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Customer Care - EMEA
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SERVICE MANUAL

WASHING MACHINES & WASHER DRYERS

Washing Machines Front / Top Loaded & Washer Dryers - User Interface

BLUE FIRE INSPIRATION AEG PERFEKT 10 PILOT 2 POne

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1 PRECAUTION

Safety

- All the work to be performed inside the appliance requires specific skills and knowledge and may only be carried out by qualified and authorised Service Engineers
- This platform is not fitted with an ON/OFF switch.
  Before you access internal components, take the plug out of the socket to disconnect the power supply.
- Some of the components in the mechanical part could cause injuries, so wear suitable protection and proceed with caution.
- Always empty the appliance of all the water before laying it on its side.
- If the appliance has to be placed on its side for maintenance or another reason, lie it on its left side, to avoid the risk of any residual water falling onto the main circuit board.
- Never place the appliance on its right side (electronic control system side): some of the water in the 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.

Document Revisions

Revision	Date	Description
0.0	10/2016	Document creation
0.1	02/2021	Alarms removed

2 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** electronic control systems.

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

- BLUE FIRE INSPIRATION
- AEG PERFEKT 10
- PILOT 2
- POne

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

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

The compatible main boards are based on:

	EWX11	EWX13	EWX14
BLUE FIRE INSPIRATION	x	x	x
AEG PERFEKT 10	x	x	x
PILOT 2	x	x	x
POne		x	x

The manual deals with the following topics:

- General characteristics
- Control panel
- Guide to diagnostics

3 CONTENTS

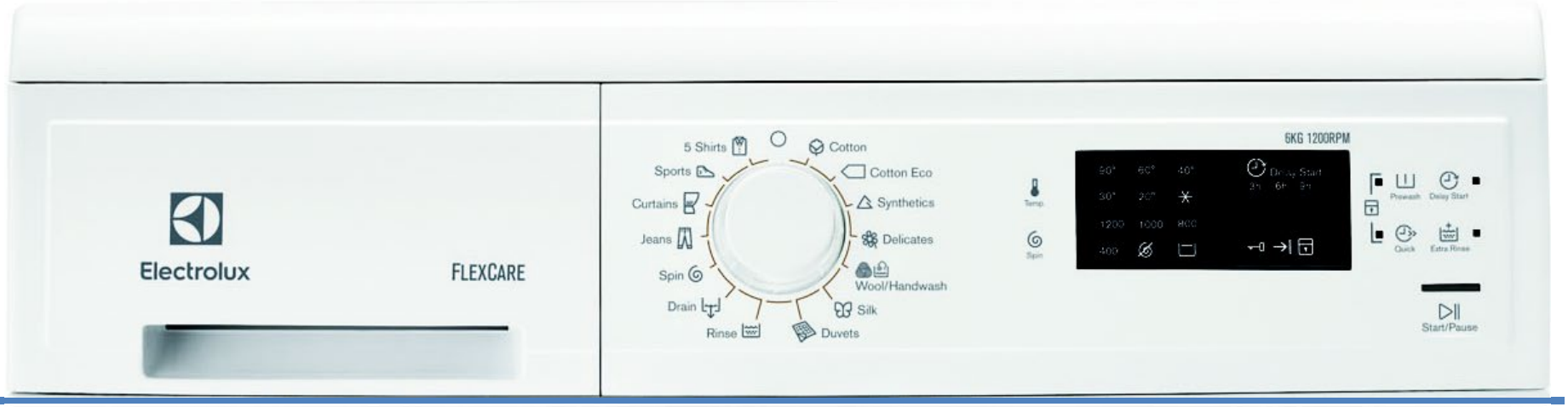
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4 BLUE FIRE

4.1 TC5 AND TC4 LEVELS

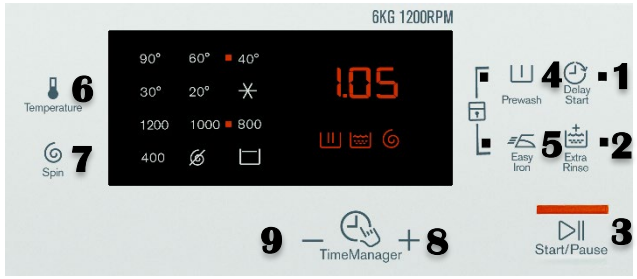
4.1.1 CONTROL PANEL

Here the application pictures:

TC5 level	
TC4 level	

4.1.2 BUTTONS COMBINATIONS

Supplementary functions and use modes are provided using key combinations. The following key combinations are available in this user interface:



Function	Button 1	Button 2
Child lock	5	4
Extra Rinse (*)	4	1
Buzzer enable/disable	5	2
Fluff Clean (**)	5	1
Demo mode	3	2
Diagnostic mode	3	2

(*)Extra Rinse combination can be configured only if also Extra Rinse button is present on the control panel, just to allow memorizing the option so that it is set by default when selecting a washing program.

(**) Fluff Clean combination is available only on Washer & Dryer machine.

4.2 TC3 AND TC2 LEVELS

4.2.1 CONTROL PANEL

Here the application pictures:

TC3 level



TC2 level



4.2.2 BUTTONS COMBINATIONS

Supplementary functions and use modes are provided using key combinations. The following key combinations are available in this user interface:



Function	Button 1	Button 2
Child Lock	5	4
Extra Rinse	4	1
Buzzer enable/disable	5	2
Fluff Cleaning	5	1
Demo mode	3	2
Diagnostic mode	3	2

The Child Lock combination is highlighted on the control panel graphics.

4.3 TC1 LEVEL

4.3.1 CONTROL PANEL

Here the application pictures:

TC1 level



4.3.2 BUTTONS COMBINATIONS

Supplementary functions and use modes are provided using key combinations. The following key combinations are available in this user interface:



Function	Button 1	Button 2
Child lock	5	4
Default extra rinse	4	1
Buzzer enable/disable	5	2
Demo mode	3	2
Diagnostic mode	3	2
Language setting	9	8
Detergent Setting	2	1
Weight enable/disable	7	6
Fluff Cleaning	5	1

The Child Lock and Detergent Dosage Setting combinations are highlighted on the control panel graphics.

4.4 COMMON FUNCTIONALITIES

4.4.1 ON/OFF BUTTON (ONLY TC1-TC2-TC3 LEVELS)

The TC1, TC2, TC3 aesthetics levels have a dedicated On/Off mechanical switch button always present. Depending on the main board features of the machine, this button could completely disconnect the machine from the mains, or alternatively put the machine in a special low power consumption mode. When the main board mounts the 0 Watt power consumption circuit the machine is automatically and completely disconnected from the mains; without 0 Watt circuit, the user has to unplug machine to disconnect mains power. In any case the user interface behaviour is the same.

See also next "Stand-Off mode behaviour (for TC1-TC2-TC3 levels)" paragraph.

To switch on the appliance, simply press shortly the button. The user interface plays the dedicated jingle (if buzzer is enabled), performs the fade in sequence of Hi-Fi LEDs (TC2 and TC3 levels only, see "Power on/-off sequence" paragraph) and then switches the lights and display on according to default programme. On TC1 only, together with programme info also the text line is updated showing the programme name.

To switch off the appliance, press and hold the button for about 1 second. After this time, the user interface plays the dedicated jingle (if buzzer is enabled), performs the fade out sequence of Hi-Fi LEDs (TC2 and TC3 levels only) and all lights and display are switched off. All selected options and the possible programme in progress are reset.

4.4.2 LOW POWER CONSUMPTION MODES

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

Two low power modes are provided: **Stand-By** and **Stand-Off**.

4.4.2.1 STAND-BY MODE BEHAVIOR (ONLY TC4-TC5 LEVELS)

This mode applies only in Core TC4-TC5 levels where On/Off button is not provided.

Typically set after that cycle has finished, the appliance enters in Stand-by mode acting as follows:

- during program setting up or cycle ended phases, after 5 minutes that the user does not press any button the mode is automatically set;
- all options/status LEDs are lighted off, except for Start/Pause yellow-LED that blinks with a lower frequency to signalize the appliance is supplied but in low power consumption mode;
- display is lighted off (TC4 level);
- Door lock device and all electric/electronic devices that can be switched off are not supplied.

The appliance exits Stand-by mode when the user acts again on control panel pushing any button or turning the selector knob:

- in the former case, the user interface will show the last machine status before entering mode (last program setup or cycle end status) keeping the selected program and options;
- in the latter case, the user interface will go in setup phase showing new program and options info corresponding to the new selector position, if the selected knob position is not Off/Reset, goes in Stand-Off mode otherwise. See next paragraph.

The Stand-by mode cannot be set in following cases:

- during the Delay Start phase, because it is considered as cycle running, hence the door is kept locked;
- if the Door has to be kept closed due to any safety condition, such as high water level or Child Lock mode active, or in case of alarm presence.

4.4.2.2 STAND-OFF MODE BEHAVIOR (FOR TC4-TC5 LEVELS)

The appliance is in Stand-Off mode when it is "virtually switched off" with the main knob on OFF position.

"Virtually" because electronic boards are supplied anyway, while to cut out mains supply the appliance needs to be unplugged.

The appliance exits Stand-Off mode when the user moves the main knob out of OFF position: the user interface switches on showing the default settings for selected program and the machine becomes operative.

To guarantee that the machine is always in safety conditions, turning main knob on OFF position to cancel a running program when the water level is high, the motor is running, ..., will result in switching off the user interface only, while the main board remains operative to keep the door lock device closed till safety conditions are reached.

4.4.2.3 STAND-OFF MODE BEHAVIOR (FOR TC1-TC2-TC3 LEVELS)

When the machine is switched off via On/Off button, the appliance goes in Stand-Off mode where it is "virtually switched off": all LEDs and display are lighted off and buttons are disabled, but the electronic boards are supplied anyway.

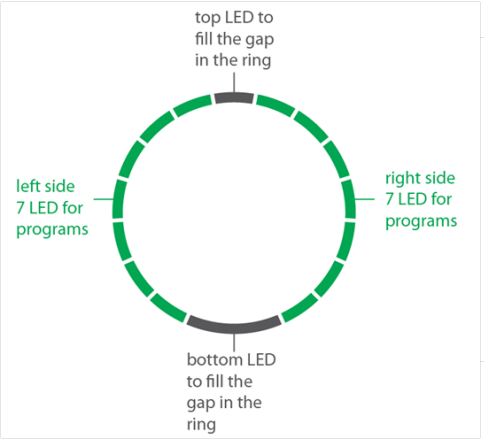
To cut out mains supply the appliance needs to be unplugged or mount the so called Zero-Watt circuit to provide the auto-off feature.

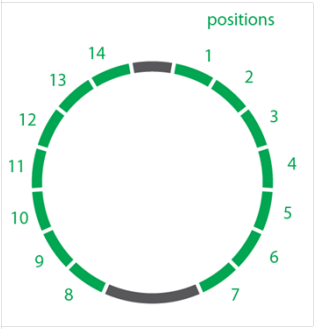
The auto-off feature combined with Zero-Watt circuit works in two ways:

- **when pushing the Off button**, the electronics cuts out mains supply after some seconds, after having set machine in safety conditions (motor stops, door is kept locked). Cycle is reset, previously selected options are cleared so that next machine switching on the default programme is prompt;
- **after 5 minutes without interaction with the customer**, the electronics cuts out mains supply automatically for energy saving purposes in accordance with power consumption norms. The selected programme and options are kept so that the next machine switching on the same programme is prompt. In this way, if auto-off occurs in cycle end phase, the customer is aware the cycle finished normally and can restart it if desired. If auto-off occurs during programme setup, the cycle and options are kept in case customer takes more than 5 minutes to load and start the cycle. Automatic auto-off is disabled in case an alarm is displayed.

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

4.5 HI-FI SELECTOR





Where Hi-fi selector is used the behaviour is always the same.

The number of position is not configurable and it is always 14, since it is strictly linked to the programme lights around the knob. Programmes layout around the main knob is configurable, with the following constraints:

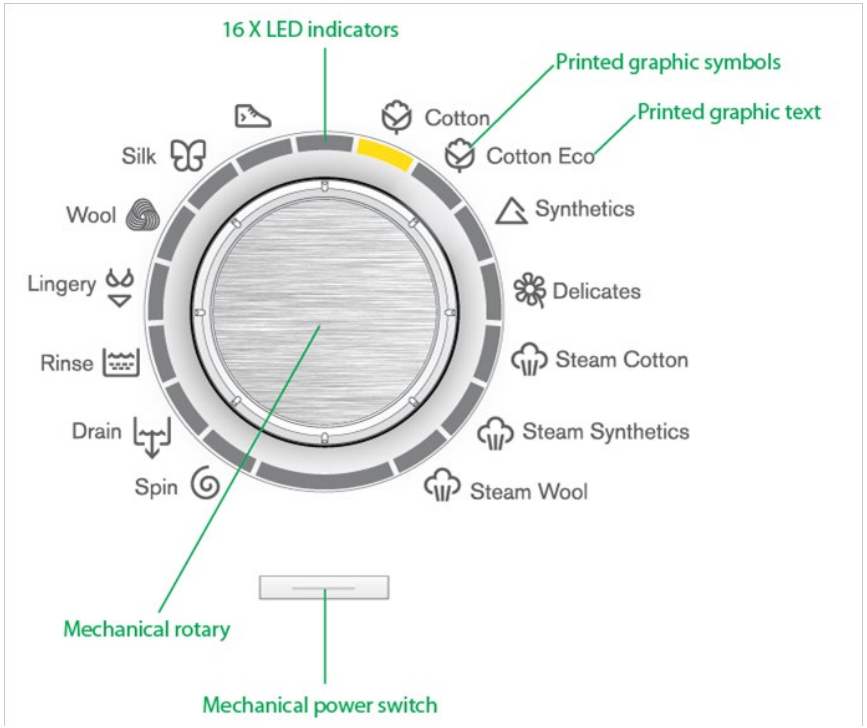
- Temperatures are always selected separately, via dedicated pushbutton;
- The programme Cottons Economy (Energy Label) is compulsory;

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

When the machine is switched on, the upper right position (position 1 in below figure) is selected by default, if no "special modes", e.g. diagnostic, return from power fails, demo mode etc. When the rotary is turned clockwise or anti-clockwise in setup, the corresponding LED of selected programme is lighted on and the LCD display info changes accordingly.

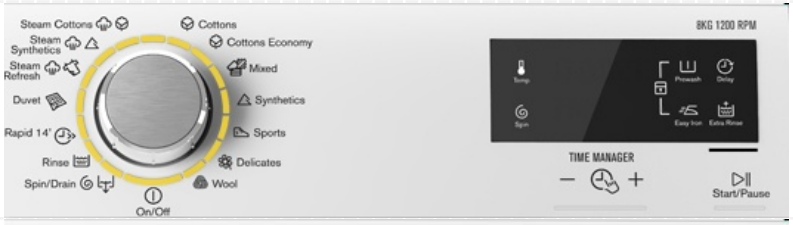
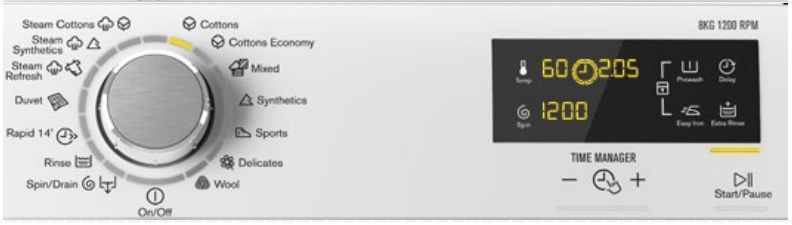
4.5.1 PROGRAM INDICATION

The currently selected program is indicated by a single LED indicator next to the printed program symbol. Turning the rotary clockwise or counter clockwise the user can select the desired program. The position of the LED indicator will change and indicate the newly selected program.



