ECONOPLATE H1-heat only
HEAT INTERFACE UNIT

Installation, Commissioning and Servicing Instructions for unvented systems.

Note: THESE INSTRUCTIONS MUST BE READ AND UNDERSTOOD BEFORE INSTALLING, COMMISSIONING, OPERATING OR SERVICING EQUIPMENT.

THE ECONOPLATE H1 UNIT IS INTENDED FOR USE IN LOW TEMPERATURE 'DISTRICT HEATING' SCHEMES.

STOKVIS ENERGY SYSTEMS
96R WALTON ROAD
EAST MOLESEY
SURREY
KT8 0DL
Tel: 020 8783 3050 / 08707707747
Fax: 020 8783 3051 / 08707707767
E-Mail: info@stokvisboilers.com
Website: www.stokvisboilers.com

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THIS HEAT INTERFACE UNIT COMPLIES WITH THE ESSENTIAL REQUIREMENTS OF THE LOW VOLTAGE DIRECTIVE 2006/95/EC AND THE ELECTROMAGNETIC COMPATIBILITY DIRECTIVE 2004/108/EC.

1. WARNINGS

Inside the Unit there is 230V, so Unit MUST be isolated before being worked on and must only be serviced by a competent and authorised person.

Water within the Unit can reach temperatures of up to 85°C so great care must be taken when changing, adjusting or servicing components within.

2. GENERAL REQUIREMENTS

Related Documents

The Pressure Systems Safety Regulations 2000

It is the law that pressure system appliances are installed, maintained and serviced by competent persons in accordance with the above regulations. Failure to install appliances correctly could lead to prosecution. It is in your own interest and that of safety, to ensure that this law is complied with.

The installation of this Unit should be in accordance with the relevant requirements of the Pressure System Regulations, Building Regulations and IEE Regulations.

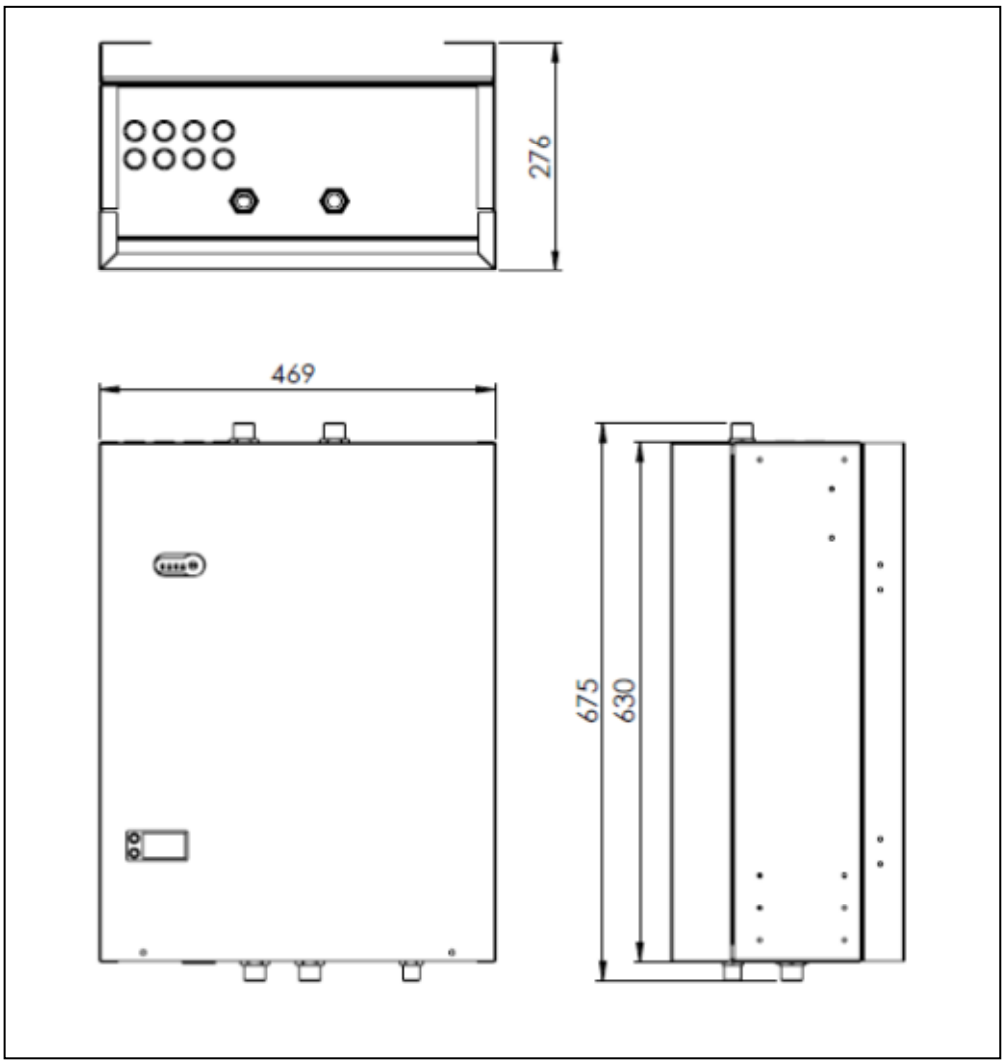
3. UNIT DESCRIPTION

This Heat Interface Unit is designed to be used on low temperature hot water supply of up to 85°C. The Unit is configured to provide indirect heating to a heating system, via a heat exchanger. The indirect heating can be fed to a hot water cylinder to heat up cold water.

