PCB
TECHNICAL MANUAL

FIRMWARE 3.3 → SN 14620134

CE

Contents

1   Control Panel

1) Power check light.
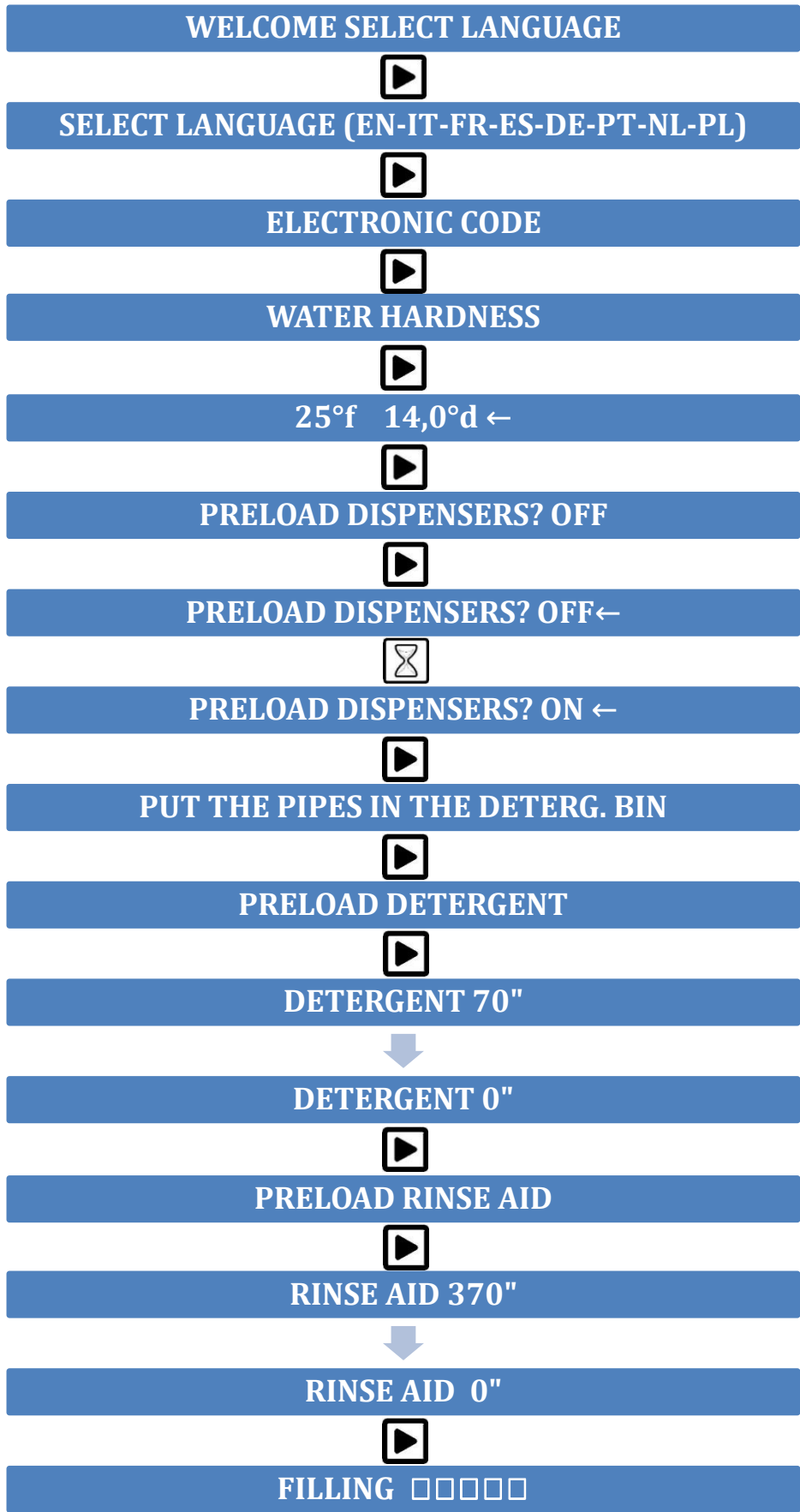2) ON-OFF key (keep pressed for 2 seconds to switch ON)
3) Access key to programming menus.
4) Pump drain/Self-cleaning key and ESC function when in programming.
5) LCD display.
6) Time selection key and rise/increase function (+) when in programming.
7) Cold rinse action (optional) and descent/reduction function (-) when in programming.
8) Cycle start light indicator and Enter function when in programming.

2 Circuit board Start-up (first installation)

WELCOME SELECT LANGUAGE

▶

SELECT LANGUAGE (EN-IT-FR-ES-DE-PT-NL-PL)

▶

ELECTRONIC CODE

▶

WATER HARDNESS

▶

25°f   14,0°d ←

▶

PRELOAD DISPENSERS? OFF

▶

PRELOAD DISPENSERS? OFF←

⧗

PRELOAD DISPENSERS? ON ←

▶

PUT THE PIPES IN THE DETERG. BIN

▶

PRELOAD DETERGENT

▶

DETERGENT 70"

⬇

DETERGENT 0"

▶

PRELOAD RINSE AID

▶

RINSE AID 370"

⬇

RINSE AID 0"

▶

FILLING ▢▢▢▢▢

The diagram represents the technician's initial installation sequence.
At the initial installation the technician is required to carry out some simple steps:

Language selection (SELECT LANGUAGE):

1) Access the language modify mode with the ▶ key;
2) Change the language with the ⊠ and ❄ keys;
3) Confirm with the ▶ key.

Electronic Code:

The ELECTRONIC CODE (Machine Code) is already set as data entered at the factory. Simply press the ▶ key to continue.

Water hardness:

Note: It is necessary to provide the correct water hardness degree relating to the water which will be supplying the dishwasher.

Before setting the water hardness value, measure the relative value with the water hardness control kit, directly from the water supply;
1) On the display a screen will appear showing the default values 25°f   14,0°d ;
2) Access the modify mode on the display of the water hardness in French degrees using the ▶ key, therefore the ← symbol will appear on the bottom right. The German degrees will modify automatically upon changing the French ones.
3) Modify the value of the French degrees with the ⊠ and ❄ keys.
4) Confirm the selected value with the ▶ key to continue.

Note: In the event this procedure is skipped, it is however possible to modify it by accessing the «OTHER PARAMETERS» menu.

Preload Dispensers:

The section «PRELOAD DISPENSERS» makes it possible to arrange the preloading of the detergent and rinse aid pipes during the first installation.

On the display the following default message will appear:
PRELOAD DISPENSERS? OFF

1) Access the modify mode on the display of the preloading of the dispensers using the ▶ key, therefore the ← symbol will appear on the lower right;
2) Use the ⊠ and ❄ keys to change the option to «ON»;
3) Confirm the selection with the ▶ key to continue;

Note: If this procedure is skipped it is possible to repeat it by accessing the «PARAMETER MENU», in the «DETERGENTS» section.

