Electric Flow Boiler

INSTALLATION
&
TECHNICAL MANUAL

SlimJim

ehc
the electric heating company

If you require any further assistance:

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This appliance is not intended for use 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 concerning the use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not operate or interfere with the appliance.

INTRODUCTION

Please read and follow the installation operating instructions carefully, to ensure the long life and reliable operation of this appliance.

The Electric Heating Company may make minor changes when necessary to the appliance that will not be shown in this document, so long as the main features of the boiler remain the same.

All boilers come with a 24 month warranty that covers all defects originating from faulty materials and workmanship in the manufacture of the boilers.

The warranty will not cover any damage to the boiler from poor or incorrect installation work. In addition the Warranty will not cover any call out charges that have not been authorised by the Electric Heating Company Ltd.

The warranty will not cover any water leaks into the boiler that may cause damage to the electrical or electronic control system.

All plumbing connections must be checked and auto air vents positioned to the side of the boiler and not directly above the unit.

A Magnetic Filter must be installed to the boilers return pipe work before the circulation pump. It is recommended that the filter is cleaned; failure to clean the Magnetic Filter may result in boiler/system failure. Warranty calls will not be covered where the above requirements have not been met.

The “Slim Jim” boiler is a low temperature boiler intended for use in unvented or vented central heating systems with forced circulation.

(Protected according to legally binding directives).

Boiler Features.

- Option of Volt Free OR 240 volt Control Signalling
- Water Level Sensor
- High Current Safety device
- Low Maintenance
- Boiler Power Output Selector
- Easy to use Controller

The central heating system, in which the Slim Jim boiler is being installed into, must be fitted with the following:

Vented Systems:

- Circulation Pump
- Pump Valves
- F&E Tank
- Magnetic Filter
- Automatic Bypass if Req

Sealed Systems:

- Circulation Pump
- Pump Valves
- Magnetic Filter
- Automatic Bypass if Req
- Sealed System Kit
- Automatic Air Vent

Instructions and Building Regulations:

This appliance must be fitted in accordance with the following instructions.

The Local Building Regulations.
The Building Regulations.
The Building Standards, (Scotland-consolidated) Regulations.
Local water bylaws.

British Standards code of practice.
BS EN 12828
Heating systems in buildings. Design for water-based heating systems.

BS EN 12831
Heating systems in buildings. Method for calculation of the design heat load.
BS EN 14336
Heating systems in buildings. Installation and commissioning of water based heating systems.

BS7671
Requirements for electrical installations. IEE Wiring Regulations. Seventeenth edition.

BS EN 13831
Closed expansion vessels with built-in diaphragm for installation in water.

C.O.S.H.H.
Materials used in the manufacture of this appliance are non hazardous and no special precautions are required when fitting or servicing this appliance.

PREPERATION

1. **Load Check**
   A load check must be taken into consideration when installing high power boilers. This can be carried out by a qualified electrician. There may be a requirement to upgrade the main incoming fuse supplying the property; this will depend on the boiler output being installed and existing electrical load requirements of the property.

2. **Boiler location**
   The boiler must be installed onto a wall that will provide an adequate fixing. Precautions must be taken if the boiler is to be installed in areas subject to damp or frost conditions.

3. **Central heating (design & installation)**
   Detailed recommendations are given in BS EN 12828, BS 6700: +A1 and CP 342-2.

   Pipes forming part of the useful heating surface should be insulated to prevent any potential heat loss or frost damage. (BS 6700).

   Drain valves should be fitted at the lowest point of the system pipe work in an accessible position. Drain valves should be in accordance with BS 2879 and copper tube to BS EN 1057 is recommended.

LOCATION

The boiler can be installed in almost any location within a domestic or commercial property; however consideration should be made for future maintenance. Never leave the boiler switched off if there is a danger of having temperatures below 0°C in the room where it is located, (An additional frost stat must be used if there is a likelihood of the temperature falling below 0°C).

We recommend that a minimum clearance of 400 mm should be allocated for the removal of the front cover to allow adequate access to the boilers plumbing and the internal electrical connections. A 50mm allowance should be made at either side of the boiler to allow free flow air into the boiler.

⚠ ***The boiler must be installed in the upright position; failure to do so will invalidate the Warranty!***

GENERAL

1. General

The boiler must be installed by a professional plumber or heating engineer and must be connected to the public low voltage network by a competent person. We recommend this is installed by a 17th Edition certified Electrician.

The Electric Heating Company Ltd will not be held responsible for any faulty installations which are performed by unqualified tradespersons.

2. Pipe Connections

Slim Jim Electric Boilers have 22mm compression connections at the boiler's flow and return pipes. Please note that the boilers are supplied with blanking plugs for transit purposes. These must be removed before connections to external pipes can be made.

The Flow Outlet (Top Red Connection) and Return Inlet (Bottom Blue Connection) are clearly marked within the boiler case. Under no circumstances should these connections be reversed. Hot Soldered Joints should not be made as a direct connection to the boiler, Compression joints should used.

3. Case Removal

In order to take off the front cover, undo the fixing screws at the top and bottom of the unit and pull the cover toward you, Care should be taken not to damage the front controller.

4. Isolation Valves

We recommend that lock-shield isolation valves are fitted on the Flow and Return pipe-work. Such valves must be full bore and not "ball valves". The installation of "ball valves" in the flow and return pipe-work will reduce the recommended flow rates through the boiler.

Care must be made when installing the isolation valves that the PRV and expansion positions are not impaired.

5. Auto air vents

An auto air vent must be fitted to the external pipe work when installed in an unvented system.

Do not install AAV's directly above the SlimJim boilers. AAV's should be installed to either the top left or right hand side of the boilers. (This is to prevent any water entering the boiler in the event of an AAV leaking).

6. Boiler Sizing

Calculate the "Space Heating" requirements in accordance with BS EN 12831 and BS EN 14336. If the boiler is to heat the domestic hot water, an additional allowance of 3kW (10,239 Btu's) should be made to the "Space heating" calculation to determine the correct boiler output.

7. Insulation

Where practical, and if possible, we recommend that all pipe-work is insulated, in particular the primary pipe-work within a boiler cupboard. This is to reduce heat loss and reduce high cupboard temperatures from exposed pipe-work. (BS 6700 +A1).

8. System Design

As the SlimJim boilers are of low water content an open circuit must be achieved incorporating approx 2 metres of continuous 22mm pipe work after the boiler connections and before any zone valves. (S Plan) We also recommend that a magnetic filter is used and installed into the return pipe work of the system before the pump as per the schematic on page 10. Provision should be made to allow the filter to be cleaned without draining the full heating system.

We recommend the use of an automatic bypass within this circuit.

If a bypass radiator is used an allowance should be made for a minimum radiator size of 600mm x 600mm single convector or equal to 2500 Btu to be installed within the heating circuit and locked open.

(This will be located in the room where the thermostat is installed).

To comply with building regulations, Part L and Part J (in Scotland), room and cylinder thermostats must be fitted.

9. Water Connections

Provisions must be made for the replacement of water lost from the heating system (sealed systems). Reference should be made to BS EN 14336 for the method of filling and make up of water. There must be no direct connection between the boilers central heating system and the main water supply. When mains water is required to fill the system directly, all local water bylaws must be observed, and any connection made must be disconnected after use.

10. Flushing

The system **must be flushed** to within 10% of mains water PPM to ensure that no debris is trapped in the system as this may result in boiler failure. Where existing radiators and pipe-work are utilized a power flush must be carried out to remove debris. For further guidance please see section 14 - Flushing & System Protection.