The Unit is housed within a powder coated steel cabinet with a removable front cover. Inside there is manufactured pipework assembled together with an electronic valve that is controlled by an electronic controller which takes care of the heating demand.

4. TECHNICAL DATA

Figure 1 – Basic Overall Dimensions including spacer hanging bracket



Technical Data

General Data

Maximum Pressure – District	6 bar
Maximum Pressure – Heating	2.5 bar
Maximum District Temperature	85°C
Maximum District Flow Rate	18l/min
Weight Empty	23 kgs
Dimensions	469 x 630 x 276
Electrical Supply	230V – 3 Amp
Power Consumption	105W

Temperature Range

Heating Water Temperature Range	60°C to 80°C

Water Connections

District Inlet/Outlet	3/4” BSP Male
Heating Inlet/Outlet	3/4" BSP Male
Cold Water Inlet for system filling	1/2” BSP Male

Heating Performance

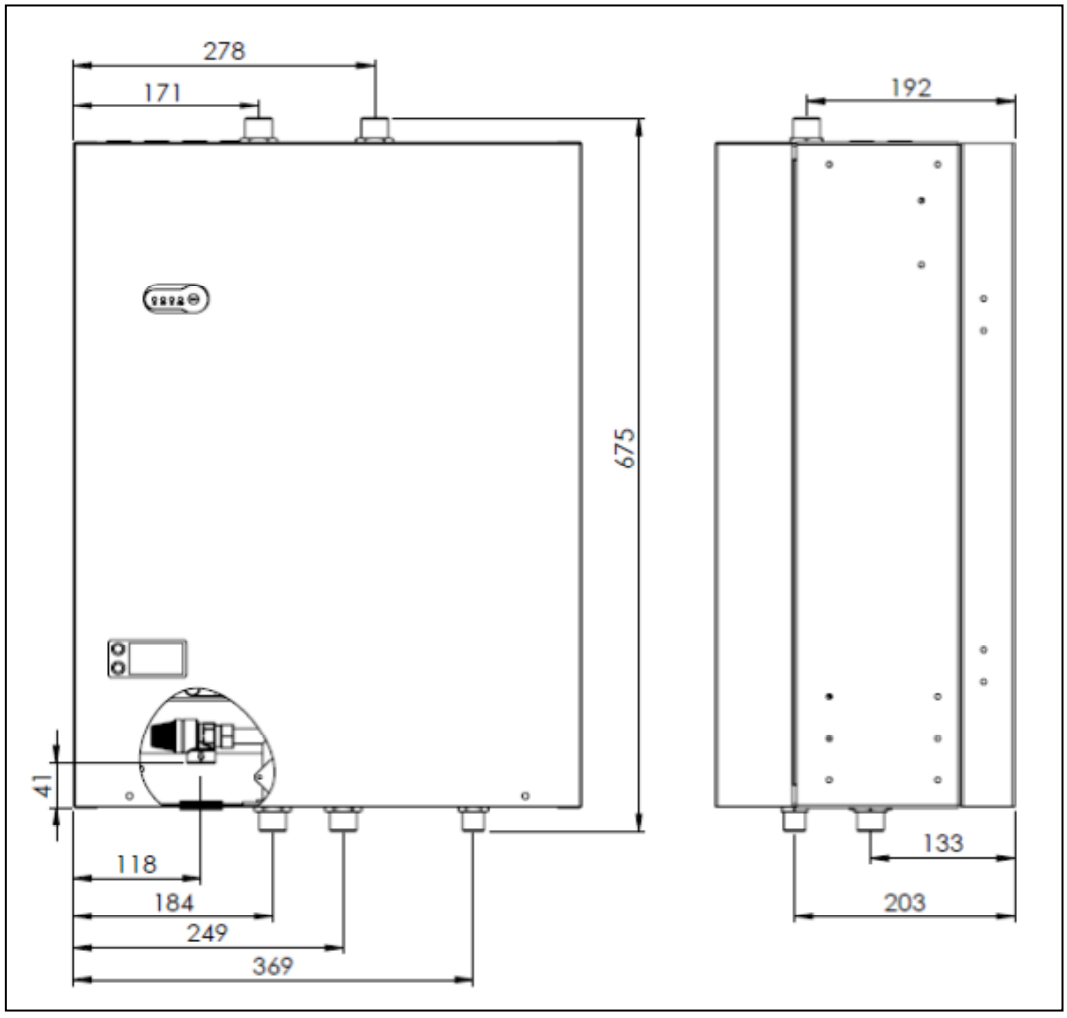
Heat Output @ Δt 11K Heating Circuit	22kW
XS Head from Integral Pump @ Δt 11K	22kPa Min

System Features

- Heating Ramp-Up Time of 3 Minutes.
- Pump Anti-Lock Feature – Runs Pump for 5 Seconds every 24 Hours.

