CONTROLS OPERATING INSTRUCTION MANUAL

MAXXflo EVO

High efficiency condensing stainless steel storage water heater

CWH 30/201, CWH 30/301, CWH 60/201, CWH 60/301
CWH 90/302, CWH120/302, CWH 150/302

Please read and understand these instructions before commencing installation and leave this manual with the customer for future reference.

Andrews. Built to perform.

ANDREWS
WATER HEATERS

Blank Page

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GENERAL SAFETY

SMELL OF GAS

If you smell gas - follow these safety instructions:

- **Do NOT** turn off or on any electrical switches (including light switches)
- **Do NOT** smoke
- **Do NOT** use the telephone
- **DO** evacuate persons away from the source of the gas smell
- **DO** close the main gas shutoff valve
- **DO** open all the windows and doors where the gas leakage has occurred
- **DO** inform the gas authority or a competent specialist as soon as possible

DANGER

This Andrews Water Heaters product has been designed and manufactured to comply with current European standards of safety. However, following an improper use, dangers could arise concerning the safety and life of the user or of other people, or damage could be caused to the heater or other objects. This heater is designed to be used in a domestic hot water supply and storage system. Any other use of this heater will be considered improper. Andrews Water Heaters declines any responsibility for any damage or injuries caused by improper use. In order to use the heater according to its designed scope, it is essential to carefully follow the instructions given in this guide.

DANGER

This heater is not intended for use by persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they are given supervision or Instruction concerning the use of it by a person responsible for their safety. Children under the age of 12 years should not be permitted to use the heater.

DANGER

The installation, adjustment & servicing of this heater must be carried out by a competent person and installed in accordance with current standards and regulations. Failure to correctly install or maintain this heater could cause injury to persons or damage to property. The manufacturer shall not be held liable for any such injury and/or damage.

DANGER

Do not store or use explosive or easily inflammable material (such as petrol, paint or paper) in the same room where this heater has been installed.

CAUTION

Water temperature over 50^{O}C can cause burns and in severe cases injury or death. Children, the elderly and the physically or mentally disabled are most at risk from scald injury. Feel water before bathing and showering. Temperature limiting devices such as mixing valves should be installed whenever possible to ensure safe temperatures at outlets

CAUTION

This heater has been designed for use with G20 (natural gas) and G31 (liquefied propane gas) and is manufactured to give an efficient, safe and long service life. To ensure continued trouble-free operation of this heater at maximum efficiency, it is essential that correct installation, commissioning, operation and service procedures are carried out strictly in accordance with the instructions given in this manual.

Only original parts and accessories from the manufacturer may be used on this heater. Using non-approved parts may compromise the safety of the heater and invalidate any warranty.

In the event of failure and/or suspected faulty functioning of the heater. Switch off the heater and contact a suitable qualified technician. Do not attempt to make any repairs yourself, unless you are suitably qualified and competent to do so.

CAUTION

To ensure continued efficient operation of the heater it is recommended that the condensate outlet is checked and serviced at regular intervals. The frequency of servicing will depend upon the particular installation and usage but in every case a maximum of twelve months should be allowed between service inspections.

The condensate outlet shall not be modified or blocked. It is recommended that as part of the regular maintenance the condensate systems is examined, cleaned and the condensate trap on the side of the heater is emptied and cleaned. The trap can be examined by unscrewing by hand the bowl at the bottom of the trap. See illustration below:-

This manual is intended for the Property owner, building users and service engineers.

A detailed guide to the Installation and maintenance of this heater is supplied separately (Installation and Maintenance Manual) and this is intended for use by the specialist commercial installers and service engineers.

NORMAL CAPACITY

The capacity in litres of the in-built DHW tank is given in the table below:-

Tank size	200 litres	300 litres
Models	CWH 30/201 CWH 60/201	CWH 30/301 CWH 60/301 CWH 90/302 CWH 120/302 CWH 150/302

HEATER INSTALLATION AND MAINTENANCE

This heater has been designed for use with G20 and G31 gases and is manufactured to give an efficient, safe and long service life. To ensure continued trouble-free operation of this heater at maximum efficiency, it is essential that correct installation, commissioning, operation and service procedures are carried out strictly in accordance with the instructions given in the “Installation & Maintenance Manual” supplied separately to this guide.

Only original parts and accessories from the manufacturer may be used on this heater. Using non-approved parts may compromise the safety of the heater and invalidate any warranty.

REGULATIONS AND STANDARDS

It is the law that all gas heaters are installed by a competent person in accordance with the regulations. Failure to install or maintain heaters correctly could lead to prosecution.

It is in your own interest, and that of safety, to ensure that the law is complied with. The installation of the Heater MUST also be in accordance with the current Wiring Regulations, the Local Building Regulations, Building Standards, the Bye Laws of the Local Water Undertaking, any relevant requirements of the Local Authority.

A detailed guide to the Installation and maintenance of this heater is supplied separately (Installation and Maintenance Manual) and this is intended for use by the specialist commercial installers and service engineers.

FROST PROTECTION

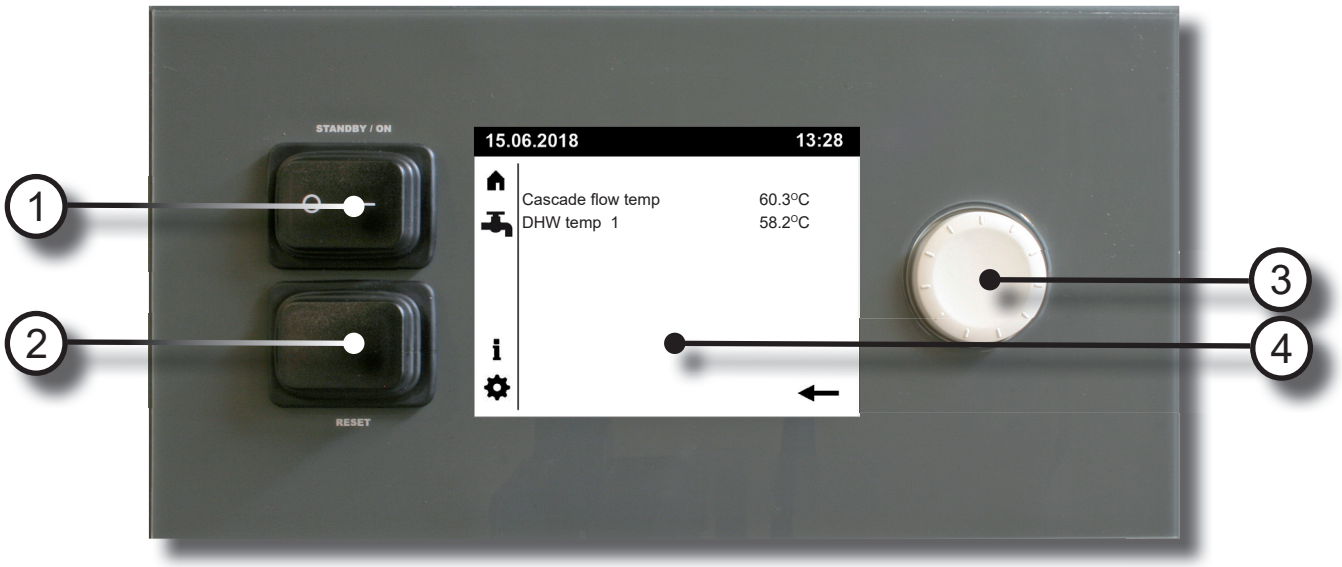
This heater is fitted with an automatic Frost Protection system. Provided there is Mains power, Gas is connected and the heater is not in a lockout condition, this system will be effective in preventing damage to the heater caused by frozen water. This protection will be active even when the controls are in the standby operation mode.

If the temperature of the DHW tank should fall below 5^{O}C heat engine(s) will operate to bring the DHW tank temperature up to 6^{O}C before turning off again.

If the temperature of the internal flow pipework (heat engine) was to drop to 3^{O}C the heat engine(s) will operate until the temperature registered by the heat engine return sensor reaches 16^{O}C. This will also heat up the tank temperature to around 16^{O}C

1.0 INTRODUCTION

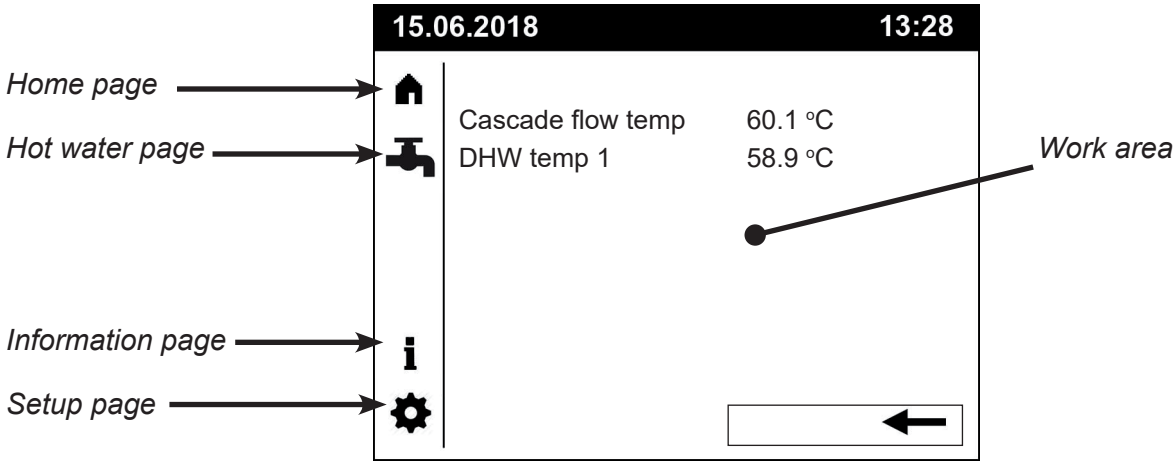
1.1 HEATER CONTROLS



1 Operation switch
2 Reset switch
3 Control knob (push to enter)
4 Graphical User Interface

1.2 THE GRAPHICAL USER INTERFACE

The control knob is used to operate the GUI. The display is organised into a navigation bar, status bar, and work area.



The water heater is operated by rotating the control knob to move the selector over the screen then pushing the control knob to select the item. When selected the item will be displayed as inverse and can then be changed by rotating the control knob and the change is confirmed by pushing the control knob.

If the item was selected by mistake, take your hand off the control knob (do not push the control knob) ,wait for 5 seconds and the item will de-select and revert to its previous value.

In order to return to the previous screen select the back “arrow” or “back” text in the bottom right corner of the screen at any time

1.3 NAVIGATE AND SET USING THE CONTROL KNOB

Operating objects may have three display states:

	Not selected: The operating object is displayed normally, black on white background.
	Preselected: The operating object is framed.
	Selected: The operating object is inverted with white on black background.

To go to the navigation bar:

	Turn control knob. • The preselection is displayed with a frame around the symbol. • The related topic page is displayed in the work area.
	Press control knob. • The symbol is selected on the navigation bar and is displayed inverted. • The first adjustable operating object of the work area is preselected.
	Go back using the Back arrow on the navigation bar. • The symbol in the navigation bar is once again preselected.

To set values in the work area:

	Turn control knob. • The preselection is displayed with a frame around the operating object
	Press control knob. • The operating object is selected and is displayed inverted. • The lower level is displayed if the operating object consists of multiple levels (e.g. Time program).
	Turn control knob. Set value.
	Press control knob. Confirm the set value. • The set operating object is once again preselected.
	Continue navigation • To other pages, for selected and inverted displayed page titles.
Back	“Back” goes a level higher within the work area.
	Back arrow to return to navigation bar.

Operating tips:

Editing time-out	5 seconds	A changed setting reverts to the original state if not confirmed within this period.
Long button pressure	> 3 seconds	A long press of the knob on any expert view returns to the “Expert view start page” (diagnostics page).
Locking time-out	1 minute	Certain plant states are displayed in the foreground, e.g. Special operations page. However, users are still able to go to any page and set values. The foreground page returns after this period without operator intervention.
Operating time-out	8 minutes	The display switches automatically after this period without operation to the start page on the operator unit or display in standby on the room unit.

1.4 DISPLAY SYMBOL MEANINGS

The following symbols are located on the navigation bar (left, vertical):

Accessible for end-user and experts:	
	Start page: Heater status. Access to system operation mode.
	DHW page. Access to temperature and time clock settings
	Info pages: • Messages (errors, events) • Heater information
	Service/setting pages: • Setting options for domestic hot water system • Operate special operations (e.g. for maintenance work) • Login in expert view (see note below)
Available in addition for experts:	
	Diagnostic pages: Analyse and test heater and system.
	Adjust/repair pages: • Adapt parameters in ‘Complete parameter list’

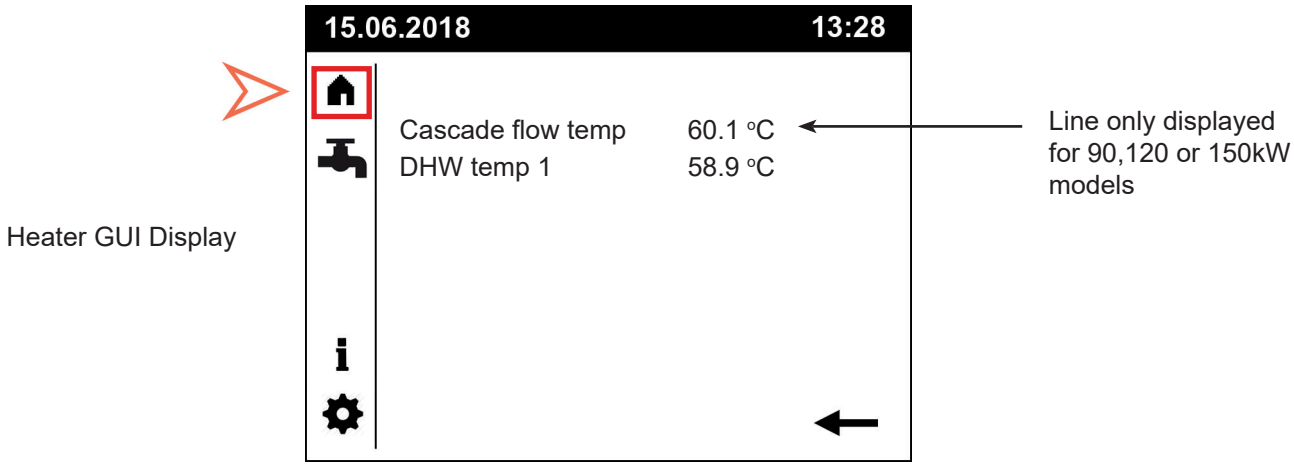
The following symbols can be displayed on the status bar (top, horizontal):

	Symbol ‘Alarm’ indicates a system error.
	Symbol ‘Maintenance/Special operations’ indicates the presence of a maintenance message or special operation feedback.
	Symbol ‘Event’ indicates an event message from the system.
	‘Hand’ symbol The ‘Hand’ symbol is displayed if the heater operation mode is being held “off” due to the operation switch being in “standby” position or the hot water operation mode is set to off in the Domestic hot water page.
12:00	The device clock is synchronized with the clock from the connected controller.
	Symbol ‘User’ and the number to the right (access level 1 to 3) indicate which user level is currently active. • None: User • 1: Commissioning engineer • 2: Heating engineer • 3: OEM
	Symbol ‘Producer’ indicates the water heater burner is currently operating and a flame has been successfully detected.

