm is not showed on the display.

To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of cycle or simply switching off the machine.

EAC – NIUX ALWAYS ON ALARM

The user interface is not powering the Niux board but is still receiving "Macs" messages from this. The faulty condition usually can happen when a specific component used to control the power status of the board is damaged.

The alarm is not showed on the display.

To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of cycle or simply switching off the machine.

EAD – SERIALIZATION MISMATCH ALARM

Serialization data not aligned between boards.

The faulty condition usually, can happen when boards were replaced between same appliance models without assigning properly the serialization information.

This warning is not displayed on the user interface and the user is not able to communicate to the appliance by "My AEG" App.

To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of the cycle.

EB

EB1/EH1 – POWER SUPPLY FREQUENCY OUT OF LIMITS

Power supply period lower or higher than configured values (45 and 55 Hz).

The machine measures continuously the power supply period and if its value exceeds a configurable interval the machine starts the power failure management.

At the restart the machine waits a stable frequency value and measures the reaching time needed, if it exceeds a prefixed timeout (5 sec.) the machine is blocked in alarm condition.

This alarm can be auto reset if the power supply period returns at normal values.

EB2/EH2 – POWER SUPPLY VOLTAGE TOO HIGH

The power supply voltage value is higher than the maximum accepted value (~270 Volt).

The machine measures continuously the power supply voltage and if its value exceeds the limit for a time longer than 5 seconds, the machine is blocked in alarm situation.

The limit is referred to the conversion steps of the A/D converter and the value is calculated in order to recognize the wrong reading of the voltage sensing.

This alarm can be auto reset if the power supplies voltage return at normal values.

EB3/EH3 – POWER SUPPLY VOLTAGE TOO LOW

The power supply voltage value is lower than the configured value (~175 Volt).

The machine measures continuously the power supply voltage and if its value exceeds the configurable limit the machine starts the power failure management.

At the restart the machine waits a stable voltage value and measures the reaching time needed, if it exceeds the 5 seconds timeout, the machine is blocked in alarm situation.

The limit is referred to the conversion steps of the A/D converter and the value is calculated in order to recognize the wrong reading of the voltage sensing or a voltage value lower than the configured one.

To avoid intermittence problem (due to a voltage level very close to the threshold) a hysteresis of $5V_{RMS}$ is managed. It means that to restart, the supply voltage must go over the voltage threshold level by $5V_{RMS}$.

This alarm can be auto reset if the power supplies voltage return at normal values.

EBC/EHC – LINE WD RELAY FAILURE

There is an incongruent situation between the Line WD relay sensing and the corresponding relay.

This fault can be detected only with door closed and due to the hardware configuration of the board we can have 2 different fault conditions:

- With relay switched on the line WD sensing reads a signal within these 2 thresholds:
  VdN_leakage = 255 – (MainVoltage /8 + MainVoltage /16);
  VdL_leakage = 255 – (MainVoltage/8 + MainVoltage /2);
- with relay switched off the line WD sensing reads a signal less than the following threshold:
  Vrl_glued   = 255 – (MainVoltage /4 + MainVoltage /2 + MainVoltage /16);

The alarm is set if the line WD relay sensing remains in these conditions for a time longer than 3 seconds.

When the fault condition is recognized we will perform a drain action to empty the machine and allow the door opening.

This alarm cannot be reset switching off the machine.

To clear the alarm is necessary reset the current cycle or pressing Start/Pause button.

EBD/EHD – HEATER WD RELAY SENSING FAILURE.

EWX11:

The sensing of the Line WD relay gives to the microprocessor a signal out of the limits:

- less than 10 A/D steps on the negative half wave.

The alarm appears if the read value exceeds these intervals for a time longer than 3 seconds.

When the fault condition is recognized we will perform a drain action to empty the machine and allow the door opening.

This alarm cannot be reset switching off the machine.

To clear the alarm is necessary reset the current cycle or pressing Start/Pause button.

EWX13:

The sensing of the heater WD relay gives to the microprocessor a signal out of the limits:

- Greater than 10 A/D steps on the negative half wave (sensing floating).

The alarm appears if the read value exceeds these intervals for a time longer than 2.5 seconds.

This alarm block the cycle keeping the door locked.

This alarm is enabled also with the machine in stand-off state as the other relay alarms

This alarm cannot be reset pressing the Start/Pause button.

To clear the alarm is necessary reset the current cycle or switch off the machine.

EWX14:

The sensing of the heater WD relay gives to the microprocessor a signal out of the limits:

- Greater than 10 A/D steps on the negative half wave (sensing floating).

The alarm appears if the read value exceeds these intervals for a time longer than 2.5 seconds.

This alarm block the cycle keeping the door locked.

This alarm is enabled also with the machine in stand-off state as the other relay alarms

This alarm cannot be reset pressing the Start/Pause button.

To clear the alarm is necessary reset the current cycle or switch off the machine.

EBE/EHE – FCV RELAY FAILURE

There is an incongruent situation between the sensing of the relay and the driving circuit state.

EWX11:
The situation can happen in two ways:
- the door is locked, the relay is driven by the microprocessor while the sensing gives him a low value. It can happen in one half wave of the power supply (diode mode) or in both half waves (driving circuit problems).
- the door is locked, the relay is not driven by the microprocessor while the sensing gives him a high value. It can happen in one half wave of the power supply (diode mode) or in both half waves (short circuit).

The alarm appears if these situations persist for 1 seconds.

This alarm management performs the safety drain cycle and forces the door opening.

To clear the alarm is necessary reset the current cycle or switch off the machine.

EWX14:
The situation can happen in several ways:
- the relay is driven by the microprocessor while the sensing returns a high value.
- the relay is not driven by the microprocessor while the sensing returns a low value.

Differently from the previous platform, the FCV relay sensing circuit is based on an enabling signal (used to reduce power consumptions in stand-by) that allow the reading of the sensing only when needed.

For this reason also if the enabling circuit is not properly working it was set an alarm because it was not possible read correctly the relay status.

The alarm appears if these situations persist for 1 seconds.

This alarm management performs the safety drain cycle and forces the door opening.

To clear the alarm is necessary reset the current cycle or switch off the machine.

EBF/EHF – FCV RELAY SENSING FAILURE

The sensing of the FCV relay gives to the microprocessor a signal out of the limits.

The limits are different depending on the half wave of the power supply and the value refers to the conversion steps of the A/D converter.

The alarm appears if the read value exceeds these intervals for a time longer than 1 second.

This alarm management performs the safety drain cycle and forces the door opening.

To clear the alarm is necessary reset the current cycle or switch off the machine.

EC

EC1 – ELECTRO VALVES BLOCKED.

This alarm can be set if the flow meter is running when no electro valves are driven.

To set the alarm, the fault condition must persist for at least 60 seconds during normal cycles or for 4 second during diagnostic cycles.

When the machine is in alarm situation, the door is locked, the drain pump is activated until all levels are empty (overload, 1st level and anti-boil switches open) or, in any case, for 5 minutes.

In case of abnormal behaviour (one of the levels contact switch always ON) the pump is turned off at least for 5 minutes. It's switched-on again when overload levels switches-on.

To clear the alarm is necessary reset the current cycle or switch off the machine.

EC2 – WEIGHT SENSOR COMMUNICATION ERROR

There are communication problems in between Weight Sensor and Motherboard.

Problems could be due to Hardware (problems on connectors for example disconnection of Weight sensor or of the motherboard) or due to noise (burst on wiring).

No action is executed when alarm is detected.

Only the weight information displayed into LCD module remains to 0.

Pressing start or resetting the current cycle will clear the alarm.

EC3 – WEIGHT SENSOR FAULT.

The alarm can be set also if the weight sensor is disconnected, defective or the configuration parameters stored on the sensor are missing.

In diagnostic mode the alarm can be set if during the execution of "Wash heater test" step the amount of water loaded is less of 600gr. or greater than 2000gr.

No action is performed when alarm is detected.

Only the weight information displayed to LCD module remains to 0.

Pressing start or resetting the current cycle will clear the alarm.

EC4 – CURRENT SENSOR ALARM

This alarm can be set it the "current sensor" circuit is not working properly.

The failure can happen in two different ways:

- if the microcontroller is not able to adjust dynamically the offset value related to the ZC current circuit;
- or is the sensor is not reading any ZC current signal during a distribution phase.

When the alarm was set every spinning is reduced at a safety speed value.

To clear the alarm is necessary reset the current cycle or switch off the machine.

EC8 - TY5_TRIAC_AL

Triac TY5 according to power board type can be used to drive motor fan, hot valve or the water softener board.

On the below alarm description, the expression "Load" will refer to one of the previous listed loads (drive motor fan, hot valve or the water softener board).

There is an incongruent situation between the sensing of the triac that drives the specific load and the output given by the microprocessor.

It can happen in several ways:

- the triac is driven while the sensing reads a higher value. It can happen if the circuit is open for example the load is unplugged.
- the triac is not driven by the microprocessor while the sensing reads a lower value. It can happen when the triac is short circuited.

The alarm appears if these situations persist for 3 seconds during 2 consecutive trials performed after a pause of 10 seconds.

If the machine is in set-up the alarm is set immediately after the first trial.

This alarm management performs the safety drain cycle and forces the door opening.

This alarm can be reset pressing Start/pause button, resetting the current cycle or switching off the machine.

EC9 - TY5_TRIAC_S_AL

The sensing of the triac gives to the microprocessor a signal out of the limits.

The limits are different depending on the half wave of the power supply and the value refers to the conversion steps of the A/D converter. In the positive half wave the limit value is 250, while in the negative half wave the limit is 5.

The alarm appears if the read value exceeds these intervals for a time longer than 1 second.

Before stopping the machine and opening the door, a safety drain cycle is performed to empty the machine because the safety is compromised.

When the machine is in alarm, a power fail force the repetition of the safety drain cycle from the beginning. To clear the alarm is necessary reset the current cycle.

ECA – DETERGENT DISPENSER WATER SOFTENER BOARD COMMUNICATION ALARM

There are communication problems in between DDWS satellite board and Motherboard.

Problems could be due to hardware (faulty components, wiring, etc.) or due to disturbs (burst on wiring) on the motherboard.
The alarm appears after 25 seconds during which the board performs continuous retries to restore the communication.
To clear this alarm is necessary switch off the machine or reset the current cycle.

ECB/EBH –DETERGENT DISPENSER WATER SOFTENER BOARD FAULT

This alarm can happen if on the DDWS board there is at least one of the following faults:
· Diverter position fault
· Microcontroller Memory faulty
· Power supply out of limits

The alarm appears only after 5 trials during a normal cycle. Every trial is separated by 10 seconds of pause where the satellite board is switched off. At the end of last trial if the machine is still in the alarm situation the alarm code is memorized, the machine is stopped.
This alarm cannot be reset pressing Start/Pause button.
To clear this alarm is necessary reset the current cycle or switching off the machine.

ECC –WATER SOFTENER ASSEMBLY FAILURE

This alarm can happen if on the WS assembly there is at least one of the following faults:
· Level float
· or Density float damaged.