The display will then show the following message:
PUT THE PIPES IN THE DETERG. BIN
Once the detergent and rinse aid pipes have been inserted into the respective bins, press the ▶ key to continue.

The display will show the following message: PRELOAD DETERGENT
Press the ▶ key again to start the countdown.

The display will show the following message: DETERGENT 70"
Attend until the end of the countdown, then confirm by pressing the ▶ key to continue.

The display will show the following message: RINSE AID 370"
Attend until the end of the countdown then confirm by pressing the ▶ key to continue.

The display will then show the following message: WATER FILLING
The dishwasher will start automatically to fill the tank and the boiler.

3 USER Programming (USER MENU)

To access the USER menu just keep the ▤ key pressed for 2 seconds with the machine turned off.

Following is the description of the parameters in the programming phase of the circuit board by the USER and the description of the function keys used in programming.

Description of Programming Keys

MENU key: press the Menu key to select the list of parameters to view, namely the USER and INSTALLER.

CLEAN/DRAIN PUMP key: this has the function to return to the previous display.

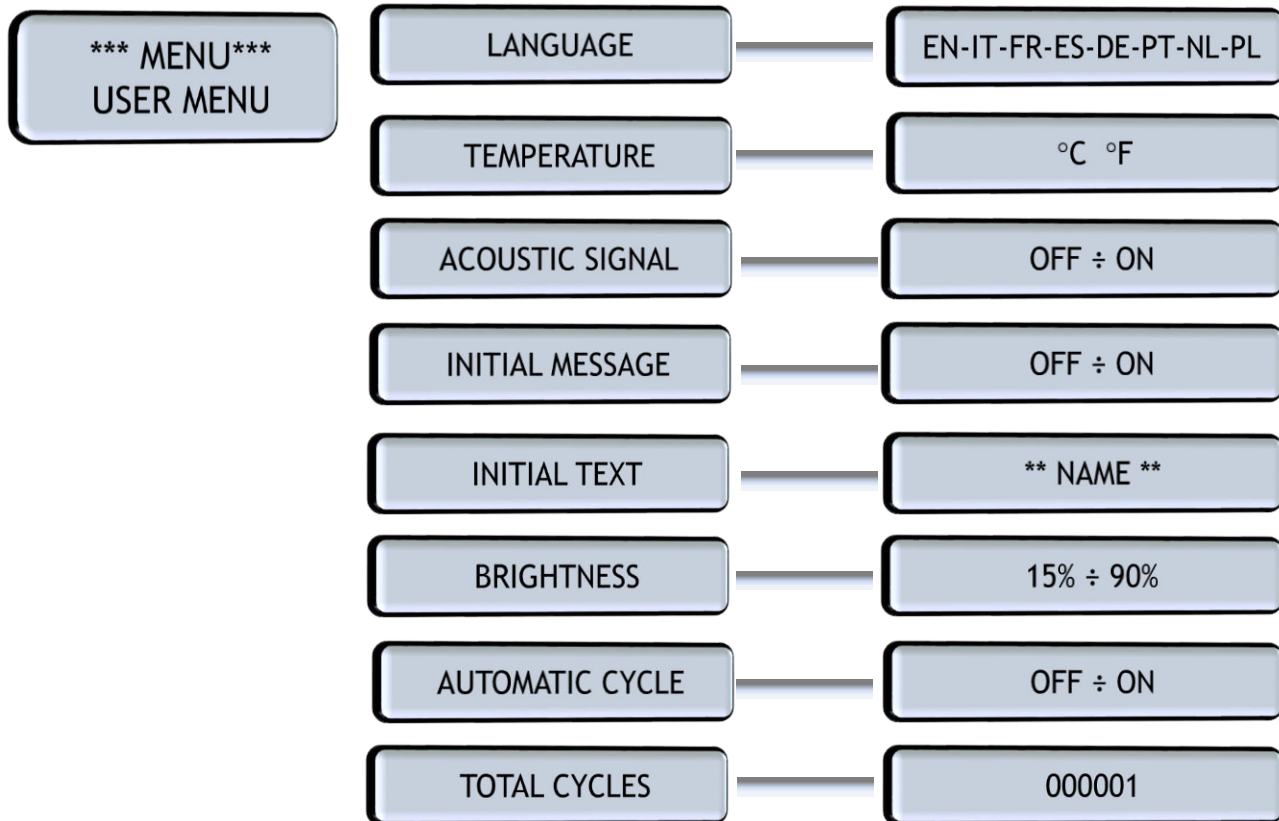TIME SELECTION key: this has the function to increase the indicated parameter value and/or to move up in the menu.

COLD key: this has the function to reduce the indicated parameter value and/or to move down in the menu.

START key: this has the function to enter into the modifying parameter mode (the ← symbol will appear on the display) and to memorise the modified value.

USER menu diagram

*** MENU*** USER MENU			
	LANGUAGE	—	EN-IT-FR-ES-DE-PT-NL-PL
	TEMPERATURE	—	°C °F
	ACOUSTIC SIGNAL	—	OFF ÷ ON
	INITIAL MESSAGE	—	OFF ÷ ON
	INITIAL TEXT	—	** NAME **
	BRIGHTNESS	—	15% ÷ 90%
	AUTOMATIC CYCLE	—	OFF ÷ ON
	TOTAL CYCLES	—	000001

USER MENU			Selectable Values
LANGUAGE	Allows to select the language of the messages viewed on the display.	Access the modify mode with the ▶ key. Select the language with the ⧖ and ❄ keys. Confirm with the ▶ key.	EN-IT-FR-ES-DE-PT-NL-PL
TEMPERATURE	Indicates the range of temperature viewed on the display during the normal functioning of the machine.	Access the modify mode with the ▶ key. Select the temperature with the ⧖ and ❄ keys. Confirm with the ▶ key.	°C °F
ACOUSTIC SIGNAL	Activates a sound signal when pressing keys and indicates the end of a wash cycle.	Access the modify mode with the ▶ key. Select ON/OFF with the ⧖ and ❄ keys. Confirm with the ▶ key.	OFF ÷ ON
INITIAL MESSAGE	Upon switching on, this allows to view a message no longer than 16 characters.	Access the modify mode with the ▶ key. Select ON/OFF with the ⧖ and ❄ keys. Confirm with the ▶ key.	OFF ÷ ON
INITIAL TEXT	Modifies the text of the initial message.	Access the modify mode with the ▶ key. Modify the characters with the ⧖ and ❄ keys. Confirm with the ▶ key.	
BRIGHTNESS	Increases or reduces the brightness of the LCD screen.	Access the modify mode with the ▶ key. Modify the values with the ⧖ and ❄ keys. Confirm with the ▶ key.	15 ÷ 90%
AUTOMATIC CYCLE	When ON, activates the start of the wash cycle upon closing the door/hood. By keeping the ⧖ key pressed, the automatic cycle mode is temporarily turned off.	Access the modify mode with the ▶ key. Modify ON/OFF with the ⧖ and ❄ keys. Confirm with the ▶ key.	OFF ÷ ON
TOTAL CYCLES	Shows the number of all the wash cycles performed by the dishwasher.		