2.0 END USER OPERATION

2.1 THE HOME PAGE

Evaluation of information displayed:



The start page for the heater GUI unit displays the most important information on the water heater and system operation mode. There are no settings that can be applied whilst in this screen.

2.2 SETTING THE TIME AND DATE

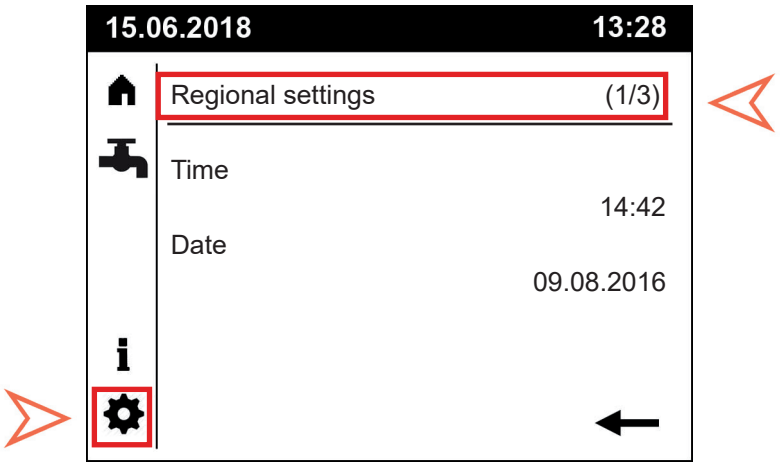
To set the current time and date proceed with the following steps

To set the time:

1. Rotate ③ until the settings tab is highlighted and press ③ "Regional settings (1/3)" should already be preselected
2. Rotate ③ to select the time field value and press ③
3. Rotate ③ and enter a new hour value by pressing ③
4. Rotate ③ and enter a new minute value by pressing ③

To set the date:

5. Rotate ③ to select the date field and press ③
6. Rotate ③ and enter a new date, month and year value by pressing ③ after each item set
7. Rotate ③ for additional regional settings or exit regional settings with "Back".

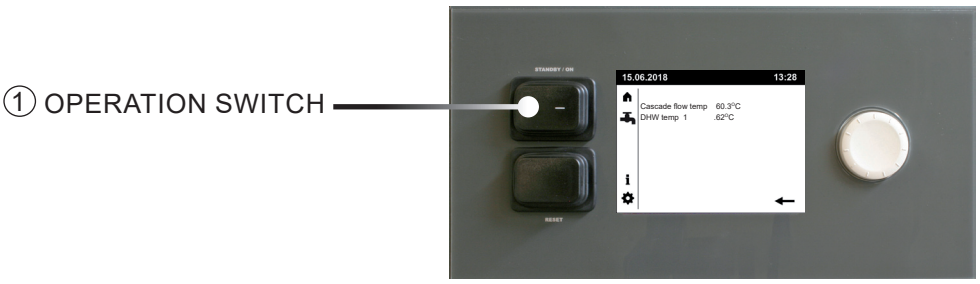


8. It is also possible to adjust the dates set for the start and end of summer time, for the purposes of automatic clock adjustment

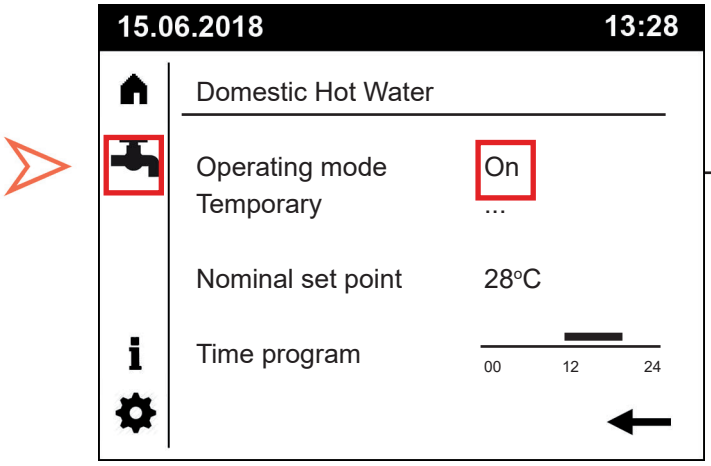
2.3 SETTING DHW HEATING TIME PROGRAM

In order to set the DHW heating time program the Domestic Hot Water operation mode of the heater must be set to "ON".

This is achieved by turning ① located on the front facia of the heater from STANDBY (0) to ON (I)



Select the Domestic Hot Water (DHW) tab by rotating and pressing ③ . The operating mode should be displayed as "On". See example below:

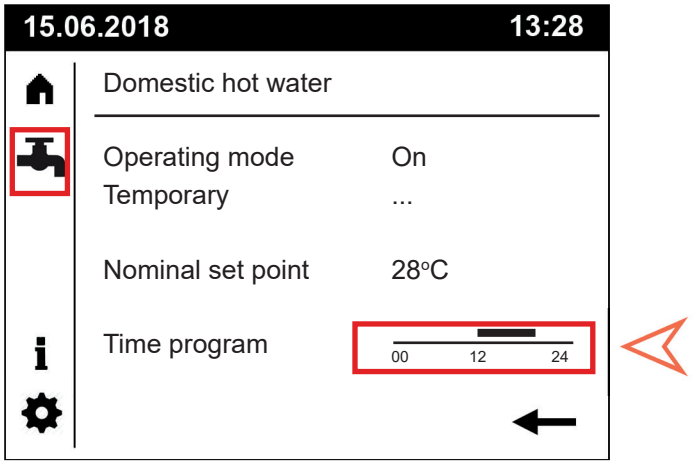


When ① is ON (I)
DHW operating mode should be ON

If the operating mode is not ON when ① is ON, change the mode to ON

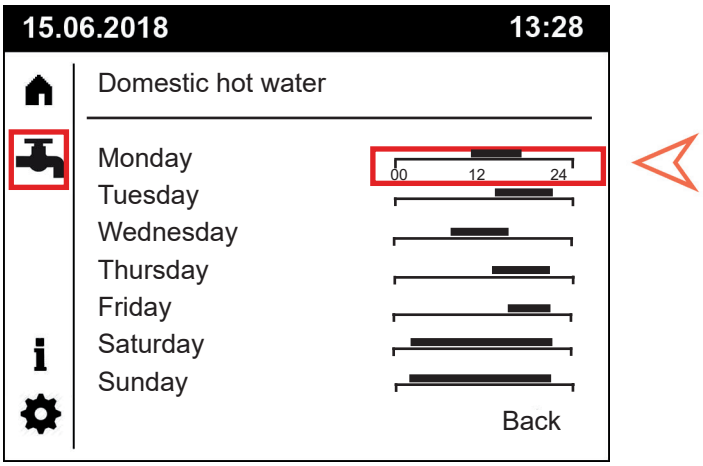
When ① is STANDBY (O)
DHW operating mode will be OFF

With the DHW tab selected, rotate ③ to highlight the time program field,

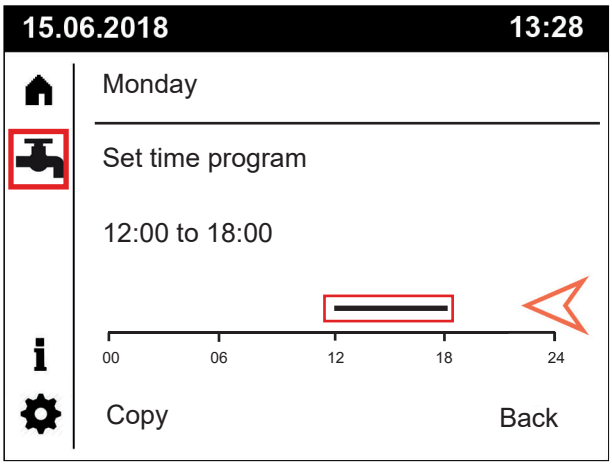


Press ③ to enter the time clock setting page. Once the field is selected rotate ③ to reach the time programming screen.

Select the day field to change the times of that day

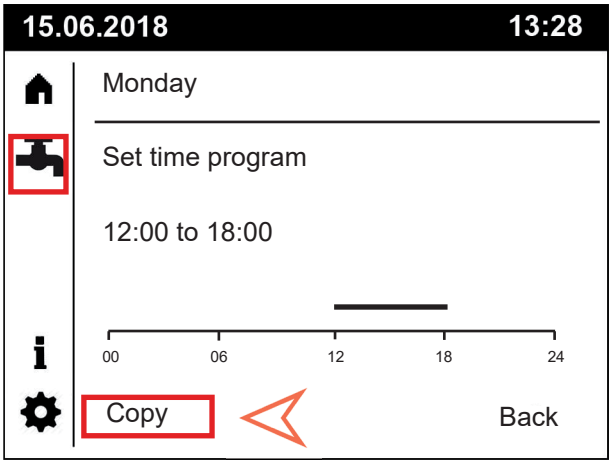


Turn and push the control knob to set the start and end times of the program. Scroll to the beginning (00 hours) to insert another time band (up to a total of 3 time bands per day can be set).



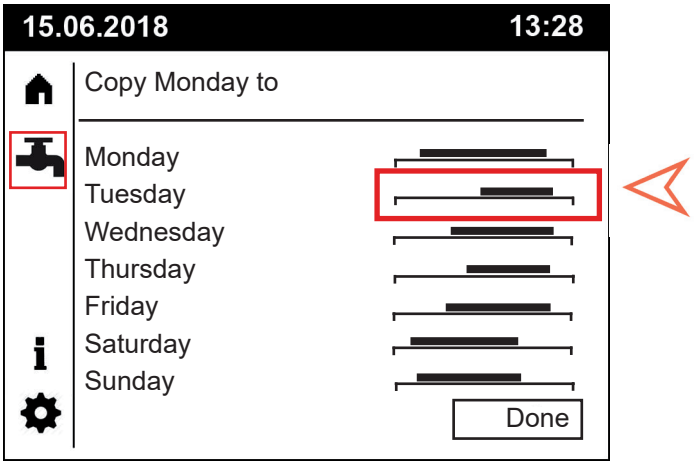
To delete a time band use the control knob to move the start and end times of the band to be the same then press the control knob.

The time settings of any day can be copied and applied to other days in the weekly schedule

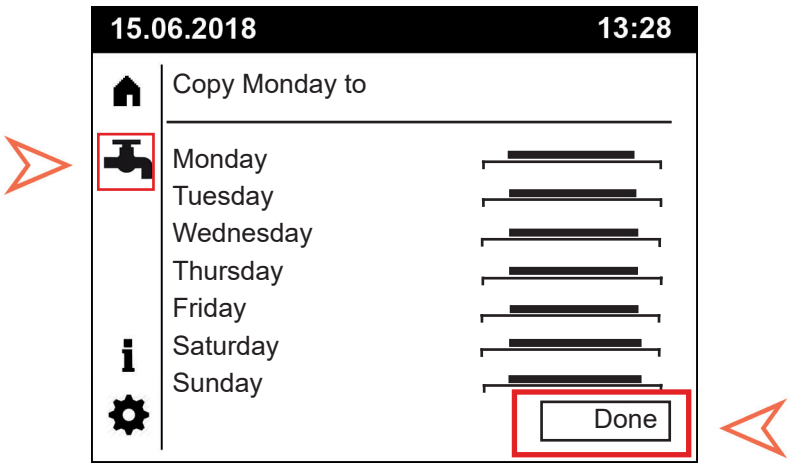


After setting up the times of the day required to be copied, rotate (3) and select copy in order to move to the “copy to screen”.

Using the control knob select the day to be copied to and press the control knob. Repeat this operation as required.

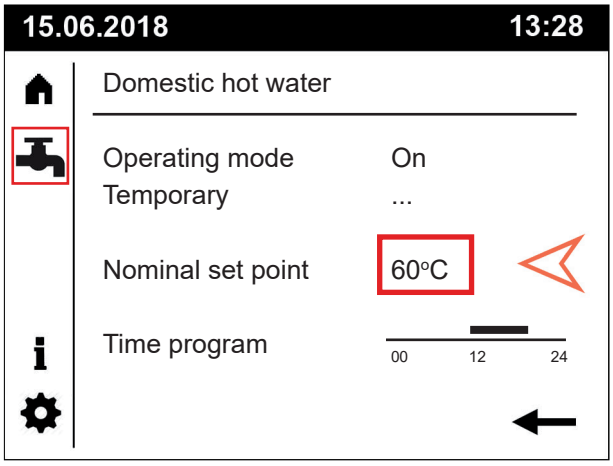


Once times have been copied select “Done “ to return to Domestic hot water page.



2.4 SETTING DHW TEMPERATURE

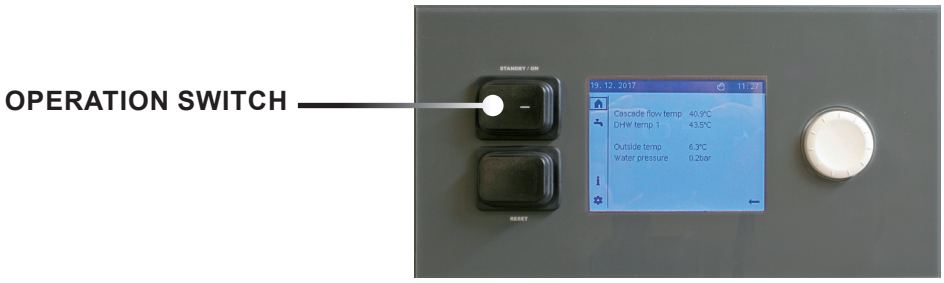
With the operation switch on the front facia turned ON (I) select DHW tab and rotate the control knob to highlight the “Nominal set point” field and push the knob to select.



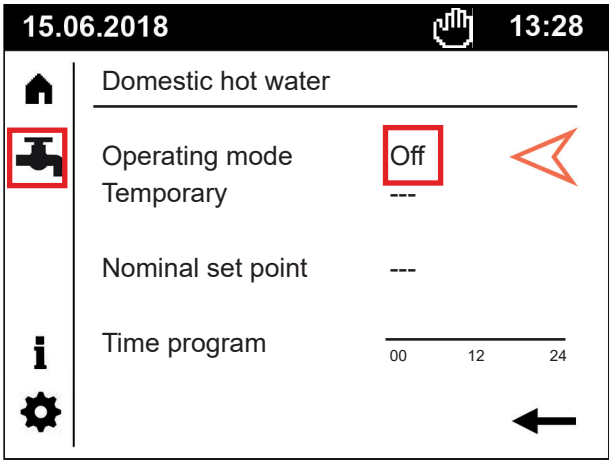
Once the field is selected rotate the control knob to change the Domestic Hot Water set point. Confirm the selection by pressing the control knob within 3 seconds.

2.5 SETTING DHW OPERATING MODE

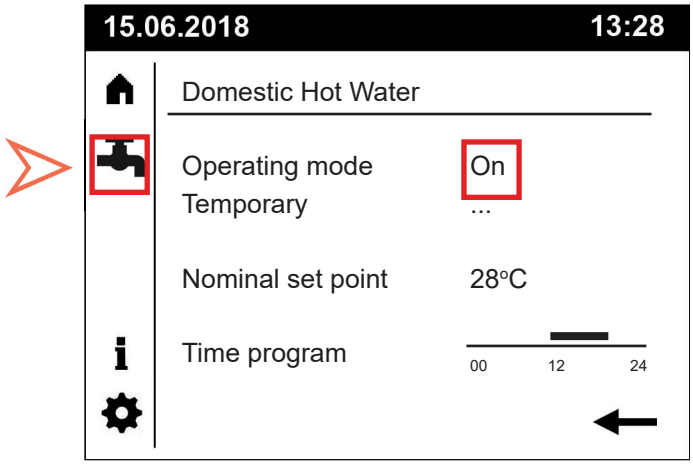
Changing the operating mode is achieved using the operation switch on the front of the facia (see below).