The alarm appears in the following situations:
– level or density float remains locked at the same state for the entire regeneration process (no float changes after the water loads or after the pump activation)

The alarm is set at the end of the regeneration process, the alarm code is memorized, and the machine is stopped.
This alarm cannot be reset pressing Start/Pause button.
To clear this alarm is necessary reset the current cycle or switching off the machine.

ECD –WATER SOFTENER PUMP FAILURE

This alarm can happen if on the WS assembly there is the brine pump faulty.
The alarm appears in the following situations:
– driving circuit switched on but the sensing reads no current flow;
– driving circuit switched off and pump active.

When the faulty condition has been detected, the alarm code is memorized, and the machine is stopped.
This alarm cannot be reset pressing Start/Pause button.
To clear this alarm is necessary reset the current cycle or switching off the machine.

ED

ED1 – WDM BOARD COMMUNICATION ALARM.

There are communication problems in between WDM satellite board and Motherboard.
Problems could be due to hardware (faulty components, wiring, etc.) or due to disturbs (burst on wiring) on the motherboard.
The alarm appears after 25 seconds during which the board performs continuous retries to restore the communication.
To clear this alarm is necessary switch off the machine or reset the current cycle.

ED2 – WDM HEATING ELEMENT RELAY FAILURE.

There is an incongruent situation between the sensing of the relay that drives the drying heating1 relay and the output given by the microprocessor.
The alarm appears if these situations persist for 5 seconds.
This alarm skips the drying phase and tries to cool the machine.
To clear this alarm is necessary switch off the machine, reset the current cycle or pressing the Start/Pause button.

ED3 – WDM HEATING ELEMENT RELAY SENSING FAILURE.

The sensing of the heater relay gives to the microprocessor a signal out of the limits:

- greater than 980 A/D steps (fixed to 5 Volts);
- or greater than 40 A/D steps on the negative half wave (sensing floating).

The alarm appears if the read value exceeds these intervals for a time longer than 1 second.

This alarm can be set only when the correspondent relay is switched off.

To clear this alarm is necessary switch off the machine, reset the current cycle or pressing the Start/Pause button

ED4 – WDM HEATING ELEMENT2 RELAY FAILURE.

There is an incongruent situation between the sensing of the relay that drives the drying heating2 relay and the output given by the microprocessor.

The alarm appears if these situations persist for 5 seconds.

This alarm skips the drying phase and tries to cool the machine.

To clear this alarm is necessary switch off the machine, reset the current cycle or pressing the Start/Pause button.

ED5 – WDM HEATING ELEMENT2 RELAY SENSING FAILURE.

The sensing of the heater relay gives to the microprocessor a signal out of the limits:
- greater than 980 A/D steps (fixed to 5 Volts);
- or greater than 40 A/D steps on the negative half wave (sensing floating).

The alarm appears if the read value exceeds these intervals for a time longer than 1 second.

This alarm can be set only when the correspondent relay is switched off.

To clear this alarm is necessary switch off the machine, reset the current cycle or pressing the Start/Pause button.

ED6 – WDM THERMOSTAT SENSING FAILURE.

The sensing connected to the thermostat gives to the microprocessor a signal out of the limits:
- greater than 980 A/D steps (fixed to 5 Volts);
- or greater than 40 A/D steps on the negative half wave (sensing floating).

The alarm appears if the read value exceeds these intervals for a time longer than 1 second.

This alarm doesn't stop the machine. The current cycle will be executed normally.

To clear this alarm is necessary switch off the machine, reset the current cycle or pressing the Start/Pause button.

ED7 – WDM THERMOSTAT OPENED.

EWX11, EWX13

The new hardware configuration of the PCB allows the microcontroller to detect the action of both thermostats (manual and automatic).

To detect this conditions we have defined 2 different thresholds as follow:

H_thrs= 3 * (VBULK_READ/4) – (VBULK_READ /16);

L_thrs = VBULK_READ /2;

According to these thresholds when the corresponding sensing reads a value greater than H_thrs we have the automatic thermostat opened.

While the manual thermostat action is recognized when :

both heater relays are off and the sensing signal is between H_thrs and L_thrs.

When the alarm is set not action is executed. The cycle continues normally.

To clear this alarm is necessary switch off the machine, reset the current cycle or pressing the Start/Pause button.

EWX14:

This alarm can be detected in two different ways according to the HW configuration of the appliance.

In machines equipped with WD satellite module (EAX10500), the new hardware configuration of the PCB allows the microcontroller to detect the action of both thermostats (manual and automatic).

To detect this conditions we have defined 2 different thresholds as follow:

H_thrs= 3 * (VBULK_READ/4) – (VBULK_READ /16);

L_thrs = VBULK_READ /2;

According to these thresholds when the corresponding sensing reads a value greater than H_thrs we have the automatic thermostat opened.

While the manual thermostat action is recognized when both heater relays are off and the sensing signal is between H_thrs and L_thrs.

On the contrary in machines where drying loads are driven directly from PB, the HW configuration doesn't allow the detection during cycle execution but only with door unlocked.
So the alarm can be set only before cycle start, in pause or at the end of the cycle when an incongruent value is present on drying relay sensing respect of heater relay sensing.

In both situations when the alarm is set not action is executed. The cycle continues normally.
To clear this alarm is necessary switch off the machine, reset the current cycle or pressing the Start/Pause button.

ED8 – WDM FAN MOTOR TACHOMETER ABSENT.

This alarm is set when the fan motor is running, and there is not tachometer signal feedback.
This condition must persist for at least 5 seconds to set the alarm.
The alarm will be set after 2 consecutive trials executed after a pause of 10 seconds.
When the alarm is set the machine is blocked with the door opened.
The alarm cannot be cleared pressing the Start/Pause button.
To clear this alarm is necessary switch off the machine or reset the current cycle.

ED9 – WDM FAN MOTOR DRIVING CIRCUIT FAILURE.

There is an incongruent situation between the "speed_set" signal and the output given by the microprocessor.
In particular we can have two possible scenarios:
- when the fan motor is running the "speed_set' signal cannot be less than 1 Volt;
- when the fan motor is stopped the "speed_set" signal cannot be greater than 1 volt or fixed at 5 Volts.
The alarm appears if these situations persist for 3 seconds.
The alarm will be set after 2 consecutive trials executed after a pause of 10 seconds.

When the alarm is set the machine is blocked with the door opened.
The alarm cannot be cleared pressing the Start/Pause button.
To clear this alarm is necessary switch off the machine or reset the current cycle.

EDA – WDM POWER SUPPLY ALARM.

There is no ZC signal or lower power supply for at least 5 seconds.
Alarm will be cleared automatically when the ZC or the power supply signals return to nominal condition.
This board can be configured to work at :
– 50 or 60 Hz
– and at different power supply values (for example 120 Volts instead of 230 Volts)
changing properly some parameters on the Group Configuration File.
When the alarm is set the machine is stopped.
The alarm cannot be cleared pressing the Start/Pause button.
To clear this alarm is necessary switch off the machine or reset the current cycle.

EDB – WDM MICROCONTROLLER FAULT

This warning is set when the WDM board fails a certification protection check.
Will be set in presence of a faulty microcontroller memory.
The alarm is not displayed.
To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of cycle or simply switching off the machine.

EDC – WDM HEATER OPENED ALARM

There is an incongruent situation between the sensing of heater_relay1 and heater_relay2.
In fact when both relay are switched off the related sensing must read values within H_trhs and L_thrs threshold (values defined on the "ED7 – WDM thermostat opened" alarm description.
If one of this information is outside these limits there is a possible heating element opened or unplugged.

The alarm is set if the condition persist for at least 3 seconds, but the cycle continues normally using at least only one heating element.
To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of cycle or simply switching off the machine.

EDD – WDM GROUND CURRENT LEAKAGE ALARM

The voltage value read by Line WD Relay sensing is out of limits.
This can happen if we have a ground current leakage through the drying heating element.

The alarm appears if the read value exceeds some thresholds for a time longer than 12 seconds.
The alarm is active only when the door is closed and the conditions to set the alarm are the following:
– if the line WD sensing circuit reads a signal:
   greater than
   Neutral leakage = 255 – (Main voltage/8 + Main voltage/16)
   Or less than
   Line Leakage = 255- (Main voltage/2 – Main voltage/8)

With these thresholds we are able to detect a leakage less than:
• ~ 50 KΩ versus Neutral
• From ~ 50 KΩ to ~ 20 KΩ versus Line

A very low current leakage versus Line (< 20Kohm) can be exchanged as a Line WD relay fault.

This alarm doesn't allow the satellite board switching on. For this reason all phases that foreseen a satellite board action will be skipped.
To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of cycle or simply switching off the machine.

EE

EE1 – FAN CURRENT TRIP FAILURE

This alarm is set if there is a hardware problem on the power module (for example an IGBT shorted) and the current immediately increases above 2.5 A.
The alarm will be set after 5 consecutive trials executed after a pause of 1 minute.
At the end of last trial if the machine is still in the alarm situation the alarm code is memorized, and the machine is stopped.
To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of cycle or simply switching off the machine.

EE2 – FAN OVER CURRENT FAILURE

This alarm is set if the current of one fan phase increases above 0.8 A for a time of 0.6 ms .
This alarm can be caused by a problem control or by an hardware problem on the power module or on the current acquisition chain.
The alarm will be set after 5 consecutive trials executed after a pause of 1 minute.
At the end of last trial if the machine is still in the alarm situation the alarm code is memorized, and the machine is stopped.
To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of cycle or simply switching off the machine.

EE3 – FAN OVERLOAD ALARM

This alarm is not managed (it cannot be set).

EE4 – FAN NOT FOLLOWING ALARM

This alarm is set if the fan isn't rotating at the speed imposed. This alarm can be caused by ramps that are too high for the fan or if the rotor is locked.
The alarm will be set after 15 consecutive trials executed after a pause of 10 seconds.

At the end of last trial if the machine is still in the alarm situation the alarm code is memorized, and the machine is stopped.

To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of cycle or simply switching off the machine.

EE5 – FAN UNDER VOLTAGE ALARM

This alarm is set if the voltage input on the board is below 160 Vrms for a time of 20 ms.. This alarm is managed with an hysteresis and so to go out from this condition the input voltage must exceed the value of 176 Vrms.
The alarm will be set after 5 consecutive trials executed after a pause of 1 minute.
At the end of last trial if the machine is still in the alarm situation the alarm code is memorized, and the machine is stopped.
To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of cycle or simply switching off the machine.

EE6 – FAN OVER VOLTAGE ALARM

This alarm is set if the voltage input on the board is above282 Vrms for a time of 20 ms.. This alarm is managed with an hysteresis and so to go out from this condition the input voltage goes below the value of 275 Vrms.
The alarm will be set after 5 consecutive trials executed after a pause of 1 minute.
At the end of last trial if the machine is still in the alarm situation the alarm code is memorized, and the machine is stopped.
To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of cycle or simply switching off the machine.

EE7 – FAN PLUG NON CONNECTED ALARM

This alarm is set if one or more phase current are around zero for a certain time. A current phase must be under 20 mA for a time of 5 seconds. This problem can be caused by a phase detachment.
The alarm will be set after 5 consecutive trials executed after a pause of 10 seconds.

At the end of last trial if the machine is still in the alarm situation the alarm code is memorized, and the machine is stopped.