4 INSTALLER Programming (PARAMETERS MENU)

Within the PARAMETER MENU it is possible to personalise the dishwasher and to set the detergent dosage.

To access the PARAMETER menu, press the MENU key ▤ when the machine is turned off and keep the key pressed for 2 seconds. Use the ❄ key to select «PARAMETER MENU» and press the ▶ key to access.
Upon request of the password, «PASSWORD: 0000←», enter the PW code which you will find on the technical data plate placed on the side of the machine. An extra data plate is placed alongside the wiring diagram.
In order to enter the code, modify the flashing value by using the ⧖ and ❄ keys, while the ▶ key will confirm the value and move on to the following digit.

If the password entered is wrong, the dishwasher will emit a sound signal and you can repeat the operation entering the code from the beginning.

Following is the description of the parameters for the programming phase of the circuit board by the installer and the description of the function keys used for programming.

Description of Programming Keys

MENU key: press the menu key to select the list of parameters to view, namely the USER and INSTALLER.

CLEAN/DRAIN PUMP key: this has the function to return to the previous display.

TIME SELECTION key: this has the function to increase the viewed parameter value and/or to move up in the menu.

COLD key: this has the function to reduce the viewed parameter value and/or to move down in the menu.

START key: this has the function to enter into the modifying parameter mode (the ← symbol will appear on the display) and to memorise the modified value.

PARAMETER Menu Diagram

```
*** MENU ***
USER MENU

        ❄

*** MENU***
PARAMETER MENU

        ▶

PARAMETER MENU
PASSWORD: **** ←
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DISPLAY SETTINGS
DETERGENTS
WASH CYCLES
THERMOSTOP
DRAIN PUMP
WATER SOFTENER
CYCLES COUNTER
SERVICE
OTHER PARAMETERS
TECHNICAL MENU
TEST IN/OUT MENU
```

❄

DISPLAY SETTINGS			Selectable Values
LANGUAGE	Allows to select the language of the messages viewed on the display.	Access the modify mode with the ▶ key. Select the language with the ⧖ and ❄ keys. Confirm with the ▶ key.	EN-IT-FR-ES-DE-PT-NL-PL
TEMPERATURE	Indicates the range of temperature viewed on the display during the normal functioning of the machine.	Access the modify mode with the ▶ key. Select the temperature with the ⧖ and ❄ keys. Confirm with the ▶ key.	°C °F
ACOUSTIC SIGNAL	Activates a sound signal when pressing keys and indicates the end of a wash cycle	Access the modify mode with the ▶ key. Select ON/OFF with the ⧖ and ❄ keys. Confirm with the ▶ key.	OFF ÷ ON
INITIAL MESSAGE	Upon switching on, this allows to view a message no longer than 16 characters.	Access the modify mode with the ▶ key. Select ON/OFF with the ⧖ and ❄ keys. Confirm with the ▶ key.	OFF ÷ ON
INITIAL TEXT	Modify the text of the initial message.	Access the modify mode with the ▶ key. Modify the characters with the ⧖ and ❄ keys. Confirm with the ▶ key.	
BRIGHTNESS	Increases or reduces the brightness of the LCD screen.	Access the modify mode with the ▶ key. Modify the values with the ⧖ and ❄ keys. Confirm with the ▶ key.	15 ÷ 90%
AUTOMATIC CYCLE	When ON, activates the start of the wash cycle upon closing the door/hood. By keeping the ⧖ key pressed, the automatic cycle mode is temporarily turned off.	Access the modify mode with the ▶ key. Modify ON/OFF with the ⧖ and ❄ keys. Confirm with the ▶ key.	OFF ÷ ON
TOTAL CYCLES	Views the number of all the wash cycles performed by the dishwasher.		

DETERGENTS			Selectable Values
FILL DETER. PIPE	Activates the electrical dispenser to load the detergent pipe. By changing the value from OFF to ON the dispenser will be activated for the time required for filling 70".	Access the modify mode with the ▶ key. Select ON/OFF with the ⌛ and ❄ keys. Confirm with the ▶ key.	OFF ÷ ON
FILL RINSEAIDPIPE	Activates the electrical dispenser to load the rinse aid pipe. By changing the value form OFF to ON the dispenser will be activated for the time required for filling 370".	Access the modify mode with the ▶ key. Select ON/OFF with the ⌛ and ❄ keys. Confirm with the ▶ key.	OFF ÷ ON
DETERGENTS **PROGRAM 1,2,3, INTENSIVE**	**Tank det. Filling** Value in grams/litre of the detergent concentration requested in the tank after a complete filling or after a complete change of water. By increasing the seconds, the dosage automatically changes in gr/l on the display and this indicates the concentration of the product in the tank. For the quantity of detergent, it is necessary to verify the recommended dosage of the chemical product based on the hardness of the water.	Access the modify mode with the ▶ key. Modify the values with the ⌛ and ❄ keys. Confirm with the ▶ key.	0 ÷ 500" 0,0 ÷ x g/l
	Boil. Rinsaid fill Value in grams/litre of the rinse aid concentration requested in the boiler. By increasing the seconds, the dosage automatically changes in gr/l on the display and this indicates the concentration of the product in the boiler. For the quantity of rinse aid, it is necessary to verify the recommended dosage of the chemical product based on the hardness of the water.	Access the modify mode with the ▶ key. Modify the values with the ⌛ and ❄ keys. Confirm with the ▶ key.	0 ÷ 250" 0,0 ÷ x g/l

Note: The naming of programs 1, 2, 3 will differ based on the machine model.