When operation switch is set to position O (STANDBY), DHW operating mode should be OFF (see example below)



When operation switch is set to position I (ON), DHW operating mode should be ON (see example below)



If the operating mode is not ON when the operation switch is set to I (ON), change the operating mode to ON using the control knob and push to select. Test that the operating mode changes when the position of the operation switch changes from ON to STANDBY and back to ON.

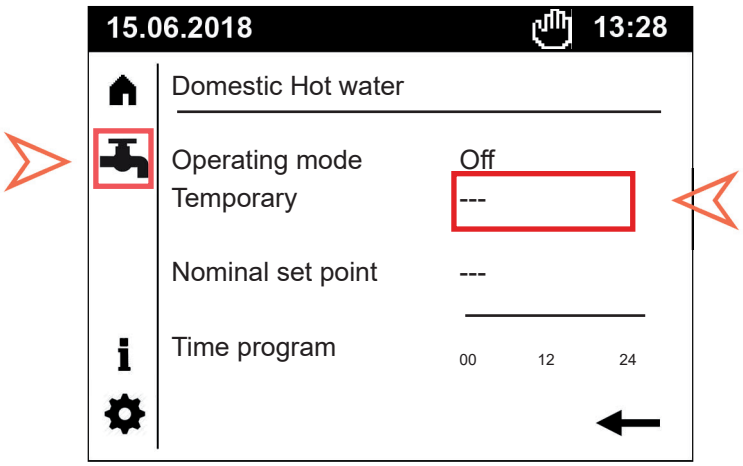
2.6 TEMPORARY DHW OPERATION FUNCTION

Outside of the programmed operation times for water heating, the operation of the water heater can be turned on for a single occasion where the domestic hot water will be heated to the nominal set point. The heater control returns to normal operation using pre-settings as soon as the hot water reaches set point.

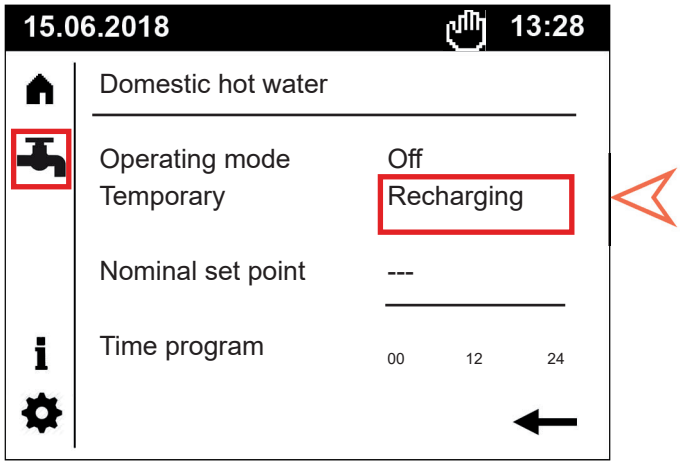
This function is possible to activate even if the operation switch on the front facia is in the STANDBY (O) position

Once this function has been started it can only be stopped by changing the operation switch position 3 times. e.g. If this function has been started with the operation switch in STANDBY (O) then it will be necessary to switch to ON (I) then back to STANDBY (O) to cancel the function.

With the icon highlighted press the control knob to select the Domestic hot water page. Using the control knob move the indicator over the “Temporary” field and press the control knob to highlight the field



Rotate the control knob to change the “Temporary” field from “...” to “Recharging” and press the control knob to select the value

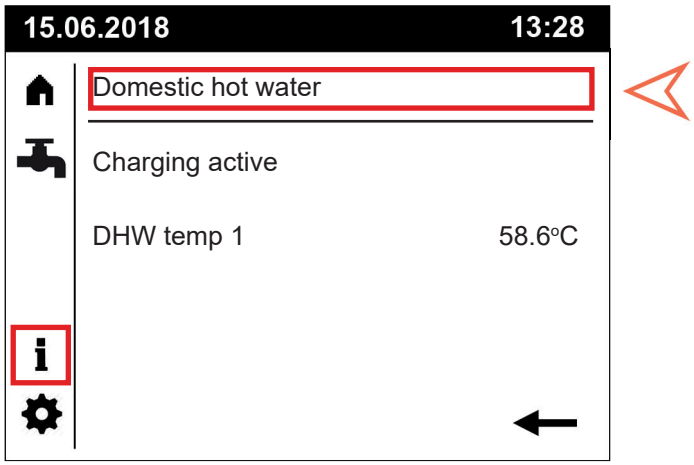


The heater operation in now active and will recharge the DHW tank water to the nominal set point previously programmed

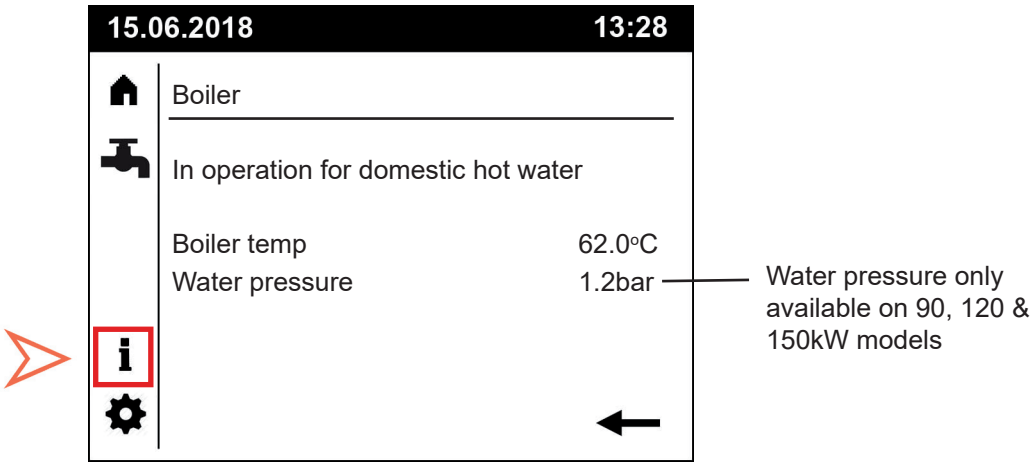
It is not possible to view or change the nominal set point of the hot water once this operation has been started. If you have any doubts as to the current DHW set point, cancel the operation (as described above) and start the heater using the operation mode to view and set the nominal set point.

2.7 INFORMATION PAGES

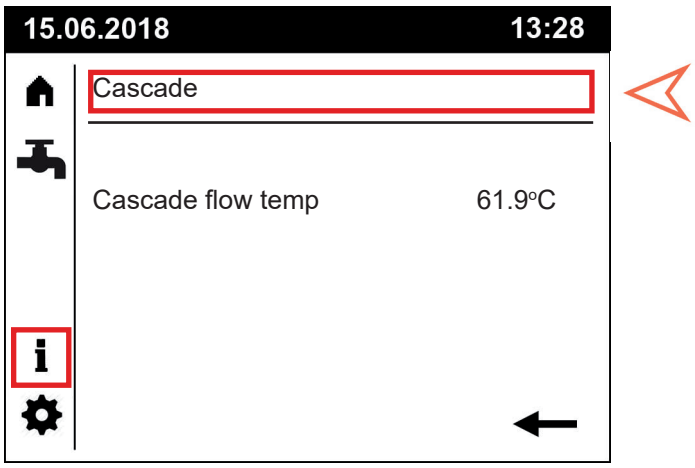
Information regarding the operation state of the water heater can be viewed by selecting " i " pages . See example screen showing the status of DHW:-



To view further pages select the " i " page and press the control knob. The field at the top of the screen can now be selected with the control knob and rotated and selected again for the info page required. See example: -



On a 90, 120 or 150kW model the "Cascade" screen will display the combined flow temperature of both operating heat engines and this represents the temperature of the water being charged into the tank. On a 30kW or 60kW model "Boiler temp" represents the temperature of the water being charged into the tank.



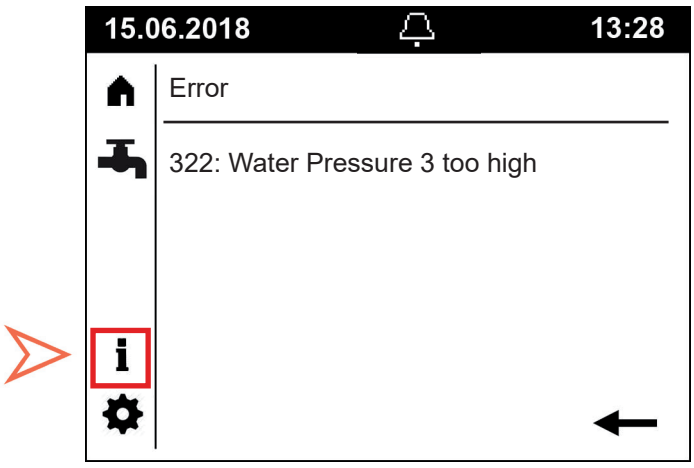
2.8 ERROR MESSAGES

If the heater controls are unable to operate the gas burner or it detects a undesirable condition, the controls will put the heater into a “lockout” mode and the heater may be prevented from operating again, until manually reset. If the error detected is a minor one, the controls will allow the heater to operate normally, but in either case an error message symbol will be displayed on the top of the GUI display and a text explanation will be displayed on the home screen in the Information menu. Any important messages affecting the operation of the heater should be displayed instead of the normal “Home” screen.

The error may need to be cleared before the heater will function again. Viewing the info page menu will provide the error detail (see section 2.10 in this manual for possible error codes). Press the RESET button (located to the left of the GUI display) and provided the error condition has been corrected the heater will run through the ignition sequence again.

A Lockout condition should not be repeatedly reset. If the condition persists then a qualified repair engineer should be consulted.

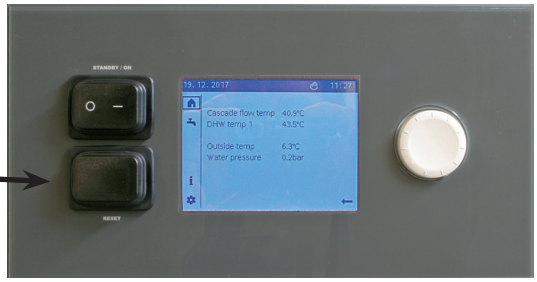
Example :



In this example the heater has gone into lockout mode, because the primary system pressure has exceeded 9.0 bar. The resolution would be to rectify the overpressure condition and reset the error to restart heater operation again (see below)

Once the causes of an error have been rectified, the lockout is cleared by accessing the reset switch on the front of the heater. A press of the reset switch of between 1 and 3 seconds will be sufficient to reset the heater controls.

Reset rocker switch



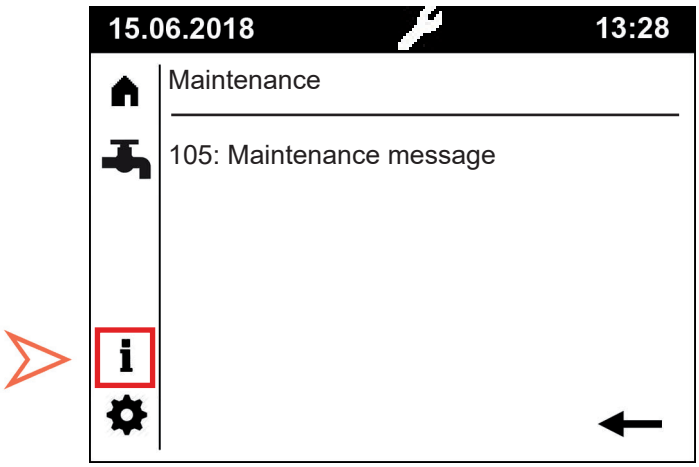
A full list of error codes is provided in Section 2.10

Further diagnostic codes and the history of the last 20 error messages can be found by logging in as “Engineer” and accessing the “Error” menu. For details on how to do this please refer to section 4.2 of this manual.

2.9 MAINTENANCE MESSAGES

The display will show a symbol if the heater is reporting a maintenance issue. The heater will continue to operate as normal, but it may in future stop if the maintenance message is ignored and an error develops as a result.

Example :



In this example **‘105: Maintenance message’** is used to notify the user, the heater has been in operation for more than 12 months and requires a service inspection. When servicing has been completed, the service counter should be reset using parameter 7045, in the Service / special operation menu (see section 4.4 for details)

2.10 ERROR CODES

Error Code	Error Code Description	Diag. Code	Notes
20	Boiler temperature 1, sensor error	Other	Boiler flow sensor (B2) is outside normal limits
		439	Boiler flow sensor (B2) is short-circuit
		440	Boiler flow sensor (B2) is open-circuit
26	Common flow temperature sensor error	612	Check connections or replace faulty sensor located on common flow pipe work up stand section (B10)
28	Flue gas temperature, sensor error	539 543	Flue gas sensor (B8) is short-circuit
		540 544	Flue gas sensor (B8) is open-circuit
40	Return temperature 1, sensor error	Other	Boiler return sensor (B7) is outside normal limits
		441	Boiler return sensor (B7) is short-circuit
		442	Boiler return sensor (B7) is open-circuit
50	DHW temperature 1, sensor error	55	Check connections or replace faulty DHW tank sensor (B3)
81	LPB short-circuit or no power supply	67	LPB Short circuit or no bus power supply. Check external connections onto the LPB terminals are the not shorted and the correct polarity. Inspect connections from the GUI to the Control PCB.
82	LPB address collision	103	LPB address duplicated on the two burner Control PCBs - Check address of all control PCBs via parameter 6600
83	BSB short circuit	Any	No BSB communication or wires shorted - Check operation of GUI or OZW672 (if fitted)
84	BSB address collision	Any	Two appliances connected through BSB (e.g. OZW672) have the same allocation address. Change one of the appliances address via parameter 6600
98 99	Extension module 1, error Extension module 2, error	605 606	Indicates that an expansion module can no longer be “seen” by the controls. To clear this message when no clipin is installed, perform a “Store sensors” (parameter 6200) command, to perform a controls handshake with all connected sensors and ancillaries. NB: When applying power to the heater, this fault message may appear briefly, but should self clear within 5 minutes. If message persists perform a “Store sensors” command
100	More than one clock time master	105	Only one device should be set as the time master, check on the GUI (parameter 6640) and any OZW672 connected (in case of connection to an OZW672, this device should be the master)
102	Clock master without power reserve	106	The display backup battery for the time clock may have become depleted. This message more commonly occurs following the restoration of power to the heater. This message normally self clears within 20 minutes of power being restored. If the message does not clear, turn the power off, wait 10 seconds and turn the power on again. This message does not prevent the operation of the heater in any way but if it persists it indicates that the clock time may not be retained in periods of power outages. Contact Andrews Technical Helpline for advice.
105	Maintenance message	87	Item requiring attention but not preventing appliance operation (e.g. 12 Month service due). Check details of message on the appliance Front GUI screen.