To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of cycle or simply switching off the machine.

EE8 – FAN NTC WRONG TEMPERATURE FAILURE

This alarm is set if the temperature near the power module of the fan board is above 109 C° for a time of 5 seconds or if the temperature is below -5C° for a time of 5 seconds. This alarm is managed with a hysteresis and the values to go out from this condition are: 0C° and 99C°. This alarm can be caused by a high or low temperature or if the NTC is broken (shorted or opened).
The alarm will be set after 5 consecutive trials executed after a pause of 10 seconds.
At the end of last trial if the machine is still in the alarm situation the alarm code is memorized, and the machine is stopped.
To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of cycle or simply switching off the machine.

EE9 – FAN CONFIGURATION NOT READY ALARM

This alarm is not managed (it cannot be set).

EEA – FAN POWER MODULE FAILURE

This alarm is not managed (it cannot be set).

EEB/EEH – COOLER FAN FAILURE

This alarm is set when the cooler sensing does not match the expected relay state or if the power line signal sensing is not valid (must toggle at line frequency).
This alarm doesn't stop the cycle execution and will be set after 5 consecutive trials executed after a pause of 1 minute.
To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of cycle or simply switching off the machine.

EEC – COMPRESSOR FAILURE

This alarm is set when the Compressor sensing does not match the expected relay state or if the power line signal sensing is not valid (must toggle at line frequency).

The alarm will be set after 20 minutes. This time is necessary to understand if the fault condition is caused by the compressor or the internal thermo protector.

The drying cycle process will not be stopped.

To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of cycle or simply switching off the machine.

EF

EF1 – FILTER CLOGGED WARNING

The problem is put in evidence during a drain phase. If the virtual AB level doesn't go to empty state after a configurable time during a drain phase.

The filter-clogged warning is displayed (on a dedicated led or on the display) only at cycle end.

This warning happens before the Wash Drain Alarm.

EF2 – FOAM WARNING

When at the end of the washing phase foam is detected during the spin (virtual AB level remains closed) the drain pump is activated. If after 5 attempts the foam is still detected the warning is set but displayed only if the relative LED phase is configured. A rinse is added and the cycle continues regularly.

EF3 – ACQUA CONTROL WARNING.
EWX11, EWX13:

This warning is set for washing machine with Aqua Control system.

This warning is displayed only in this situation:

The triac isn't driven by the microcontroller but DRAIN_TY_S reads a low value. So two situations could be possible:

- The triac is in short circuit.

This alarm management performs the safety drain cycle and forces the door opening.

- The Aqua Control is active (DRAIN_TY_S is floating and a "low" value is read by the micro).

It is not possible, with this kind of configuration, to distinguish the one from the other.

In this case the Aqua Control warning is displayed.

When the alarm is set the machine is blocked.

The alarm cannot be cleared pressing the Start/Pause button.

To clear this alarm is necessary reset the current cycle or switch off the machine.

EWX14:

This warning is managed only for appliances equipped with Aqua Control system.

This warning is displayed when the aqua control switch is continuously closed for at least 3 seconds.

This alarm management performs the safety drain cycle and forces the door opening.

The alarm cannot be cleared pressing the Start/Pause button.

To clear this alarm is necessary reset the current cycle or switch off the machine.

EF4 – LOAD LOW PRESSURE

This warning is set when electro valves are switched on and flow meter is not running.

The condition must persist for 3 seconds and is symptom of tap closed, flow meter blocked or electro valve not working properly.

Warning comes out during water load steps and is only displayed. No actions are performed.

Alarm will be cleared automatically when the water flow return to nominal condition.

EF5 – LOAD UNBALANCED

This warning is set when the last spinning is skipped due to an unbalance to high.

This means that the unbalance algorithm has tried to balance the load without success and so the spinning phase is skipped.
This warning is not displayed and is only stored for the service force.

EF6 – SAFETY RESET

This warning is set when the machine fails a certification protection check.
When it recognizes a possible safety risk the machine "reset" itself and restarts again.
Can be set also if the machine is driven externally by a PC and the "Remote control mode" isn't activated. In this case reset itself to avoid wrong load activations.

EF7 – DRY FILTER ALARM

This warning is set when the air drying filter is not closed or missing.
The warning is set after 1 minute of drying filter absence and the machine goes in pause state.
The filter presence is detected by a micro switch positioned closed to the drying filter. For this reason a not appropriate warning can be set in case of micro switch not working properly.
This warning is displayed on the user interface
The alarm can be cleared pressing the Start/Pause button.

EF8 – SALT MISSING

This warning is set when the machine fails to complete a regeneration process due to an insufficient salt quantity presence on the salt box.
It's a reminder for the customer to refill the salt box.
Can be set also if the water softener device or water softener sensors were defective.
In particular the density float can be trapped, or the sensor board was defective
To clear the alarm is necessary reset the current cycle by selector or pressing start/pause button at the end of the cycle.

The alarm codes listed in the table below are divided by platform: **EWX11, EWX13, EWX14**.

ALARM CODE	ALARM DESCRIPTION	ENABLED			FAULT CONDITION	POSSIBLE FAULT	MACHINE ACTION/STATUS	RESET KEY
		EWX11	EWX13	EWX14				
E11	Difficulties in water fill for washing	YES	YES	YES	Water load timeout expired (load timeout for water loads at level)	Tap closed or water flow too low Wrong drain pipe position Water inlet valve defective Air trap system leaking Pressure switch defective Wiring or main board defective	Cycle Paused with door locked	START RESET
E12	Water load problems during drying cycle	YES	YES	YES	Water load timeout expired during fabric detach phase (5 minutes - closed tap test)	Water tap closed or water flow too low Wrong drain pipe position Water inlet valve defective Air trap system leaking Pressure switch defective Wiring or main board defective	Cycle Paused with door locked	START RESET
E13	Water leakage	YES	YES	YES	Global water load timeout expired (maximum water quantity reached)	Wrong drain pipe position Water flow too low Water inlet valve defective Air trap system leaking Air trap systems clogged Pressure switch defective	Cycle Paused with door locked	START RESET
E21	Difficulties in draining for washing	YES	YES	YES	Water drain timeout expired (measured for each drain phase of a washing cycle)	Drain pipe blocked up Blocked/dirty filter Drain pump defective Pressure switch defective Wiring or main Board defective Drain pump rotor locked	Cycle Paused (after 2 attempts)	START ON/OFF RESET
E22	Water drain problems during drying cycle	YES	YES	YES	Virtual anti-boiler pressure switch ON during a drying cycle	Drain pipe blocked up Blocked/dirty filter Drain pump defective Pressure switch defective Wiring or main Board defective	Cycle Paused	START RESET
E23	Drain pump triac failure	YES	YES	YES	Incongruence between drain pump triac sensing and triac status	Drain pump defective Wiring or main board defective	Safety Drain cycle Cycle stops with door unlocked	RESET
E24	Drain pump triac sensing failure	YES	YES	YES	Wrong input signal to microprocessor	Main board defective	Safety Drain cycle Cycle stops with door unlocked	RESET
E25	Aqua control sensing failure	-	YES	YES	Wrong input signal to microprocessor	Main board defective	Safety Drain cycle Cycle stops with door unlocked	RESET
E31	Electronic pressure switch faulty	YES	YES	YES	Frequency of electronic pressure switch out of limits	Pressure sensor defective Wiring or main Board defective	Cycle blocked with door locked	RESET

ALARM CODE	ALARM DESCRIPTION	ENABLED			FAULT CONDITION	POSSIBLE FAULT	MACHINE ACTION/STATUS	RESET KEY
		EWX11	EWX13	EWX14				
E32	Electronic pressure switch calibration problems	YES	YES	YES	Frequency of electronic pressure switch not stable during draining phase	Water inlet valve defective Air trap system leaking Pressure switch/sensor defective Drain pipe blocked up Blocked/dirty filter Drain pump defective Wiring or main board defective	Cycle Paused	START RESET
E35	Water Overload	YES	YES	YES	Overload pressure switch on full state for a time longer than 15 seconds	Water inlet valve defective Air trap systems leaking Pressure switch defective Wiring or main board defective	Cycle blocked Safety drain cycle Drain pump always in operation (5 minutes ON, 5 minutes off, etc)	RESET
E38	Air trap system clogged	YES	YES	YES	Water level doesn't change for at least 30 sec. during drum rotations	Air trap system clogged Pressure sensor pipe clogged Motor belt broken	Heating Phase skipped	RESET
E41	Door opened	YES	YES	YES	Door lock timeout expired (20 seconds)	Door lock device defective Wiring or main board defective	Cycle Paused	START RESET
E42	Door lock device failure	YES	YES	YES	Door still locked when opening (timeout of 4 minutes)	Door lock device defective Wiring or main board defective Current leakage between heater element and earth	Cycle Paused	START RESET
E43	Door lock device triac failure	YES	YES	YES	Incongruence between door lock device triac sensing and triac status	Door lock device defective Wiring or main board defective	Safety Drain cycle activation Cycle blocked	RESET
E44	Door closed sensing failure	YES	YES	YES	Wrong input signal to microprocessor	Main board defective	Safety Drain cycle activation Cycle blocked	RESET
E45	Door triac sensing failure	YES	YES	YES	Wrong input signal to microprocessor	Main board defective	Safety Drain cycle activation Cycle blocked	RESET
E51	Motor triac short circuit	-	YES	-	Motor triac faulty (in short circuit)	Main board defective Current leakage from motor or wiring	Cycle blocked after 5 attempts with door unlocked	ON/OFF
E52	Tachometer faulty	YES	YES	YES	Bad or no signal from tachometer	Motor defective Motor Wiring or Motor Control board defective	Cycle blocked after 5 attempts with door locked	ON/OFF RESET
E53	Motor triac sensing failure	-	YES	-	Wrong input signal to microprocessor	Main board defective	Cycle blocked	RESET
E54	Motor relay burned (always closed)	-	YES	-	Voltage level on motor triac sensing too high when all relays are switched off (Not enabled in ELECTRIC TEST MODE)	Main board defective Current leakage from motor or wiring	Cycle blocked after 5 attempts	RESET
E57	FCV Current trip	YES	-	YES	High current on inverter (>15A)	Motor defective Motor Wiring or Motor Control board defective	Cycle blocked after 5 trials with door locked	ON/OFF RESET

