Electrolux

SERVICE MANUAL
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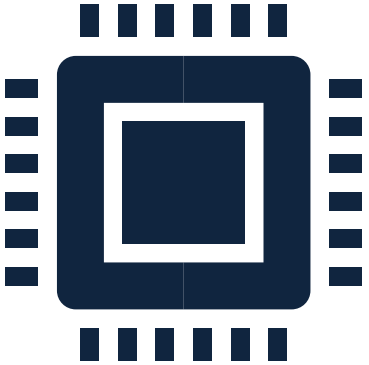
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BA Europe & Technical Support

WASHING MACHINES FRONT / TOP LOADED & WASHER DRYERS

User Interface

ALARMS



EN

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00	06/2019	Document creation
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1 PURPOSE OF THIS MANUAL

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, EWX20 electronic control systems.

The document no. **599 81 53 48** describes the basic functional concepts of all User Interface types designed for: **Pone, Diamond**

The document no. **599 86 64 24** describes the basic functional concepts of all User Interface types designed for: **Ruby.**

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:

PCB	EWX11	EWX13	EWX14	EWX20
Pone			X	
Diamond			X	
Ruby				X

The manual deals with the following topics:

- Guide to diagnostics

2 SAFETY

⚠ 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
- 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 drawer compartment 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.

3 DIAGNOSTIC PROGRAM DEFINITION

In the **1st selector position** the **User Interface test** is performed; all **LEDs** or display symbols are **lighted on sequentially** to allow checking the outputs.

Pressing any **button**, the associated **LEDs** and **display icons** are **lighted on** and the related **position number** is **shown** on cycle time (TTE) digits, 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.

Positioner spin direction

The appropriate direction of the positioner spin depends on the main board used in appliance:

	Clockwise:	POne, Diamond
	Counterclockwise:	Ruby

Enter "electric test" or "clear last alarms"

Once in the diagnostic mode, based on the selector position, pressing the key combination "diagnostic mode" leads to:

2 - 10	Diagnostic mode	the machine will set in electric test mode at the next power on
11	Last alarm	the alarm codes that were stored in memory will be reset

Enter "Extended diagnostic program" (ext)

- Extended diagnostic programs can be activated in each selector position simply by pressing the Start/Pause button.
  TTE digits show the "d" letter followed by the knob position code for about 2 seconds.
- To switch from extended to normal diagnostic programs and vice versa is enough to press the Start/Pause button.

		Selector position and TEST		PCB			
1		User Interface Test		EWX11	EWX13	EWX14	EWX20
2		Water load from **wash compartment**		EWX11	EWX13	EWX14	EWX20
2	ext	Water load from **salt box**, and **pump** activation (fast "Regeneration" process)	Water softener	-	-	EWX14	EWX20
2	ext	Activation of detergent **dosage pumps** and **reservoir sensor** reading	AutoDose	-	-	EWX14	EWX20
3		Water load from prewash compartment		EWX11	EWX13	EWX14	EWX20
4		Water load from softener compartment		EWX11	EWX13	EWX14	EWX20
5		Water load from third electro valve		EWX11	EWX13	EWX14	EWX20
6		Water load from **fourth electro valve** (hot electro valve *(if present)*)		EWX11	EWX13	EWX14	EWX20
7		Wash **heater** activation and **weight sensor** test *(if present)*		EWX11	EWX13	EWX14	EWX20
7	ext	Concentrated Wash **pump** activation *(if present)*		-	-	EWX14	EWX20
8		**Spin** phase at **250rpm** with **water** in the **tub** (leakage test)		EWX11	EWX13	EWX14	EWX20
9		**Drain**, **level sensor** calibration and spin phase at **maximum spin** speed		EWX11	EWX13	EWX14	EWX20
10		Drying loads activation / Ultra Aqua Stop device / Water softer device test		EWX11	EWX13	EWX14	EWX20
10	ext	Niux/WI-FI test	NIUX	-	-	EWX14	EWX20
11		**Last alarm** display and possible **reset**		EWX11	EWX13	EWX14	EWX20

Test cycles

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 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:
  - disable permanent modes/options such as Child Lock, Extra Rinse, Buzzer;

During the test the display 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 POSITION 1	
	Purpose of test:	To test the functionality of all lights, switches and buzzer.
	Activated components:	LED module display and buzzer
	UI behaviour:	LED module displays light on all symbols, pushing a button correspondent LED is lighted on, the key code is showed on the time digit display and the buzzer sound.
	Working conditions:	There isn't any control to run the test (always active).