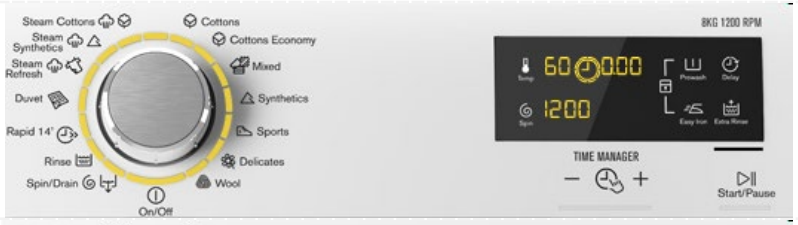
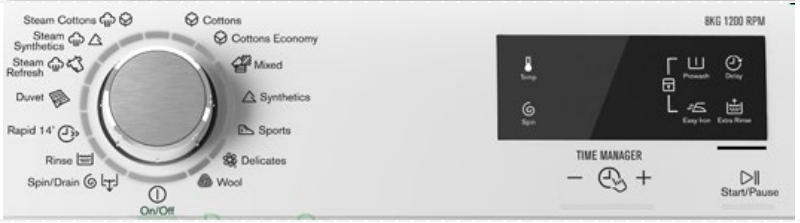
4.5.1.1 POWER ON TRANSITION

During power on the machine will display a transition sequence. Using all the LEDs of the rotary selector the lights will switch to full brightness then go off leaving lit only the indicator LED of default program.

Directly after pressing power key, the start-up jingle is played and all LEDs switch to 100% luminosity for 1000 msec. The display is off.	
After 1000msec, all LEDs except program indicator go off, while the display is illuminated	

4.5.1.2 POWER OFF TRANSITION

During power off the machine will display a transition sequence. Using all the LEDs of the rotary selector the lights will switch to full brightness and then after 1000msec switch off.

Directly after pressing power key, the power off jingle is played and all LEDs are lighted on to 100% luminosity for 1000msec. The display is still on.	
After 1000msec, all LEDs and the display switch off to 0% luminosity.	

4.6 BUZZER

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

- switching machine on and off, with 2 different short jingles;
- pressing a button, with a very short "click" sound;
- when the cycle is finished, for about 2 minutes with a specific sequence of three long beeps (1sec on - 1 sec off - 1sec on - 1 sec off - 1sec on) repeated every 15 seconds; the sequence is stopped when the door porthole is opened only in case the instant door lock device with micro-switch is mounted;
- when alarms/warnings occur, for about 5 minutes with a specific sequence of three short beeps repeated 3 times every 15.

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

When deactivated the buzzer doesn't play the on/off jingles and cycle end melody, while sounds anyway in case of button "click" and alarm/warnings occurrence.

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

4.7 FAULTS/WARNINGS SIGNALS

4.7.1 SELECTION ERROR

The selection errors are noticed to customer by a flashing "Err" text on cycle time digits if TC2, TC3, TC4 user interface levels, by "Not possible" message on text line if TC1 level, by a flashing red LED above Start/Pause button if TC5 level; buzzer doesn't sound a specific melody and Start/Pause LED doesn't flash like previous platforms.

The signalling is displayed for about 1 second in following cases:

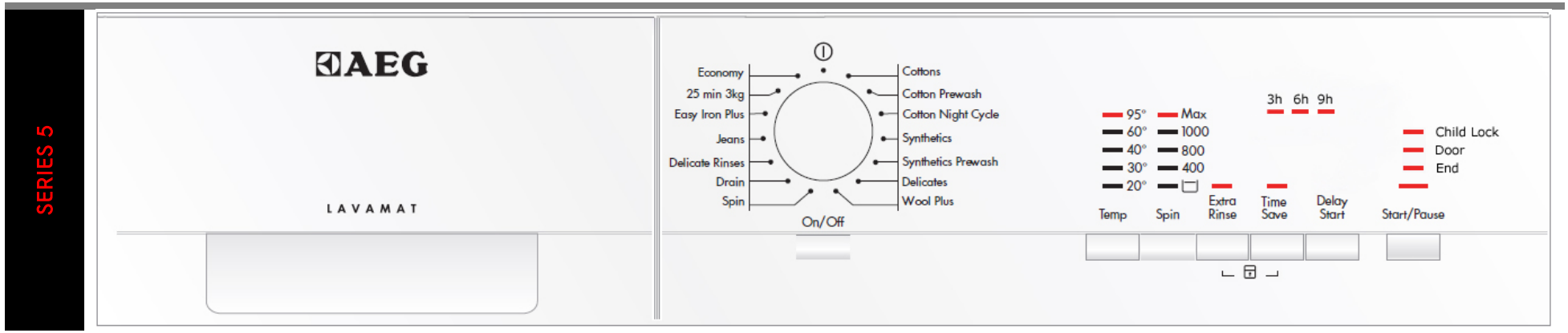
- when an incompatible option button with selected washing program has been pressed;
- when an option button is pressed or the selector is moved during the cycle execution.

5 AEG PERFEKT 10

5.1 SERIES 5

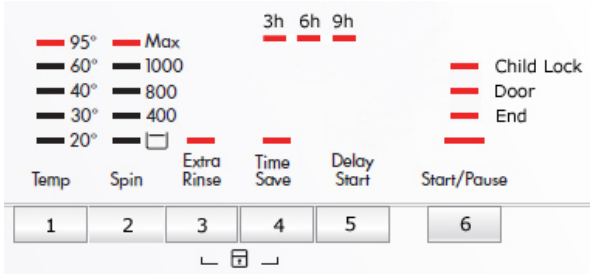
5.1.1 CONTROL PANEL

Series 5 is requested only on TL washing machines. Here the application picture:



5.1.2 BUTTONS COMBINATIONS

Supplementary functions and use modes are provided using key combinations. The following key combinations are available in this user interface:



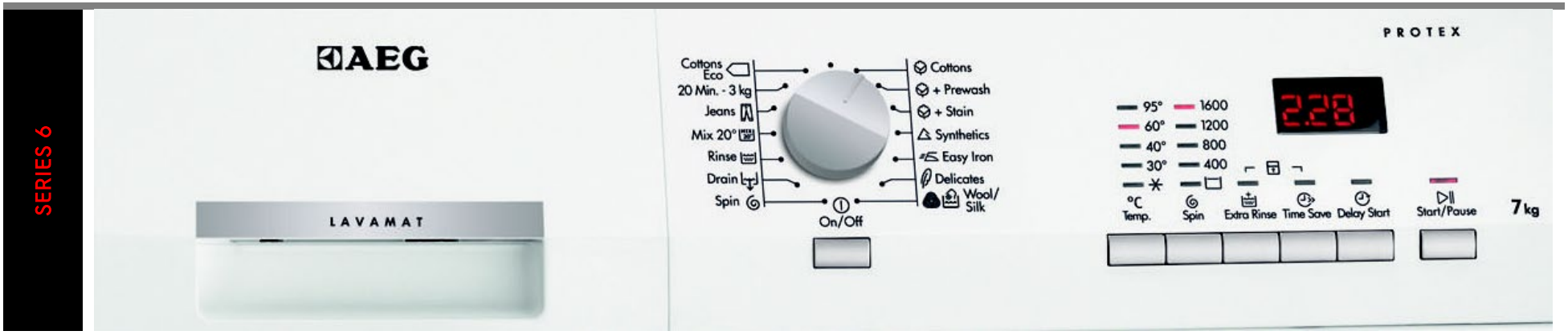
Function	Button 1	Button 2
Child lock	3	4
Default Extra Rinse (*)	4	5
Buzzer enable/disable	1	2
Demo mode	5	6
Diagnostic mode	5	6

(*) Extra Rinse combination can be configured just to allow memorizing the option so that it is set by default when selecting a washing program.
The Child Lock combination is highlighted on the control panel graphics.

5.2 SERIES 6

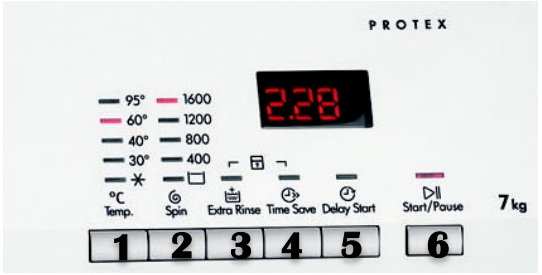
5.2.1 CONTROL PANEL

Series 6 could be used on both FL and TL washing machines. Here the application pictures:



5.2.2 BUTTONS COMBINATIONS

Supplementary functions and use modes are provided using key combinations. The following key combinations are available in this user interface:



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

(*) Extra Rinse combination can be configured just to allow memorizing the option so that it is set by default when selecting a washing program.
The Child Lock combination is highlighted on the control panel graphics.

5.3 SERIES 7

5.3.1 CONTROL PANEL

Series 7 could be used on both FL and TL washing machines and FL washer-dryers. Here the application pictures:



5.3.2 BUTTONS COMBINATIONS

Supplementary functions and use modes are provided using key combinations. The following key combinations are available in this user interface:



Function	Button 1	Button 2
Child lock	1	2
Default Extra Rinse (*)	5	6
Buzzer enable/disable	3	4
Demo mode	6	7
Diagnostic mode	6	7
Fluff Cleaning	2	4

(*) Extra Rinse combination can be configured just to allow memorizing the option so that it is set by default when selecting a washing program.

The Child Lock combination is highlighted on the control panel graphics.

5.4 SERIES 8

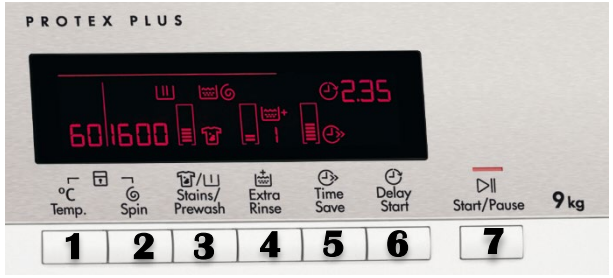
5.4.1 CONTROL PANEL

Series 8 could be used on both FL and TL washing machines and FL washer-dryers. Here the application pictures:



5.4.2 BUTTONS COMBINATIONS

Supplementary functions and use modes are provided using key combinations. The following key combinations are available in this user interface:



Function	Button 1	Button 2
Child lock	1	2
Default Extra Rinse (*)	5	6
Buzzer enable/disable	3	4
Demo mode	6	7
Diagnostic mode	6	7
Weight enable/disable	1	3
Fluff Cleaning	2	4

(*) Extra Rinse combination can be configured just to allow memorizing the option so that it is set by default when selecting a washing program.
The Child Lock combination is highlighted on the control panel graphics.

5.5 SERIES 9

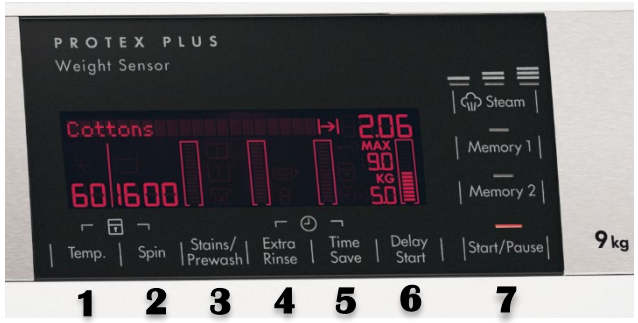
5.5.1 CONTROL PANEL

Series 9 can be used only on FL washing machines and washer-dryers. Here the application pictures:



5.5.2 BUTTONS COMBINATIONS

Supplementary functions and use modes are provided using key combinations. The following key combinations are available in this user interface:



Function	Button 1	Button 2
Child lock	1	2
Default Extra Rinse (*)	5	6
Buzzer enable/disable	3	4
Demo mode	6	7
Diagnostic mode	6	7
Language setting	2	3
Clock setting	4	5
Weight enable/disable	1	3
Fluff Cleaning	2	4

(*) Extra Rinse combination can be configured just to allow memorizing the option so that it is set by default when selecting a washing program.
The Child Lock combination is highlighted on the control panel graphics.

5.6 COMMON FUNCTIONALITIES

5.6.1 ON/OFF BUTTON

All the aesthetics levels of the P10 range have a dedicated On/Off button always present. Depending on the main board features of the machine, this button could completely disconnect the machine from the mains, or alternatively put the machine in a special low power consumption mode. When the main board mounts the 0 Watt power consumption circuit the machine is automatically and completely disconnected from the mains; without 0 Watt circuit, the user has to unplug machine to disconnect mains power. In any case the user interface behaviour is the same.

See also next "Stand-Off mode" paragraph.

To switch on the appliance, simply press shortly the button. The user interface plays the dedicated jingle (if buzzer is enabled) and switches the lights and display on according to default programme. On Series 9 only, before showing the programme info, the time of day is displayed for about 2 seconds to allow the customer checking the correct clock time. Besides, together with programme info also the text line is updated showing the programme name.

To switch off the appliance, press and hold the button for about 1 second. After this time, the user interface plays the dedicated jingle (if buzzer is enabled) and all lights and display are switched off. All selected options and the possible programme in progress are reset.

5.6.2 STAND-OFF MODE BEHAVIOUR

When the machine is switched off via On/Off button, the appliance goes in Stand-Off mode where it is "virtually switched off": all LEDs and display are lighted off and buttons are disabled, but the electronic boards are supplied anyway.

To cut out mains supply the appliance needs to be unplugged or mount the so called Zero-Watt circuit to provide the auto-off feature.

The auto-off feature combined with Zero-Watt circuit works in two ways:

- **when pushing the Off button**, the electronics cuts out mains supply after some seconds, after having set machine in safety conditions (motor stops, door is kept locked). Cycle is reset, previously selected options are cleared so that next machine switching on the default programme is prompt;
- **after 5 minutes without interaction with the customer**, the electronics cuts out mains supply automatically for energy saving purposes in accordance with power consumption norms. The selected programme and options are kept so that the next machine switching on the same programme is prompt. In this way, if auto-off occurs in cycle end phase, the customer is aware the cycle finished normally and can restart it if desired. If auto-off occurs during programme setup, the cycle and options are kept in case customer takes more than 5 minutes to load and start the cycle. Automatic auto-off is disabled in case an alarm is displayed.

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

5.6.3 HI-FI SELECTOR



Where Hi-fi selector is used the behaviour is always the same.

The number of position is not configurable and it is always 16, since it is strictly linked to the programme lights.

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

- Temperatures are always selected separately, via dedicated pushbutton;
- The programme Cottons Economy (Energy Label) is compulsory;
- The programme "Cottons + Pre-wash" has to be provided if *Pre-wash* option is required for Series 7 only;
- The programme "Cottons + Stain" has to be provided if *Stain* option is required and dedicated button is not present (for Series 6 and 5 only).

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

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

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

5.7 BUZZER

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

- switching machine on and off, with 2 different short jingles;
- pressing a button, with a very short "click" sound;
- when the cycle is finished, for about 2 minutes with a specific sequence of three long beeps (1sec on - 1 sec off - 1sec on - 1 sec off - 1sec on) repeated every 15 seconds;
- when alarms/warnings occur, for about 5 minutes with a specific sequence of three short beeps repeated 3 times every 15.

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

When deactivated the buzzer doesn't play the on/off jingles and cycle end melody, while sounds anyway in case of button "click" and alarm/warnings occurrence.

Volume level is pre-fixed and can't be changed by user. The behaviour is the same for all UI levels from Series 5 to Series 9.