5. INSTALLATION

Figure 2 – Connection Locations

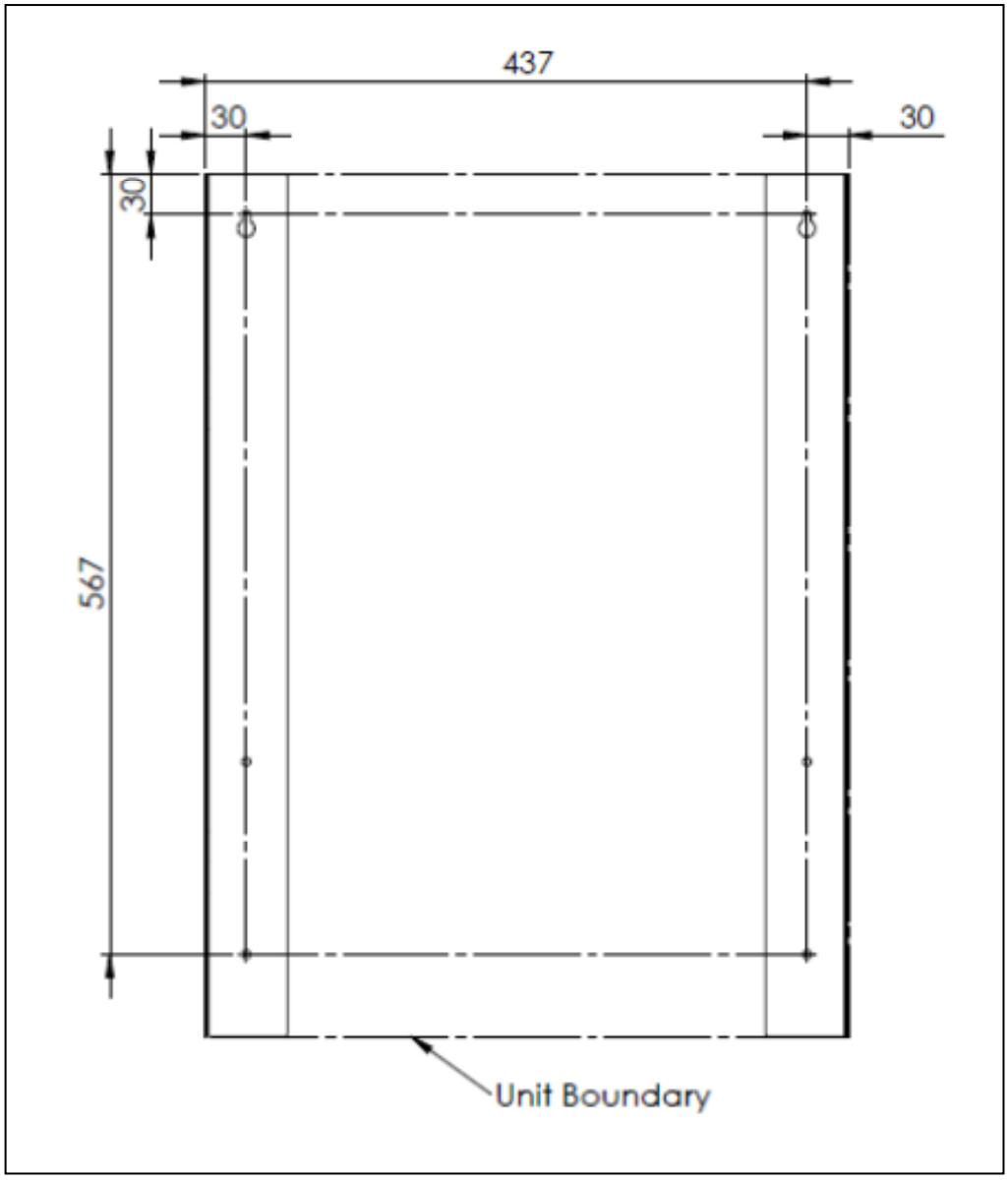


Note – when working with the unit, supply services when connected could reach 85°C, and once electrically connected the unit has 230V present within.

You will need access from above and below the Unit to install the relevant pipework to and from the Unit. A spacer plate has been provided enabling pipework to be run behind the Unit.

Secure the spacer plate to the wall securing via 4 points provided [see below]. Mount the Unit on to the Bracket, securing it to the bracket with the screws provided.