TEST OF OUTPUTS

POne / Diamond / Ruby

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 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 Position 2	
	Purpose of test:	To test the water loading from WASH compartment.
	Activated components:	▪ Door lock device ▪ Wash electric valve ▪ Diverter (if present)
	UI behaviour:	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 min.

d02	WATER SOFTENER TEST Position 2	WATER SOFTENER
	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:	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.

d02	AUTO – DOSE TEST Position 2	AUTO-DOSING
	Purpose of test:	To test the auto-dosing module functionality.
	Activated components:	▪ Door lock device ▪ Detergent dosing pumps ▪ Reading of reservoir and drawer position sensors
	UI behaviour:	Detergent icons switched on to indicate that the auto-dosing module test is started. If blinking means that the respective tank is empty. "OFF" string lighted-on when the drawer is opened.
	Working conditions:	Door locked, detergent pump running for 10 sec followed by the softener pump activation for other 10 sec. During this preliminary test phase, the drawer can be extracted in order to see the pump shaft rotation. Pause of 4 sec and activation of both detergent pumps (Autodose) / Detergent pump in both directions (Autodose Evo) for 2 min.

C03 PREWASH COMPARTMENT TEST
Position 3

Purpose of test:	To test the water loading from PREWASH compartment.
Activated components:	▪ Door lock device ▪ Prewash electric valve ▪ Diverter (if present)
UI behaviour:	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 min.

C04 SOFTENER COMPARTMENT TEST
Position 4

Purpose of test:	To test the water loading from SOFTENER compartment.
Activated components:	▪ Door lock device ▪ Wash and prewash electric valves
UI behaviour:	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 min.

C05 THIRD ELECTROVALVE TEST
Position 5

Purpose of test:	To test the water loading from third electro valve.
Activated components:	▪ Door lock device ▪ Third electric valve
UI behaviour:	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 min.

C06 FOURTH ELECTROVALVE TEST
Position 6

Purpose of test:	To test the water loading from fourth electro valve (hot electro valve (if present)).
Activated components:	▪ Door lock device ▪ Fourth electric valve.
UI behaviour:	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 min.

C07 WASH HEATER TEST
Position 7

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 than 1st levels ▪ Diverter (if present) ▪ Recirculation pump (if present) ▪ If the weight sensor is present an additional water load of 1L is executed in order to evaluate if the sensor is able to measure the extra quantity of water loaded.
UI behaviour:	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 than virtual AB level, for max. 10 min or up to 90°C water temperature.

d07 CONCENTRATED WASH PUMP TEST
Position 7

Purpose of test:	To test the concentrated wash pump (if present)
Activated components:	▪ Door lock device ▪ Concentrated wash pump (if present)
UI behaviour:	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
Position 8

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 than 1st level ▪ Diverter (if present)
UI behaviour:	The clock digits report the actual drum speed in rpm divided by 10.
Working conditions:	Door locked, water level greater than 1st virtual level, up to 250 rpm.

C09 DRAIN AND SPIN TEST
Position 9

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:	The clock digits report the actual drum speed in rpm divided by 10.
Working conditions:	Door locked, water level lower than antifoam level (correspondent to anti-boil level), up to maximum speed.

C10 DRYING TEST
Position 10

WD only

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 WD machines: ▪ Door lock device ▪ Drain pump ▪ Fan motor ▪ Compressor ▪ Fan cooler
UI behaviour:	Air **temperature** on digits (in **°C**). Traditional WD machines: Toggle between upper and lower NTC temperature	Heat pump WD 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 min.	Heat Pump WD machines: Door locked, water level lower than antiboiler level ▪ 10 sec of fan cooler activation; ▪ 20 min with fan and compressor switched on and fan cooler working at temperature.

