



INSTALLATION & SERVICING

IMAX XTRA 2
80 120 160 200 240 280
80P 120P 160P 200P 240P

When replacing any part on this appliance, use only spare parts that you can be assured conform to the safety and performance specification that we require. Do not use reconditioned or copy parts that have not been clearly authorised by Ideal Heating. For the very latest copy of literature for specification and maintenance practices visit our website idealheating.com where you can download the relevant information in PDF format.



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SECTION 1 - GENERAL

Table 1 Performance Data

Boiler			80	120	160	200	240	280
Boiler output (non-condensing)	Max	kW	78.6	118	157.3	196.6	235.9	275.2
		Btu/h	268,194	402,633	536,730	670,827	804,924	939,021
	Mean 70°C	Min	kW	23.3	23.3	29.1	43.1	47.0
Btu/h		79,500	79,500	99,300	147,050	160,350	174,000	
Boiler output (condensing)	Max	kW	82.2	123.4	164.5	207.8	249.4	290.9
		Btu/h	280,450	421,050	561,250	709,000	850,950	992,550
	Mean 40°C	Min	kW	25.8	25.8	32.3	47.3	51.6
Btu/h		88,000	88,000	110,200	161,400	176,050	190,750	
Boiler Input Max Rate	Net	kW	80	120	160	200	240	280
		Btu/h	272,950	409,450	545,900	682,400	818,900	955,350
	Gross	kW	88.8	133.3	177.7	222.1	266.5	310.9
Btu/h		303,000	454,800	606,300	757,800	909,300	1,060,800	
Boiler Input Min Rate	Net	kW	24	24	30	44	48	52
		Btu/h	81,900	81,900	102,350	150,150	163,800	177,400
	Gross	kW	26.6	26.6	33.3	48.9	53.3	57.7
Btu/h		90,750	90,750	113,600	166,850	181,850	196,850	
Maximum Gas Rate		m³/h	8.1	12.1	16.1	20.1	24.2	28.2
		ft³/h	286	427	569	710	855	996
Approx. flue gas @ max. rate		m³/h	121	182	242	302	363	423
		volume (@80°C) i.e. non-condensing ft³/h	4,270	6,410	8,550	10,690	12,820	14,960
Max. Flue Resistance		Pa	100	100	150	150	150	150
Flue Gas CO ₂ G20/LNG	@ Max Rate %		9.5/9.9	9.5/9.9	9.5/9.9	9.5/9.9	9.5/9.9	9.5/9.9
	@ Min. Rate %		9.3/9.7	9.3/9.7	9.3/9.7	9.3/9.7	9.3/9.7	9.3/9.7
NOx with O ₂ = 0%		mg/kWh	26	26	35	26	26	26
		ppm	15	15	20	15	15	15
Seasonal Boiler Efficiency (Building Regs L2)			95.7	95.7	95.7	95.7	95.7	95.7

Table 2 General Data

Boiler		80	120	160	200	240	280
Gas supply		2H - G20 - 20mbar					
Gas supply connection	R (in. BSP)	1	1	1	1	1	1
Flow connection	R (in. BSP)	2	2	2	2	2	2
Return connection	R (in. BSP)	2	2	2	2	2	2
Hydraulic Resistance @ 20°C	mbar	80	85	90	95	100	105
Noise (dB)	dB@ 1m	<53		<60			
Max Press (sealed system)	bar (psi)	6 (87)	6 (87)	6 (87)	6 (87)	6 (87)	6 (87)
Maximum Static Head	m (ft)	61 (200)	61 (200)	61 (200)	61 (200)	61 (200)	61 (200)
Boiler Electricity Supply		230V - 50Hz					
Boiler Fuse Rating		External 13A, Internal 13A					
Power Consumption (boiler only)	W	110	150	200	220	240	250
Air Inlet O/D	mm	110	110	110	110	110	110
Flue Size dia	mm	150	150	150	200	200	200
Condensate drain	mm	21.5	21.5	21.5	21.5	21.5	21.5
Unpackaged Dry Weight	kg	141.5	160.5	182	224	240	250
Packaged Dry Weight	kg	159.5	178.5	200	243.5	259.5	270.5
Water Content	l (gal)	11.0 (2.4)	14.3 (3.2)	17.5 (3.9)	18.4 (4.1)	24.0 (5.3)	27.2 (6.0)

* Electricity supply and fuse rating for pumps etc. refer to manufacturer's instructions.

Note: Propane variant to follow at a later date.

Natural gas consumption is calculated using a calorific value of 37.8MJ/m³ (1038Btu/ft³) gross or 34 MJ/m³ (910 Btu/ft³) nett at 15°C and 1013.25 mbar.

- For l/s divide the gross heat input (kW) by the gross C.V. of the gas (MJ/m³)
- For ft/h³ divide the gross heat input (Btu/h) by the gross C.V. of the gas (Btu/ft³).

HEALTH & SAFETY DOCUMENT NO. 635

The electricity at work regulations, 1989.

The manufacturer's notes must NOT be taken, in any way, as overriding statutory obligations.

IMPORTANT. These appliances are CE certified for safety and performance. It is, therefore, important that no external control devices, e.g. flue dampers, economisers etc., are directly connected to these appliances unless covered by these Installation and Servicing Instructions or as otherwise recommended by **Ideal Heating** in writing. If in doubt please enquire.

Any direct connection of a control device not approved by **Ideal Heating** could invalidate the certification and the normal appliance warranty. It could also infringe the Gas Safety Regulations and the above regulations.

CAUTION. To avoid the possibility of injury during the installation, servicing or cleaning of this appliance, care should be taken when handling edges of sheet steel components.

Imax Xtra 2

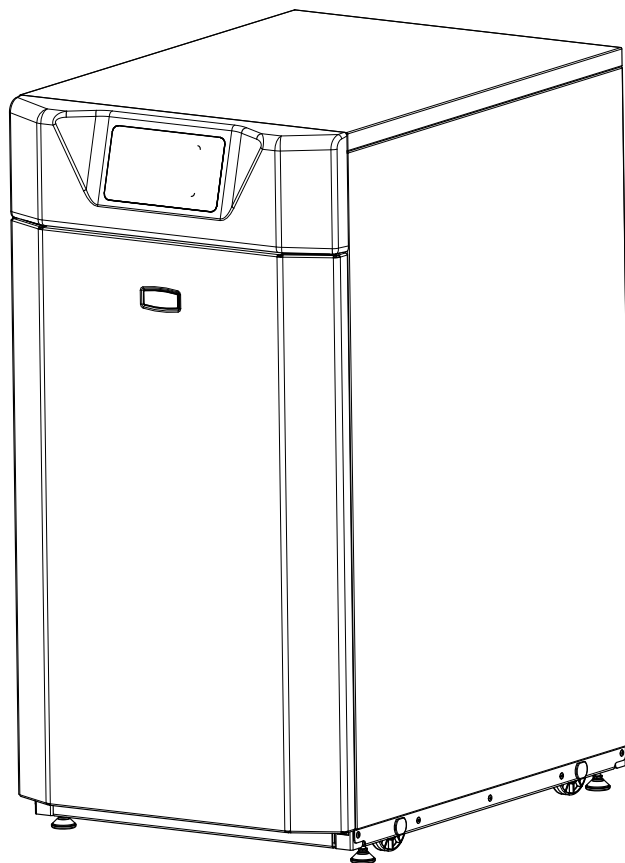
80, 120, 160, 200, 240 & 280

80P, 120P, 160P, 200P & 240P

Natural Gas & Propane

Destination Countries: GB, IE

CE No. 682118



Key to symbols

IE = Ireland, GB = United Kingdom (Countries of destination)

PMS = Maximum operating pressure of water

C53 = A room sealed appliance which is connected via its separate ducts to two terminals that may terminate in zones of different pressure.

C63 = A room sealed appliance intended to be connected to a separately approved and marketed system for the supply of combustion air and discharge of combustion products. The fan is up stream of the combustion chamber.

B23 = An appliance intended to be connected to a flue which evacuates the products of combustion to the outside of the room containing the boiler. The combustion air is drawn directly from the room. The fan is up stream of the combustion chamber.

NOTE TO THE INSTALLER: LEAVE THESE INSTRUCTIONS ADJACENT TO THE GAS METER.

1. GENERAL

1.1 INTRODUCTION

The Imax Xtra 2 boilers are fully automatically controlled, floor standing, fanned, super efficient condensing appliances.

The comprehensive boiler controls built into the appliance include:

- Volt free 'alarm' contacts (lockout)
- Volt free 'boiler run' contacts
- Burner hours run meters
- System temperatures

The boilers can draw their combustion air from the room via a filter or ducting from outside.

Through a sophisticated control system combined with premix burner technology and an aluminium heat exchanger, the boilers are capable of high operating efficiencies of 93% (gross) and low emissions.

These boilers are certified to meet the requirements of the EC Gas Appliance Directive, Boiler Efficiency Directive, EMC and Low Voltage Directive.

1.2 OPTIONAL EXTRA KITS

- **Single Heating Circuit Kit (Clip in)**
- **Dual Heating Circuit Kit (Clip in)**
- **Strap-on Sensor Kit**
- **Room Unit (QAA55)**
- **0-10V Pump Kit (Clip in)**
- **Immersion Sensor Kit**
- **Outside Sensor Kit**
- **Cascade Header Kits**
- **Cascade Boiler Flue Non-return Damper**
- **Boiler Pump Kits**
- **Low Loss Header kits**
- **Magnetic Low Loss Header Kits**
- **Plate Heat Exchanger Kits**
- **Condensate Pump Kit**

1.3 SAFETY

Current Gas Safety (Installation and Use) Regulations or rules in force

The appliance is suitable only for installation in GB and IE and should be installed in accordance with the rules in force.

In GB, the installation must be carried out by a Gas Safe Registered Installer or in IE by a competent person. It must be carried out in accordance with the relevant requirements of the:

- Gas Safety (Installation and Use) Regulations
- The appropriate Building Regulations either The Building Regulations, The Building Regulations (Scotland), Building Regulations (Northern Ireland)

- The Water Fittings Regulations or Water Byelaws in Scotland
- The Current I.E.E. Wiring Regulations

Where no specific instructions are given, reference should be made to the relevant British Standard Code of Practice.

In IE, the installation must be carried out by a Competent Person and installed in accordance with the current Building Regulations and reference should be made to the current ETCI rules for electrical installation.

The appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction.

Children must be supervised not to play with the appliance.

The boilers have been tested and certified to EN15502 for use with Natural Gas. LPG to follow.

Detailed recommendations are contained in the following Standards and Codes of Practice:

BS. 5854	Flue and flue Structures in Buildings.
BS. 6644	Installation of gas fired hot water boilers of rated inputs between 70kW and 1.8MW (net) (2nd and 3rd family gases).
BS. 6880	Low temperature hot water heating systems of output greater than 45kW.
Part 1	Fundamental and design considerations.
Part 2	Selection of equipment.
Part 3	Installation, commissioning and maintenance
IGE/UP/1	Soundness testing and purging of industrial and commercial gas installations.
IGE/UP/2	Gas installation pipework, boosters and compressors on industrial and commercial premises.
IGE/UP/10	Installation of gas appliances in industrial and commercial premises.

1.4 SAFE HANDLING OF SUBSTANCES

No asbestos, mercury or CFCs are included in any part of the boiler or its manufacture.

1.5 FOUNDATION / LOCATION OF BOILER

The boiler must stand on a floor which must be flat, level and of a suitable load bearing capacity to support the weight of the boiler (when filled with water) and any ancillary equipment.

Ideally the boiler should be placed on a plinth exceeding the plan area of the boiler by 75mm on each side and at least 100mm high.

The boiler must not be fitted outside.

1.6 GAS SUPPLY

The local gas supplier should be consulted, at the installation planning stage, in order to establish the availability of an adequate supply of gas. An existing service pipe must NOT be used without prior consultation with the local gas supplier.

A gas meter can only be connected by the local gas supplier or by a registered Gas Safe engineer or in IE by a competent person.

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An existing meter should be checked, preferably by the gas supplier, to ensure that the meter is adequate to deal with the rate of gas supply required. A minimum working gas pressure of 15mbar for Natural Gas and 32mbar for Propane MUST be available at the boiler inlet.

Do not use pipes of smaller size than the boiler inlet gas connection.

The complete installation MUST be tested for gas soundness and purged in accordance with the appropriate standards.

Gas Boosters

A gas booster is required if the gas pressure available at the boiler is lower than that required by the boiler manufacturer to attain the flow rate for maximum burner input rating.

Location of the booster requires careful consideration but should preferably be closer to the burner rather than the gas meter. Ventilation should also be considered to ensure ambient temperature does not exceed designed recommendations. Further guidance is provided in IGE/UP/2.

1.7 FLUE INSTALLATION

IMPORTANT. It is the responsibility of the installer to ensure, in practice, that products of combustion discharging from the terminal cannot re-enter the building or any other adjacent building through ventilators, windows, doors, other sources of natural air infiltration, or forced ventilation / air conditioning.

If this should occur the appliance MUST be isolated from the gas supply and labelled as 'unsafe' until corrective action can be taken.

Terminal Position

Due to the high efficiency of the boilers pluming will occur. Vertical termination is recommended and terminal positions which could cause problems should be avoided. Particular care should be taken in the case of large output boiler installations, and complying with the requirements of the Clean Air Act.

The flue must be installed in accordance with the appropriate Building Regulations and standards listed on page 6 and in compliance with BS6644. In IE refer to I.S.820:2000.

1.8 FLUE SYSTEM DESIGN

Due to the high efficiency of these boilers, the flue gas temperatures are low and the buoyancy in the stack will be relatively small. The boiler is supplied with an integral fan which is fully matched to the boiler in each case to provide correct combustion air flow and overcome the flue resistance.

The power of this fan is such that there is a large reserve of pressure available to overcome a significant length of flue without affecting the combustion performance of the boiler.

The maximum pressure available at the base of the flue to overcome flue resistance is 100Pa (0.4" w.g.) for 80 and 120, and 150Pa (0.6" w.g.) for 160, 200, 240 and 280. This includes the resistance of any air ducts used to connect the air inlet direct to outside air.

See table below for approximate maximum straight flue lengths.

Boiler	80/80P	120/120P	160/160P	200/200P	240/240P	280
Flue Size (mm)	Ø150	Ø150	Ø150	Ø200	Ø200	Ø200
Approx. Max. Straight Flue Length (m)	240	109	100	256	180	138

If the air inlet filter kit, supplied with this appliance, is to be utilised, the following table shows approximate maximum straight flue lengths and pressures available.

Boiler	80/80P	120/120P	160/160P	200/200P	240/240P	280
Flue Size (mm)	Ø150	Ø150	Ø150	Ø200	Ø200	Ø200
Approx. Max. Straight Flue Length (m)	235	105	50	136	72	46
Flue Pressure (Pa)	98	97	76	80	60	50

The addition of elbows and their positions in the flue will have a significant effect on the maximum flue length. Consult with your flue supplier for detailed design work.

IMPORTANT NOTE.

If combustion air is drawn from within the boiler room, ensure no dust or airborne debris can be ingested into the appliance. An air inlet filter is supplied to protect the burner from debris, but if exposed to excessive amounts, this will require regular cleaning to prevent blockage. Ideally where possible duct the air supply into the boiler room from a clean source outside the boiler room/building.

Where it is not possible to duct air from outside the boiler, the air inlet pipe MUST be used, refer to Frame 2.3.

Multiline/ Cascade Fluing

When using Multiline/Cascade flue arrangements do not operate the boilers for commissioning without ensuring that the shared flue is free flowing without blockage at the terminal.

Material

With no requirement for buoyancy to discharge flue products and with low flue gas temperatures, single wall flues are suitable for most installations. Care should still be taken to maintain compliance with building regulations and relevant standards.

The type of flue pipe used should be 316 grade Stainless Steel or be of equivalent corrosion resistance. Advice regarding the availability of proprietary types of flue system can be obtained by contacting **Ideal Heating**. All joints or connections in the flue system must be impervious to condensate leakage. A condensate collector is supplied as part of the flue assembly which must be installed directly into the flue connection of the heat exchanger. This ensures flue condensate is removed before entering the sump of the boiler.

Care should also be taken in the selection of flue terminals as these tend to accentuate the formation of a plume and could freeze in cold weather conditions.

Care should be taken to ensure the specification of the chimney is suitable for the application by reference to the manufacturers literature.

1.9 WATER CIRCULATION SYSTEM

A circulation pump **MUST** be connected to the boiler, see below.

The boiler must **NOT** be used for direct hot water supply. The hot water storage cylinder **MUST** be of the indirect type.

Single feed, indirect cylinders are not recommended and **MUST NOT** be used on sealed systems.

The appliances are **NOT** suitable for gravity central heating nor are they suitable for the provision of gravity domestic hot water.

The hot water cylinder and ancillary pipework, not forming part of the useful heating surface, should be lagged to prevent heat loss and any possible freezing - particularly where pipes run through roof spaces and ventilated underfloor spaces.

The boiler must be vented. There must be no low points between the boiler flow connection and a system vent point, which should be positioned as close as practically possible to the boiler flow connection.

Draining taps **MUST** be located in accessible positions, which permit the draining of the whole system - including the boiler and hot water storage vessel. They should be at least 1/2" BSP nominal size and be in accordance with BS. 2879. Do not use the boiler drain tap to drain the system as this can induce sludge into the heat exchanger.

The central heating system should be in accordance with the relevant standards listed on page 6.

Due to the compact nature of the boiler the heat stored within the castings at the point of shutdown of the burner must be dissipated into the water circuit in order to avoid overheating. In order to allow pump operation after burner shutdown the boiler control box incorporates a 5 minute pump overrun facility. In order to make use of this, a pump must be supplied from the terminals inside the boiler. Note: for pumps requiring greater than 1.0 amp current, they must be connected via a relay.

When sizing pumps, reference should be made to the Hydraulic Resistance Table on page 8 which show the boiler resistance against flow rates, to achieve the required temperature differential.

Water flow rates for common systems using either 11°C, 20°C or 30°C temperature differentials are given in the table below.

Boiler	Water flow rate temperature difference					
	11°C		20°C		30°C	
	l/s	m³/h	l/s	m³/h	l/s	m³/h
80/80P	1.78	6.41	0.98	3.53	0.65	2.34
120/120P	2.68	9.65	1.47	5.3	0.98	3.53
160/160P	3.57	12.85	1.96	7.06	1.31	4.72
200/200P	4.51	16.24	2.48	8.93	1.65	5.94
240/240P	5.42	19.51	2.98	10.73	1.98	7.13
280	6.32	22.75	3.47	12.49	2.31	8.32

Note.

- With the boiler firing at maximum rate, the temperature differential should not be less than 10°C. High flow rates required for lower temperature differentials could lead to erosion of the heat exchanger water ways
- With the boiler firing at minimum rate, the temperature differential should not be greater than 35°C. Lower flow rates generating higher temperature differentials will lead to lock out of the boiler

- The lower the return temperature to the boiler, the higher the efficiency. At return temperatures of 55°C and below, the difference becomes marked because the water in the flue gases starts to condense, releasing its latent heat

In installations where all radiators have been provided with thermostatic radiator valves, it is essential that water circulation through the boiler is guaranteed. A mixing header will perform this task. Alternatively this can be best achieved by means of a differential pressure valve, which is installed in a bypass between the flow and return pipes. The bypass should be fitted at least 6m from the boiler, and should be capable of allowing a minimum flow rate to achieve a temperature differential of no greater than 40°C at minimum rate.

1.10 WATER TREATMENT

These boilers incorporate an ALUMINIUM heat exchanger.

IMPORTANT. The application of any other treatment to this product may render the guarantee of **Ideal Heating** **INVALID**.

Ideal Heating recommend Water Treatment in accordance with Guidance Notes on Water Treatment in Central Heating Systems.

Ideal Heating recommend the use of Fernox Copal or MB1 or GE Betz Sentinel X100 inhibitors and associated water treatment products, which must be used in accordance with the manufacturers' instructions.

For further information contact:

Fernox Manufacturing Co. Ltd., Cookson Electronics,
Forsyth Road, Sheerwater, Woking, Surrey, GU21 5RZ
Tel: +44 (0) 1799 521133

or

G E Betz Ltd., Sentinel Division, Foundry Lane, Widnes,
Cheshire, WA8 8UD
Tel: +44 (0) 151 424 5351

Notes.

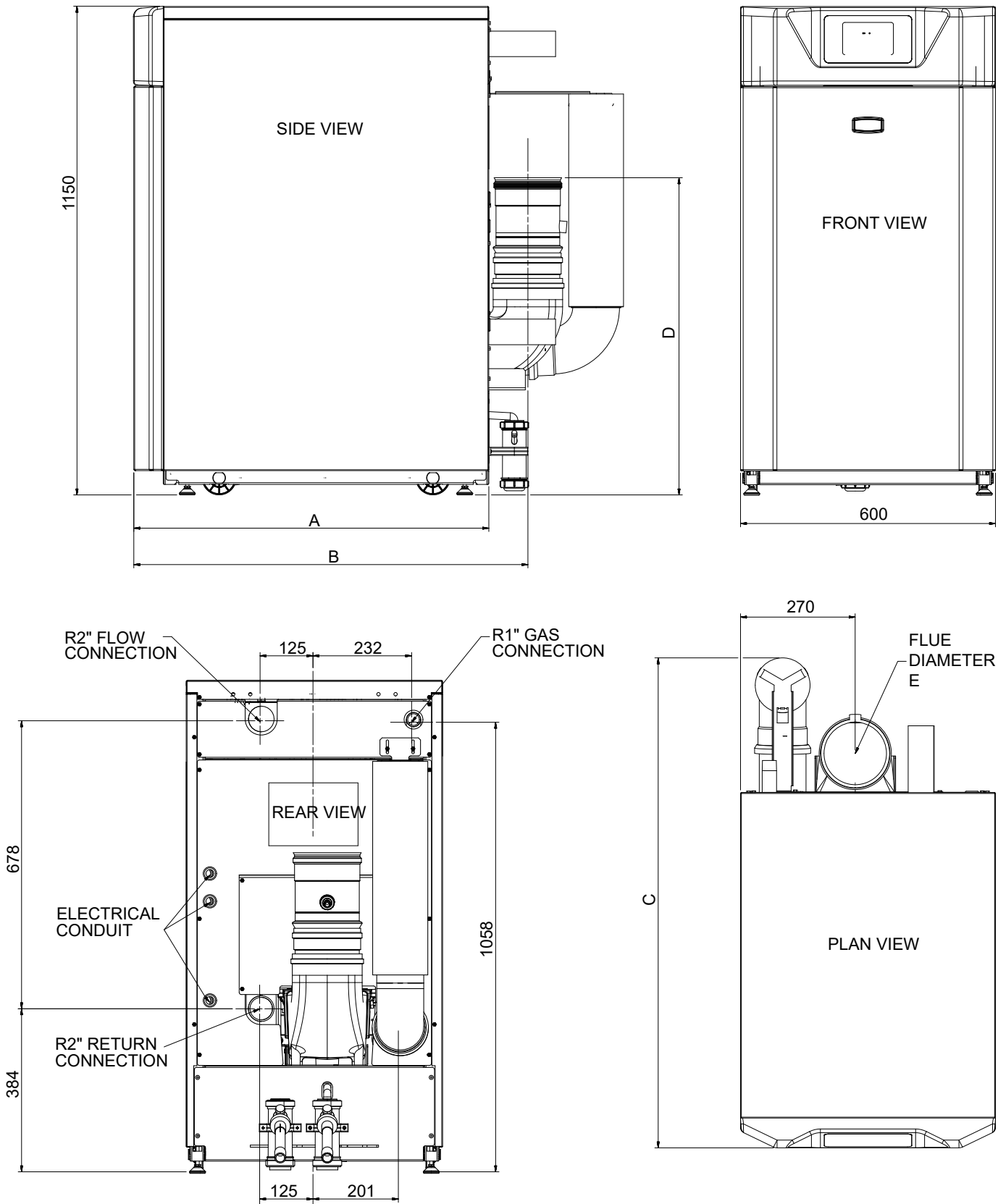
1. It is most important that the correct concentration of the water treatment products is maintained in accordance with the manufacturers' instructions.
2. If the boiler is installed in an existing system, any unsuitable additives **MUST** be removed by thorough cleansing.
3. In hard water areas, treatment to prevent limescale may be necessary - however the use of artificially softened water is **NOT** permitted.
4. Under no circumstances should the boiler be fired before the system has been thoroughly flushed.

HYDRAULIC RESISTANCE

Boiler	Pressure Drop (mbar)		
	@ 11°C	@ 20°C	@ 30°C
80/80P	264	80	36
120/120P	281	85	38
160/160P	297	90	40
200/200P	314	95	42
240/240P	330	100	44
280	347	105	47

1.11 BOILER DIMENSIONS AND CONNECTIONS

All dimensions shown in mm



	A	B	C	D	E
80kW	835	927	1152	747	150
120 - 160kW	835	927	1152	687	150
200 - 280kW	1087	1204	1405	685	200

SECTION 1 - GENERAL

1.12 ELECTRICAL SUPPLY

Wiring external to the appliance **MUST** be in accordance with the current I.E.T. (BS7671) Wiring Regulations and any local regulations which apply. For Ireland reference should be made to the current ETCI rules for electrical installations.

1.13 CONDENSATE DRAIN

A condensate drain is provided on the boiler. This drain must be connected to a drainage point on site. All pipework and fittings in the condensate drainage system **MUST** be made of plastic - no other materials may be used.

IMPORTANT. Any external runs must be insulated to avoid freezing in cold weather causing blocking.

1.14 BOILER CLEARANCES

The minimum dimensions as indicated, must be respected to ensure good access around the boiler.

Recommended minimum clearances are as follows.

Rear:

700mm or adequate space from the rear of the jacket, to make the flue connections and access to the flue sample point, drain connection, flue and any safety or control devices.

Note:- The installer should provide reasonable clearance to the rear of the boiler to allow for servicing and maintenance activities to be completed in a safe manner.

Left Side:

150mm

Right Side:

150mm

Front:

600mm minimum and 1000mm maximum; except, access doors may be closer, but not less than 200mm and 600mm must still be available for service across the width of the boiler.

Top: 500mm.

Note: Refer to cascade manuals for boilers, header kits and multiple boiler installation clearances.

1.15 VENTILATION

The ventilation requirements of these boilers are dependant on the type of flue system used, and their heat input. All vents must be permanent with no means of closing, and positioned to avoid accidental obstructions by blocking or flooding.

Detail reference should be made to BS. 6644 for inputs between 70kW and 1.8MW (net). In IE refer to the current edition of I.S.820. The following notes are for general guidance only:

Dust contamination in the combustion air may cause blockage of the burner slots. An air inlet filter is provided to protect the burner from debris, but when exposed to excessive dust this will need regular cleaning.

IMPORTANT NOTE.

Ensure blue air inlet cap is removed before first ignition or before connection to the air inlet ducting (as shown).

If combustion air is drawn from within the boiler room, ensure no dust or airborne debris can be ingested into the appliance. Dusty concrete flooring should be sealed to reduce the presence of dust.

The temperature within a boiler room shall not exceed 25°C within 100mm of the floor, 32°C at mid height and 40°C within 100mm of the ceiling.

Open Flued Installations

If ventilation is to be provided by means of permanent high and low vents communicating direct with outside air, then reference can be made to the sizes below. For other ventilation options refer to BS. 6644. In IE refer to the current edition of I.S.820.

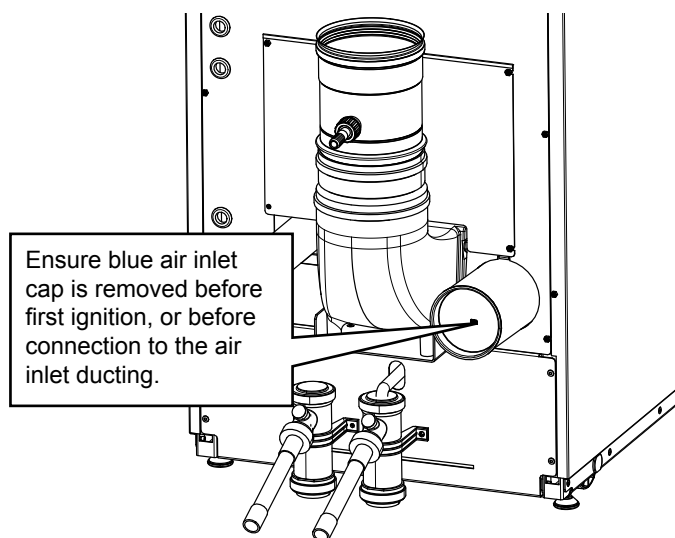
Required area (cm²) per kW of total rated input (net)

	Boiler Room	Enclosure
Low level (inlet)	4	10
High level (outlet)	2	5

Note: Where a boiler installation is to operate in summer months (e.g. DHW) additional ventilation requirements are stated, if operating for more than 50% of time (refer to BS6644).

Room Sealed Installations

A minimum of 2cm² free area per kW of net heat input at both high and low level is required for boiler rooms. For enclosures refer to BS6644.



1.16 OPEN VENTED SYSTEM REQUIREMENTS

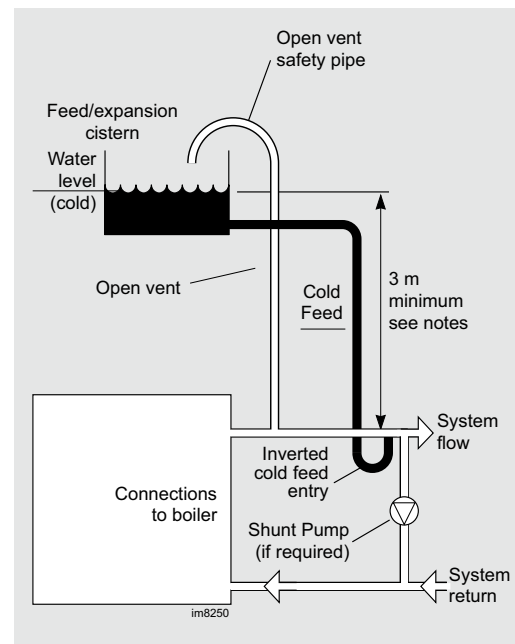
Detailed reference should be made to the appropriate standards listed on page 6.

The information and guidance given below is not intended to override any requirements of the above publications or the requirements of the local authority, gas or water undertakings.

The vertical distance between the pump and feed/expansion cistern **MUST** comply with the pump manufacturer's minimum requirements, to avoid cavitation. Should these conditions not apply either lower the pump position or raise the cistern above the minimum requirement specified by **Ideal Heating**. The isolation valves should be fitted as close to the pump as possible.

The information provided is based on the following assumptions:

1. An independent open vent/safety pipe connection is made immediately after the system flow pipe connection.
2. An independent cold feed/expansion pipe connection is made immediately after the open vent/safety pipe connection.
3. The maximum flow rate through the boiler is based on a temperature difference of 11°C at full boiler output.
4. The boiler is at the highest point of circulation in the system. Systems designed to rise above the boiler flow tappings will automatically require a minimum static head higher than that shown.
5. The position of the open vent/safety pipe above the expansion cistern water level is given as a guide only. The final position will depend upon the particular characteristics of the system. Pumping over of water into the expansion cistern must be avoided.
6. Both open vent/safety pipe and cold feed/expansion pipes must be of adequate diameter to suit the output of the boiler. Refer to Tables below.



Note.

- With a cold feed head of <8m, the pump must be fitted on the return to the boiler
- This diagram does not show safety valves, water flow switches, etc. necessary for the safe operation of the system

Open Vent Pipe Sizes

Rated Output kW	Minimum Bore mm	Nominal Size (DN) in
61 to 150	32	1 1/4
151 to 300	38	1 1/2

Steel pipe sizes complying with medium or heavy quality or BS1387.

Cold Feed Pipe Sizes

Rated Output kW	Minimum Bore mm	Nominal Size (DN) in
60 to 150	25	1
151 to 300	32	1 1/4

Steel pipe sizes complying with medium or heavy quality or BS1387.

Note. Refer to Frame 2.14 to 2.21 for typical system arrangements.

1.17 SEALED SYSTEM REQUIREMENTS

Working pressure 6 bar maximum.

Particular reference should be made to BS. 6644 and Guidance note PM5 "Automatically Controlled Steam and Hot Water Boilers" published by the Health and Safety Executive.

The information and guidance given below is not intended to override any requirements of either of the above publications or the requirements of the local authority, gas or water undertakings.

In general, commercial closed pressurised systems are provided with either manual or automatic water make up.

In both instances it will be necessary to fit automatic controls intended to protect the boiler, circulating system and ancillary equipment by shutting down the boiler plant if a potentially hazardous situation should arise.

Examples of such situations are low water level and operating pressure or excessive pressure within the system. Depending on circumstances, controls will need to be either manually or automatically reset. In the event of a shutdown both visual and audible alarms may be necessary.

Expansion vessels used must comply with BS. 4814 and must be sized on the basis of the total system volume and initial charge pressure.

Initial minimum charge pressure should not be less than 0.5bar (7.2psi) and must take account of the static head and specification of the pressurising equipment. The maximum water temperatures permissible at the point of minimum pressure in the system are specified in Guidance Note PM5.

When make up water is not provided automatically it will be necessary to fit controls which shut down the plant in the event of the maximum system pressure approaching to within 0.35bar (5psi) of the safety valve setting.

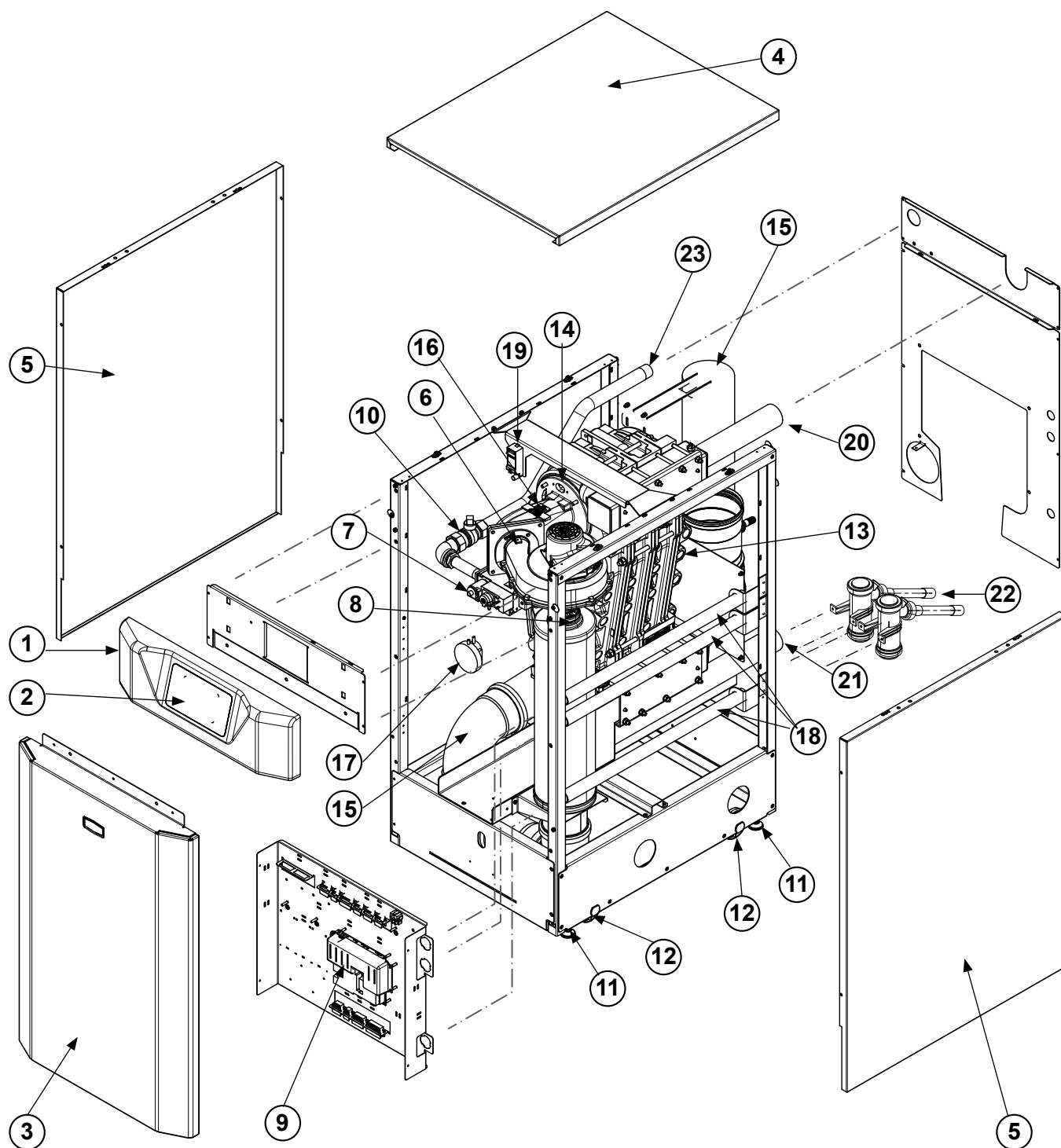
Other British Standards applicable to commercial sealed systems are:

- BS. 6880: Part 2
- BS. 1212
- BS. 6281: Part 1
- BS. 6282: Part 1
- BS. 6283: Part 4

SECTION 2 - INSTALLATION

2. INSTALLATION

2.1 BOILER ASSEMBLY - Exploded View (120 shown)



Legend

- | | | |
|-------------------------|---------------------|--------------------------|
| 1. Control Fascia Panel | 9. Control Module | 17. Air Pressure Switch |
| 2. HMI Touchscreen | 10. Union Gas Cock | 18. Cable Conduit |
| 3. Casing Front Panel | 11. Levelling Feet | 19. Ignition / Detection |
| 4. Casing Top Panel | 12. Wheels | 20. Manifold - Flow |
| 5. Casing Side Panel | 13. Heat Exchanger | 21. Manifold - Return |
| 6. Fan | 14. Sightglass | 22. Condensate Traps |
| 7. Gas Valve | 15. Air Inlet | 23. Gas Connection |
| 8. Venturi | 16. Burner Manifold | |

SECTION 2 - INSTALLATION

2.2 PACKAGING REMOVAL / REMOVAL FROM PALLET / LOCATING AND LEVELLING

The boiler is delivered assembled and protected by a cardboard packaging sleeve and fittings and fixed on a wooden base.

The packaged boiler will pass through a 800mm wide opening and unpacked boiler through a 700mm wide opening.

To unpack the boiler:

- Carefully remove the straps and lift off the sleeve and pad when ready for installation.
- Remove the accessories (hardware kit box, air inlet elbow, filter cage assembly) and protective cardboard end fittings.
- Safely and responsibly dispose of all packaging materials.

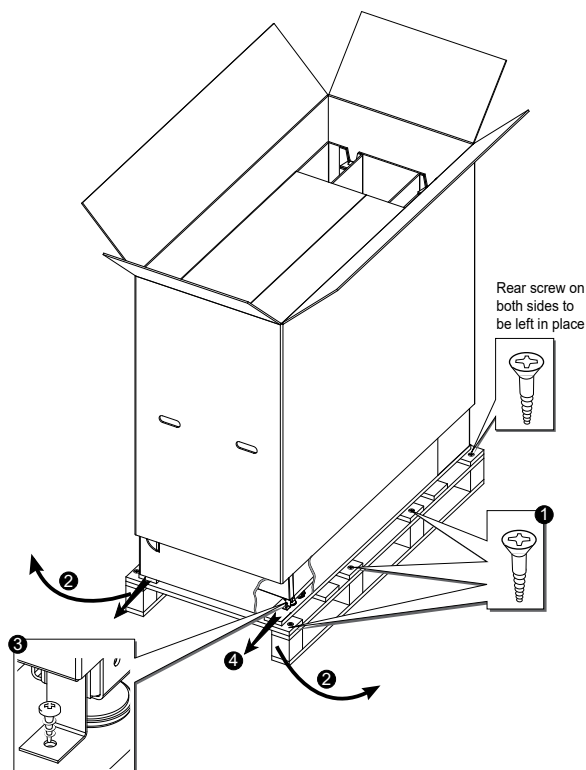
To remove the boiler from base (with reference to diagram on right):

1. Remove the three front screws on both sides leaving the rear two screws in place
2. Rotate bottom two battens outwards allowing the front of the base to rest on the floor
3. Remove 4 screws and the retaining brackets
4. Slide the boiler off the base

Adjust levelling feet fully up so that boiler is sat on the wheels to allow final positioning.