ALARM CODE	ALARM DESCRIPTION	ENABLED EWX11	EWX13	EWX14	FAULT CONDITION	POSSIBLE FAULT	MACHINE ACTION/STATUS	RESET KEY
E58	FCV Over current	YES	-	YES	High current on motor phase (>4.5A)	Motor defective, Motor Wiring or Motor Control board defective, abnormal working condition	Cycle blocked after 5 trials with door locked	ON/OFF RESET
E59	FCV Not Following	YES	-	YES	No tacho signal from tachometer for 3 seconds	Motor defective Motor Wiring or Motor Control board defective	Cycle blocked after 5 trials with door locked	ON/OFF RESET
E5A	FCV Heating	YES	-	YES	High temperature on Heat Sink (>88°C) or NTC of FCV board open	Over load condition, Motor Control board defective	Cycle blocked after 5 trials with door locked	ON/OFF RESET
E5C	FCV Over Voltage	YES	-	YES	Dc bus voltage above the allowed value (430V)	Motor Control board defective Power line voltage too high	Cycle blocked after 5 trials with door locked	ON/OFF RESET
E5D	FCV Unknown Message	YES	-	YES	Message received by FCV is not correct	Transmission line noisy / FCV defective MB defective Communication wiring problems	---	ON/OFF RESET
E5E	FCV-MB Communication	YES	-	YES	Protocol communication between FCV and MB not aligned	Wiring defective FCV defective, WD defective UI defective MB defective, Weight defective	Cycle blocked after 5 trials	ON/OFF RESET
E5F	FCV Fault	YES	-	YES	FCV control board is continuously in reset	FCV control board defective or communication wiring problems or main board defective	Cycle blocked after 5 trials with door unlocked	ON/OFF RESET
E5H	FCV Under Voltage	YES	-	YES	Dc bus voltage bellow the allowed value (175V)	FCV mains wiring Motor Control board defective	Cycle blocked after 5 trials with door locked	ON/OFF RESET
E61	Insufficient heating during washing cycle	-	-	-	Washing heating timeout expired	Washing NTC defective Washing heater element defective Wiring or main board defective	Heating phases skipped	START RESET
E62	Overheating during washing cycle	YES	YES	YES	Water temperature higher than 88°C for a time longer than 5 minutes	Washing NTC defective Wash heater element defective Wiring or main board defective	Safety Drain cycle Cycle stopped with door unlocked	RESET
E66	EWX11: Heating element relay (versus Neutral) failure EWX13: Heater relay failure (active only for WD) EWX14: Heater or drying relay failure	YES	YES	YES	Incongruence between heater relay sensing and relay status	EWX11, EWX13: Main board defective Current leakage between wash heater element and earth EWX14: Main board defective Current leakage between Wash/drying heater element and earth	Safety load cycle. Stop of the cycle with door locked	ON/OFF RESET
E68	Ground current leakage	YES	YES	YES	Voltage value on heater sensing different from Vmains value	EWX11, EWX13: Current leakage between wash heater element and earth EWX14: Current leakage between wash or dry heater element and earth	Cycle blocked with door opened	START RESET

ALARM CODE	ALARM DESCRIPTION	ENABLED			FAULT CONDITION	POSSIBLE FAULT	MACHINE ACTION/STATUS	RESET KEY
		EWX11	EWX13	EWX14				
E69	Washing heating element opened	YES	YES	YES	Voltage value different from Vmains value when heating element is not powered during the cycle execution	Wash heating element faulty (thermo fuses opened) Wiring defective Main board defective	No actions	START ON/OFF RESET
E6A	Heating relay sensing failure	YES	YES	YES	Wrong input signal to microprocessor	Main board defective Ultra aqua stop device or wiring faulty	Cycle blocked with door locked	RESET
E6H (E6B)	Heater wd relay (versus Line) failure	YES	YES	-	Incongruence between heater relay sensing and relay status	Main board defective Wash heating element faulty Wiring defective	Safety load cycle Stop of the cycle with door locked	ON/OFF RESET
E71	Washing NTC failure	YES	YES	YES	Wrong input signal to microprocessor (open circuit or short circuit)	Washing NTC defective Wiring or main board defective	Heating phases skipped	START RESET
E72	Output drying NTC failure	YES	YES	YES	Voltage value out of limit (open circuit or short circuit)	Output drying NTC defective Wiring or WD board defective	Drying heating phases skipped	START RESET
E73	Input drying NTC failure	YES	YES	YES	Voltage value out of limit (open circuit or short circuit)	Input drying NTC defective Wiring or WD board defective	Drying heating phases skipped	START RESET
E74	Washing NTC badly positioned	YES	YES	YES	The washing temperature does not increase	Washing NTC sensor badly positioned NTC sensor faulty Wiring or main board defective	Heating phases skipped	RESET
E75	Drying Capillary NTC failure	YES	-	-	Voltage value out of limit (open circuit or short circuit)	Capillary NTC defective Wiring or WD board defective	Drying heating phases skipped	START RESET
E76	Drying auxiliary NTC failure	YES	-	-	Voltage value out of limit (open circuit or short circuit)	Auxiliary NTC defective Wiring or WD board defective	Drying heating phases skipped	START RESET
E83	Wrong selector reading	YES	YES	YES	Selector position code value not supported by the configuration data	Wrong configuration data on microprocessor Main board defective	Reset cycle	START RESET
E84	EWX13: Recirculation pump / Motor fan triac sensing failure EWX14: Recirculation pump triac sensing failure	-	YES	YES	Wrong input signal to microprocessor	Main board defective	Safety Drain cycle Cycle stops with door unlocked	RESET
E85	EWX13: Recirculation pump / Motor fan triac alarm EWX14: Recirculation pump triac alarm	-	YES	YES	Incongruence between triac sensing and triac status	EWX13: Recirculation pump or motor fan defective Wiring or main board defective EWX14: Recirculation pump defective Wiring or main board defective	Safety Drain cycle Cycle stops with door unlocked	RESET

ALARM CODE	ALARM DESCRIPTION	ENABLED			FAULT CONDITION	POSSIBLE FAULT	MACHINE ACTION/STATUS	RESET KEY
		EWX11	EWX13	EWX14				
E86	Selector table configuration error	YES	YES	YES	Incorrect configuration of the User Interface	Wrong or missing selector configuration data on UI microprocessor - User interface defective	---	START ON/OFF RESET
E87	User Interface microcontroller fault	YES	YES	YES	User interface microcontroller damaged	User interface defective	No actions to be performed. If still present replace the User Interface Board	START ON/OFF RESET
E91	UI-MB communication error	YES	YES	YES	Communication problem between UI and MB	Wiring defective, or UI, MB, Motor, WD, Weight board defective,	---	RESET
E92	UI-MB protocol incongruence error	YES	YES	YES	Protocol communication between UI and MB not compatible	Main board incompatible with user interface board	Cycle blocked	OFF/ON
E93	Machine configuration error	YES	YES	YES	Incorrect configuration of appliance	Incorrect configuration data Main board defective	Cycle blocked	OFF/ON
E94	Cycle Configuration error	YES	YES	YES	Incorrect configuration of washing cycles	Incorrect configuration data Main board defective	Cycle blocked	OFF/ON
E97	Incongruence between selector and cycles configuration	YES	YES	YES	Incongruence between program selector and cycle configuration	Incorrect configuration data Main board defective	Cycle blocked	RESET
E98	FCV_MB protocol incong. Error	YES	YES	YES	Protocol communication between FCV and MB not aligned	Main board incompatible with FCV control board	Cycle blocked	OFF/ON
E9C	User Interface Configuration fault	YES	YES	YES	Configuration wrongly or not received	Display Board	No actions	ON/OFF START RESET
E9E	UI touch fault	YES	YES	YES	Touch display not working	Display Board	No actions	OFF/ON
EA1	DSP system failure	YES	YES	YES	Not drum position sensing during motor activation	Wiring or main board defective DSP sensor failure Main motor belt broken	Skip of the drum positioning phase	START RESET
EA6	DSP door open failure	YES	YES	YES	Not impulses coming from DSP sensor during motor activation	Wiring or main board defective DSP sensor failure Main motor belt broken Lid open	Cycle paused	START RESET
EAA	Niux SSH serialization alarm	-	-	YES	Missing/not correct Niux serialization data information.	Serialization process not completed successfully	Connectivity disabled	ON/OFF START RESET
EAH (EAB)	Niux communication alarm	-	-	YES	Communication problem between UI and Niux	UI or Niux board defective, or wiring between this board defective	Connectivity disabled	ON/OFF START RESET

ALARM CODE	ALARM DESCRIPTION	ENABLED			FAULT CONDITION	POSSIBLE FAULT	MACHINE ACTION/STATUS	RESET KEY
		EWX11	EWX13	EWX14				
EAC	Niux always on alarm	-	-	YES	Niux board always switched on	UI board	No actions	ON/OFF START RESET
EAD	Serialization Mismatch alarm	-	-	YES	Serialization data not aligned between boards.	Electronic Boards exchanged between appliances	Connectivity disabled	START ON/OFF RESET
EH1 (EB1)	Power supply frequency out of limits	YES	YES	YES	Power supply period lower/higher than configured values	Wrong or disturbed Power Supply line. Main board defective	Wait for nominal power supply conditions	OFF/ON
EH2 (EB2)	Power supply voltage too high	YES	YES	YES	MAIN_V sensing input value greater than configured value	Wrong or disturbed Power Supply line. Main board defective	Wait for nominal power supply conditions	OFF/ON
EH3 (EB3)	Power supply voltage too low	YES	YES	YES	MAIN_V sensing input voltage value lower than configured value	Wrong or disturbed Power Supply line. Main board defective	Wait for nominal power supply conditions	OFF/ON
EH4 (EB4)	Zero Watt relay alarm	YES	YES	-	Zero Watt relay not working and machine still switched on	Main board defective	No actions	OFF/ON RESET
EHC (EBC)	Line WD relay alarm	YES	-	-	Incongruence between line WD relay sensing and relay status	Main board defective	Safeties drain cycle Stop of the cycle with door opened	ON/OFF RESET
EHD (EBD)	Heater WD relay sensing alarm	YES	YES	YES	Wrong input signal to microprocessor	Main board defective	Cycle blocked with door locked	RESET
EHE (EBE)	FCV Relay failure	YES	-	YES	Incongruence between safeties relay sensing and FCV relay status	FCV Relay defective FCV sensing circuit defective Wiring or main board defective	Safety Drain cycle activation, stop of the cycle with door opened	RESET
EHF (EBF)	FCV relay sensing failure	YES	-	-	Input voltage value on microprocessor always to 0V or to 5V	Main board defective	Safety Drain cycle activation, stop of the cycle with door opened	RESET
EC1	Electro valves blocked	YES	YES	YES	Flow meter running with electro valves switched OFF	Electro valves defective/blocked Main board defective	Cycle blocked Water drain up to anti-boil level or max. 5 minutes with door locked. When O.L. blocked drain pump ON/OFF for 5/5 minutes continuously	RESET
EC2	Weight sensor communication error	YES	-	YES	Communication problem between Weight sensor and MB	Wiring defective Weight Sensor defective MB defective	No actions	START RESET
EC3	Weight sensor fault	YES	-	YES	Signal coming from sensor out of limits	Weight sensor defective Main board defective Wiring	No actions	START RESET
EC4	Current sensor failure	-	YES	-	Current sensor for AGS estimations faulty.	Main board defective	Spinning reduced at safety speed value	RESET