2.10 ERROR CODES (CONTINUED)

Error Code	Error Code Description	Diag. Code	Notes
110	SLT Lockout	306 431 432 433 434 435 436 756	Electronic temperature limits exceeded. General overheating issue. Check for pump operation, trapped air and heat exchanger blockages. Monitor temperatures of system to establish problem area.
		429 818	Safe reset of the error sub code 433 (see above) has not been met. Allow the water heater to cool further before resetting.
		305 412 550 551 754	Mechanical overheat protection circuit is open circuit (connection X18 on control PCB). Check connector is fully inserted
		426 437 815	Flow temperature heat up gradient exceeded. Check pump operation and presence of trapped air in the heat exchanger. Flow through heat exchanger may be restricted.
		438 817	Maximum Delta T of system exceeded. Check pump operation and presence of trapped air in the heat exchanger. Flow through heat exchanger may be restricted.
		428	Maximum Delta T of system exceeded. Initial starting of the pump before the burner is operated, can cause this error. If accompanied by code 429 within the same minute, this error can be disregarded.
		427 816	Safe reset criteria has not been met. Allow the water heater to cool further before resetting.
		420 421 819 820	Return temperature greater than flow temperature. Check that the flow and return sensors are operating correctly
		419 430 813 814	Flow temperature limit exceeded. Check for overheating issues and flow sensor (B2) performance.
		809 810 422 423	Flow temperature not plausible - Reading less than 0^{O}C or greater than 124^{O}C . Check flow sensor (B2) and replace if necessary.
		425 812	Return temperature limit exceeded. Check for overheating issues and return sensor (B7) performance.
		424 811	Return temperature not plausible - Reading less than 0^{O}C or greater than 124^{O}C . Check return sensor (B7) and replace if necessary.
111	Shutdown limit thermostat	264	Heat exchanger temperatures have been exceeded. Investigate flow rates and controls to determine causes of temporary fault code.
125	Maximum boiler temperature exceeded	286 500 740	Temperature supervision lockout. Check pump, burner and flow rates before resetting.
		501	Temperature has not increased at flow sensor after burner start. Check flow temperature sensor is correctly functioning
		502	Temperature has not increased at return sensor after burner start. Check return temperature sensor is correctly functioning
126	DHW charging temperature not reached	72	Charging temperature not achieved within a two hour time scale. Check operation and heat up times for heater. Is DHW demand too high for the designed performance of this heater? Refer to the technical data in this manual for guidance.
127	DHW legionella temperature not reached	73	Check operation of legionella function and DHW system. Legionella setpoint has not been achieved within 48 hours of the legionella function operating. NB: When using a secondary return system and B39 sensor, do not set the legionella function setpoint too high, as the heat losses of the hot water pipework may not permit this setpoint at the B39 sensor return point before the heater.

2.10 ERROR CODES (CONTINUED)

Error Code	Error Code Description	Diag. Code	Notes
128	Loss of flame during operation	244 625	Count of loss-of-flame incidents exceeded (a maximum of 24 loss of flame incidents are permitted in a 24 hour period)
		394 834	Flame lost in operation during safety time, before the start of the modulation phase. Check the burner CO^2 is set correctly. Check operation and condition of the ionisation electrode.
		854	Flame lost in operation within the first 7 seconds after safety time. Check the burner CO^2 is set correctly. Check operation and condition of the ionisation electrode.
		253	Flame lost in modulation phase
130	Flue gas temperature too high	Any	Check causes of high temperatures before operating Appliance. Inspect inside of heat exchanger for dirt build up. Check CO_2 levels at min and max output.
133	Safety time exceeded	254 395 755	Records individual ignition failures and the times they have occurred. Check gas supply, spark electrode, spark generator, Ionisation probe, CO^2 setting and flue system
		245 625 757	A total of 5 unsuccessful ignition attempts has occurred within a 24 hour period. This is the point that the heater went into permanent lockout
142	Device failure (Bus)	Any	Check that the appliance and any OZW672 installed is powered and connected correctly.
151	BMU Internal error	330	Error when closing ignition relay - Check ignition generator and connections from controls - Replace control PCB if no fault found
		331	Error when opening ignition relay - Check ignition generator and connections from controls - Replace control PCB if no fault found
		332	Error when closing gas valve relay - Check gas valve and connections from controls - Replace control PCB if no fault found
		333	Error when opening gas valve relay - Check gas valve and connections from controls - Replace control PCB if no fault found
		336 337	Internal safety relay error - Check if polarity of live and neutral has been reversed to the appliance. Replace PCB if fault repeatedly occurs.
152	Parameterization error	Any	Incorrect / conflicting parameters input (last changed parameters need to be investigated). For example the ignition speed cannot be set lower than the minimum fan speed. Review last parameter changes and adjust.
153	Unit Locked	235 622	Temperature inside the appliance casing has exceeded 90^{O}C. Check heat engine door seals and door nuts are correctly tightened. Pressing the reset for more than 10 seconds will also produce this lockout.
		848 849	Parameter stick update finished. Press reset to apply changes.
160	Fan speed threshold not reached	Any	Fan does not reach required speed setpoint via PWM control- Check wiring and operation of fan. Investigate wiring and replace fan if necessary
183	Unit in parameterisation mode	770	Code will be displayed when a programming stick is used but should clear when programming is complete. Repeat stick operation if fault code persists
		Any	Press reset after any programming has been actioned to remove lockout

2.10 ERROR CODES (CONTINUED)

Error Code	Error Code Description	Diag. Code	Notes
217	Sensor error	765 766	Ionisation current fault or short circuit. Check operation of ionisation probe using parameter 8329 (menu - Diagnostics heat generation). Ionisation probe may need replacing. Check electrical supply to the heater and burner - pay special attention to the earth circuit and supply to the heater.
317	Mains frequency outside permitted range	275 461	The frequency (Hz) of the electrical supply is outside permitted tolerance. Check electrical supply to heater.
322	Water press 3 too high	85 86 516 565	Water pressure inside the appliance is too high for safe operation. Operation will automatically resume once water pressure is at or below maximum levels. Check that the appliance flow is not restricted or blocked, or the water isolator valves are shut off.
324	Input BX, same sensors	110	BX sensor duplicated - Two sensor inputs have been defined twice with the same sensor type (e.g. B3). Review last parameters programmed to remove duplication.
325	Input BX/extension module, same sensors	Any	BX expansion module 1 sensor duplicated - Two sensor inputs have been defined twice with the same sensor type (e.g. B3). Review last parameters programmed for the expansion module to remove duplication.
327	Extension module, same function	Any	AGU2.5 extension module function duplicated - check parameter setup for the AGU2.5 extension module (“Configuration” menu)
335	Sensor input BX21 without function	211	A sensor has been detected connected to BX21 of the AGU2.5 expansion module 1, but not defined. Define the sensor using the parameters or remove the sensor if not required.
		213 215	As above except the undefined sensor is connected to an AGU2.5 expansion module. The AGU2.5 expansion module should be defined as module 1 - Check the dip switches on the front of the device are set correctly
336	Sensor input BX22 without function	Any	See Error 335 for guidance
353	Cascade flow sensor B10 missing	Any	Check connections and configuration of common flow temperature sensor (B10), which is located at the feed into the tank on the front, left, mid section of the appliance.
384	Extraneous light	252 393	Ionisation current detected before whilst in standby mode. Check ionisation current (“Diagnostics producer” parameter 8329). If the current present is greater than 0.61 whilst the burner is in standby, turn off the gas supply to check gas valve is closing completely. If current is still present, remove ionisation probe and use a screwdriver to clear the opening through the burner door before replacing the probe and testing again. *Persistent errors may indicate that the burner is only operational for very short periods. Try increasing the switching differential by at least 1^{O}C (parameter 5024) to increase burner run time.*
		Other	Ionisation current detected during ignition phase before the gas valve is opened.

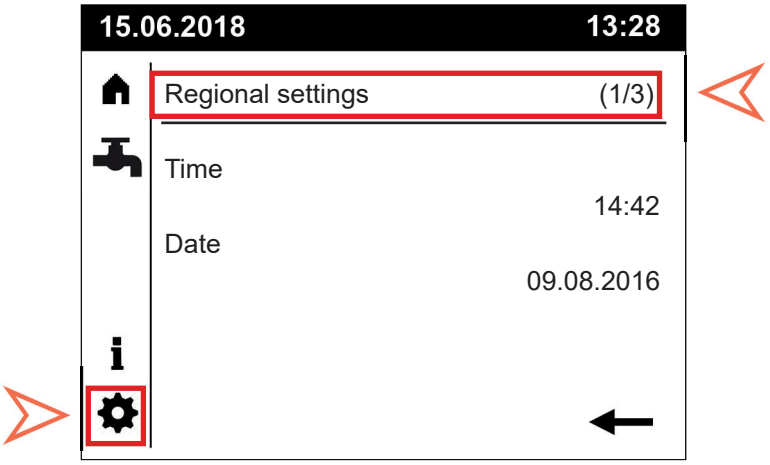
2.10 ERROR CODES (CONTINUED)

Error Code	Error Code Description	Diag. Code	Notes
385	Mains under voltage	554 555	Mains voltage below 185v - check electrical supply to the appliance.
386	Fan speed tolerance	Any	Fan outside allowed speed tolerance level. Check all wiring. Check for possible air or flue restriction. Replace fan if all airways are clear and wiring is good.
432	Function earth not connected	Any	No Ignition earth, X1 / X17 not connected or earth fault.
433	Heat exchange temperature	Any	Heat exchanger temperature is too high. Investigate all sources of overheating. When the issue has been resolved examine the heat exchanger for damage before putting back into operation.
NA	Operating mode button locked - Cannot operate in DHW mode (No fault displayed)	Any	Remote system enable operating. Check to see if link wire is still in place or controls wired to these terminals are closing this circuit. When the appliance is operating via the volt free enable signal, it is not possible to operate the appliance manually via the GUI if the signal is not enabled (circuit closed).

2.11 REGIONAL SETTINGS

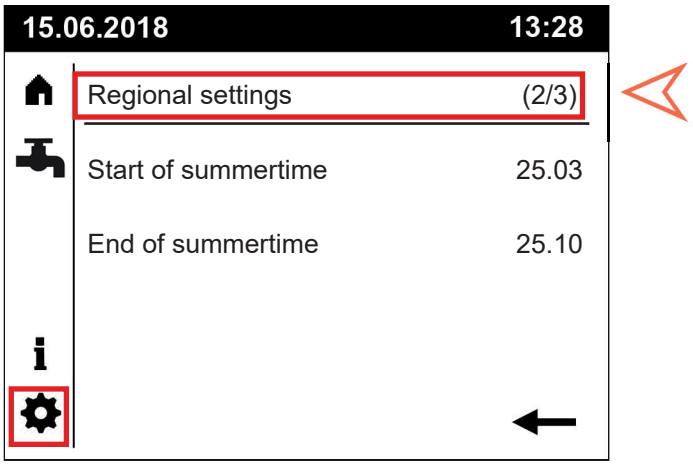
Settings available for adjustment:

- Time
- Date
- Daylight saving time start and end
- Language

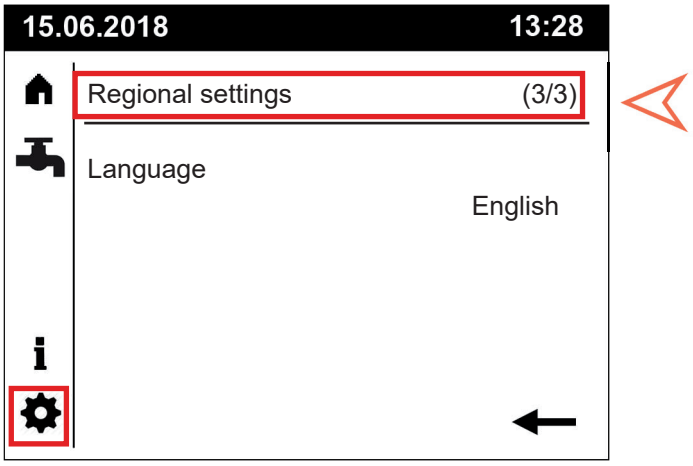


Turn the control knob to highlight regional settings and push the control knob to select. Turn the control knob to select one of the 3 setting pages. Push the control knob once the desired page is selected and rotate the control knob to select the required field.

Default dates mark the start and end of summertime clock adjustment. This can be changed if actual dates of adjustment are known (see below)



If required the display language can be changed. Caution is advised before changing the language as you may experience difficulty finding the menu to be able to change it back again.

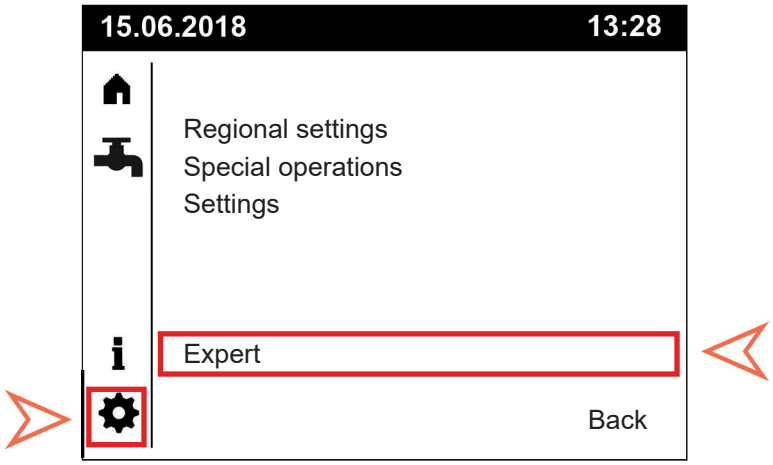


3.0 COMMISSIONING OPERATION

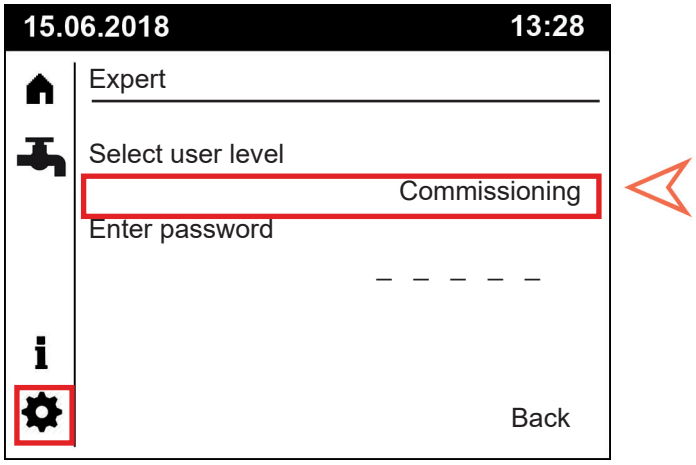
The features available at “Expert” level are intended for use by a competent commissioning engineer. The following section details options/screens that are available to the commissioning engineer in additions to the options/screens available at end user level.

3.1 LOGGING ONTO COMMISSIONING MODE

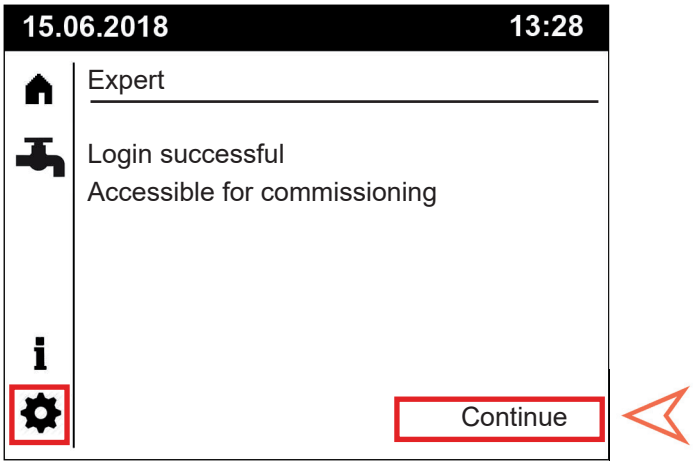
Using the Graphical User Interface (GUI), screen, move the control knob to select “Setup” page on the navigation bar and press the control knob.