WASH CYCLES			Selectable Values
PROGRAM 1	Access the modify mode with the ▶ key. Modify the selection with the ⌛ and ❄ keys. Confirm with the ▶ key.	Enable program?	ON ÷ OFF
		Cycle total time	60 ÷ 540"
		Boiler temperat.	60 ÷ 92˚C
		Tank temperat.	50 ÷ 65˚C
		Deter. dose rate	0 ÷ 160"
		R.aid dose rate	0 ÷ 200"
		Pause time	4 ÷ 15"
		Rinse time	10 ÷ x"
PROGRAM 2	Access the modify mode with the ▶ key. Modify the selection with the ⌛ and ❄ keys. Confirm with the ▶ key.	Enable program?	ON ÷ OFF
		Cycle total time	60 ÷ 540"
		Boiler temperat.	60 ÷ 92˚C
		Tank temperat.	50 ÷ 65˚C
		Deter. dose rate	0 ÷ 160"
		R.aid dose rate	0 ÷ 200"
		Pause time	4 ÷ 15"
		Rinse time	10 ÷ x"
PROGRAM 3	Access the modify mode with the ▶ key. Modify the selection with the ⌛ and ❄ keys. Confirm with the ▶ key.	Enable program?	ON ÷ OFF
		Cycle total time	60 ÷ 540"
		Boiler temperat.	60 ÷ 92˚C
		Tank temperat.	50 ÷ 65˚C
		Deter. dose rate	0 ÷ 160"
		R.aid dose rate	0 ÷ 200"
		Pause time	4 ÷ 15"
		Rinse time	10 ÷ x"
INTENSIVE	Access the modify mode with the ▶ key. Modify the selection with the ⌛ and ❄ keys. Confirm with the ▶ key.	Enable program?	ON ÷ OFF
		Cycle total time	60 ÷ 720"
		Boiler temperat.	60 ÷ 92˚C
		Tank temperat.	50 ÷ 65˚C
		Deter. dose rate	0 ÷ 160"
		R.aid dose rate	0 ÷ 200"
		Pause time	4 ÷ 15"
		Rinse time	10 ÷ x"

ENABLE PROGRAM?: Activate or deactivate the wash program.
If the value is "ON" = Active program, if the value is "OFF" = Deactivated program.

N.B.: When a wash program is deactivated, it won't be possible to change its dosage values of chemicals from the "DETERGENTS" menu.

CYCLE TOTAL TIME: Duration of the entire cycle, including washing, pause and rinsing.

DETER. DOSE RATE: Duration of the activation of the detergent dispenser, in seconds.

R.AID DOSE RATE: Duration of the activation of the rinse aid dispenser, in seconds.

PAUSE TIME: Duration of the pause between the end of washing and the beginning of rinsing. By modifying this value, the duration of the wash cycle will vary.

RINSE TIME: Duration of the rinse phase. By modifying this value, the duration of the wash cycle will vary.

In the event of machines without PRS, regulating the rinse time must be carried out following a measurement of the dynamic pressure of the feed water.
14 seconds rinse for pressure equal to 2,5 ÷ 3,0 bar
16 seconds rinse for pressure equal to 2,0 ÷ 2,4 bar
18 seconds rinse for pressure equal to 1,5 ÷ 1,9 bar

ATTENTION!
When changing the rinse time, it changes automatically the value of the rinse aid dose. The software exits immediately from the menu to calculate logarithms and save the values.

We suggest to modify first the parameter "RINSE TIME" and then the parameter "R. AID DOSE RATE".

Note: The naming of programs 1, 2, 3 will differ based on the machine model.

THERMOSTOP			Selectable Values
BOILERTHERMOSTOP	Enables rinsing at set temperature with values entered for each program in **BOILER TEMPERAT.** field.	Access the modify mode with the ▶ key. Select ON/OFF with the ⧖ and ❄ keys. Confirm with the ▶ key.	OFF ÷ ON
DELTA BOIL.TEMP.	Range of temperatures suitable for carring out the rinse phase. By increasing the value, the rinse temperature is reduced (if the rinse temperature is set at 80°C and the delta is 10°C, the rinsing can be carried out between 70°C and 79°C).	Access the modify mode with the ▶ key. Modify the values with the ⧖ and ❄ keys. Confirm with the ▶ key.	0 ÷ 20°C
TANK THERMOSTOP	The wash cycle begins at set temperature with values entered in each program in the **TANK TEMPERAT.** field.	Access the modify mode with the ▶ key. Select ON/OFF with the ⧖ and ❄ keys. Confirm with the ▶ key.	OFF ÷ ON
DELTA TANK TEMP.	Range of temperatures suitable for starting a wash cycle. By increasing the value, the temperature to start a cycle is reduced (if the tank temperature is set at 60°C and the delta is 20°C, the cycle can be started beginning from 40°C).	Access the modify mode with the ▶ key. Modify the values with the ⧖ and ❄ keys. Confirm with the ▶ key.	0 ÷ 20°C

DRAIN PUMP			Selectable Values
DRAIN PUMP TIME	Drain pump functioning time, needed to empty the water present in the tank. If the drain of the installation site has difficulty in evacuating the liquid, it is possible to increase the length of function time of the pump. At the end of this time the display board will show "OFF".	Access the modify mode with the ▶ key. Modify the values with the ⧖ and ❄ keys. Confirm with the ▶ key.	20 ÷ 1000"

CYCLES COUNTER			Selectable Values
PARTIAL CYCLES	Tally of wash cycles carried out by the dishwasher, starting from the resetting of the parameter.		
RESET PART.CYCLE	Resets the tally of the partial wash cycles carried out by the dishwasher until that moment. Useful in the event of renting out the dishwasher.	Access the modify mode with the ▶ key. Select ON/OFF with the ⌛ and ❄ keys. Confirm with the ▶ key.	OFF ÷ ON
TOTAL CYCLES	Shows the number of all wash cycles carried out by the dishwasher.		

SERVICE			Selectable Values
SERVICE FREQUEN.	Number of wash cycles which the dishwasher needs to carry out before the programmed service. The display will show the message «SERVICE» when it will be necessary to carry out the maintenance.	Access the modify mode with the ▶ key. Modify the values with the ⌛ and ❄ keys. Confirm with the ▶ key.	0 ÷ 999'500 cycles
CYCLES TO SERVICE	Shows how many cycles remain to be done before carrying out the machine maintenance.		
RESET SERVICE	Resets the cycles missing to the «SERVICE» message and restarts the tally after having carried out the dishwasher service.	Access the modify mode with the ▶ key. Select ON/OFF with the ⌛ and ❄ keys. Confirm with the ▶ key.	OFF ÷ ON

OTHER PARAMETERS			Selectable Values
HEATING MODE	Sets priority to heating the dishwasher water.	Access the modify mode with the ▶ key. Modify the values with the ⌛ and ❄ keys. Confirm with the ▶ key.	BOILER FIRST TANK FIRST
GREEN FUNCTION	Heats dishwasher water in energy saving mode: the boiler and tank elements heat the water to a lower temperature than what has been set.	Access the modify mode with the ▶ key. Select ON/OFF with the ⌛ and ❄ keys. Confirm with the ▶ key. Modify the values with ⌛ and ❄ keys. Confirm with the ▶ key.	OFF ÷ ON
	DELTA BOIL.GREEN Difference between the set boiler temperature and the temperature at which the element will switch-off.		-1 ÷ -15°C
	DELTA TANK GREEN Difference between the set tank temperature and the temperature at which the element will switch-off.		-1 ÷ -2°C
PRS SYSTEM	Type of tank filling (only for machines with atmospheric boiler)		
	PRS SYSTEM Carries out first the filling of the boiler and then by decanting into the tank via the break tank.	Access the modify mode with the ▶ key. Select ON/OFF with the ⌛ and ❄ keys. Confirm with the ▶ key.	OFF ÷ ON