At final location, adjust the height of the feet as necessary so boiler is not sat on the wheels.

Safely and responsibly dispose of the base.



2.3 FLUE / AIR DUCT INSTALLATION

FLUE

A flue sampling point should be provided in the flue system.

When fitting the condensate collector to the flue socket, take care not to disturb the lip seal which must be present.

The flue should then be inserted into the condensate collector and be supported in such a way as to not place a load on the flue socket.

IMPORTANT NOTE.

The condensate collector must be fitted to the sump and attached to the condensate trap in all installations to comply with CE Certification.

AIR DUCT

Combustion air can be drawn either from outside or from the boiler room. When combustion air is drawn directly from the boiler room, the air inlet filter kit provided must be used.

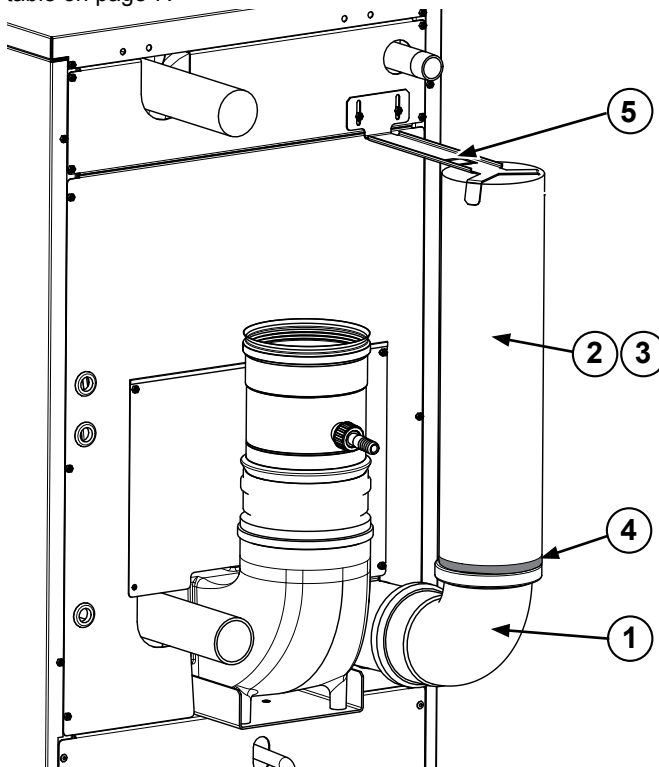
To draw air direct from outside, use any proprietary 110mm soil/drain pipe. The air duct should be terminated with a suitable fixed grille to prevent entry of vermin. This terminal should be positioned as such to avoid blockages or entry of water.

Where ducting the air from outside is not practical, it can be drawn from the boiler room by assembling the air inlet filter as follows into the configuration shown.

1. Fit the 93° elbow onto the air inlet pipe
2. Fit the filter cage assembly onto the 93° elbow.
3. Fit the filter over the filter cage assembly and ensure that it is pulled all the way down.
4. Secure the filter using the velcro strap as shown.

5. Fit the filter bracket using the 2 off bolts provided.

With this kit fitted the maximum straight flue length available and maximum pressure available at the base of the flue to overcome flue resistance will change, refer to the appropriate table on page 7.



2.4 CONDENSATE DRAIN

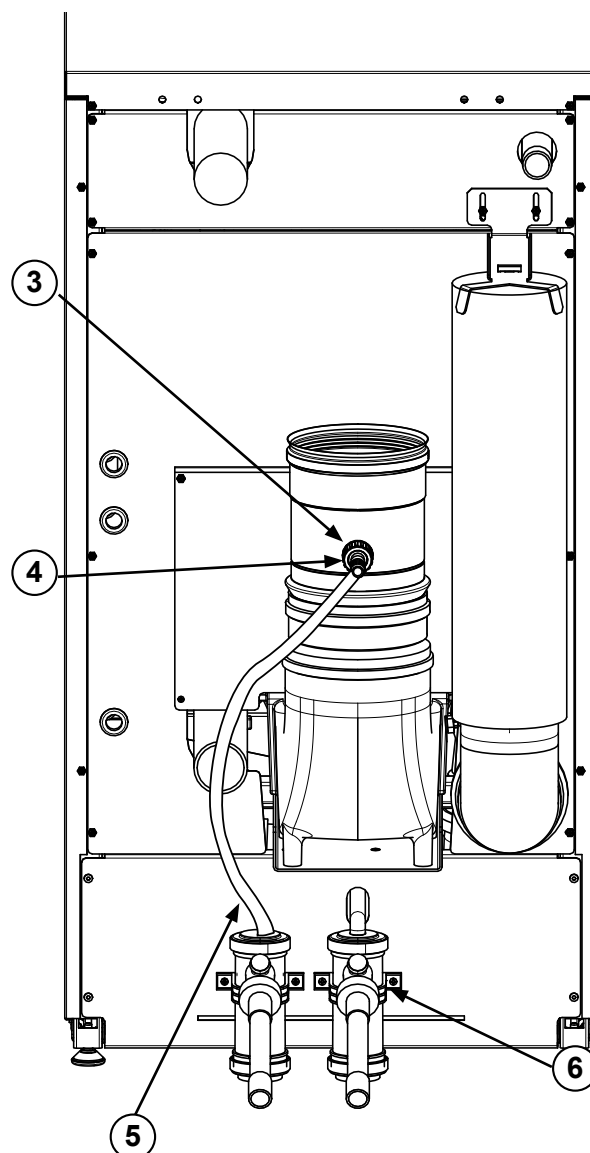
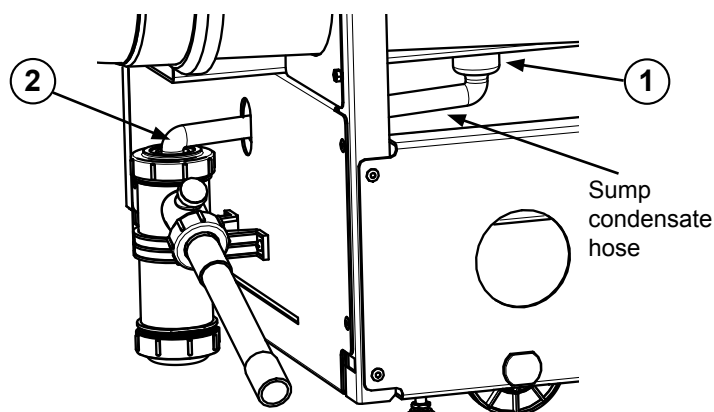
The two condensate drains must be connected to the drain points at the sump outlets and the flue condensate collector outlet. The condensate drain outlet must be connected to a drainage point, preferably within the building.

1. Ensure the sump condensate hose is fully pushed onto the sump outlet pipe underneath the boiler.
2. Ensure the sump condensate hose is fully located onto the right hand condensate trap when looking at the rear of the boiler.
3. Screw the hose adapter onto the threaded outlet of the flue condensate collector.
4. Ensure the flue condensate hose is fully pushed onto the hose adapter.
5. Ensure the flue condensate hose is fully pushed onto the left hand condensate trap when looking at the rear of the boiler.
6. The two condensate traps must be secured at the rear of the boiler using the 4 screws provided.

IMPORTANT. Any external runs must be kept to a minimum and insulated. This is to avoid freezing in cold weather causing blocking.

All pipework and fittings in the condensate drainage system **MUST** be compatible with condensate. Refer to either BS 6644:2011 or the Building Regulations for materials that should be used.

The pipe size from the condensate outlet connector is 21.5mm. The routing of the drain must be made to allow a minimum fall of 1 in 20 away from the boiler throughout its length.



Flue condensate hose

Ensure adequate clearance is available for installing the loose supplied items, or ensure they are installed before the boiler is finally positioned.

2.5 BOILER WATER CONNECTIONS

The boiler flow and return pipes are terminated with 2" BSP male taper threads at the rear of the appliance. Water returning from the system should be connected to the lower pipe, with the flow water connection coming from the top pipe.

Refer to Frame 1.11.

Plastic plugs fitted on the open ends of the flow and return pipes must be removed before connecting the system pipework.

An air vent must be provided immediately after the flow connection.

If installing the boiler onto an existing system it is strongly recommended that the system be thoroughly flushed before connecting the boiler.

When connecting to a new system, it is still important to flush the whole system in accordance with the relevant standards.

SECTION 2 - INSTALLATION

2.6 FROST PROTECTION

The boiler has built into its control system the facility to protect the boiler against freezing.

If the boiler flow temperature falls below 5°C the boiler pump and burner will run until the temperature is 15°C.

Central heating systems fitted wholly inside the building do not normally require frost protections as the building acts as a

'storage heater' and can normally be left at least 24 hours without frost damage. However, if parts of the pipework run outside the building or if the boiler will be left off for more than a day or so, then a frost thermostat should be wired into the system, using the Switched Live 1 installation connection point. Refer to frame 2.13.

2.7 GAS CONNETIONS

The boiler gas supply pipe is terminated in a 1" BSP male taper connection on the left-hand side of the appliance.

A minimum working gas pressure of 15mbar (6" w.g.) for Natural Gas and 32mbar for Propane must be available at the boiler inlet with the boiler firing.

Fit a gas supply pipe NOT LESS THAN 1"BSP to the boiler.

2.8 ELECTRICAL CONNECTIONS

Warning. This appliance MUST be efficiently earthed.

A mains supply of 230V 50Hz is required. The supply wiring MUST be suitable for mains voltage. Wiring should be 3 core PVC insulated cable NOT LESS than 0.75mm² (24 x 0.2 mm) and to BS. 6500, Table 16. The fuse rating should be 13A.

Wiring external to the boiler MUST be in accordance with the current I.E.T. (BS7671) Wiring Regulations and any local regulations. For Ireland, reference should be made to the current ETCI rules for electrical installations.

Connection should be made in a way that allows complete isolation of the electrical supply - such as a double pole switch, having a 3mm contact separation in both poles, or a plug and unswitched socket serving only the boiler and system controls. The means of isolation must be accessible to the user after installation.

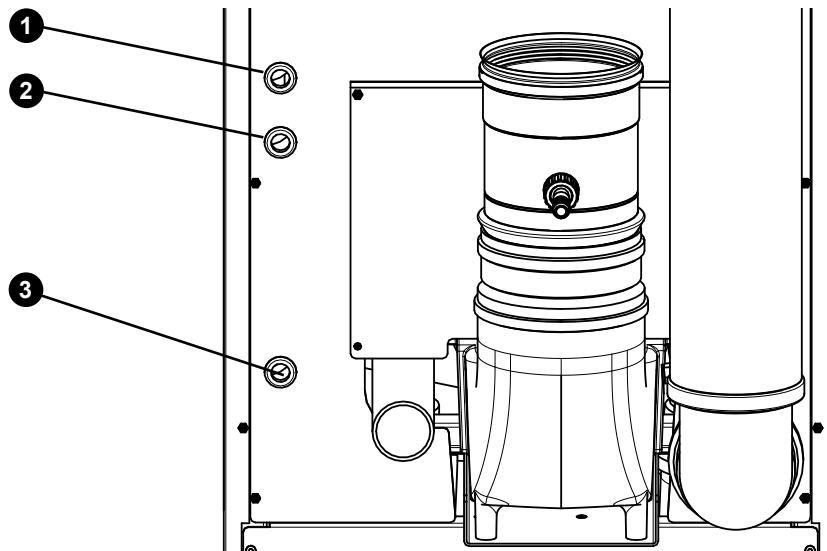
EXTERNAL WIRING

External wiring MUST be in accordance with the current I.E.T (BS7671) Wiring Regulations. For Ireland reference should be made to the current ETCI rules for electrical installations. The appliance must be wired with a permanent live supply.

2.9 INSTALLING THE MAINS AND CONTROL WIRING

1. Route the mains supply in at the rear, through the top conduit.
2. Route any high voltage cables through the middle conduit.
3. Route any Low voltage cables such as sensor cables through the bottom conduit.
4. Refer to Frame 3.7 for casing and control pod removal.
5. Secure the cables with the cable clamps provided in the controls box.
6. Cable connectors have been provided and are to be utilised for all cable connections within the controls box.

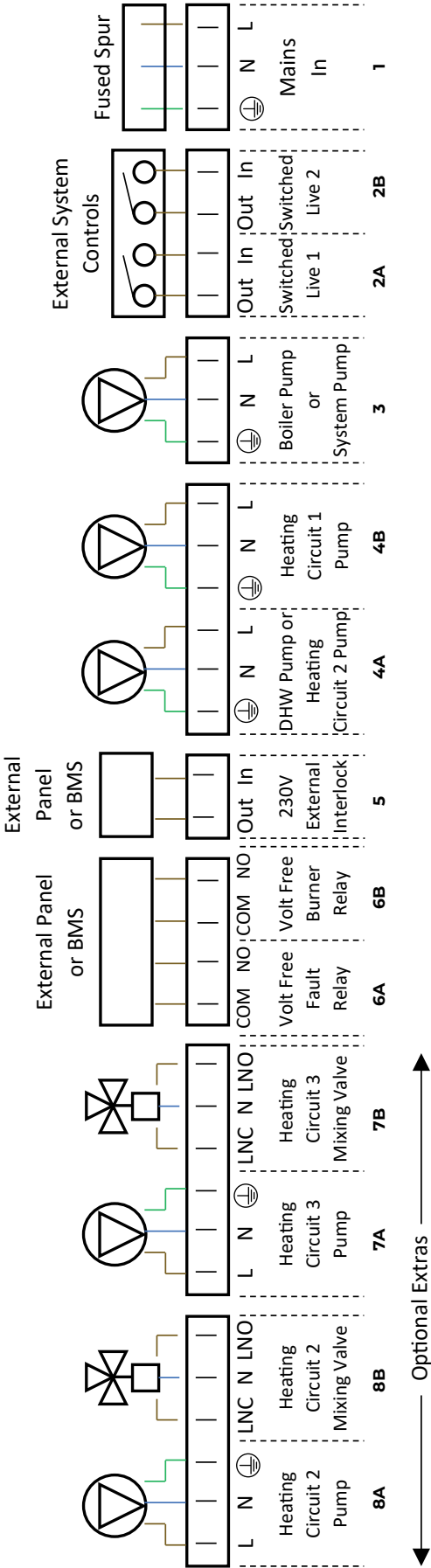
Note. Grommets 1 / 2 / 3 may be removed by the installer to allow installation of cable glands (not supplied)



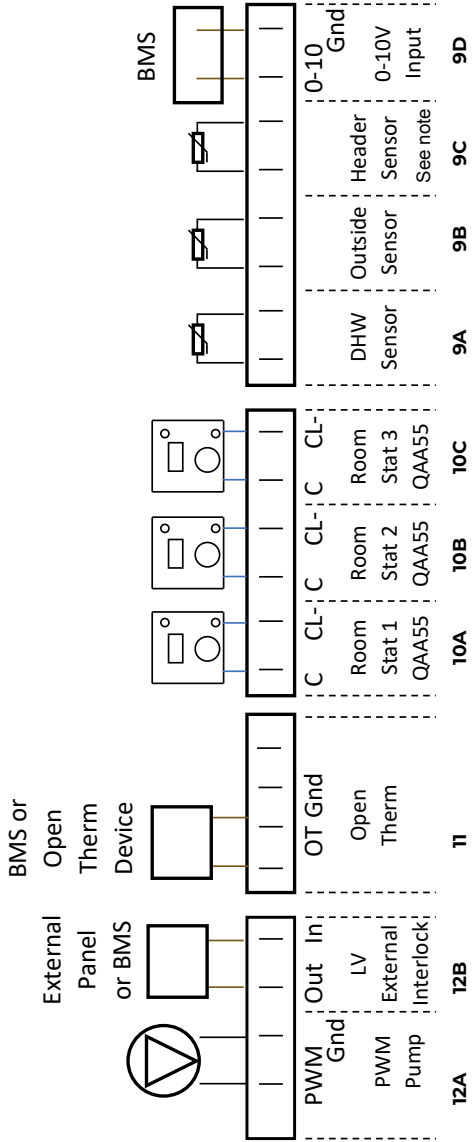
SECTION 2 - INSTALLATION

2.10 INSTALLER CONNECTIONS

240V and Volt Free Connections



Low Voltage Connections



Note. Header sensor: this must be installed to sense the flow temperature on the **secondary side** of any hydraulic separation (low loss header, magnetic low loss header or plate heat exchanger)

2.11 HEAT CONTROL

It is possible to configure the boiler to provide heat in 1 of 4 methods.

1. Switched Live

When 230V is supplied to the Switched Live 1 connection, the boiler will run and maintain either the flow temperature set on the user interface or a flow temperature determined by an Outside Sensor.

2. 0-10V Input

When >0.15V is supplied to the 0-10V Input connection then the boiler will run and maintain either a flow temperature, or capacity output, determined by the voltage level and the defined range for the control method.

3. OpenTherm

When OpenTherm is supplied to the OpenTherm connection then the boiler will run and maintain either a flow temperature or an output determined by the OpenTherm signal.

4. Internal Boiler Control

When the Internal Boiler Control timer indicates that heat is required, then the boiler will run and maintain either the flow temperature set on the user interface or a flow temperature determined by an Outside Sensor.

It is preferable that the boiler circulating pump is controlled by the boiler either from the 240V Boiler/System pump output or by the PWM pump output or by the 0-10V pump output (from an optional extra).

Note. Pumps mounted behind the boilers will require extension of the wiring to allow termination to the relevant electrical connections within the boiler!

If a pump is to be controlled by switching its 230V power supply on and off and the electrical current draw is 0.8A or less, then the pump can be connected directly into the Boiler/System Pump, DHW /Heating Circuit 2 Pump or CH Circuit 1 connections. Otherwise an external relay controlled by the appropriate boiler pump output must be used.

For the Imax Xtra 2 80kW and 120kW, it is recommended to use the Grundfos UPML Pump as the boiler pump. This needs to either be controlled by the Boiler/System Pump Connection, for On/Off Control direct from the boiler, or supplied with a permanent live supply on the same phase as the boiler and controlled by the PWM Pump Connection, for Modulation Control.

For the Imax Xtra 2 160kW, it is recommended to use the Grundfos UPMXXL Pump as the boiler pump. This needs to either be operated by an external relay, controlled by the Boiler/System Pump Connection, or supplied with a permanent live supply on the same phase as the boiler and controlled by the PWM Pump Connection, for Modulation Control.

For the Imax Xtra 2 200kW, 240kW and 280kW, it is recommended to use the Grundfos Magna 3 Pump as the boiler pump. This needs to either be operated by an external relay, controlled by the Boiler/System Pump Connection, or supplied with a permanent live supply on the same phase as the boiler and controlled by the 0-10V Pump Connection (which requires the optional extra 0-10V Pump Kit), for Modulation Control.

If the boiler circulating pump is not controlled by the boiler then the boiler circulating pump **MUST** be set to a minimum of 2 minutes.

Failure to do so may invalidate the boiler warranty.

2.12 HOT WATER CONTROL

HOT WATER CONTROL

It is possible to configure the boiler to provide hot water in 1 of 3 methods.

1. Switched Live

When 230V is supplied to the Switched Live 2 connection the boiler will run and maintain flow temperature to a hot water cylinder.

2. OpenTherm

When an OpenTherm DHW demand is supplied to the OpenTherm connection then the boiler will run and maintain flow temperature to a hot water cylinder.

In OpenTherm mode the cylinder temperature can be controlled by either a Thermostat or a Sensor (provided as an optional extra).

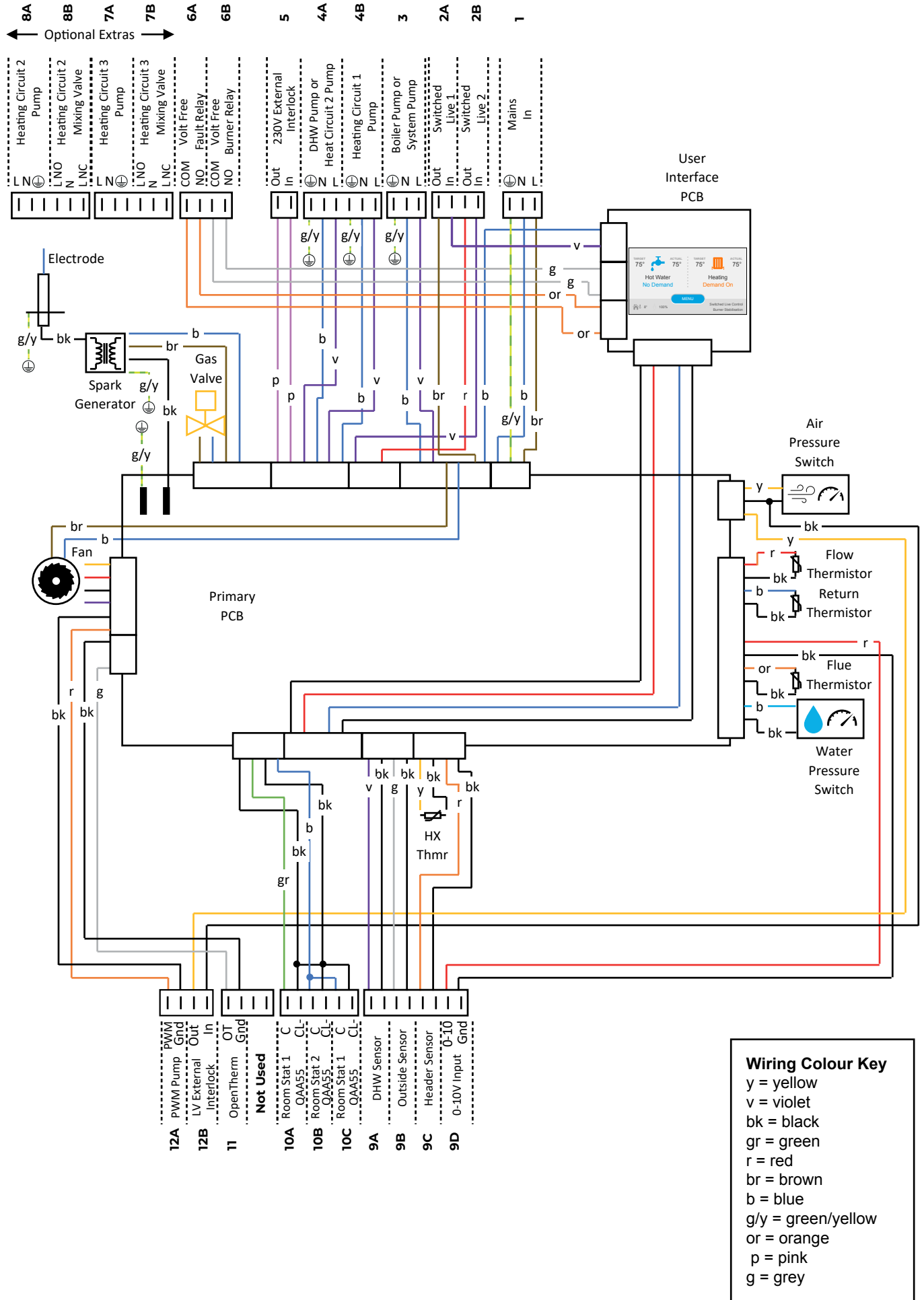
3. Internal Boiler Control

When the Internal Boiler Control DHW timer indicates that heat is required then the boiler will run and maintain flow temperature to a hot water cylinder.

In IBC mode the cylinder temperature can be controlled by either a Thermostat or a Sensor (provided as an optional extra).

SECTION 2 - INSTALLATION

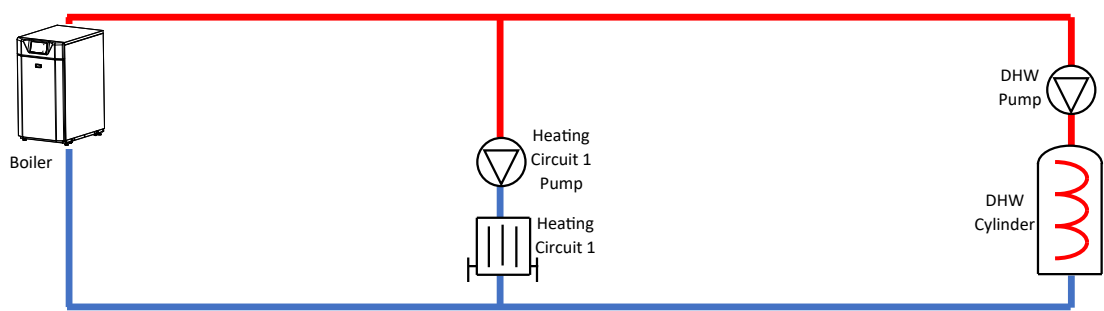
2.13 PICTORIAL WIRING DIAGRAM



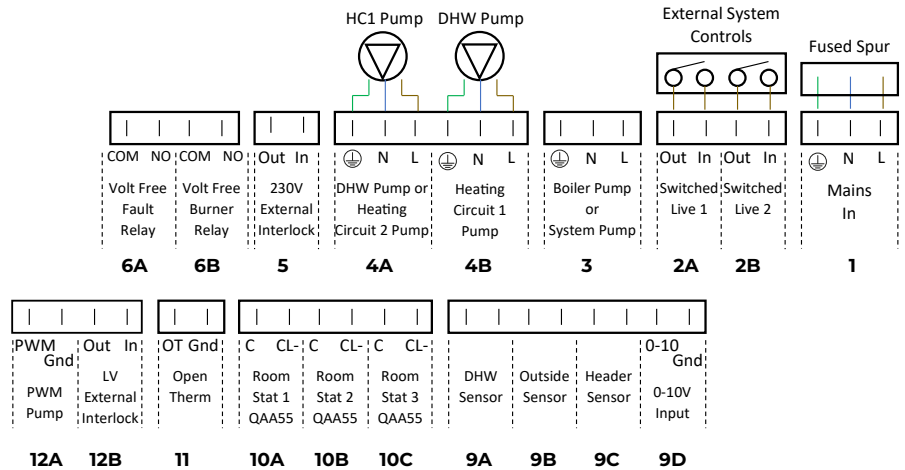
SECTION 2 - INSTALLATION

2.14 HYDRAULIC DIAGRAMS, SWITCHED LIVE (AND BASIC PRE-CONFIG)

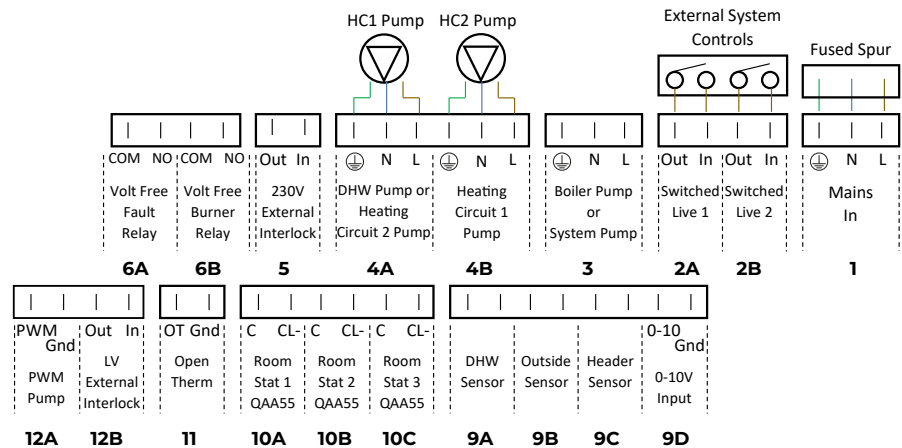
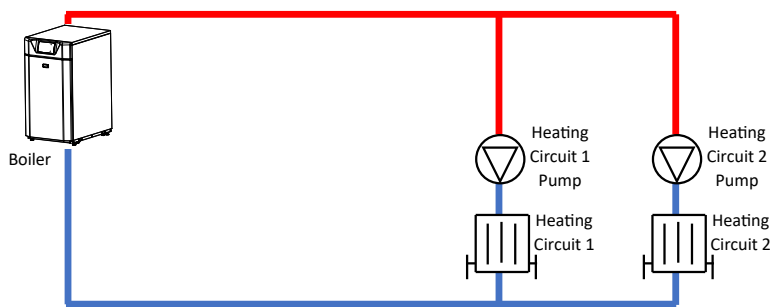
Switched Live, Single Boiler, 1 CH Pump (Constant Temperature Circuit) & 1 DHW Pump



This diagram and associated wiring also applies to boilers that are configured using the Basic Pre-Config option.



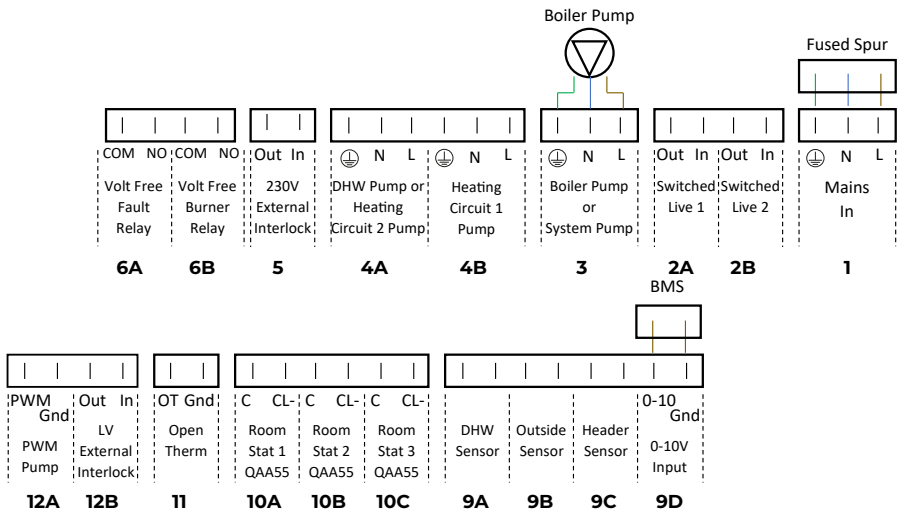
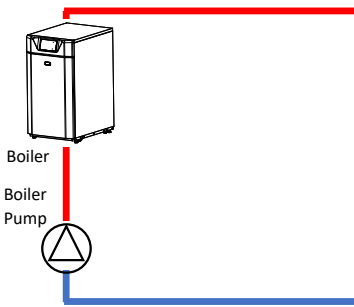
Switched Live, Single Boiler, 2 CH Pumps (2 Constant Temperature Circuits)



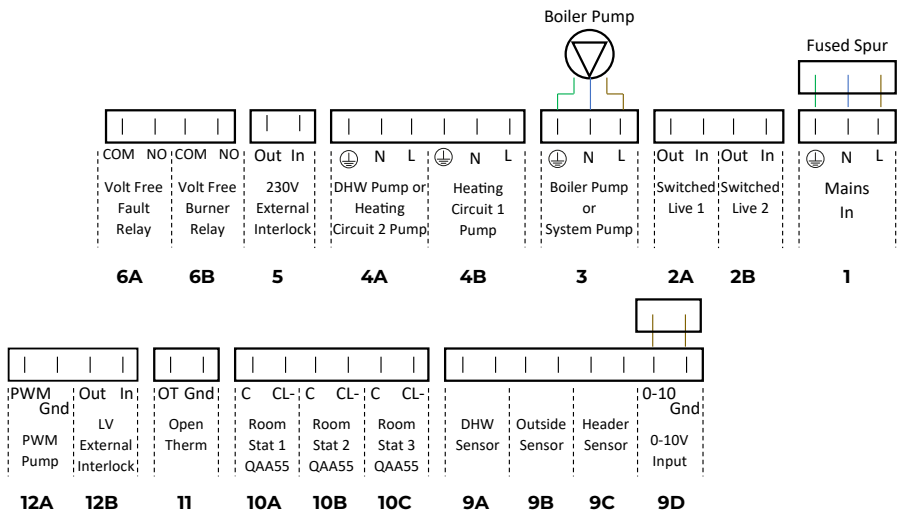
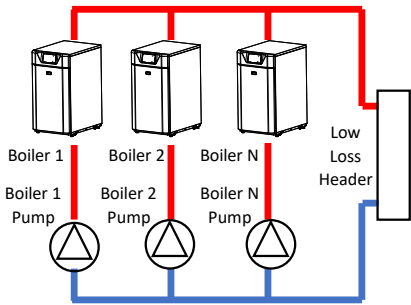
SECTION 2 - INSTALLATION

2.15 HYDRAULIC DIAGRAMS, 0-10V

Single Boiler, Boiler Pump

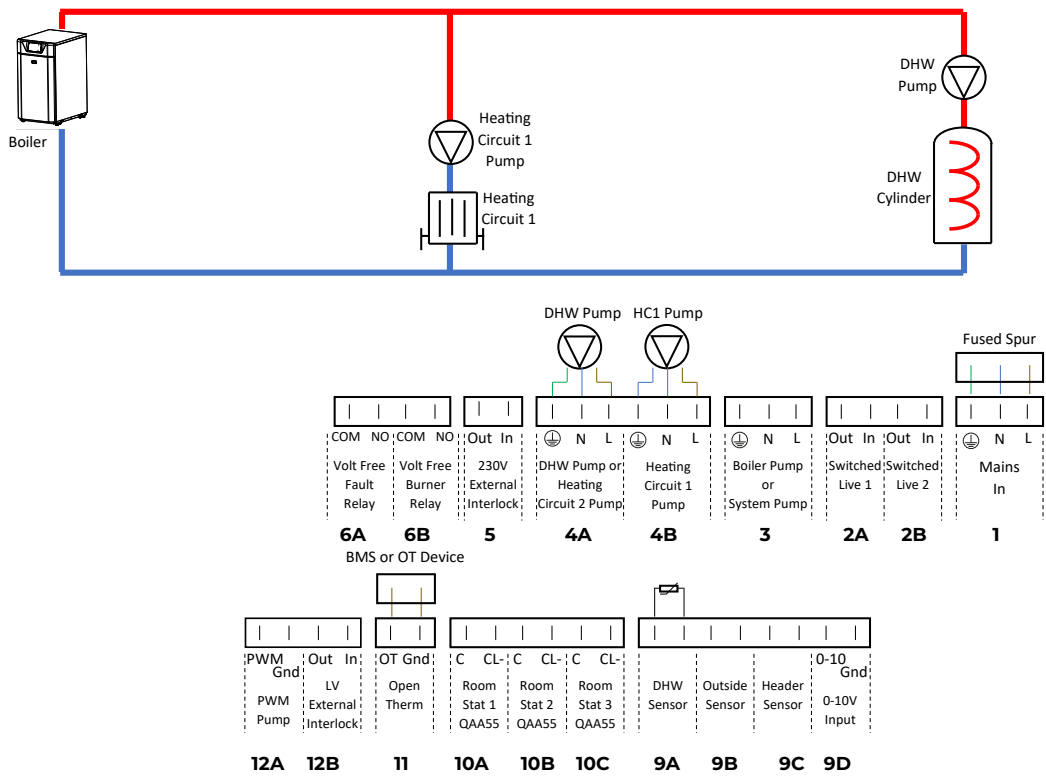


Cascade, Boiler Pump



2.16 HYDRAULIC DIAGRAMS, OPENTHERM

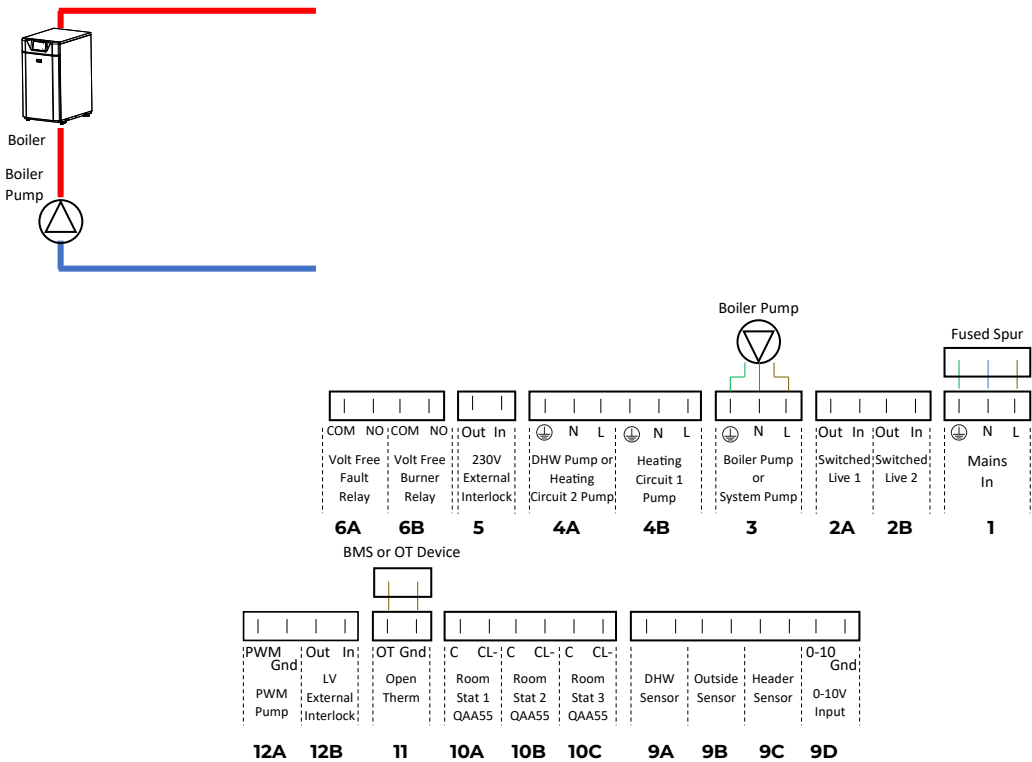
OpenTherm, Single Boiler, 1 CH Pump (Constant Temperature Circuit) & DHW Pump