C10	ULTRA AQUA STOP DEVICE TEST Position 10	
	Purpose of test:	To verify the Ultra Aqua Stop device.
	Activated components:	▪ Door lock device ▪ Ultra Aqua Stop device and electro valves
	UI behaviour:	The **display** shows "---"
	Working conditions:	To test the new device a new specific sequence has been designed: ▪ Ultra Aqua Stop device activated for 22 sec ▪ Ultra Aqua Stop and wash electrovalve active for 6 sec Only wash valve activated for 6 sec

C10	WATER SOFTER DEVICE TEST Position 10	
	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:	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.Ultra Aqua Stop and wash electrovalve active for 6 sec

d10	NIUX/WI-FI TEST Position 10	
	Purpose of test:	To test the Niux board (if present)
	Activated components:	▪ Niux board (Wi-fi On/Off).
	UI behaviour:	The **display** shows "---"
	Working conditions:	In the Diagnostic Mode it is possible for the Service to test the Wi-Fi module.

4 ALARMS

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.

"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.

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.

5 ALARMS SOFTWARE MANAGEMENT DESCRIPTION

E1		
E11	WASHING WATER LOAD TIMEOUT	This alarm will be set when the water load timeout has been exceeded. Platforms EWX11, EWX13 EWX14 and EWX20 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 Vmax 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.

E2		
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.

<table>
<tr><td></td><td></td><td colspan="3">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.</td></tr>
<tr><td>E22</td><td>DRYING WATER DRAIN TIMEOUT</td><td colspan="3">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.</td></tr>
<tr><td rowspan="2">E23</td><td rowspan="2">DRAIN PUMP TRIAC FAILURE</td><td colspan="3">There is an incongruent situation between the sensing of the triac that drives the drain pump and the output given by the microprocessor.</td></tr>
<tr><td>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).</td><td>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 :
o the pump is disconnected (or the thermal protection is opened)
o 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.</td><td>EWX14, EWX20:
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.</td></tr>
<tr><td>E24</td><td>DRAIN PUMP TRIAC SENSING FAILURE</td><td colspan="3">The sensing of the drain 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 (EWX11, EWX13) / a signal less 3.5 Volt (EWX14, EWX20).
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, EWX20).
This alarm management performs the safety drain cycle and forces the door opening.</td></tr>
</table>

		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.

E3			
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.

E4		
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, EWX20), 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 alarm appears if the read value exceeds 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

<table>
<tr><th colspan="4">E5</th></tr>
<tr><td>E51</td><td>MOTOR TRIAC SHORT CIRCUIT</td><td colspan="2">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 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.</td></tr>
<tr><td rowspan="2">E52</td><td rowspan="2">NO TACHOMETER SIGNAL</td><td>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.</td><td>EWX11, EWX14, EWX20:
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.</td></tr>
<tr><td colspan="2">To clear this alarm is necessary switch off the machine (EWX11, EWX13, EWX14, EWX20) or reset the current cycle (EWX11, EWX14, EWX20).</td></tr>
<tr><td>E53</td><td>MOTOR TRIAC SENSING FAILURE</td><td colspan="2">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.
The alarm appears if the read value exceeds 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.</td></tr>
<tr><td>E54</td><td>MOTOR DIRECTION RELAY FAILURE</td><td colspan="2">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.</td></tr>
</table>

		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.
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.

E6		
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.