OTHER PARAMETERS			Selectable Values
FORCED DRAIN	To carry out a complete change of tank water in order to improve the wash quality.	Access the modify mode with the ▶ key. Select ON/OFF with the ⧖ and ❋ keys. Confirm with the ▶ key.	OFF ÷ ON
	FORCED DRA.FREQ. The number of wash cycles carried out by the machine before doing a complete change of tank water.	Modify the values with the ⧖ and ❋ keys. Confirm with the ▶ key.	1 ÷ 100
ES SYSTEM	Thermal or heat recovery (optional ES) which can be set in ES o ES+ functions. **The ES function** is to preheat the water before being introduced into the boiler using the vapour created in the wash chamber. The timing of the wash cycle is extended by approximately 30 seconds. **The ES+ function,** further to preheating the water before being introduced into the boiler, avoids the emission of water vapour upon opening the door/hood. The timing of the wash cycle is extended by approximately 45" (Hood-Type AH) and 120" (Ware-washers AU).	Access the modify mode with the ▶ key. Select ON/OFF with the ⧖ and ❋ keys. Confirm with the ▶ key.	OFF ES ES+ AH ES+ AU
SELF-CLEANING	Carries out the end of day cleaning of the wash chamber/tank after being completely emptied by means of a hot water rinse with water from the boiler.	Access the modify mode with the ▶ key. Select ON/OFF with the ⧖ and ❋ keys. Confirm with the ▶ key.	OFF ÷ ON
	SELF-CLANINGTIME Function timing of the solenoid filling valve for the cleaning of the tank in the self-cleaning mode. In the case of PRS, the maximum time to set is 20 seconds.	Modify the values with the ⧖ and ❋ keys. Confirm with the ▶ key.	10 ÷ 20"

OTHER PARAMETERS			Selectable Values
WATER HARDNESS	Sets water hardness.	Access the modify mode with the ▶ key. Modify the values with the ⧖ and ❄ keys. Confirm with the ▶ key.	0 ÷ 50°f 0,0 ÷ 28,1°d
COLD RINSE	Carries out a cold rinse following the hot water rinse of the standard wash cycle.	Access the modify mode with the ▶ key. Modify the values with the ⧖ and ❄ keys. Confirm with the ▶ key.	OFF ÷ ON
	COLD RINSE TIME Timing of the cold-water rinse to be carried out.		0 ÷ 30"
	C.RINSE PAUSE Timing of the pause between the end of the hot water rinse and the beginning of the cold-water rinse.		0 ÷ 15"
COLD PREWASH	Carries out a cold prewash cycle before the standard wash cycle.	Access the modify mode with the ▶ key. Modify the values with the ⧖ and ❄ keys. Confirm with the ▶ key.	
	COLD PREWASHTIME Timing of the cold-water prewash to be carried out.		0 ÷ 60"
	COLD PREW. PAUSE Timing of the pause between the end of the prewash cycle and the beginning of the standard wash cycle.		0 ÷ 15"

TECHNICAL MENU			Selectable Values
ELECTRONIC CODE	Identification code of the dishwasher which is necessary to load all default parameters according to the model, version and accessories installed. The ELECTRONIC CODE is printed on two data plates, one positioned on the inside part of the panel under the door, next to the wiring diagrams, and the other is placed on the right-side panel of the dishwasher. It is made up of four characters with the first being a letter.	Access the modify mode with the ▶ key. Modify the values with the ⧗ and ❄ keys. Confirm with the ▶ key.	
ALARMS MEMORY	It is possible to check the last ten alarms which were viewed by the circuit board starting from ALARM MEM. 01: (as most recent) to ALARM MEM. 10: (as least recent).	Access the modify mode with the ▶ key. Select ON/OFF with the ⧗ and ❄ keys. Confirm by pressing the ▶ key and keep pressed until you hear an acoustic signal.	
	ALARMS ERASE ? It is possible to cancel the memory data of the last 10 alarms.		OFF ÷ ON

TECHNICAL MENU			Selectable Values
TIME OUT TIMERS	It is possible to set the timings to a number of functions.		
	T. OUT FILL. BOIL Boiler filling safety timing. Once the set time-out period has passed, the unsuccessful filling of the boiler is indicated, with an alarm message on the display.		0 ÷ 240"
	T. OUT FILL. TANK Tank filling safety timing. Once the set time-out period has passed, the unsuccessful filling of the tank is indicated, with an alarm message on the display.		60 ÷ 1200"
	T. OUT BOI. HEAT Boiler heating safety timing. Once the set time-out period has passed, the unsuccessful boiler temperature increase of 2°C is indicated with an alarm message on the display.	Access the modify mode with the ▶ key. Modify the values with the ⧖ and ❄ keys. Confirm with the ▶ key.	0 ÷ 900"
	T. OUT TANK HEAT Tank heating safety timing. Once the set time-out period has passed, the unsuccessful tank temperature increases of 2°C is indicated with an alarm message on the display.		0 ÷ 900"
	T. EXTRA FILLING Extra time for tank filling once the pressure switch has inverted the contact and reached the level.		0 ÷ x"

TECHNICAL MENU			Selectable Values
FIRMWARE RELEASE	**PCB FIRMWARE** Indicates the version of the firmware installed on the motherboard **LCD FIRMWARE** Indicates the version of the firmware installed on the display board.	Access the field with the ▶ key.	
PCB RESET	Resets the circuit board and cancels all the changes made to the parameters. Following the reset, the board is as was at the time of the first installation. In order to re-start-up the board, it is necessary to have access to the «ELECTRONIC CODE» which is positioned on the technical data plates and to follow all instructions indicated on the display.	Access the modify mode with the ▶ key. Modify the value with the ⊠ key. Confirm by pressing for several seconds the ▶ key until you hear an acoustic sound. Remove the main power supply for 10 seconds and then reconnect.	OFF ÷ ON

TEST IN/OUT Menu

The TEST IN/OUT Menu was devised in order to carry out diagnostics and a rapid troubleshooting search. It is possible to enable all the outputs (OUT) with the ▶ key, in order to check the operation of each single component connected to the circuit board. By pressing the ▶ key the outputs are activated. To deactivate them simply press ▶ again. (The tank and boiler elements, once the ▶ key has been pressed, will be activated only for a few seconds).

In this menu it is also possible to check the state of the input signals which are connected to the circuit board: If «0» appears this indicates there is no signal present, while if «1» appears the signal is active (i.e.: the door switch; if «1» is displayed the door is closed, while if «0» appears the door is open).