11. System Pressures

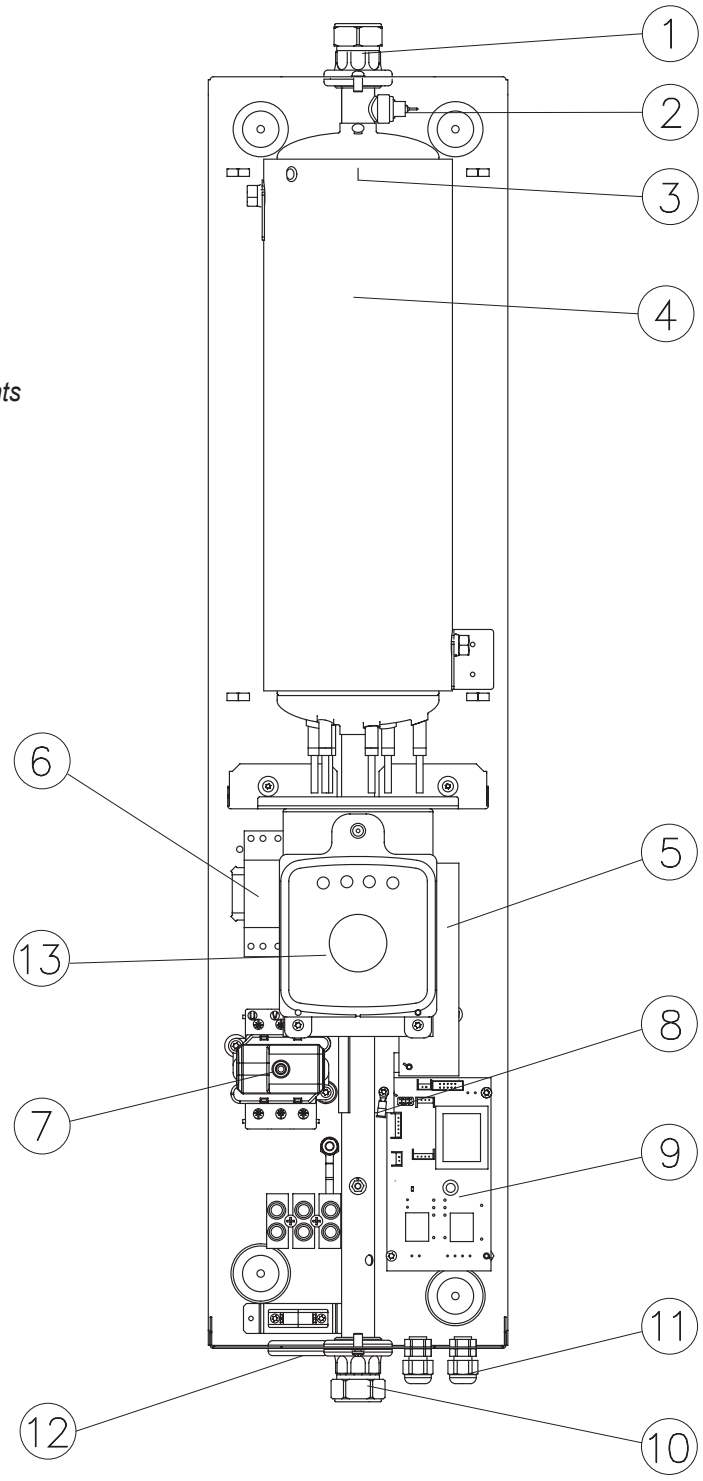
All boilers are pressure tested in the factory. The normal working pressure of the boiler should be set to approx 1.0/1.5 bar. All sealed systems should comply with the relevant building regulations and standards, including BS EN 13831 - Specification for Expansion Vessels.

It is imperative that a pre-installed magnetic filter is removed and cleaned annually. Failure to carry out this action will increase contamination of the boiler by the system residue.

BOILER INTERNAL LAYOUT

Figure 1

1 - Flow Outlet Connection
2 - Run Dry Sensor
3 - Outlet Temperature Sensor
4 - Heat Exchanger
5 - Power Board
6 - Contactor
7 - WT3 Safety Thermal Cut-Out
8 - Inlet Temperature Sensor
9 - Control board
10 - Return Inlet Connection
11 - Pump & Control Cable Entry Points
12 - Main Power Entry Point
13 - Front Control Panel



The boiler is fitted with a safety temperature cut-out that protects the boiler from failure. The safety temperature cut-out (Item 7) cuts the power to the boiler if the temperature reaches approx 100°C. if this occurs the boiler will shut off the main power to the unit. A service engineer will be required to re-set the boiler. However further investigation will be required to identify the cause of the fault.

12. System types

The “Slim Jim” boiler range can be used in various system designs including under floor systems. There are two heating schematics on page 10 Figure 1 & 2 that illustrate an Indirect System (S Plan) & Direct System (Heating Only).

We recommend the use of Thermostatic Radiator valves on all radiators excluding the bypass radiator; this radiator should be fitted with lockshield valves and left in the fully open position. In addition we recommend that an automatic bypass is used in zoned systems and set to the relevant flow rates required for the system design. (The bypass radiator should be a minimum size of 600mm x 600mm single convector or equal to 2500 Btu to be installed within the heating circuit and locked open. This will be located in the same area as the room thermostat).

⚠ ***The system design should meet all current building regulations in force at the time of installation.***

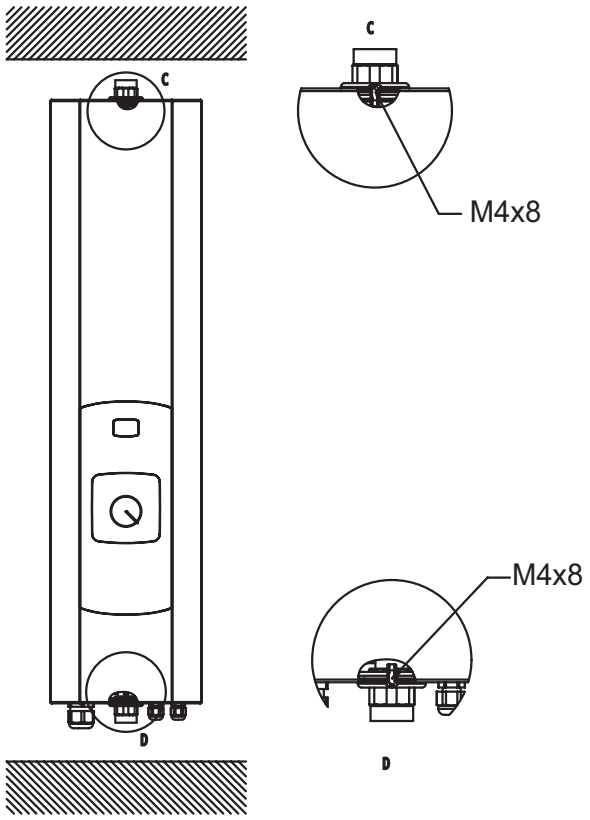
13. Hanging the Boiler

1 Take care when removing the boiler from its packaging. Do not open with sharp objects as this may damage the unit.

2 Hang the boiler in a vertical position using the template and screws provided within the boiler packaging. Take care to leave all the recommended clearances as shown in the schematic drawing below.

3 A Clearance of approx 400mm at the front of the unit is recommended to allow access for any future maintenance that maybe required.