In the work area , use the control knob to select “Expert” field and press the control knob to select



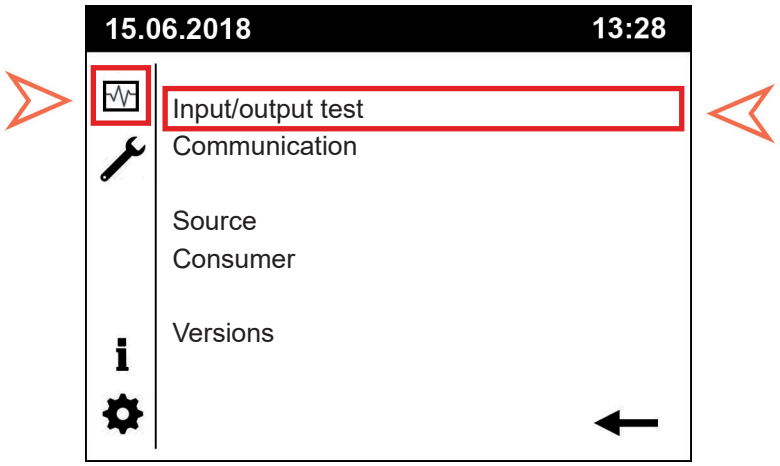
Select “Commissioning” using the control knob and press the control knob to select it. Press control knob to continue into commissioning mode.



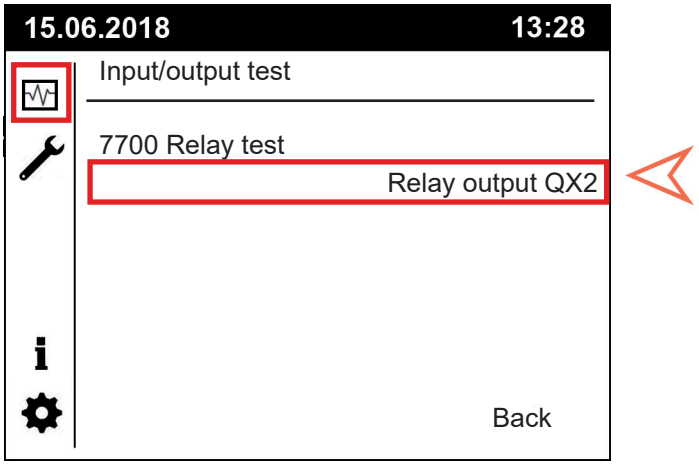
3.2 INPUT /OUTPUT TEST

This function is used to test all non safety inputs and outputs going to and from the controls. Useful in confirming operation of external items, such as the Q4 circulation pump

.

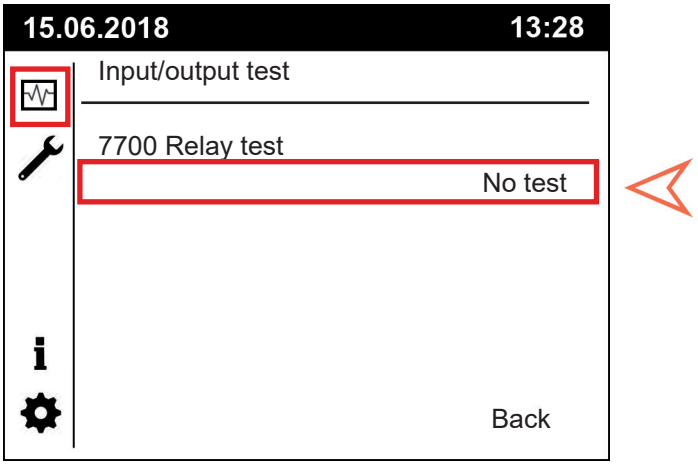


Highlight “Input/output test” using the control knob and select the function by pressing the control knob



Using the control knob select field “7700 Relay test” and press control knob. Rotate the control knob to select output to test. Press the control knob to activate the desired relay (see example above).

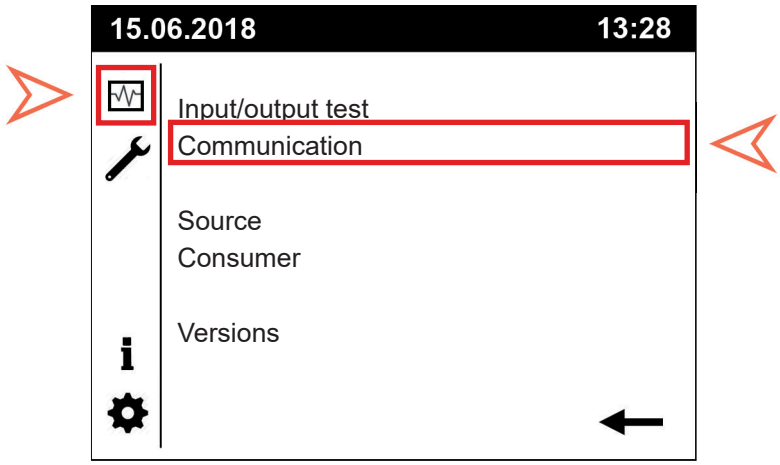
Once the testing has been completed, change field “7700 Relay test” back to “No test” and the heater will revert back to normal control of the outputs.



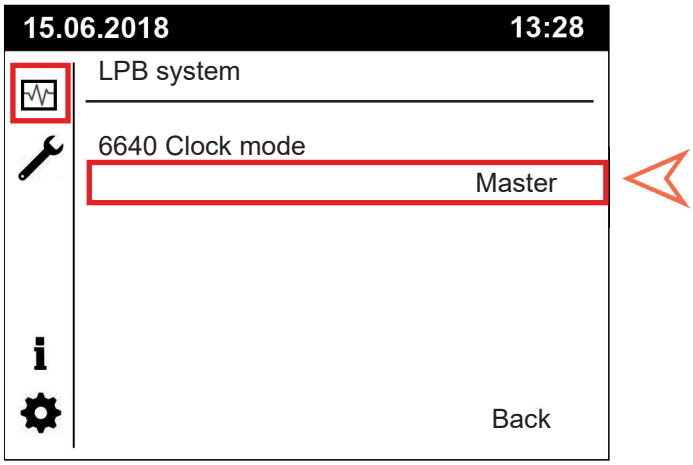
3.3 COMMUNICATION

This function gives access to the Local Process Bus and is useful, should the optional web server be fitted to communicate with the heater

.



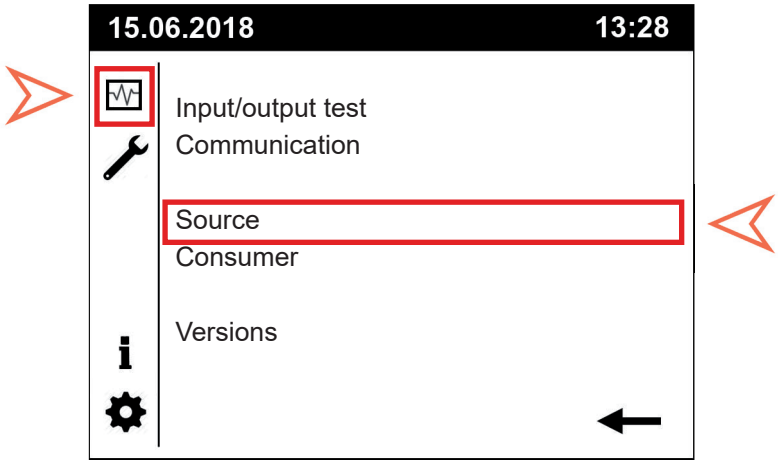
In commissioning mode only parameter line 6640 is visible (see screen example below)



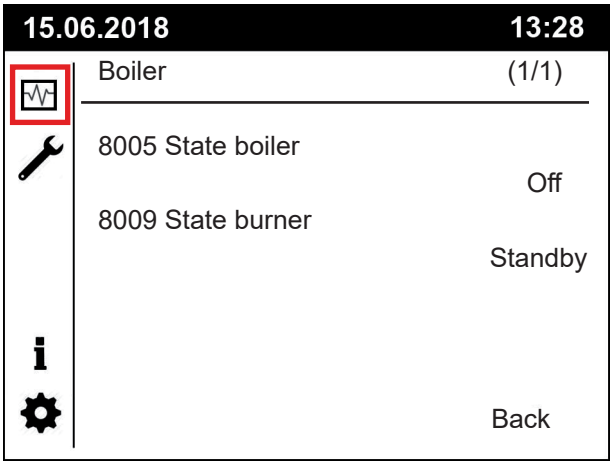
If the optional web server is fitted this setting will need to change to “Slave with local setting”, as the web server will act as the time clock master and will provide all of connected heaters with a common time taken from the internet. No adjustment for summer and winter times will be necessary if the web server is installed, as time adjustments will be carried out automatically.

3.4 SOURCE

This function displays information about the live internal operational status of the heater and it's sensors.



Example screen:

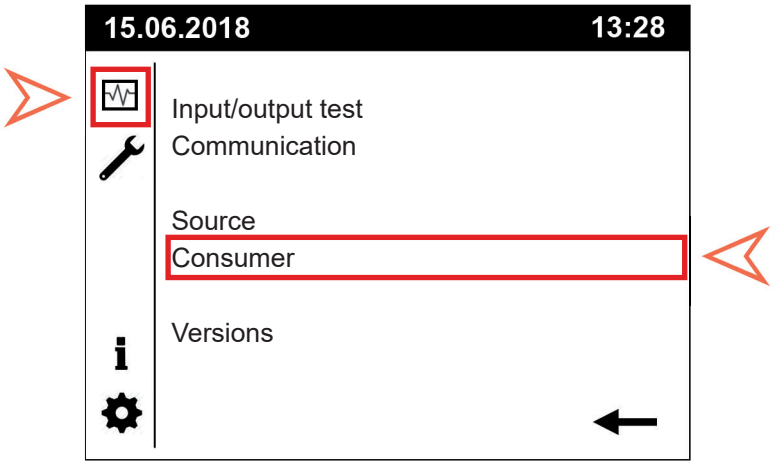


Useful parameters viewable in commissioning mode:

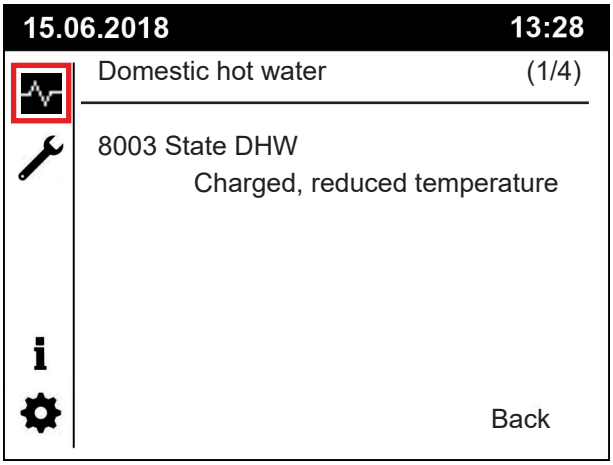
PARAMETER	DESCRIPTION	NOTES
8005	State boiler	Current state of boiler
8009	State burner	Current state of burner
8316	Flue gas temp	Current temperature measured at flue outlet
8330	Hours run 1st stage	Total operational burner hours recorded
8331	Start counter 1st stage	Total number of burner operations started

3.5 CONSUMER

This function displays information about the live operational status of the items external to the operation of the water heater.



Example screen:

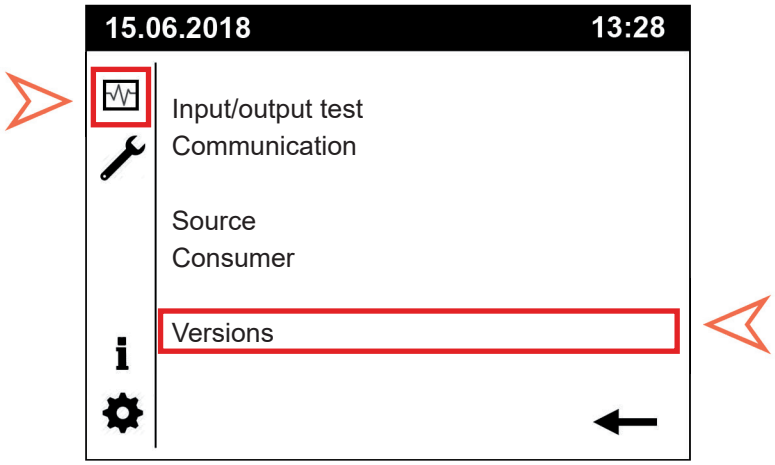


Useful parameters viewable:

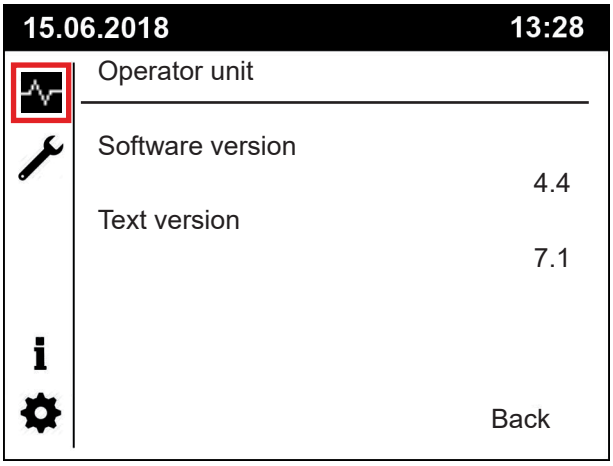
PARAMETER	DESCRIPTION	NOTES
8003	State DHW	Current status of DHW water
8830	DHW temp	Current temperature of DHW water
8831	DHW temp set point	DHW set point
8835	DHW circulating temp	Temperature of water returning to the DHW tank from the secondary return system
8836	DHW charging temp	Temperature of the heated water entering the DHW tank
8950	Segment flow temp actual	Temperature of the heated water entering the DHW tank
8951	Segment flow temp setpoint	Setpoint of heated water entering the DHW tank
9009	Water pressure H3	Current primary system pressure (model dependent)
9016	Special temp 1	DHW tank Temperature of the first optional BUFFER SS300-10
9017	Special temp 2	DHW tank temperature of the second optional BUFFER SS300-10
9031 - 9034	State multifunctional relays	State of relay operations on control PCB
9050 - 9058	State Multifunctional relays (module 1)	State of relay operations on optional AGU2.5 extension module

3.6 VERSIONS

This function displays information about the software and text versions used by the heater screen

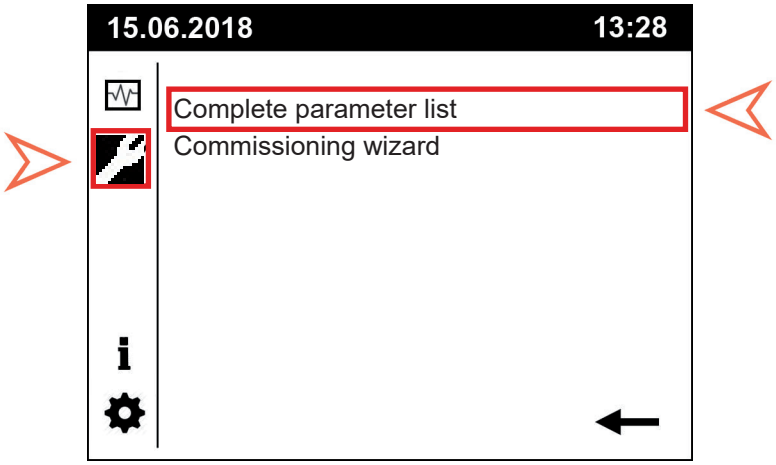


Details are shown for the software and text versions being used by the GUI, this may be useful to establish the level of updates applied to the heater.