Following is a table which explains the display messages with the outputs and inputs shown:

DISPLAY Message	Meaning	Notes
	OUT TEST	
BOIL. H.EL	BOILER Element	1 only for 15"
TANK H.EL	TANK Element	1 only for 15"
WASH PUMP	Wash pump	Only with closed door
DRAIN PUMP	Drain Pump	0-1 with START key
Ev1 FILL.	Solenoid Valve Filling	0-1 with START key
EvS EXCH.	Solenoid Valve Exchange	0-1 with START key
EvR REGEN.	Solenoid Valve Regeneration	0-1 with START key
Ev2 COLD R	Solenoid Valve Cold	0-1 with START key
DET. DISP.	Detergent Dispenser	0-1 with START key
R.AID DISP	Rinse Aid Dispenser	0-1 with START key
PRS PUMP	Rinse Pump	0-1 with START key
ZEROCAL D.	Descaling Dispenser	0-1 with START key
ES FAN	ES Fan	0-1 with START key
Ev4 CLEAN	ES Solenoid Valve Cleaning	0-1 with START key
	IN TEST	
DOORSWITCH	Door Switch	0= open
TANK PRES.	Tank Level Pressure Switch	0= empty
BOIL.PRES.	Boiler Level Pressure Switch	0= empty
R.AID MISS	Rinse Aid /Empty Canister	1= empty
DET. MISS	Detergent / Empty Canister	1= empty
SALT MISS	Water Softener Salt Empty	1= lacking salt
WASHP.THER	Overheating Protection Wash Pump	1= actioned
TANKSAFETY	Tank Element Safety Thermostat	0= actioned
BOILSAFETY	Boiler Element Safety Thermostat	0= actioned
B. TEMPER.	Boiler Temperature	Temperature value
T. TEMPER.	Tank Temperature	Temperature value
SMARTLEVEL	Tank Electronic Pressure Switch	Tank water level

5   Detergent Adjustment

The circuit board is tailored for the adjustment of the dosages of detergent and rinse aid according to standard values which are calculated in consideration of the products supplied by the manufacturer and it automatically self-adjusts in proportion to the water hardness value of the feed water.

Automatic Detergent Adjustment

The adjustment of the detergents is carried out automatically once the water hardness value has been set during the sequence of the first installation (page 5) see: «WATER HARDNESS».

Note: A correct measurement of the water hardness degree is required concerning the dishwasher feed water, by using the specific WATER HARDNESS CONTROL KIT.

Once the water hardness value has been set an automatic adjustment will be carried out of the:
- Dosage of detergent required at each water change/filling of the dishwasher;
- Dosage of rinse aid required at each water change/filling of the dishwasher;
- Dosage of detergent required to refill the portion used after each cycle;
- Dosage of rinse aid necessary to refill the portion used after each cycle;

These adjustments are activated once the tank has been filled with water and following ten seconds from the start of a wash cycle.

However, it is possible to modify the value of the «WATER HARDNESS» in the «OTHER PARAMETERS» menu, in the event that the sequence was skipped at the time of the first installation.

In the dishwashers with an incorporated water softener, the dosage of the detergents is automatically set with values suitable for soft water (8÷10°f).

Customized Detergent Adjustment

All dosages of detergents can be adjusted according to the product used and according to the water hardness. This procedure becomes necessary in the event that the products used are different to those supplied by the manufacturer.

It is therefore necessary to be familiar with:
- The degree of water hardness relating to the dishwasher feed water; this can be done by using the water hardness control kit;
- The dosage of detergent recommended by the manufacturer, based on the water hardness of the inbound water;
- The dosage of rinse aid recommended by the manufacturer based on the water hardness of the inbound water.

Note: it is imperative that a correct measurement is taken of the water hardness relating to the dishwasher feed water, by using the specific WATER HARDNESS CONTROL KIT.

Once the water hardness measurement has been taken of the dishwasher feed water it is necessary to establish the dosage of the detergent and rinse aid, expressed in g/l, recommended by the manufacturer and based on the water hardness. This information can be checked directly on the bin label or on the technical data information of the product.

Following this, the various values within the parameters of the circuit board must be modified.

For every active wash cycle, the parameters to modify are:
- **«TANK DET. FILLING» e «BOIL.RINSEAIDFILL» from the «DETERGENTS» menu**
  - «TANK DET.FILLING» is the dosage of detergent required at each water change/filling of the dishwasher;
  - «BOIL.RINSEAIDFILL» is the dosage of rinse aid required at each water change/filling of the dishwasher.
- **«DETER. DOSE RATE» and «R.AID DOSE RATE» from the «WASH CYCLES» menu**
  - «DETER. DOSE RATE » is the dosage of detergent required to top up the part which has been used after each cycle;
  - «R.AID DOSE RATE» is the dosage of rinse aid required to top up the part which has been used after each cycle;

The two parameters «DETER. DOSE RATE » and «R.AID DOSE RATE» must be modified in each wash program as the dosages can differ according to the programs.

By modifying the time in seconds in the corresponding parameter, the display will automatically indicate the dosage expressed in g/l (see example below)

D	E	T	E	R	.	D	O	S	E		R	A	T	E	
			5	"					1	,	5	g	/	l	t

6 Water Softener Parameters

In the WATER SOFTENER menu, which is for dishwashers with incorporated water softener, there is the **REGENERAT. FREQ.** parameter, which indicates the interval of the wash cycles, following which an automatic resin decalcification is carried out.

This is automatically set during the first installation upon entering the value of the water hardness relating to the dishwasher feed water.
The value of the frequency can also be modified manually.

Furthermore, modifying the Regeneration Frequency can vary the consumption of salt required: reducing the frequency, will increase the consumption of salt.

WATER SOFTENER			Selectable Values
REGENERAT. FREQ.	Interval of wash cycles carried out following which the automatic resin decalcification is activated.	Access the modify mode with the ▶ key. Select ON/OFF with the ⧗ and ❄ keys. Confirm with the ▶ key.	1 ÷ 36

H_2O Hardness °f	H_2O Hardness °d	Regeneration Frequency
40	22.5	9
36-39	20.2 - 21.9	12
32-35	18.0 - 19.7	16
28-31	15.7 - 17.4	20
24-27	13.5 - 15.2	24
20-23	11.2 - 12.9	28
16-19	9.0 - 10.7	32
11-15	6.2 - 8.4	36
10 ≤	5.6 ≤	NO WATER SOFTENER

7 Function HD (only 400V 3~)

The HD function (Heavy Duty) allows to activate the resistances of boiler and tank simultaneously, in order to heat faster the water. It allows also to maintain a constant temperature inside the tank during the washing cycles.
For the activation of the HD function, it is necessary to shift the cable in the right position of the white connectors (2-plugs male).