5.8 FAULTS/WARNINGS SIGNALS

5.8.1 SELECTION ERROR

The selection errors are noticed to customer by a flashing “Err” text on cycle time digits if Series 6, 7 and 8 user interface levels, by “Not possible” message on text line if Series 9 level; buzzer doesn’t sound a specific melody and Start/Pause LED doesn’t flash like previous platforms. For Series 5 level there is a dedicated alarm LED, yellow colour, integrated on Start/Pause button; it flashes for 3 seconds in case of selection errors.

The signalling is displayed for about 1 second (Series 6, 7, 8 and 9) or alarm LED flashes for 3 seconds (Series 5) in following cases:

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

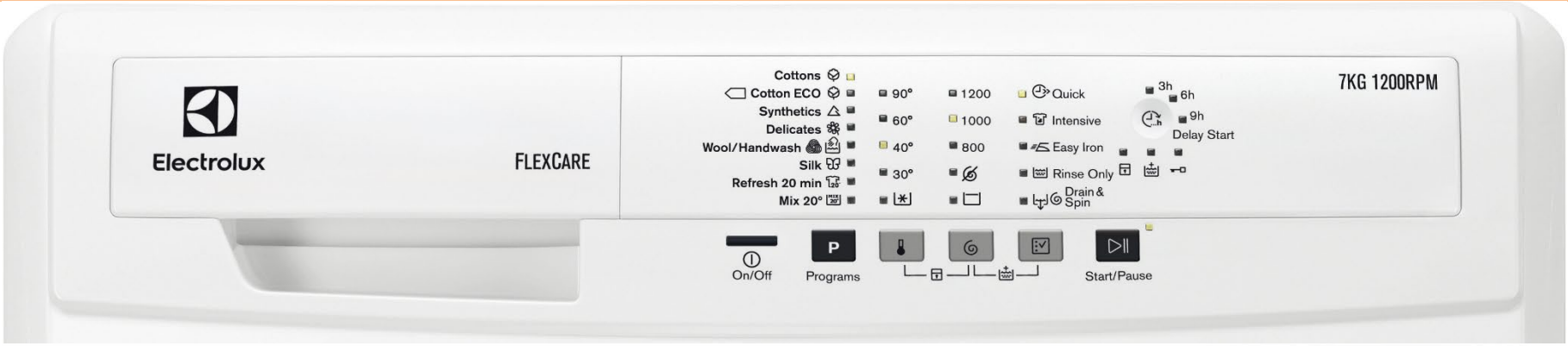
6 PILOT 2

6.1 ENTRY TC5 LEVEL

6.1.1 CONTROL PANEL

Here the application pictures:

TC5





6.1.2 BUTTONS COMBINATIONS

Supplementary functions and use modes are provided using key combinations. The following key combinations are available in this user interface:



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

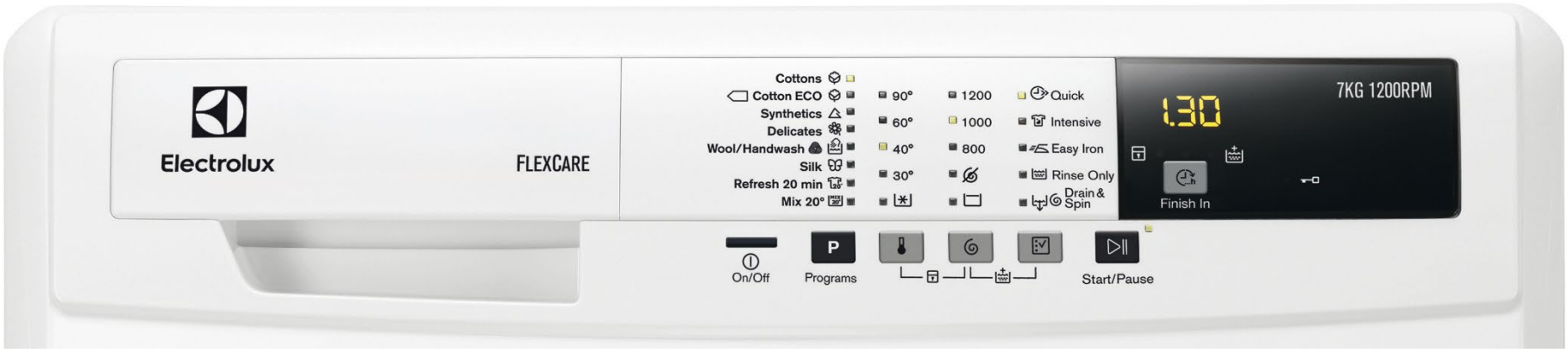
The Child Lock and Extra Rinse combinations are highlighted on the control panel graphics.

6.2 CORE TC4 LEVEL

6.2.1 CONTROL PANEL

Here the application pictures:

TC4

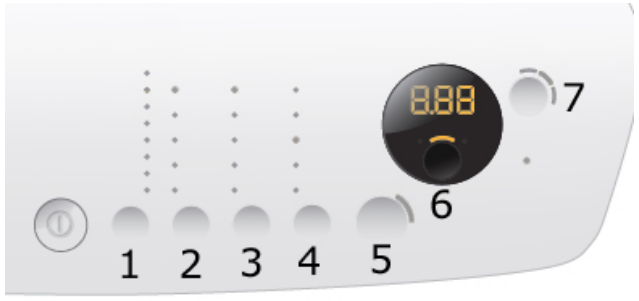


TC4



6.2.2 BUTTONS COMBINATIONS

Supplementary functions and use modes are provided using key combinations. The following key combinations are available in this user interface:



Function	Button 1	Button 2
Child lock	3	2
Extra Rinse	4	3
Buzzer enable/disable	2	1
Demo mode	5	4
Diagnostic mode	5	4
Fluff Clean (WD)	7	6

The Child Lock and Extra Rinse combinations are highlighted on the control panel graphics.

6.3 PERFORMANCE TC2 LEVEL

6.3.1 CONTROL PANEL

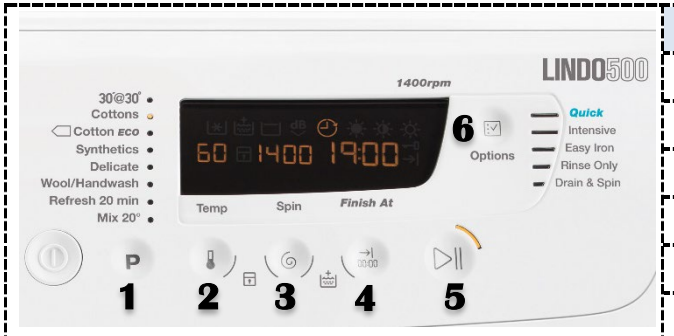
Here the application picture:

TC2



6.3.2 BUTTONS COMBINATIONS

Supplementary functions and use modes are provided using key combinations. The following key combinations are available in this user interface:



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

6.4 COMMON FUNCTIONALITIES

6.4.1 ON/OFF BUTTON

All Pilot 2 aesthetics levels have a dedicated On/Off mechanical switch button always present.

Depending on the main board features of the machine, this button could completely disconnect the machine from the mains supply, or alternatively put the machine in a special low power consumption mode. When the main board mounts the 0 Watt power consumption circuit the machine is automatically and completely disconnected from the mains; without 0 Watt circuit, the user has to unplug machine to disconnect mains power. In any case the user interface behaviour is the same.

To switch on the appliance, simply press shortly the button. The user interface plays the dedicated jingle (if buzzer is enabled), performs the start up animation and then switches the lights and display on according to default programme.

To switch off the appliance, press and hold the button for about 1 second. After this time, the user interface plays the dedicated jingle (if buzzer is enabled) and all lights and display are switched off. All selected options and the possible programme in progress are reset.

6.4.2 LOW POWER CONSUMPTION MODES

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

The appliance enters automatically in Stand-off mode acting as follows:

- during program setting up or cycle ended phases, after 5 minutes that the user does not press any button the mode is automatically set;
- all LEDs and display are lighted off;
- Door lock device and all electric/electronic devices that can be switched off are not supplied.

The appliance exits Stand-off mode when the user presses the On/Off button.

The Stand-off mode cannot be set in following cases:

- during the Delay Start phase, because it is considered as cycle running, hence the door is kept locked;
- if the Door has to be kept closed due to any safety condition, such as high water level or Child Lock mode active, or in case of alarm presence.

6.4.3 STAND-OFF MODE BEHAVIOUR

When the machine is switched off via On/Off button, the appliance goes in Stand-Off mode where it is "virtually switched off": all LEDs and display are lighted off and buttons are disabled, but the electronic boards are supplied anyway.

To cut out mains supply the appliance needs to be unplugged or mount the so called Zero-Watt circuit to provide the auto-off feature.

The auto-off feature combined with Zero-Watt circuit works in two ways:

- **when pushing the Off button**, the electronics cuts out mains supply after some seconds, after having set machine in safety conditions (motor stops, door is kept locked). Cycle is reset, previously selected options are cleared so that next machine switching on the default programme is prompt;
- **after 5 minutes without interaction with the customer**, the electronics cuts out mains supply automatically for energy saving purposes in accordance with power consumption norms. The selected programme and options are kept so that the next machine switching on the same programme is prompt. In this way, if auto-off occurs in cycle end phase, the customer is aware the cycle finished normally and can restart it if desired. If auto-off occurs during programme setup, the cycle and

options are kept in case customer takes more than 5 minutes to load and start the cycle. Automatic auto-off is disabled in case an alarm is displayed.

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

6.5 BUZZER

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

- switching machine on and off, with 2 different short jingles;
- pressing a button, with a very short "click" sound;
- when the cycle is finished, for about 2 minutes with a specific sequence of three long beeps (1sec on - 1 sec off - 1sec on - 1 sec off - 1sec on) repeated every 15 seconds; the sequence is stopped when the door porthole is opened only in case the instant door lock device with micro-switch is mounted;
- when alarms/warnings occur, for about 5 minutes with a specific sequence of three short beeps repeated 3 times every 15.

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

When deactivated the buzzer doesn't play the on/off jingles and cycle end melody, while sounds anyway in case of button "click" and alarm/warnings occurrence.

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

6.6 FAULTS/WARNINGS SIGNALS

6.6.1 SELECTION ERROR

The selection errors are noticed to customer by three quick flashings of "Err" text on cycle time digits if TC4, TC2 user interface levels, by three quick flashings of a dedicated red-colour LED integrated on Start/Pause light if TC5 level; buzzer doesn't sound any specific melody.

The signalling is displayed in following cases:

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

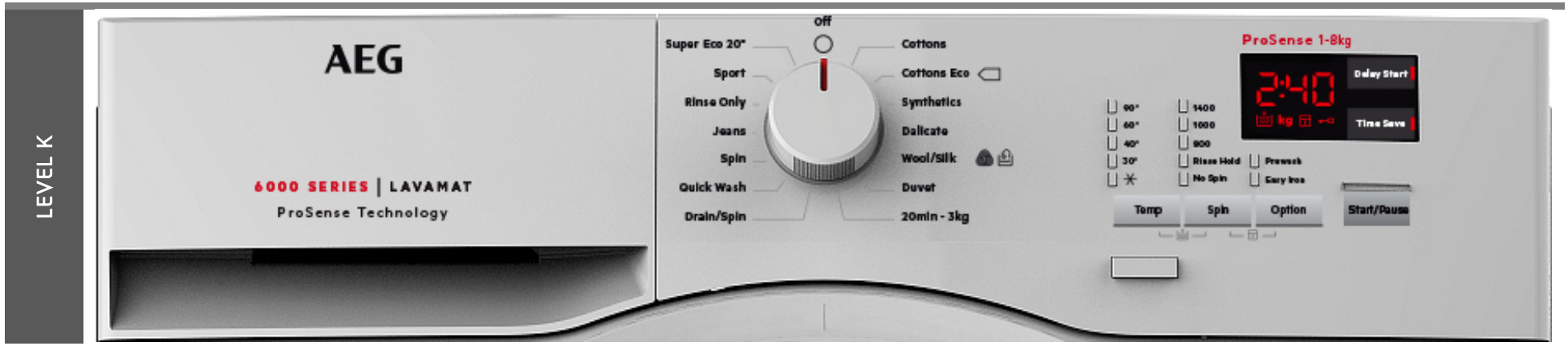
TC4	TC2
	

7 PONE

7.1 SERIES 6B – LEVEL K

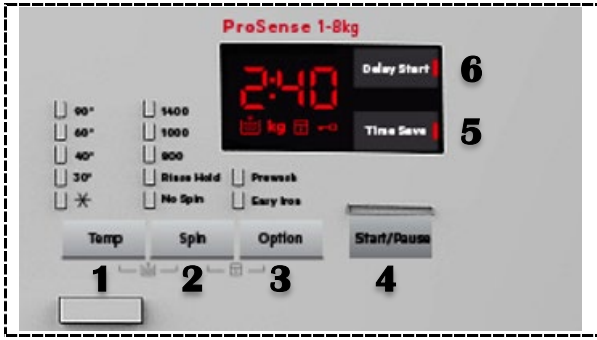
7.1.1 CONTROL PANEL

Here the application pictures:



7.1.2 BUTTONS COMBINATIONS

Supplementary functions and use modes are provided using key combinations. The following key combinations are available in this user interface:



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

Default Extra Rinse combination needs to be configured to allow selecting and memorizing the option so that it is set by default when selecting a washing program; it has to be highlighted on the control panel graphics. The Child Lock combination has to be highlighted on the control panel graphics.

7.2 SERIES 6 – LEVEL I

7.2.1 CONTROL PANEL

Here the application pictures:



7.2.2 BUTTONS COMBINATIONS

Supplementary functions and use modes are provided using key combinations. The following key combinations are available in this user interface:



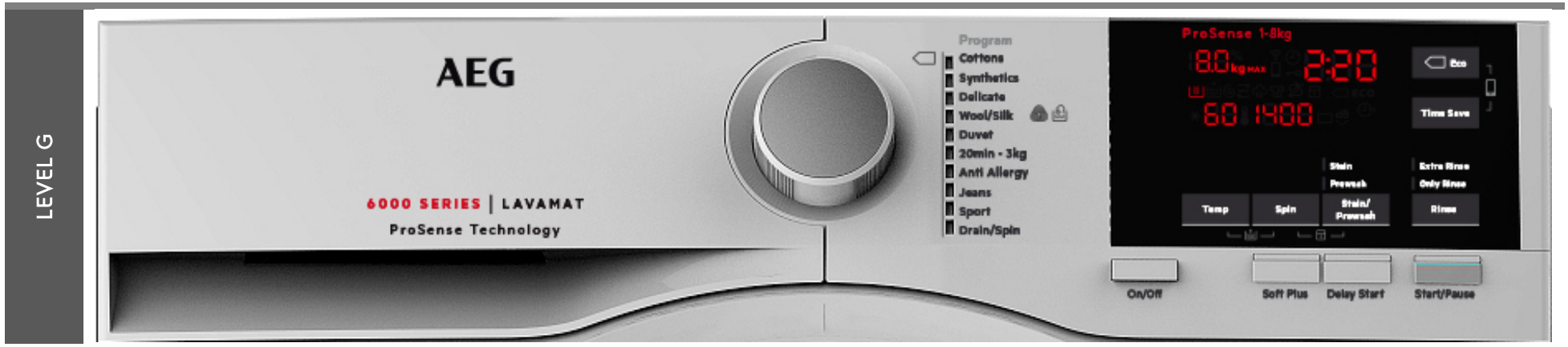
Function	Button 1	Button 2
Child lock	3	2
Default Extra Rinse	2	1
Buzzer enable/disable	6	5
Demo mode	4	3
Diagnostic mode	4	3

Default Extra Rinse combination needs to be configured to allow selecting and memorizing the option so that it is set by default when selecting a washing program; it has to be highlighted on the control panel graphics. The Child Lock combination has to be highlighted on the control panel graphics.