3.7 COMPLETE PARAMETER LIST

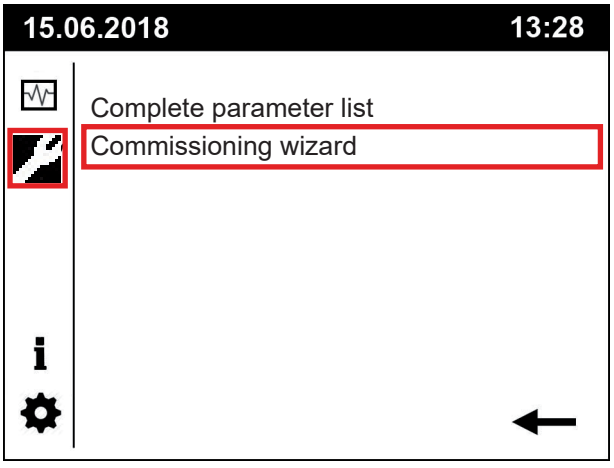
During the commissioning process access to the complete parameter list is not considered necessary for the commissioning engineer. The complete parameter listing is available in section 4.5 of this manual. Please note that the number of parameters shown under “commissioning” mode will be greatly reduced from those of “engineer” mode.



Refer to section 3.1 on page 30 for details on how to logon to “Commissioning” mode

3.8 COMMISSIONING WIZARD

The commissioning wizard is not required to setup of the heater parameters during the commissioning process, but can be used if preferred. The wizard is arranged in stages/sections and the wizard will only give access to parameters that are relevant to the level of access being used.



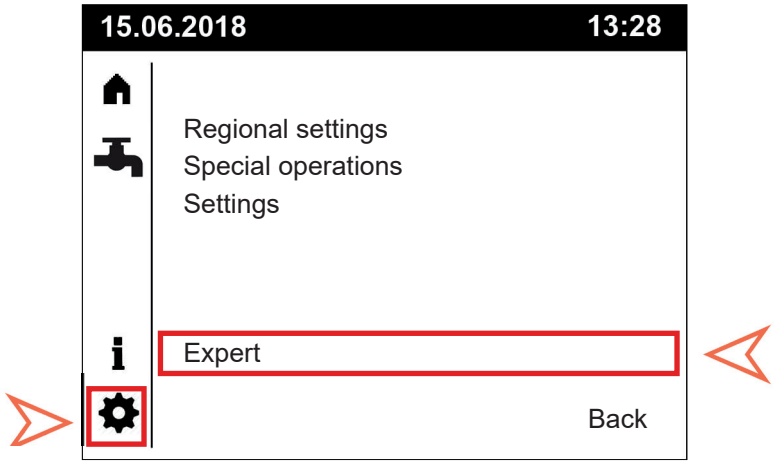
If commissioning mode is selected accidently, to exit the wizard you must continue and skip through the wizard until “end of wizard” is reached. Pressing and holding the control knob for more than 3 seconds will not return you to the home screen.

4.0 ENGINEER OPERATION

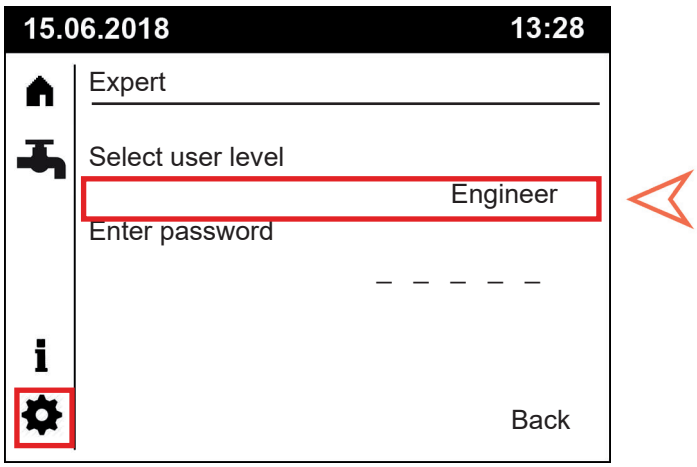
The features available at “Expert” level are intended for use by a competent service engineer. The following section details options/screens that are available to the service engineer in additions to the options/ screens available at commissioning and end user level.

4.1 LOGGING INTO ENGINEER MODE

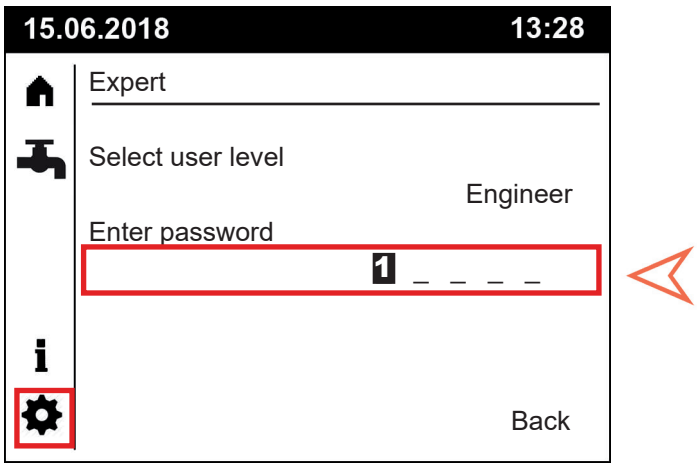
Using the Graphical User Interface (GUI), screen, move the control knob to select “Setup” page on the navigation bar and press the control knob.



In the work area , use the control knob to select “Expert” field and press the control knob to select

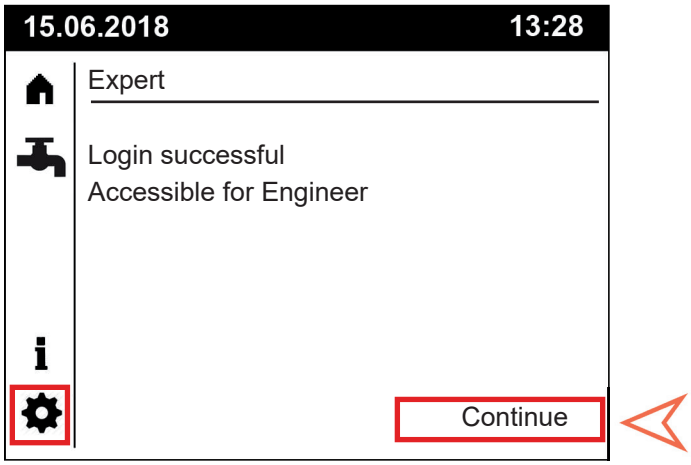


Select “Engineer” using the control knob and press the control knob to select it. Press control knob to continue into commissioning mode.



Enter password **‘10001’** by rotating the control knob, and then pressing the control knob to input each number.

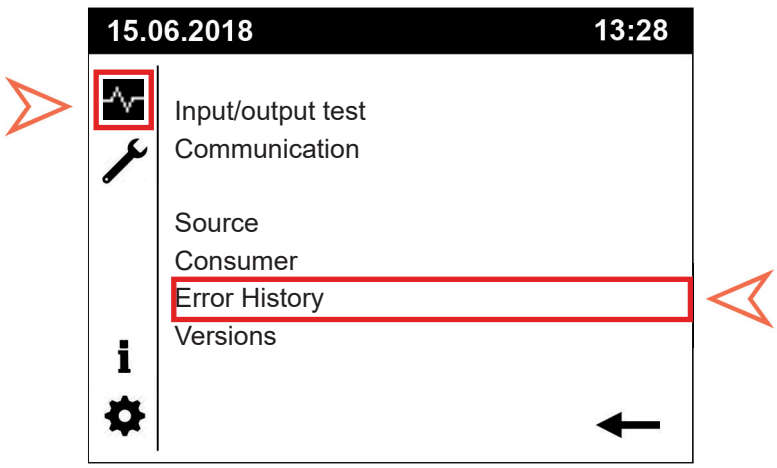
Confirm successful login by pressing the control knob.



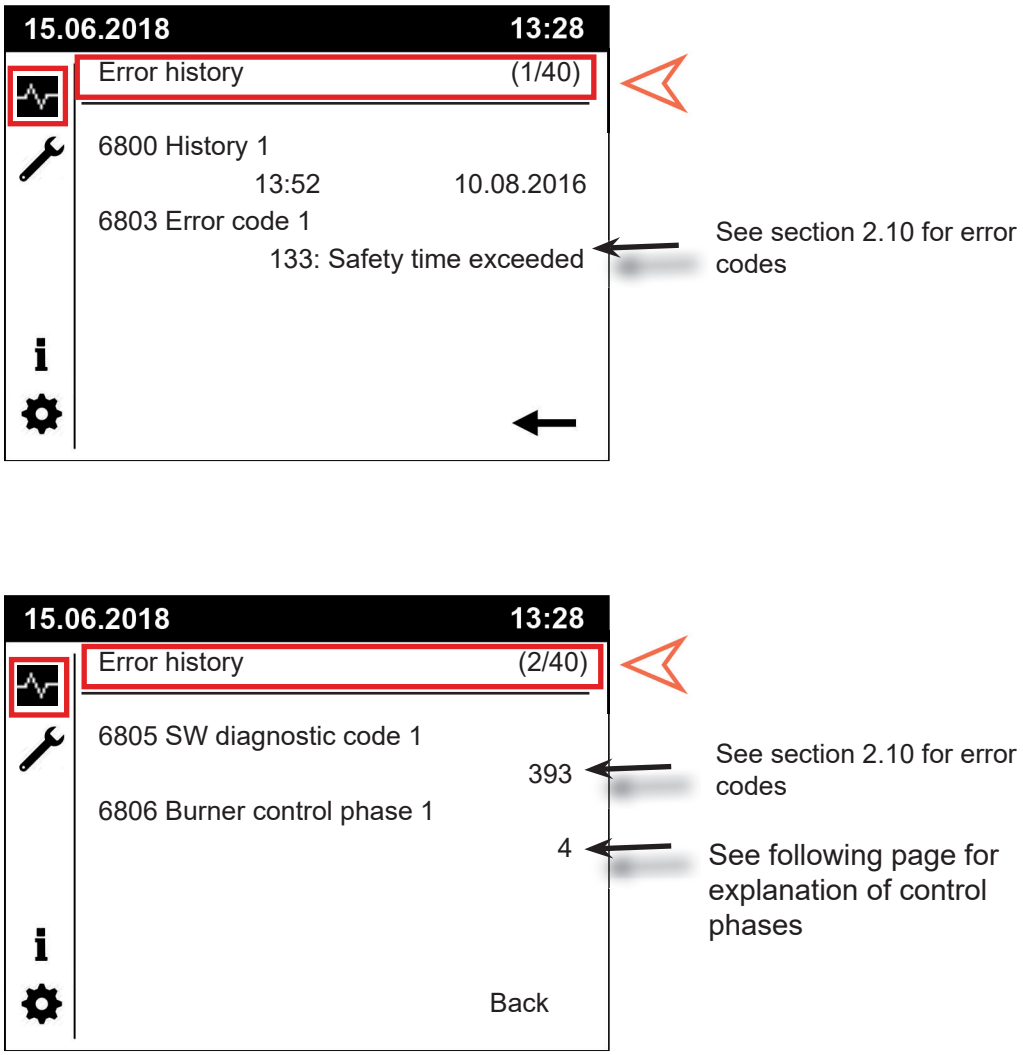
The information contained in the following pages is in addition to the text lines that are available to view in “Commissioning” mode.

4.2 ERROR HISTORY

This function displays information about the last 20 errors or maintenance messages recorded by the controls. Each of the 20 recorded entries contains the time and date that the incident was logged, software diagnostic code and burner control phase.



Example pages:

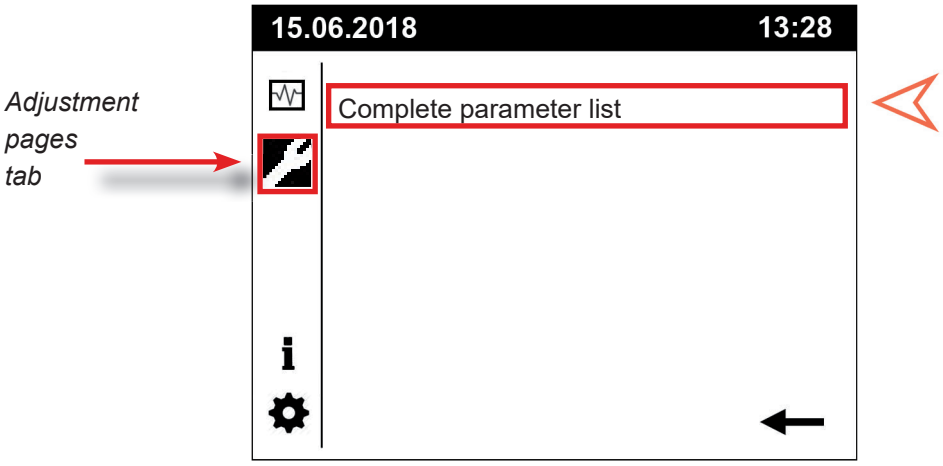


4.3 ERROR HISTORY - BURNER CONTROL PHASE

Phase No:	Phase display reference code	Phase	Phase description	Explanation
1	TNB	Homerun	Permitted afterburn time	Not relevant for the MAXXflo EVO
2	TLO	Homerun	Permitted time with fan speed	Time after post purge when the air flap is still open as the fan speed runs down
3	TNN	Homerun	Permitted time with fan speed	Time after post purge when the fan is permitted to run on
4	STY	Standby	No demand	No heat demand, burner is not active
5	STV	Standby	Start prevention	Burner held until a temporary condition has been removed (e.g. B2 sensor disconnected)
6	THL1	Startup	Fan ramp-up time to ignition speed	Maximum fan ramp-up time for fan to reach pre-purge speed
7	THL1A	Startup	Fan ramp-up time to ignition speed	Maximum fan ramp-up time for fan to reach ignition speed
8	TV	Startup	Pre-purging	Fan pre-purging phase
9	TBRE	Startup	Fan adjustment	Maximum time required to reach ignition level after pre-purging
10	TW1	Startup	Waiting time	Maximum waiting time until the following functions complete: - Internal safety tests - Fan speed adjustment to ignition load
11	TW2	Startup	Waiting time	Fan speed adjustment to ignition load
12	TVZ	Startup	Pre-ignition phase	Time before ignition (minimum 0.2 seconds)
13	TSA1	Safety time	1st safety time	First part of safety time with spark on and gas valve open
14	TSA2	Safety time	2nd safety time	Second part of safety time with spark off and gas valve open
15	TI	Operation	Interval	Stabilisation of flame (5 seconds)
16	MOD	Operation	Control mode	Burner is modulating normally - Main phase of operation
17	THL2	Shutdown	Post purging	Post purging at last operating fan speed - Demand has been turned off, gas valve will be closed
18	THL2A	Shutdown	Post purging	Post purging at pre-purge fan speed - Demand has been turned off, gas valve will be closed.
19	TN1	Shutdown	Post purging	Post purging at last operating fan speed - Demand has been turned off, gas valve will be closed
20	SAF	Error	Boiler error state	Certain types of error can force the heater control to jump to this phase and all safety related outputs are deactivated. When the condition returns to normal, this phase will be skipped and the control will restart. This will avoid lockout and the need to reset.
21	STOE	Error	Boiler error state	If the heater controls detect a system error that would drive the heater into an unsafe state (i.e. lockout), the heater controls will jump to this phase. Only an applied reset can resume operation.
22	TNA	Shutdown	Post purging at pre-purge speed	Last phase of fan post purge before the boiler controls go to standby phase.
23	KT	Standby	Start prevention	Temporary start prevention condition becomes a permanent condition after a period of time has elapsed.
24	TN2	Shutdown	Interruptable post purging	Interruptible post purging at last fan operation speed. If there is a new heat demand during the post purge period, post purging can immediately be interrupted.