<table>
<tr><td></td><td></td><td colspan="2">The alarm is not active in this platform.</td></tr>
<tr><td>E62</td><td>WATER OVERHEATING</td><td colspan="2">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.</td></tr>
<tr><td rowspan="2">E66</td><td rowspan="2">HEATING ELEMENT RELAY FAILURE.</td><td>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)</td><td>EWX13, EWX14, EWX20:
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, EWX20).
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.</td></tr>
<tr><td colspan="2">To clear this alarm is necessary switch off the machine or reset the current cycle.</td></tr>
</table>

<table>
<tr><td rowspan="4">E68</td><td rowspan="4">GROUND CURRENT LEAKAG</td><td colspan="3">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.</td></tr>
<tr><td>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:
o ~ 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.</td><td colspan="2">EWX13, EWX14, EWX20:
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:
o ~ 80 KΩ (EWX13) / 90 KΩ (EWX14,EWX20) versus Line
o ~ 50 KΩ (EWX13) / 60 KΩ (EWX14,EWX20) versus Neutral</td></tr>
<tr><td>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.</td><td>EWX14,EWX20:
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.</td></tr>
<tr><td rowspan="3">E69</td><td rowspan="3">HEATING ELEMENT OPENED</td><td colspan="3">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".</td></tr>
<tr><td>EWX11:
• 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</td><td colspan="2">EWX13, EWX14, EWX20:
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</td></tr>
</table>

<table>
<tr><td></td><td></td><td>"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.</td><td>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.</td></tr>
<tr><td></td><td></td><td colspan="2">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.</td></tr>
<tr><td></td><td></td><td colspan="2">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.</td></tr>
<tr><td>E6A</td><td>HEATER RELAY SENSING FAILURE</td><td colspan="2">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, EWX20).
Appliances equipped with ultra Aqua Stop device can set this alarm if the valve is broken or the wiring is damaged (EWX14, EWX20).
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.</td></tr>
</table>

<table>
<tr><td>E6B</td><td>HEATING WD RELAY FAILURE</td><td>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.</td><td>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.</td></tr>
<tr><td>E71</td><td>WATER NTC FAILURE</td><td colspan="2">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 alarm appears if the read value exceeds 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.</td></tr>
<tr><td>E72</td><td>OUTPUT DRYING NTC FAILURE</td><td colspan="2">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 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.</td></tr>
</table>

E73	INPUT DRYING NTC FAILURE	The voltage value read on the NTC sensing is out of limits. 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. 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

E8			
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,EWX20). 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,EWX20) 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).	EWX14, EWX20: 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 triac is not driven by the microprocessor while the sensing reads a lower value on the negative half wave of the signal.	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.	

E9		
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.
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, EWX20: 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). 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). To restart, the supply voltage must go over the voltage threshold level by 5VRMS.

<table>
<tr><td></td><td></td><td colspan="2">This alarm can be auto reset if the power supplies voltage return at normal values.</td></tr>
<tr><td>EBC
(EHC)</td><td>LINE WD RELAY FAILURE</td><td colspan="2">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.</td></tr>
<tr><td>EBD
(EHD)</td><td>HEATER WD RELAY SENSING FAILURE</td><td>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.</td><td>EWX13, EWX14, EWX20:
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.</td></tr>
<tr><td rowspan="2">EBE
(EHE)</td><td rowspan="2">FCV RELAY FAILURE</td><td colspan="2">There is an incongruent situation between the sensing of the relay and the driving circuit state.</td></tr>
<tr><td>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.</td><td>EWX14, EWX20:
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.</td></tr>
</table>

		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.	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 alarm appears if the read value exceeds 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	DRAWER COMPARTMENT 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)	DRAWER COMPARTMENT 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: o Level float

		o 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.
ECE	AUTO-DOSING BOARD FAILURE	The alarm appears in the following situations: - driving/sensing circuit of detergent pumps faulty; - calibration parameters of reservoir sensors missing; - no communication between PB and satellite board. 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.

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
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.	EWX14,EWX20: 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.

		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.	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)	COMPRESSOR COOLING FAN FAILURE	This alarm is set when the compressor cooling fan 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	AQUA 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.	EWX14, EWX20: 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.

		▪ 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.	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.	

6 ALARMS TABLE

The alarm codes listed in the table below are divided by platform: EWX11, EWX13, EWX14, EWX20.