Front Cover Fixing Screws



Boiler Dimensions & Fixing Positions

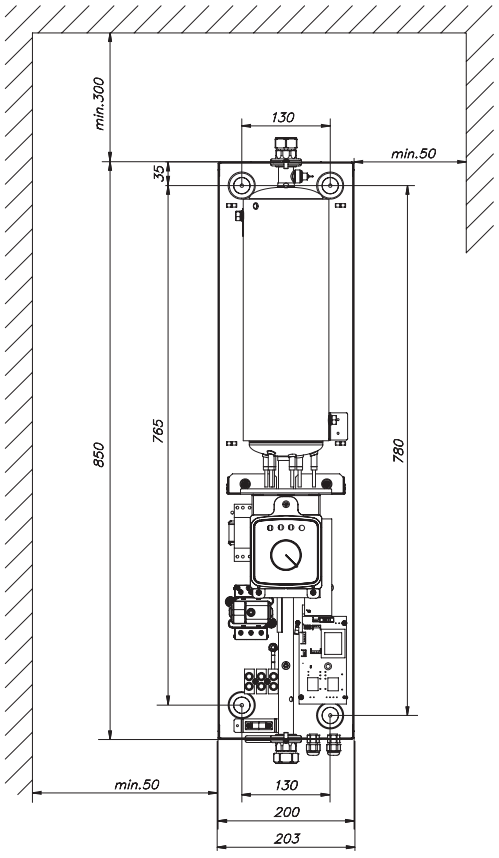


Figure 1

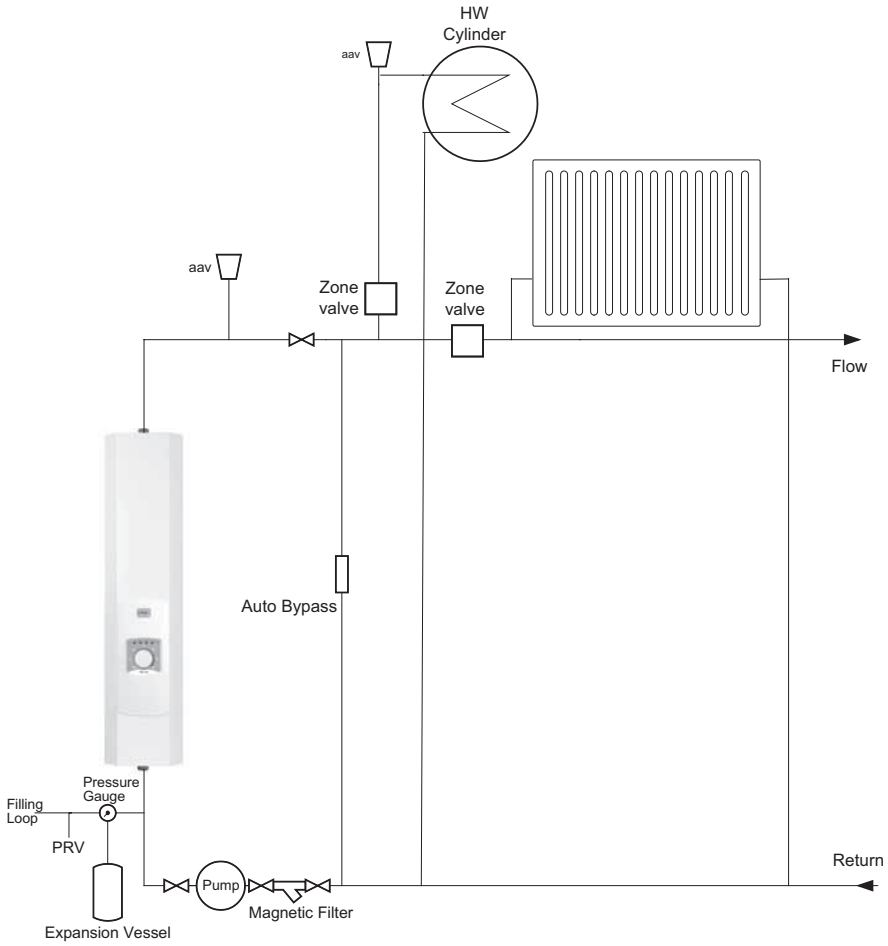
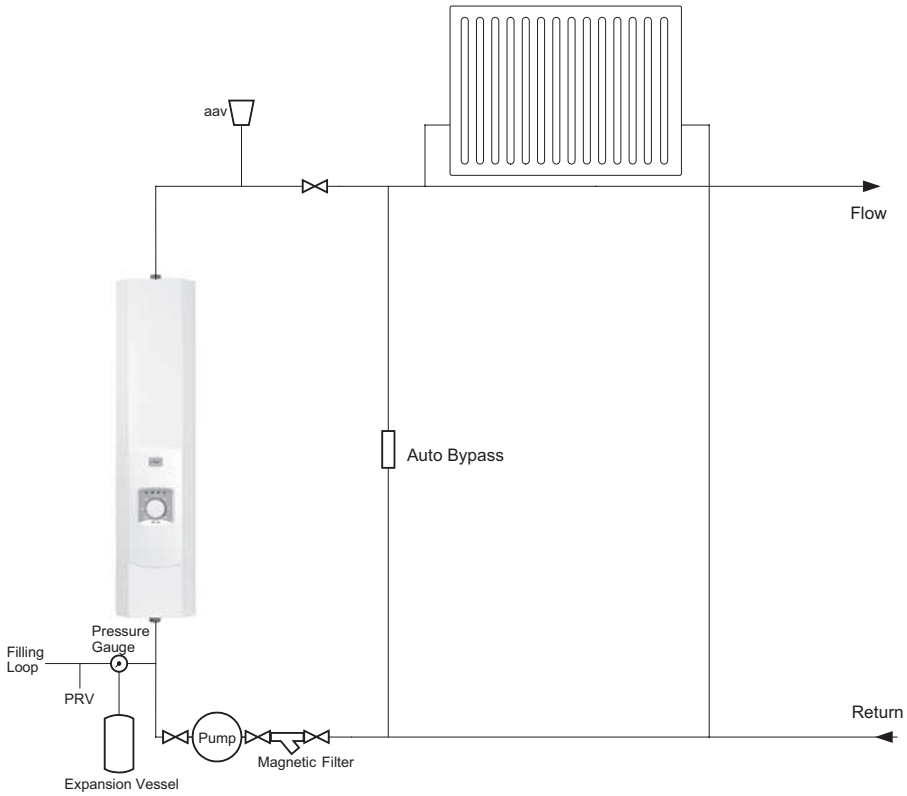


Figure 2



The boilers may also be configured to run multi zone heating systems or under floor heating circuits if required.

14. Commissioning

IMPORTANT:
TURN ON THE ELECTRICAL POWER SUPPLY TO THE BOILER. MAKE SURE THAT THE PROGRAMMER IS NOT CALLING FOR HEAT AT THIS STAGE!

FILL ING THE HOT WATER CIRCUT. (If Applicable)

1. Check the pressure in the potable vessel is set to 3 Bar.
2. Check that all plumbing connections are tight.
3. Open the furthest away tap outlet.

Note: Make sure that the filling loop is closed at this stage!

5. Turn on the mains water supply to the unit.
6. It will take a few minutes to fill the cylinder, once the water comes through the tap outlet let it run.
7. Open the other hot water outlets and purge all air out of the system.
8. Once fully purged close all the outlets and further check for leaks.

FILLING THE PRIMARY HEATING CIRCUT.