7.3 SERIES 7B – LEVEL G

7.3.1 CONTROL PANEL

Here the application pictures:



7.3.2 BUTTONS COMBINATIONS

Supplementary functions and use modes are provided using key combinations. The following key combinations are available in this user interface:



Function	Button 1	Button 2
Child Lock	8	7
Default Extra Rinse	9	8
Buzzer enable/disable	7	2
Demo mode	2	1
Diagnostic mode	2	1
Water Softener	8	3

Default Extra Rinse combination needs to be configured to allow memorizing the option so that it is set by default when selecting a washing program; it has to be highlighted on the control panel graphics. The Child Lock combination has to be highlighted on the control panel graphics.

7.4 SERIES 7 – LEVEL E

7.4.1 CONTROL PANEL

Here the application pictures:



7.4.2 BUTTONS COMBINATIONS

Supplementary functions and use modes are provided using key combinations. The following key combinations are available in this user interface:



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

7.5 SERIES 8 – LEVEL C

7.5.1 CONTROL PANEL

Here the application pictures:



7.5.2 BUTTONS COMBINATIONS

Supplementary functions and use modes are provided using key combinations. The following key combinations are available in this user interface:



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

Default Extra Rinse combination needs to be configured to allow memorizing the option so that it is set by default when selecting a washing program.
Soft Plus combination has to be highlighted on the control panel graphics.
Child Lock combination has to be highlighted on the control panel graphics.
Water Softener combination needs to be configured for machines with water softener feature present.
(*) Remote mode, highlighted on the control panel graphics, is provided for future use.

7.6 COMMON FUNCTIONALITIES

7.6.1 ON/OFF BUTTON

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

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

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

7.6.2 LOW POWER CONSUMPTION MODES

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

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

7.6.3 STAND-OFF MODE BEHAVIOUR

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

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

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

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

The Stand-Off mode works in two ways:

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

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

7.7 HI-FI SELECTOR



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

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

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

- Temperatures are always selected separately, via dedicated button;

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

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

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

7.8 BUZZER

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

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

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

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

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

7.9 FAULTS/WARNINGS SIGNALS

7.9.1 SELECTION ERROR

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

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

7.10 WATER SOFTENER

Water Softener feature is used to have better washing performances by softening the water where necessary. The user is allowed to change some factory settings. Pressing the related key combination to enter setting mode, all LEDs go off and display shows the following info (fig.1):

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

Pressing the lower button of key combination, the water softener mode changes: rinse phase icon is added to indicate the soft water is used also during the rinsing phase (fig.4). Pressing the button again the usage of soft water is disabled (fig.5).

Pressing the upper button of key combination, the water hardness degree changes from lower level C01 (fig.1), to C02, C03 (fig.2) up to highest level C07 (fig.3).

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



Fig.1



Fig.2



Fig.3

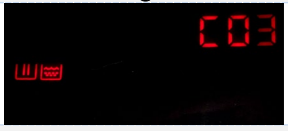


Fig.4

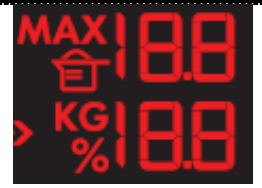


Fig.5

8 LAUNDRY WEIGHT INFO – Blue Fire TC1, AEG Perfekt 10 SERIES 8 9, PONE

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

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

Blue Fire TC1	Perfekt 10 Series 8	Perfekt 10 Series 9	POne
			

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

AEG Perfekt 10 S9



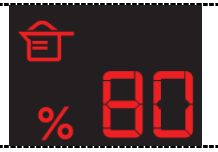
1. Switch machine on via On/Off button; default program info appear on display;
2. Turn program selector to desired program position; the max declared weight for selected program is showed on weight digits (e.g "9.0 kg max")
3. Adjust washing options if desired;
4. If door porthole is closed at switch-on, the door must be opened to show the measured weight info. If door porthole is opened after 3 seconds appears "0.0 kg" to indicate machine is ready to weigh the laundry; **Blue Fire TC1** and **Perfekt 10 Series 9** the text line shows "Load laundry" message.
5. Load the laundry, the weight info and cycle time are refreshed in the digits. For **Perfekt 10 Series 9** level, the associated bars graph is filled with the related percentage calculated on the programme's declared max weight basis;
6. In case of overloading in a programme with the maximum rated capacity of the machine (i.e. in the Cottons programme) the display will just continue to show a load value corresponding to the maximum load without giving any overload warning, but Blue Fire TC1 and AEG Perfekt 10 Series 9 the message 'Loading completed' appears.
   In the other cases (synthetics, delicates, special programmes including all drying-only programmes) if the declared max weight is exceeded by 0.5 kg, then in the Blue Fire TC1 and AEG Perfekt 10 Series 9 the message 'Load laundry' will disappear and the message will instead be 'Loading completed' to indicate that the loading should stop. In these programmes, only in case the weight corresponds to 1.0 kg or more above the rated maximum capacity will an overload warning be shown. The MAX symbol will be flashing together with the figure showing the maximum programme load. In addition the text line shows "Max load exceeded" message for the Blue Fire TC1 and AEG Perfekt 10 Series 9 (also the bar graph is full) . In case of overload some laundry should be unloaded until the MAX symbol and weight digit stop flashing (to ensure the washing performance).

PONE: In case laundry weight is over the allowed maximum load (overload) the display shows for 3 seconds the declared maximum load for selected program with steady figures and the "max" symbol flashing. In this case some laundry should be unloaded until the measured value goes under maximum allowed (to ensure the washing performance);

7. Blue Fire
   Close the door, weight info is no longer displayed and detergent dosage info appears in the text line as generic percentage value (by default) or in millilitres (if the customer setup the user interface) **The detergent dosage percentage is calculated on the basis of the declared maximum load for the selected washing programme, the value expressed in "ml" units is calculated on the basis of the declared maximum capacity of the machine**. The maximum value shown will be 100%, or the corresponding value in "ml" units, irrespective of any degree of overloading.

   AEG Perfekt 10
   Close the door, weight info is no longer displayed and detergent dosage info appears: for Series 8 level the percentage it is shown in digits together with the associated measuring cup and % symbols; for Series 9 level it' is shown in the text line with message "Detergent: 80%". **The detergent dosage percentage is calculated on the basis of the declared maximum load for the selected washing programme**. The max. value shown will be 100% irrespective of any degree of overloading.

   AEG Perfekt 10 S8



   PONE
   Close the door, weight info is no longer displayed and detergent dosage info appears: the percentage is shown in digits together with the associated measuring cup and % symbols. **The detergent dosage percentage is calculated on the basis of the declared maximum load for the selected washing programme**. The max. value shown will be 100% irrespective of any degree of overloading;

8. Dose the detergent and press start button to begin the cycle. Now also the detergent info will disappear (weight and dosage information will never be displayed during the cycle).

Blue Fire, AEG Perfekt 10
If the selected programme is changed after step 5 (door is still open) maximum weight info will change accordingly, and in case the maximum load is then exceeded it will result in the same messages as under step 6.

PONE
If the selected programme is changed after step 5 (door is still open) the related max declared weight info is showed for 3 seconds, and in case the max. load is then exceeded the "max" symbol flashes.

For example a 5 kg load or more in a Synthetics programme will give an overload warning, while 4.5 kg will not. In the same example, if the selected programme is changed after step 6 (the door has already been closed) the detergent dosage percentage would become 100% (or the corresponding value in "ml" units) and the door should then be re-opened to check for possible laundry overloading.

Automatic wash and dry sequence:

The recommended maximum load in sensor controlled drying is always "half" of the washing load (*) so that the electronic sensing will work properly, and if automatic sensor controlled drying after washing is selected, the maximum weight recommendation will change to half load (*). If half load is exceeded before the door has been closed (weight sensor information is shown), the indications will be as follows. In case of the maximum weight being exceeded by 0.5 kg, the message "Loading completed" will be shown as usual. However, in case of a sensor drying ("Dryness") programme having been selected, the message at 1.0 kg or more overload will not be the usual "Max load exceeded" but will instead be "Time drying recommended". If an automatic "Time Drying" option has been selected, the maximum load in the Cottons programmes will instead be 6 kg with the usual "Loading completed" message at 0.5 kg overload again followed by the usual "Max. load exceeded" at 1.0 kg or more overload.

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

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

Machines without weight sensor or with weight management disabled show anyway the declared maximum weight of laundry in case the door porthole is open, provided that it is mounted the instant door lock device with micro-switch that is necessary to sense the opening of door porthole.

9 EWX11, EWX13, EWX14

9.1 INTRODUCTION

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

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

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

The new electronic controls are based at least in three electronic boards:

	EWX11	EWX13	EWX14
User Interface Board	x	x	x
Power Board	x	x	x
FCV motor control board	x		x
WD Satellite board	x	x	x
Water softener boards			x

UI supported:
- Perfekt 10 (aesthetic levels from S5 to S9)
- Blue Fire (TC1-TC2-TC3-TC4)
- Pilot2
- POne

The Power Board electronic controls have the purpose to:

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

The **User Interface Board** electronic control has the purpose to:

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

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

9.2 SYSTEM ARCHITECTURE

The machine can work in several functional modes:

- User mode
- Demo mode
- Electric test mode
- Special function mode
- Diagnostic mode
- Remote controlled mode

The last one can be set only by serial port using specific tools.

All the other modes are available using the machine itself.

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

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

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

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

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

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

Information
Standardisation

For standardisation reasons following the used configuration for buttons combination:

- For each user interface it is START/PAUSE button and the closest one:
  - Delay Start or Delay 6h button — AEG Perfekt 10 aesthetic levels
  - Buzzer or Delay button — all Blue Fire levels,
  - Option or Time — Pilot 2 levels
  - Option / Delay Start / Memory / Eco button — POne

- If the key combination is recognised within 10 seconds since the machine was switched on (via On/Off button), a specific mode is entered according to the position of the main knob or according the program selected in case of TC1 Blue Fire or Pilot 2 levels:
  - Position 1: Diagnostic mode set
  - Position 3: Demo mode set
  - Position 5: Working hours counter

9.3 DIAGNOSTIC/DEMO MODE, WORKING HOURS COUNTER KEY COMBINATION

Blue Fire - DIAGNOSTIC/DEMO MODE key combination highlighted in green

TC1



TC2



TC3



TC4

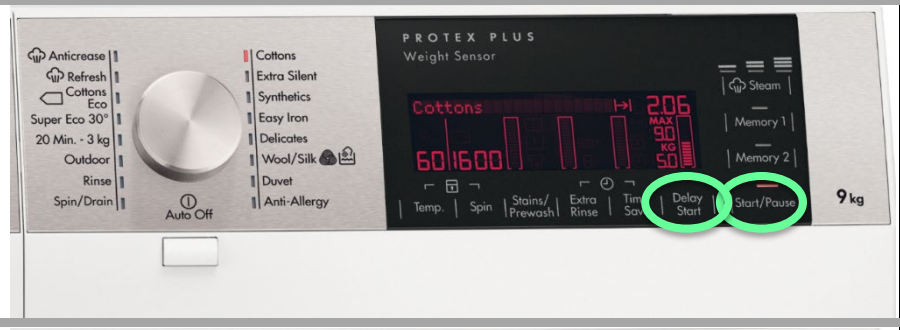


TC5

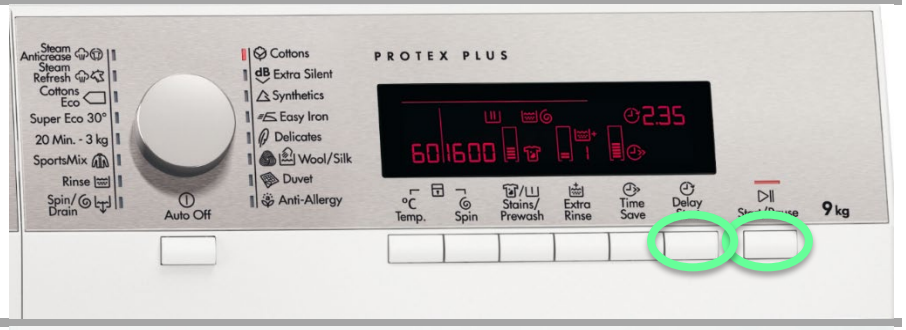


AEG Perfekt 10 - DIAGNOSTIC/DEMO MODE key combination highlighted in green

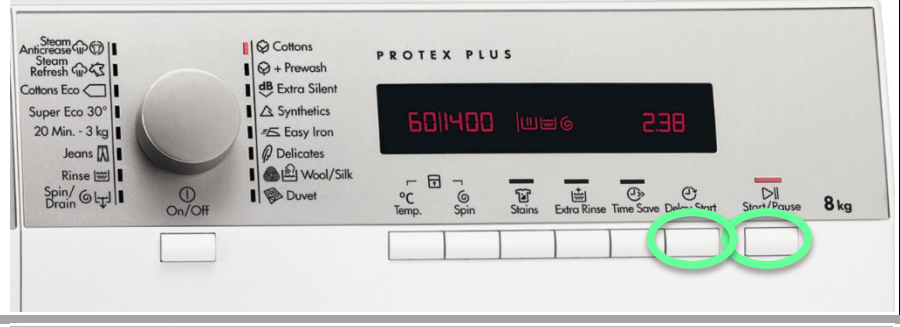
SERIES 9



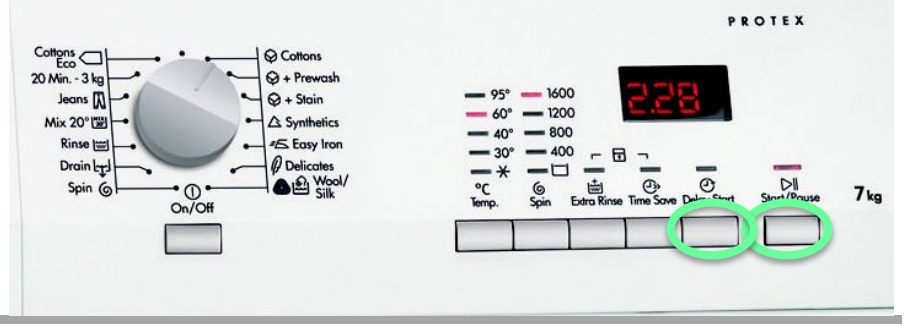
SERIES 8



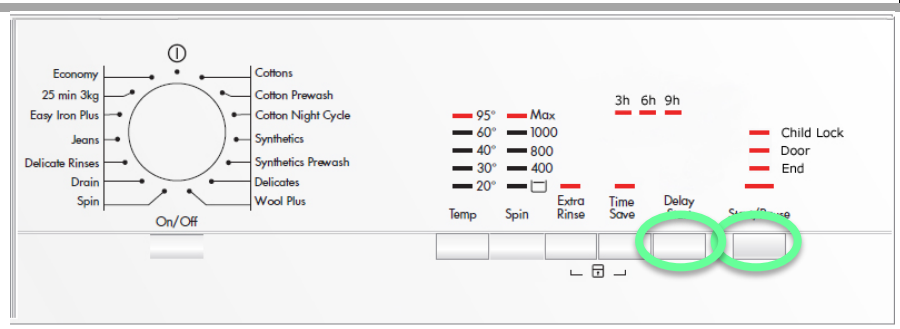
SERIES 7



SERIES 6



SERIES 5



Pilot 2 - DIAGNOSTIC/DEMO MODE key combination highlighted in green

TC2



TC4



TC5



POne - DIAGNOSTIC/DEMO MODE key combination highlighted in green

LEVEL A



LEVEL C



LEVEL E



LEVEL G



LEVEL I



LEVEL K



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

BLUE FIRE INSPIRATION

TC4 / TC3 / TC2

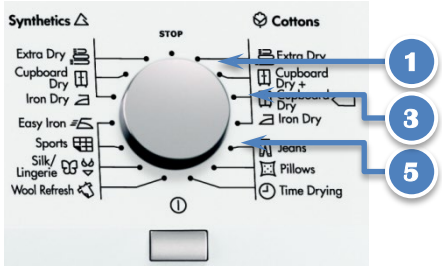


TC1



AEG PERFEKT 10

SERIES 5 / 6

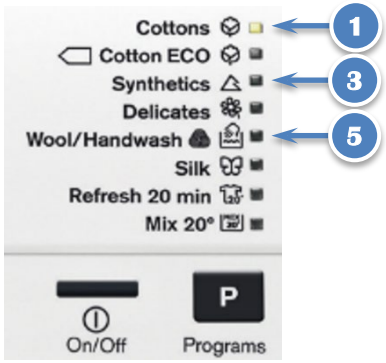


SERIES 7 / 8 / 9



PILOT 2

TC5 / TC4 / TC2





POne

SERIES 6B (LEVEL K)



SERIES 6(I) 7B(G) 7(E) 8(C)



Position 1	Position 3	Position 5
DIAGNOSTIC MODE	**DEMO MODE**	**WORKING HOURS COUNTER**
Is selected by default at machine switching on, hence to enter in Diagnostic mode just press the diagnostic buttons combination.	To enter Demo mode: ▪ press the related button in TC1 ▪ rotate the Hi-fi selector and wait for 3rd position related LED feedback before pressing keys combination ▪ press Program button in Pilot 2 and wait for related LED feedback before pressing diagnostic key combination	To enter Working Hours Display mode: ▪ press the related button in TC1 ▪ rotate the Hi-fi selector and wait for 5th position related LED feedback before pressing keys combination ▪ press Program button in Pilot 2 and wait for related LED feedback before pressing diagnostic key combination.