ALARM CODE	ALARM DESCRIPTION	ENABLED			FAULT CONDITION	POSSIBLE FAULT	MACHINE ACTION/STATUS	RESET KEY
		EWX11	EWX13	EWX14				
EC8	TY5 triac failure	-	-	YES	Incongruence between TY5 triac sensing and triac status	TY5 triac load device defective (motor fan/hot valve/water softener board) Wiring or main board defective	Safety Drain cycle activation Cycle blocked	RESET
EC9	TY5 triac sensing failure	-	-	YES	Wrong input signal to microprocessor	Main board defective	Safety Drain cycle activation Cycle blocked	RESET
ECA	Detergent Dispenser Water Softener board communication alarm	-	-	YES	No communication between motherboard and DD-WS board	DD-WS board defective Wiring between MB and DD-WS, Main Board defective, UI defective, Weight defective, FCV defective	Cycle blocked	START ON/OFF RESET
ECH (ECB)	Detergent Dispenser Water Softener board failure	-	-	YES	DD-WS board defective: diverter faulty, microcontroller damaged, power supply out of limits	WSD assembly defective	Cycle blocked	START ON/OFF RESET
ECC	WS Sensor failure	-	-	YES	No changes in Level or Density Floats	Level or Density Float defective or mechanically blocked Detergent Dispenser Water Softener board defective, wiring between sensors and DD-WS	Cycle blocked	START ON/OFF RESET
ECD	WS pump failure	-	-	YES	Incongruence between driving and sensing circuit	Brine pump defective, wiring between pump and DD-WS, DD-WS board faulty	Cycle blocked	START ON/OFF RESET
ED1	WD board communication alarm	YES	YES	YES	No communication between motherboard and WD board	WD board defective Wiring between MB and WD Main Board defective, UI defective Weight defective, FCV defective	Cycle blocked	START ON/OFF RESET
ED2	WD heating element1 relay failure	YES	YES	YES	Incongruence between WD heating1 relay sensing and heating1 relay status	WD board defective Wiring, thermostats defective Main Board defective	Skip drying phase	START ON/OFF RESET
ED3	WD heating element1 sensing relay failure	YES	YES	YES	Signal out of the limits	WD board defective	Skip drying phase	START ON/OFF RESET
ED4	WD heating element2 relay failure	YES	YES	YES	Incongruence between WD heating2 relay sensing and heating1 relay status	WD board defective Wiring, thermostats defective Main Board defective	Skip drying phase	START ON/OFF RESET
ED5	WD heating element2 sensing relay failure	YES	YES	YES	Signal out of the limits	WD board defective	Skip drying phase	START ON/OFF RESET
ED6	WD thermostat sensing failure	YES	YES	YES	Signal of thermostat sensing out of limits	WD board defective	No actions	START ON/OFF RESET

ALARM CODE	ALARM DESCRIPTION	ENABLED			FAULT CONDITION	POSSIBLE FAULT	MACHINE ACTION/STATUS	RESET KEY
		EWX11	EWX13	EWX14				
ED7	WD thermostat failure	YES	YES	YES	EWX11, EWX13: Incongruence between WD heating 1 and 2 relay sensing or thermostat sensing out of limits EWX14: With satellite board: Incongruence between WD heating 1 and 2 relay sensing or thermostat sensing out of limits. Without satellite: Incongruence between heater and drying relay sensing.	EWX13: Manual or automatic thermostat opened Wiring, WD board defective EWX11, EWX14: Manual or automatic thermostat opened Wiring, WD board defective, drying heater element	No actions	START¶ON /OFF¶RESE T
ED8	WD fan motor tachometer absent	YES	YES	YES	Bad or no signal from tachometer	Fan Motor defective Fan Motor Wiring or WD board defective	Skip drying phase	ON/OFF RESET
ED9	WD fan motor driving circuit alarm	YES	YES	YES	Incongruence between fan motor status and the driving circuit sensing signal	WD board defective	Skip drying phase	ON/OFF RESET
EDA	WD Power Supply alarm	YES	YES	YES	Power supply period lower/higher than configured values or power supply values out of limits	Wrong or disturbed Power Supply line. WD board defective	Wait for nominal power supply conditions	START ON/OFF RESET
EDH (EDB)	WDM microcontroller fault	YES	YES	YES	WDM microcontroller damaged	WDM board defective	No actions to be performed. If still present replace the WDM Board	START ON/OFF RESET
EDC	WDM heating element opened	YES	YES	YES	Incongruence between WDM heating 1 and 2 relay sensing	Drying heating elements opened, unplugged, or wiring	No actions	START ON/OFF RESET
EDD	WDM Ground Current leakage alarm	YES	-	-	Line WD sensing out of nominal working thresholds	Current leakage between drying heater element and earth	Drying phases skipped.	START ON/OFF RESET
EE1	Fan current trip failure	YES	-	YES	The power module current immediately increases above 2.5 A.	Fan Wiring or Fan Control board defective	Cycle blocked	START ON/OFF RESET
EE2	Fan over current failure	YES	-	YES	The current of one fan phase increases above 0.8 A for a time of 0.6 ms	Fan defective Fan Wiring or Fan Control board defective Abnormal working condition (high friction on the fan)	Cycle blocked	START ON/OFF RESET
EE3	Fan over load alarm	YES	-	YES	This alarm is not managed (it cannot be set)	-	-	-

ALARM CODE	ALARM DESCRIPTION	ENABLED			FAULT CONDITION	POSSIBLE FAULT	MACHINE ACTION/STATUS	RESET KEY
		EWX11	EWX13	EWX14				
EE4	Fan not following alarm	YES	'	YES	This alarm is set if the fan isn't rotating at the speed imposed	Fan defective Fan Wiring or Fan Control board defective (abnormal working condition i.e. high friction on the fan)	Cycle blocked	START ON/OFF RESET
EE5	Fan under voltage alarm	YES	'	YES	This alarm is set if the voltage input on the board is below 160 Vrms for a time of 20 ms	The mains voltage is under 160 Vrms Fan control board defective	Cycle blocked	START ON/OFF RESET
EE6	Fan over voltage alarm	YES	'	YES	This alarm is set if the voltage input on the board is above282 Vrms for a time of 20 ms	The mains voltage is above 282 Vrms Fan control board defective	Cycle blocked	START ON/OFF RESET
EE7	Fan plug not connected	YES	'	YES	This alarm is set if one or more phase current are around zero for a certain time. A current phase must be under 20 mA for a time of 5 seconds.	Fan defective Fan Wiring or Fan Control board defective	Cycle blocked	START ON/OFF RESET
EE8	Fan NTC wrong temperature alarm	YES	'	YES	This alarm is set if the temperature near the power module of the fan board is above 109 C° for a time of 5 seconds or if the temperature is below -5C° for a time of 5 seconds	Fan Control board defective (Over load condition)	Cycle blocked	START ON/OFF RESET
EE9	Fan CFG not ready	YES	'	YES	This alarm is not managed (it cannot be set).	-	-	-
EEA	Fan power module failure	YES	'	YES	This alarm is not managed (it cannot be set).	-	-	-
EEB	Cooler Fan failure	YES	'	YES	This alarm is set when the Cooler sensing does not match the expected relay state or if the power line signal sensing is not valid (must toggle at line frequency)	Cooler Fan defective Cooler Fan wiring defective Fan Control board defective	No action	START ON/OFF RESET
EEC	Compressor failure	YES	'	YES	This alarm is set when the Compressor sensing does not match the expected relay state or if the power line signal sensing is not valid (must toggle at line frequency).	Compressor defective or thermal protection action Compressor wiring Fan control board faulty	No action	START ON/OFF RESET
EF1	Filter clogged warning	YES	YES	YES	Difficulties to drain. Virtual AB level remains in full state after an established time	Filter clogged or dirty Drain pipe clogged/kinked/too high	Warning displayed at the end of the cycle	START RESET

| ALARM CODE	ALARM DESCRIPTION	ENABLED			FAULT CONDITION	POSSIBLE FAULT	MACHINE ACTION/STATUS	RESET KEY
		EWX11	EWX13	EWX14				
EF2	Foam warning	YES	YES	YES	Virtual AB level in full state during spin phase at the end of the washing phase	Excessive detergent dosing Drain filter dirty or clogged Drain pipe kinked or clogged	Alarm displayed after 5 attempts (if specific LED configured)	RESET
EF3	Aqua Control warning	YES	YES	YES	EWX11, EWX13: DRAIN_TY_S "low" if triac not activated and Aqua Control present on the machine EWX14: Aqua control sensing signal high (in appliance equipped with safety device)	EWX11: Water on the basement Aqua Control defective Drain pump thermal protection action EWX13, EWX14: Water on the basement Aqua Control defective	Drain pump activated	ON/OFF¶RESET
EF4	Water load low pressure	YES	YES	YES	Flow meter stooped with electro valves switched on	Tap closed/low pressure of incoming water	No actions	RESET
EF5	Load too unbalanced	YES	YES	YES	Final spin phase skipped due to a high unbalance load	Load unbalanced	No actions	START RESET
EF6	Safety reset	YES	YES	YES	MB microcontroller damaged	Main Board defective	No actions to be performed. If still present replace the Main Board	-
EF7	Drying Filter not present	YES	-	YES	Drying Filter not present or switch not working properly during a drying cycle	Drying Filter not closed Switch not working properly Switch wiring defective or Main Board defective	Pause	START RESET
EF8	Salt missing warning	-	-	YES	Insufficient salt quantity on salt box or defective water softener device	Water softener device, water softener sensors, or wiring defective Salt missing	No actions	START RESET