THE PRIMARY CIRCUT MUST BE FLUSHED IN ACCORDANCE TO BS 7593

1. Connect the primary filling loop and tighten.
2. Make sure that all primary connections are tight before filling.
3. Open the filling loop and allow the system to start filling.
4. Press the right arrow key on the boiler control panel until the A (bar) led is illuminated.
5. fill the system to 2 bar, then start to purge the radiators until all the air is out the system.
6. This will have to be repeated several times to fully purge the system re-filling as you go.

System protection:
Failure to protect the system will invalidate the manufacturer's warranty.

1. Fill the system with cold mains water to the recommended pressure 1.5 bar and check for leaks, then drain the system thoroughly making sure all drain cocks are fully open and that the system is completely drained.
2. Add Fernox F3 cleaner to the system at the furthest point from the boiler, this is to allow the substance to fully dilute throughout the system. If you are unsure of the correct dose rate, contact Fernox on 03301007750 for advice.
3. Re-fill the system and circulate the F3 cleaner prior to the boiler being fired up. Commission the system in the normal way. The cleansing agent must be in the system for a minimum 1 hour with the system running at normal operating temperature. A longer period of time would be more beneficial to the cleansing process especially if excess flux was used or is an old system. F3 cleaner can be left in the system for up to a maximum of one week running on a normal heating cycle. (We recommend that existing systems are power flushed as per BS 7593 and PAS33 regulations)
4. Drain and flush the system thoroughly to remove the cleaning agent and any debris or contaminants. This is a critical part of the cleaning process and must be carried out correctly. Use a rinse test meter (TDS), such as the Fernox CTM. The reading must be within 10% of the mains ppm value.
5. After the system has been thoroughly flushed and TDS readings are within 10% you can now add Fernox F1. This will protect against the formation of scale, corrosion and microbiological growths. It is crucial however, that for the protector to work correctly, the system must be properly cleansed and flushed.
6. Now attach the label included within the Fernox F1 packaging completed and attached adjacent to the boiler.
   We recommend inhibitor levels are checked on an annual basis (usually during the service) or sooner if the system content is lost.
   This should be carried out using a Fernox inhibitor Test Kit. Fernox Technical Service Help line on 0870 870 0362 for further assistance.

IF SUPPLIED WITH THE GRUNDFOS UPM3 PUMP

15. Start-up / Commissioning

1. Ensure the system is filled with water and correctly vented.
2. Check if the appropriate system installation pressure is reached(see the “TECHNICAL DATA” section) by referring to the system pressure gauge.
3. Set the external controls to call for heat.
4. Switch the boiler on by turning the control dial to the required temperature.
5. Check the pump is set to the correct mode (see table 15.1). To do this, press the pump arrow button for no more than 2 seconds. The LED’s should signal an operating mode at the place pointed by arrow.
6. If the LEDs are signalling a different operating mode than recommended in table 15.1, set the appropriate mode according to the following instructions: press the pump arrow button for longer than 2 seconds, but less than 10 seconds (LED’s will start to flash),the pump then switches to the programming mode. LEDs glows to indicate the current settings. To change the settings of the pump in accordance with table 15.1, you can set the right combination of glowing LEDs by pressing the pump arrow button. Once the LED combination is set correct, by not pressing the button for 10 seconds the pump will remember this setting and will exit from the programming mode back to performance view.

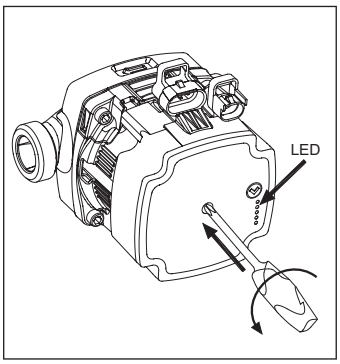
   Note: holding the pump arrow button for more than 10 seconds will enter the pump into key lock mode. This prevents the user from altering the pump settings. To remove the key lock and allow the pump settings to be changed, hold the pump arrow button again for more than 10 seconds.

7. Ensure adequate flow through the boiler is reached (the ‘H’ indicator is on with a constant light). The pump should self vent after a short period of running. If necessary assist the venting process in the following way; Warning the screw head in the centre of the pump is not intended to be used to assist venting of the pump, Damage to the pump internals may occur!

- close the isolation valve on the outlet,
- leave boiler running for 15 sec.
- open the isolation valve.

8. Set the external controls to the required program and the boiler to the required system temperature, see the “Operating” section.

In the case of a seized pump impeller due to a long layover out of the heating season and simultaneous non-compliance with the recommendation to cycle the pump every couple of days, please restore proper movement of the impeller. To do this, please use PH2 screwdriver, press and turn the screw anti-clockwise, located in the middle of the front panel of the pump until the pump impeller is spinning freely.



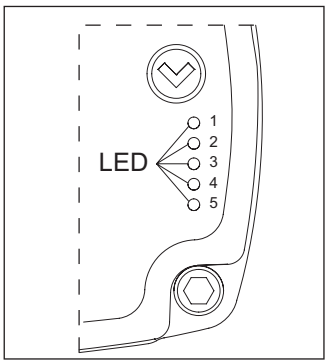


Table 15.1

Rated power [kW]	Pump lifting height [m]	LED 1 red	LED 2 yellow	LED 3 yellow	LED 4 yellow	LED 5 yellow
	4	●	●			
4 - 7	5	●	●		●	
10 - 12	6	●	●		●	●
12 - 14	7	●	●			●

Alarm status

If the pump has detected one or more alarms, the bicolored LED 1 switches from green to red. When an alarm is active, the LEDs indicate the alarm type as defined in the table below. If multiple alarms are active at the same time, the LEDs only show the error with the highest priority. The priority is defined by the sequence of the table. When there is no active alarm anymore, the user interface switches back to operation mode.

Table 15.2

Display	Indication	Pump operation	Counter action
One red LED + one yellow LED (LED 5)	Rotor is blocked.	Trying to start again every 1,5 seconds	Wait or deblock the shaft.
One red LED + one yellow LED (LED 4)	Supply voltage too low	Only warning pump runs	Control the supply voltage
One red LED + one yellow LED (LED 3)	Electrical error	Pump is stopped because of low supply voltage or serious failure	Control the supply voltage /Exchange the pump

ELECTRICAL CONNECTIONS

All wiring must be carried out in accordance with current IEE wiring regulations BS:7671 (all electrical connections must be made by a qualified tradesperson).

LOAD CHECK

A load check must be taken into consideration when installing high power boilers. This will be carried out by a qualified electrician. There may be an additional requirement to upgrade the incoming main fuse supplying the property if other high power devices are used within the property. E.g Electric Showers. If an electric shower is present we recommend that a Shower Sensor is installed within the system. This will cause an interrupt to the boilers control signal when the shower is in use. It will disable the boiler protecting the electrical system from overload.

All boilers must be protected at the meter position with a 30mA double pole RCD with a minimum of 3mm contact separation accompanied by a suitably rated MCB. If the boiler is not fitted local to the meter position then an additional isolation switch must be fitted local to the boiler for each supply.

If the property is prone to lightening strikes or power cuts it is recommended to install a suitable surge protection device to the boiler supply. This will reduce the risk of damage to the boiler electronics during these events.

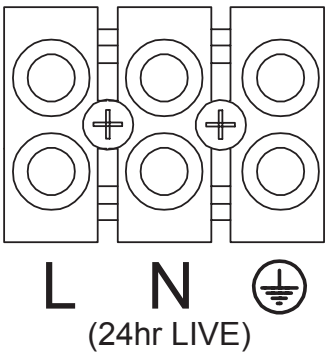
THIS APPLIANCE MUST BE EARTHED.

All pipe-work must be earthed in accordance with the IEE BS7671 Wiring Regulations.