The cable marked «1» will be shifted to position «2» as indicated in the following scheme. The scheme is pasted next to the main terminal block.
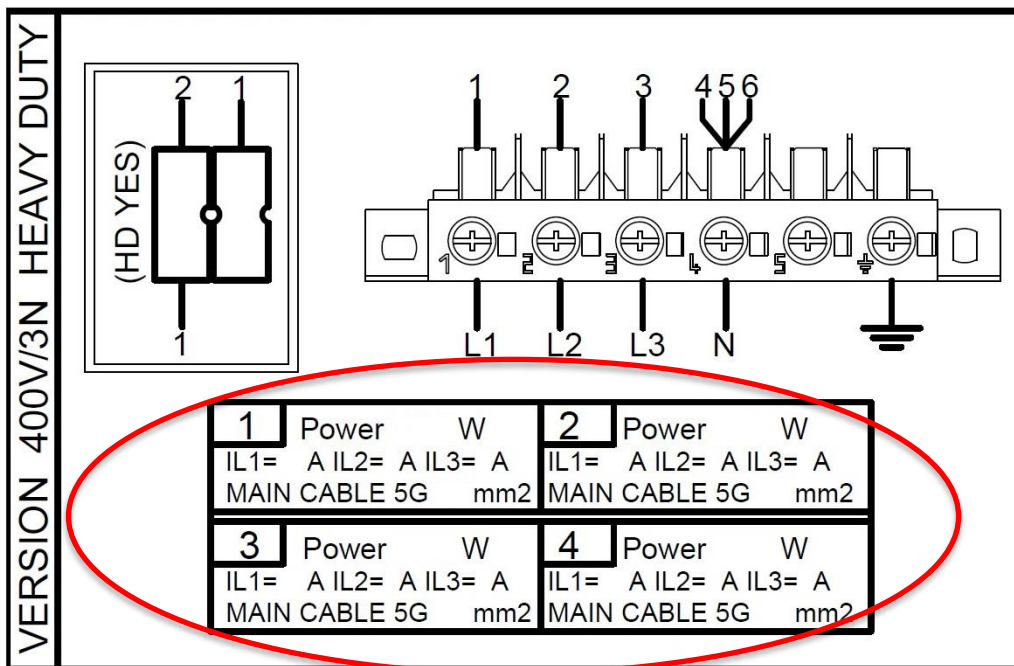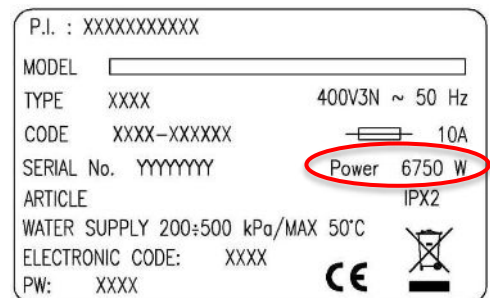
Before making these operations, please verify the plug, socket and power supply wires have the right section. Verify also the fuses and/or the magnetothermal switch have the right electrical power, because the total power of the machine increases significantly.

8 GREEN Function

The GREEN FUNCTION makes it possible to heat the dishwasher water in energy saving mode.
In order to maximise energy saving and to avoid useless wastes of power in waiting times relating to the machine, the boiler and tank water is heated and maintained at temperatures which are lower than those set in the relative parameters.

The energy saving GREEN temperatures have been calculated so they can reach the working temperatures without extending the following wash cycle times.

The parameter «DELTA BOIL.GREEN» can vary from –1°C to –15°C while the «DELTA TANK GREEN» can vary from -1°C to -2°C in relation to the set temperatures.
By default, DELTA BOIL.GREEN is set at -10°C while DELTA TANK GREEN at -2°C.

The greater the delta green parameter, the greater will be the energy saving but also the time required at the first cycle to re-bring the dishwasher to temperature.

The GREEN function is very advantageous especially for those clients who run non-consecutive wash cycles during the day, as it allows to maximise energy saving.

The Green mode is active by default but can also be deactivated by accessing the «OTHER PARAMETERS» menu.
When it is active the display will indicate the following screen alternating with the indication of the wash cycles and the temperatures:

G	R	E	E	N		F	U	N	C	.		O	N		
T	:	5	5	°	C			B	:	8	2	°	C		

9 End of the day Self-Clean Program

This program permits to start a rinse cycle and to clean the tank at the end of the working day.

The cycle is carried out as follows:
- With the machine turned on, press the ⏻ or 🖥 key for 2 seconds;
- The message «REMOVE THE OVERFLOW PIPE!» will appear on the display alternating with «TANK DRAIN»;
- Open the door and remove the overflow pipe to empty the tank, _without removing the filter_;
- Once the tank is empty the display will indicate «SELF CLEANING» and will check if the door is open or closed;
- If the door should remain open the circuit board will attend for 5 minutes and then it will switch «OFF»;
- If the door is closed a hot water rinse will start with the water from the boiler for the time set in the «_T.CLEANING_» parameter;
- At the end of the self-cleaning cycle, the dishwasher will automatically switch-off. It's possible to remove the filter, and clean with clear water.

DISHWASHER WITH DRAIN PUMP

The cycle is carried out as follows:
- With the machine turned on, press the ⏻ or 🖥 key for 2 seconds to activate the drain pump;
- The message «REMOVE THE OVERFLOW PIPE!» will appear on the display alternating with «TANK DRAIN»;
- Open the door and remove the overflow pipe to empty the tank, _without removing the filter_;
- Once the tank is empty the display will indicate «SELF CLEANING» and check if the door is open or closed;
- If the door should remain open the circuit board will attend for 5 minutes and then it will switch OFF;
- If the door is closed a hot water rinse will start with the water from the boiler for the time set in the «_T.CLEANING_» parameter;
- The dishwasher carries out a final draining of the tank by means of the drain pump;
- At the end of the self-cleaning cycle, the dishwasher will automatically switch off. It's possible to remove the filter, and clean with clear water.

It is possible however to deactivate the automatic start of the Self-cleaning cycle by accessing the «OTHER PARAMETERS» menu (page 18).

⚠️ _To switch-off the machine without making the Self-Clean procedure, please press again the ⏻ key for 2 seconds._

10 Programmed Maintenance

At intervals which are programmed by the manufacturer, the dishwasher will display a message requesting a maintenance service in order to check the correct functioning of all the critical components.

Note: Programmed maintenance operations will assist in preventing sudden problems and will lengthen the life of the dishwasher.

The message requesting maintenance service will appear in accordance with the forecast given by the tally of cycles calculated in the «CYCLES TO SERVICE» parameter of the «SERVICE» menu (see page 16).

The value «SERVICE FREQUEN.» set by the manufacturer amounts to 60.000 cycles, which equals approximately 18 months' work of the machine. It is of course possible to modify this value by accessing the appropriate section in the «SERVICE» menu.
If the maintenance alarm option is active, the display will indicate the message «SERVICE».

Following the maintenance, it is possible to reset the alarm:

Access the «SERVICE» menu and at the «RESET SERVICE» option, follow the instructions as described on page 16 of this manual.