The purpose of this paragraph is to explain the cycles in a simple way.
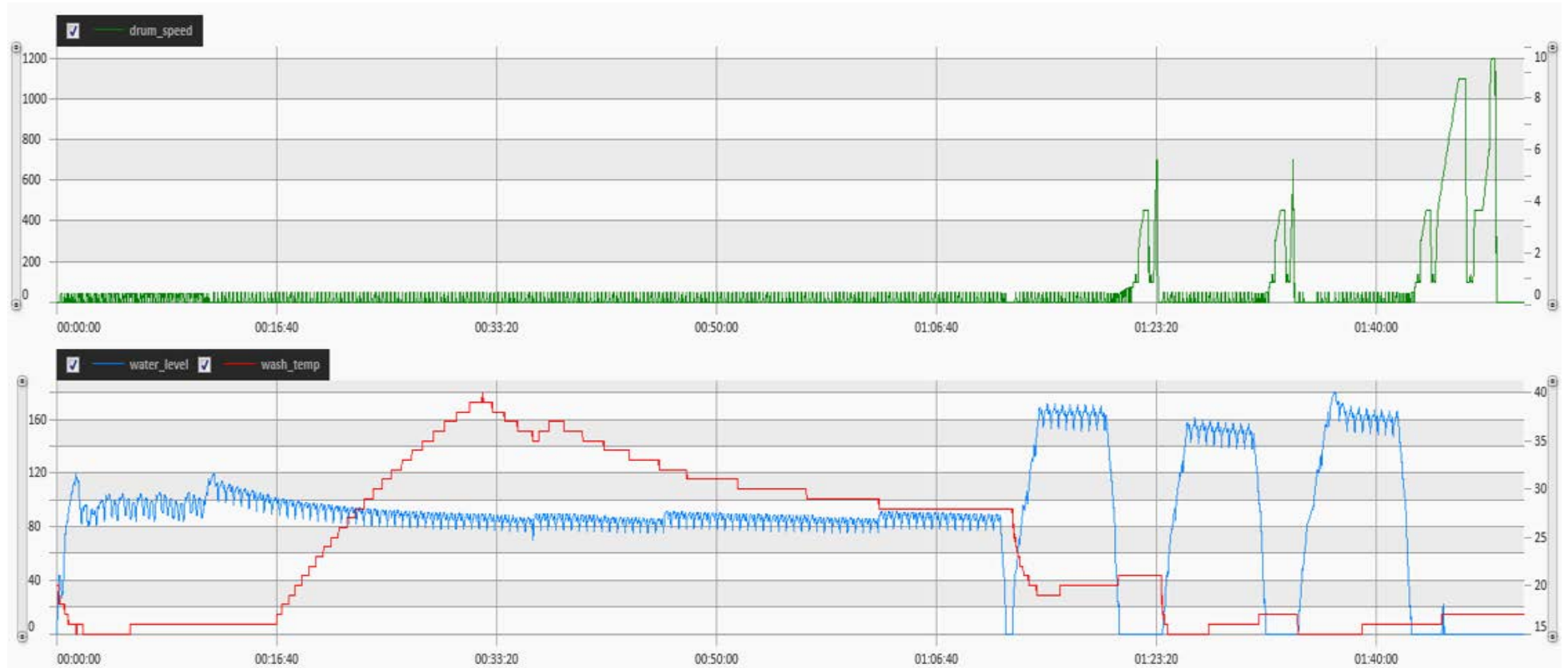For each Main Cycle there are two graphs:
1. drum speed (green line);
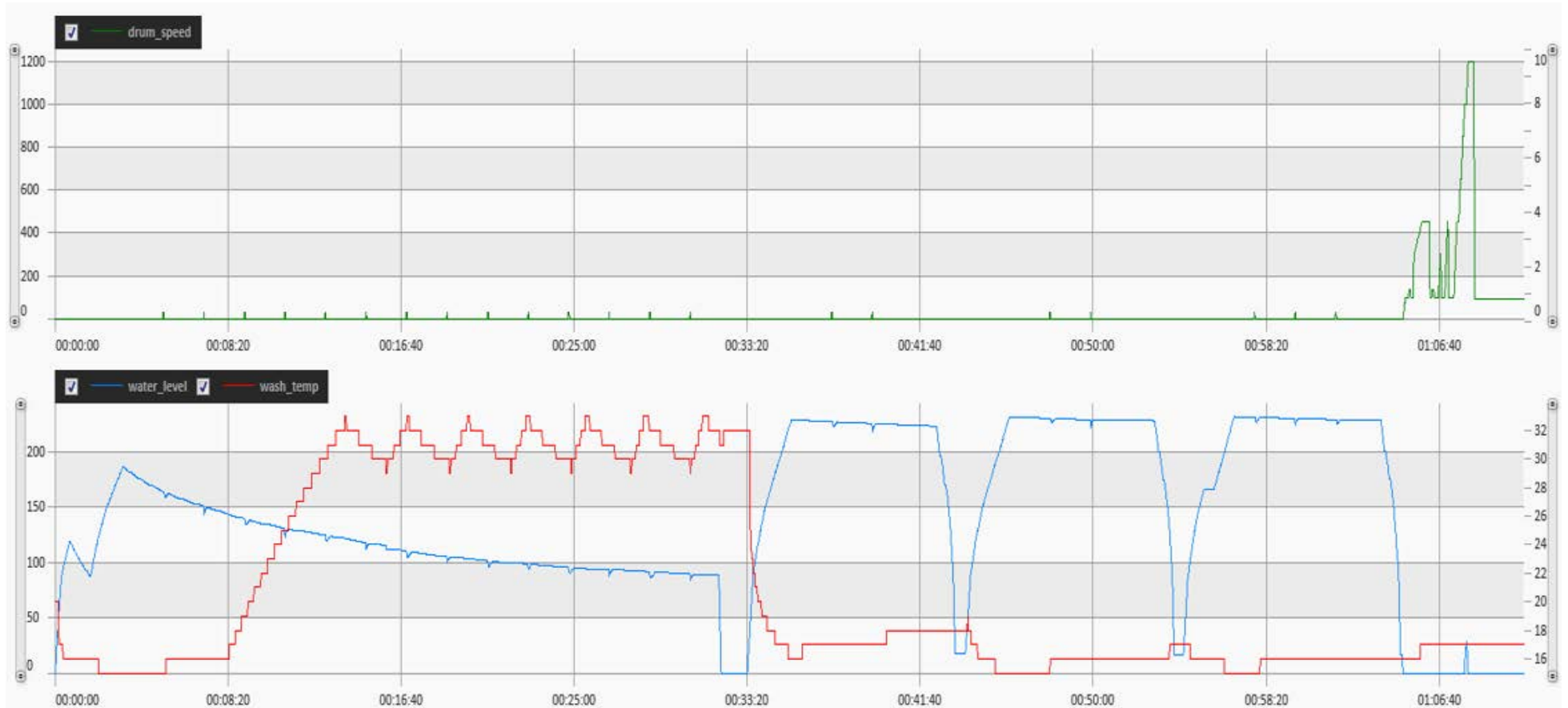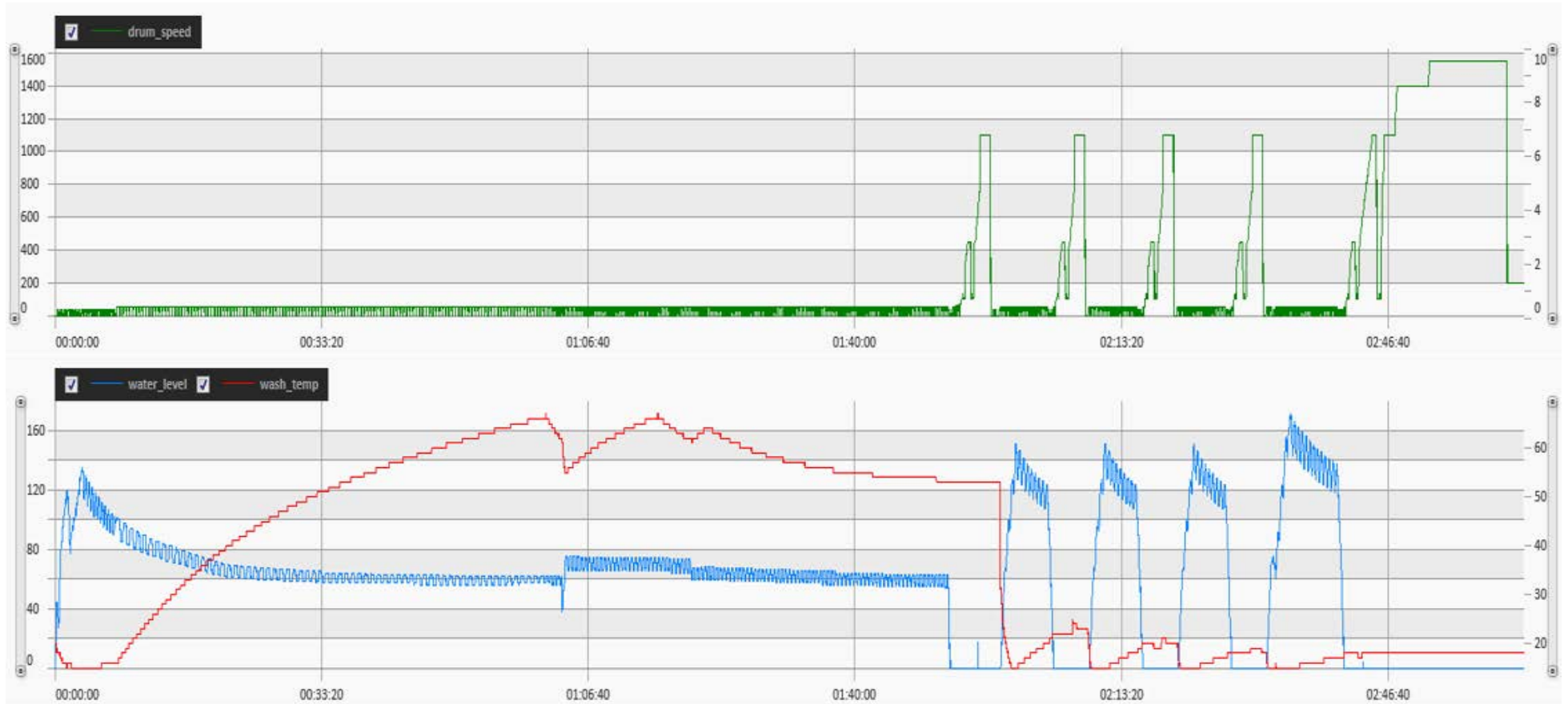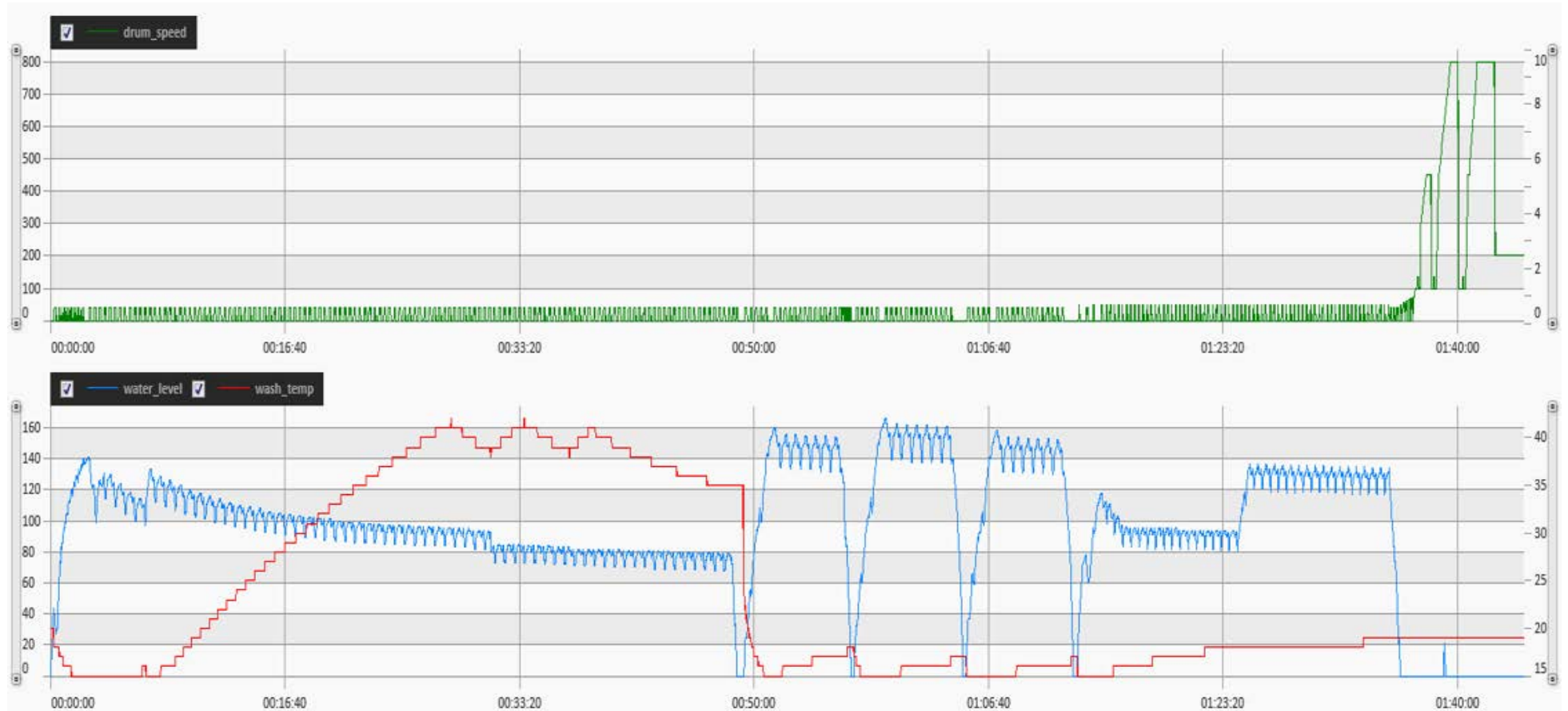2. water level (blue line) and wash temp (red line).