After completion of all electrical works, an electrical safety check should be carried out i.e. short circuit, earth continuity, resistance to earth and polarity check, and all relevant Test Certificates completed.

ELECTRICAL CONNECTIONS

The electrical connections are clearly marked in the bottom LHSide of the unit.



The 24hr live is the permanent Feed connection to the boiler from the mains supply. External controls will require an independent fused spur supplied from the consumer unit, however this fused spur should be supplied by the same power source & protected by the same RCD as the boiler itself, the control circuit should be protected by a 6Amp MCB. The Boiler & control circuit RCD should be independent of all other domestic circuits. The boiler supply cable should be calculated by the means of a cable calculation in accordance with BS7671 by a suitably qualified electrician.

BOILER PROTECTION

The recommended protection is as follows:

MODEL NO	BOILER SIZE PROTECTION
EHCSJIM4KW - 4kW OUTPUT	BOILER 20 AMP Protection
EHCSJIM7KW - 7kW OUTPUT	BOILER 40 AMP Protection
EHCSJIM10KW - 10kW OUTPUT	BOILER 50 AMP Protection
EHCSJIM12KW - 12kW OUTPUT	BOILER 63 AMP Protection
EHCSJIM14.4KW - 14.4kW OUTPUT	BOILER 80 AMP Protection

EXTERNAL CONTROLS

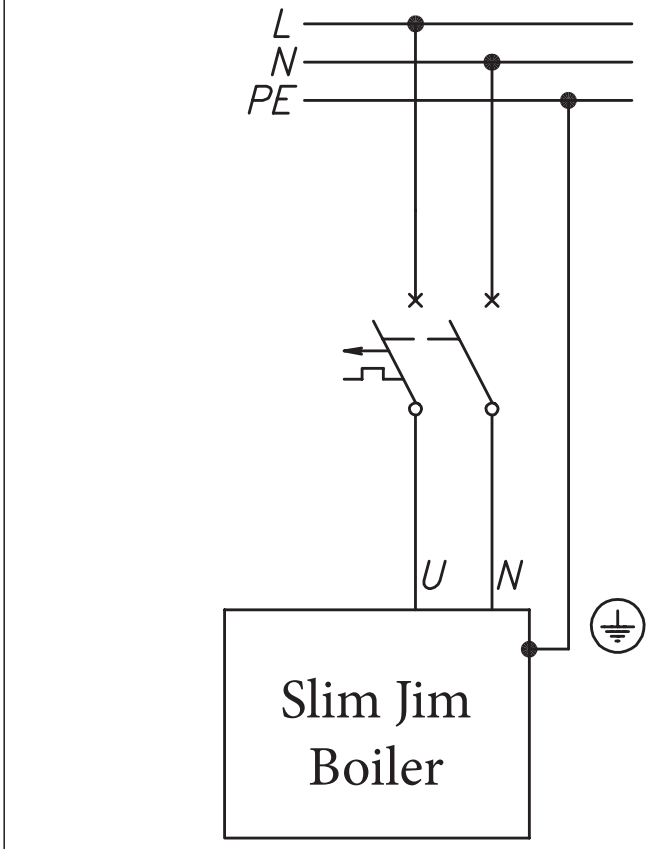
We recommend the use of the Single Channel Heat Pack for heating only installations. For Heating and Hot water installations we recommend the use of the Twin Channel 'Heat Pack'.

The 'Heat Pack' will incorporate all the relevant parts to comply with current building regulations i.e Circulation Pump & Motorized Valves to control the heating and hot water circuits and Room and Cylinder Thermostats to control the room and hot water temperatures. This will also provide boiler interlock. The use of TRV's alone will not provide boiler interlock.

This control method is recommended by BEAMA (British Electrotechnical and Allied Manufacturers Association) in order to comply with the current building regulations.

General Electrical Network Connection

Figure 1



Main Power Electrical Connection L N E

Figure 2

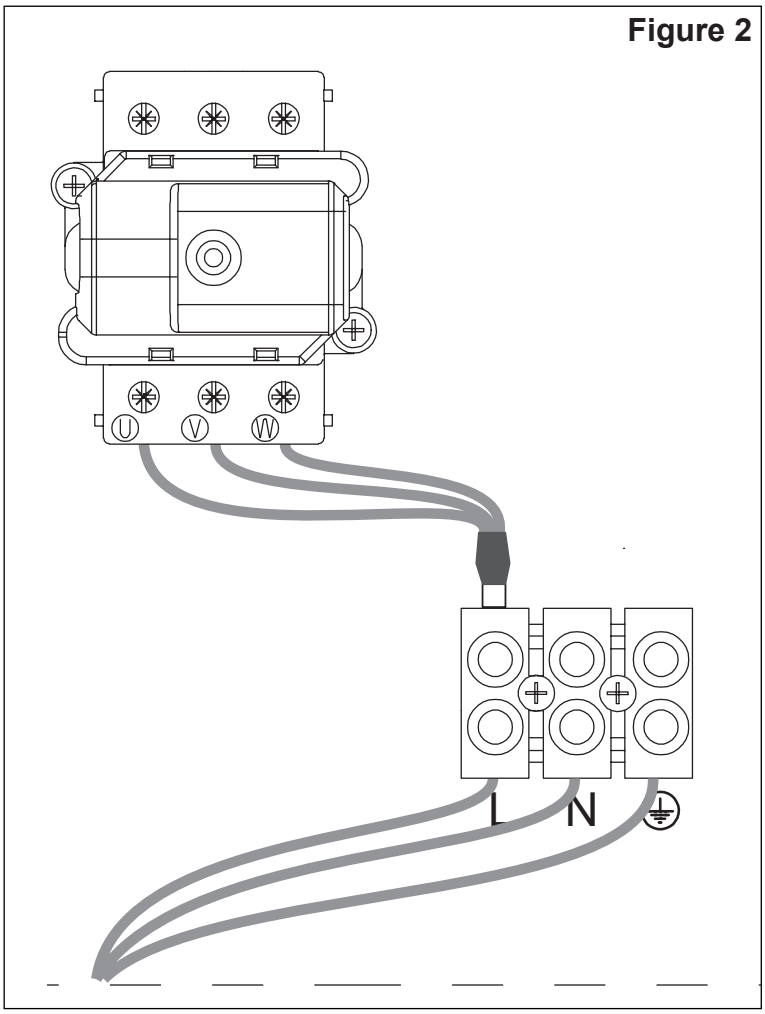
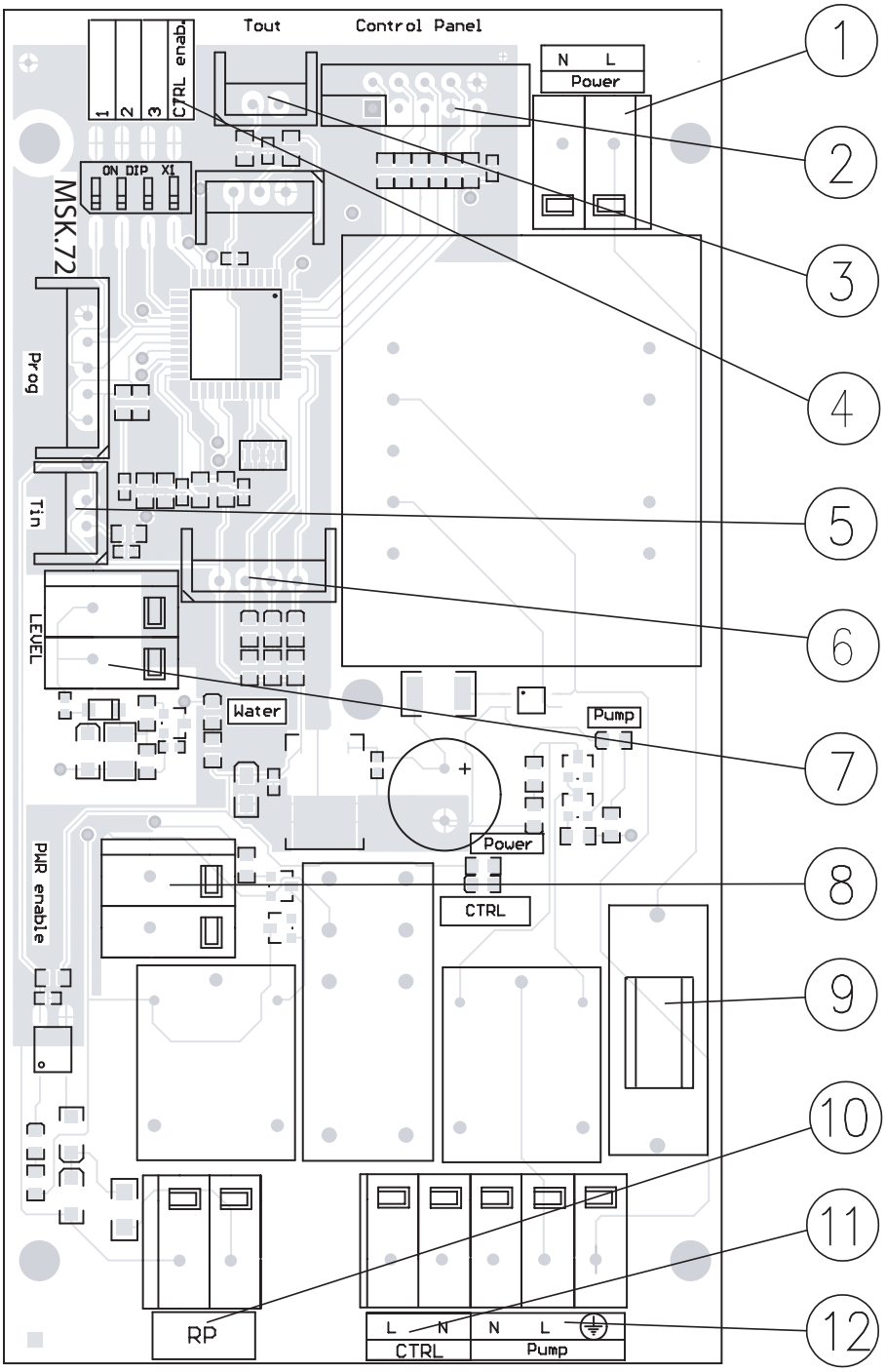