11 Alarms

Following is a list of the alarm messages, together with the various tests to carry out. Normally the alarm messages will remain until the machine is switched off or until it is reactivated. Some alarms will cause a complete halt of the machine, while other alarms will allow the machine to work but with limited functions.
Should an alarm reappear even after carrying out the recommended tests, and after having <u>switched off e re-switched on the machine</u>, it is recommended you contact the technical assistance.

RED COLOUR LIGHT
FIXED/FLASHING

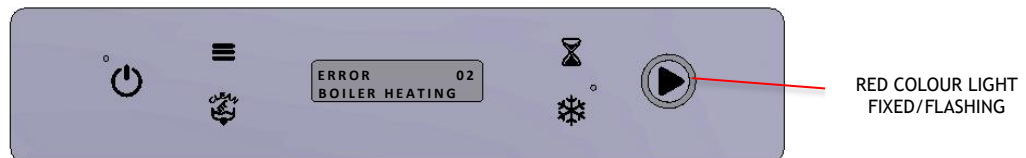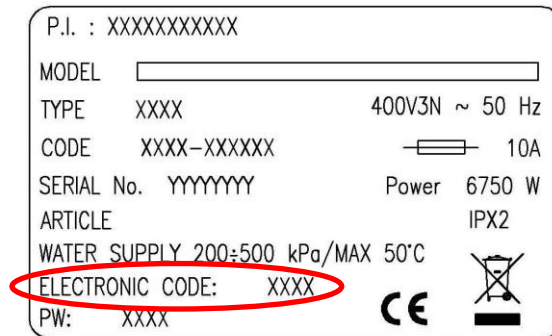| Alarm Number	DISPLAY MESSAGE	Description	User Checks	Installer Checks
ALARM 01	TANK FILLING	Failed TANK filling (▶fixed red light)	- Water supply tap doesn't dispense water. - Overflow pipe incorrectly placed or not inserted; - Obstructed nozzles of the rinse arms; - Choked water supply hose.	- Faulty solenoid valve; - Obstructed solenoid valve filter; - Limescale obstructed boiler; - Faulty pressure switch; - Obstructed or faulty air chamber - Check air circuit between pressure switch and air chamber; - Faulty relay board.
ALARM 02	BOILER HEATING	Failed BOILER heating (▶ flashing red light)	Action required by a qualified technician	- Faulty element; - Limescale encrusted element; - Solenoid valve doesn't hold water; - Check functioning of contactor (only applicable to three-phase machines); - Faulty relay board.
ALARM 03	TANK HEATING	Failed TANK heating (▶ flashing red light)	- Overflow pipe incorrectly placed.	- Faulty element; - Limescale encrusted element; - Solenoid valve doesn't hold water; - Faulty relay board.
ALARM 04	TANK DRAINING	Failed TANK draining within time-out limit (▶ flashing red light)	- Check filters are clean; - Check the drain tube isn't obstructed/ choked/ incorrectly placed; - Remove overflow pipe.	- Drain pump blocked by foreign body or faulty; - Faulty relay board.
ALARM 05	BOILER FILLING	Failed BOILER filling (▶fixed red light)	- Water supply tap doesn't dispense water; - Choked water supply hose.	- Faulty solenoid valve; - Obstructed solenoid filter; - Faulty pressure switch; - Damaged air circuit; - Entry of the electronic board oxidized/faulty; - Faulty relay board.
ALARM 06	BOILER PROBE	Boiler probe temperature out of range (▶flashing red light)	Action required by a qualified technician	- Check function of boiler temperature probe; - Check connecting socket on circuit board; - Check connection to bulb socket.
ALARM 07	TANK PROBE	Tank probe temperature out of range (▶flashing red light)	Action required by a qualified technician	- Check function of tank temperature probe; - Check connecting socket on circuit board; - Check connection to bulb socket.

ALARM 08	T. OUT THERMOSTOP	Thermostop time-out before rinsing (▶ flashing red light)	Switch off and re-switch on the machine. If the problem persists, seek the assistance of a qualified technician	- Faulty boiler element; - Faulty solenoid valve; - Solenoid valve doesn't hold water; - Faulty relay board; - Check function of contactor (only applicable to three-phase machines).
ALARM 09	BOILER SAFETY SW *	Boiler safety thermostat actioned (▶ fixed red light)	Action required by qualified technician	- Check function/manual resetting of boiler safety thermostat; - Faulty pressure switch; - Boiler probe possibly out of tune; - Faulty relay board; - Check function of contactor (only applicable to three-phase machines).
ALARM 10	TANK SAFETY SW *	Tank safety thermostat actioned (▶ fixed red light)	Action required by qualified technician	- Check function/manual resetting of tank safety thermostat; - Faulty pressure switch; - Tank probe possibly out of tune; - Faulty relay board;
ALARM 11	NOT AVAILABLE			
ALARM 12	PANEL CONNECTION	Communication with circuit board missing (▶ fixed red light)	Action required by qualified technician	- Check connection of flat cable to circuit board; - Oxidised contacts of flat cable.
ALARM 13	PARAMETER ERROR!	Parameters have been compromised	Action required by qualified technician	- Carry out sequence relating to first installation with four-digit electronic code entry.
ALARM 14	PRESSURE SW MIN TANK	The tank level pressure switch is faulty (▶ flashing red light)	Action required by qualified technician	- Faulty tank pressure switch; - Faulty electronic pressure switch; - Entry of the electronic board oxidized/faulty.
ALARM 15	SERVICE WARNING	Number of cycles reached to carry out maintenance	Action required by qualified technician	- Carry out dishwasher maintenance/check-up and alarm resetting.

* The display shows: **ALARM BYPASS, PUSH ESC FOR 5"**. When the alarm will be bypassed from the display by pushing the "CLEAN" button for 5 seconds, the dishwasher is allowed to make washing and rinsing cycles, but the resistances wouldn't activate until the safety thermostat has been fisically rearmed.

12 Circuit board replacement

Electronic Code:

1) Find the «ELECTRONIC CODE» on one of the two data plates located on the inside part of the panel under the door (alongside the wiring diagrams), and on the right-side outer panel of the machine.

```
P.I. : XXXXXXXXXXX

MODEL    [                    ]

TYPE     XXXX              400V3N ~ 50 Hz

CODE     XXXX–XXXXXX            ⊏═══⊐  10A

SERIAL No.  YYYYYYYY        Power  6750 W

ARTICLE                          IPX2

WATER SUPPLY 200÷500 kPa/MAX 50°C

ELECTRONIC CODE:    XXXX

PW:      XXXX              C€
```

2) Access the modify mode on the display of the electronic code with the ▶ key;
3) Modify the flashing characters/digits with the ⊠ and ❄ keys;
4) Confirm the flashing characters/digits with the ▶ key to move onto modifying other values.
5) In case of digit entry error, press the 🖳 key to enter the code once again.

The manufacturer has the right to modify the technical features and contents shown in this manual without prior notice.