10 WORKING HOURS COUNTER

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

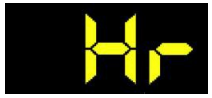
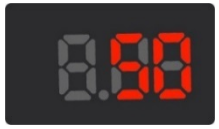
- Only the operating time of normal programmes (and not diagnostic cycles) is counted
- The actual operating time for the cycle is counted (which does not include pauses, delayed start time)
- The precision of the counter is 30 seconds per programme.
- Only whole hours of operation are counted (1hr and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



Working hours
Dispplay

- The thousands digit is showed only when value is over 999, the rule is valid for all platforms
- Examples:
  15 = Hr 0 15
  150 = Hr 1 50
  1550 = Hr 15 50

This time is displayed with a sequence of two digits at a time: the first two digits indicate thousands and hundreds, the second two digits indicate tens and units for the **Blue Fire TC4**, **TC3**, **TC2**; **Pilot 2 TC4**; **AEG Perfekt 10 SERIES 7,SERIES 8** and **POne** while the time is displayed in a single sequence for **Blue Fire TC1**, **Pilot2 TC2** and **AEG Perfekt 10 SERIES 9**. For example, if the operating time is 6,550 hours, the display will show the following sequence:

	Phase 1	Phase 2	Phase 3
	For 2 sec it displays **Hr**	For 2 sec the following digits are displayed: • Thousands - 6 • Hundreds - 5	For the next 2 sec the following digits are displayed: • Tens - **5** • Units - **0**
BLUE FIRE TC4 TC 3 TC 2			
AEG PERFEKT 10 SERIES 7 SERIES 8			
SERIES 9			
PILOT 2 TC 4			
POne			

At the end of phase three (after the tens and units are displayed), the cycle is repeated.
To return to normal mode, either: switch the appliance off or press a button or turn the selector knob.

11 DEMO MODE

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

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

DEMO mode alters the execution of a cycle in such a way that these problems are avoided:

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

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

11.1 ENTERING DEMO MODE

As described before, to enter in this mode the procedure is the following:

- Switch on the machine via On/Off button if present or turn program selector knob out of Off position (POne SERIES 6B – LEVEL K), and **do not press any other button**;
- Turn the selector in the 3rd position CW;
  in case of Hi-Fi type selector, the 3rd upper light of right side program LEDs switches on;
  in case of TC1 or Pilot 2 levels, the program in position 3 has to be set and wait for related LED feedback;
- Press and hold for some seconds the defined key combination (START/PAUSE and the closest one);
  - Within about 3 seconds the acknowledge of the operation is given by:
    - the message "Demo mode" (steady) on text row in case of Series 9 level or TC1 levels;
    - the text "dEM" blinking 3 times on cycle time digits in case of all other levels except Series 5 / TC5;
    - by all option LEDs flashing in Series 5 / TC5 levels.
- In no acknowledge, switch machine off and repeat sequence from the beginning.

Information
Time to set "DEMO mode"

Time	Aesthetic levels
7 sec	AEG Perfekt 10
7 sec	Blue Fire
10 sec	Pilot 2
10 sec	POne

Information
"DEMO mode"

- Once the DEMO mode is set, after each machine switching on DEMO mode is automatically recalled; this occurrence is signalled after some seconds from the start-up by the steady text "Demo; mode" (S9 or TC1), by text "dEM" flashing 3 times (S6-S8, TC2, TC3, TC4, POne) or by all option LEDs flashing in Series 5 / TC5 levels.
- To exit the DEMO mode the machine has to be unplugged from mains net.

12 DIAGNOSTIC MODE

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

12.1 ENTERING DIAGNOSTIC MODE

As described before, to enter in this mode the procedure is the following:
- Switch on the machine via On/Off button if present or turn program selector knob out of Off position (POne SERIES 6B – LEVEL K), and **do not press any other button**;
- Turn the selector in the 1st position CW;
  in case of Hi-Fi type selector, the 1st upper light of right side program LEDs switches on;
  in case of TC1 or Pilot 2 levels the program in position 1 is selected by default at machine switching on;
- Press and hold for about 3 seconds the defined key combination (START/PAUSE and the closest one);
  - Within about 3 seconds the UI shall enter the diagnostic mode; the acknowledge of the operation is given by all LEDs and groups of display icons switching on sequentially; otherwise, switch machine off and repeat sequence from the beginning.

Information
Time to set " DIAGNOSTIC mode"

Time	Aesthetic levels
7 sec	AEG Perfekt 10
7 sec	Blue Fire
10 sec	Pilot 2
10 sec	POne

Information
"DIAGNOSTIC mode"

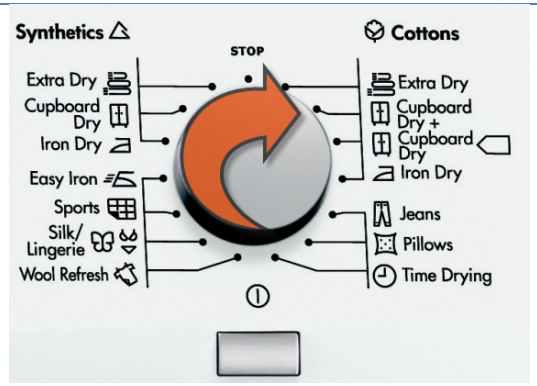
- If the key combination is recognised within 10 seconds since the machine was switched on (via On/Off button), a DIAGNOSTIC mode is entered
- To exit from DIAGNOSTIC mode it's sufficient to switch off the machine.
- According to the machine configuration, at the next machine switching on the electric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

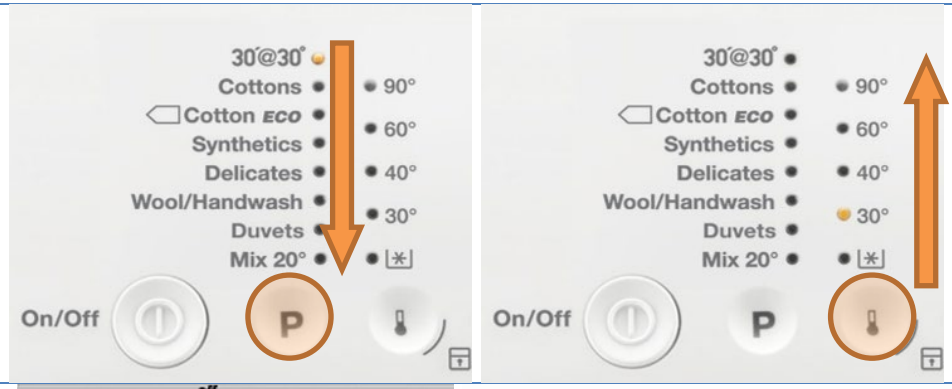
12.2 DIAGNOSTIC PROGRAM DEFINITION

In the 1st selector or program position (TC1 or Pilot 2) the User Interface test is performed; all LEDs or LCD symbols are lighted on sequentially to allow checking the outputs. For each LCD display a specific sequence of screens is performed in order to test all icons and backlight LEDs.

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

When the selector knob is moved (not present in Blue Fire TC1 or Pilot 2) the TTE digits show the "C" letter followed by the knob position code for about 2 seconds; Series 9 level shows also "Knob position" on text row while Series 5 / TC5 levels displays it with LEDs "weight" (see description below).

Selecting the factory test cycles			
BLUE FIRE INSPIRATION			In case of Blue Fire levels, to select the factory test cycles: ▪ rotate the Hi-fi selector and wait for related LED feedback for selected position. ▪ in case of TC1 level, to select the factory test cycles press button in position 1 to increase from 1 to 10 (where 10 is position for last 3 alarms visualization), press button in position 2 to decrease from 10 to 1.
AEG PERFEKT 10			In case of Aeg Perfekt 10 levels, to select the factory test cycles: ▪ turn program selector dial to a position ▪ rotate the Hi-fi selector and wait for related LED feedback for selected position.

PILOT 2		In case of Pilot 2 levels, to select the factory test cycles press Program button to increase from 1 to 10 (where 10 is position for last 3 alarms visualization), press Temperature button to decrease from 10 to 1.
POne		In case of POne levels, to select the factory test cycles: ▪ turn program selector dial to a position ▪ rotate the Hi-fi selector and wait for related LED feedback for selected position.

Information

Enter "last alarm display" or "electric test"

After the diagnostic mode was entered, the same combination has the following functions:

- In "last alarm display" selector position (the 11th counting clockwise) the last alarms are cleared.
- In all other positions it sets the "electric test" mode at the next machine switching-on.

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

Information
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 together the key combination during one of the diagnostic cycles (from position 2 to 10) the machine will set in electric test mode at the next power on.
- Pressing together the key combination in the last alarm display position (11), the alarm codes that were stored in memory will be reset.
- Pressing another valid key combination (the ones configured for Child Lock, Extra Rinse…) during one of the diagnostic cycles (from position 2 to 10) the factory default settings are restored, that is:
  - disable permanent modes/options such as Child Lock, Extra Rinse, Buzzer;
  - clear memories for Series 9 level or TC1/TC2 levels.

During the test the LCD will show some data concerning the cycle being performed. The details are explained in the following tables, which also specify, for each selector position, the purpose of the associated test, the components activated and the conditions under that the test is performed. In Blue Fire TC5 / Series 5 / Pilot 2 TC5 levels the time digits are not present, so some information may not be displayed.

C01 USER INTERFACE TEST	
Selector-test position:	**Position 1** in clockwise direction or in test sequence (TC1).
Purpose of test:	To test the functionality of all lights, switches and buzzer.
Activated components:	All LEDs, LCD display (if present) and buzzer
UI behaviour with display:	All LEDs in sequence, pushing a button correspondent LED is lighted on, the key number is showed on LCD and the buzzer sound. All LCD icons blink together ☝ *See the descriptions below*
UI behaviour for S5 / TC5	All led in sequence, pushing a button correspondent led is lighted on and the buzzer sound. ☝ *See the descriptions below*
Working conditions:	There isn't any control to run the test (always active).

12.3 TEST OF OUTPUTS

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

Blue Fire, Perfekt 10, Pilot2:

In the same way also the 7 segments of the three digits for Series 6 or TC4 displays are lighted on sequentially and then all together to have "8.88".

The icons of LCD displays (no S5 / TC5) instead are grouped in 5 pre-defined screens switched on sequentially for about 2 seconds; dividing vertically the LCD in 3 areas, the sequence is:

Screen	LCD icons	Associated buttons
1	left side icons on	1 - 6
2	central icons on	2 - 7 (where present)
3	right side icons on	3 - 8 (where present)
4	all icons on	4 - 9 (where present)
5	all icons off	5 - 10 (where present)

This procedure allows testing the LCD glass, but also the backlight LEDs under the display. The buzzer plays a "beep" sound each time a button is pressed.

POne

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

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

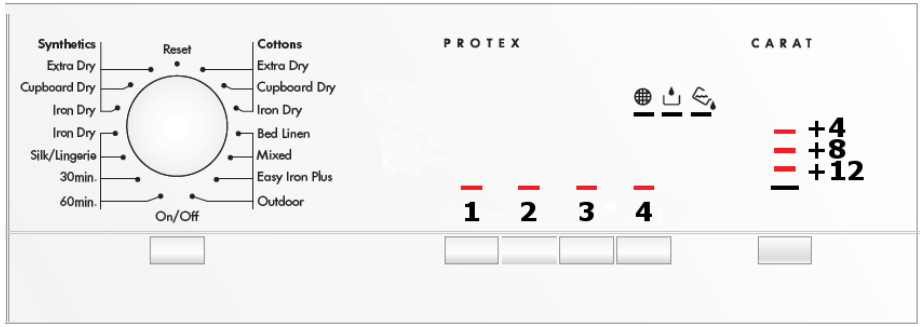
The buzzer plays a "beep" sound each time a button is pressed and the display shows only . display shows only the key code on time digits.

12.4 TEST OF INPUTS

Pressing a button the LEDs/LCD icons sequence stops, the associated button LEDs are lighted on, the associated LCD screen is displayed (see table above), the button position is displayed on time digits if screens 1 and 2 (not in Series 5 / TC5); for POne the button position is always 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 (not present in TC1 or Pilot 2) the LEDs/LCD 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 (in Blue Fire TC5 and Perfekt 10 Series 5 the position is shown for 3 seconds on buttons and status LEDs with a specific coding explained below), and if program LEDs present (Hi-Fi selector), also the light corresponding to knob position is switched on; after about 2 seconds the LEDs/LCD icons sequence restarts if knob left in position 1 or after the 11th, diagnostic info is showed if other position selected.

KNOBS POSITION CODING SYSTEM ON LEDS (PERFEKT 10 SERIES 5)



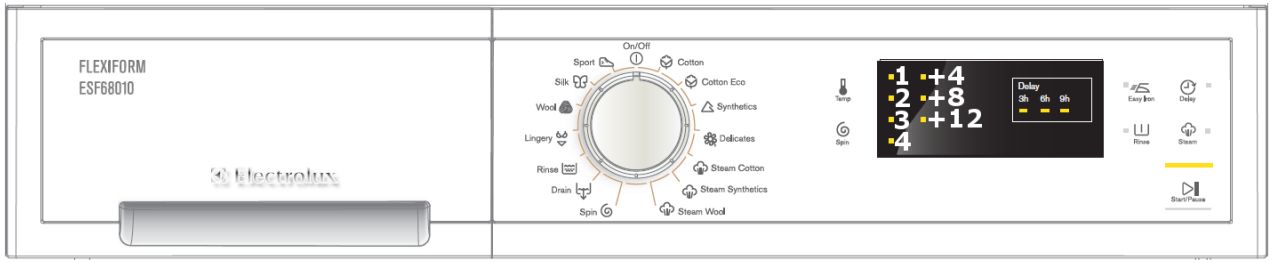
Each LED has a numeric "weight" as shown on following picture:

Summing the buttons LEDs weight (1,2,3,4) to the weight of one of Status LEDs (4,8,12), the resulting number corresponds to the just selected knob position of main or second selector.