4.4 COMPLETE PARAMETER LIST

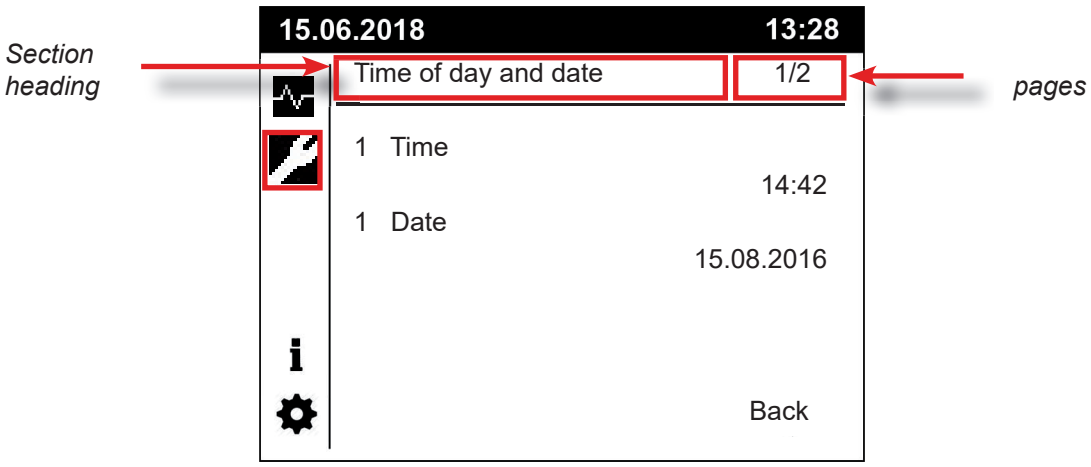
The features available in the menu “Complete parameter list” are intended for use by a competent heating engineer. Expert views includes levels for “commissioning” and “engineer”. More settings are available at “Engineer” level and all features described in this section refer to the “Engineer” user level



Refer to section 4.1 for details on how to logon to “Engineer” access level

Using the control knob select the adjustment page tab and press the control knob. Select “Complete parameter list” and press the control knob.

You now have access to all available parameters for viewing and adjustment starting from “Time of day and date” screen. Select or deselect the section heading to move through the sections and select or deselect the pages to scroll through the pages of each section.

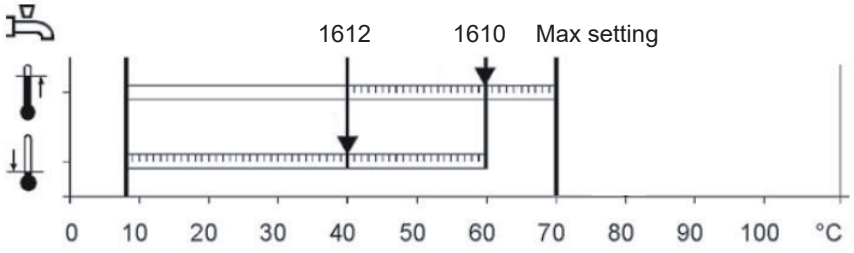


The next pages list the useful parameters and their sections which can be found using the complete parameter list.

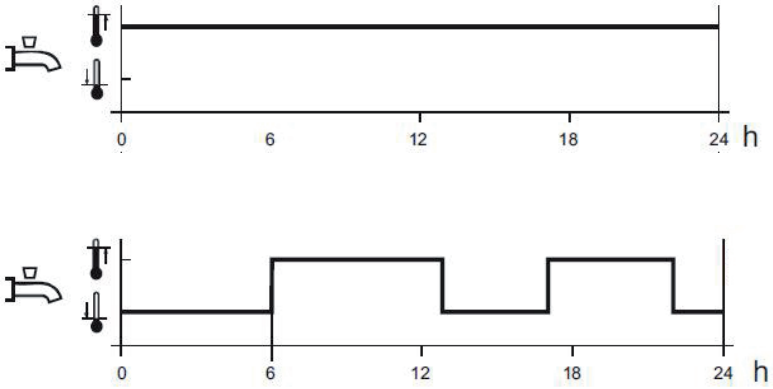
4.5 COMPLETE PARAMETER LIST TABLE

PARAMETER	DESCRIPTION	FACTORY DEFAULT	NOTES
Time of day and date			
1	Time & Date	-	Current time and date settings. These settings can be changed.
5	Start of summertime	-	Date of start for British Summer Time. An automatic one hour adjustment will be made at 01:00 on this date. Please remember that this date changes by a few days every year, so adjustment of these dates at the start of the year is recommended.
6	End of summertime	-	Date of start for British Winter Time. An automatic one hour adjustment will be made at 01:00 on this date. Please remember that this date changes by a few days every year, so adjustment of these dates at the start of the year is recommended.
Operator section			
20	Language	English	Change languages if required
40	Used as	Operator unit 1	Operator unit 1 only should be set
42	Assignment device 1	-	Has no effect on DHW operation
44	Operation zone 2	-	Has no effect on DHW operation
46	Operation zone 3	-	Has no effect on DHW operation
48	Warmer / cooler device 1	-	Has no effect on DHW operation
70	Software version	-	Current firmware version for this Graphical User Interface (GUI)
Time program 4 (water heater)			
	Set time program	Optimised for BS EN 13302-1	Used to set the time program for DHW heating (can also be set on the DHW water heater menu of the user screen) Follow section 2.3 for instruction on how to set the time clock.
576	Default values	06:00 - 22:00 daily	Reverts time clock settings to default values
Time program 5 (Q4 secondary return pump)			
	Set time program	24 hours every day	Used to set the time program for DHW secondary return. Follow section 2.3 for instruction on how to set the time clock.
616	Default values	06:00 - 22:00 daily	Reverts time clock settings to default values
DHW			
1600	DHW operating mode	-	On or Standby (operation via switch on front of heater)
1610	Nominal setpoint	57°C - 60°C	Normal DHW set point (setpoint when activated within program 4 times) - Up to Max of 65°C
1612	Reduced setpoint	10°C Optimised for EN13302-1	This reduced temperature setpoint is active when the current time is outside the water heating time program settings (time program 4).

Example:



4.5 COMPLETE PARAMETER LIST TABLE (CONTINUED)

PARAMETER	DESCRIPTION	FACTORY DEFAULT	NOTES
DHW (continued)			
1620	DHW release	Time Programme 4	Defines when the heater is released for DHW heating
24h / day When this setting is used, DHW heating is continuously released as long as it is switched on. **Time program 4/DHW** When using this setting, a specific time program is available for DHW heating. For every weekday, a time program with a maximum of three on phases can be set. During the release time, the nominal DHW setpoint applies, outside the release time, the reduced DHW setpoint. If the legionella function is pending, it will be performed when DHW heating is released for the first time in the morning. Setting “Once / several times per day” has no impact. If DHW heating is switched off, the frost protection setpoint will apply.			
1630	DHW charging priority	Absolute	Only used when the controls are operating other space heating circuits
1640	Legionella function	Off	Used to activate function (operation modes are “Periodically” or “Fixed weekday”
1641	Legionella function periodic	7	No of days before the legionella function will activate
1642	Legionella function day	Sunday	Fixed week day the legionella function will start
Periodically The legionella function is repeated according to the interval set (operating line 1641).			**Fixed weekday** The legionella function can be activated on a fixed weekday (operating line 1642). When using this setting, heating up to the legionella setpoint takes place on the selected weekday, independent of previous storage tank temperatures.
1644	Time for legionella function	01:00	Time the legionella function will start
1645	Legionella function setpoint	70°C	The setpoint to be achieved for the legionella function. If B39 is installed and the function setpoint cannot be achieved (because of pipe work heat losses) try lowering the setpoint and increasing the dwell time. Note: The higher the setpoint the shorter the required dwelling time.
1646	Dwelling time at legionella function setpoint	10 mins	The length of time the DHW tank sensors and B39 circulation return sensor (if fitted) are required to remain at setpoint. If the legionella function cannot be performed successfully within a 48 hour period, an error message will be displayed. If no dwelling time is set, the legionella function is completed the moment the setpoint is met.
1647	Legionella function circulation pump	Off	If the function is turned OFF, the secondary return circulation pump will be switched OFF while the “Legionella” function is performed (anti-legionella action performed on tank only). If the function is turned ON, the secondary return circulating pump is switched ON while the “Legionella” function is performed (anti-legionella action performed on DHW system).

4.5 COMPLETE PARAMETER LIST TABLE (CONTINUED)

PARAMETER	DESCRIPTION	FACTORY DEFAULT	NOTES
DHW (continued)			
1660	Pump release	Time programme 5	Set desired option for activation of the DHW circulation pump (see below)
DHW release With this parameterization, the circulating pump is released when DHW heating is released also.		**Time program 4/DHW** The circulating pump is released according to time program 4 / DHW.	**Time program 5** The circulating pump is released according to independent time program 5.
1661	Pump cycling	Off	When switched on, the circulation pump will cycle on and off during the activation period (on for 10 minutes then off for 20 minutes repeatedly). Where B39 sensor has been installed this function will become active only once the circulation setpoint has been achieved.
1663	Circulation setpoint	45°C	When B39 sensor is installed on the DHW distribution return pipe, the heater controller will monitor the return temperature during the activation time of the pump. Whenever the temperature acquired by the sensor falls below the circulation setpoint, the pump will be active until the setpoint has been exceeded (minimum pump run time is 10 minutes). During a legionella cycle operation the temperature at the sensor can be used to adjust the dwell time, ensuring that the entire DHW system reaches the legionella setpoint for the total dwell time length set. The dwell time counter is not started until the temperature at the sensor reaches legionella setpoint.
Boiler			
2300	Frost protection for plant boiler pump	On	When turned on the pump is activated when the temperature in the heat exchanger drops below 5°C
DHW Storage tank			
5012	DHW forced charging	On	The first charge activation of the day is calculated using a switching differential of 1°C regardless of the setting of parameter 5024
5020	DHW setpoint boost	0°C	Used by the control strategy to calculate the internal flow temperature required to raise the actual water temperature to the DHW set point. Examples: A boost of 2°C will reduce the re-charging time ,but the water draw off temperature could be 2°C above the tank setpoint. Burner efficiency will decrease slightly with a higher boost. A boost of -2°C will increase the re-charging time ,but the water draw off temperature will be at no higher than tank setpoint. Burner efficiency will increase slightly with a lower boost.
5024	DHW switching differential	2°C	Defines by how much the temperature of the water in the DHW tank can drop below set point before recharging takes place. This differential applies both to the Nominal as well as the Reduced DHW tank setpoint

4.5 COMPLETE PARAMETER LIST TABLE (CONTINUED)

PARAMETER	DESCRIPTION	FACTORY DEFAULT	NOTES
DHW Storage tank			
5050	Charging temp max	70°C	Maximum temperature that can be charged by the burner(s)
5060	DHW electric immersion heater operating mode	Substitute	In place of the boiler , DHW can also be heated with an electric immersion heater. If DHW heating is provided by an electric immersion heater, no request will be sent to the boiler . The changeover between boiler and electric immersion heater takes place based on the following criteria:

Substitute (backup mode)

The electric immersion heater is only used if the boiler delivers a fault status message or has been shut down via boiler lock. This means that in normal situations the DHW is always heated by the boiler.

Summer

The electric immersion heater is used as soon as all connected heating circuits have switched to summer operation. The DHW is again heated by the boiler as soon as at least 1 of the heating circuits has switched back to heating operation. But the electric immersion heater is also used if the boiler delivers a fault status message or has been shut down via boiler lock.

Always

DHW is heated with the electric immersion heater throughout the year. This means that when using this application, the boiler is never required for DHW heating.

5061	DHW electric immersion heater release	DHW release	Defines when the immersion can be activated (See options below):

24h/day

The electric immersion heater is continuously released independently of the time programs.

DHW Release

The electric immersion heater is released within the DHW release period.

Time program 4/DHW

The electric immersion heater is released within switching program 4.

5062	DHW electric immersion heater control	DHW sensor	Defines control method for activating the immersion. Either the MAXXflo EVO internal sensors or an external mechanical thermostat
5070	DHW automatic push	ON	If the DHW storage tank temperature falls below 2 switching differentials, automatic push is activated heating the DHW tank to the upper setpoint. Once activated it cannot be turned off, except by switching the demand OFF on the front of the heater.

ON

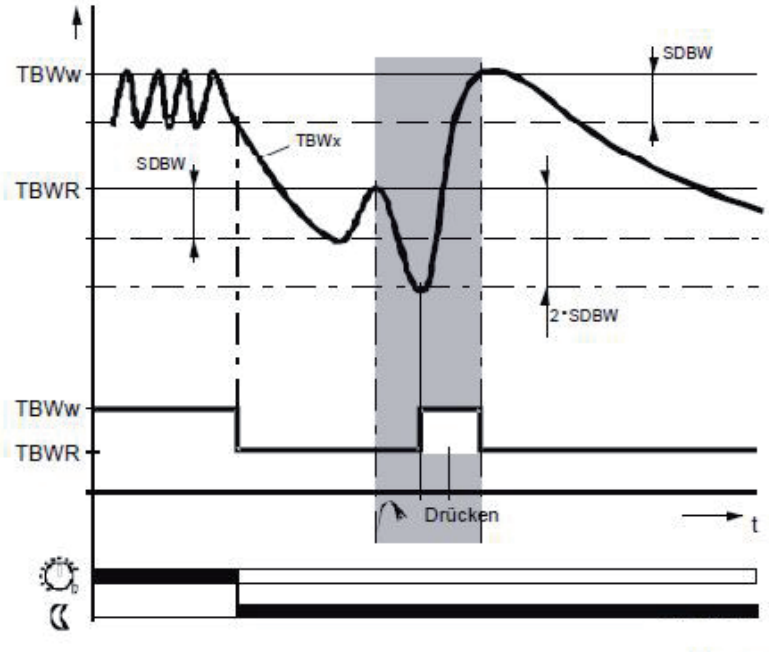
If the DHW temperature drops by more than 2 switching differentials (operating line 5024) below the Reduced setpoint (operating line 1612), one-time charging to the nominal DHW setpoint is effected again (operating line 1610).

Legend:

SDBW Switching differential DHW (5024)
TBWw Nominal DHW temp setpoint (1610)
TBWR Reduced DHW temp setpoint (1612)

OFF

DHW push can only be triggered manually.