COTTON, 40°C, 1600RPM
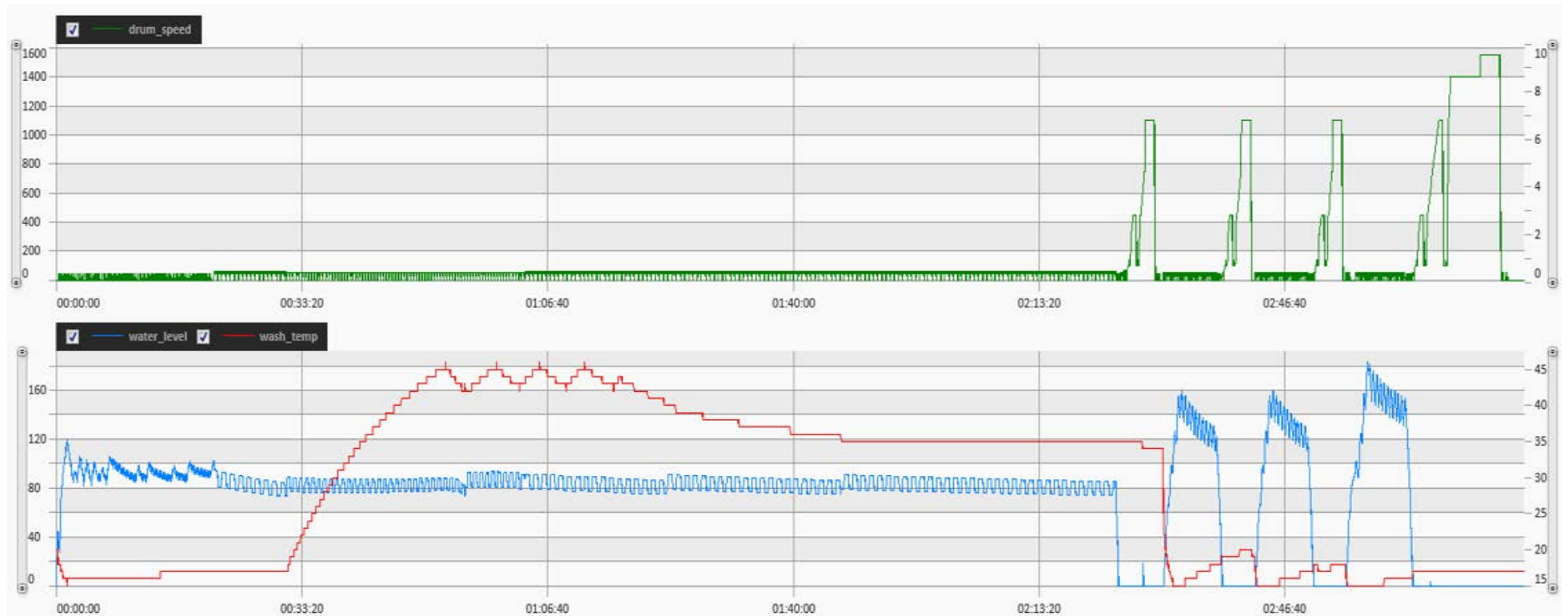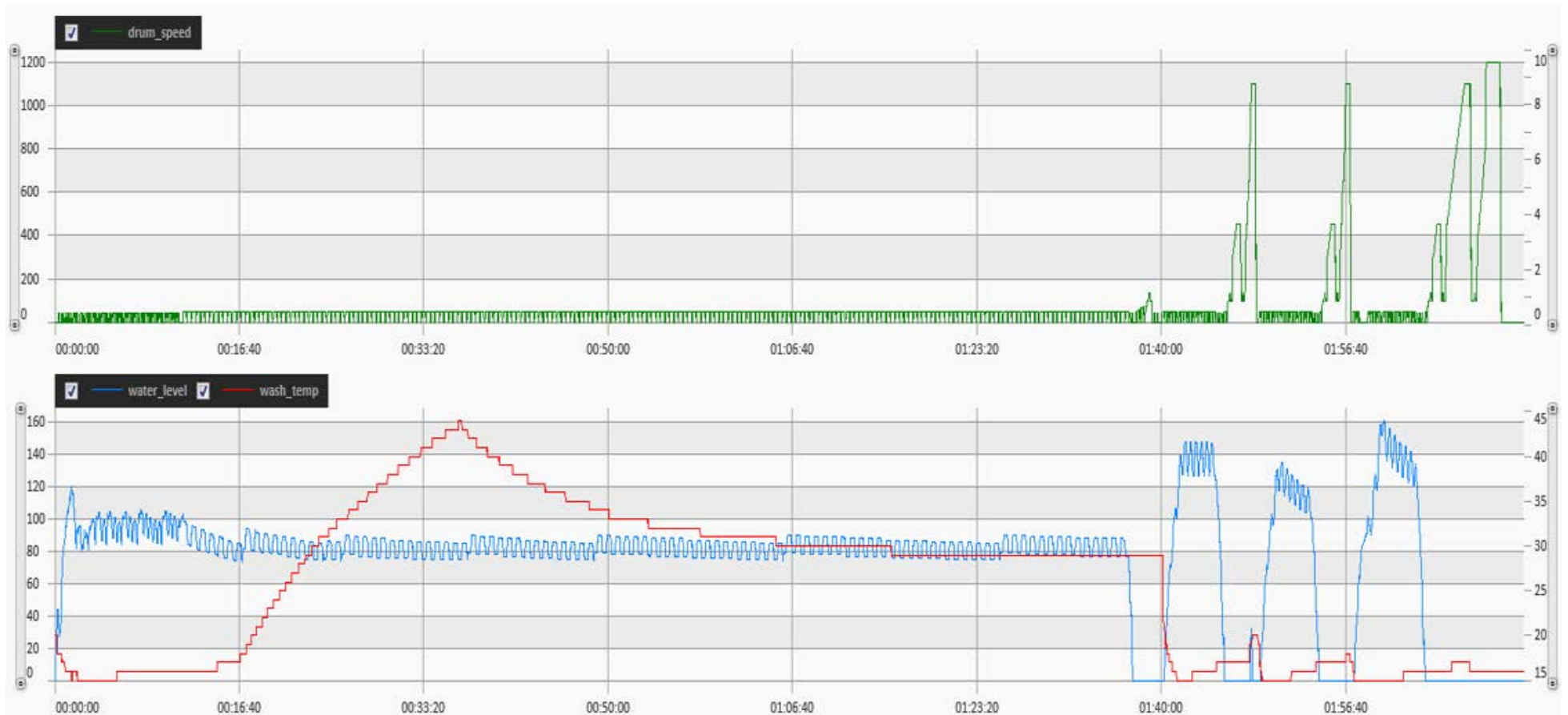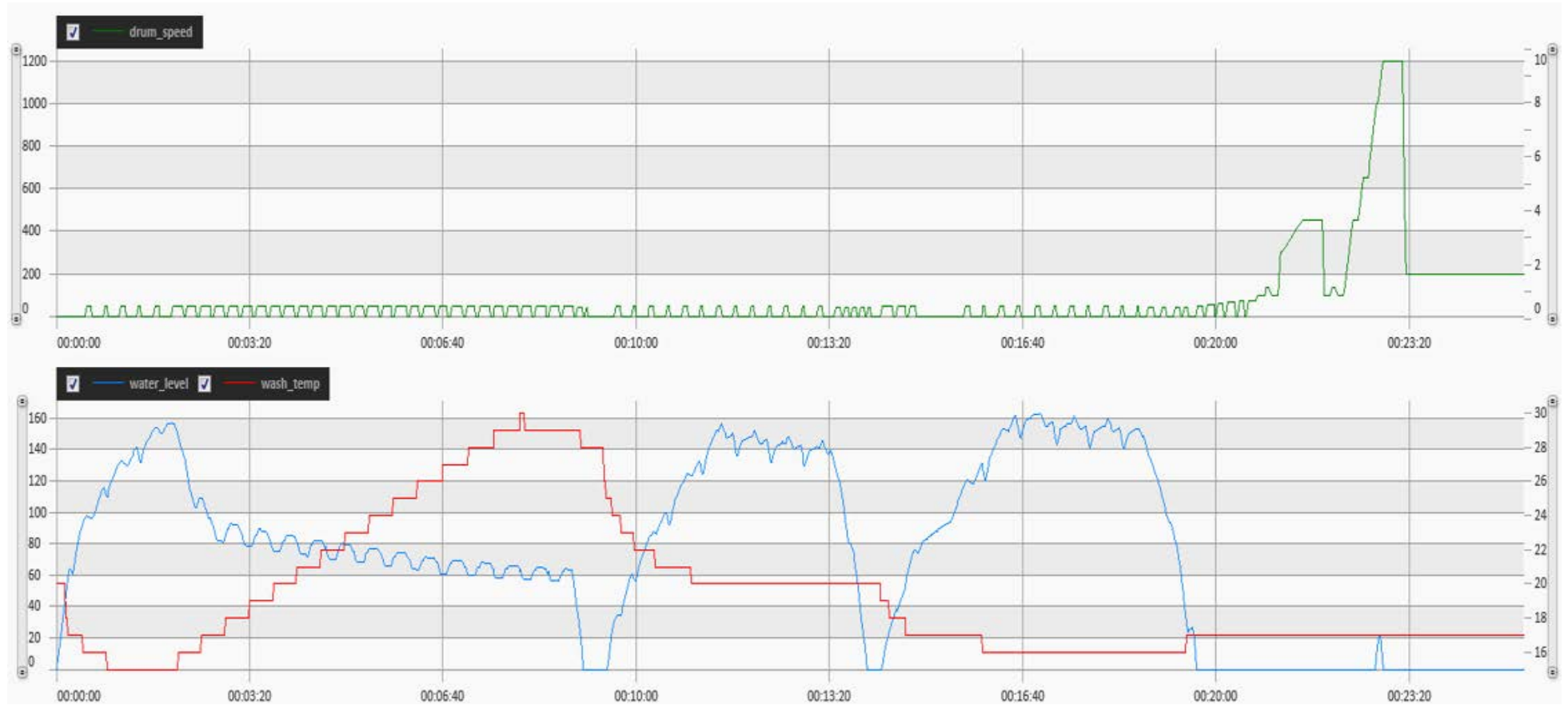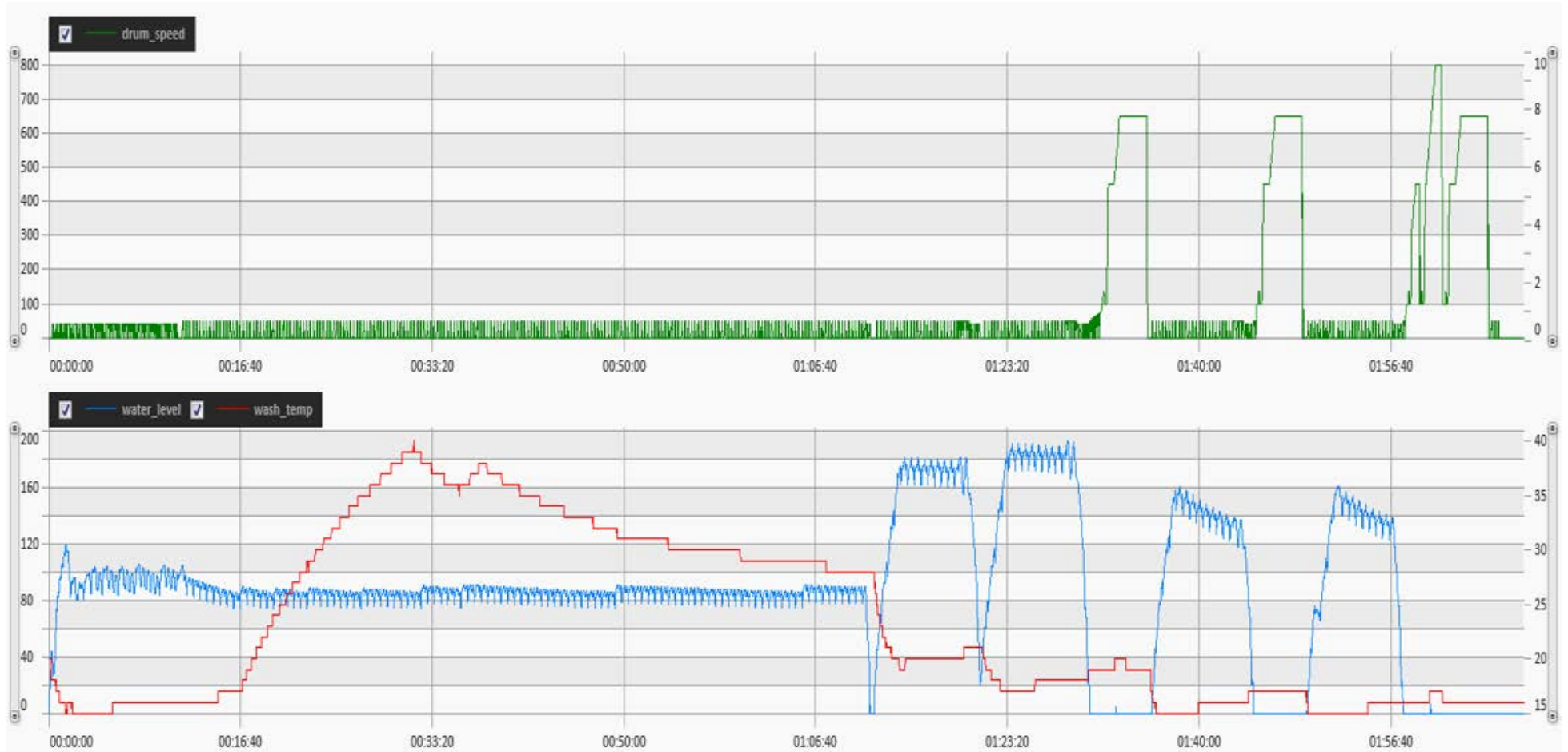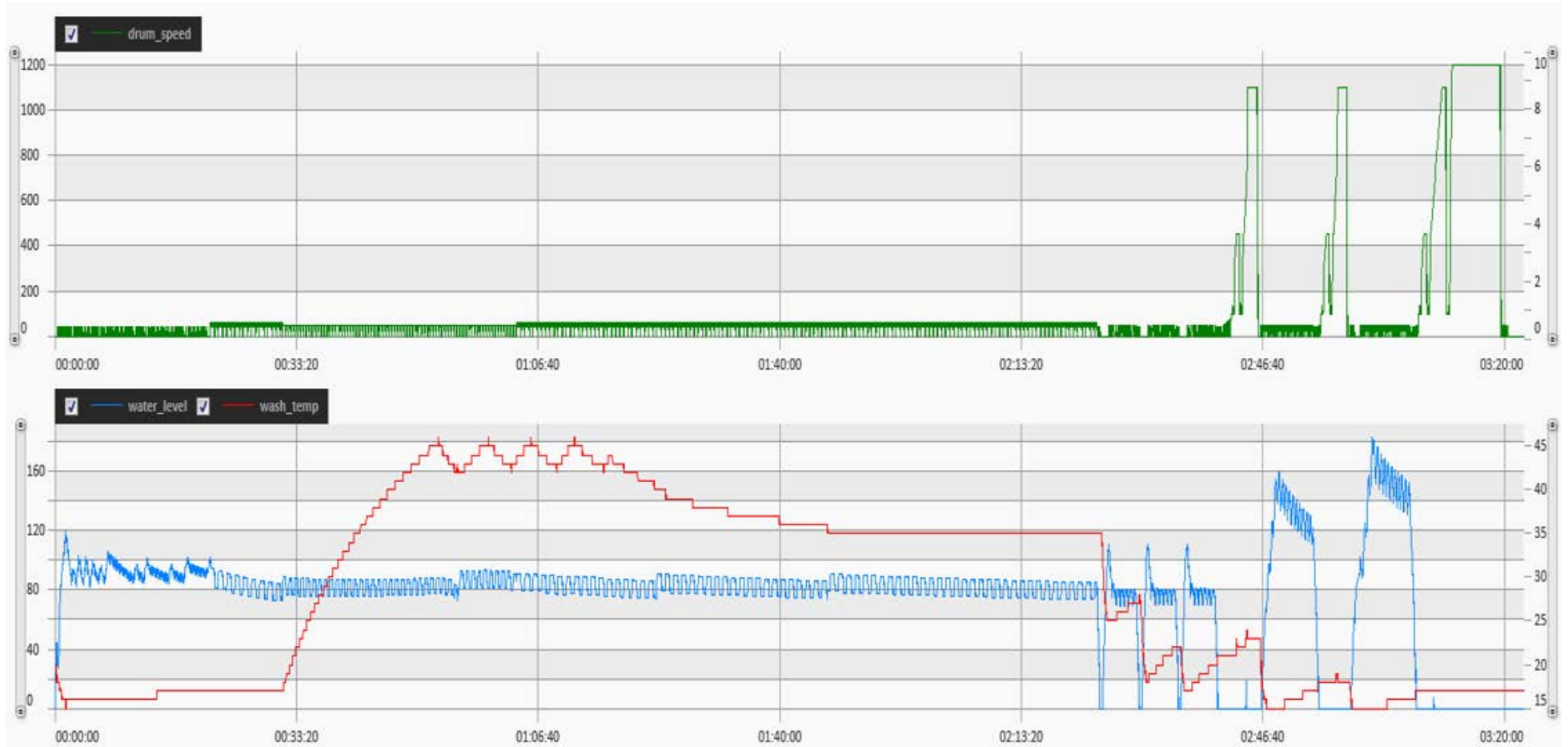
To check the efficiency of the heat pump, the appliance cannot have performed a washing or drying cycle for some hours, and the drum must be empty (otherwise the control is falsified).