Following table summarizes the LEDs combinations lighted on for each knob position.

Position	OFF	1	2	3
LEDs Lighted on				
Position	**4**	**5**	**6**	**7**
LEDs Lighted on				
Position	**8**	**9**	**10**	**11**
LEDs Lighted on				
Position	**12**	**13**	**14**	
LEDs Lighted on				

KNOBS POSITION CODING SYSTEM ON LEDS (BLUE FIRE TC5)



Each LED has a numeric "weight" as shown on following picture:

Summing the LEDs weight of first column (1, 2, 3, 4) to the weight of one LED of second column (4, 8, 12), the resulting number corresponds to the just selected knob position of main selector.

The following reference table summarizes the LEDs combinations lighted on for each knob position.

Position	OFF	1	2	3	4
LEDs Lighted on	90° 60° 40° 20° 30° 1400 1000 700 400	■ 90° 60° 40° 20° 30° 1400 1000 700 400	■ 90° 60° 40° ■ 20° 30° 1400 1000 700 400	■ 90° 60° 40° ■ 20° 30° ■ 1400 1000 700 400	■ 90° 60° 40° ■ 20° 30° ■ 1400 1000 700 ■ 400
Position	**5**	**6**	**7**	**8**	**9**
LEDs Lighted on	■ 90° ■ 60° 40° 20° 30° 1400 1000 700 400	■ 90° ■ 60° 40° ■ 20° 30° 1400 1000 700 400	■ 90° ■ 60° 40° ■ 20° 30° ■ 1400 1000 700 400	■ 90° ■ 60° 40° ■ 20° 30° ■ 1400 1000 700 ■ 400	■ 90° 60° 40° 20° ■ 30° 1400 1000 700 400
Position	**10**	**11**	**12**	**13**	**14**
LEDs Lighted on	■ 90° 60° 40° ■ 20° ■ 30° 1400 1000 700 400	■ 90° 60° 40° ■ 20° ■ 30° ■ 1400 1000 700 400	■ 90° 60° 40° ■ 20° ■ 30° ■ 1400 1000 700 ■ 400	■ 90° 60° 40° 20° 30° 1400 ■ 1000 700 400	■ 90° 60° 40° ■ 20° 30° 1400 ■ 1000 700 400

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

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

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

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

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

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

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

d07	CONCENTRATED WASH PUMP TEST
Selector-test position:	**Position 7** in clockwise direction + "start/pause" button pressure
Purpose of test:	To test the concentrated wash pump (if present)
Activated components:	Door lock device, concentrated wash pump (if present).
UI behaviour with display:	The clock digits report the actual temperature (in °C) in the washing group as measured by the NTC.
Working conditions:	Door locked, water level greater then virtual AB level.

C08	TUB LEAKAGE TEST
Selector-test position:	**Position 8** in clockwise direction or in test sequence (TC1).
Purpose of test:	To verify possible water leakage of the tub
Activated components:	Door lock device, main motor and wash electric valve if water level lower then 1st level, diverter (if present).
UI behaviour with display:	The clock digits report the actual drum speed in rpm divided by 10.
Working conditions:	Door locked, water level greater then 1st virtual level, up to 250 rpm.

C09	DRAIN AND SPIN TEST
Selector-test position:	**Position 9** in clockwise direction or in test sequence (TC1).
Purpose of test:	To verify the machine during spin phase, the drain pump functionality, and pressure switch calibration procedure
Activated components:	Door lock device, main motor, drain pump.
UI behaviour with display:	The clock digits report the actual drum speed in rpm divided by 10.
Working conditions:	Door locked, water level lower then antifoam level (correspondent to anti-boil level), up to maximum speed.

C10	DRYING TEST (for WD only)
Selector-test position:	**Position 10** in clockwise direction or in test sequence (TC1).
Purpose of test:	To verify all the drying loads of the machine.
Activated components:	Traditional WD machines: Door lock device, drain pump, fan motor, condense valve, heating elements (half and full power). Heat Pump machines: Door lock device, drain pump, fan motor, compressor, fan cooler.
UI behaviour with display:	Air temperature on digits (in °C). Traditional WD machines: Toggle between upper and lower NTC temperature for traditional WD machines. Heat Pump machines: Toggle between input, output and capillary NTC temperatures.
Working conditions:	Traditional WD machines: Door locked, water level lower than antiboiler level, up to 150°C measured on input NTC for max. 10 minutes. Heat Pump machines: Door locked, water level lower than antiboiler level - 10 secs of fan cooler activation; - 20 minutes with fan and compressor switched on and fan cooler working at temperature.

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

C10	WATER SOFTER DEVICE TEST
Selector-test position:	**Position 10** in clockwise direction or in test sequence (TC1).
Purpose of test:	To test the water softener module functionality performing a complete regeneration process.
Activated components:	Door lock device, wash electric valve, water softener devices (diverter and pump).
UI behaviour with display:	The clock digits report the status of the density and level float (i.e. 0-0). Density on the left digit. Level on the right digit
Working conditions:	Door locked, water load to produce the brine and to regenerate the resins. Delay to allow the process to be complete, washing phase of brine box and drain.

d10	NIUX/WI-FI TEST
Selector-test position:	**Position 10** in clockwise direction + "start/pause" button pressure
Purpose of test:	To test the Niux board (if present)
Activated components:	Niux board (Wi-fi On/Off).
UI behaviour with display:	
Working conditions:	

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

13 WARNINGS

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

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

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

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

- *EF0*(*) - water leakage (managed by Aqua Control System)
- *EH0* - low mains voltage/irregular mains frequency
- *E91* - no communication between User Interface board and Main board
- *E92 / E93 / E94* - software configuration

(*) EF0 code is used to show several alarms: water leakages, detergent overdosing, unbalanced laundry load.

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

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

Information
Warnings

- Buzzer sounds (regardless of configuration) on alarm presence only for warnings that are shown to final user (E10, E20, E40, E90, EF0), mains supply alarms excluded (EH0).
- Buzzer sounds (also if deactivated by customer via buttons combination) with a specific sequence of 3 short beeps about every 20 seconds for maximum 5 minutes.
- Stand-by mode is disabled on alarm presence only for warnings that are shown to customer.
- Warning code is displayed as long as the fault condition is present.
- For the first three codes (E10, E20, E40), the warning puts the machine in pause state:
  - **DIGITS DISPLAY**
    the Start/Pause button **yellow** / **white** (Blue Fire); **red LED** (AEG Perfekt 10); **yellow** (Pilot2) **LED** blinks continuously.
  - **NO DISPLAY**
    the **yellow** (Blue Fire, Pilot2) / **red** (AEG Perfekt 10) **LED** is off, while the **alarm red LED** (Blue Fire, Pilot2) / **yellow LED** (Perfekt 10) under Start/Pause button blinks continuously for almost all warnings, except for "Software Configuration", "Boards Communication" and "Mains Supply"alarms.

  The blinking times for the LED are: 0.5 sec lighted on, 0.5 sec lighted off.

- In some rare cases, other warning codes could be displayed to the customer, such as E91 – communication failure between electronic boards; in this case if failure repeats after unplugging/plugging machine, after sales service needs to be contacted.
- Alarm complete code is shown if the alarm belongs to the "Software Configuration" family, that includes also "Boards Communication" alarm, and "Mains Supply" family; this is in order to give the final user a valid indication of the alarm even if the configuration itself (needed to operate LEDs and Display) is damaged or missing.

DIGITS DISPLAY

For **Blue Fire TC4, TC3, TC2** ; **Perfekt 10 SERIES 6 7 8** ; **Pilot2 TC4 TC2** warnings are displayed on the **7-segments digits** display used to show the cycle time.

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

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

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

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

Alarm example	
Blue Fire / Pilot2	**Perfekt 10**
	

(*)**Perfekt 10**: Detergent overdosing is shown with a specific icon  on Series 8; if the alarm is configured enabled also on Series 6 and 7 it is showed on digits with EF0, the same code of Aqua Control.

For **Blue Fire TC1** ; **Perfekt 10 SERIES 9** warnings are displayed with a specific message in the text line and, like other UI levels, the buzzer sounds (also if deactivated by customer via buttons combination) with a specific sequence of 3 short beeps about every 20 seconds for maximum 5 minutes.

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

The displayed text messages are:

Warning code	Displayed Text message
E10	*Check the tap (no code on cycle time digits)*
E20	*Check drain filter (no code on cycle time digits)*
E40	*Check the door (no code on cycle time digits)*
EF0	*Water safety alert (no code on cycle time digits)*
EF0	*Detergent overdosing (no code on cycle time digits)*
EH0	*Unstable mains supply (no code on cycle time digits)*
E91 / E92 / E93 / E94	*See user manual plus related code on cycle time digits*

NO DISPLAY

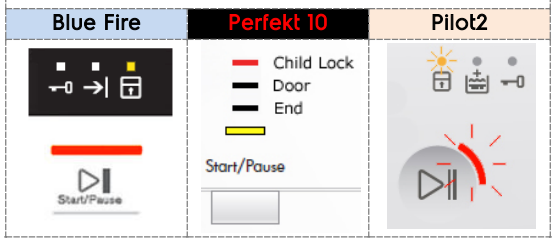
All foreseen warnings are showed by flashing of **alarm red LED** 🔴 (Blue Fire, Pilot2) **/ yellow LED** 🟡 (AEG Perfekt 10) integrated on Start/Pause push button: **it starts flashing when the alarm occurs and blinks continuously as long as the fault condition is present.**

The blinking times for the LED are: **0.5 sec** lighted **on**, **0.5 sec** lighted **off.**

The warnings of faults that can be solved by final user are highlighted by using also status LEDs, to facilitate recognizing the fault type: the **status LED associated to warning code blinks together with red alarm LED** 🔴 (Blue Fire, Pilot2) **/ yellow alarm LED** 🟡 (AEG Perfekt 10).

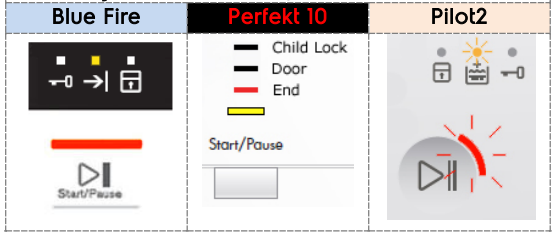
Warning code **E10**

Water loading timeout, tap closed:
blink **child lock** LED plus alarm red LED



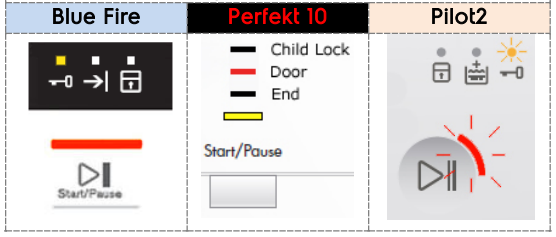
Warning code **E20**

Water draining timeout, draining filter clogged:
blink **cycle end** LED plus alarm red LED



Warning code **E40**

Door locking timeout, door not properly closed:
blink **door** LED plus alarm red LED



Alarm complete code is shown if the alarm belongs to the "Software Configuration" family, that includes also "Boards Communication" alarm, and "Mains Supply" family. In case of **Blue Fire** TC5, **Perfekt 10** Series 5 or **Pilot2** TC5 levels, red and yellow LEDs above Start/Pause button blink alternated according to alarm code, for example:

● **Red LED** (Blue Fire, Pilot2) **/** ● **Yellow LED** (AEG Perfekt 10) : 9 blinks - that is "Configuration" family standard number

● **Yellow LED** (Blue Fire, Pilot2) **/** ● **Red LED** (AEG Perfekt 10) : many times as alarm number (E 9 **1** → one time, E 9 **3** → three times)

After the problem has been solved, pressing Start/Pause push button the warning is not showed anymore, alarm LED is lighted off, status LEDs go back to normal function and Start/Pause button **yellow LED** ● (Blue Fire, Pilot2) **/ red LED** ● (AEG Perfekt 10) goes on again.

14 ALARMS

One of the main requirements of the diagnostic system is to be transparent to the final user except for some most common warning related to the door handling and water inlet and drain management.
To increase the flexibility of the system it was introduced the possibility to enable/disable the alarms display by the machine configuration in order to cover requirement as field test context, particular countries requirement …

Information
Safe condition

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

All alarms display is enabled during diagnostic test/cycles. They are displayed on the TTE digits of the display (if available) and on the red/yellow LEDs mounted beside the START key.

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

- The START Led (🟡 yellow for all Perfekt 10 or 🔴 red for all others) 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".
  In case of Series 9 or TC1, some alarms considered as final customer warnings are shown only with a specific message on text line.

If the WM/WD is in diagnostic mode and an alarm is raised, its code is always shown regardless of the configuration.
On Perfekt 10 Series 5 or TC5 Pilot 2 the indication is given by following blinks of both yellow and red START Leds:
🔴 **Red LED** (Blue Fire, Pilot2) / 🟡 **Yellow LED** (AEG Perfekt 10) blinks as many times as the family digit of the alarm,
🟡 **Yellow LED** (Blue Fire, Pilot2) / 🔴 **Red LED** (AEG Perfekt 10) then blinks as many times as the family code. The cadence is led on for 0.5 s – led off for 0.5 s; the sequences on the two leds are separated by a short pause. On platforms provided with a LCD the "Exx" code (E20, E30, etc) indication is shown as well in the TTE digits area.

Information
"Eb3" is shown like "EH3"

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

14.1 LAST ALARM READING AND RESET

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

Information
"last alarm reading and reset"

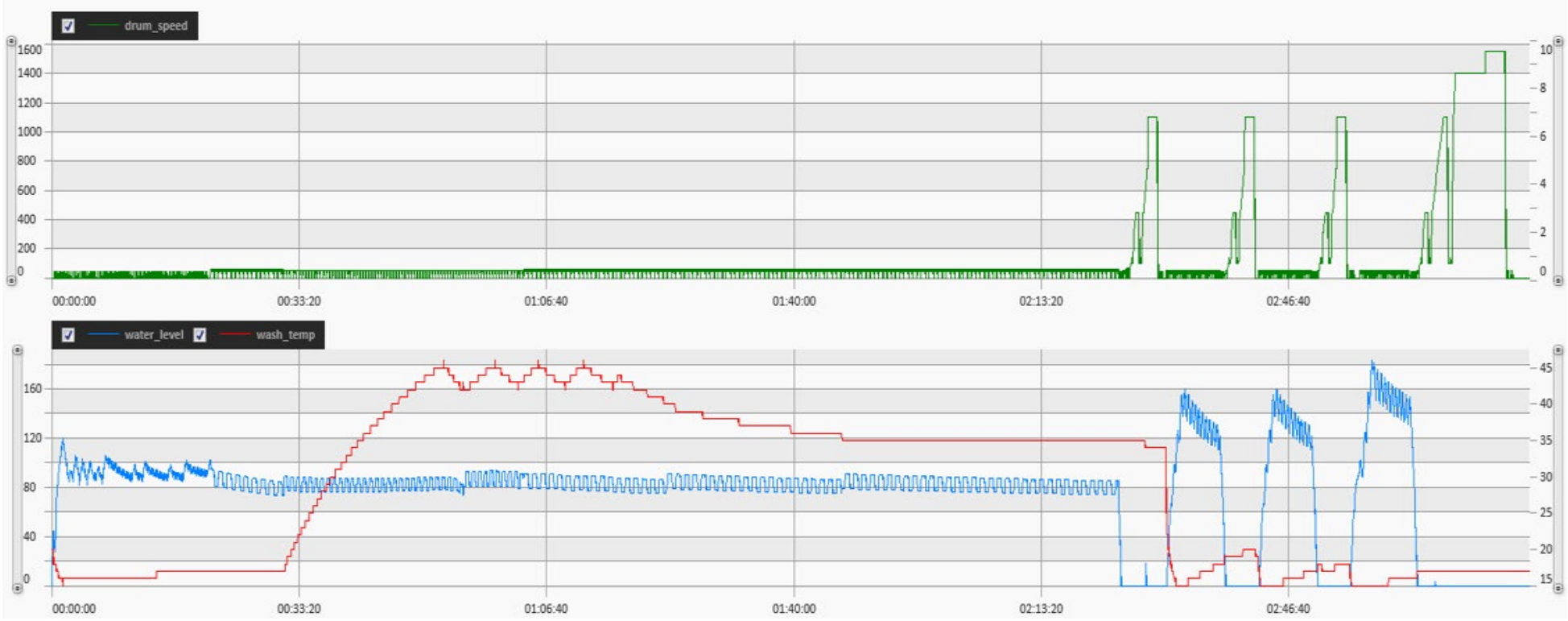
- While this mode is set, it's possible to read the code of the three latest alarms, starting from the most recent.
- Each time the leftmost key (Perfekt 10, Pilot 2 or POne levels) or upper button (Blue Fire levels) in the "special key" combination is pressed, the UI starts displaying the following 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.
- 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.