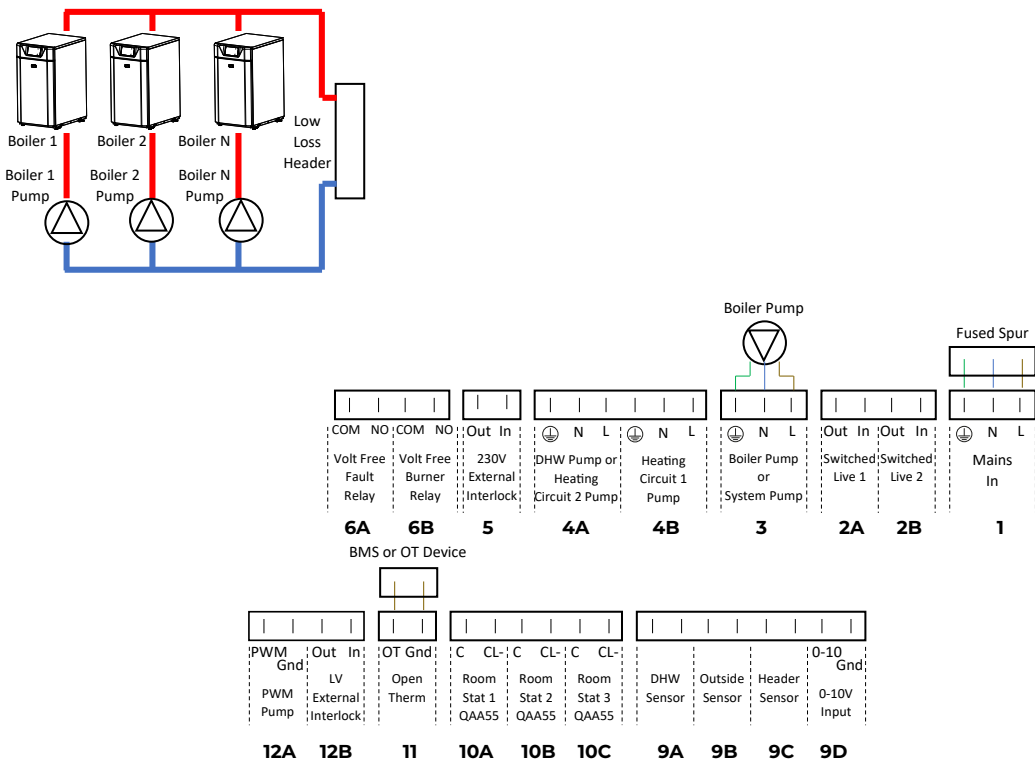
SECTION 2 - INSTALLATION

2.17 HYDRAULIC DIAGRAMS, OPENTHERM Continued

Imax Xtra 2 Configuration: OpenTherm, Single Boiler, Boiler Pump



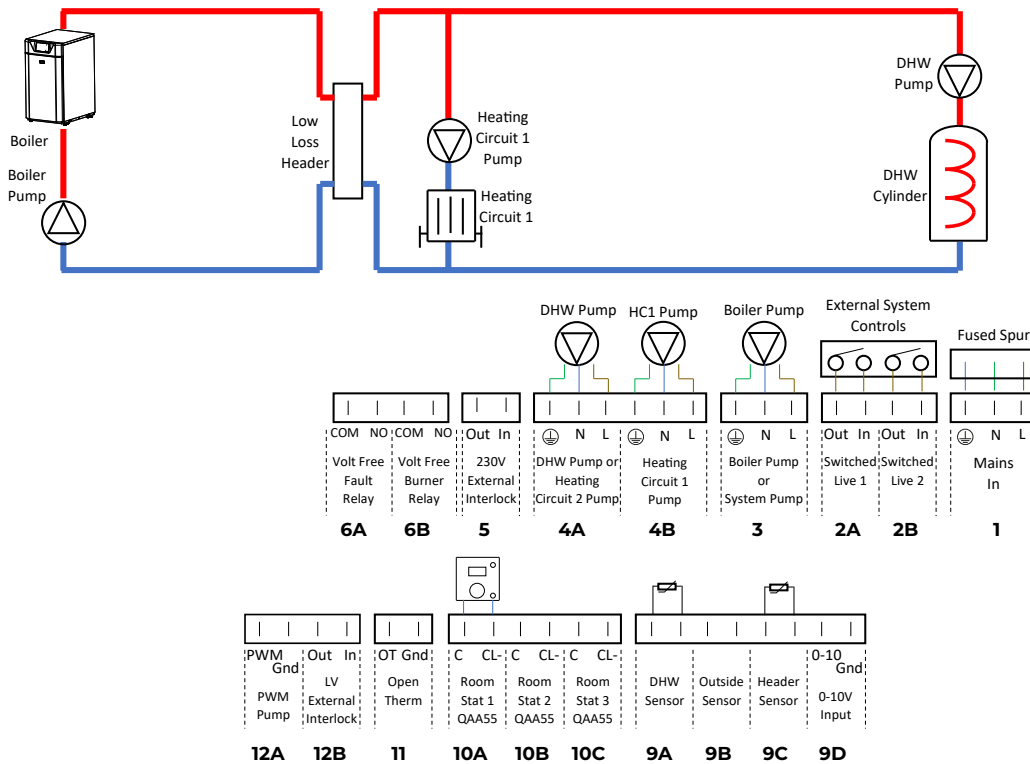
Imax Xtra 2 Configuration: OpenTherm, Cascade, Boiler Pump



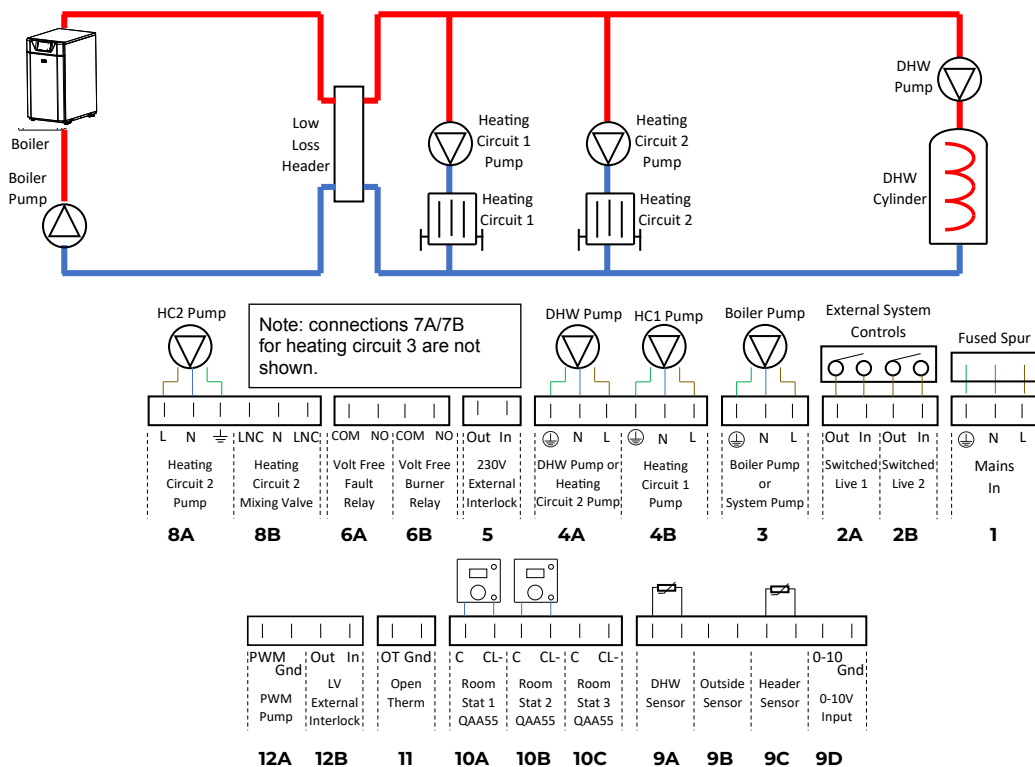
SECTION 2 - INSTALLATION

2.18 HYDRAULIC DIAGRAMS, INTERNAL BOILER CONTROL, SINGLE BOILER

Internal Boiler Control, Single Boiler, Boiler Pump, 1 CH Pump (Constant Temperature) & DHW Pump



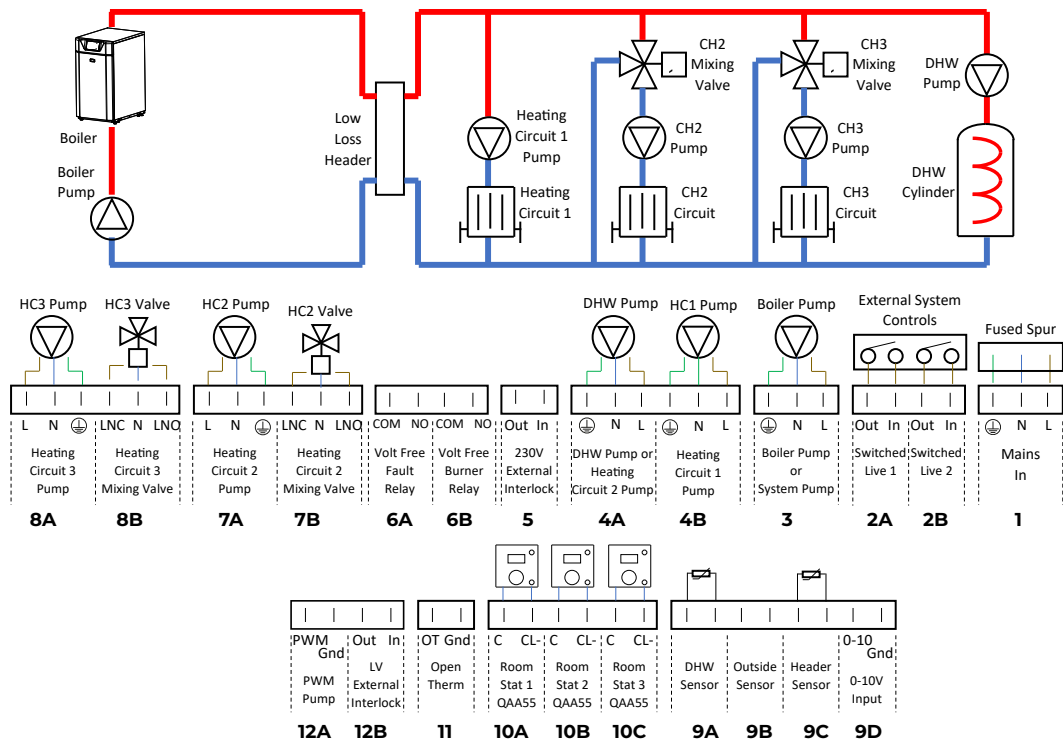
Internal Boiler Control, Single Boiler, Boiler Pump & 2 CH Pumps (2 Constant Temperature Circuits)



SECTION 2 - INSTALLATION

2.19 HYDRAULIC DIAGRAMS, INTERNAL BOILER CONTROL, SINGLE BOILER

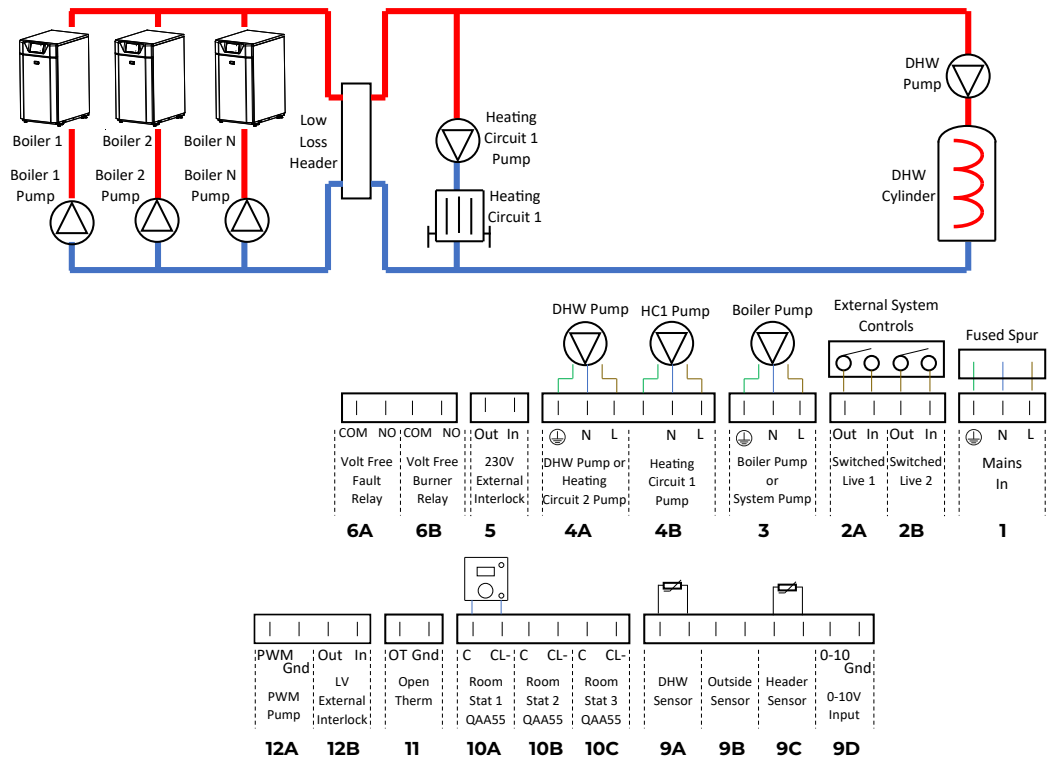
Internal Boiler Control, Single Boiler, Boiler Pump, 3 CH Pumps (1 Constant, 2 Variable) & DHW Pump



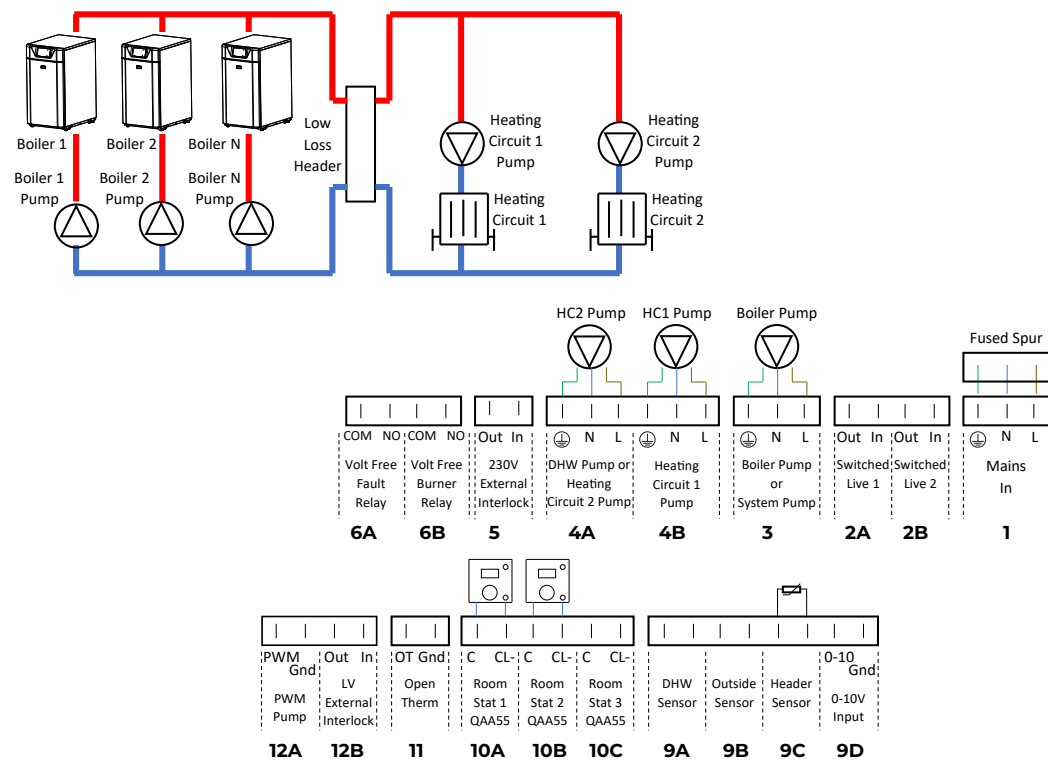
Please refer to document UIN 226210 Dual Additional Heat Zone Kit Instructions for details on how to install the mixing circuit temperature sensors

2.20 HYDRAULIC DIAGRAMS, INTERNAL BOILER CONTROL, CASCADE

Internal Boiler Control, Cascade, Boiler Pump, 1 CH Pump (Constant Temperature Circuit) & DHW Pump



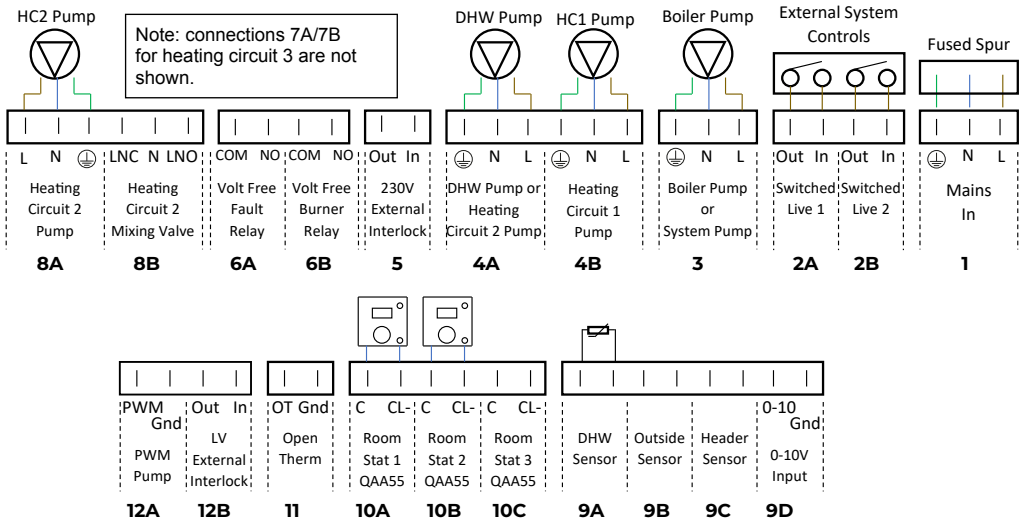
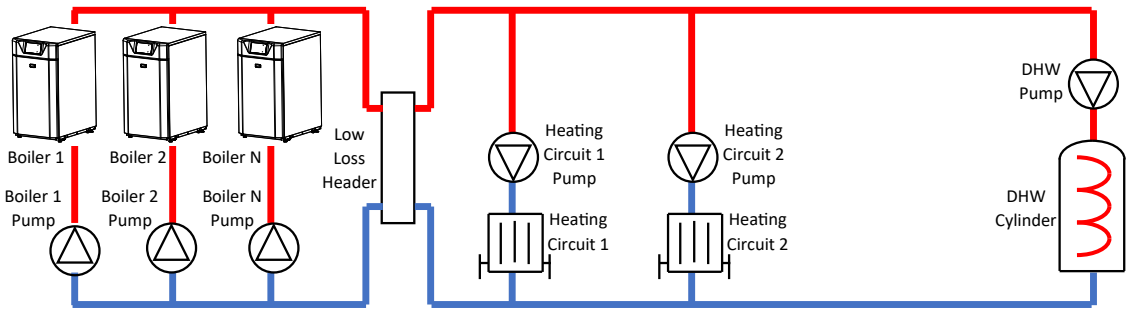
Internal Boiler Control, Cascade, Boiler Pump & 2 CH Pumps (2 Constant Temperature Circuits)



SECTION 2 - INSTALLATION

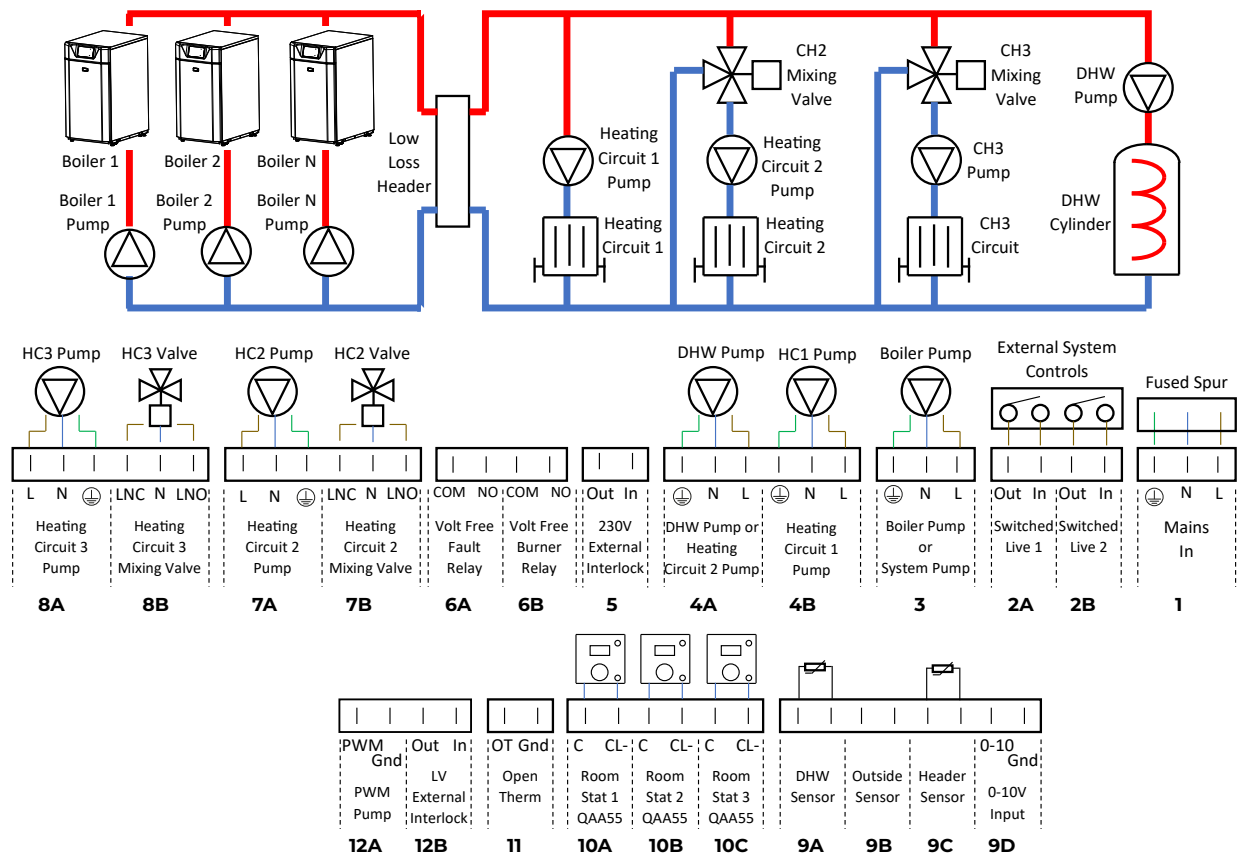
2.21 HYDRAULIC DIAGRAMS, INTERNAL BOILER CONTROL, CASCADE Continued

Internal Boiler Control, Cascade, Boiler Pump, 2 CH Pumps (Constant Temperature Circuits) & DHW Pump



SECTION 2 - INSTALLATION

Internal Boiler Control, Cascade, Boiler Pump, 3 CH Pumps (1 Constant Temp, 2 Variable) & DHW Pump



Please refer to document UIN 226210 Dual Additional Heat Zone Kit Instructions for details on how to install the mixing circuit temperature sensors

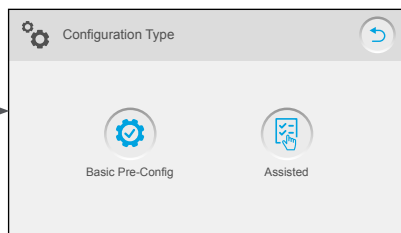
SECTION 2 - INSTALLATION

2.22 USER INTERFACE INITIAL COMMISSIONING PROCESS



When the boiler is powered up for the first time the above screen will be shown.

The HMI touchscreen has a protective screen fitted which needs removing. Safely and responsibly dispose of the protective screen.



To accept the default configuration or modify from the Menu press **Basic Pre-Config** (Menu operation Frame 2.26)

Default Configuration:-
Switched Live Control
DHW Thermostat via Switched Live
Automatic Outside Sensor Detection
Boiler Pump: Relay Control
CH Pump available, DHW Pump available
Fault Relay available, Burner On Relay available

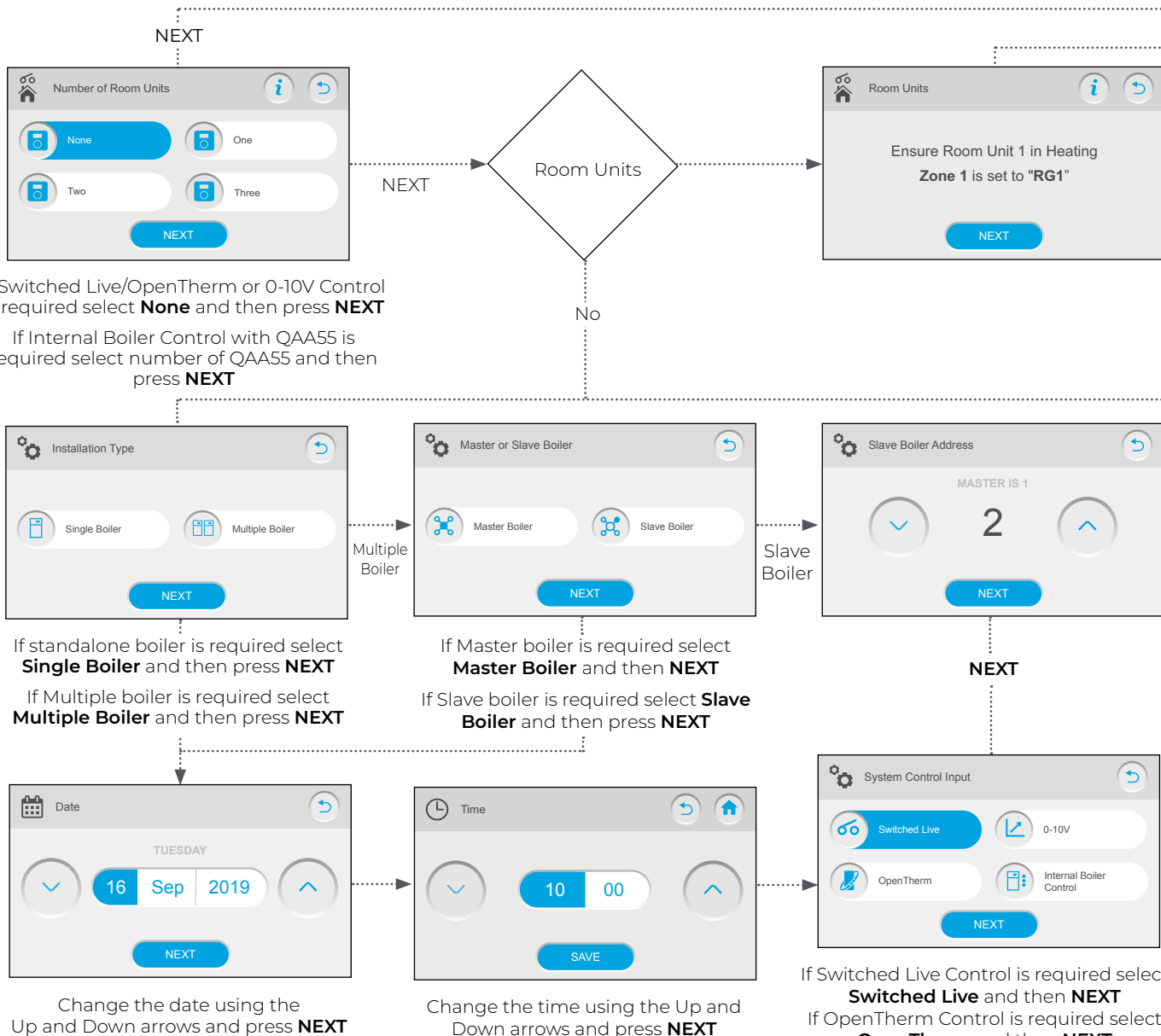
Basic Pre-Config

Basic Pre-config is Switched Live control of 1x Heating Circuit & 1x Hot Water Circuit

A DHW pump output and HC pump is also available

Assisted

Note. If Basic Pre-config is chosen and the boiler is to be reconfigured at a later date please complete a factory reset before reconfiguration (detailed internal boiler control instruction are available online at idealheating.com)



Note - Management of Multiple Boilers from boiler not currently available.
Internal Cascade management coming Q3 2021. Choose **SINGLE BOILER** until further notice.

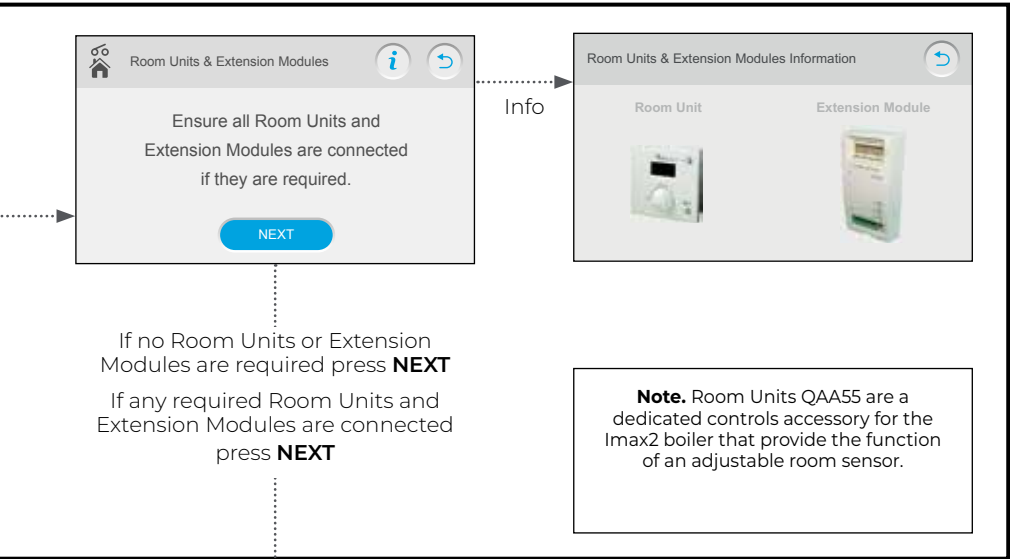
If Switched Live Control is required select **Switched Live** and then **NEXT**

If OpenTherm Control is required select **OpenTherm** and then **NEXT**

If 0-10V Control is required select **0-10V** and then **NEXT**

If Internal Boiler Control is required select **IBC** and then press **NEXT**

SECTION 2 - INSTALLATION



Room Units are only required if Internal Boiler Control is to be used for Heating Zones.

1 Room Unit is required for each Heating Zone Ideal optional extra part number UIN 225461.

Extension Modules are only required if Internal Boiler Control is to be used for multiple Heating Zones or if Internal Boiler Control is required for a Boiler Cascade or if a 0-10V Pump is to be controlled.

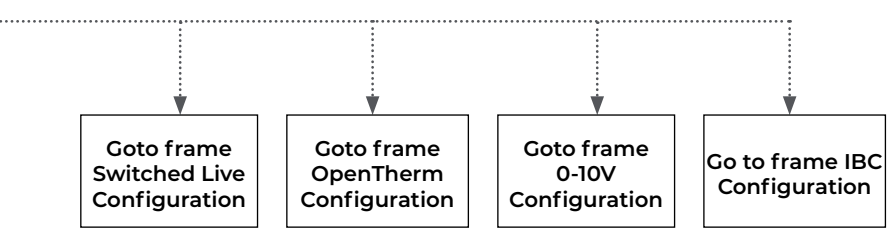
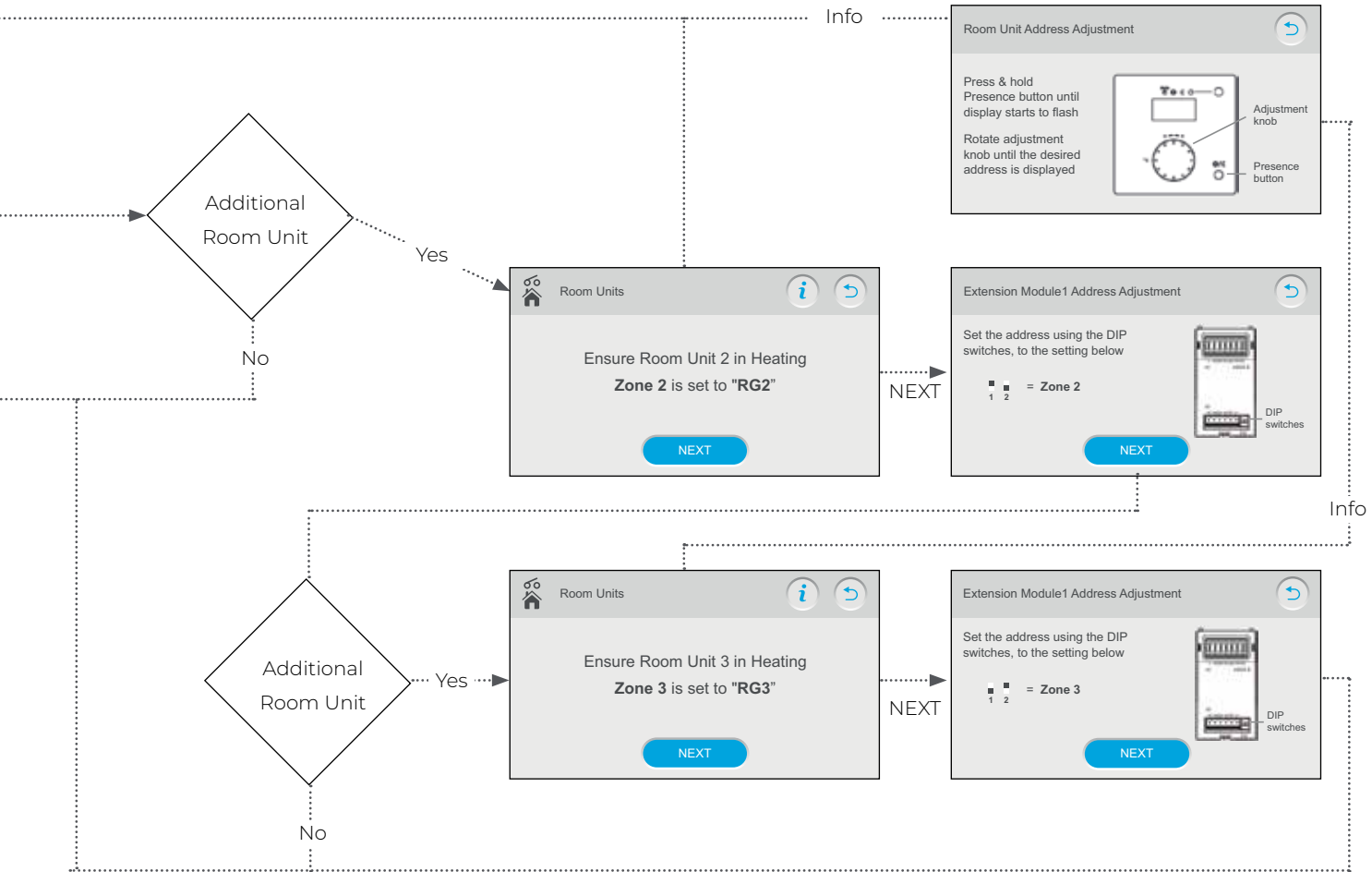
1 Extension Module is required for a total of 2 Central Heating circuits Ideal optional extra part number UIN 225389.

2 Extension Modules are required for a total of 3 Central Heating Circuits Ideal optional extra part number UIN 225390.

An LPB Module is required for each boiler within the cascade Ideal optional extra part number UIN 225392.

The 0-10V Pump Module has Ideal optional extra part number UIN 225391.

Power the system off whilst connecting Room Units and Extension Modules.

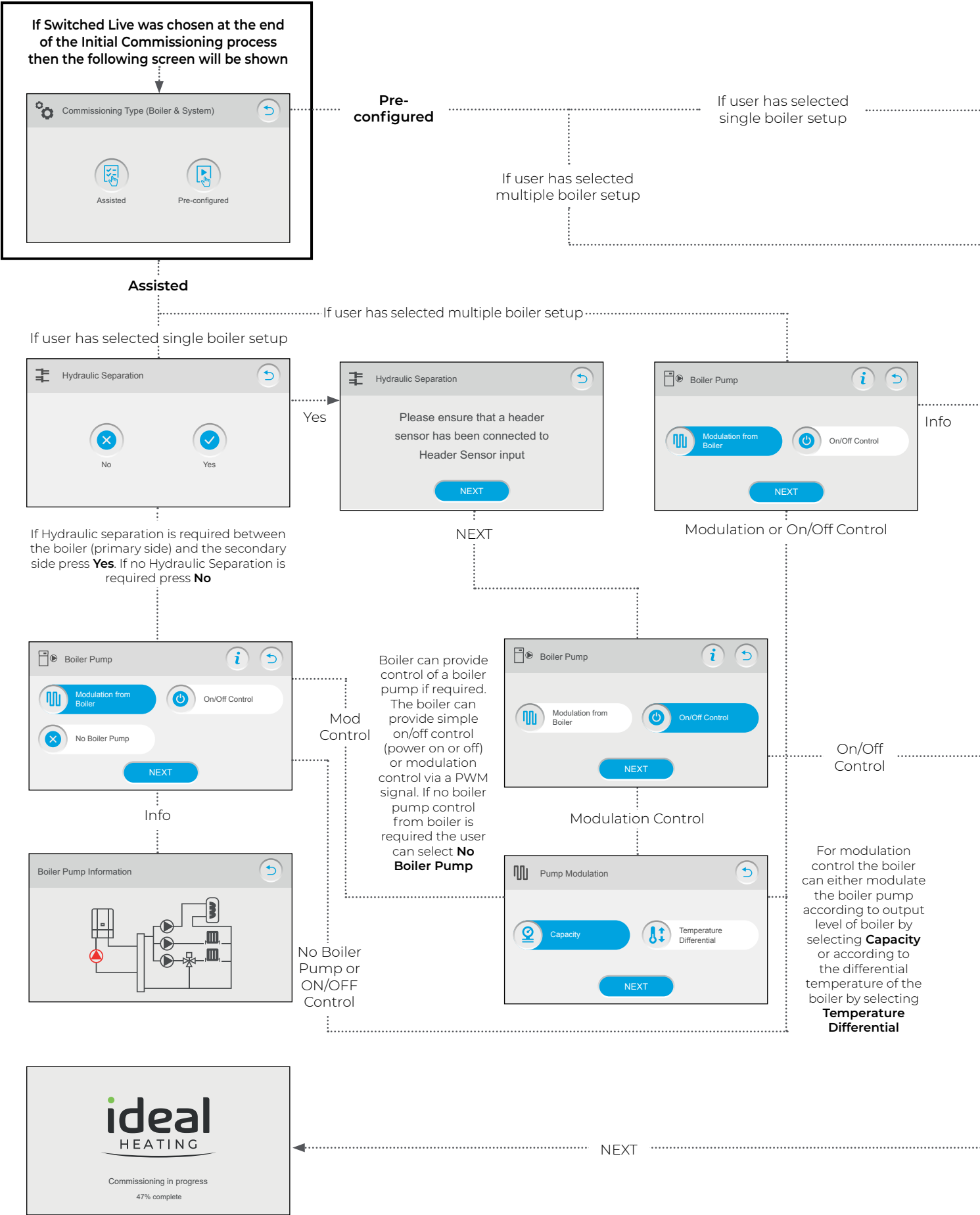


For basic "heat only" installations where the boiler is simply providing heat input in response to a **Switched Live, 0-10V** or **OpenTherm** demand input there are **Pre-configured** options provided in the boiler.