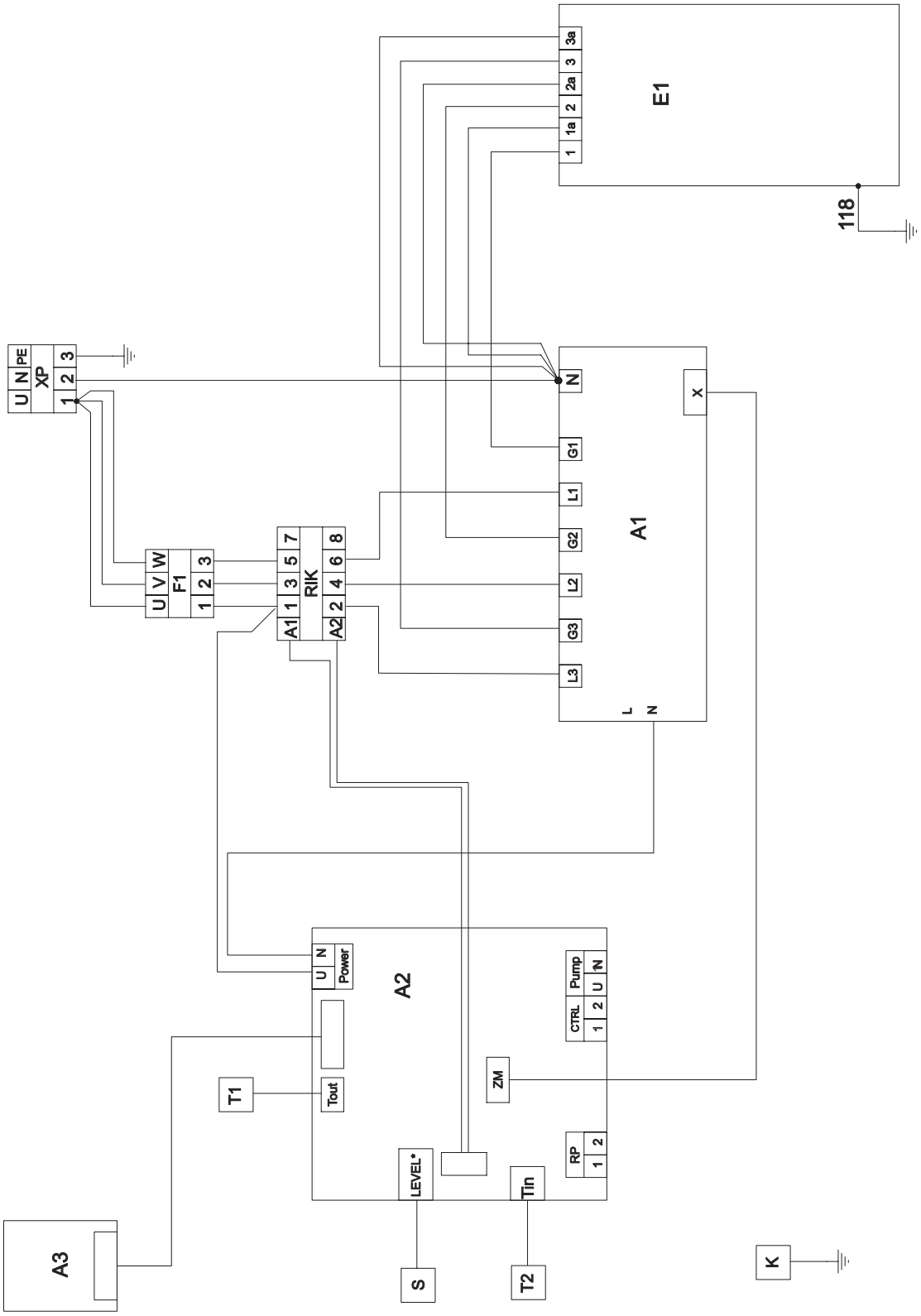
Figure 3



MSK.72 Control Board

[1] - Pre-wired Control board supply
[2] - Front panel control ribbon connection
[3] - Flow temperature sensor
[4] - Power Stage Selector + 240 volt control enable selector.
[5] - Return Temperature Sensor
[6] - Power Board Control Connection
[7] - Water Level Sensor. The wire must be connected to one of two slots (both are the same).
[8] - L N Contactor Connections
[9] - Pump Fuse 1A 240V (slow blow)
[10] - RP Volt Free Control Connections
[11] - 240 Volt Control SW live & Neutral Connections
[12] - Circulating Pump Connections N L E

ELECTRICAL DIAGRAM



XP - tape terminal block
F1 - WT-3 thermal cut-out
RIK - contactor
A1 - EKCO.A1 power board
A2 - MSK-72 Board
E1 -EKCO.A1 heating box

A3 - PW-12 indicator board
T1- return temperature sensor
T2- flow temperature sensor
S - Water sensor sensor.
K- front cover

External Control Options:

The Slimjim boilers can be used with Volt Free or 240 volt control signals.