15 PROGRAMS PROFILE

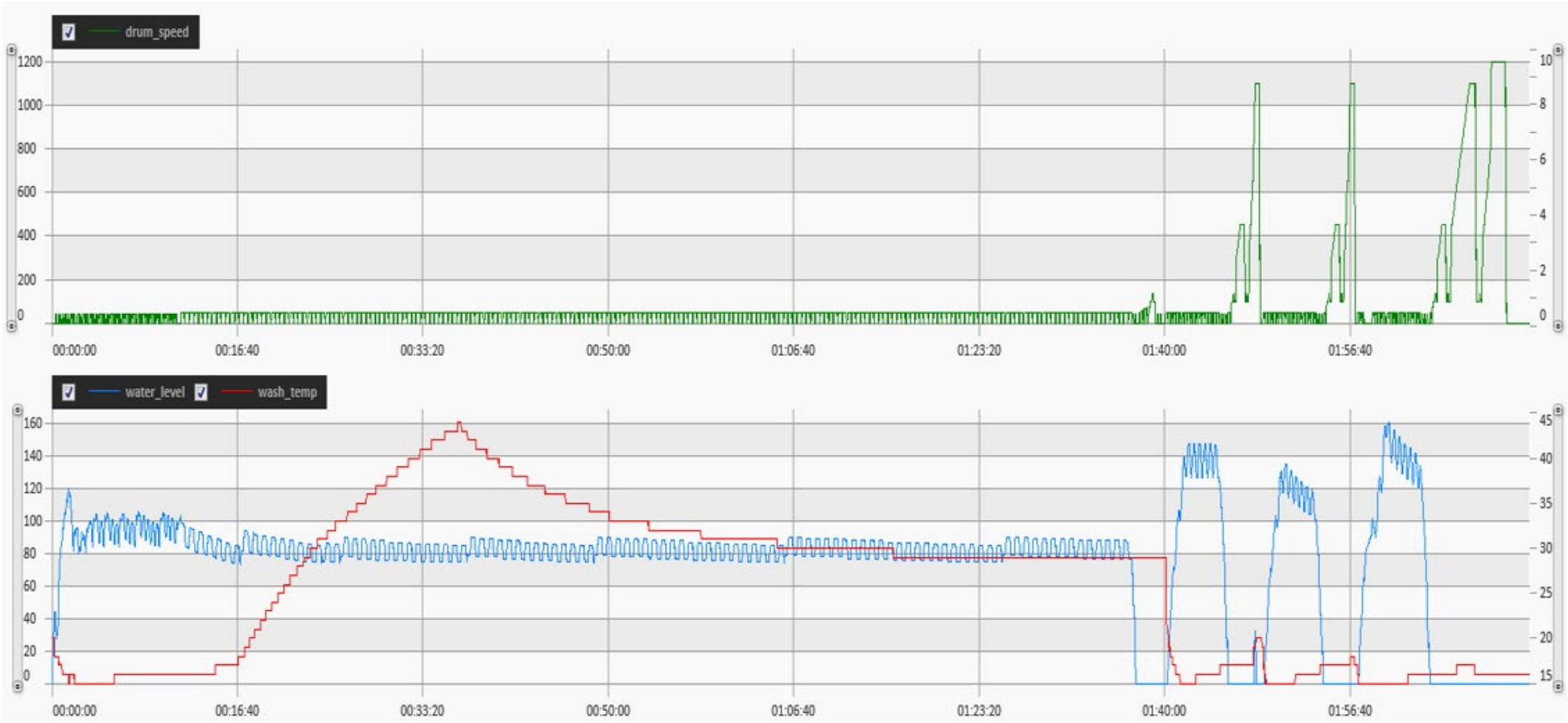
The purpose of this paragraph is to explain the cycles in a simple way.
For each Main Cycle there are two graphs:

1. drum speed (green line);
2. water level (blue line) and wash temp (red line).