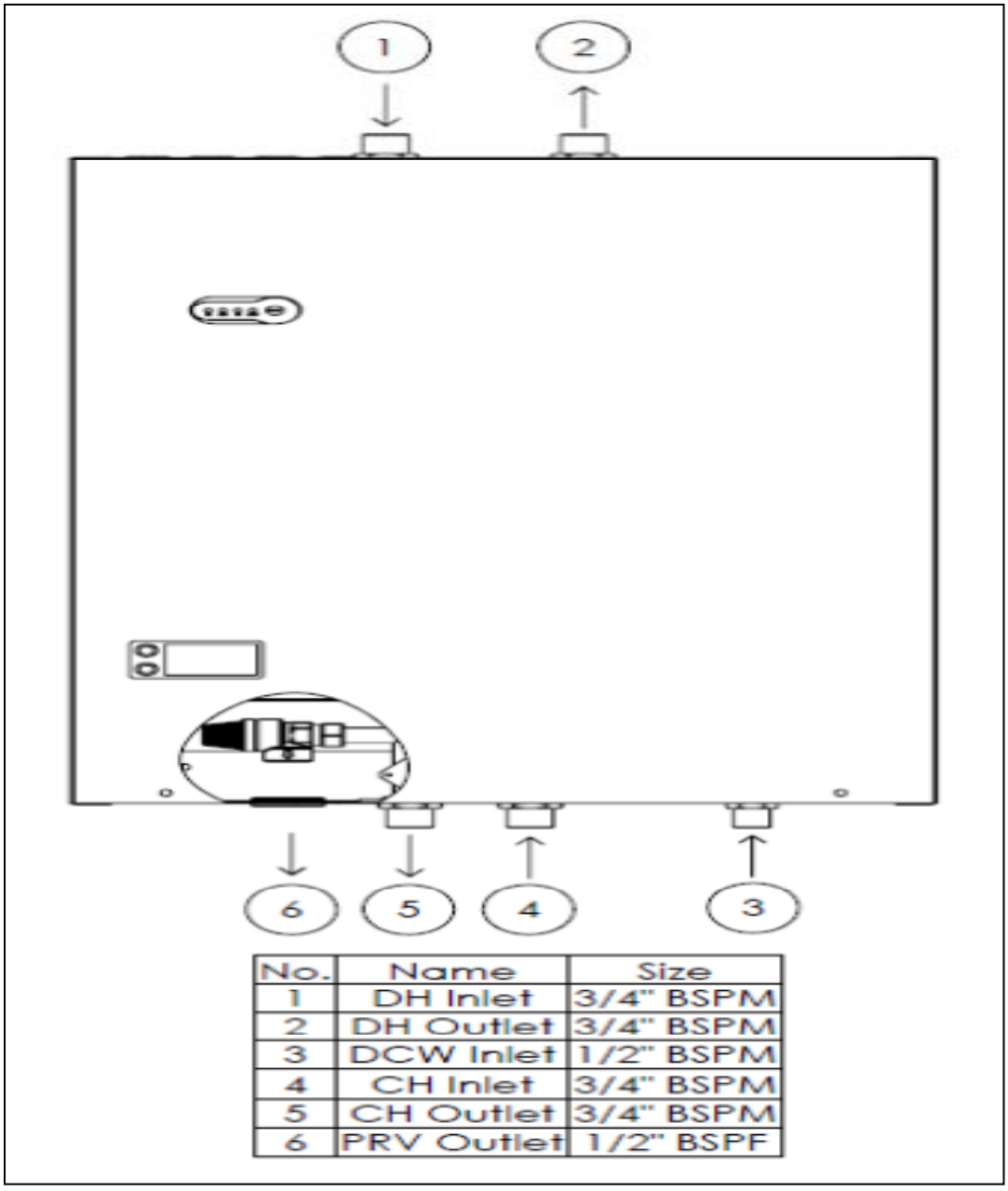
Figure 3 – Spacer Plate



Pipework Connections

The ‘District’ and heating pipework must be connected to the appropriate points labelled on the figure below. A connection kit providing isolation of all supply pipes to the unit has been provided. **You need to ensure that both sides of the systems you are connecting to are clean or have been properly flushed out.**

Figure 4 – Pipework Connections



No.	Name	Size
1	DH Inlet	3/4" BSPM
2	DH Outlet	3/4" BSPM
3	DCW Inlet	1/2" BSPM
4	CH Inlet	3/4" BSPM
5	CH Outlet	3/4" BSPM
6	PRV Outlet	1/2" BSPF

District Inlet and Outlet – ¾” Male BSP

These are situated at the top of the unit with inlet on the left [Connection 1, Figure 4] and outlet on the right [Connection 2, Figure 4]. When connecting the district supply to and from the unit, ensure to provide air eliminator at upper most point of pipework.

Heating Inlet and Outlet – ¾" Male BSP

These are situated at the bottom of the unit with heating flow on the left [Connection 5, Figure 4] and heating return on the right [Connection 4, Figure 4]. Connect these to your heating distribution system ensuring it has been appropriately flushed beforehand.

Safety Relief Discharge – ½" Female BSP

This is provided on the heating circuit {Connection 6, Figure 4], and **MUST** be safely piped away via a suitable tundish according to local byelaws. A hole is provided in the casing to allow pipework to leave the unit.