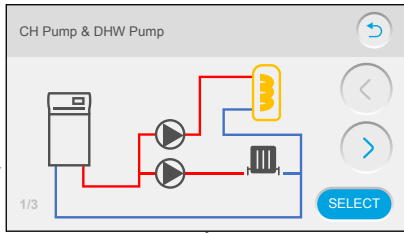
A detailed set of Internal Boiler Control Instructions are available online at idealheating.com

SECTION 2 - INSTALLATION

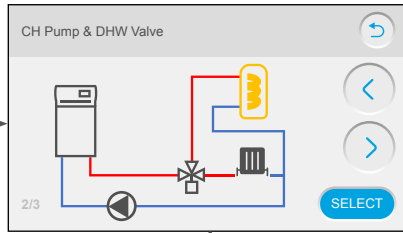
2.23 USER INTERFACE SWITCHED LIVE COMMISSIONING PROCESS



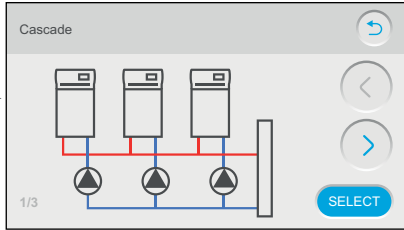
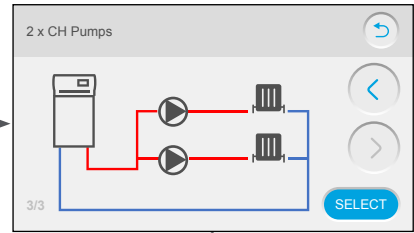
SECTION 2 - INSTALLATION



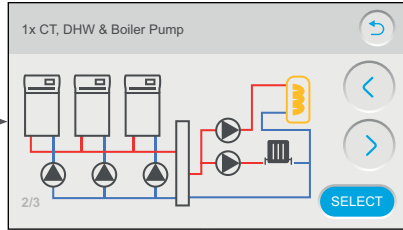
Press



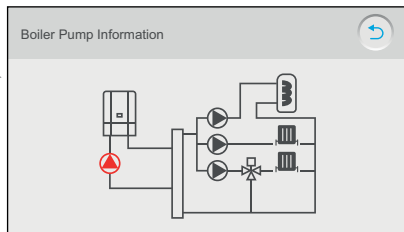
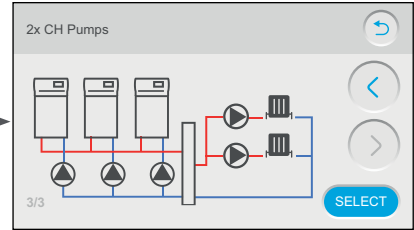
Press



Press



Press



For basic "heat only" installations we suggest using the pre-configured diagram for **2 x CH Pumps**

Outputs provided by the pro-configured option do not have to be wired if they are not required. Simply provide a **Switched Live** demand signal to the boiler.

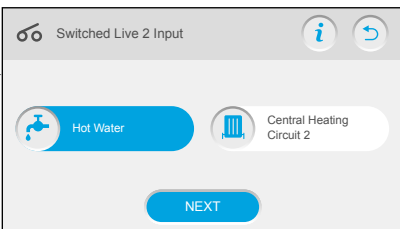
The first switched live is reserved for heating circuit 1 control.
If the second switched live is required for heating circuit 2 control select **Central Heating Circuit 2**.
If the second switched live is required for hot water control select **Hot Water**.
If no additional circuit control is required select **Central Heating Circuit 2**.

Hot Water or Central Heating 2

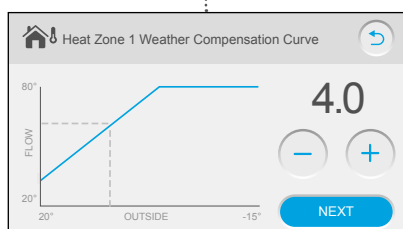
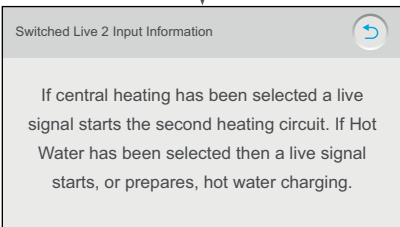
If outside sensor is detected

If no outside sensor is detected

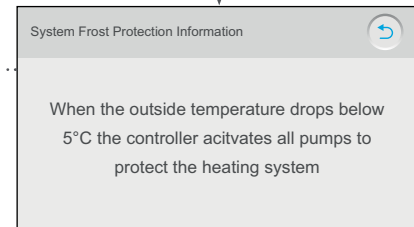
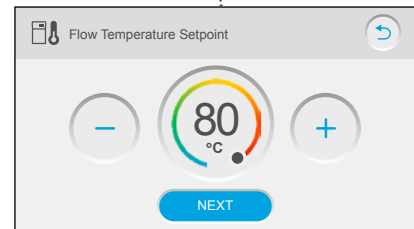
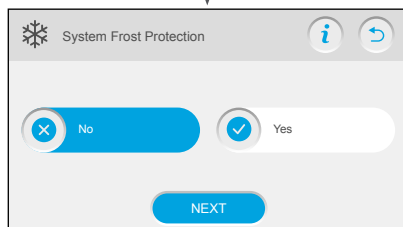
This determines the gradient of the heat curve used to determine flow temperature based on the current outside temperature.
Refer to Heating Curve Diagram p37.



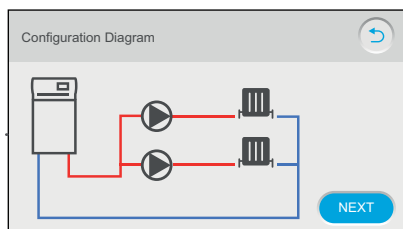
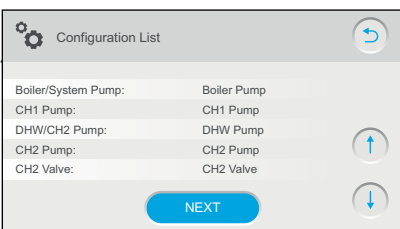
Info



NEXT



Info

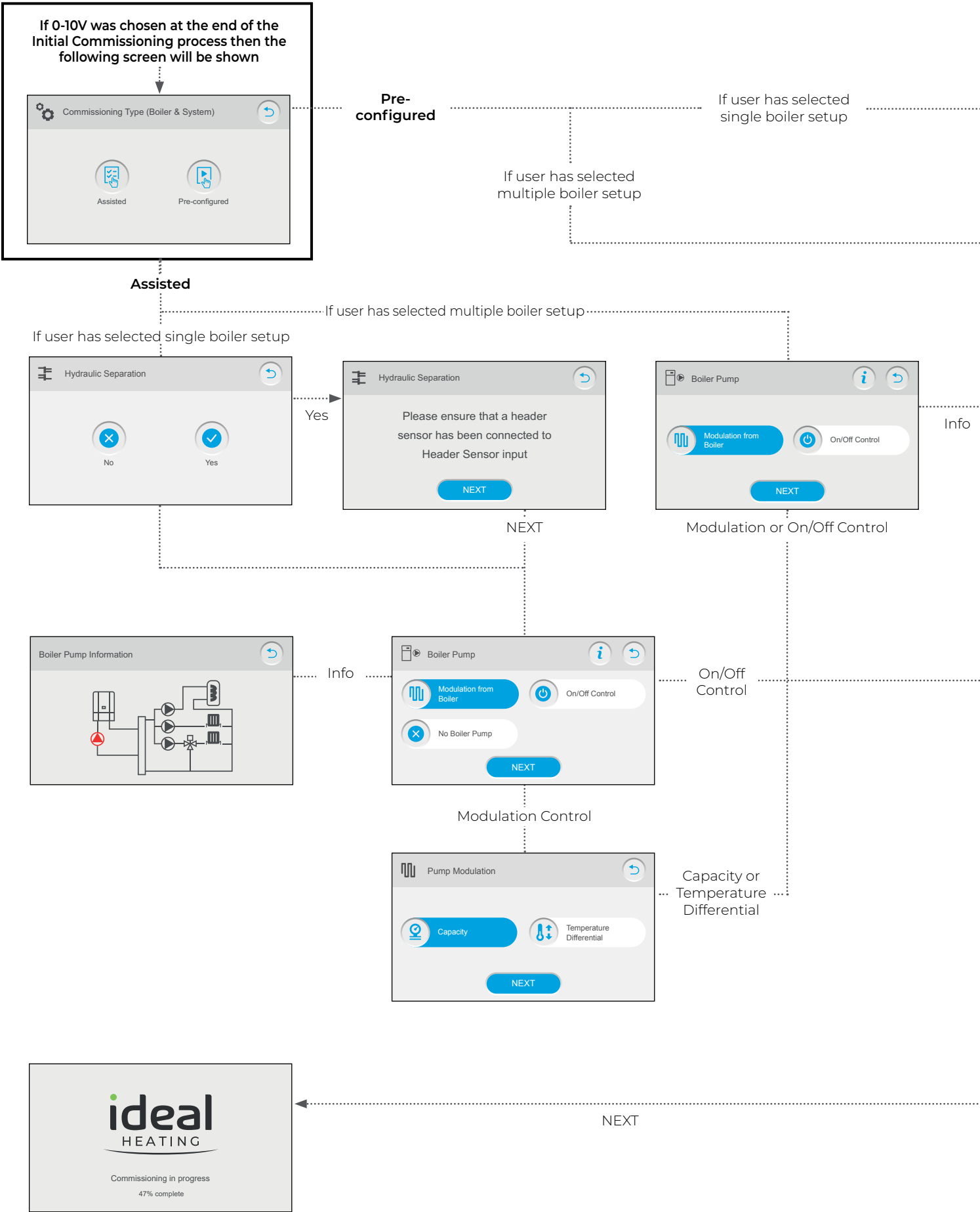


NEXT

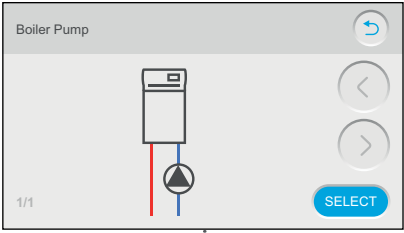
NOTE: Configuration diagram changes depending on selections.

SECTION 2 - INSTALLATION

2.24 USER INTERFACE 0-10V COMMISSIONING PROCESS



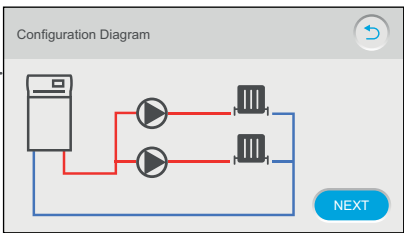
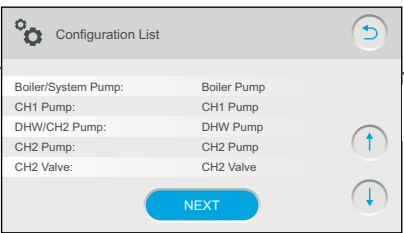
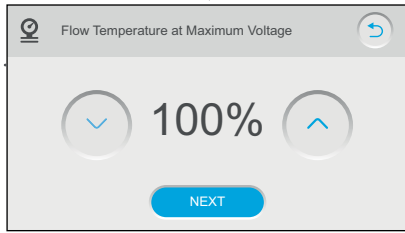
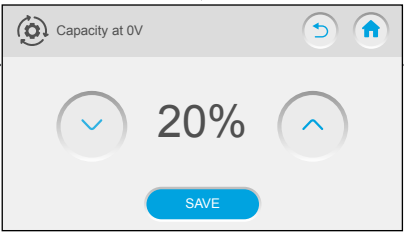
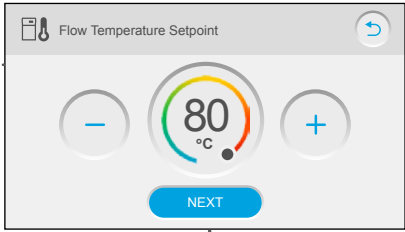
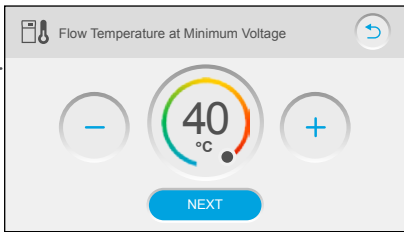
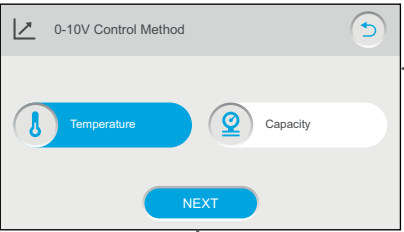
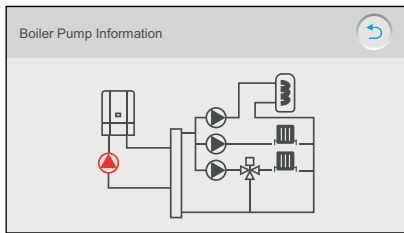
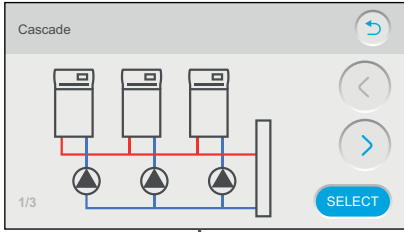
SECTION 2 - INSTALLATION



For basic "heat only" installations we suggest using the pre-configured diagram for **Boiler Pump**

Outputs provided by the pre-configured option do not have to be wired if they are not required. Simply provide a **0-10V** demand signal to the boiler.

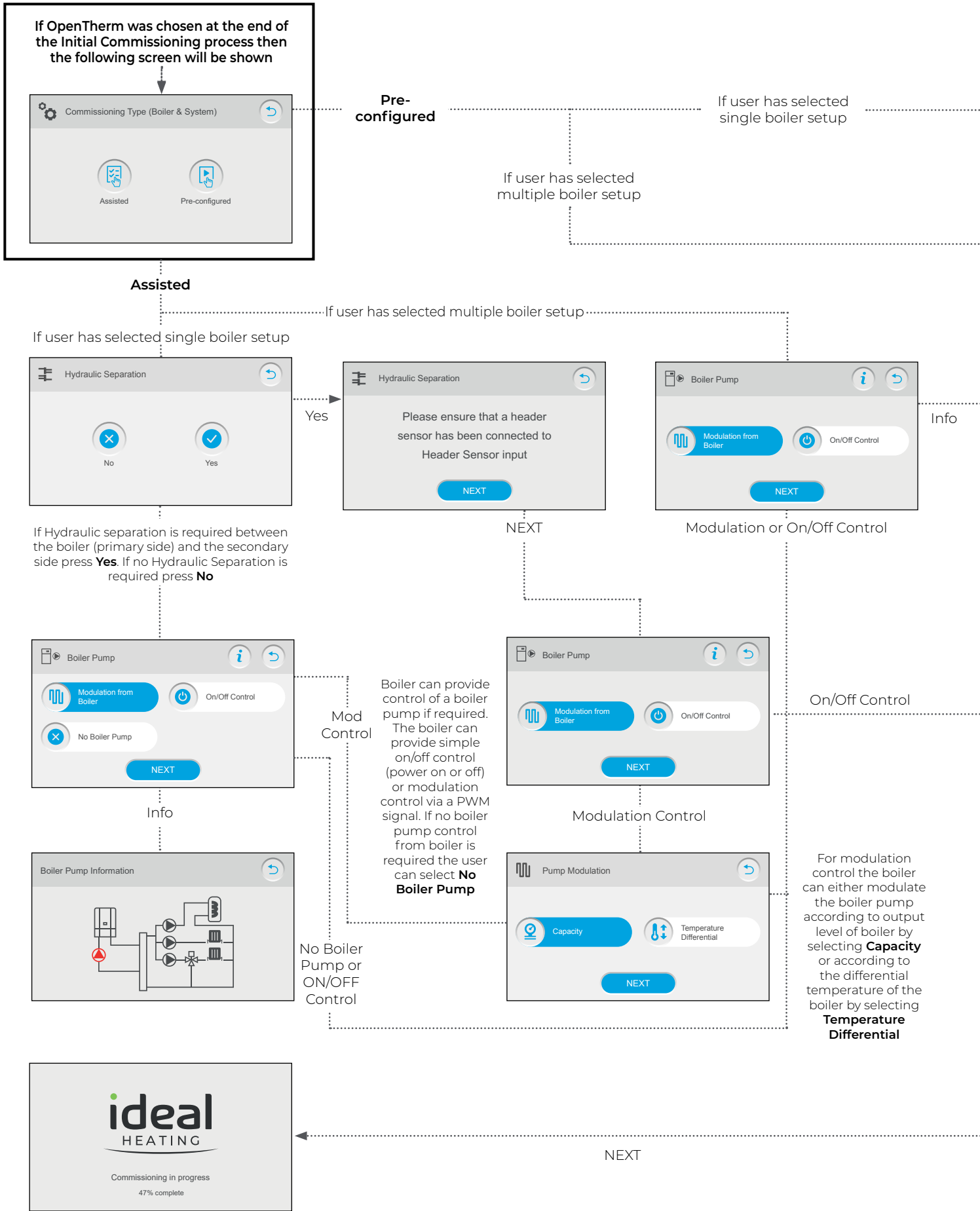
The boilers are pre-configured for temperature control.



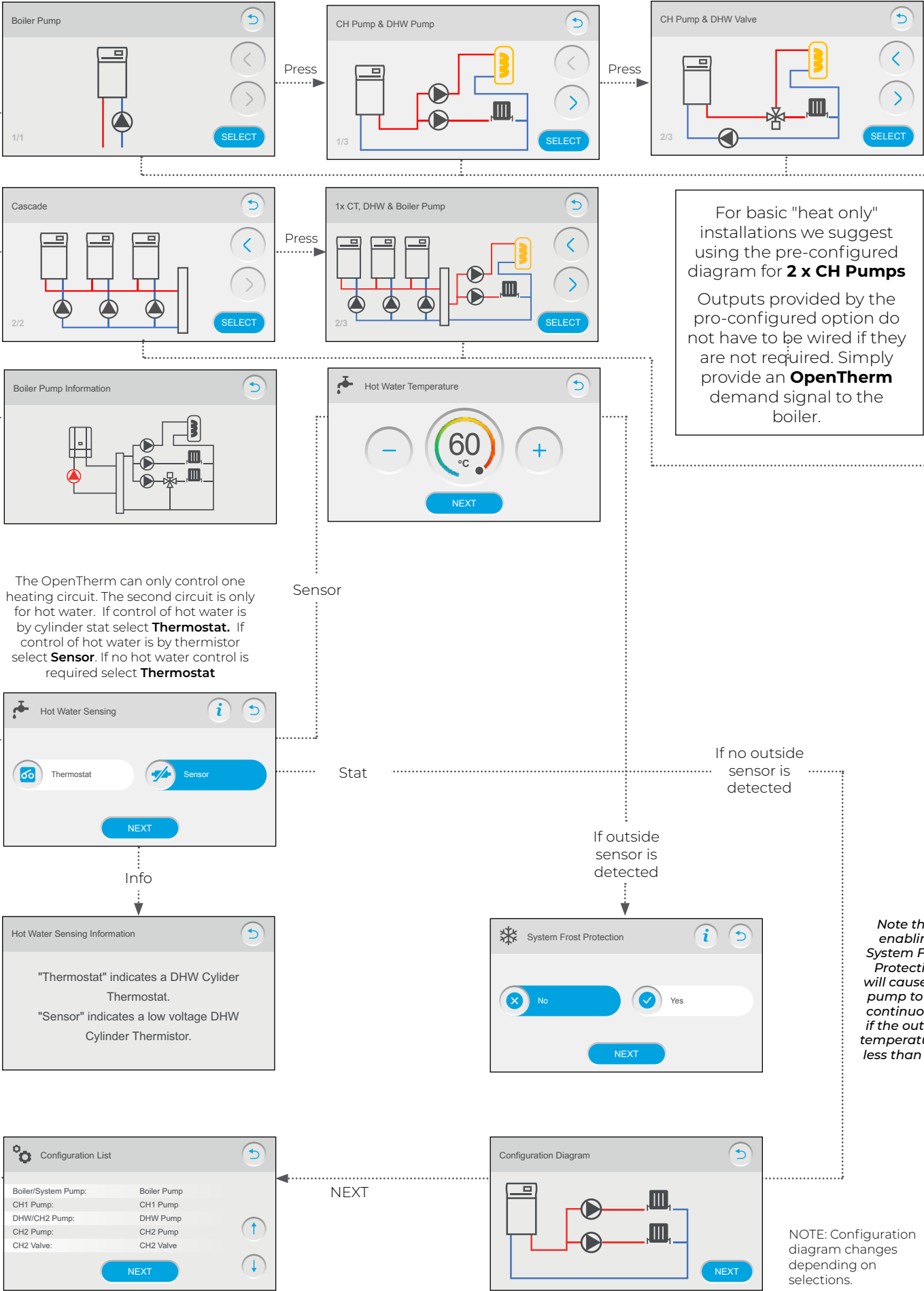
NOTE: Configuration diagram changes depending on selections.

SECTION 2 - INSTALLATION

2.25 USER INTERFACE OPENTHERM COMMISSIONING PROCESS

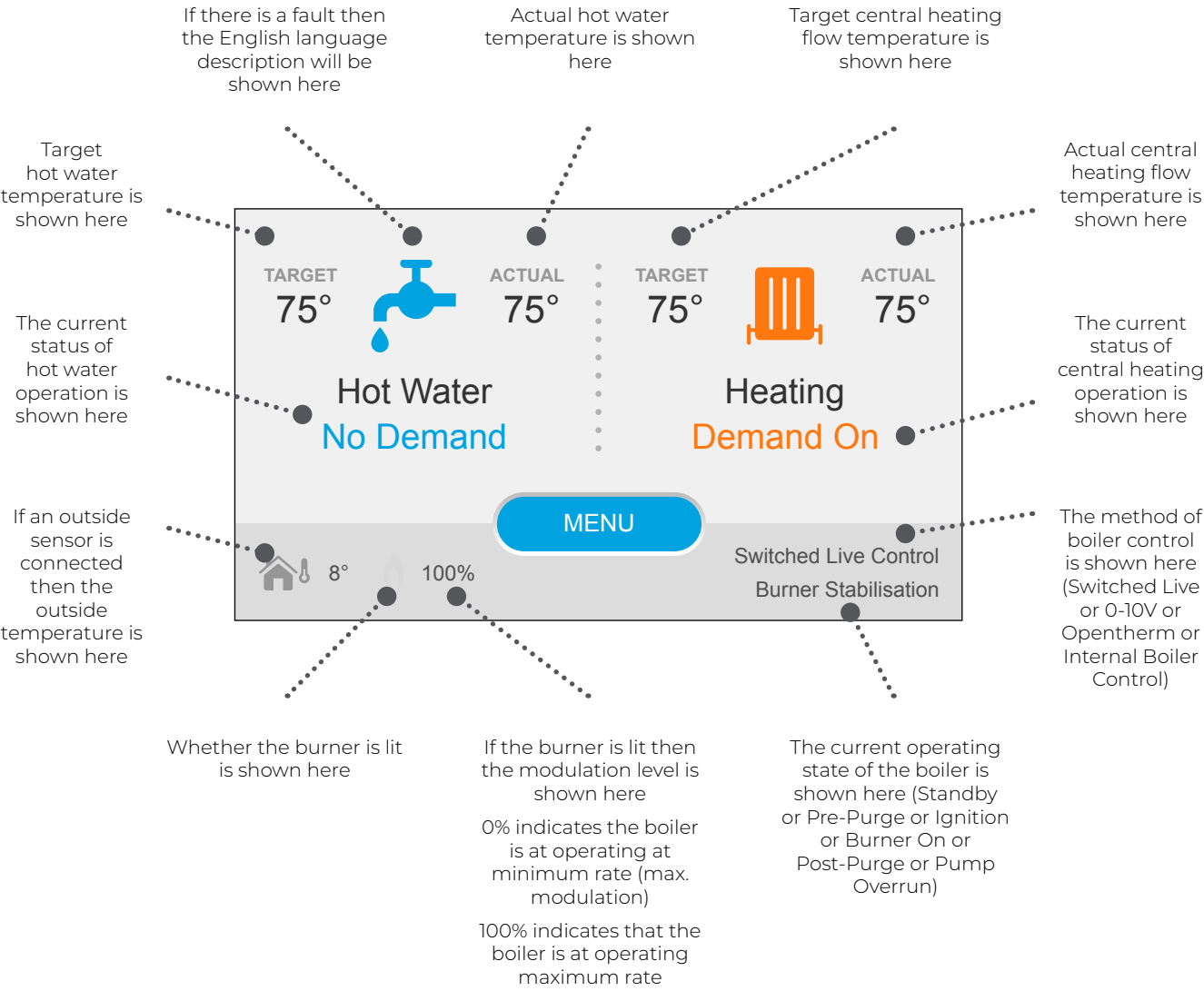


SECTION 2 - INSTALLATION



SECTION 2 - INSTALLATION

2.26 IMA XTRA 2 USER INTERFACE MENU OPERATION



SECTION 2 - INSTALLATION

2.27 IMAX XTRA 2 USER INTERFACE DETAILS

A detailed set of Internal Boiler Control Instructions for:

Factory Reset

Re-configuration

Manually setting relay functions

Manually setting the system control input

Manually configuring a cascade

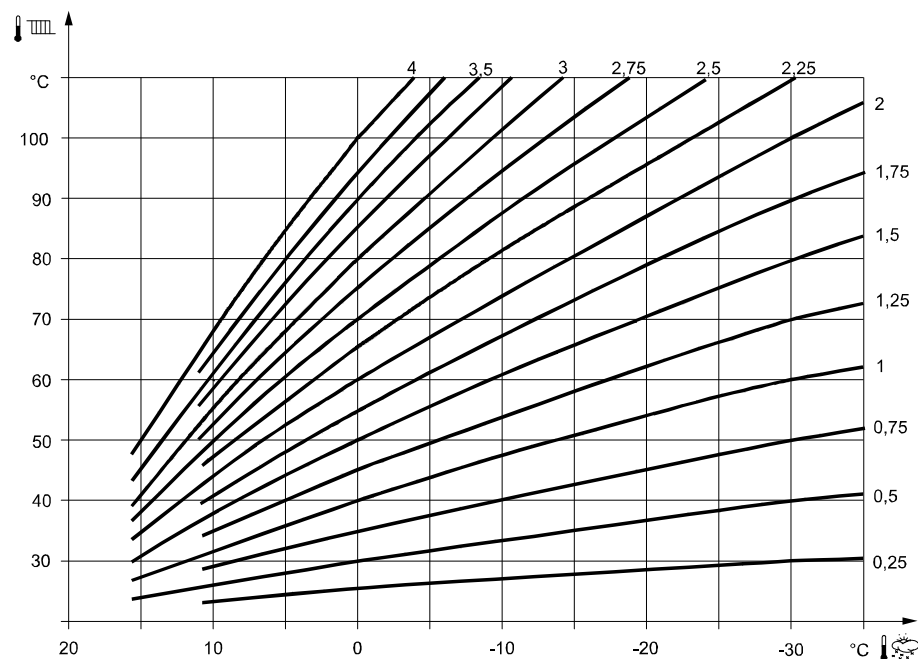
Manually configuring zones

and Manually configuring room units are available online at idealheating.com

2.28 HEATING CURVE DIAGRAM

The boiler flow temperature setpoint is calculated using the graph shown.

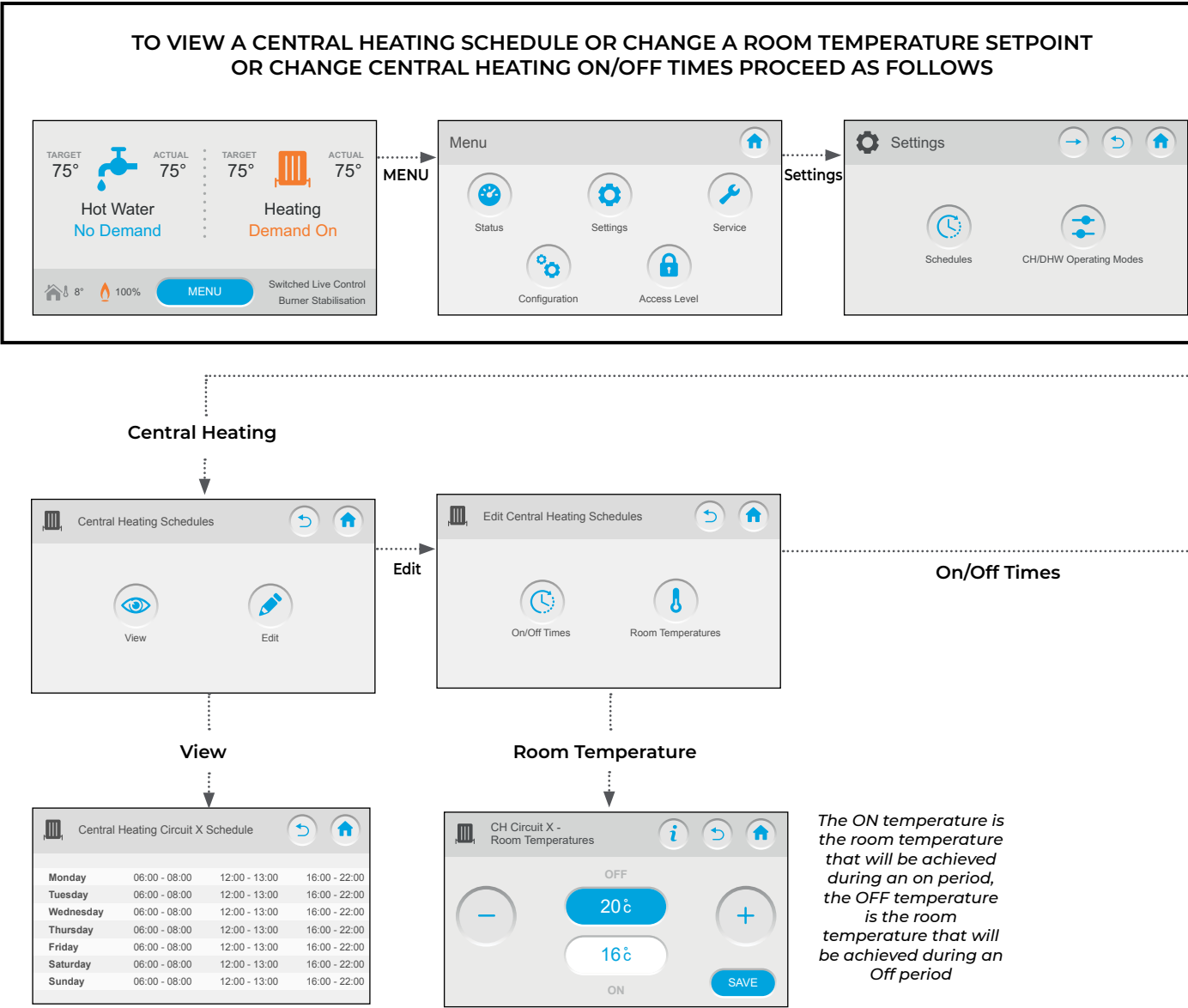
The flow temperature will be varied between 30°C and 80°C.

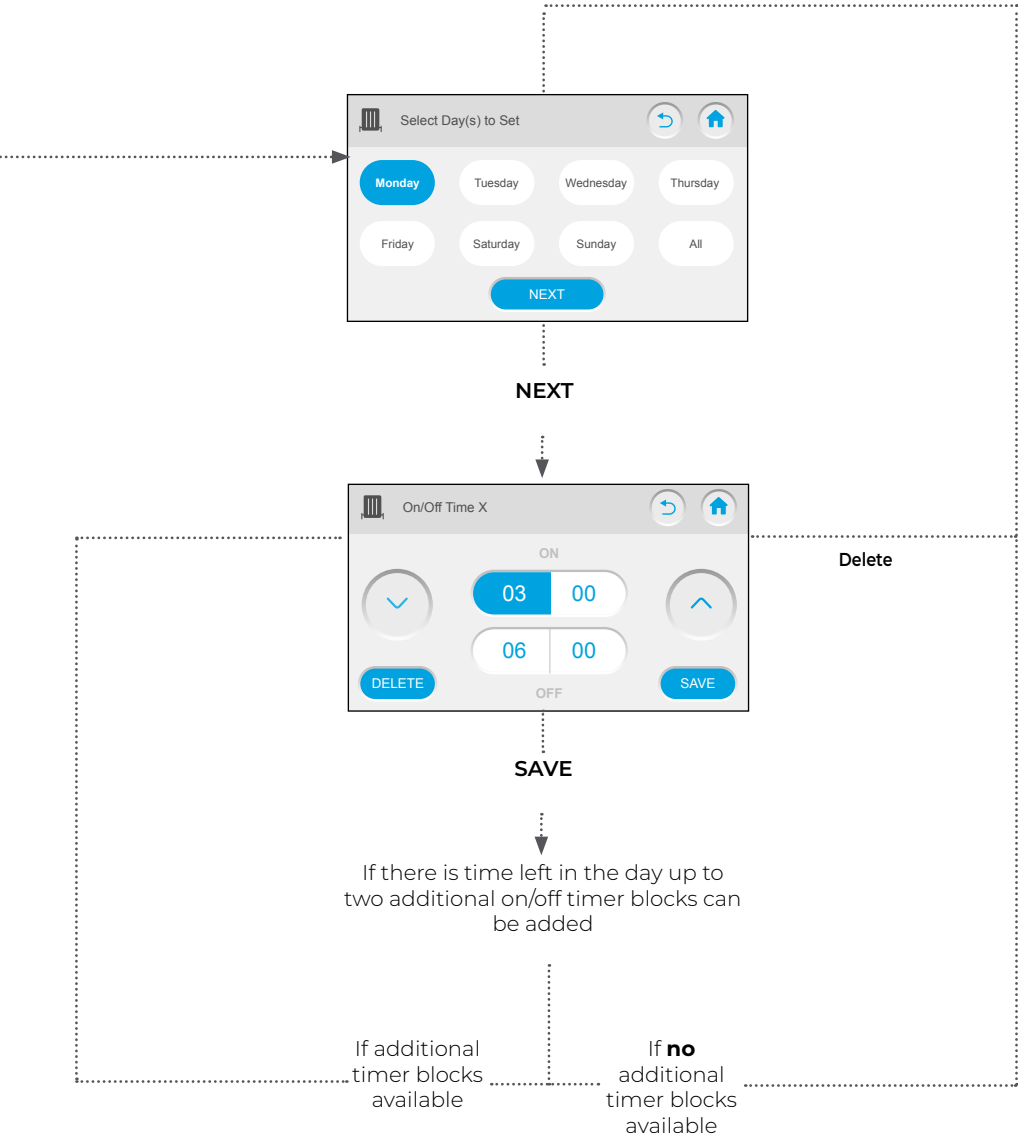
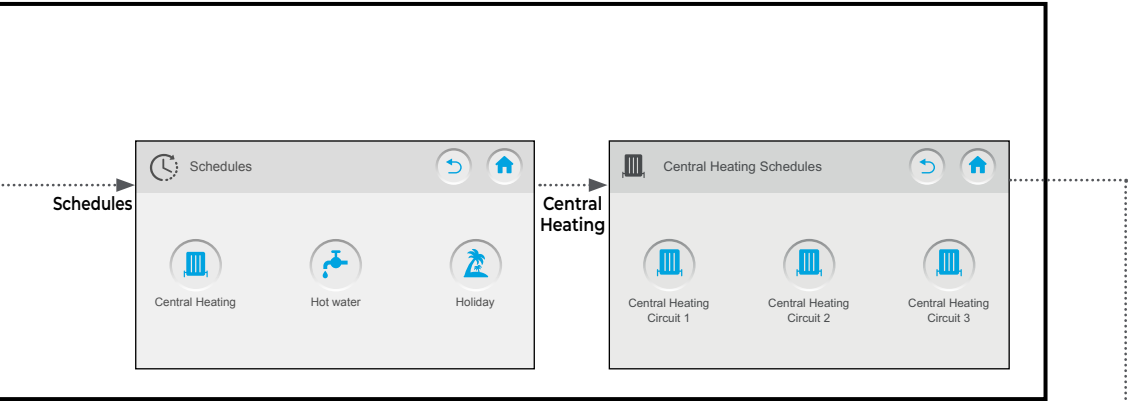


Heating curve – heating curve slope

SECTION 2 - INSTALLATION

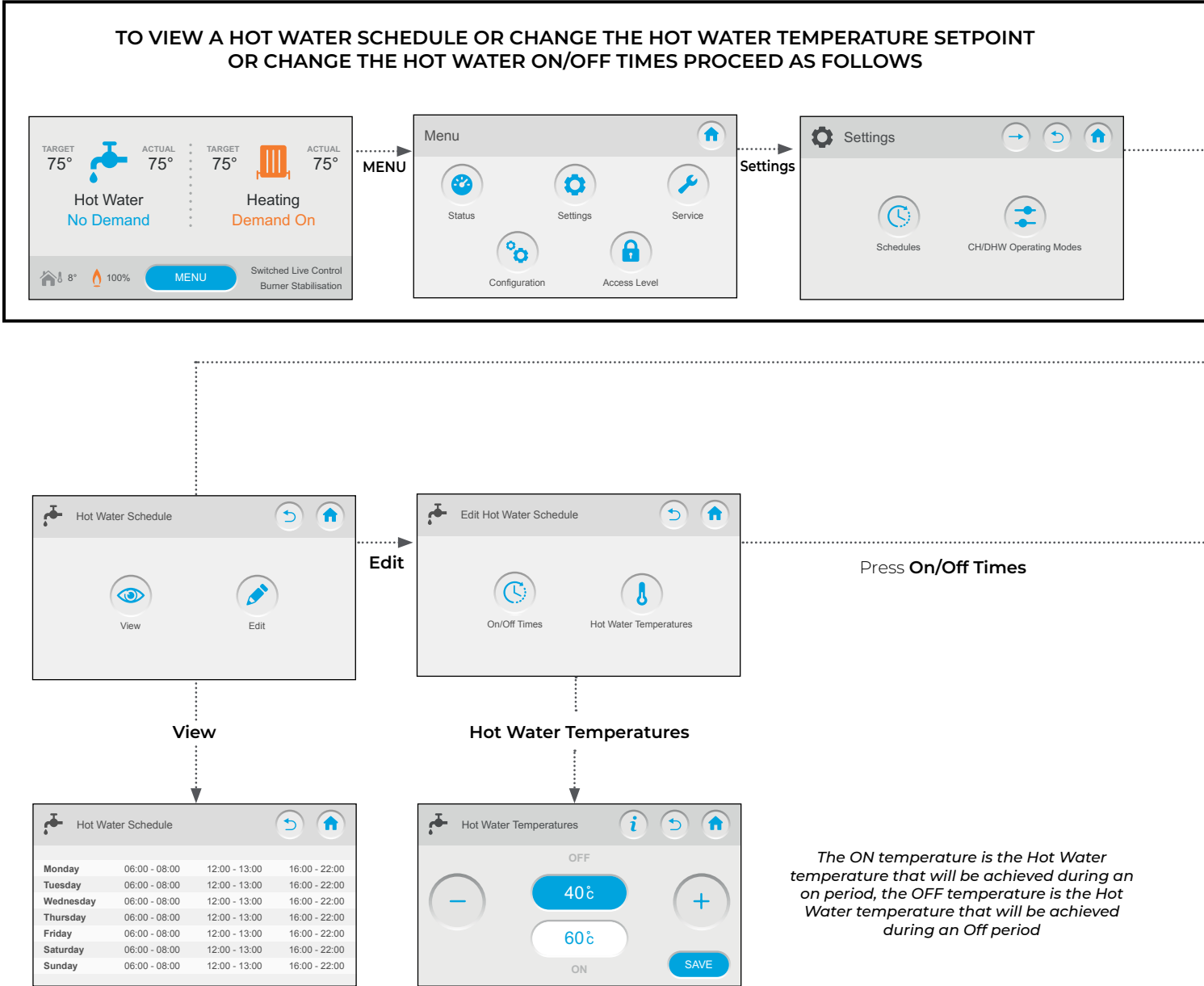
2.29 USER INTERFACE MENU OPERATION: CENTRAL HEATING SCHEDULES

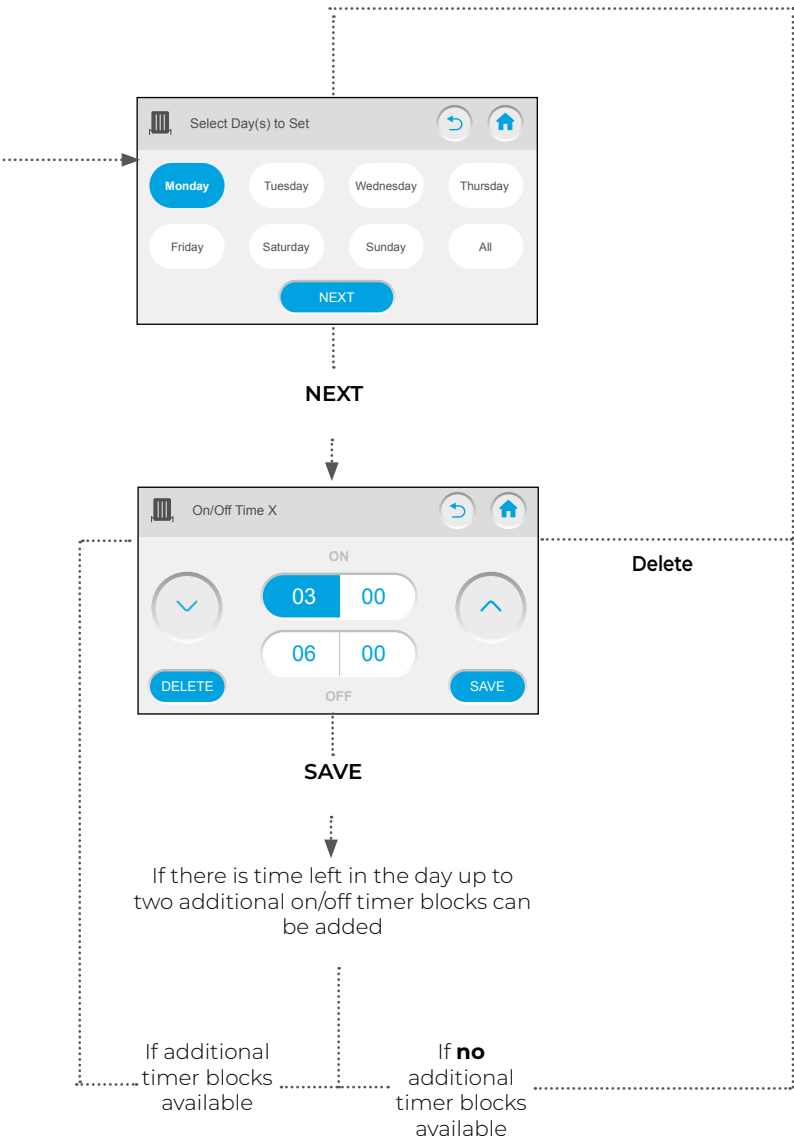
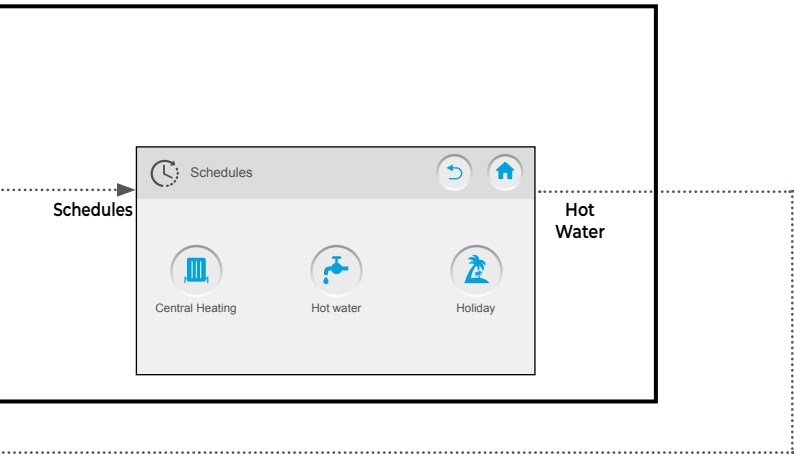