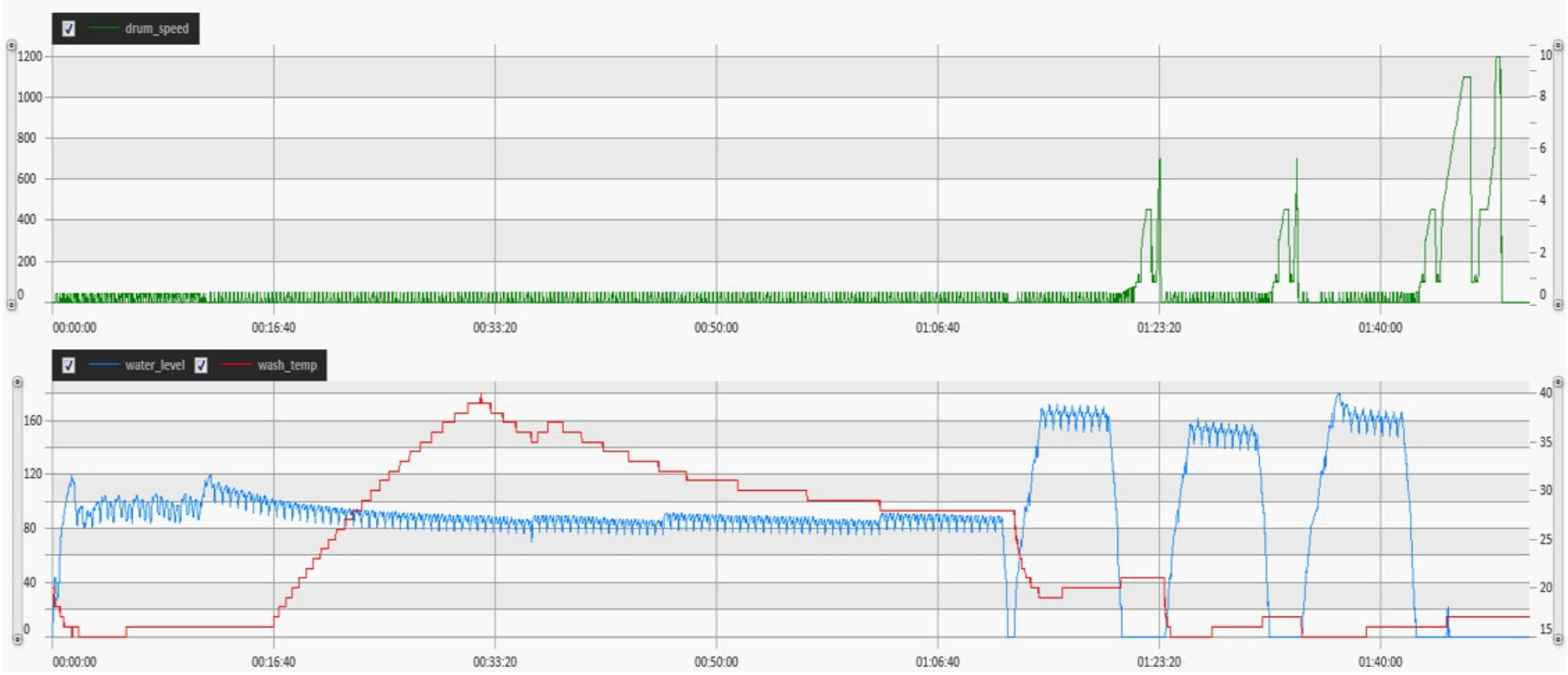
15.1 COTTON, 40°C, 1600RPM



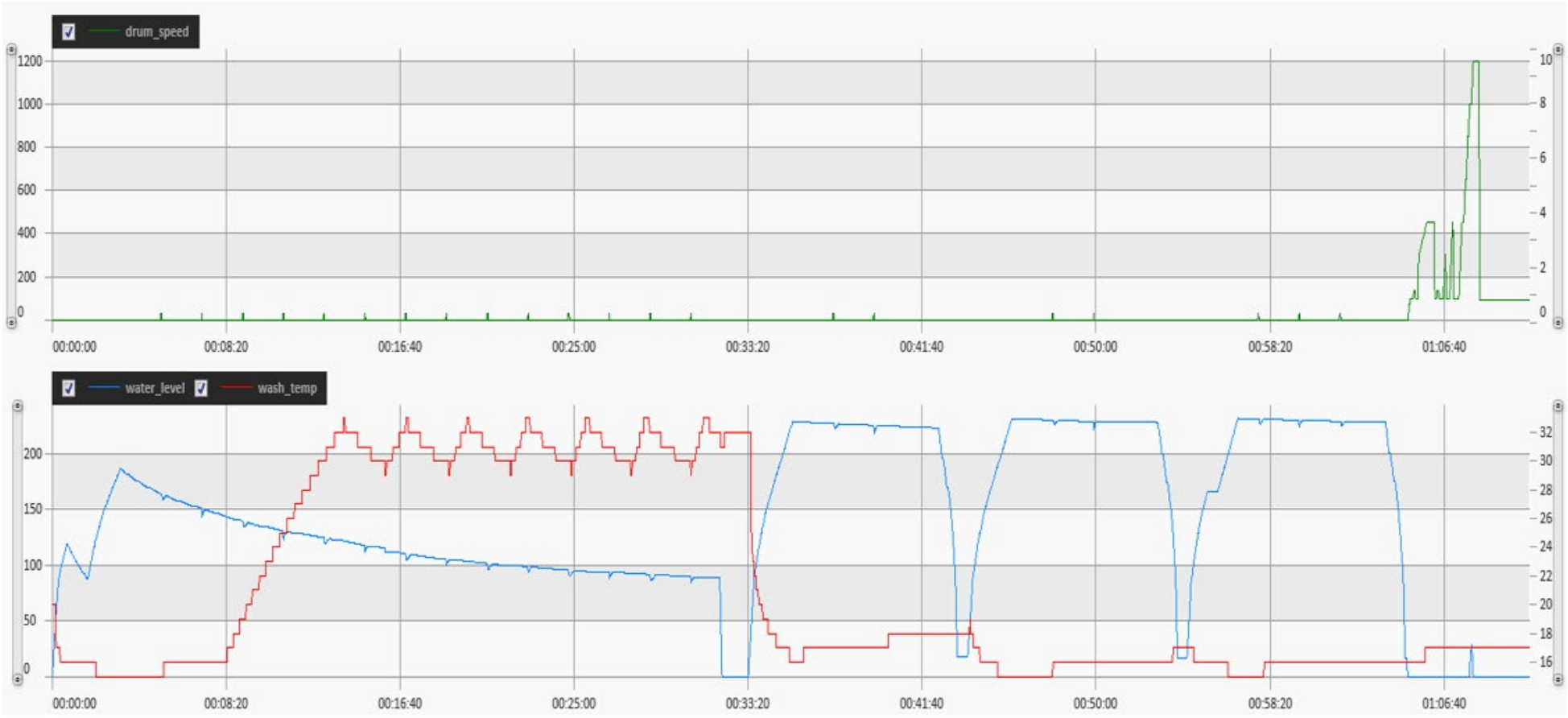
15.2 SYNTHETICS, 40°C, 1200RPM



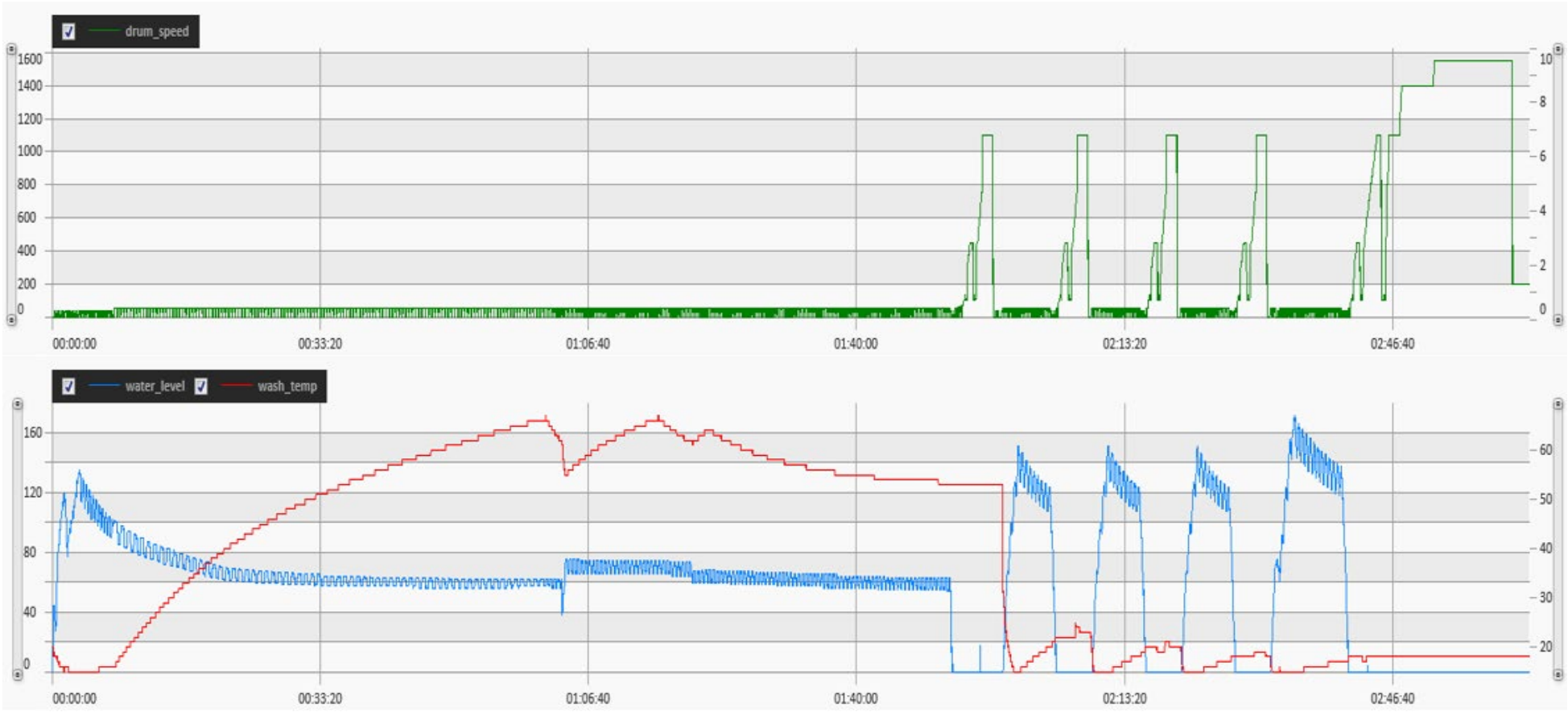
15.3 DELICATE, 40°C, 1200RPM



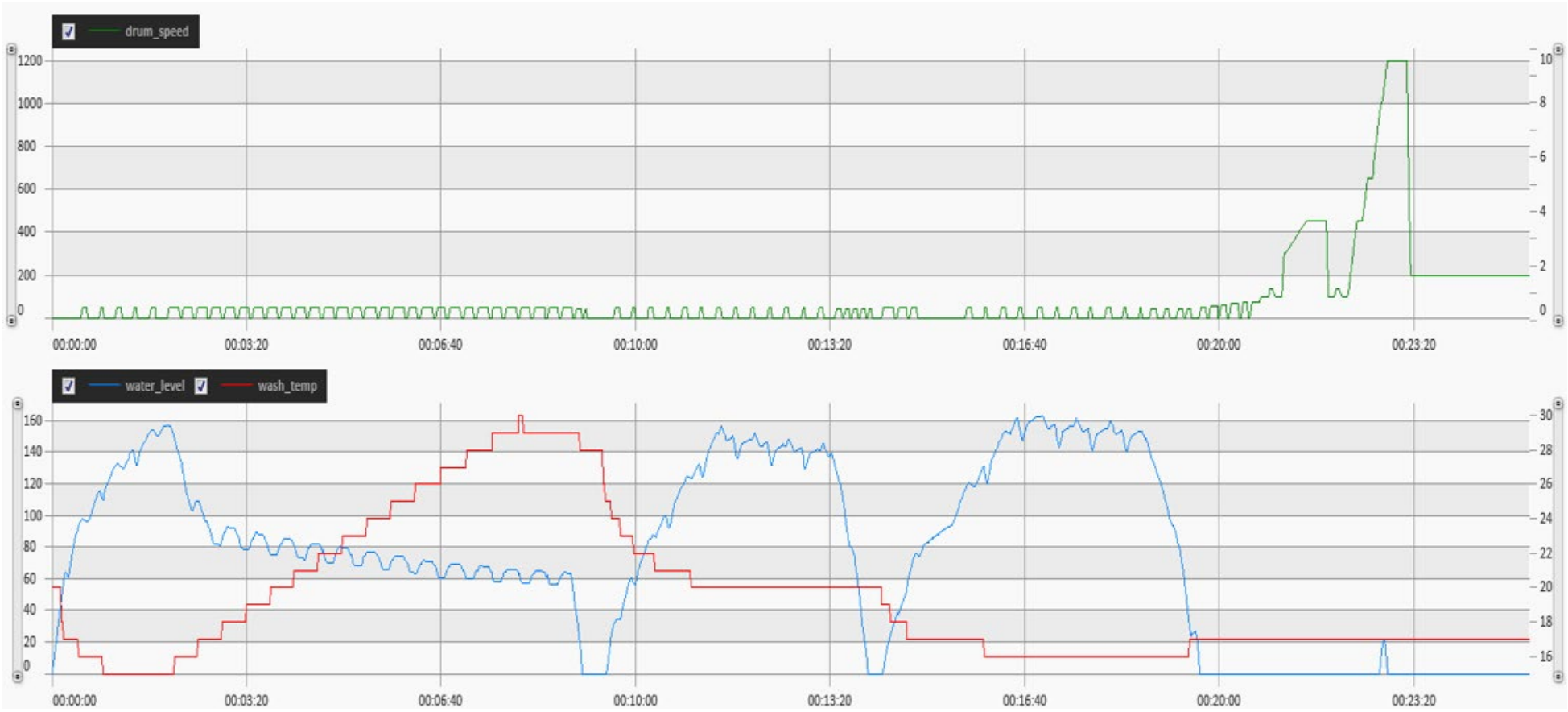
15.4 WOOL, 30°C, 1200RPM



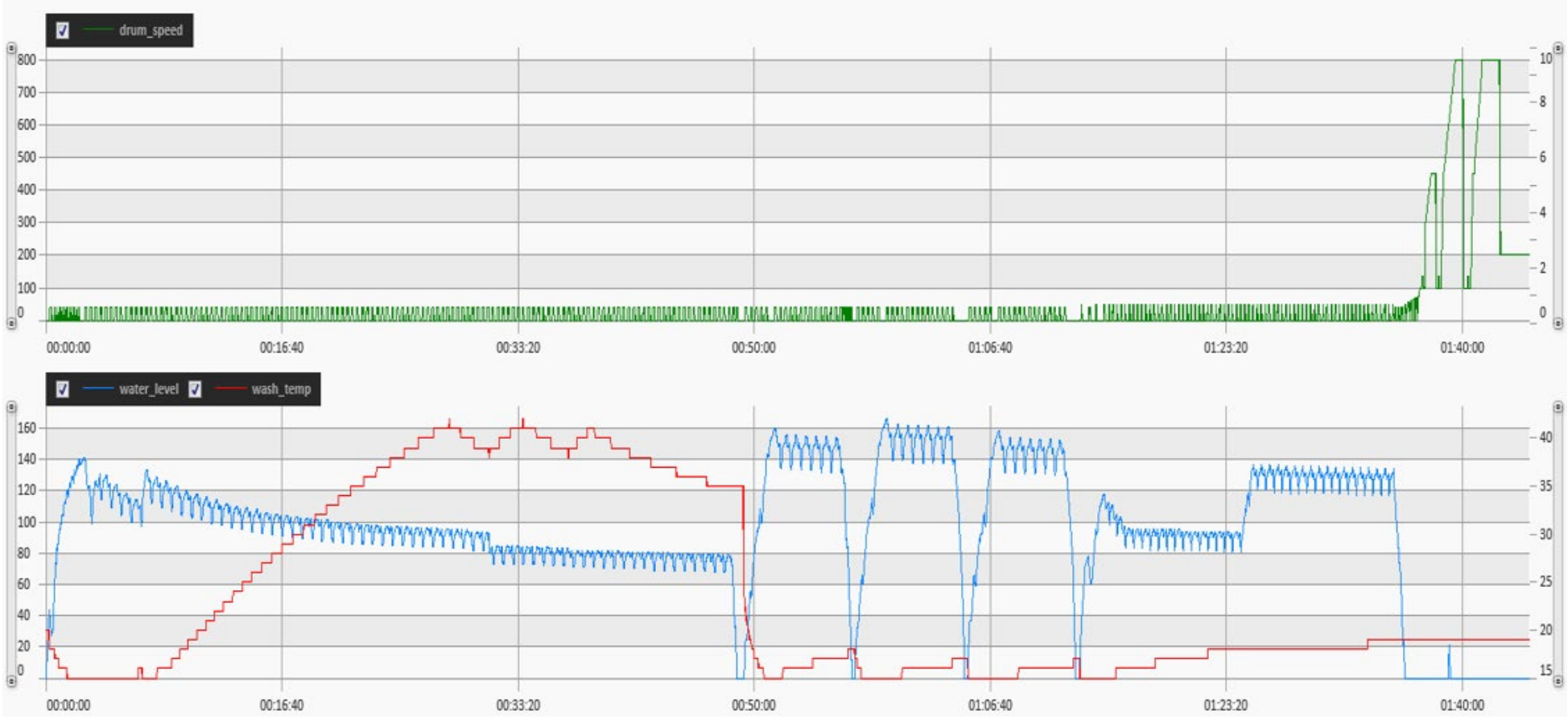
15.5 SANITISE, 60°C, 1600RPM



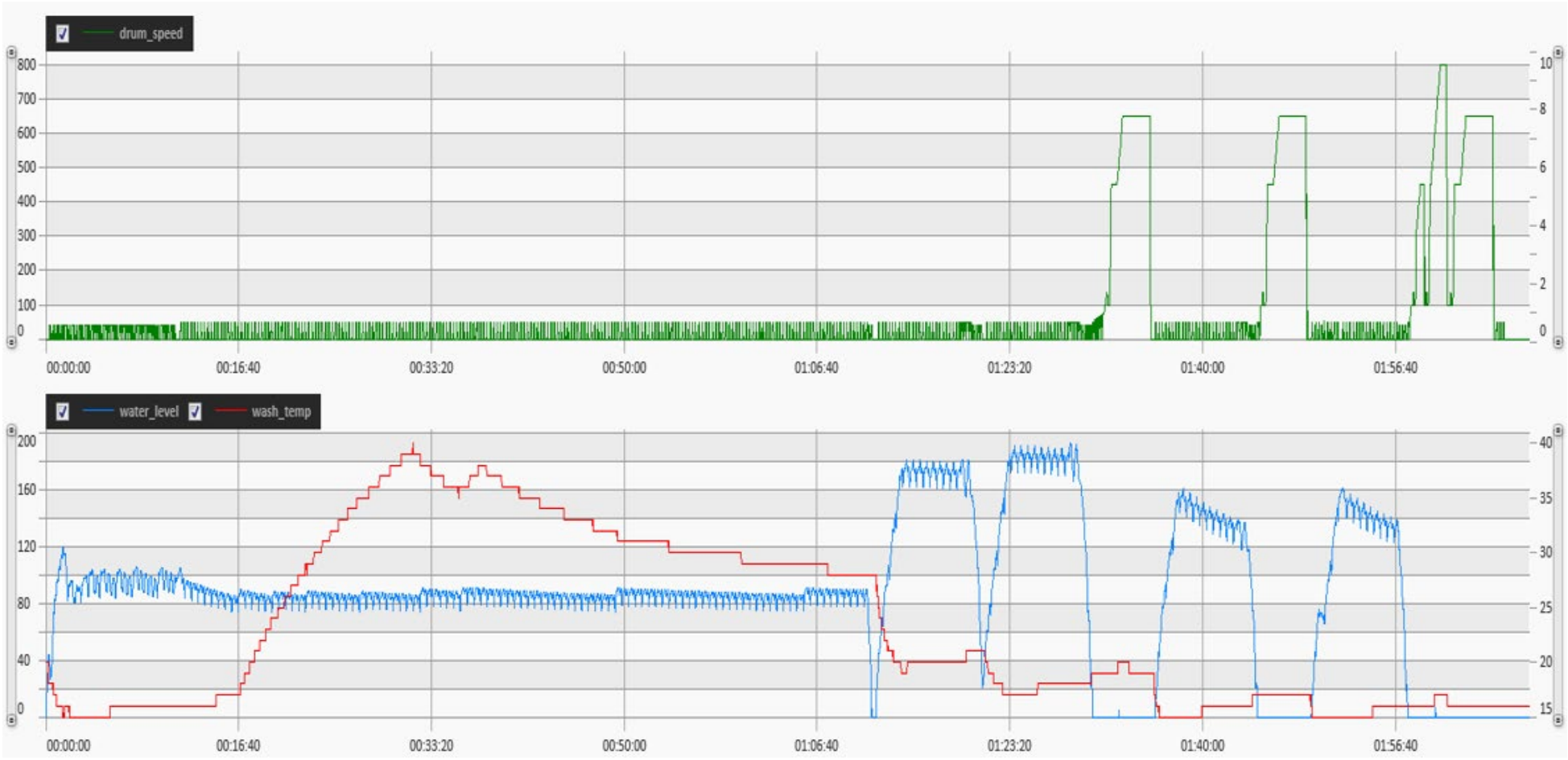
15.6 QUICK 20MIN 3KG, 30°C, 1200RPM



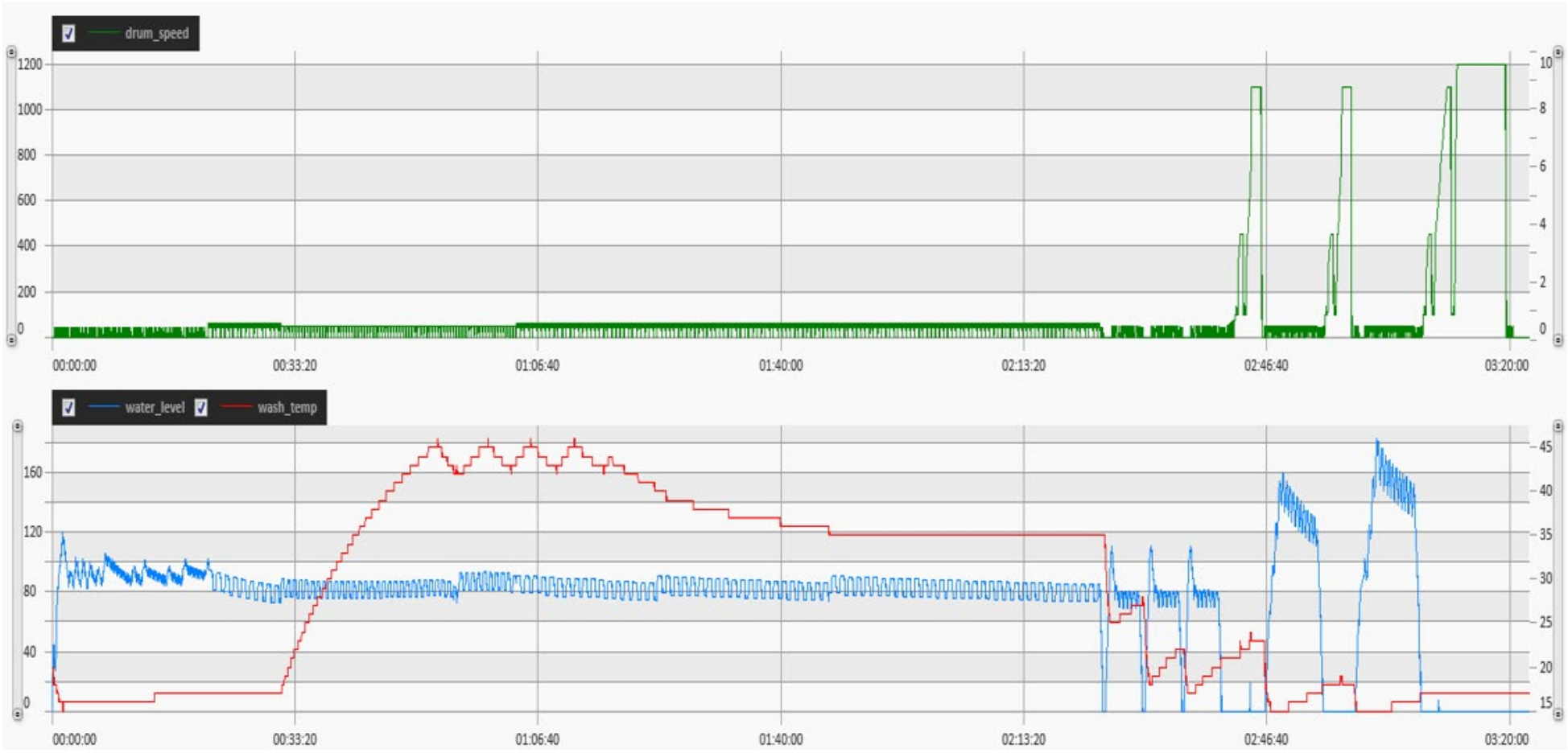
15.7 SPORT JACKET, 40°C, 800RPM



15.8 BLANKET, 40°C, 800RPM



15.9 JEANS, 40°C, 1200RPM



16 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