Volt Free control operation. Remove the link from the RP Connection (10) and connect your external volt free control cables here. When this connection is “Closed” the boiler will fire, and when “Open” the boiler will be in standby. (The control enable dip switch 4 must be in the OFF position as shown in the table below).

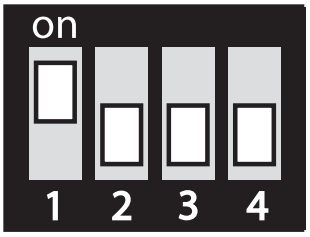
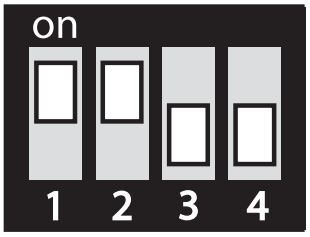
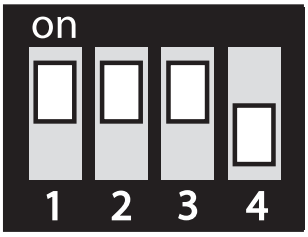
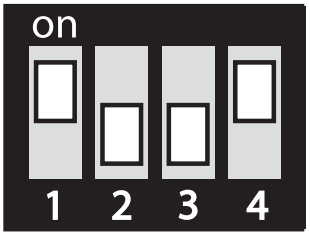
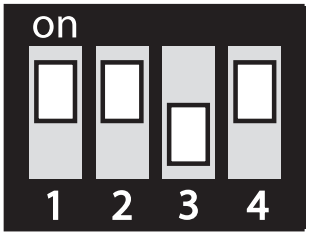
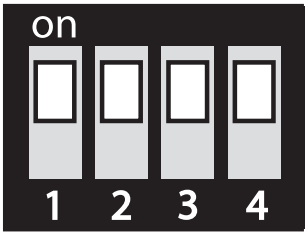
240 volt control operation. The link must be left in the RP Connections (10) and a live SW and Neutral connected to the control terminals (11) To enable the feature you must select Dip 4 to ON. This is located at the top LHS of the control Board. (The control enable dip switch 4 must be in the ON position as shown in the table below).

Boiler Output Control.

You can control all SlimJim boilers power outputs in 3 stages by selecting dip switches settings as shown in the table below.

e.g. If a 6kW is used and dip switch 1 on **= 2kW Output – 6kW** boiler dip switch 1&2 on **= 4kW Output – 6kW** boiler dip switch 1,2&3 on **= 6kW Output**.

Dip Switch Settings

Volt Free Control Signals	**1 POWER STAGE VOLT FREE**	**2 POWER STAGE VOLT FREE**	**3 POWER STAGE VOLT FREE**
			
240 Volt Control Signals	**1 POWER STAGE 240 VOLT**	**2 POWER STAGE 240 VOLT**	**3 POWER STAGE 240 VOLT**
			

Heating Only Wiring (Non Standard Volt Free Switching)

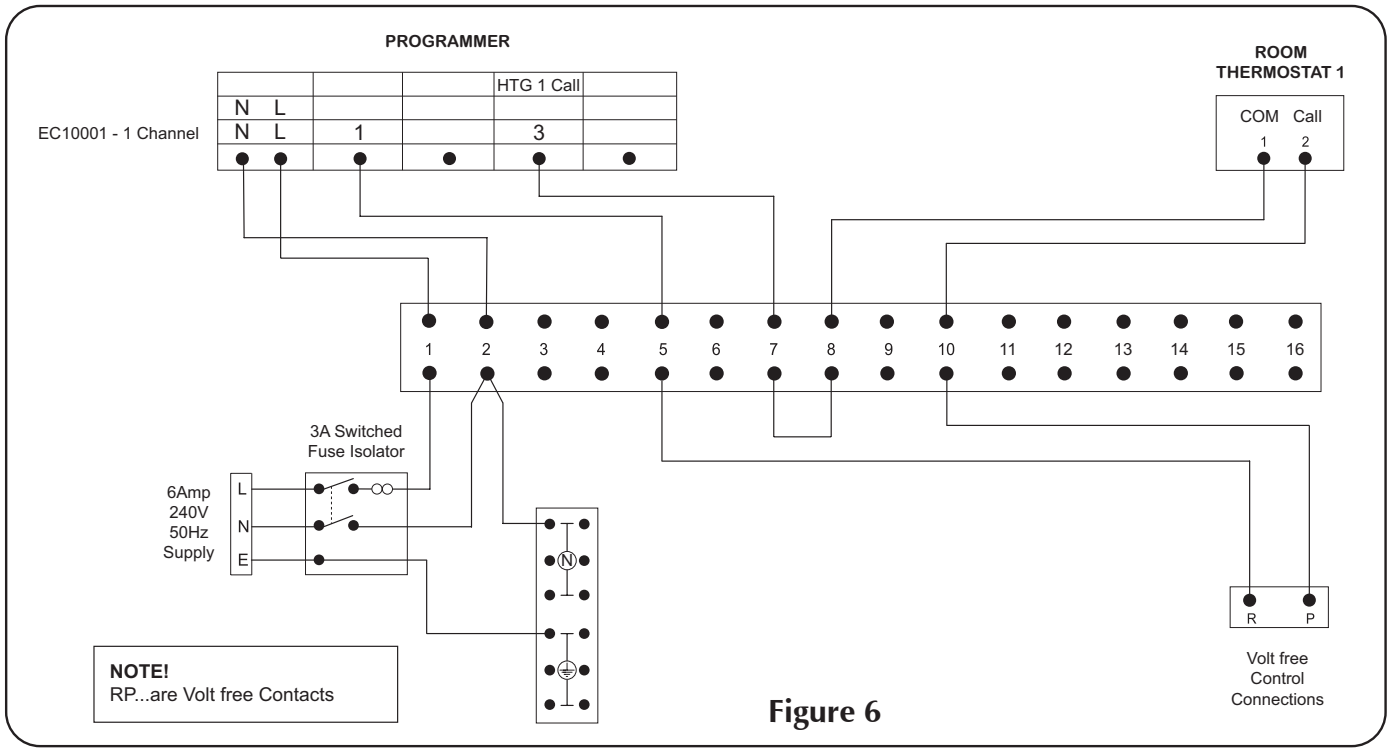


Figure 6

This S plan wiring schematic will provide a volt free contact across the boilers RP Connections. No voltage has been taken to the Grey cable of the zone valves therefore creating a volt free contact across the grey & orange switch wires of the valves when heating or hot water is in demand. If the boiler is connected to an existing heating control system with 240 Volt switching then the boilers control board should be setup as mentioned on page 15 (240 Volt control signals).