SECTION 2 - INSTALLATION

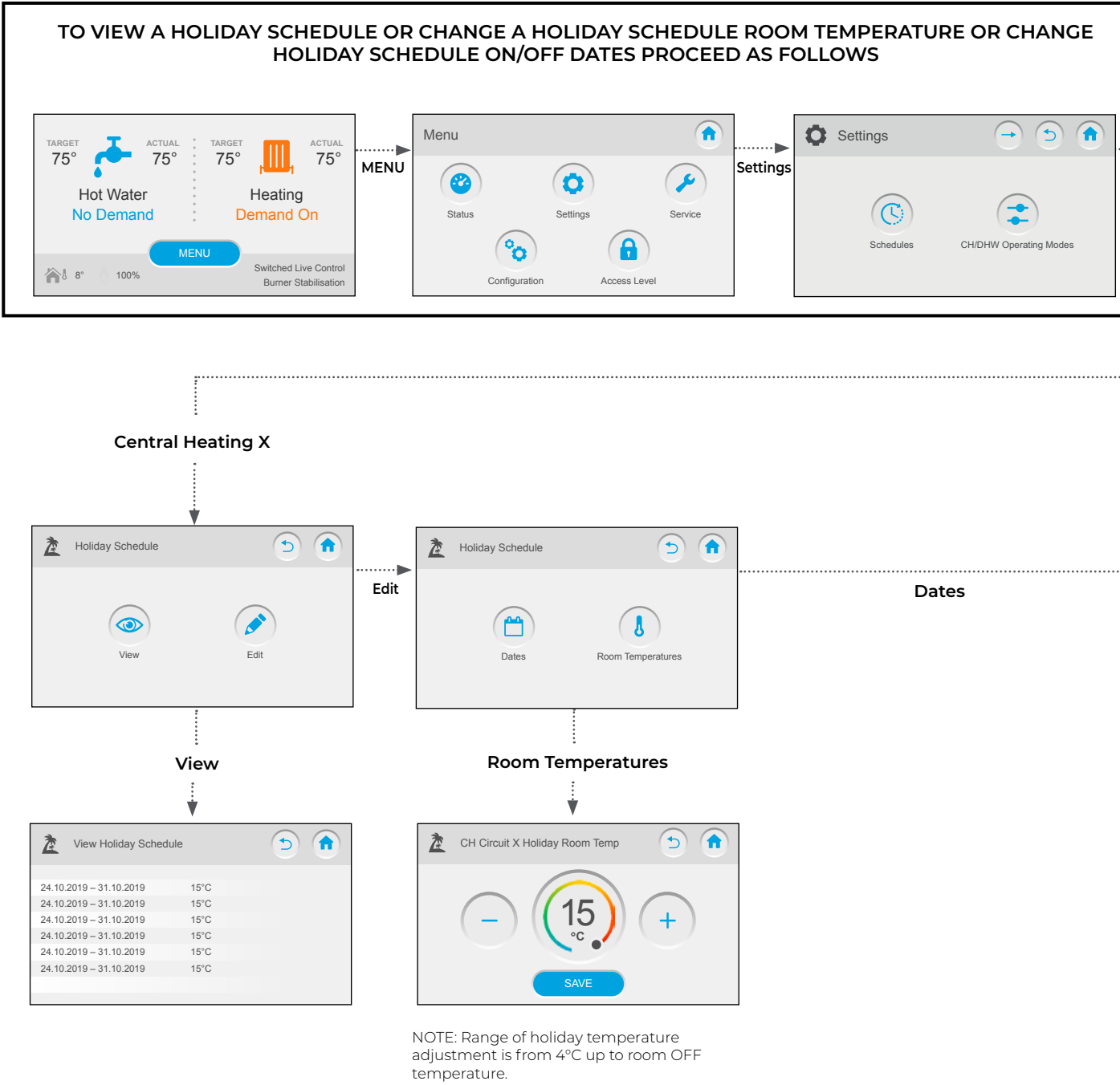
2.30 USER INTERFACE MENU OPERATION: HOT WATER SCHEDULE

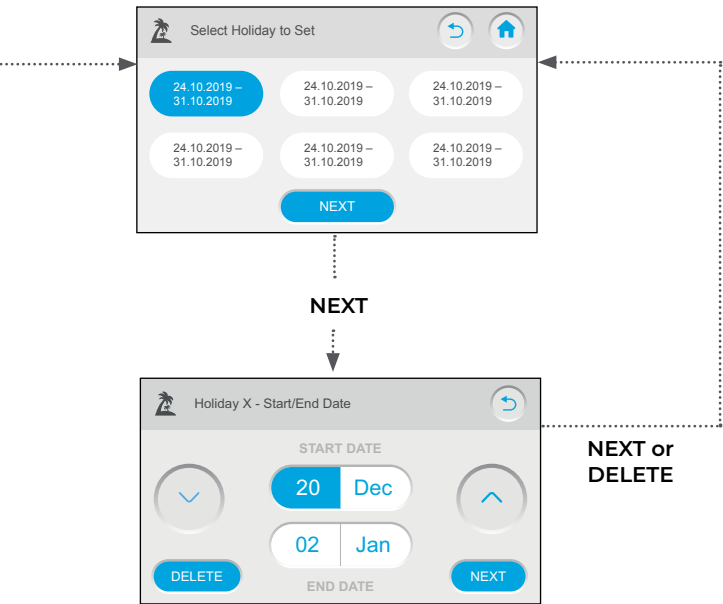
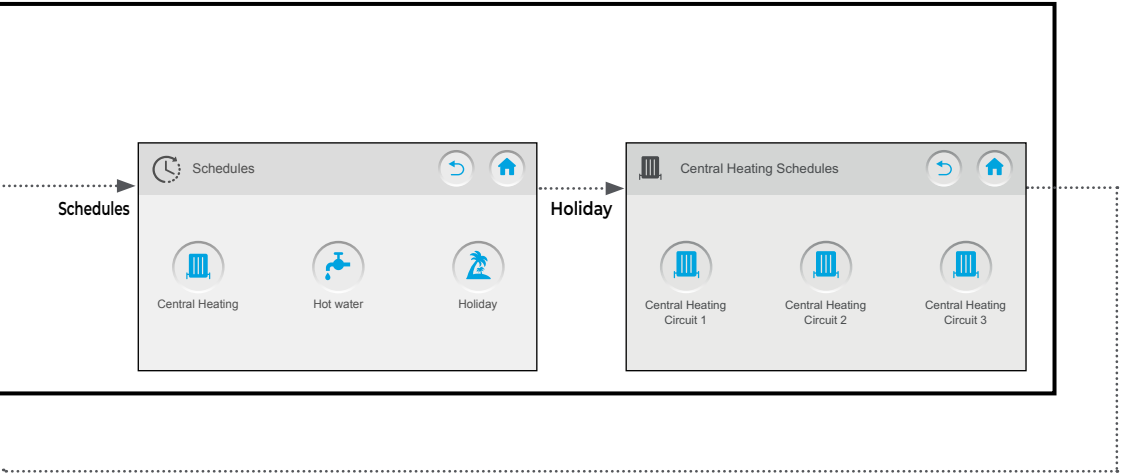




SECTION 2 - INSTALLATION

2.31 USER INTERFACE MENU OPERATION: HOLIDAY





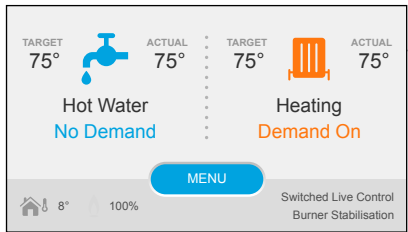
If NEXT is selected then the holiday is saved and the date block will be occupied, by the date range just selected, in the Select Holiday to Set page.

If DELETE is selected then the holiday is not saved and the date block in the Select Holiday to Set page will remain as "Date not set"

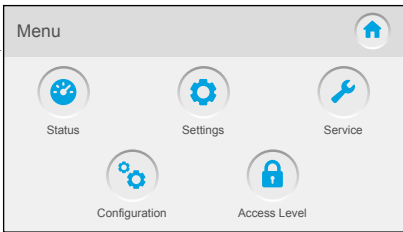
SECTION 2 - INSTALLATION

2.32 USER INTERFACE MENU OPERATION: MAXIMUM RATE, MINIMUM RATE AND VARIABLE RATE

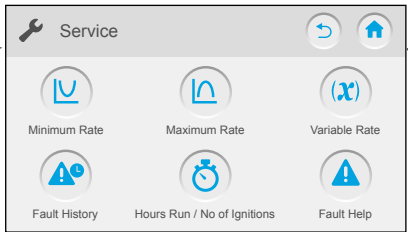
TO SET THE BOILER TO RUN AT MAXIMUM RATE OR MINIMUM RATE OR VARIABLE RATE FOR 10 MINUTES PROCEED AS FOLLOWS



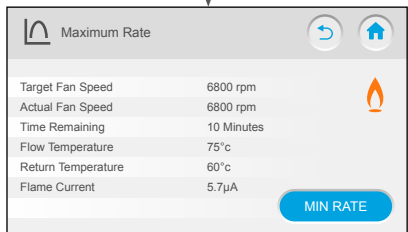
MENU



Service



To set the boiler to run at Maximum Rate for 10 minutes press **Maximum Rate**

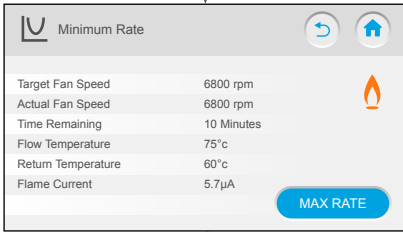


The boiler will run at Maximum Rate for 10 minutes unless the system load is insufficient

The boiler will automatically move back to normal operation after 10 minutes

To move directly to Minimum Rate press **MIN RATE**

To set the boiler to run at Minimum Rate for 10 minutes press **Minimum Rate**

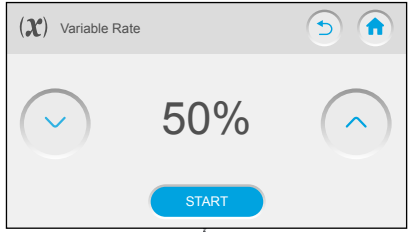


The boiler will run at Minimum Rate for 10 minutes unless the system load is insufficient

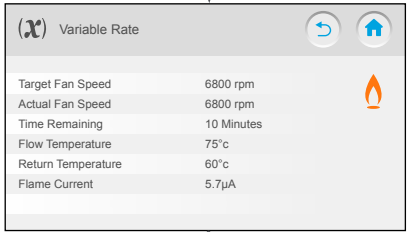
The boiler will automatically move back to normal operation after 10 minutes

To move directly to Maximum Rate press **MAX RATE**

To set the boiler to run at Variable Rate for 10 minutes press **Variable Rate**



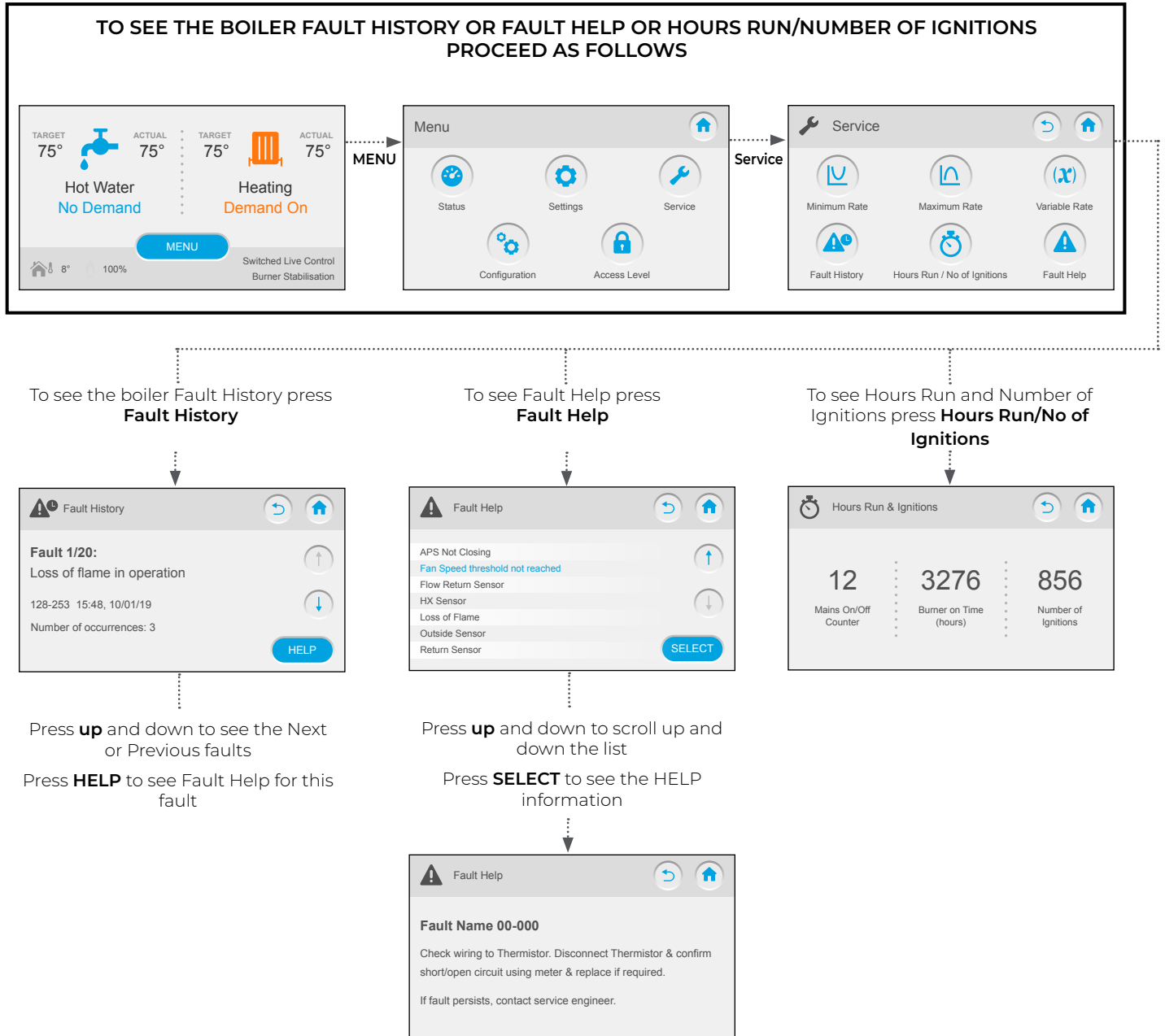
Press up and down until the required gas rate is shown then press **START**



The boiler will run at Variable Rate for 10 minutes unless the system load is insufficient. The boiler will automatically move back to normal operation after 10 minutes

SECTION 2 - INSTALLATION

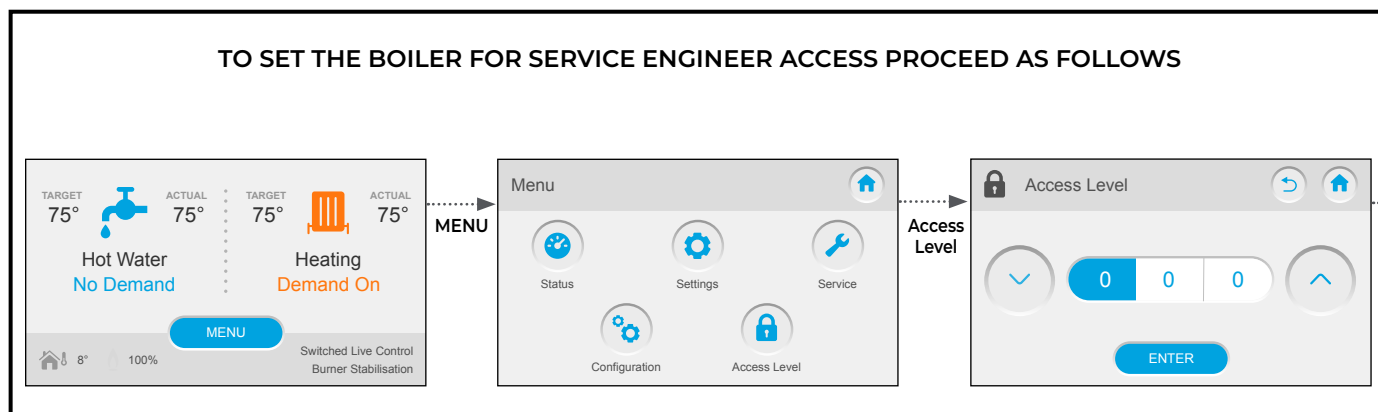
2.33 USER INTERFACE MENU OPERATION: FAULT HISTORY, FAULT HELP, HOURS RUN AND NUMBER OF IGNITIONS



FAULT HELP PAGE ONLY AVAILABLE WHEN FAULT HAS OCCURRED

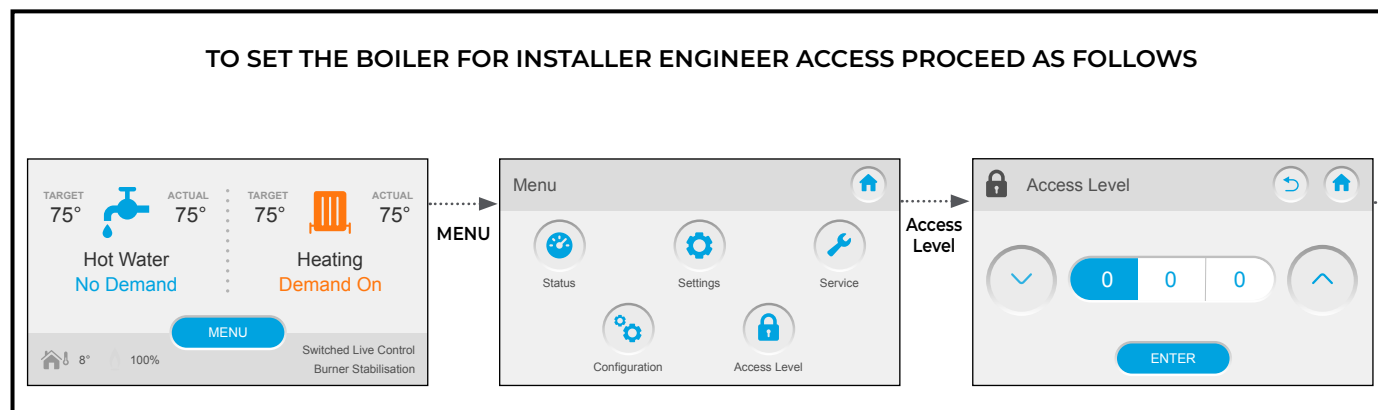
SECTION 2 - INSTALLATION

2.34 USER INTERFACE MENU OPERATION: SERVICE ACCESS



Press **up** and **down** until the first digit is set to 4
Press on the second digit and then press **up** and **down** until it is set to 5
Press on the third digit and then press **up** and **down** until it is set to 6
Press **DONE**

2.35 USER INTERFACE MENU OPERATION: INSTALLER ACCESS



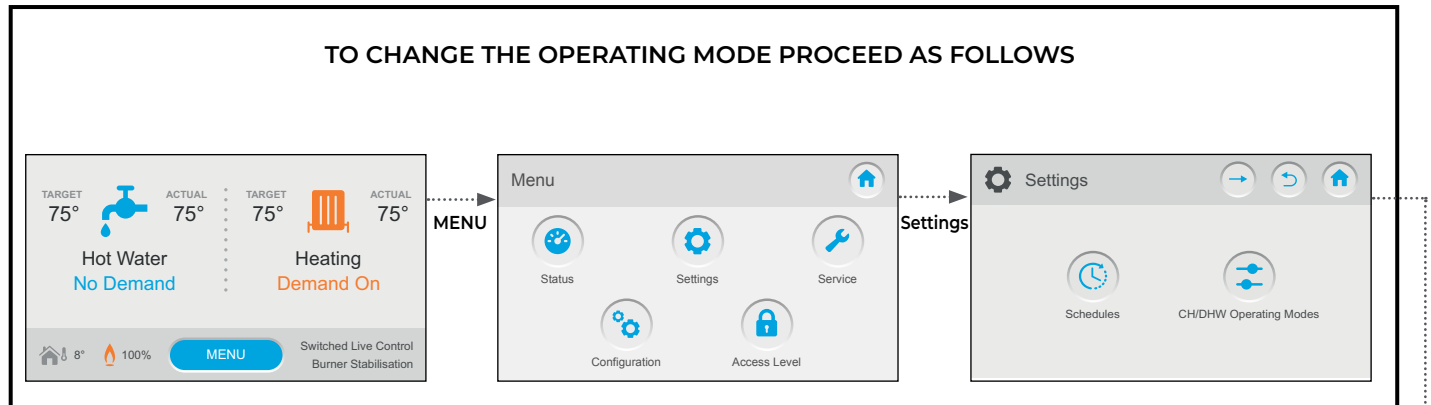
Press **up** and **down** until the first digit is set to 5
Press on the second digit and then press **up** and **down** until it is set to 2
Press on the third digit and then press **up** and **down** until it is set to 9
Press **DONE**

SECTION 2 - INSTALLATION

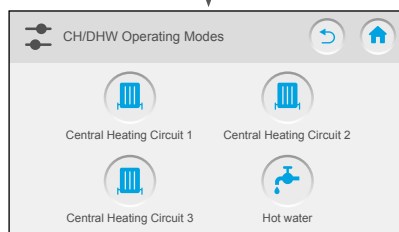
2.36 USER INTERFACE MENU OPERATION: OPERATING

Note that to access the Operating Mode, the boiler will first need to be set for either Service Engineer Access Level or Installer Access Level

It will only be possible to change the Operating Mode of circuits that have been configured (there may only be 1 Central Heating Circuit)



CH/DHW Modes

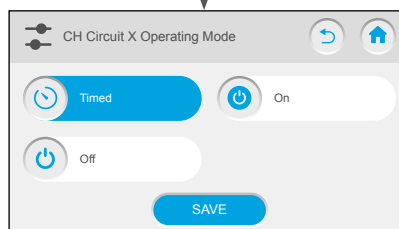


To change Central Heating Circuit 1 Operating Mode press **Central Heating Circuit 1**

To change Central Heating Circuit 2 Operating Mode press **Central Heating Circuit 2**

To change Central Heating Circuit 3 Operating Mode press **Central Heating Circuit 3**

To change Hot Water Operating Mode press **Hot Water**



Timed will switch the circuit on and off at the set programmed hours.

On sets the circuit to be continuously on.

Off sets the circuit to be continuously off.

To set the circuit to Timed operation press **Timed** and then **SAVE**

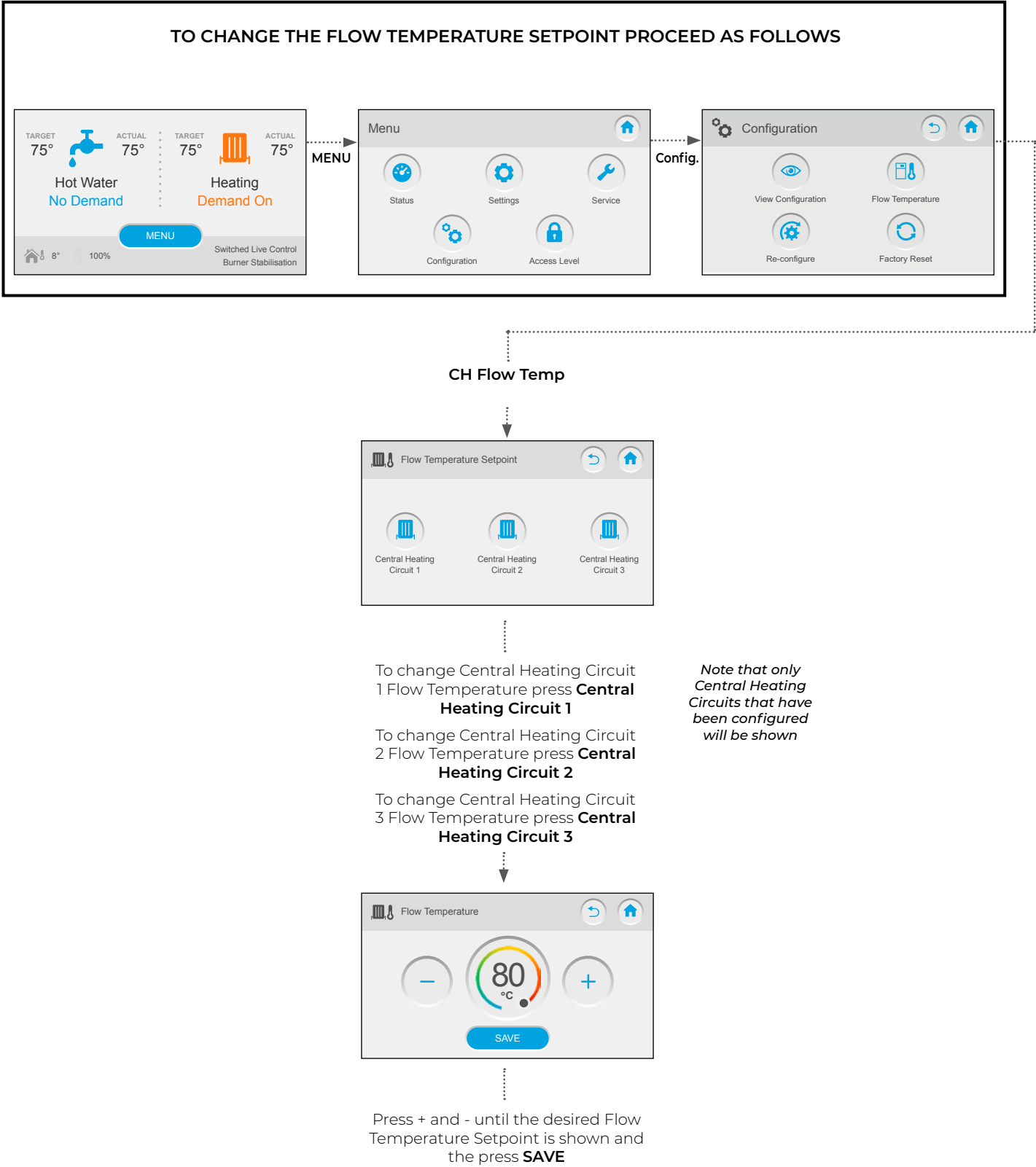
To set the circuit to On press **On** and then **SAVE**

To set the circuit to Off press **Off** and then **SAVE**

SECTION 2 - INSTALLATION

2.37 USER INTERFACE MENU OPERATION: FLOW TEMPERATURE SETPOINT

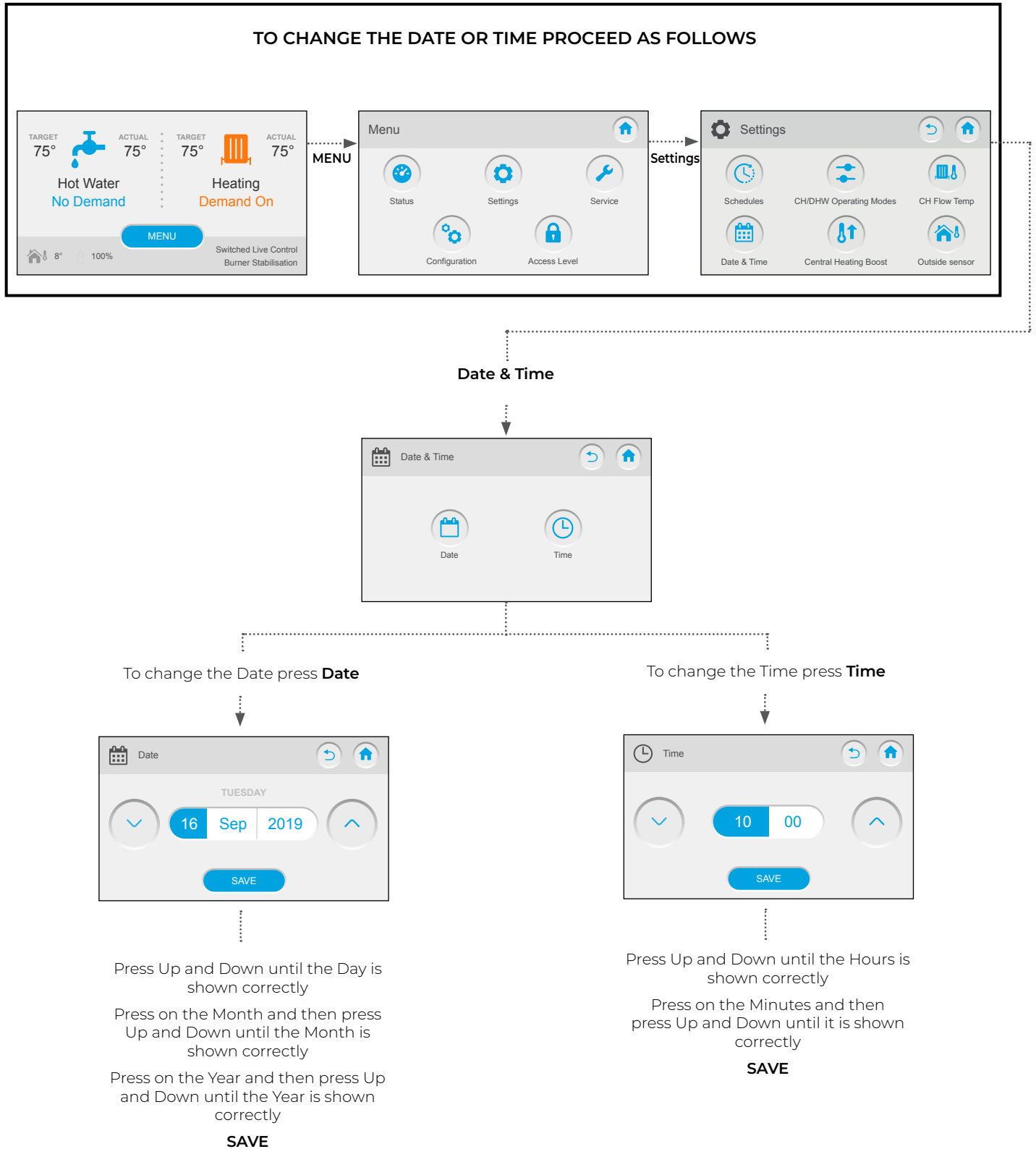
Note that to change the Flow Temperature Setpoint, the boiler will first need to be set for either Service Engineer Access Level or Installer Access Level



SECTION 2 - INSTALLATION

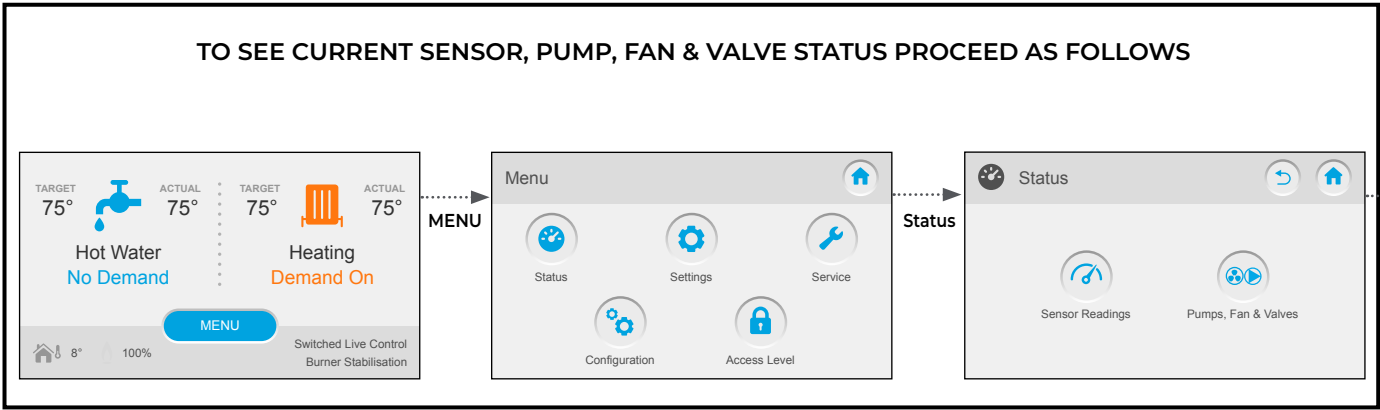
2.38 USER INTERFACE MENU OPERATION: DATE AND TIME AND LANGUAGE

Note that to change the Date and/or Time the boiler will first need to be set for either Service Engineer Access Level or Installer Access Level

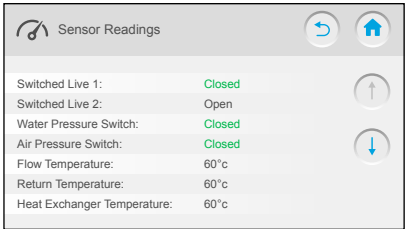


SECTION 2 - INSTALLATION

2.39 USER INTERFACE MENU OPERATION: SENSORS, PUMPS, FAN & VALVES

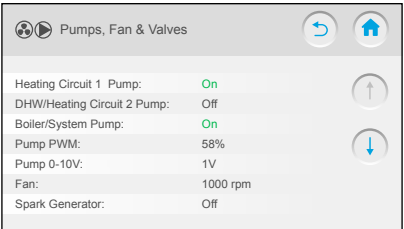


To view sensor readings press
Sensor Readings



To scroll up and down the list
press **Up** and **Down**

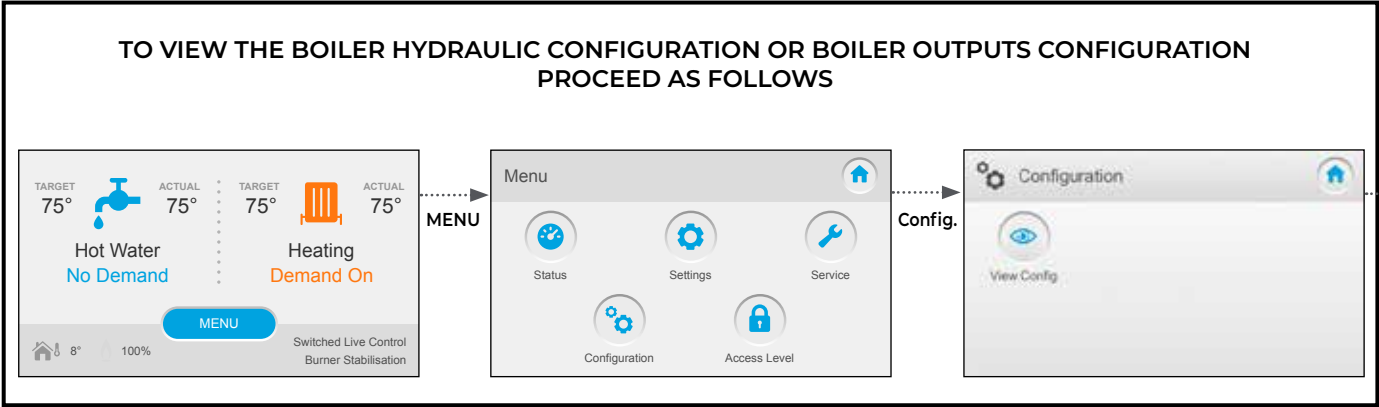
To view the status of the Pumps, Fan
& Valves press **Pumps, Fan & Valves**



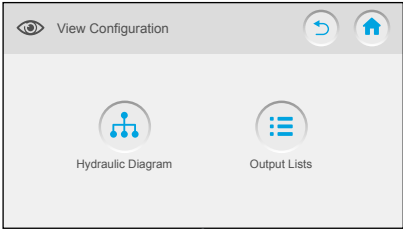
To scroll up and down the list
press **Up** and **Down**