ALARM CODE	ALARM DESCRIPTION	ENABLED				FAULT CONDITION	POSSIBLE FAULT	MACHINE ACTION/STATUS	RESET KEY
		EWX11	EWX13	EWX14	EWX20				
E11	Difficulties in water fill for washing	YES	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	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	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	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	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	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	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	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	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	EWX20				
E32	Electronic pressure switch calibration problems	YES	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	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	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	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	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	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	YES	Wrong input signal to microprocessor	Main board defective	Safety Drain cycle activation Cycle blocked	RESET
E45	Door triac sensing failure	YES	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	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	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				FAULT CONDITION	POSSIBLE FAULT	MACHINE ACTION/STATUS	RESET KEY
		EWX11	EWX13	EWX14	EWX20				
E58	FCV Over current	YES	-	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	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	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	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	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	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	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	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	-	-	-	YES	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	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	YES	Incongruence between heater relay sensing and relay status	EWX11, EWX13: Main board defective Current leakage between wash heater element and earth EWX14, EWX20: 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

ALARM CODE	ALARM DESCRIPTION	ENABLED				FAULT CONDITION	POSSIBLE FAULT	MACHINE ACTION/STATUS	RESET KEY
		EWX11	EWX13	EWX14	EWX20				
E68	Ground current leakage	YES	YES	YES	YES	Voltage value on heater sensing different from Vmains value	EWX11, EWX13: Current leakage between wash heater element and earth EWX14, EWX20: Current leakage between wash or dry heater element and earth	Cycle blocked with door opened	START RESET
E69	Washing heating element opened	YES	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	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	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	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	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	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	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, EWX20: Recirculation pump triac sensing failure	-	YES	YES	YES	Wrong input signal to microprocessor	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	EWX20				
E85	EWX13: Recirculation pump / Motor fan triac alarm EWX14, EWX20: Recirculation pump triac alarm	-	YES	YES	YES	Incongruence between triac sensing and triac status	EWX13: Recirculation pump or motor fan defective Wiring or main board defective EWX14, EWX20: Recirculation pump defective Wiring or main board defective	Safety Drain cycle Cycle stops with door unlocked	RESET
E86	Selector table configuration error	YES	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	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	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	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	YES	Incorrect configuration of appliance	Incorrect configuration data Main board defective	Cycle blocked	OFF/ON
E94	Cycle Configuration error	YES	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	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	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	YES	Configuration wrongly or not received	Display Board	No actions	ON/OFF START RESET
E9E	UI touch fault	YES	YES	YES	YES	Touch display not working	Display Board	No actions	OFF/ON
EA1	DSP system failure	YES	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

ALARM CODE	ALARM DESCRIPTION	ENABLED				FAULT CONDITION	POSSIBLE FAULT	MACHINE ACTION/STATUS	RESET KEY
		EWX11	EWX13	EWX14	EWX20				
EA6	DSP door open failure	YES	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	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	YES	Communication problem between UI and Niux	UI or Niux board defective, or wiring between this board defective	Connectivity disabled	ON/OFF START RESET
EAC	Niux always on alarm	-	-	YES	YES	Niux board always switched on	UI board	No actions	ON/OFF START RESET
EAD	Serialization Mismatch alarm	-	-	YES	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	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	YES	MAIN_V sensing input voltage 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	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	-	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	-	-	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	YES	Wrong input signal to microprocessor	Main board defective	Cycle blocked with door locked	RESET
EHE (EBE)	FCV Relay failure	YES	-	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	-	-	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