Water Inlet – ½" Male BSP

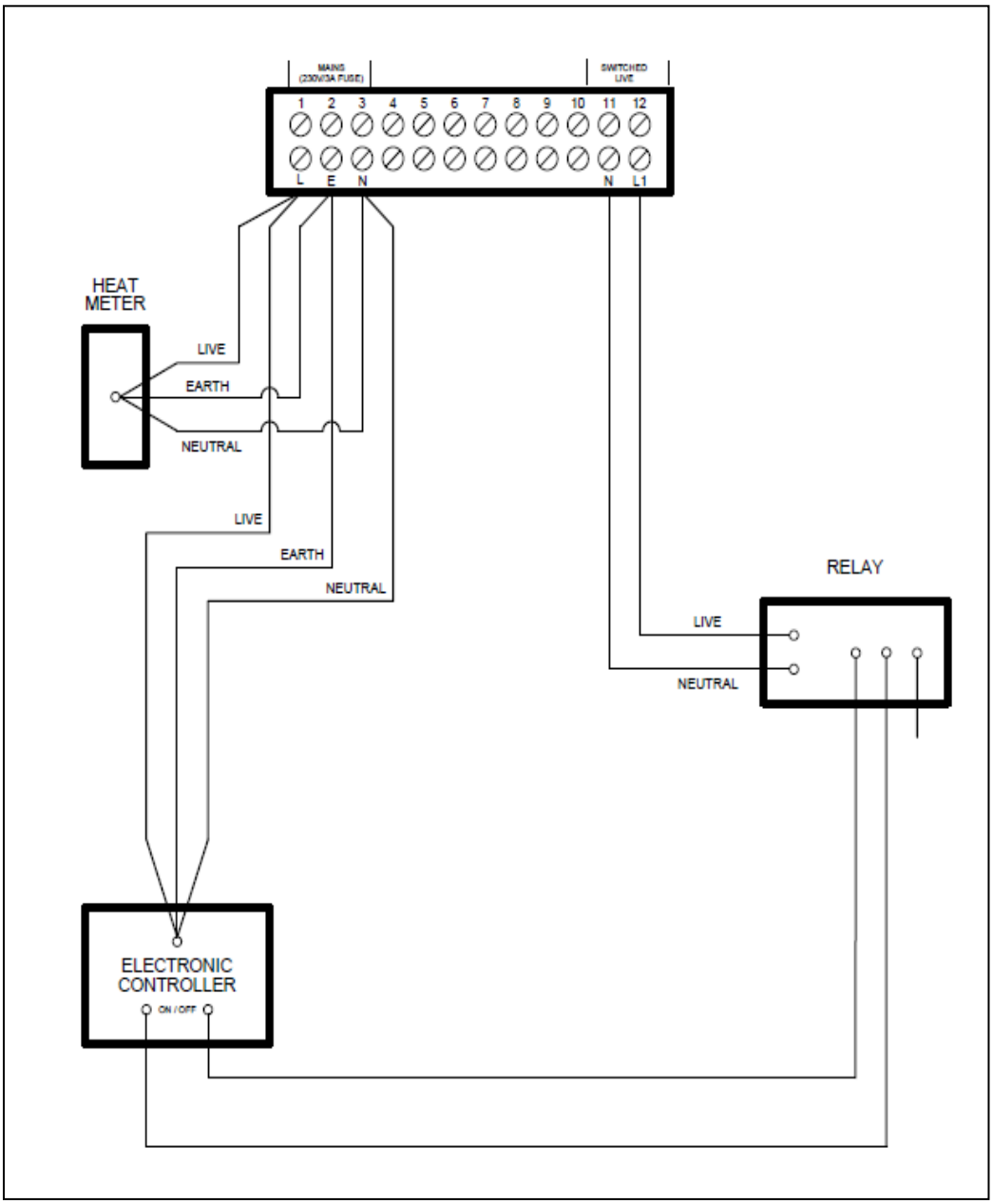
This is situated at the bottom right of the unit [Connection 3, Figure 4]. Connect mains water supply to this connection. This is then connected to the heating circuit via a filling loop within the station. You may use this point for filling of your heating circuit, and you need to ensure that your circuit is above 0.8 bar for the unit to operate. **Once filled you must disconnect the hose from the filling loop,** but leave on bottom tray for use when required**.**

Electrical Connection

All wiring to the Unit must be in accordance with the I.E.E. regulations, and any local regulations which apply.

Note: If in any doubt, a qualified Electrician should be consulted.

Figure 5 – Terminal Block Wiring



A 12 way terminal block has been provided inside the station to which connections are to be made [see Figure 5 above].

Mains 230V needs to be provided to terminals 1 to 3 via cable gland in the top of the unit. The fuse needs to be rated at 3 Amps. This will provide power to both the Station and the Heat Meter within.

In order to turn the Unit into heating mode, a switched live is to be provided over terminals 11 and 12. Whenever power is applied over these two terminals, the Unit will go into heating mode, and will continue to heat until power to these terminals is switched off.

6. UNIT OPERATION

Whenever power is applied to the Unit, the Stepper Motor resets itself in order to return to its starting setting. Once it is in the correct position the Unit is ready for its operation.

When the switched live is activated by a requirement from your system, the Unit will activate heating mode after approx 5 seconds. The system pump will be switched on, and the control valve will start to operate via the stepper motor and will gradually increase the temperature of the heating water to the pre-set temperature over a period of up to 3 minutes. The Unit will continue to provide heating water at the set temperature, until power over the switched live stops and the Unit will go into standby mode.

7. COMISSIONING

Note – when working with the unit, supply services when connected could reach 85°C, and once electrically connected the unit has 230V present within.

The Unit set point has been set to 73°C ±0.5°C, and will provide heating water to ±1.0°C of the set point. If the set point needs to be changed then you need to access Poti P2 at the top of the electronic box. The set point can be adjusted by rotating the Poti. The Unit can provide the heating water between 60°C and 80°C over the range of the adjustment [assuming there is sufficient district primary]. Anti clockwise reduces the temperature and clockwise to increase the temperature.

Heat Meter

Booklet is provided along with these Instructions.

System Safety Relief Valve

A 3-Bar system Safety Pressure Relief Valve is provided within the Unit which **MUST** be piped away via a Tundish according to local Guidelines.