Step by step procedure:
1. enter Diagnostic Mode
2. turn the selector knob to the 10th position (without stopping at any intermediate position)

⚠️ **Information**
"NTC sensor check"

- Once you have selected the 10th position, the display will indicate alternately the temperatures corresponding to the NTC sensors (the relevant value is more or less the room temperature).
  Make a note of the three initial temperatures on a sheet of paper.
- If they are the same or if they differ by a maximum of 3 degrees, the NTC sensors are not in any way faulty, whereas if the difference is more than 3 degrees, check the sensor that detects the temperature that is not consistent with the others.

The letter preceding the temperature value detected indicates the position of the NTC probe:
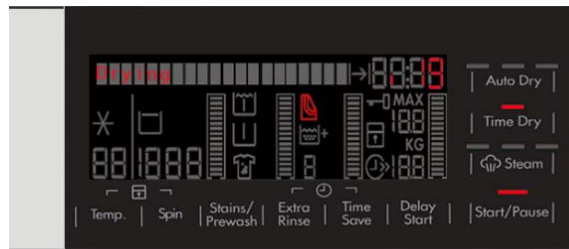

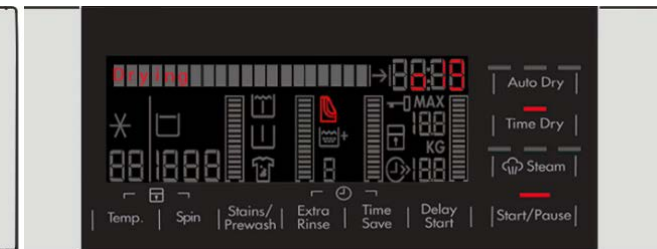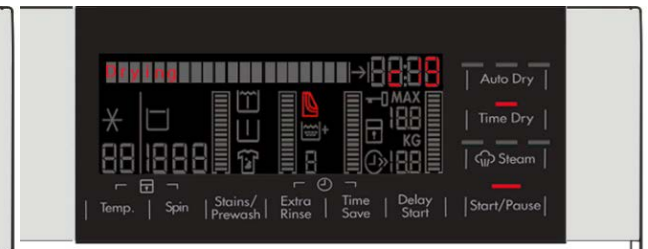in (input)   out (output)   capillary

Control panel display

NTC Temperature at Input (drying NTC positioned on the duct)

NTC Temperature at Output (humidity NTC positioned on the housing assembly)

NTC Temperature in contact with Capillary

Approximately 15 minutes after setting it to the tenth position: detect the temperatures and compare them with the ones detected initially.

If the temperature value has increased by a minimum of:

NTC Input	NTC Outout	NTC Capillary	The circuit is full
6°	3°	7°	

NTC Input	NTC Outout	NTC Capillary	The circuit is empty
2°	2°	2°	

AB	Anti Boiling
CCF	Cycle Configuration File
D&L	Density & Level sensors
DD	Detergent Dispenser
DDWS	Detergent Dispenser assemblies with integrated a Water Softener
DM	Diverter Motor
DSP	Digital Signal Processors
DV	DiVerter
FCV	Field Control Vectorial, generally used to indicate motor control board
FM	Flow-Meter sensor
Hard EV	Electro-Valve to load hard water in the DD
Hot EV	Electro-Valve to load hot hard water directly into the tub
MB	Main board, Motherboard
MCF	Machine Configuration File
NIU	Network Interface Unit
NIUX	NIUX is only a specific type of NIU (NIU LinuX version).
NTC	Negative Temperature Coefficient
PCB	Printed Circuit Board
RTO	Resin Tank Outlet to DV
Soft EV	Electro-Valve to load soft water in the DD
UI	User Interface
WD	Washer Dryer
WM	Washing Machine
WS	Water Softener
WSP	Water Softener Pump