ALARM CODE	ALARM DESCRIPTION	ENABLED				FAULT CONDITION	POSSIBLE FAULT	MACHINE ACTION/STATUS	RESET KEY
		EWX11	EWX13	EWX14	EWX20				
EC1	Electro valves blocked	YES	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	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	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
EC8	TY5 triac failure	-	-	YES	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	YES	Wrong input signal to microprocessor	Main board defective	Safety Drain cycle activation Cycle blocked	RESET
ECA	Drawer Compartment Water Softener board communication alarm	-	-	YES	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)	Drawer Compartment Water Softener board failure	-	-	YES	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	YES	No changes in Level or Density Floats	Level or Density Float defective or mechanically blocked Drawer Compartment Water Softener board defective, wiring between sensors and DD-WS	Cycle blocked	START ON/OFF RESET
ECD	WS pump failure	-	-	YES	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
ECE	Auto-dosing board failure	-	-	YES	YES	Incongruence between driving and sensing circuit; missing calibration parameters of reservoir sensors; no communication between PB and auto- dosing board	Auto-dosing board defective Wiring between MB/UI and auto- dosing Main Board defective UI defective	Cycle blocked	ON/OFF RESET

ALARM CODE	ALARM DESCRIPTION	ENABLED				FAULT CONDITION	POSSIBLE FAULT	MACHINE ACTION/STATUS	RESET KEY
		EWX11	EWX13	EWX14	EWX20				
ED1	WD board communication alarm	YES	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	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	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	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	YES	Signal out of the limits	WD board defective	Skip drying phase	START ON/OFF RESET
ED6	WD thermostat sensing failure	YES	YES	YES	YES	Signal of thermostat sensing out of limits	WD board defective	No actions	START ON/OFF RESET
ED7	WD thermostat failure	YES	YES	YES	YES	EWX11, EWX13: Incongruence between WD heating 1 and 2 relay sensing or thermostat sensing out of limits EWX14, EWX20: 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, EWX20: Manual or automatic thermostat opened Wiring, WD board defective, drying heater element	No actions	START ON/OFF RESET
ED8	WD fan motor tachometer absent	YES	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	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	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

ALARM CODE	ALARM DESCRIPTION	ENABLED				FAULT CONDITION	POSSIBLE FAULT	MACHINE ACTION/STATUS	RESET KEY
		EWX11	EWX13	EWX14	EWX20				
EDH (EDB)	WDM microcontroller fault	YES	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	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	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	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	YES	This alarm is not managed (it cannot be set)	-	-	-
EE4	Fan not following alarm	YES	-	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	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	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	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	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

ALARM CODE	ALARM DESCRIPTION	ENABLED				FAULT CONDITION	POSSIBLE FAULT	MACHINE ACTION/STATUS	RESET KEY
		EWX11	EWX13	EWX14	EWX20				
EE9	Fan CFG not ready	YES	-	YES	YES	This alarm is not managed (it cannot be set).	-	-	-
EEA	Fan power module failure	YES	-	YES	YES	This alarm is not managed (it cannot be set).	-	-	-
EEB (EEH)	Compressor Cooling Fan failure	YES	-	YES	YES	Inconsistency between the status of the relay powering the compressor cooling fan and the sensing or sensing signal of the power supply line is disturbed	Compressor fan-WD-HP module wiring faulty; Compressor fan faulty; WD-HP module faulty.	No action	START ON/OFF RESET
EEC	Compressor failure	YES	-	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	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
EF2	Foam warning	YES	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	YES	EWX11, EWX13: DRAIN_TY_S "low" if triac not activated and Aqua Control present on the machine EWX14, EWX20: 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, EWX20: Water on the basement Aqua Control defective	Drain pump activated	ON/OFF RESET
EF4	Water load low pressure	YES	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	YES	Final spin phase skipped due to a high unbalance load	Load unbalanced	No actions	START RESET
EF6	Safety reset	YES	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	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	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

DEFINITION OF TERMS, ACRONYMS AND ABBREVIATIONS

AB	Anti Boiling
AD	Autodose Drawer Compartment assemblies
CCF	Cycle Configuration File
D&L	Density & Level sensors
DD	Drawer Compartment
DDWS	Drawer Compartment assemblies with integrated a Water Softener
DM	Diverter Motor
DSP	Digital Signal Processors
DT	Detergent
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
MM	Motor Module
NIU	Network Interface Unit
NIUX	NIUX is only a specific type of NIU (NIU LinuX version).
NTC	Negative Temperature Coefficient
PCB	Printed Circuit Board
PM	Pump Module
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