Filling Loop

Once you have filled the heating system above 0.8 bar, then you **MUST** disconnect the hose between the two valves. This can be stored on the bottom tray of the unit for use if the system needs topping up at any stage.

8. FAULT FINDING

Firstly check the electronic box to check it is not in fault mode indicated by red light – see Appendices Table 3.

If the Unit still does not operate, then the next step is to check all wiring is correctly connected to the right component, especially if connectors have been taken off at any stage [see Appendices – Table 1].

If the above does not rectify the problem and the Unit still does not operate satisfactorily, then below are some suggestions of potential issues. Alternatively consult Supplier for assistance.

Guide

Fault	Possible Causes	Action
'District' water not entering the Unit.	Blocked Strainer.	Unscrew the Strainer Cap Bolt and take the Strainer out, ensuring you have isolated Unit and waited for water to cool down. Clean or replace accordingly.
No Heating.	Heating light not coming on controller	Check voltage is going to switched live. Check operation of relay and replace if not working
	Control Valve not operating.	Check that 24V is being supplied to DC Coil. If above does not resolve issue, replace Stepper Motor.
	Pump not operating.	Check that Impeller has not seized. Check you have 240V going to Pump. If above does not resolve issue, replace Pump.

	‘District’ water temperature too low.	Check ‘District’ supply conditions. Heat Exchanger potentially fouled

9. SERVICING SCHEDULE

Note – when working with the unit, supply services when connected could reach 85°C, and once electrically connected the unit has 230V present within.

It is recommended that this Unit is serviced once every 12 months.

Servicing the Strainer

Isolate the Unit from district supply. Open the screw cap from the strainer and take the filter cartridge out.

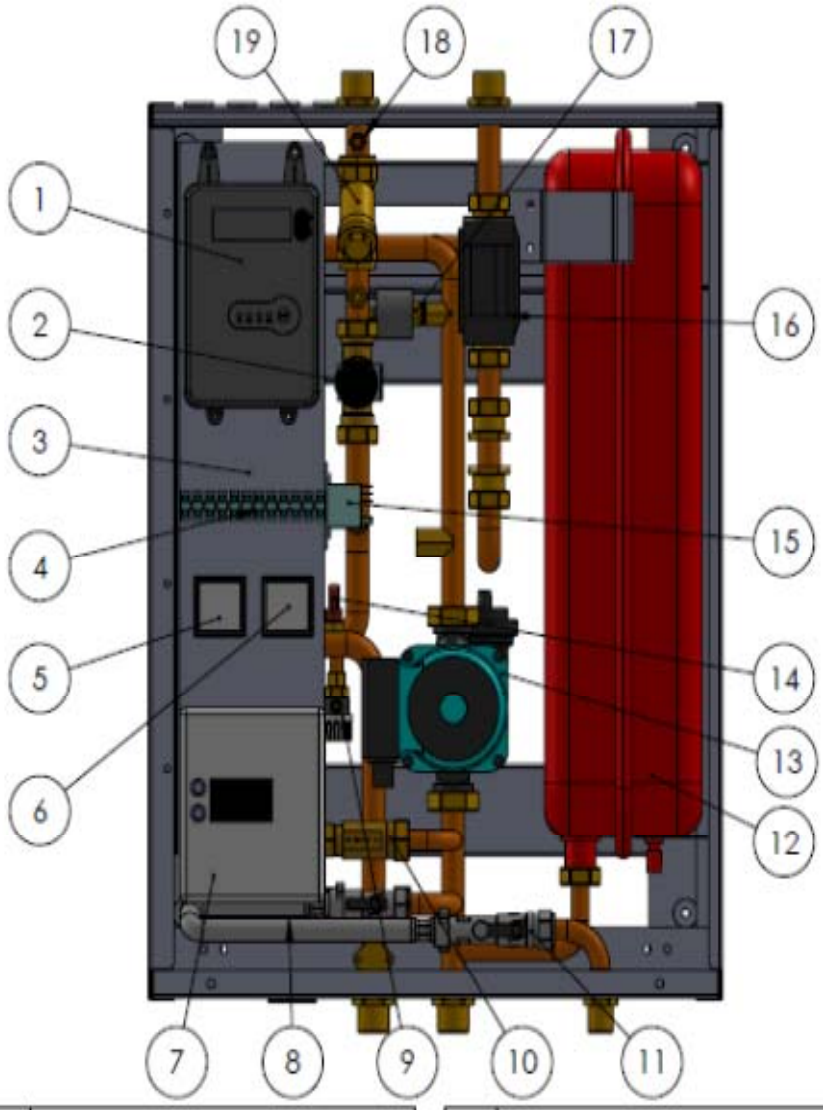
Note: The water in the strainer could be anything up to 85°C.