Heating & Hot Water Wiring: S Plan (Non Standard Volt Free Switching)

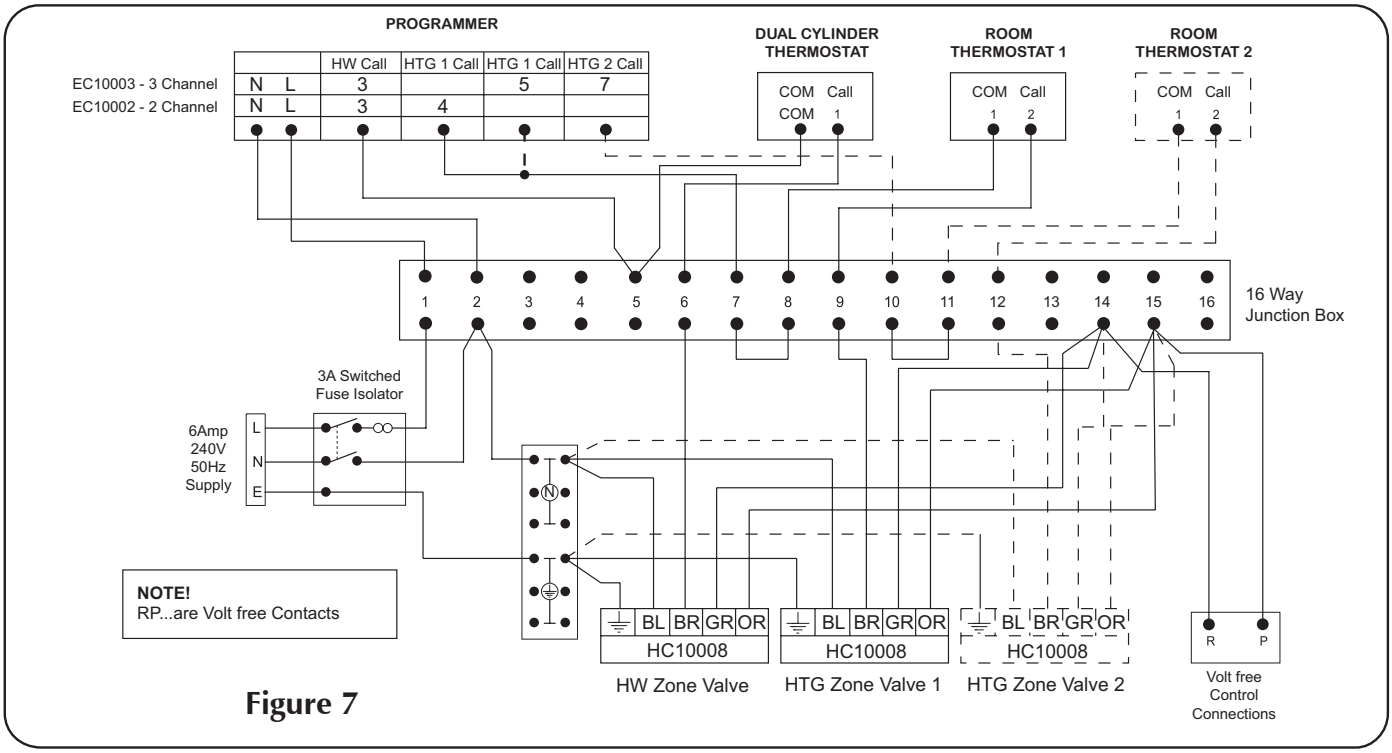


Figure 7

Product: EC10010
Description: 16 Way junction box

230V~10A 50Hz ClassII -15T55 BS6220 FIXED WIRING MAX 1.5mm

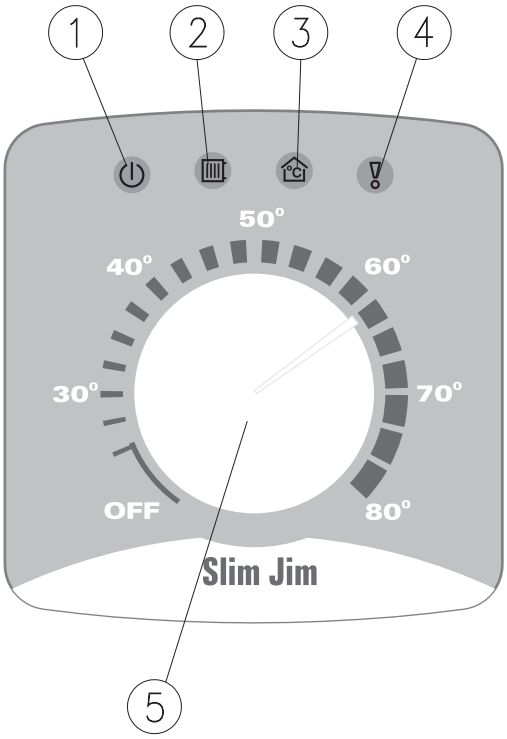
---------- Optional 2nd heating zone

BOILER CONTROL PANEL

Figure 3

Front Control Panel LED introduction;

[1] - Power Indicator
[2] - Boiler Operation Indicator
[3] - Heat Call Indicator
[4] - Low Water Indicator
[5] - On/Off & Temperature Dial



User instructions,

The Control panel is located on the outside boiler cover. It consists of a dual purpose dial that allows you to select the boiler Output Temperature or Switch the Boiler On or Off. To switch the boiler “Off” You simply turn the dial Anti clockwise to the “Off position.” Indicator (1) will flash and the boiler will shut down and stop heating the system. The pump will run for a further 90 seconds then turn off. If the boiler is left in the off position the control system will run the pump periodically to prevent system failure.

To switch the boiler “On” simply turn the dial Clockwise to your desired temperature setting generally around 65 deg C. The boiler will now sit in standby waiting on a call from the external controls to activate the boiler and heat the system when required.

LED Functions and Fault Finding

FUNCTIONS	ON-OFF STAND-BY	BOILER HEATING	CALL FOR HEAT	WARNING INDICATOR
All LED’s Off Check that Main Power is ON? Check – WT3 Over Heat Stat? If WT3 requires re-seting investigate the cause!	off	off	off	off
Boiler is ON Waiting for Call from external controls.	on	off	off	off
Boiler is ON and running. External Controls are Calling for heat	on	on	on	off
Low Water Level Top up Heating System Water Level.	flashing	off	off	on
Temperature Sensor Failure. **The boiler will still heat if the inlet sensor has failed but not the outlet sensor!** **Replace Both Sensors.**	off	flashing	off	on
Max Inlet Temperature reached. No demand from system.	on	off	flashing	off
Boiler Off LED will flash for 90 seconds until the pump stops.	flashing	off	off	off

TECHNICAL SPECIFICATION

EHC Part Number:		EHCSJIM 4KW	EHCSJIM 7KW	EHCSJIM 10KW	EHCSJIM 12KW	EHCSJIM 14.4KW
Boiler range	kW	4kW	7kW	10kW	12kW	14.4kW
Pipe entry boilers - flow		top				
Pipe entry boilers - return		bottom				
Central heating flow & return pipes	mm	22				
Max pressure	bar	3				
Min. pressure	bar	0,5				
Out flow water temperature	°C	30 ÷ 80				
Max. water temperature	°C	100				
Overall dimensions (height x width x depth)	mm	912 x 203 x 172				
Weight	kg	11				
Water connection	mm	22				
Safety class		IP22				
Electrical supply	V AC	240V 1ph 50Hz				
Load current	A	16,7	29,2	41,7	50,0	60,0
Minimum permitted cable diameter	mm	6	10	16		
Heat output (Btu/h)	BTU/h	13648	23885	34121	40946	49135
Max. temperature setting	°C	80				
Min. temperature setting	°C	30				
Overheat protection	°C	100				
Protection	A	20	40	50	63	80
The maximum allowed network impedance	Ω	0,43	0,37	0,29	0,24	0,22
ERP Rating		D	D	D	D	D

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www.electric-heatingcompany.co.uk
www.ehc-renewables.co.uk

(Waste Electrical & Electronic Equipment)

(Applicable in the European Union and other European countries with separate collection systems).

This marking shown on the product or its literature, indicates that it should not be disposed of with other household wastes at the end of its working life.
To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources. Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.
Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.