SECTION 2 - INSTALLATION

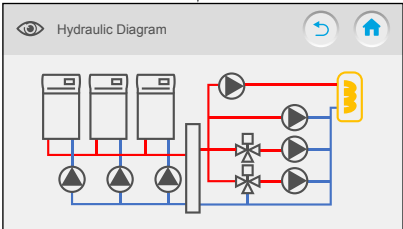
2.40 USER INTERFACE MENU OPERATION: VIEW CONFIGURATION



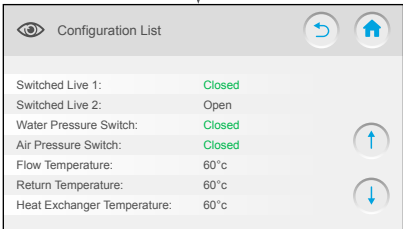
View Configuration



To view the boiler hydraulic
configuration press **Hydraulic
Diagram**



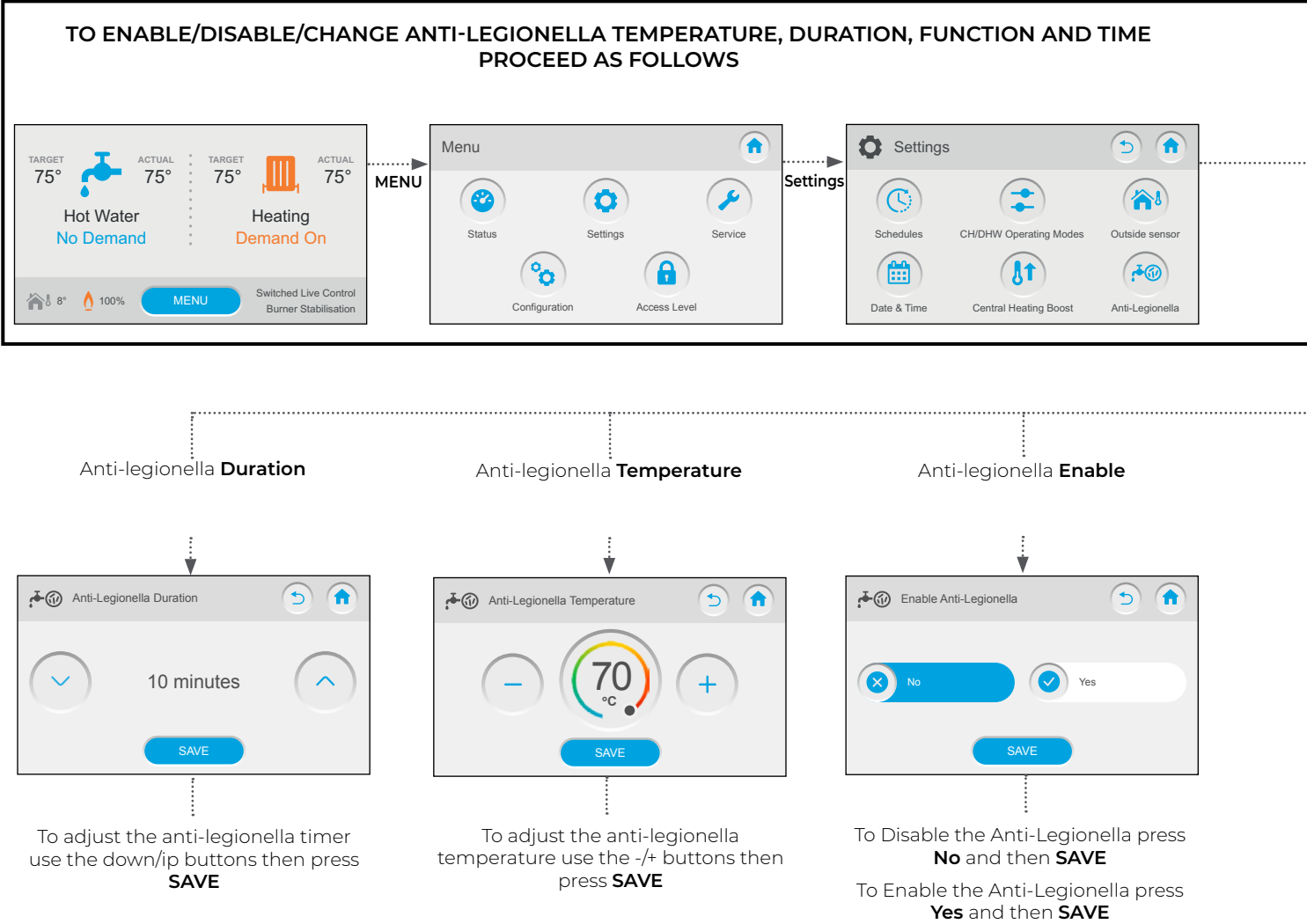
To view the boiler outputs
configuration press **Outputs List**

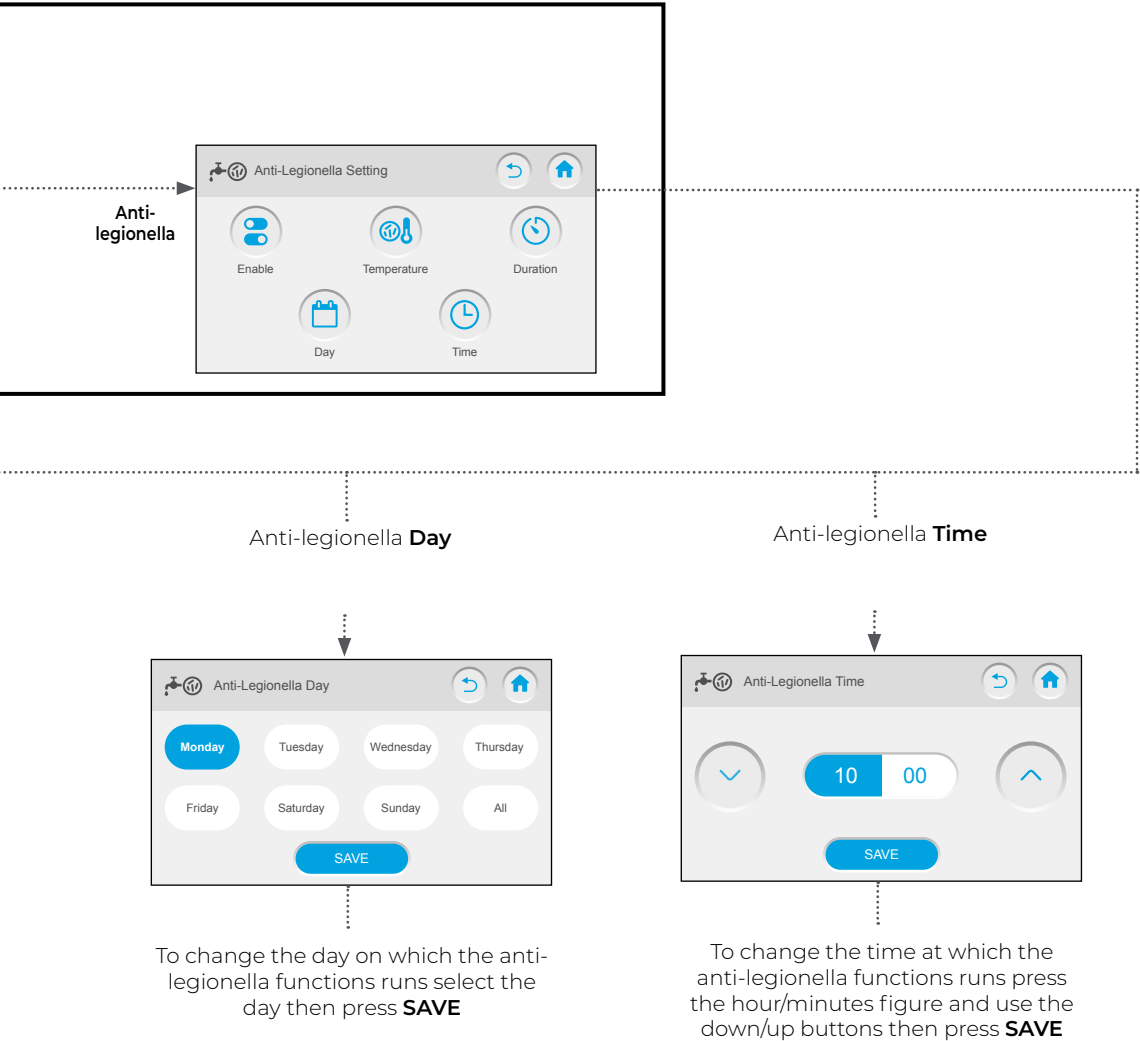


SECTION 2 - INSTALLATION

2.41 USER INTERFACE MENU OPERATION: ANTI-LEGIONELLA

Note that to change the Anti-legionella settings the boiler will first need to be set for either Service Engineer Access Level or Installer Access Level.
 Anti-Legionella settings are only applicable if a DHW circuit has been configured.

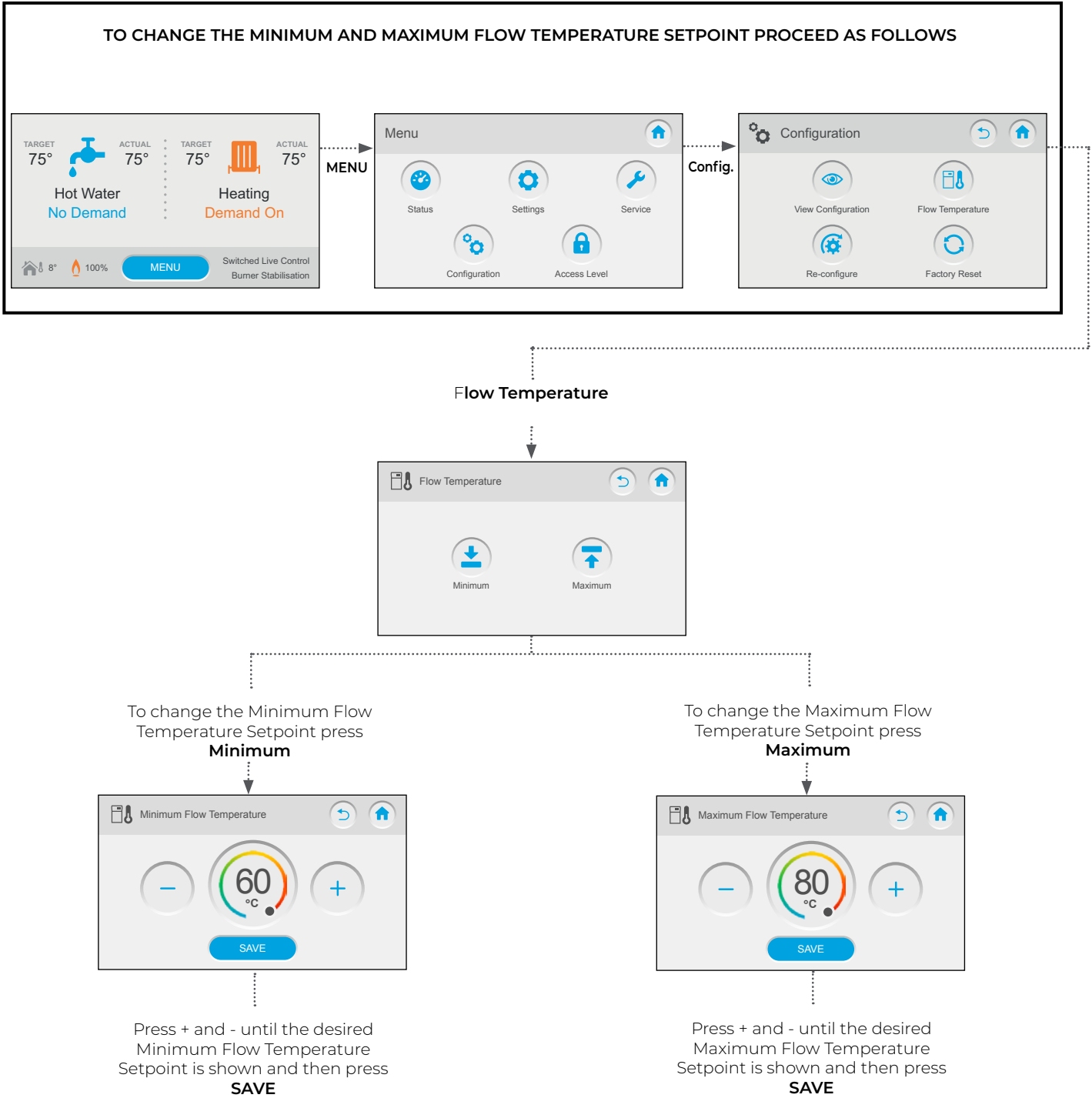




SECTION 2 - INSTALLATION

2.42 USER INTERFACE MENU OPERATION: MAXIMUM AND MINIMUM FLOW TEMPERATURE

Note that to change the Maximum or Minimum Flow Temperature the boiler will first need to be set for Installer Access Level



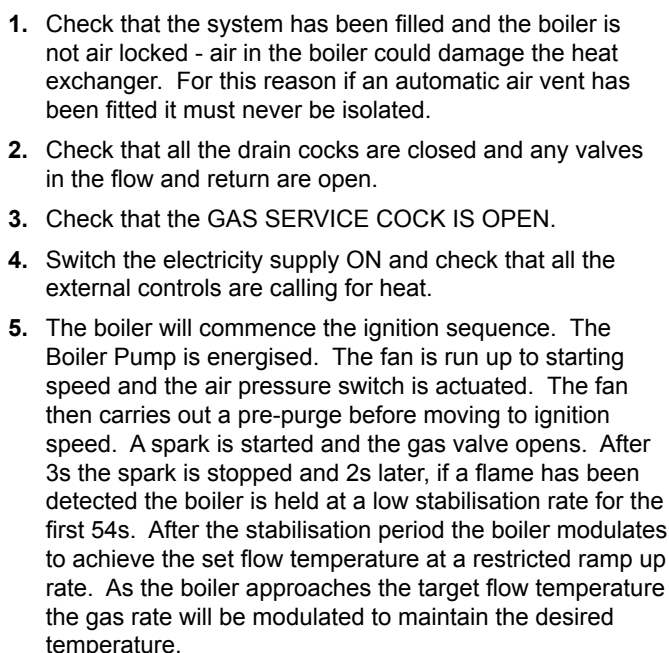
A. ELECTRICAL INSTALLATION

- WARNING.** Whilst effecting the required gas soundness test and purging air from the gas installation, open all windows and doors, extinguish naked lights and DO NOT SMOKE

1. The whole of the gas installation, including the meter, should be inspected and tested for soundness and then purged in accordance with the recommendations of the relevant standards listed on page 6.

In IE refer to I.S.820:2019.

OPERATING SEQUENCE



If after 5 ignition attempts the boiler has failed to light then it will lock out. Press reset to restart the ignition sequence.

Gas Rate

6. The gas valves are preset at the factory to nominal values. Dependant on site installation conditions (e.g. flue length) the boiler performance can vary slightly. To check the performance, operate the boiler and measure the flue CO₂ values at maximum and minimum rates, whilst adjusting the gas valve if necessary. (Refer to Frames 3.5 and 3.6).
7. Operate the boiler for 10 minutes and check the gas rate (Table 1). You should obtain a value at least 90% of the nominal.
8. Set all the boiler parameters (Refer to Frame 2.35) to appropriate settings.

SECTION 2 - INSTALLATION

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3. SERVICING

3.1 GENERAL CHECKS

Make the following checks for correct operation.

1. The correct operation of ANY secondary system controls should be proved. Operate each control separately and check that the main burner or circulating pump, as the case may be, responds.
2. Water circulation system;
 - a. With the system HOT examine all water connections for soundness.
 - b. With the system still HOT, turn off the gas, water and electricity supplies to the boiler and drain down to complete the flushing process.
- c. Refill and vent the system, clear all air locks and again check for water soundness.
- d. Balance the system.
3. Check the condensate drain for leaks and check it is discharging correctly.
4. Finally, set the controls to the Users Requirements.

3.2 HANDING OVER

ROUTINE OPERATION

Draw the attention of the boiler owner or his representative to the User Guide. Give a practical demonstration of the lighting and shutting down of the boiler.

Describe the function of the boiler and system controls and show how they are adjusted and used.

Hand these Installation and Servicing Instructions, and Log book to the customer and request them to keep them in a safe place for ready reference. For IE, it is necessary to complete a "Declaration of Conformity" to indicate compliance to the appropriate standard.

IMPORTANT. Point out to the owner that the boiler must have regular maintenance and cleaning, at least annually, in order to ensure reliable and efficient operation. Regular attention will also prolong the life of the boiler and should preferably be performed at the end of the heating season.

After servicing, complete the service section of the log book and return to the owner or their representative.

Recommend that a contract for this work should be made with the regional gas authority or a suitably qualified Gas Safe Registered Engineer. In IE servicing work must be carried out by a competent person.

3.3 SAFETY

It is the law that any service work must be carried out by a suitably qualified Gas Safe Registered Engineer.

In IE service work must be carried out by a Competent Person.

WARNING. Always turn off the gas supply at the gas service cock, and switch off and disconnect the electricity supply to the appliance and any external controls before servicing or replacing components.

IMPORTANT.

After completing the servicing or replacement of components always:

- Test for gas soundness
- Check the water system is correctly filled and free of air. Air in the boiler could cause damage to the heat exchanger
- Check the front panel is correctly fitted, ensuring that a good seal is made. Secure the controls fascia in place
- With the system hot examine all water connections for soundness
- Check the gas rate and measure the combustion CO/CO₂ content. The CO/CO₂ ratio of the flue gas should not be greater than 0.004 ratio & the CO should not exceed 350ppm
- Carry out functional checks as appropriate

3.4 SERVICING SCHEDULE

To ensure the continued safe and efficient operation of the appliance it is recommended that it is checked at regular intervals and serviced as necessary. The frequency of servicing will depend upon the installation condition and usage but should be carried out at least annually.

Ideal Heating does not accept any liability resulting from the use of unauthorised parts or the repair and servicing of appliances not carried out in accordance with the Company's recommendations and specifications.

Note.

Some aluminium oxide build-up within the heat exchanger assembly is quite usual with this type of condensing boiler. Removal and cleaning is recommended annually, the heat exchanger, sump, condensate collector and condensate trap must be inspected and cleaned.

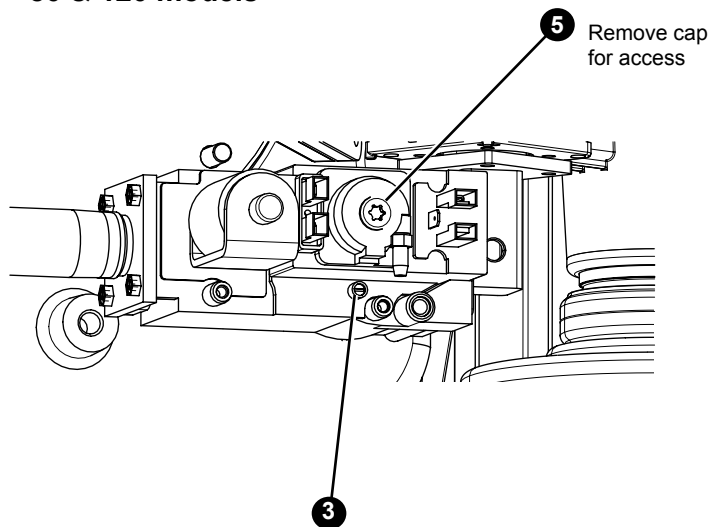
1. Light the boiler and carry out function checks, noting any operational faults.
2. Run the boiler for 10 minutes and then check the gas consumption rate. Refer to Frame 3.5 for reference on how to force the burner to maximum and minimum rates.
3. For correct boiler operation the CO/CO₂ ratio of the flue gas should not be greater than 0.004 ratio. If this is the case and the gas input is at least 90% of the nominal, once compliance with the note above is ensured, then no further action is required. If not proceed to 4. Refer to frames 3.7 to 3.12 for guidance.

4. Refer to Frame 3.3.
5. Remove and inspect the fan/venturi assembly. Refer to Frame 3.8.
6. Remove the burner manifold and inspect the electrodes and sightglass. Refer to Frames 3.9 and 3.15.
7. Remove and clean the burner. Refer to Frame 3.10.
8. Inspect the heat exchanger through the burner opening.
9. Remove the sump cover and scrape out any deposits. Refer to Frame 3.11.
10. Clean the condensate trap/s. Refer to Frame 3.12.
11. Remove the flue hose adapter from the condensate collector and clean, ensuring the seal and the end of the hose are free of any debris.
12. Check that the flue terminal and air inlet are unobstructed and that the fluing and ducting are correctly sealed.
13. After servicing refer to Frame 3.3 for final safety checks.

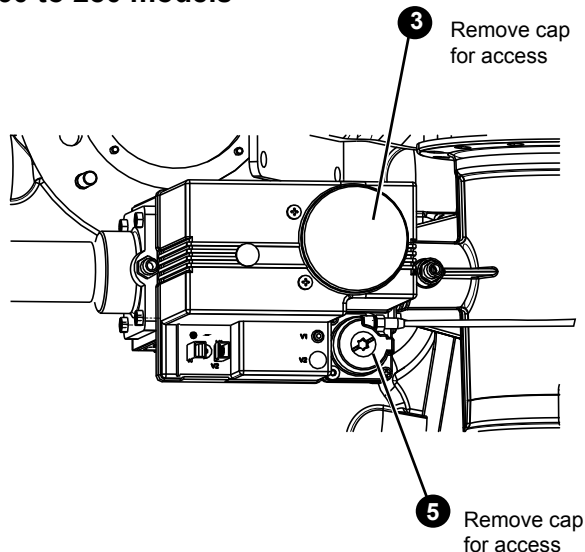
3.5 GAS VALVE ADJUSTMENT

Note. Boilers operating with Propane must have the dedicated conversion kit installed. *Propane variant to follow at a later date.*

80 & 120 models



160 to 280 models



Maximum rate adjustment

1. Switch the boiler on and operate for 10 minutes.
2. To ensure the boiler operates at maximum rate without modulating, set the fan speed to maximum following the steps in Fig 3.6.
3. Using the maximum rate adjustment screw, adjust the valve until the CO₂ value measures 9.7% ±0.2 (n.b. clockwise reduces CO₂).

3.5 GAS VALVE ADJUSTMENT - CONTINUED

Minimum rate adjustment

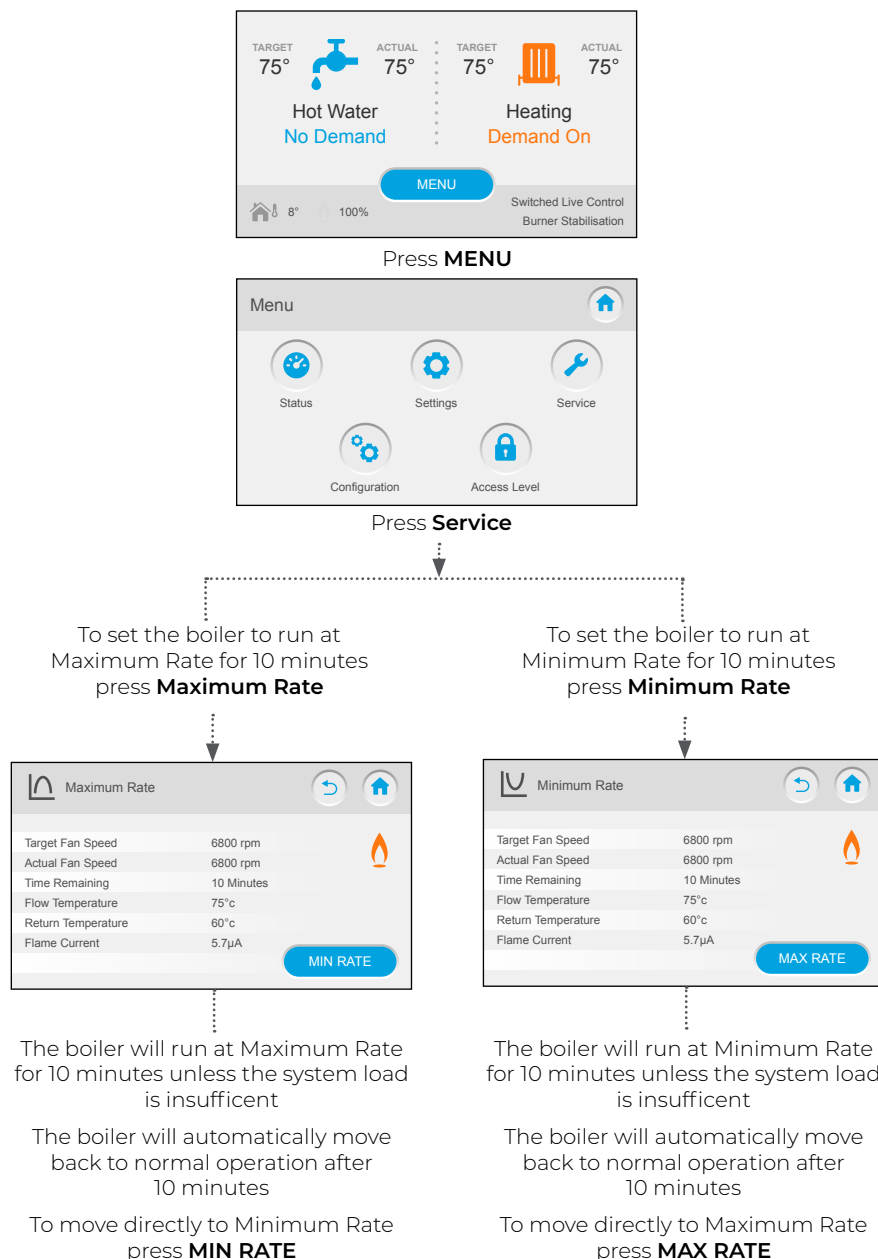
- To ensure the boiler operates at minimum rate without modulating, set the fan speed to minimum following the steps in Fig 3.6.
- Remove the protective cap from the offset adjustment screw and adjust the valve until the CO₂ value measures 9.5% ±0.2.

(n.b. anticlockwise reduces CO₂).

Care must be taken when adjusting the offset as this is sensitive when compared to the throttle adjustment.

- Reset the boiler back to maximum rate and measure the CO₂.
- If this does not measure within 9.7% ±0.2 repeat steps 3 to 5.
- Press the home button to return to the home screen.
- Seal the adjustment screw with tamper proof paint and replace caps where applicable.

3.6 GAS VALVE ADJUSTMENT DIAGRAM



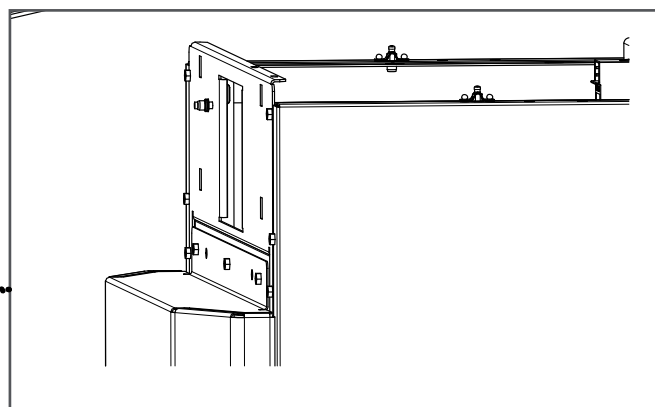
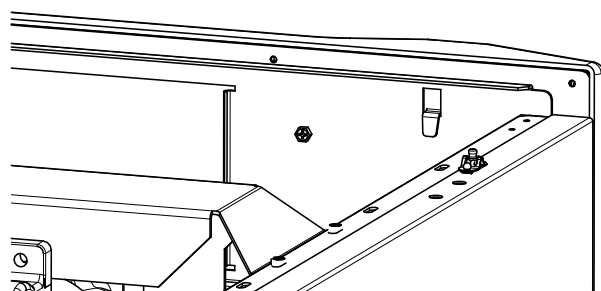
3.7 CASING REMOVAL AND ACCESS

Top Panel

1. Remove the two bolts at the rear of the top panel. Lift up from side panel retention studs and remove.

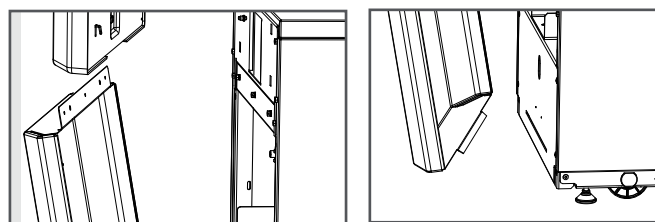
Control Pod

2. Remove the bolt at the rear of the control pod. Disconnect the Electrical harnesses from the rear. Lift the pod up and remove.



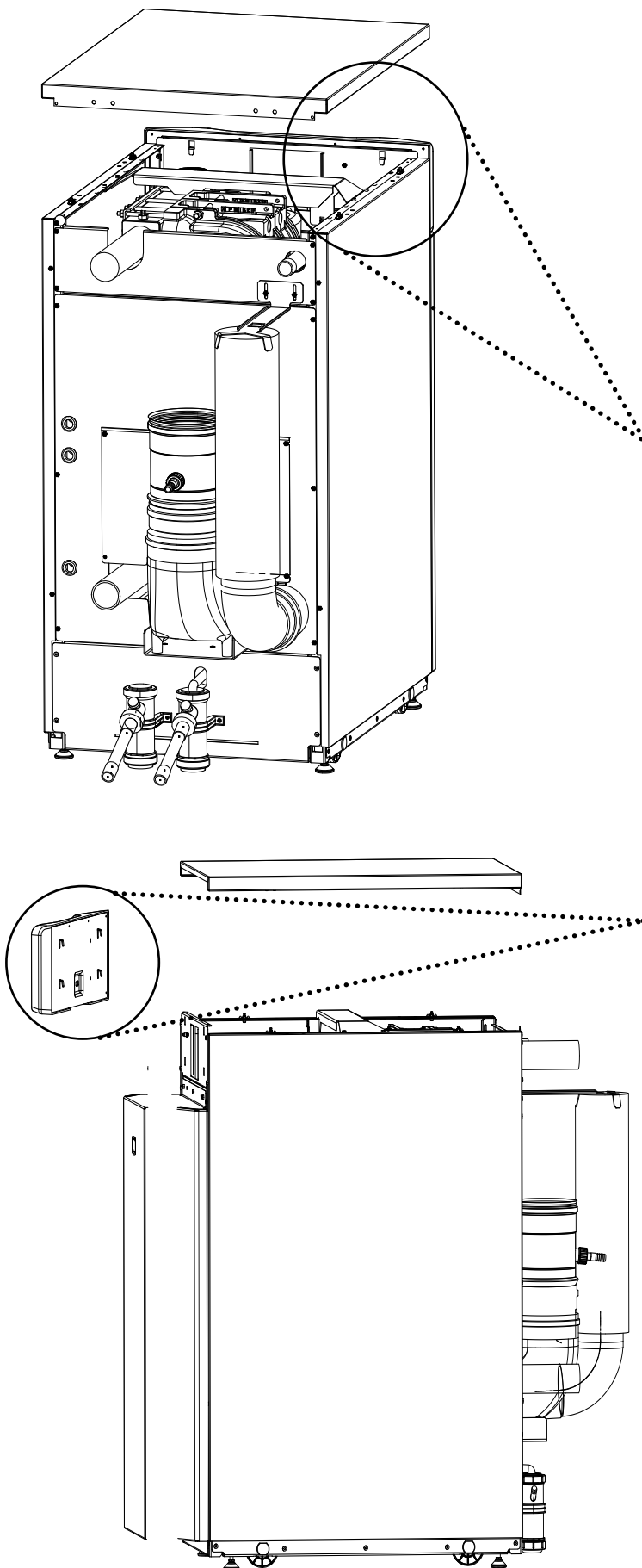
Front Panel

3. Remove the 3 bolts along the top of the front panel. The bolts are visible when the Control pod is removed. Pull the Panel forwards at the top, lift out of bottom slot and remove.

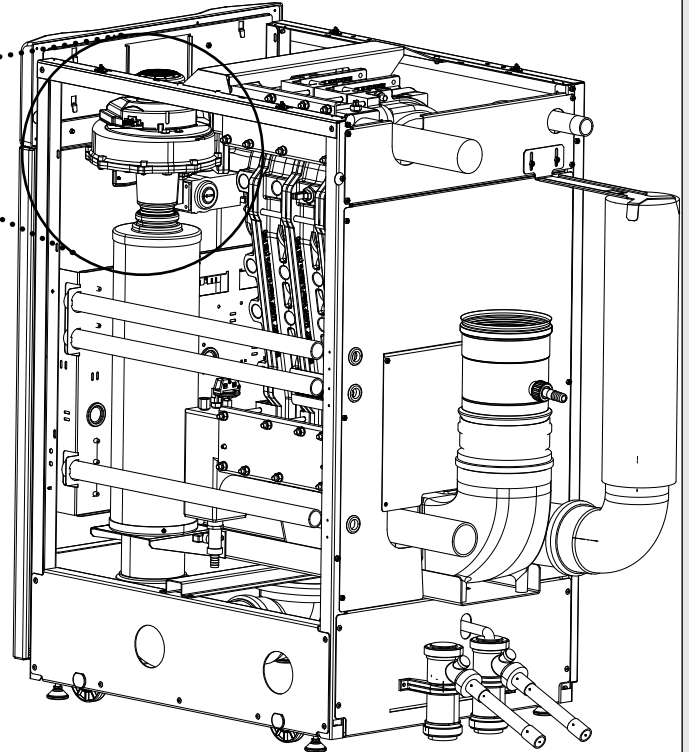
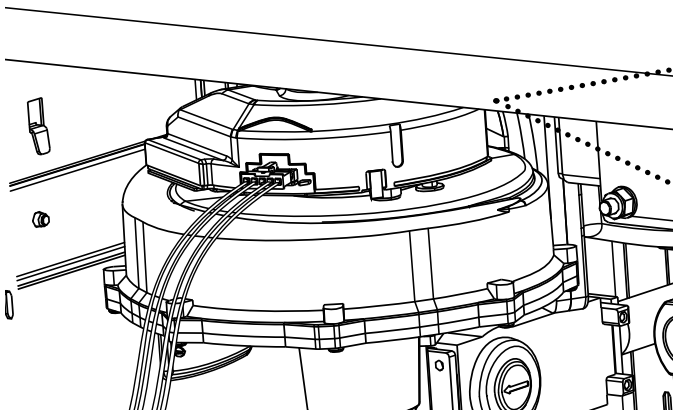


Side Panels

4. On the side panel, undo the two screws at the rear and two at the front. Lift from the frame and remove.



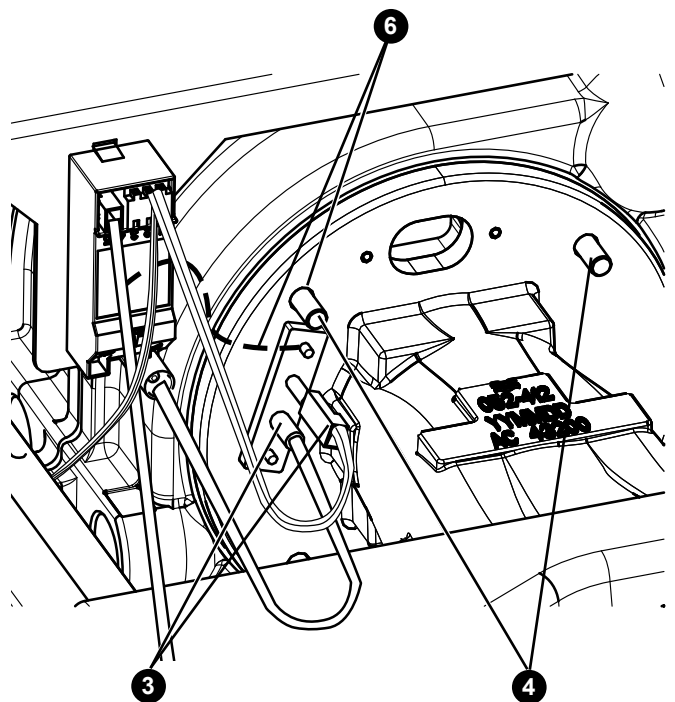
3.8 REMOVAL OF FAN / VENTURI INSPECTION



1. Remove the casing front, casing right, casing top and controls fascia panels. (Refer to Frame 3.7).
2. Disconnect the electrical connections from the fan.
3. Remove 4 bolts securing inlet air pipe/silencer to the venturi taking care to retain O ring seal (160-280 only, 80-120 employ push fit).
4. Whilst providing temporary support for the gas valve remove the 4 screws securing the gas valve (160-280) or gas valve outlet elbow (80-120) to the venturi.
5. Remove sensing pipe from venturi (160-280 only).
6. Whilst providing temporary support for the fan/venturi, remove the 4 fasteners securing the fan outlet connection. Lift the fan/venturi assembly clear of the boiler taking care to retain the fan outlet gasket.
7. Remove the 4 screws securing the venturi to the fan inlet, taking care to retain the O ring.
8. Re-assemble in reverse order replacing any seals/gaskets which show signs of wear.
9. Refer to Frame 3.3 for final safety checks.

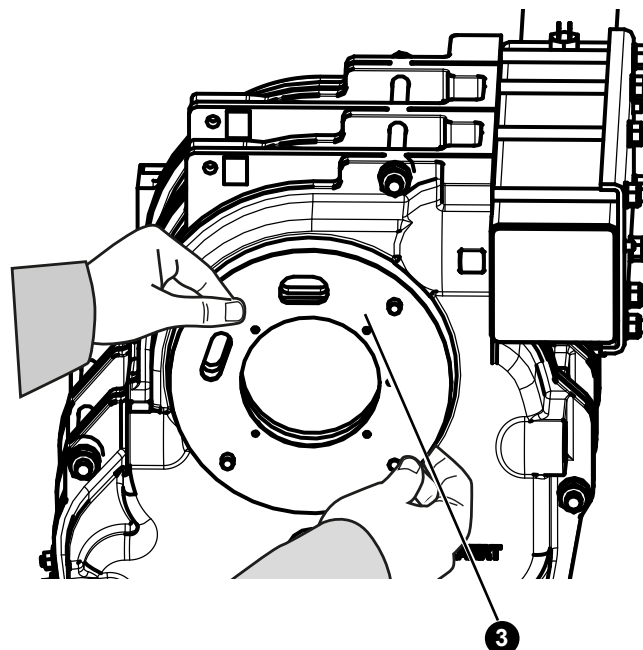
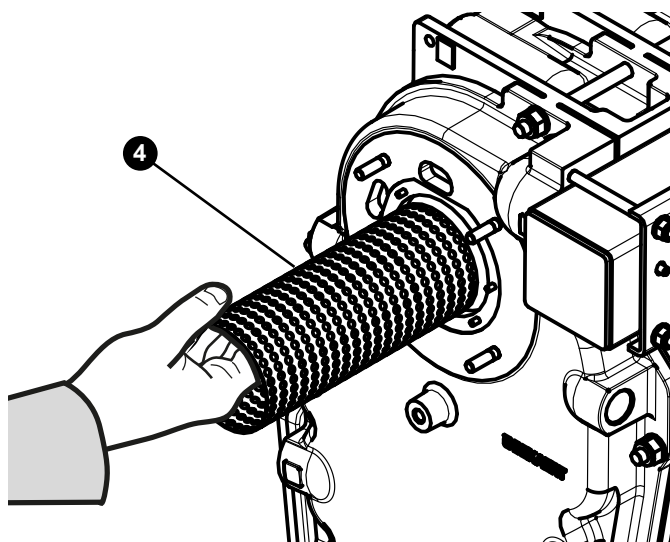
3.9 REMOVAL OF BURNER MANIFOLD

1. Refer to Frame 3.7.
2. Refer to Frame 3.8 for removal of fan/venturi assembly.
3. Disconnect the ignition and earth lead from the electrodes.
4. Whilst providing temporary support for the burner manifold remove the 4 retaining nuts.
5. Withdraw the burner manifold from the boiler taking care not to damage the electrodes.
6. Re-assemble in reverse order, replacing any seals/gaskets which show signs of wear. The nyloc nuts should be renewed. Ensure the short earth lead is secured under the top LH nut.
7. Refer to Frame 3.3 for final safety checks.