Servicing the Expansion Vessel

Drain the pressure from the heating system via the pressure relief valve. Check the charge of the pressure vessel according to system setting. (Original pre-charge, as supplied is 1.5bar). Refill the system back to required pressure using the filling loop, **but ensuring that you disconnect the hose both ends again after use.**

10. INTERNAL COMPONENTS

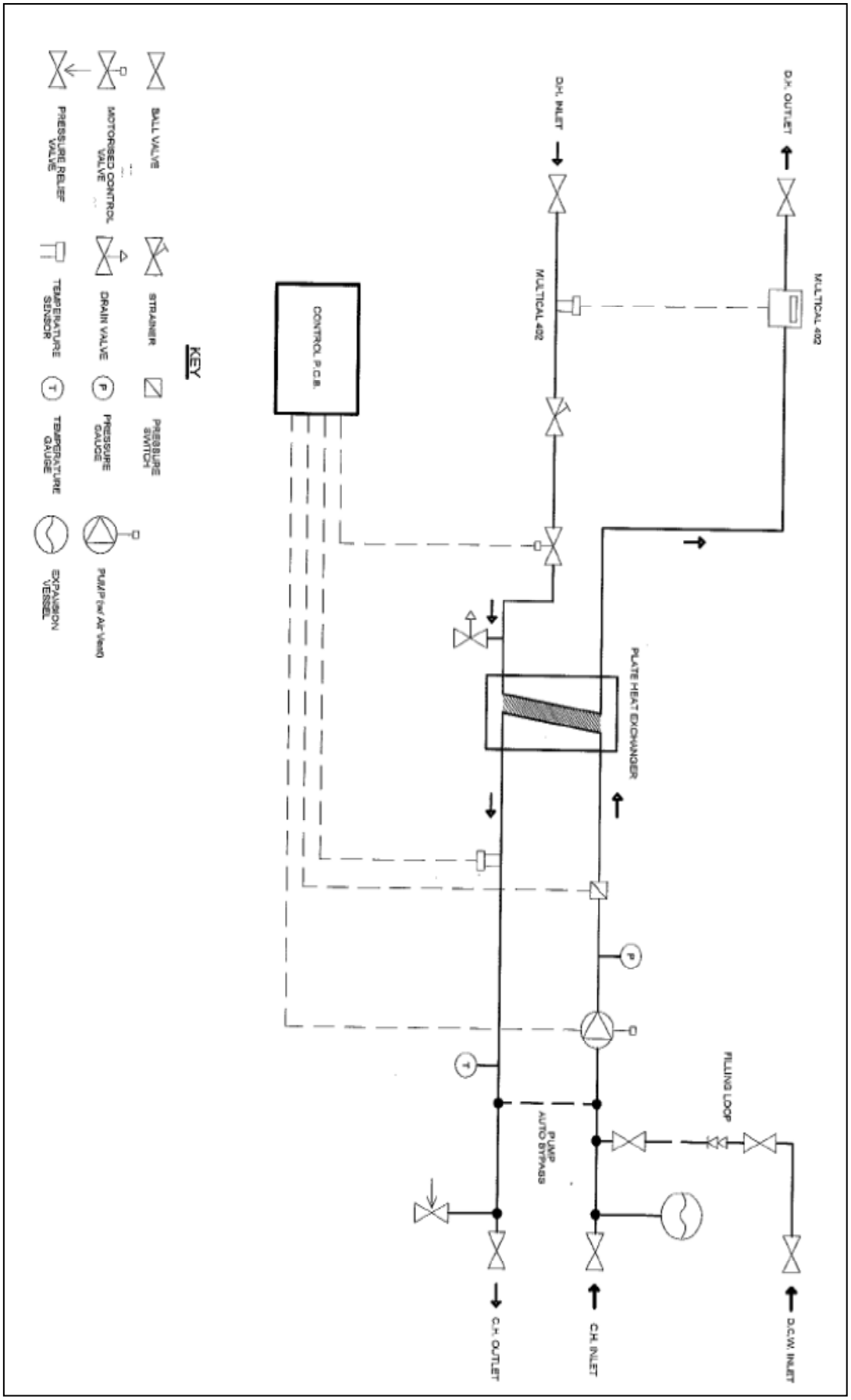
Figure 6 – Internal Components



No.	Part.
1	Electronic Control Box
2	Motorised Control Valve
3	Heat Exchanger (Behind Removable Panel)
4	Terminal Block
5	Temperature Gauge
6	Pressure Guage
7	Heat Meter
8	Pressure Relief Valve (Behind Hose)
9	Drain Valve

No.	Part.
10	Pump Auto Bypass
11	Filling Loop
12	Expansion Vessel
13	Pump
14	Temperature Sensor
15	Contactor
16	Heat Meter Flow Sensor
17	Pressure Switch
18	Heat Meter Temperature Sensor
19	Strainer

11. UNIT SCHEMATIC



12. APPENDICES

Table 1 – Electronic Box Wiring Denotation

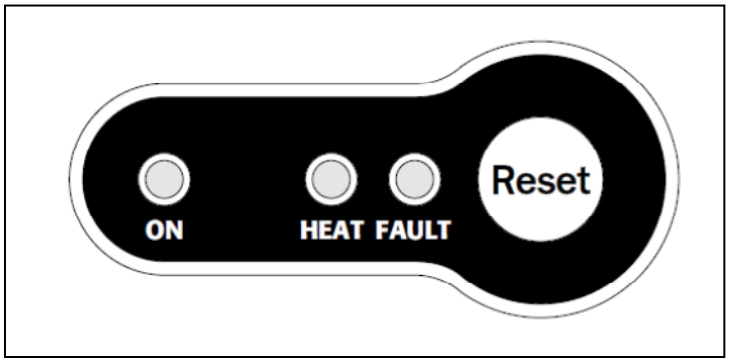
Description	Individual Wiring	Connector
Remote Controller/Temperature Sensor	2 Black	Wired to Relay via NO contacts
Mixing Valve Stepper Motor	Blue, Black, Brown and Green	White Connector
Mains Cable	Blue, Brown and Green/Yellow	Wired to Terminal Block
Earth Cable	Green/Yellow	Non insulated Crimp Ring
Pump	Blue, Brown and Green/Yellow	Wired to Terminal Block
CH Temperature Sensor	2 Red	Black Connector
CH Safety Thermostat/Pressure Switch	2 Black	Wired to Pressure Switch