4.5 COMPLETE PARAMETER LIST TABLE (CONTINUED)

PARAMETER	DESCRIPTION	FACTORY DEFAULT	NOTES
DHW storage tank (continued)			
5101	Pump speed minimum DHW	30 = 57% 60 = 100% 90 = 82% 120 = 100% 150 = 100%	Used to increase the minimum pump speed whilst in DHW heating. Increasing minimum pump speed decreases the DeltaT of the water being heated
General functions (used for controlling the optional BUFFER SS300-10			
5570	Temp diff on dT contr 1	2.0°C	If the temperature difference between the BUFFER SS300-10 tank and the MAXXflo EVO tank is greater than this value, K21 transfer pump output will be turned on
5571	Temp diff off dT contr 1	1.0°C	If the temperature difference between the BUFFER SS300-10 tank and the MAXXflo EVO tank is less than this value, K21 transfer pump output will be turned off
5572	On temp min dT contr 1	0°C	Not used
5573	Sensor 1 dT contr 1	DHW sensor B3	Sensor used for delta T comparison for K21 transfer pump activation
5574	Sensor 2 dT contr 1	Special temperature sensor 1	Sensor used for delta T comparison for K21 transfer pump activation
5575	On time min dT contr 1	30s	Represents the minimum time that K21 will be activated even if parameter 5571 conditions are met
5577	Pump/valve kick K21	On	Pump output on
5580	Temp diff on dT contr 2	2.0°C	If the temperature difference between the BUFFER SS300-10 tank and the MAXXflo EVO tank is greater than this value, K22 transfer pump output will be turned on
5581	Temp diff off dT contr 2	1.0°C	If the temperature difference between the BUFFER SS300-10 tank and the MAXXflo EVO tank is less than this value, K22 transfer pump output will be turned off
5582	On temp min dT contr 2	0°C	Not used
5583	Sensor 1 dT contr 2	DHW sensor B3	Sensor used for delta T comparison for K22 transfer pump activation
5584	Sensor 2 dT contr 2	Special temperature sensor 1	Sensor used for delta T comparison for K22 transfer pump activation
5585	On time min dT contr 2	30s	Represents the minimum time that K22 will be activated even if parameter 5581 conditions are met
5587	Pump/valve kick K22	On	Pump output on
Configuration			
6020	Function extension module 1	None	Defines purpose of AGU2.550 clip-in extension module. When using an extension module with the MAXXflo EVO this setting should be changed to “Multifunctional”
6024	Function input of EX21 module 1	None	Defines purpose of AGU2.600 clip-in extension module.
6030	Relay output QX21 module 1	dT controller K21	Defines the purpose of the output QX21 on a AGU2.550 clip-in extension module
6031	Relay output QX22 module 1	dT controller K22	Defines the purpose of the output QX22 on a AGU2.550 clip-in extension module
6032	Relay output QX23 module 1	None	Defines the purpose of the output QX23 on a AGU2.550 clip-in extension module
6040	Sensor input BX21 module 1	Special sensor 1	Defines the purpose of the sensor input BX21 on a AGU2.550 clip-in extension module
6041	Sensor input BX22 module 1	Special sensor 2	Defines the purpose of the sensor input BX22 on a AGU2.550 clip-in extension module
6046	Function input H2 module 1	None	Defines purpose of H2 multi-use input on a AGU2.550 clip-in extension module

4.5 COMPLETE PARAMETER LIST TABLE (CONTINUED)

PARAMETER	DESCRIPTION	FACTORY DEFAULT	NOTES
Configuration (continued)			
6047	Contact type H2 module 1	Normally Closed NC	Define whether the input is NO or NC (for 0 - 10 Volt setup this value is ignored)
6049	Voltage value 1 H2 module 1	0	Define a voltage value 1 that applies to function value 1 (e.g. 0.5V)
6050	Funct value 1 H2 module 1	0	Define a function value 1 that applies to voltage value 1 (e.g. 400 for 40.0^{O}C)
6051	Voltage value 2 H2 module 1	0	Define a voltage value 2 that applies to function value 2 (e.g. 10.0V)
6052	Funct value 2 H2 module 1	0	Define a function value 2 that applies to voltage value 2 (e.g. 700 for 70.0^{O}C)
6200	Store sensor	No	Used to store the current sensors available to the controls at the present time. Useful in clearing errors that may be caused by sensor removal, as the controls will continue to give error messages for a sensor that has been removed. (NB. When sensors have been stored to remove a sensor fault , It may be necessary for midnight to pass on the internal clock before a sensor missing fault code is cleared completely).
6220	Device SW version	-	Version of Software in use
6230	Info 1 OEM	-	Year of software in use
6231	Info 2 OEM	-	Code for software in use
6258	info 3 OEM	-	Not currently used
6259	Info 4 OEM	-	Not currently used
LPB System			
6600	Device address	1 or 2	For a single Heat Engine MAXXflo EVO (30 & 60 models) the device address = 1. For twin Heat Engine MAXXflo EVO (90,120 & 150 models) the Top HE address = 1 and the bottom HE = 2
6601	Segment address	0	Used when more than one MAXXflo EVO heater is connected to an OZW672.04 or OZW672.16 Web Server. Each heater must have a unique segment number (Max 16) for each MAXXflo EVO to be separately identifiable.
6605	LPB Power supply status	-	Status of power supply for OCI345 units (90,120 & 150kW models only)
6612	Alarm delay	2 mins	This is the delay that is built into the controls to avoid reporting short term/temporary faults. When a fault in the controller is first present there will be a delay of this parameter value before the fault relay is activated. If short term faults are undesirable increase this value to eliminate them.
6640	Clock time source	Controller is the time clock master	If the MAXXflo EVO is connected to an OZW672 Web server, the Web server will be the time “clock master”. If this is the case this parameter would need to be changed to “slave with remote setting”, as it is not possible to have two “Time clock masters” connected on the same communications bus.
Modbus			
6651	Modbus slave address	---	Define Modbus settings
6652	Modbus baud rate	19,200	Define Modbus settings
6653	Modbus parity	Even	Define Modbus settings
6654	Modbus stop bit	1	Define Modbus settings

4.5 COMPLETE PARAMETER LIST TABLE (CONTINUED)

PARAMETER	DESCRIPTION	FACTORY DEFAULT	NOTES
Error / Fault			
6700 - 6999	Fault history	---	Fault history for last 20 reported faults. Time, date , phase no, error codes and sub codes
Service/special operation			
7040	Burner hours run maintenance interval	---	Burner run hours that must be exceeded before a maintenance message is displayed
7041	Burner hours run since maintenance	---	**COUNTER CAN BE RESET** Burner run hours elapsed since maintenance was carried out and the counter was reset
7042	Burner starts maintenance interval	---	Number of burner starts that must be exceeded before a maintenance message is displayed
7043	Burner starts since maintenance	---	**COUNTER CAN BE RESET** Number of burner starts since maintenance was carried out and the counter was reset
7044	Maintenance interval	12 months	Limit of time elapsed before a maintenance message is displayed
7045	Time since maintenance	---	**COUNTER CAN BE RESET** Number of months elapsed since maintenance was carried out and the counter was reset
7130	Chimney sweep function	Off	Function used to operate the individual burner at either minimum or maximum gas rate. Function useful when performing a flue gas analysis. NB The maximum flow temperature permitted is 75^{O}C, if the flow temperature exceeds this value the function will be turned off. Open hot water outlets if necessary to ensure that the maximum flow temperature is not exceeded.
7131	Chimney sweep function burner output	High fire	Sets burner output level in chimney sweep mode
7143	Controller stop function	Off	Function used to operate the individual burner at a rate from 0% to 100% modulation levels. It is also possible to view the performance of the ionisation current. NB The maximum flow temperature permitted is 75^{O}C, if the flow temperature exceeds this value the function will be turned off. Open hot water outlets if necessary to ensure that the maximum flow temperature is not exceeded
7145	Controller stop setpoint	100%	Defines the burner modulation rate for the function
7170	Telephone customer service	---	A customer service number can be entered into this line, which will be displayed on the GUI when there is a fault or when the maintenance symbol is displayed.
7250	PStick storage pos	---	Defines the parameter set selection from a manufacturers programming stick, for purposes of firmware updates.
7251	PStick data description	---	Display line for contents of inserted manufacturers programming stick.
7252	PStick command	---	Define the operation of the inserted manufacturers programming stick (e.g. read from stick).
7253	PStick	---	Display line for programming stick reading/writing progress in %
7254	PStick status	---	Programming stick status

4.5 COMPLETE PARAMETER LIST TABLE (CONTINUED)

PARAMETER	DESCRIPTION	FACTORY DEFAULT	NOTES
Input/output test			
7700	Relay test	No test	Used to test the outputs of the heater control PCB (QX2 is the internal heat exchanger pump) or the outputs of the AGU2.5 expansion module
7713	Output test P1	0%	Used to test internal pump speed control. Set the pump speed (min - 100%) to test output
7714	PWM output P1	---	Displays the PWM output signal of P1 (QX2 internal pump)
7750	DHW temperature B3	---	Current temperature of the DHW tank
7760	Boiler temp B2	---	Current internal primary flow temperature B2
7820	Sensor temperature BX1	---	Flue gas temperature
7821	Sensor temperature BX2	---	Not used
7822	Sensor temperature BX3	---	Return circulation temperature sensor
7823	Sensor temperature BX4	---	Not used
7830	Sensor temperature BX21 module 1	---	User defined sensor
7831	Sensor temperature BX22 module 1	---	User defined sensor
7845	Voltage signal H2 module 1	---	Measured voltage of user defined input
7846	Contact state H2 module 1	---	Contact state of user defined input
7854	Voltage signal H3	---	Voltage signal from pressure transducer (90, 120 & 150kW models only)
7855	Contact state H3	---	Not used by pressure transducer
7862	Frequency H4	---	Not used
7860	Contact state H4	---	Not used
7865	Contact state H5	---	Not used
7872	Contact state H6	---	Operation switch contact state
7874	Contact state H7	---	Air pressure switch contact state
Status			
8003	Status DHW	---	Current operational status of DHW
8005	State boiler	---	Current operational status of boiler
8009	State burner	---	Current operation status of gas burner
Diagnostics cascade			
8100 - 8131	Priority & status producers 1 to 16	---	Current status of all heat engines being controlled by the MAXXflo EVO e.g. When in operation up to two producers will have the status “Released for DHW operation”
8138 - 8150	Cascade temperatures	---	Values of temperature sensors used in the cascade control

4.5 COMPLETE PARAMETER LIST TABLE (CONTINUED)

PARAMETER	DESCRIPTION	FACTORY DEFAULT	NOTES
Diagnostics producer			
8304	Boiler pump Q1	---	Status of Primary system pump
8308	Boiler pump speed	---	Internal pump speed
8310	Boiler temp	---	Current primary flow temperature
8311	Boiler set point	---	System calculated flow temperature set point
8312	Boiler switch point	---	Indicates next flow temperature demand target for current heater activity
8314	Boiler return temp	---	Current primary return temperature
8315	Boiler return sensor setpoint	---	Indicates next return temperature demand target for current heater activity
8316	Flue gas temp	---	Current flue gas temperature
8318	Flue gas temp max	---	**COUNTER CAN BE RESET** Maximum flue gas temperature reached.
8323	Fan speed	---	Current fan speed in rpm
8324	Set point fan	---	System calculated fan speed set point
8325	Current fan control	---	Current fan control as a percentage
8326	Burner modulation	---	Current burner modulation rate in percent
8329	Ionisation current	---	Current Ionisation flame signal (> 9.0μA is a strong flame signal < 7.0μA is a weak flame signal, with the burner at 100% modulation)
8330	Burner hours run stage 1	---	**COUNTER CAN BE RESET** Total number of hours the heater has been operating
8331	Number of burner starts stage 1	---	Total number of burner starts performed by the heater
8390	Current phase number	---	Current phase stage of burner operation
Diagnostics consumers			
8830	DHW temperature (B3)	---	Actual DHW tank temperature
8831	DHW temperature setpoint	---	Current DHW temperature set point
8835	DHW circulating temperature	---	Actual DHW circulating return temperature (if fitted)
8836	DHW charging temperature	---	Current DHW charging temperature at heat engine outlet.
8950	Common flow temperature	---	Same as parameter 8310
8951	Common flow temperature setpoint	---	Same as parameter 8311
9009	Water pressure H3	---	Current primary system pressure. Internal water pressure of the heaters internal primary circuit. NB This pressure must not be allowed to drop below 0.1 bar or the heater will stop.
9016	Special temp 1	---	If using the BUFFER SS300-10 expansion tank system the temperature of the first BUFFER SS300-10 tank will be displayed here.
9017	Special temp 2	---	If using the BUFFER SS300-10 expansion tank system the temperature of the second BUFFER SS300-10 tank will be displayed here.
9031	State relay output QX1	---	Current status of DHW circulation pump Q4
9032	State relay output QX2	---	Current status of DHW primary pump Q1
9033	State relay output QX3	---	Current status of fan power
9034	State relay output QX4	---	Current status of DHW pump Q3
9050	State relay output QX21 module 1	---	Current status of QX21 output
9051	State relay output QX22 module 1	---	Current status of QX22 output
9052	State relay output QX23 module 1	---	Current status of QX23 output

4.5 COMPLETE PARAMETER LIST TABLE (CONTINUED)

PARAMETER	DESCRIPTION	FACTORY DEFAULT	NOTES
Burner control			
9500	Prepurge time	15s	The length of time to purge the flue system on startup of the burner can be increased up to 51 seconds if required
9501	Prepurge time min	15s	Minimum possible pre-purge time, beyond which it is not possible to reduce parameter 9500
9512	Required speed at ignition	30kW = 2500rpm 60kW = 3500rpm 90kW = 2500rpm 120kW = 3500rpm 150kW = 2850rpm	Fan speed required for ignition
9513	Required speed ignition max	30kW = 2790rpm 60kW = 3990rpm 90kW = 3510rpm 120kW = 3990rpm 150kW = 4110rpm	Maximum limitation of 9512
9524	Required speed Low Fire	30kW = 1950rpm 60kW = 2150rpm 90kW = 2100rpm 120kW = 2150rpm 150kW = 2250rpm	Fan speed required at minimum burner modulation
9525	Required speed Low Fire minimum	30kW = 1950rpm 60kW = 2150rpm 90kW = 2100rpm 120kW = 2150rpm 150kW = 2250rpm	Minimum limitation of 9524
9529	Required speed High Fire	30kW = 4650rpm 60kW = 6650rpm 90kW = 5950rpm 120kW = 6650rpm 150kW = 6850rpm	Fan speed required at maximum burner modulation
9530	Required speed High Fire maximum	30kW = 4650rpm 60kW = 6650rpm 90kW = 5950rpm 120kW = 6650rpm 150kW = 6850rpm	Maximum limitation of 9529
9540	Postpurge time	15s	Number of seconds that the fan will continue to operate after the gas valve has closed
9542	Postpurge time minimum	15s	Minimum limitation of 9540
9650	Chimney drying	Off	Function can be used to dry out the lining of a chimney or used to check the operation of a burner fan without firing the burner with gas (only the fan runs in this mode). Only active when the heater is in standby and can be interrupted at any time with a request for heat
9651	Required speed chimney drying	500rprm	Predetermined speed for chimney drying function. A minimum fan speed of 1500rpm is recommended
9652	Duration chimney drying	10 minutes	Duration of chimney drying function (maximum 1440 minutes)

4.6 REFRESH OPERATOR UNIT

The list entry “Update operator unit” is displayed if changes are made on the “Complete parameter list” or commissioning wizard that impact the device pages.

The device checks at the start of each minute whether the configuration has changed that impact the device pages. Wait for the device clock to advance to the next minute after exiting “Complete parameter list” before accessing further parameters.

M10612 Rev A : January 2023

Sales 0345 070 1055

Technical 0345 070 1057

Web andrewswaterheaters.co.uk

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January 2023

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