3.10 REMOVAL / CLEANING OF BURNER

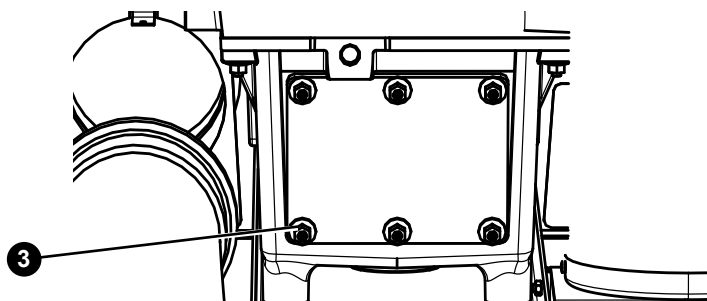
1. Refer to Frame 3.7.
2. Refer to Frame 3.9 for removal of burner manifold.
3. Remove the gasket from the 4 studs.
4. Draw the burner out of the heat exchanger.
5. The burner can be cleaned on the inside surface using a soft brush and/or vacuum. The metal fibre outer surface must not be brushed. If the burner is showing signs of damage it must be replaced.



6. Re-assemble in reverse order replacing any seals/gaskets which show signs of wear. When re-fitting the burner there are 2 small lugs cast into the end of the combustion chamber which support the end of the burner.
7. Refer to Frame 3.3 for final safety checks.

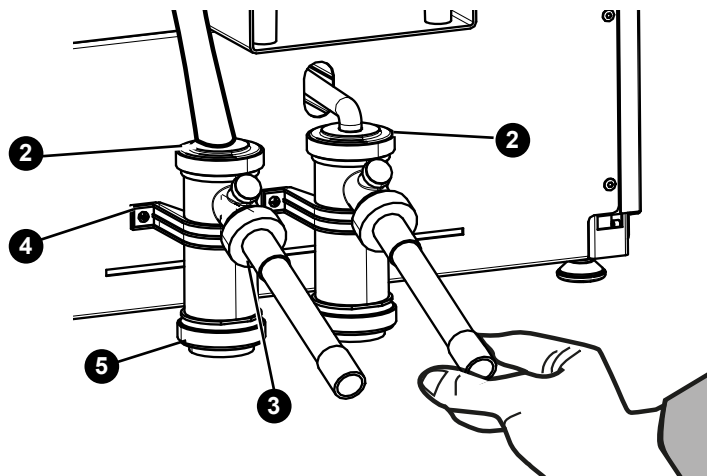
3.11 REMOVAL OF SUMP COVER

1. Refer to Frame 3.3.
2. Remove the front panel (Refer to Frame 3.7).
3. Remove the 6 nuts and withdraw the sump cover plate taking care to retain the gasket.
4. Scrape out any deposits within the sump.
5. Re-assemble in reverse order replacing the sump cover plate gasket if it is showing signs of wear.
6. Refer to Frame 3.3 for final safety checks.



3.12 CLEANING CONDENSATE TRAP

1. Refer to frame 3.7.
2. Unscrew the top fitting of the condensate trap.
3. Unscrew the condensate outlet fitting.
4. Unscrew bracket and remove trap.
5. Unscrew the base of the trap and drain into a bucket.
6. Remove all debris, flushing with water if necessary.
7. Re-fit the base of the trap and ensure the trap is filled with water to prime it before operation of the boiler.
8. Re-fit in reverse order.



3.13 GAS VALVE REPLACEMENT

1. Refer to Frame 3.3 for safety checks.
2. Remove the boiler front and control fascia panels. (Refer to Frame 3.7).
3. Remove the 4 screws securing the controls fascia support bracket and withdraw.
4. Disconnect the electrical connections from the gas valve.
5. Disconnect the pressure sensing tube from the gas valve.
6. Whilst providing temporary support for the inlet gas pipe, remove the 4 screws securing the inlet flange.
7. Whilst providing temporary support for the gas valve, remove the 4 screws securing the gas valve outlet.
8. Withdraw the gas valve taking care to retain the inlet and outlet O rings.
9. Re-assemble in reverse order. Replace gas valve inlet/outlet O rings if showing signs of wear.
10. Refer to instruction sheet with spare gas valve for correct setting procedure.
11. Refer to Frame 3.3 for final safety checks.

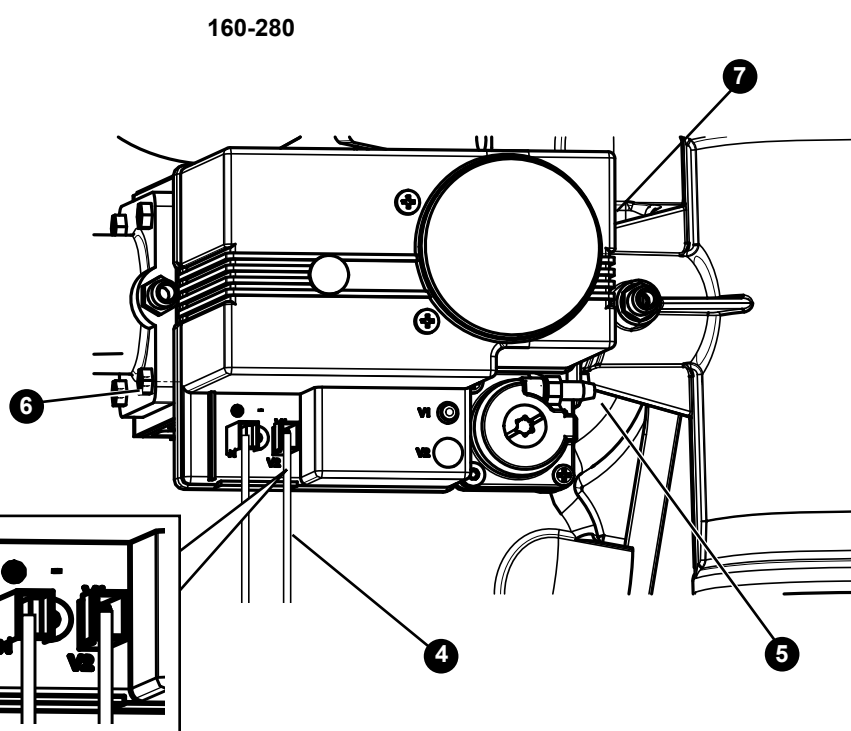
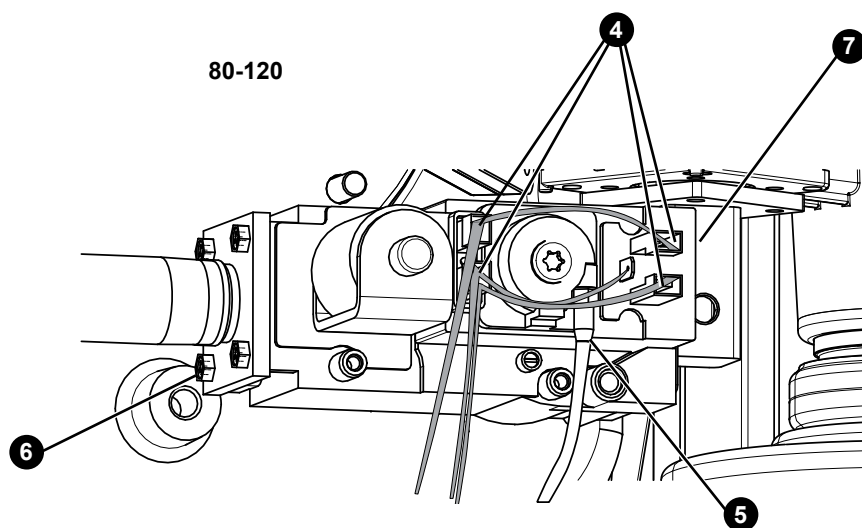
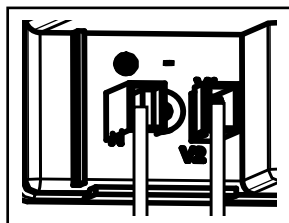


Image shown with push fit electrical connection cover removed for clarity

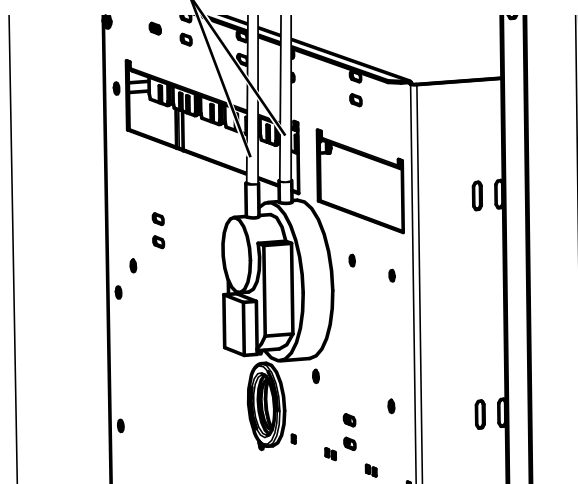
Left and right terminals
(no polarity)



3.14 AIR PRESSURE SWITCH REPLACEMENT

1. Refer to Frame 3.3 for safety checks.
2. Remove the boiler front panels. (Refer to Frame 3.7).
3. Remove the 2 electrical connections from the air pressure switch (no polarity) which is located at the top rear of the main control panel.
4. Disconnect the pressure sensing tubes.
5. The air pressure switch can now be unclipped from its supporting cradle.
6. Re-assemble in reverse order. Connect the sensing tube from the T-piece to P1 and the sensing tube from the gas valve outlet elbow (80-120) or venturi gas valve connections (160-280) to P2.
7. Refer to Frame 3.3 for final safety checks.

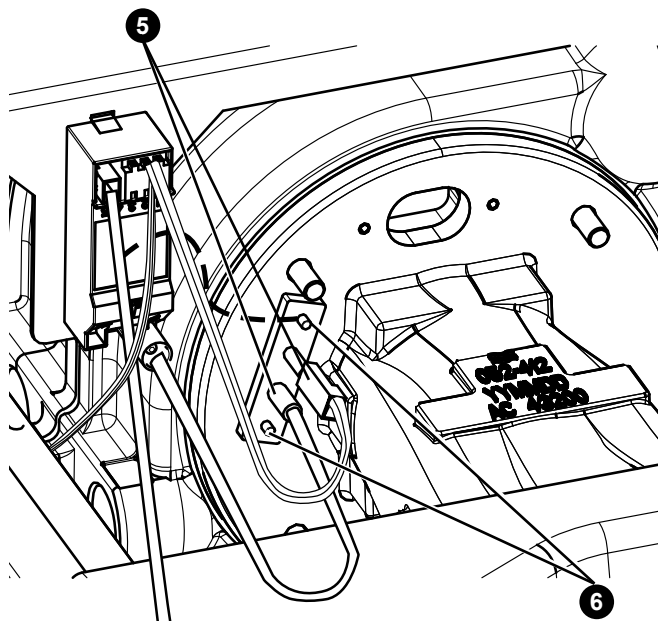
Pressure sensing tubes



SECTION 3 - SERVICING

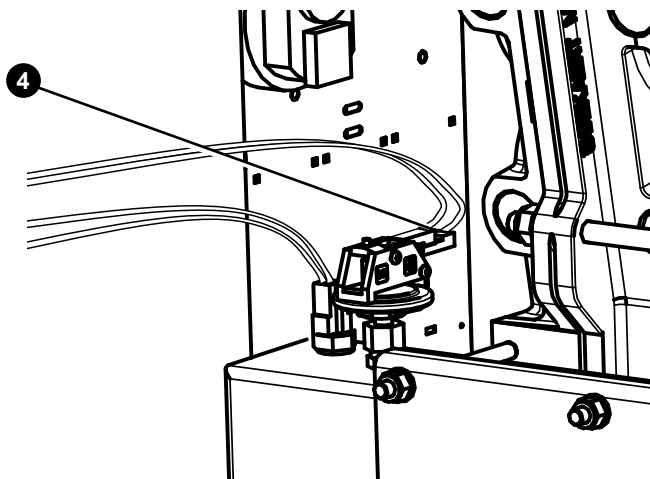
3.15 IGNITION/DETECTION ELECTRODE TESTING/REPLACEMENT

1. Refer to Frame 3.3 for safety checks.
2. Remove front boiler panels. Refer to Frame 3.7.
3. The flame current can be viewed from the boiler user interface menu (see Frame 2.37)
4. A reading below 6.5uA indicates a fault.
5. To replace the ignition/detection electrode remove the controls fascia, pull off the HT and earth leads from the spark/detection electrode.
6. Remove the 2 nuts and washers.
7. Check the electrode gap is 4.0mm.
8. Replace the electrode using the new gasket provided.
9. Re-assemble in reverse order.
10. Refer to Frame 3.3 for final safety checks.



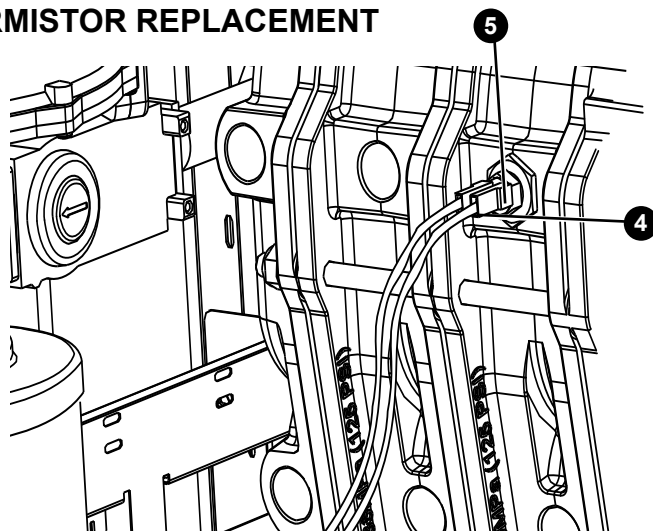
3.16 WATER PRESSURE SWITCH REPLACEMENT

1. Refer to Frame 3.7.
2. Remove the boiler front, control fascia, top and right side panels. (Refer to Frame 3.3 for safety checks).
3. Isolate water circuit and drain boiler.
4. Pull off the electrical connections (no polarity) from the pressure switch.
5. Unscrew the water pressure switch
6. Fit the new water pressure switch.
7. Re-assemble in reverse order.
8. Re-fill the system ensuring all the air in the heat exchanger is vented.
9. Refer to frame 3.3 for final safety checks.



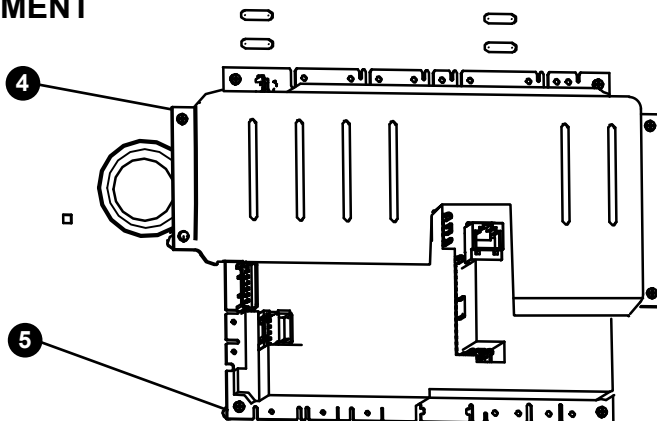
3.17 FLOW / RETURN / HE BLOCK / FLUE THERMISTOR REPLACEMENT

1. Refer to Frame 3.3 for safety checks.
2. Remove the boiler panels as appropriate. (Refer to Frame 3.7).
3. Isolate water circuit and drain boiler.
4. Pull off the electrical connections from the thermistor.
5. Unscrew the thermistor.
6. Fit the new thermistor with built in 'O' ring seal. Do not overtighten.
7. Re-assemble in reverse order.
8. Refill the system ensuring all the air in the heat exchanger is vented.
9. Refer to Frame 3.3 for final safety checks.



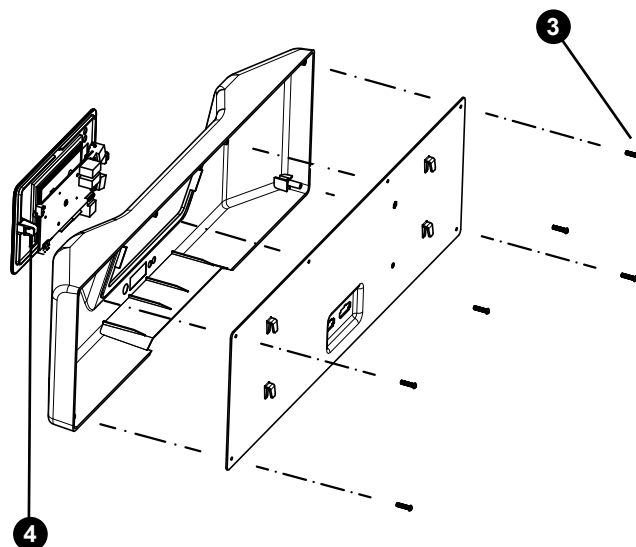
3.18 BOILER CONTROL MODULE REPLACEMENT

1. Refer to Frame 3.3 for safety checks.
2. Remove the front panel (Refer to Frame 3.7)
3. Disconnect the electrical connections from the PCB module.
4. Remove the clear PCB module cover from the 4 mounting pins.
5. Remove the PCB module from the 4 mounting pins.
6. Re-assemble in reverse order.
7. Refer to Frame 3.3 for final safety checks.



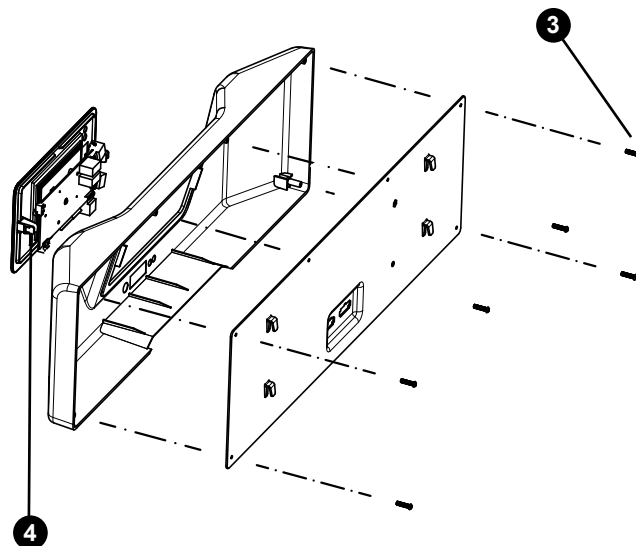
3.19 HMI POD REPLACEMENT

1. Refer to Frame 3.3 for safety checks.
2. Remove the top panel and HMI pod. (Refer to Frame 3.7)
3. Remove the HMI pod rear steel panel by removing the 6 retention screws.
4. Press the retention clips inwards on the HMI assembly to remove from the HMI pod. An adhesive foil gasket is in place so care must be taken.
5. Clean any remaining foil gasket from the plastic fascia surround which is part of the HMI assembly that has been removed.
6. Install the new HMI fascia gasket onto the HMI assembly in preparation for assembly into the replacement HMI pod. Ensure the adhesive backing has been removed on the HMI fascia foil gasket.
7. Re-assemble in reverse order using the replacement HMI pod and ensuring the foil gasket is pressed down along the edges of the fascia surround.
8. Refer to Frame 3.3 for final safety checks.



3.20 HMI ASSEMBLY REPLACEMENT

1. Refer to Frame 3.3 for safety checks.
2. Remove the top panel and HMI pod. (Refer to Frame 3.7)
3. Remove the HMI pod rear steel panel by removing the 6 retention screws.
4. Press the retention clips inwards on the HMI assembly to remove from the HMI pod. An adhesive foil gasket is in place so care must be taken.
5. Clean any remaining foil gasket from the HMI pod in preparation for the new HMI assembly.
6. Ensure the adhesive backing has been removed on the new HMI assembly fascia foil gasket.
7. Re-assemble in reverse order using the replacement HMI assembly and ensuring the foil gasket is pressed down along the edges of the fascia surround.
8. The HMI touchscreen has a protective screen fitted which needs removing. Safely and responsibly dispose of the protective screen.
9. Refer to Frame 3.3 for final safety checks.



FAULT FINDING

4. FAULT FINDING

Before attempting any electrical fault finding ALWAYS carry out the preliminary electrical system checks as detailed in the Instructions for the British Gas Multimeter or other similar commercially available meter.

The preliminary electrical system checks are the FIRST electrical checks to be carried out during a fault finding procedure.

On completion of any service/fault finding task which has required the breaking and remaking of electrical connections the following checks MUST be repeated:

- a** Earth continuity
- b** Polarity
- c** Resistance to earth

Detailed instructions on the replacement of faulty components are contained in the 'Servicing' section of these Installation & Servicing Instructions.

Before carrying out fault finding ensure that all external controls are calling for heat. There should be 230V \pm 10% available at the control box connection.

The boiler control module has replaceable fuses protecting the 230V and 24V circuits. A common reason for the 230V fuse to blow would be if the pump connected to the boiler was drawing more than 1 amp.

If the 230V fuse has blown, the display will be blank. Check for short circuits and pump loads before replacing the fuse.

Only carry out the following tests if you are gas safe qualified.

Ideal Technical Help Line: 01482 498663 Spares: 01482 498665

Imax Xtra 2 Fault Finding Screens (appear automatically if a fault occurs)

Fault Number	Fault	Suggested Corrective Actions
0	No Active Fault	A blocking fault occurred and has automatically reset. Refer to fault history for details.
10	Outside Sensor Fault	Check Outside Sensor Wiring Check Outside Sensor (25k Ω @ 5°C, 12k Ω @ 20°C)
20	Flow Sensor Fault	Check Flow Sensor wiring continuity Check Flow Sensor (25k Ω @ 5°C, 12k Ω @ 20°C) Check connector pins quality
26 353	Header Sensor	Check Header Sensor Wiring Check Header Sensor (25k Ω @ 5°C, 12k Ω @ 20°C)
28	Flue Sensor Fault	Check Flue Sensor wiring continuity Check Flue Sensor (25k Ω @ 5°C, 12k Ω @ 20°C) Check connector pins quality Check for flue blockages Check water flow through boiler
30	CH Circuit 1 Sensor	Check CH Circuit 1 Sensor Wiring Check CH Circuit 1 Sensor (25k Ω @ 5°C, 12k Ω @ 20°C)
32	CH Circuit 2 Sensor	Check CH Circuit 2 Sensor Wiring Check CH Circuit 2 Sensor (25k Ω @ 5°C, 12k Ω @ 20°C)
40	Return Sensor Fault	Check Return Sensor wiring continuity Check Return Sensor (25k Ω @ 5°C, 12k Ω @ 20°C) Check connector pins quality
50	DHW Sensor Fault	Check DHW Sensor Wiring Check DHW Sensor (25k Ω @ 5°C, 12k Ω @ 20°C)
81	LPB Wiring Fault	Check wiring to LPB module Check LPB module
82	Slave Boiler Address Fault	Check all Slave Boiler addresses are different
83	BSB Wiring Fault	Check wiring between primary PCB and user interface PCB Check wiring to extension modules Check extension modules Check user interface PCB Check primary PCB

FAULT FINDING

Imax Xtra 2 Fault Finding Screens Continued

84	Extension Module Address Fault	Check all Extension Module addresses are different
91	Primary PCB Fault	Replace primary PCB
98	CH Circuit 1 Mixing Valve Fault	Check wiring to CH Circuit 1 Mixing Valve Check CH Circuit 1 Extension Module
99	CH Circuit 2 Mixing Valve Fault	Check wiring to CH Circuit 2 Mixing Valve Check CH Circuit 2 Extension Module
100	More Than 1 Master Boiler	Check no slave boilers have address 0
105	Service Due	Contact Ideal Boilers 01482 498660
109	Overheat Blocking	Check pump wiring Check for 240Vac to pump Check pump impellor Check isolation valves Fill system to 1.0bar & vent system Fill system to 1.0bar Check temperature differential
152	Primary PCB Setup Fault	Reconfigure primary PCB
153	Primary PCB Setup Fault	Reconfigure primary PCB
183	Primary PCB Setup Fault	Reconfigure primary PCB
110	Overheat Lockout	Check pump wiring Check for 240Vac to pump Check pump impellor Check isolation valves Fill system to 1.0bar & vent system Fill system to 1.0bar & reset lockout Check temperature differential Check state of HV interlock input
111	Service Due	Contact Ideal Boilers 01482 498660
119	Low Water Pressure	Check water pressure sensor wiring Check water pressure sensor
121	CH Circuit 1 Temperature Not Reached	Check CH Circuit 1 Pump wiring Check CH circuit 1 pump Check CH circuit 1 mixing valve wiring Check CH circuit 1 mixing valve Check for blockages in CH circuit 1
122	CH Circuit 2 Temperature Not Reached	Check CH Circuit 2 Pump wiring Check CH circuit 2 pump Check CH circuit 2 mixing valve wiring Check CH circuit 2 mixing valve Check for blockages in CH circuit 2
125	Overheat Blocking	Check pump wiring Check for 240Vac to pump Check pump impellor Check isolation valves Fill system to 1.0bar & vent system Fill system to 1.0bar Check temperature differential

FAULT FINDING

Imax Xtra 2 Fault Finding Screens Continued

126	DHW Temperature Not Reached	Check DHW pump wiring Check DHW pump Check for blockages in DHW Circuit
127	Ant-Legionella Temperature Not Reached	Check DHW pump wiring Check DHW pump Check for blockages in DHW Circuit
128	Flame Loss	Check flue seal fitment Check flue system connectivity Check detection electrode Check gas valve for blockage
133	Ignition Lockout	Check gas supply during ignition Check 240Vac or 240Vrac to gas valve Check 240Vac to spark generator Check spark generator Clean spark electrode Set spark electrode gap to 3.5mm
146	Mains Frequency Fault	If boiler supplied from local generator then ensure local generator is supplying 50Hz otherwise check primary PCB
151	No Earth To Boiler	Check incoming wiring to boiler Check internal wiring to primary PCB
160	Fan Fault	Check fan wires are connected to fan & PCB Check wiring continuity
386		
129		
162	Air Pressure Switch Fault	Check flue for blockages Check condensate pipe for blockages Check/clean burner Check air pressure switch sensing pipes Check air pressure switch wiring Check air pressure switch
166		
387		
193	LV Interlock	Check state of LV interlock input
260	CH Circuit 3 Sensor	Check CH Circuit 3 Sensor Wiring Check CH Circuit 3 Sensor (25kΩ @ 5°C, 12kΩ @ 20°C)
270	High Heat Exchanger Temperature	Check pump wiring Check 240Vac at pump Check pump impellor Check isolation valves Check Heat Exchanger (25kΩ @ 5°C, 12kΩ @ 20°C)
317	Mains Frequency Fault	If boiler supplied from local generator then ensure local generator is supplying 50Hz otherwise check primary PCB
325	Same sensor configured multiple times	Ensure the same sensor is not configured twice
326	Same valve configured multiple times	Ensure the mixing valve function is not configured twice
327	Same valve configured multiple times	Ensure the mixing valve function is not configured twice

FAULT FINDING

Imax Xtra 2 Fault Finding Screens Continued

328	Same sensor configured multiple times	Ensure the same sensor is not configured twice
330	Sensor Input BX1 not configured	Configure Sensor Input BX1
331	Sensor Input BX2 not configured	Configure Sensor Input BX2
332	Sensor Input BX3 not configured	Configure Sensor Input BX3
333	Sensor Input BX4 not configured	Configure Sensor Input BX4
335	Sensor Input BX21 not configured	Configure Sensor Input BX21
336	Sensor Input BX22 not configured	Configure Sensor Input BX22
337	Sensor Input B1 not configured	Configure Sensor Input B1
338	Sensor Input B12 not configured	Configure Sensor Input B12
351	Primary Pump Address Error	Correctly Set Primary Pump Address
373	0-10V Pump Module Fault	Check wiring to 0-10V pump module Check 0-10V pump module
384	False Flame Lockout	Check detection electrode
385	Low Mains Voltage	Check mains supply
388	DHW Sensor not configured	Configure DHW Sensor
391	Room Thermostat 1 Fault	Check wiring to Room Thermostat 1 Check Room Thermostat 1
392	Room Thermostat 2 Fault	Check wiring to Room Thermostat 2 Check Room Thermostat 2
393	Room Thermostat 3 Fault	Check wiring to Room Thermostat 3 Check Room Thermostat 3
427	Flue Gas Damper not configured	Configure Flue Gas Damper
431	Heat Exchanger Sensor	Check Heat Exchanger Sensor wiring continuity Check Heat Exchanger Sensor (25kW @ 5°C, 12kW @ 20°C) Check connector pins quality
432	No Earth To Boiler	Check incoming wiring to boiler Check internal wiring to primary PCB
433	Heat Exchanger Temperature too High	Check pump wiring Check for 240Vac to pump Check pump impellor Check isolation valves
		Fill system to 1.0bar & vent system Fill system to 1.0bar & reset lockout

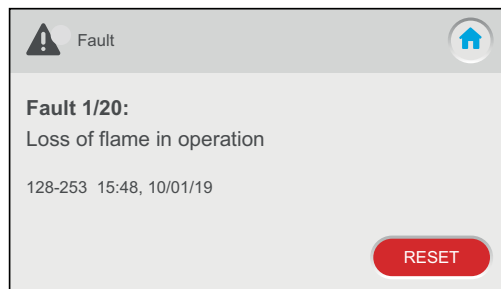
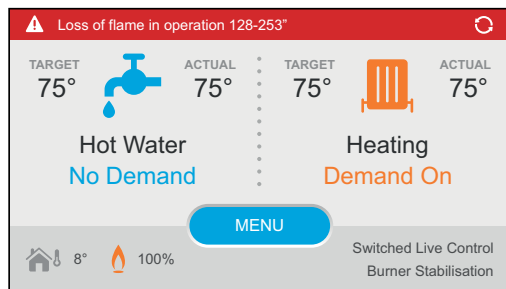
FAULT FINDING

4.1 TECHNICAL CHARACTERISTICS - TEMPERATURE SENSORS

The table below gives the relationship between temperature and resistance for the following sensors; flow thermistor, return thermistor, flue thermistor, heat exchanger thermistor, outside temperature sensor and DHW tank sensor.

Temperature in °C	Resistance in ohm
10	19,905
20	12,493
30	8,056
40	5,327
50	3,604
60	2,489
70	1,753
80	1,256
90	915
100	680

4.2 FAULT REPORTING



If an error is present on the Imax Xtra 2 Boiler then this will be displayed in the fault banner, located at the top of the normal operating page.

The user can access the fault, to access additional information, by pressing the fault banner. After this has been done the user will be taken to the following page.

On this page the user can see the time and date on which the error occurred.

4.3 FAULT RESET

If the fault that occurs in a lockout fault, as opposed to a blocking fault, then the user will have to reset the Imax after the fault has been cleared, to unblock the burner.

To do this simply push the RESET button located on the page above. The fault will then clear.

SPARE PARTS

When replacing any part on this appliance use only spare parts that you can be assured conform to the safety and performance specification that we require. Do not use reconditioned or copy parts that have not been clearly authorised by Ideal. Failure to do so could affect safety or performance of this appliance.

Comprehensive spares parts information and details of approved Ideal Parts Distributors are available on **idealheating.com**

Our Parts team are also available to help with your Ideal Spare Parts enquiries on 01482 498665.

When calling, and to ensure we can provide you with the most accurate parts information, please ensure you have the following to hand;

- Boiler Model
- Appliance GC Number
- Boiler Serial Number

NOTES

NOTES



FM 59915

Manufactured under
an ISO 9001
registered quality
management system

At Ideal Heating we take our environmental impact seriously, therefore when installing any Ideal Heating product please make sure to dispose of any previous appliance in an environmentally conscious manner. Households can contact their local authority to find out how. See <https://www.gov.uk/managing-your-waste-an-overview> for guidance on how to efficiently recycle your business waste.

Technical Training

Our Expert Academy offer a range of training options designed and delivered by our experts in heating. For details please contact:
expert-academy.co.uk

Ideal Boilers Ltd., pursues a policy of continuing improvement in the design and performance of its products. The right is therefore reserved to vary specification without notice.

Ideal is a trademark of Ideal Boilers.

Registered Office

Ideal Boilers Ltd., National Avenue, Hull, East Yorkshire, HU5 4JB

Tel 01482 492251 Fax 01482 448858

Registration No. London 322 137

Ideal Commercial Technical Helpline: 01482 498376

Ideal Parts: 01482 498665

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HEATING



USER GUIDE

IMAX XTRA 2
80 120 160 200 240 280
80P 120P 160P 200P 240P

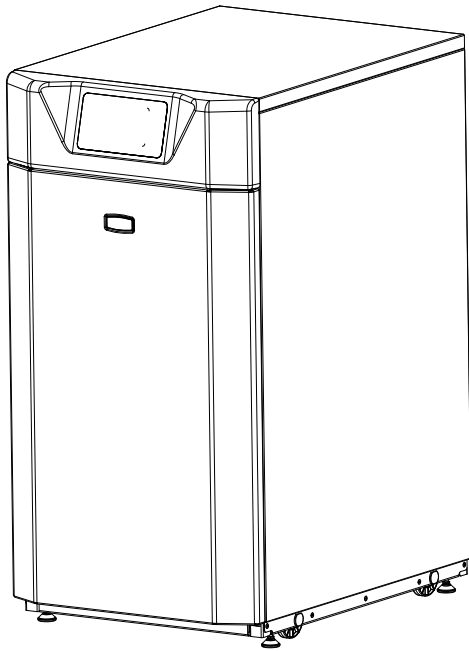
When replacing any part on this appliance, use only spare parts that you can be assured conform to the safety and performance specification that we require. Do not use reconditioned or copy parts that have not been clearly authorised by Ideal Heating. For the very latest copy of literature for specification and maintenance practices visit our website idealheating.com where you can download the relevant information in PDF format.



Imax Xtra 2

Natural Gas & Propane

Destination Countries: GB, IE



Introduction

The Imax Xtra 2 boilers are fully automatically controlled, floor standing, fanned, super efficient condensing appliances.

Due to the very high efficiency, condensate is produced from the flue gases and this is drained to a suitable disposal point through the plastic waste pipe at the bottom of the boiler. A condensate 'plume' will also often be visible at the flue terminal.

Safety

Current Gas Safety (Installation & Use) Regulations or rules in force.

In your own interest, and that of safety, it is the law that this boiler must be installed and maintained by a Gas Safe registered installer or in IE a competent person, in accordance with the above regulations.

The appliance should be serviced at least once a year by a Gas Safe registered installer or in IE a competent person.

It is essential that the instructions in this booklet are strictly followed, for safe and economical operation of the boiler.

Electricity Supply

The appliance must be earthed.

Supply 230 V - 50 Hz. The fusing should be 13A for 80-280kW.

This appliance is intended to be connected to the supply via a double-pole switch, having a 3mm contact separation in both poles, serving only the boiler and system controls. Alternatively, a 3-pin UNSWITCHED socket may be used.

All Gas Safe Register installers carry a Gas Safe Register ID card, and have a registration number. Both should be recorded in the Log Book. You can check your installer by calling Gas Safe Register direct on 0800 4085500.

Important Notes

- This appliance must not be operated without the casing correctly fitted and forming an adequate seal.
- Do not store objects around or on the boiler, and keep access clear at all times.
- Do not obstruct ventilation ducts, grilles or openings in the boiler room, room space or compartment that the appliance is installed in, or the passage of combustion and ventilation to the boiler.
- Do not turn off the boiler if it is to be left unattended in frosty weather.
- If it is known or suspected that a fault exists on the boiler then it **MUST NOT BE USED** until the fault has been corrected by a Gas Safe registered installer or in IE a competent person.
- Flammable materials must not be placed in close proximity to the appliance. Materials giving off flammable vapours must not be stored in the same room as the appliance.

In cases of repeated or continuous shutdown a Gas Safe registered installer or in IE a competent person should be called to investigate and rectify the condition causing this and carry out an operational test after each intervention on the device. Only the manufacturers original parts should be used for replacement.

Minimum Clearances

Rear:

700mm or adequate space from the rear of the jacket to make the flue connections and access to the flue sample point, drain connection, flue and any safety or control devices.

Note:- The installer should provide reasonable clearance to the rear of the boiler to allow for servicing and maintenance activities to be completed in a safe manner.

Left Side:

150mm.

Right Side:

150mm.

Front:

600mm minimum and 1000mm maximum; except, access doors may be closer, but not less than 200mm and 600mm must still be available for service across the width of the boiler.

Top:

500mm.

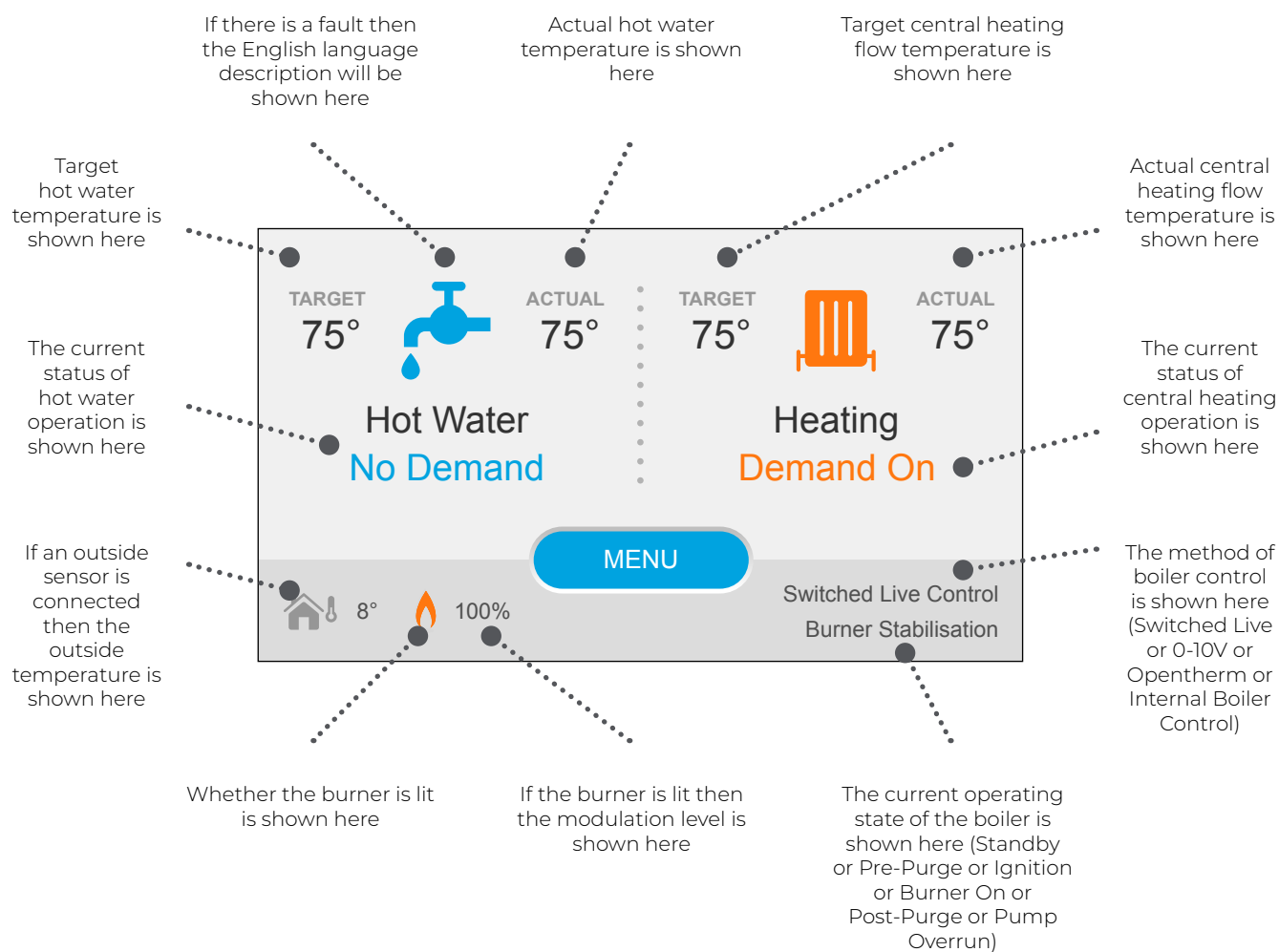
To light the boiler refer to Frame 1.11

1. CHECK THAT THE ELECTRICITY SUPPLY TO THE BOILER IS OFF.
2. Switch on the electricity supply to the boiler and check that all external controls, e.g. programmer, room thermostat etc. are on. Allow the boiler to carry out a self check.