Table 2 – Electronic Box Dip Switches

SWITCH	FUNCTION	ON	OFF
1	High temp / Low temp central heating	Low temp	High temp
2	H1 Heating only	Heating only [needs DIP switch 4 on as well]	Not required
3	N/A	N/A	Correct
4	Single plate / Twin plate	Twin	Single
5	DHW preheating	Enabled	Disabled
6	DHW sensor	Flow meter	Flow switch

N.B Switch 3 should always be in the off position, otherwise unit will not work. If in doubt do not make any changes.

Table 3 – Matrix LED

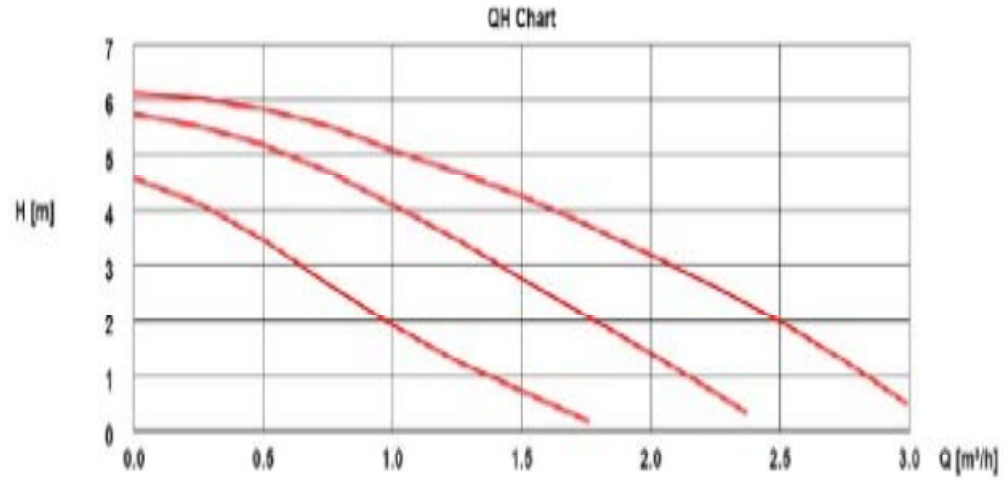


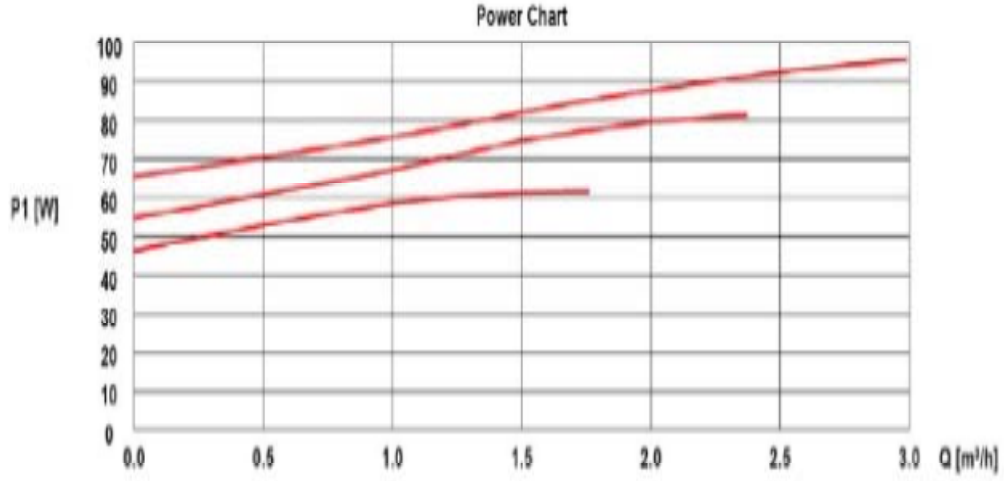
ANOTATION	COLOUR	LIGHT OFF	LIGHT ON	LIGHT FLASHING
ON	Green	Power Off	Power On	N / A
HEAT	Yellow	No Heat Demand	In Heat Mode	N / A
FAULT	Red	No Fault	Pressure in Heating Circuit too low – Top up and reset	Sensor fault – replace failed NTC temperature sensor

Table 4 – Pump Data

Performance curves :

UPSO15-60





Electrical data :

UPSO15-60 :

1x230V Max m3/h

Speed	P1 [W]	I1/1 [A]
3	96	0.42
2	81	0.37
1	62	0.29

Performance at 1 m3/h

Speed	P1 [W]	I1/1 [A]
3	76	0.33
2	67	0.30
1	53	0.24