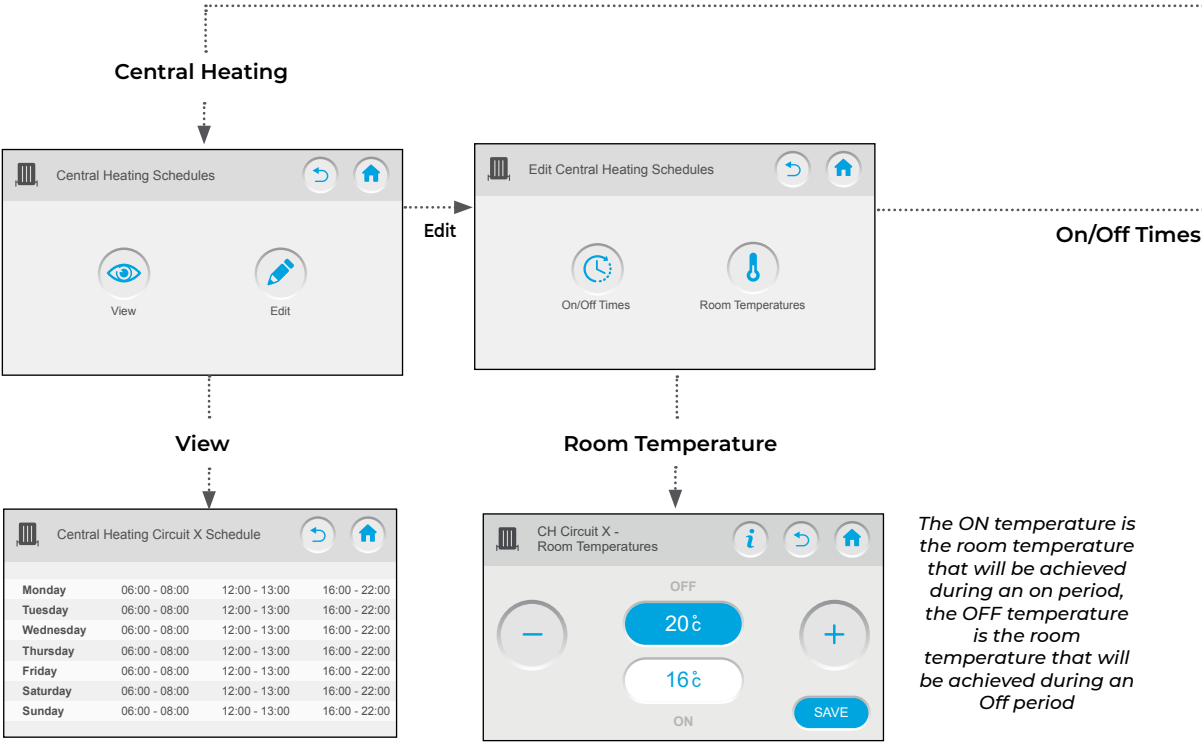
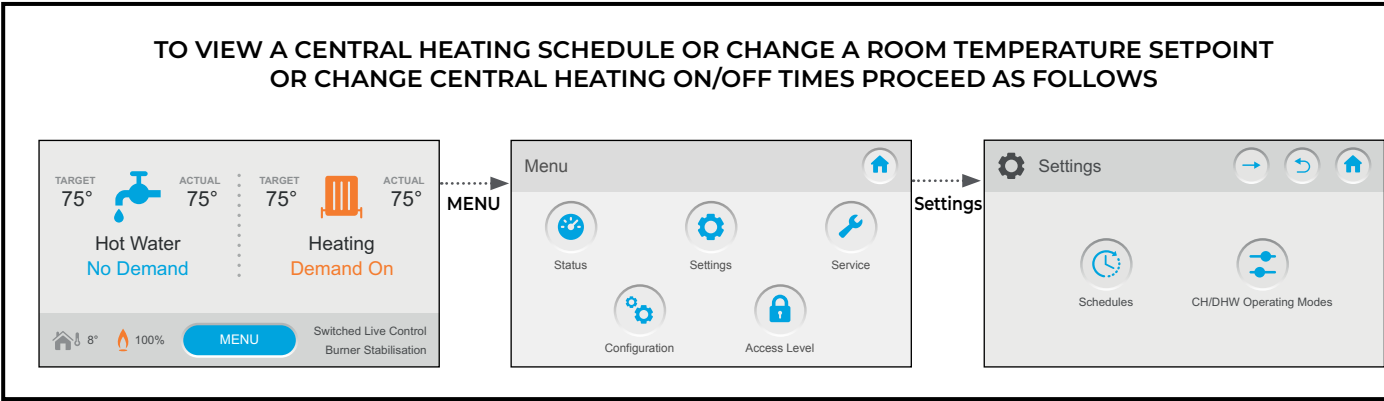
The boiler will commence the ignition sequence, supplying heat to the system when required.

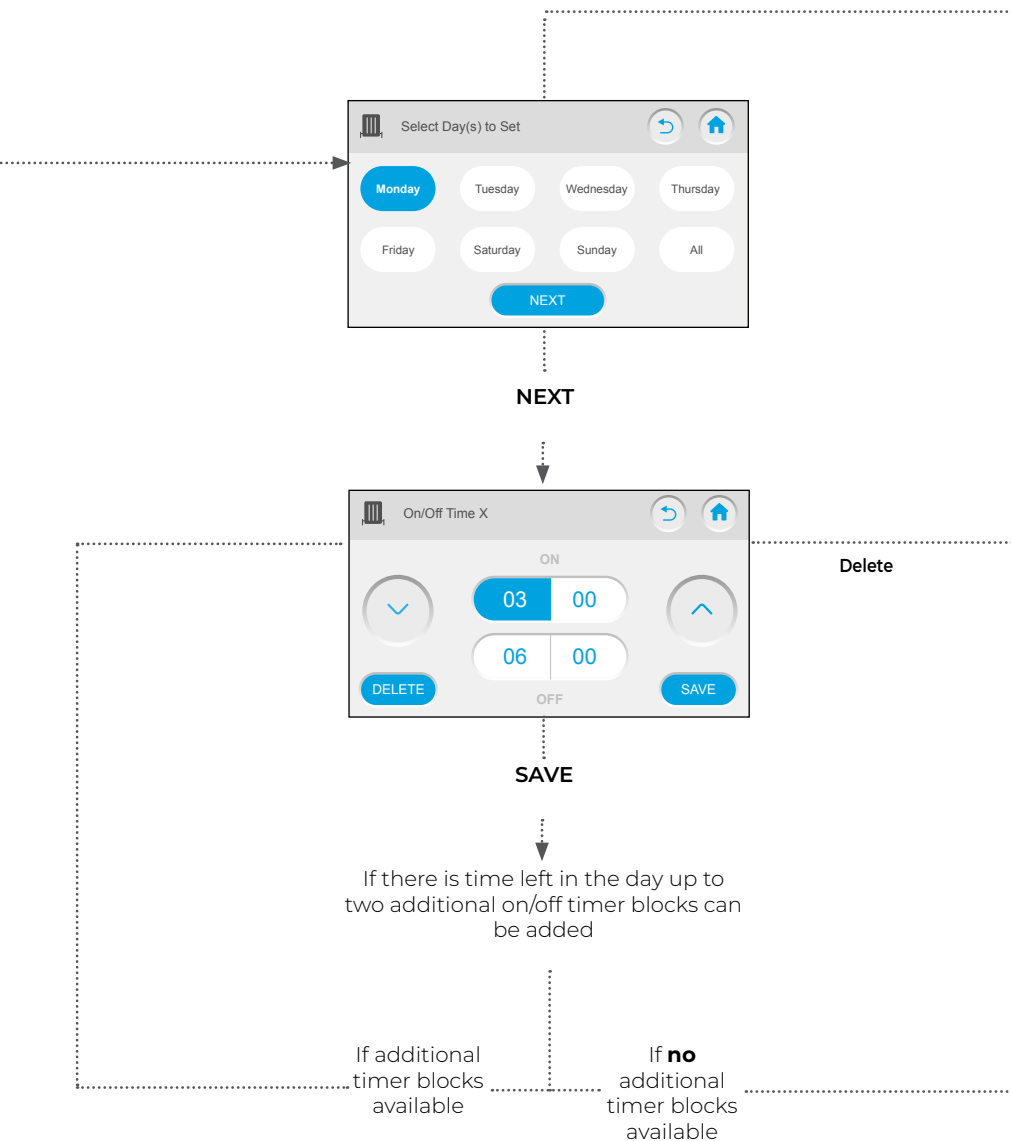
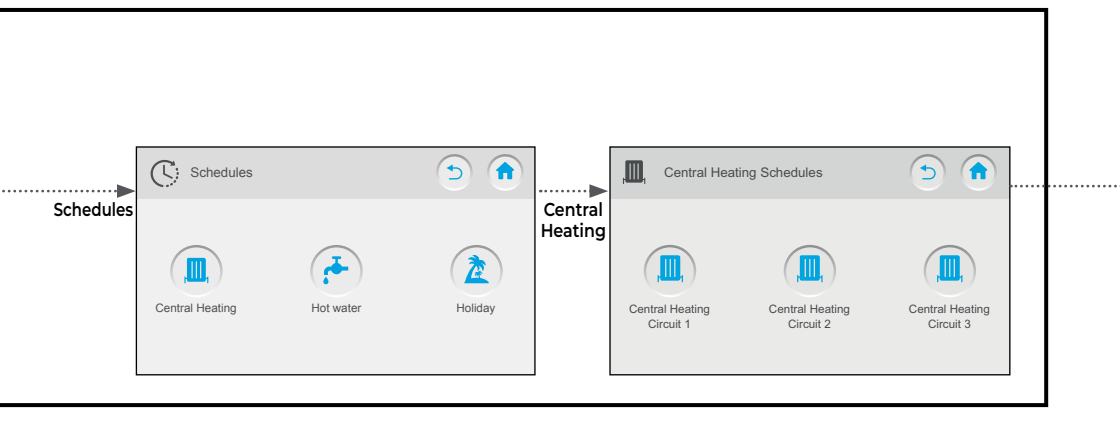
CAUTION. To avoid the possibility of injury during the installation, servicing or cleaning of this appliance care should be taken when handling edges of sheet steel components.

1 IMAX XTRA 2 USER INTERFACE MENU OPERATION

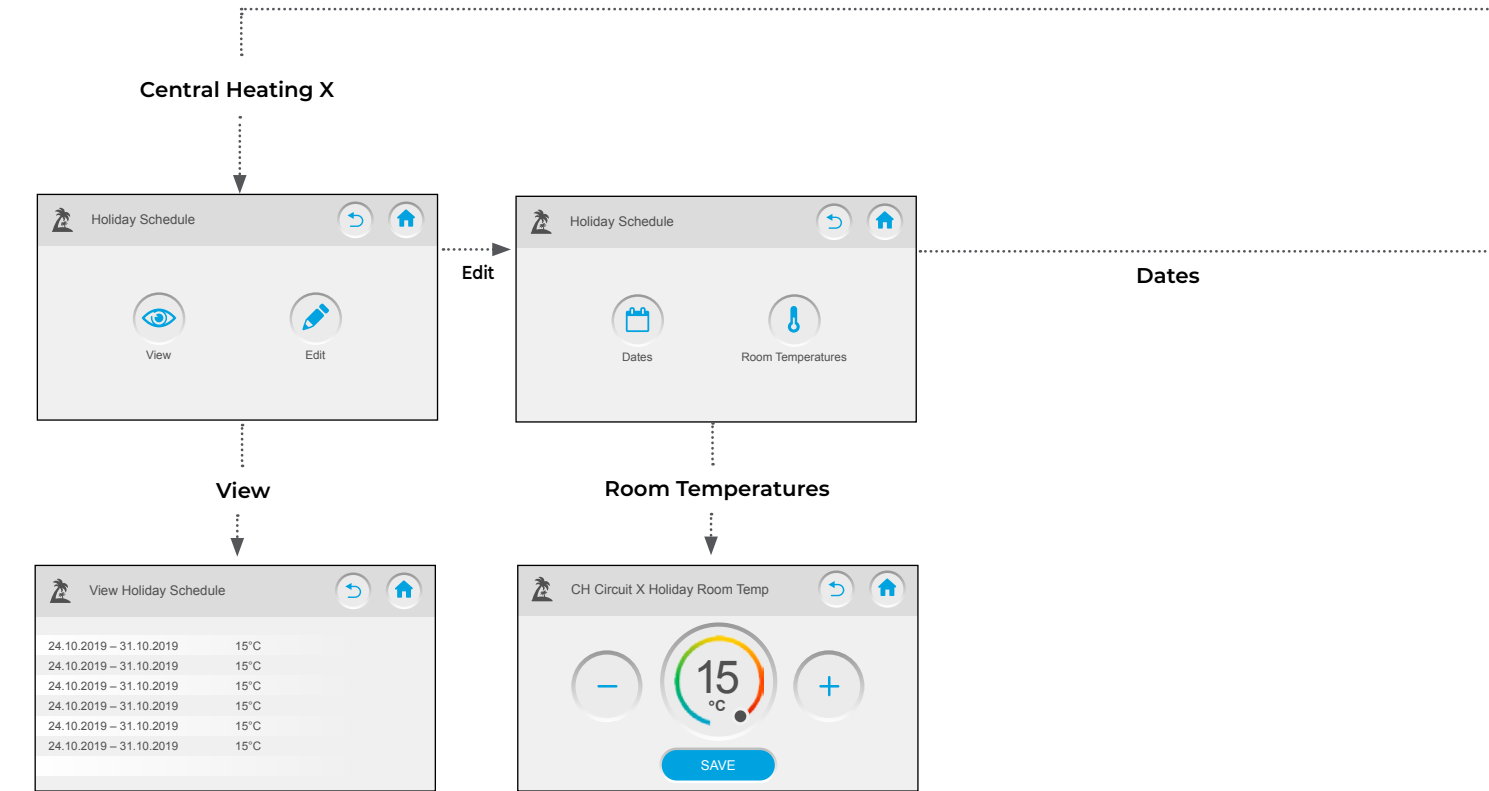
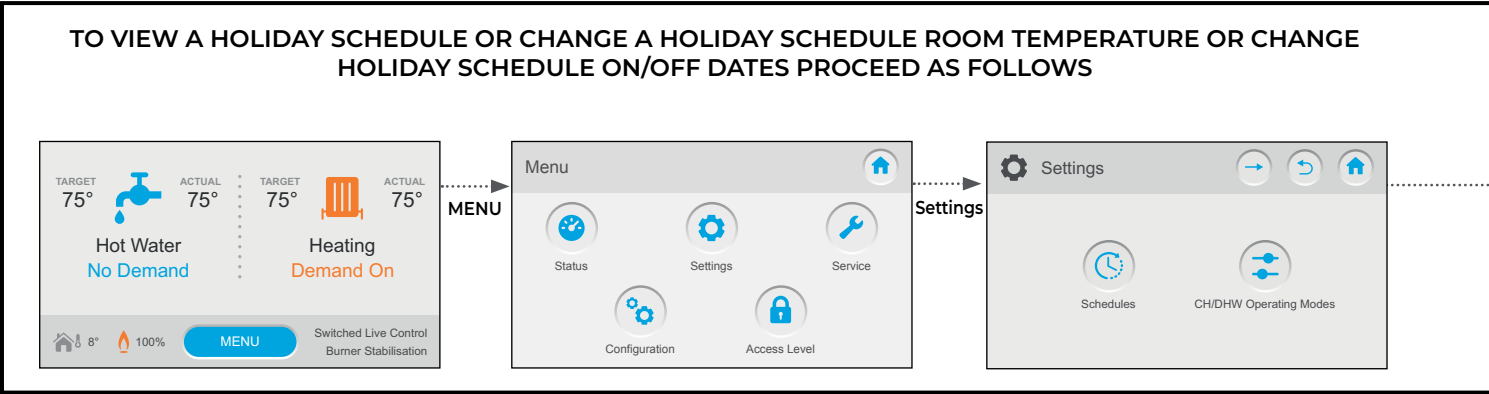


2 USER INTERFACE MENU OPERATION: CENTRAL HEATING SCHEDULES

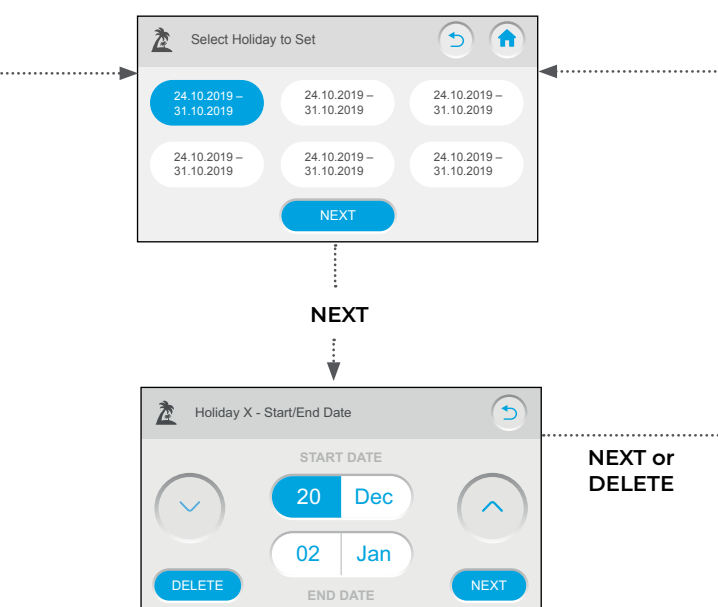
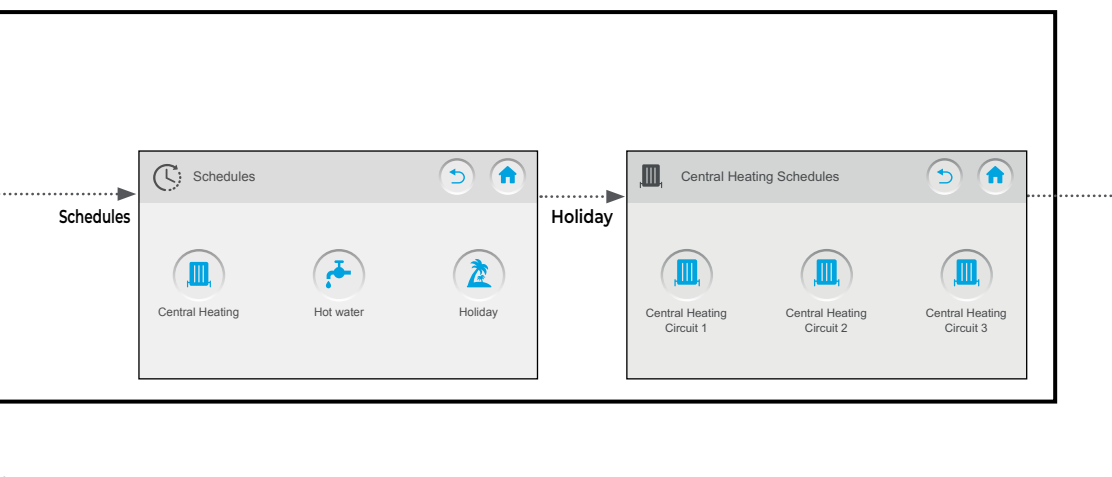




3 USER INTERFACE MENU OPERATION: HOLIDAY



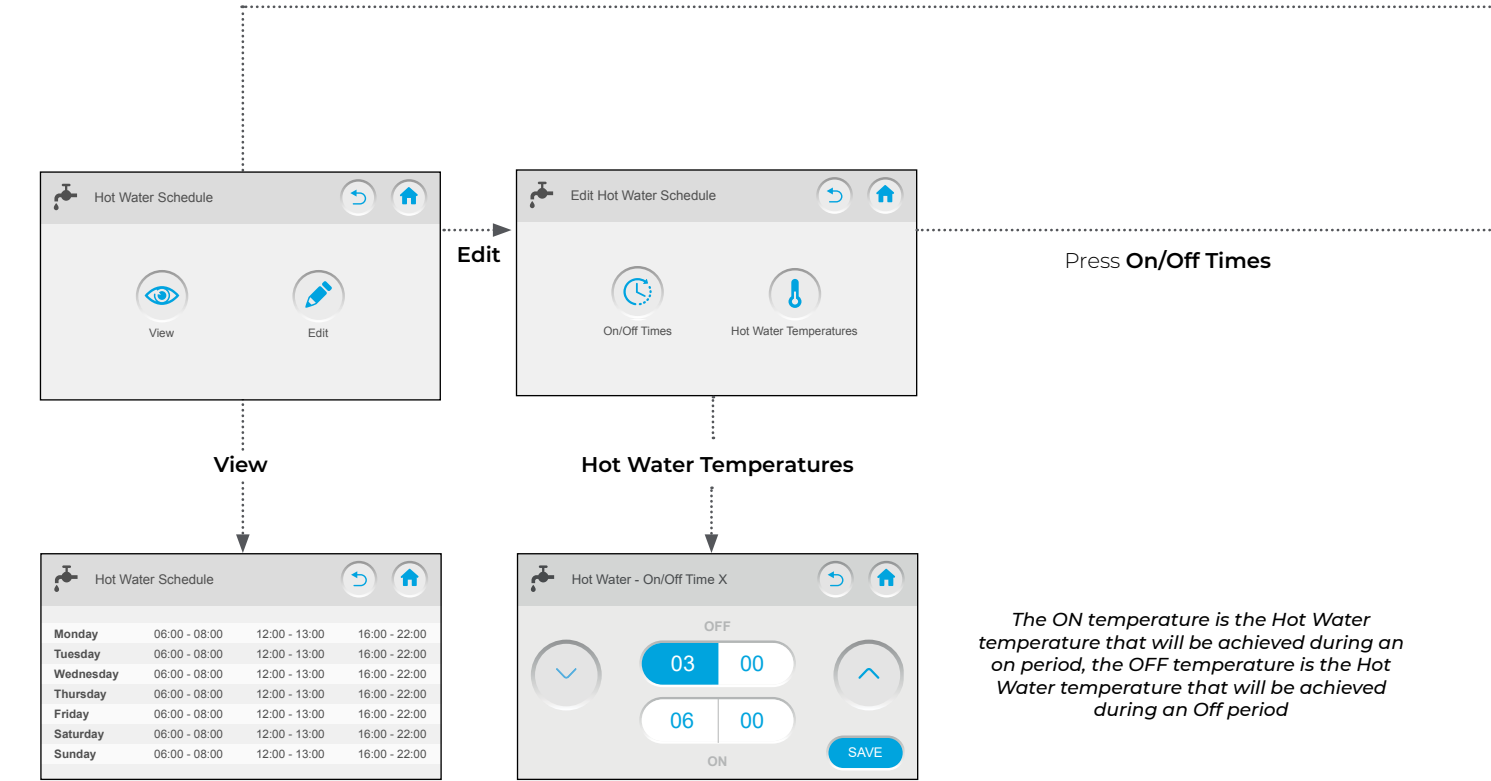
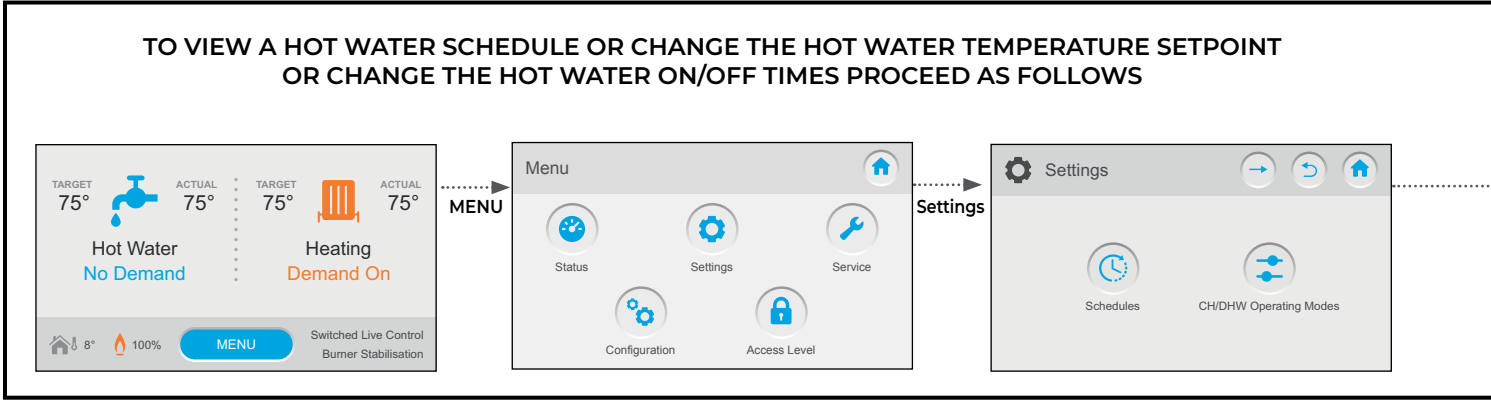
NOTE: Range of holiday temperature adjustment is from 4°C up to room OFF temperature.

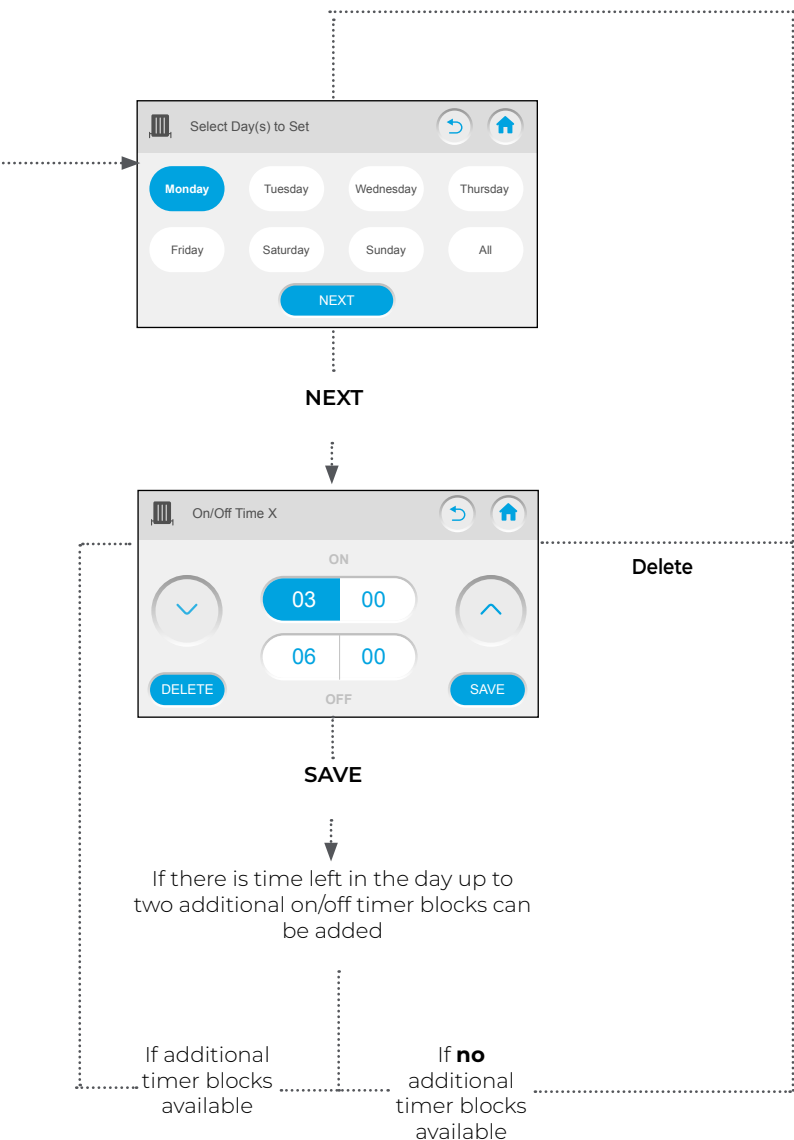
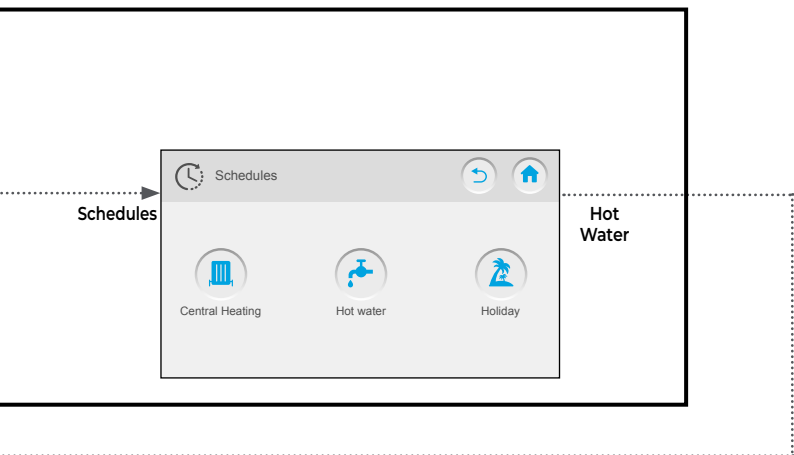


If NEXT is selected then the holiday is saved and the date block will be occupied, by the date range just selected, in the Select Holiday to Set page.

If DELETE is selected then the holiday is not saved and the date block in the Select Holiday to Set page will remain as "Date not set"

4 USER INTERFACE MENU OPERATION: HOT WATER SCHEDULE

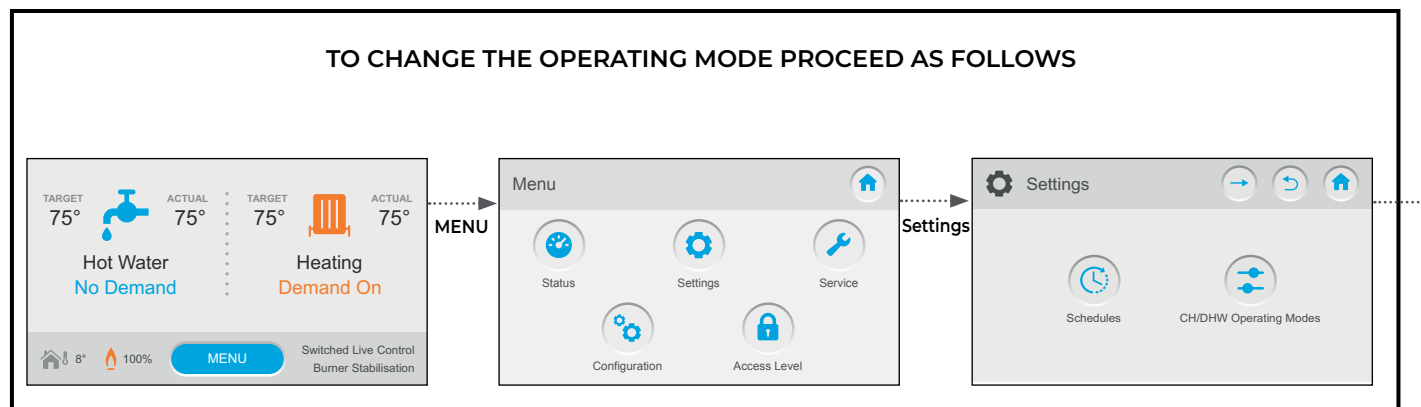




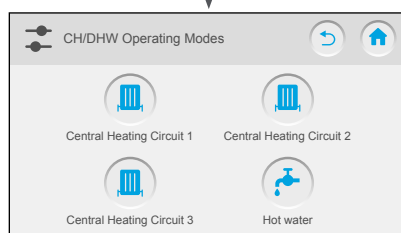
5 USER INTERFACE MENU OPERATION: OPERATING MODE

Note that to access the Operating Mode, the boiler will first need to be set for either Service Engineer Access Level or Installer Access Level

It will only be possible to change the Operating Mode of circuits that have been configured (there may only be 1 Central Heating Circuit)



CH/DHW Modes

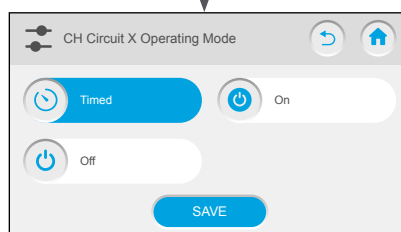


To change Central Heating Circuit 1 Operating Mode press **Central Heating Circuit 1**

To change Central Heating Circuit 2 Operating Mode press **Central Heating Circuit 2**

To change Central Heating Circuit 3 Operating Mode press **Central Heating Circuit 3**

To change Hot Water Operating Mode press **Hot Water**



Timed will switch the circuit on and off at the set programmed hours.

On sets the circuit to be continuously on.

Off sets the circuit to be continuously off.

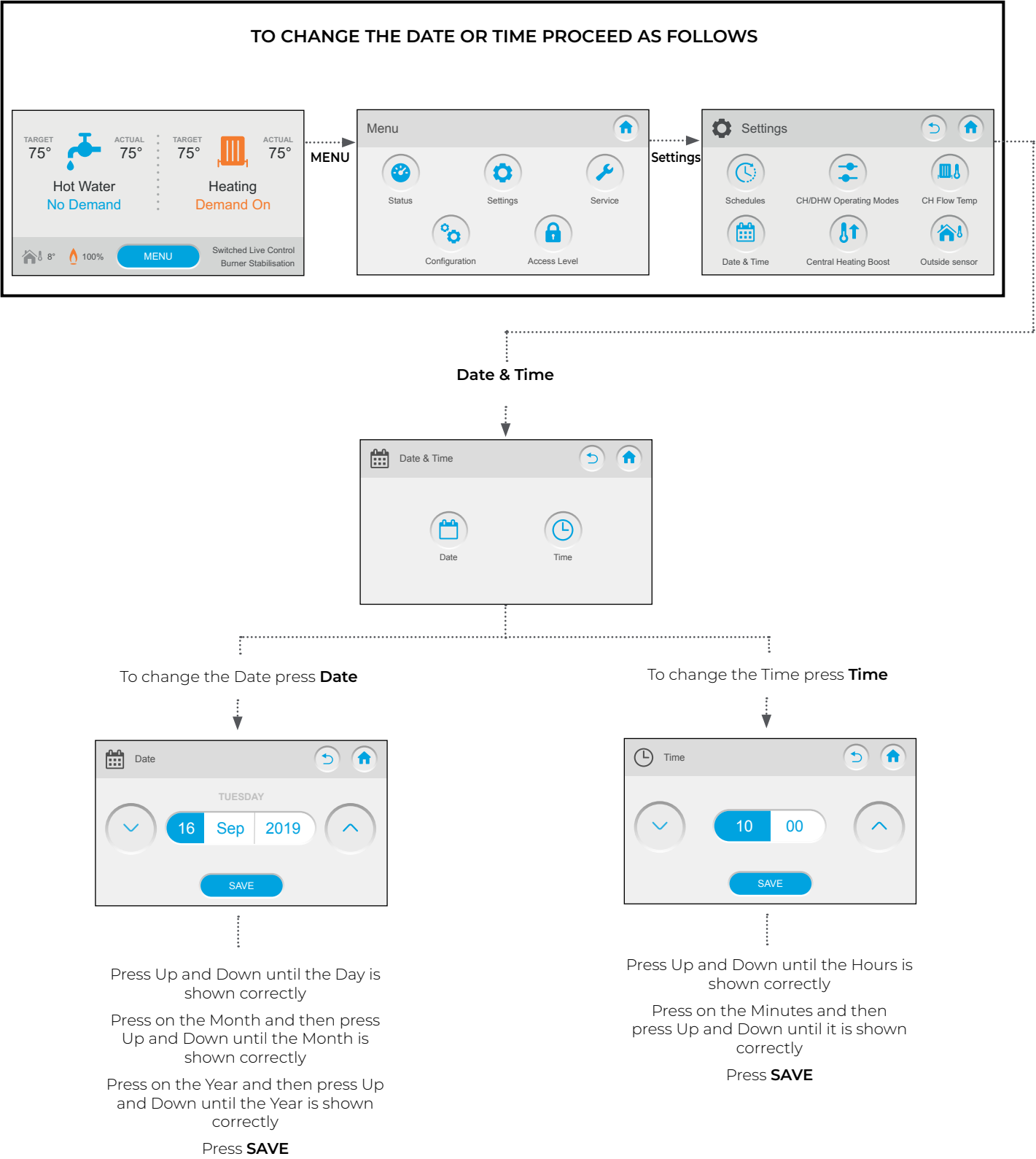
To set the circuit to Timed operation press **Timed** and then **SAVE**

To set the circuit to On press **On** and then **SAVE**

To set the circuit to Off press **Off** and then **SAVE**

6 USER INTERFACE MENU OPERATION: DATE AND TIME AND LANGUAGE

Note that to change the Date and/or Time the boiler will first need to be set for either Service Engineer Access Level or Installer Access Level



To Shut Down the Boiler

1. For shorter periods

Set the external controls to OFF. Wait 10 minutes and then isolate the mains supply to the boiler.

2. For longer periods

Set the external controls to OFF. Wait 10 minutes and then isolate the mains supply to the boiler. For longer periods the entire system should be drained, including the domestic hot water supply.

To Relight the Boiler

Refill the system if it has been drained, taking care to ensure no air is in the boiler or system.

Repeat the procedure detailed in 'To light the boiler'.

Frost Protection

The IMAX XTRA 2 boiler has built into its control system the facility to protect the boiler only against freezing.

Note. This may not protect remote parts of the system, in which case a separate frost thermostat should be fitted.

Boiler Overheat

Boiler overheating is detected by electrical sensors connected to the boiler control module. If the boiler overheats it will shut down and the display will show Overheat Lockout. Press on the fault indication and then press reset to reset the lockout. If the fault recurs turn off the boiler and consult a Gas Safe registered installer or in IE a competent person.

Condensate Drain

The condensate drain must not be modified or blocked.

Blockage of the condensate drain, caused by debris or freezing, can cause automatic shutdown of the boiler or leakage from the condensate trap mounted at the back of the boiler.

If freezing is suspected and the pipe run is accessible an attempt may be made to free the obstruction by pouring hot water over the exposed pipe and clearing any blockage from the end of the pipe. If this fails to remedy the problem the assistance of a Gas Safe registered installer or in IE a competent person should be sought.

Escape of Gas

Should a gas leak or fault be suspected contact your local gas supplier without delay.

Do NOT search for gas leaks with a naked flame.

Cleaning

For normal cleaning simply dust with a dry cloth.

To remove stubborn marks and stains use a damp cloth and mild detergent.

DO NOT use abrasive cleaning materials.

NOTES



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Ideal Parts: 01482 498665

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