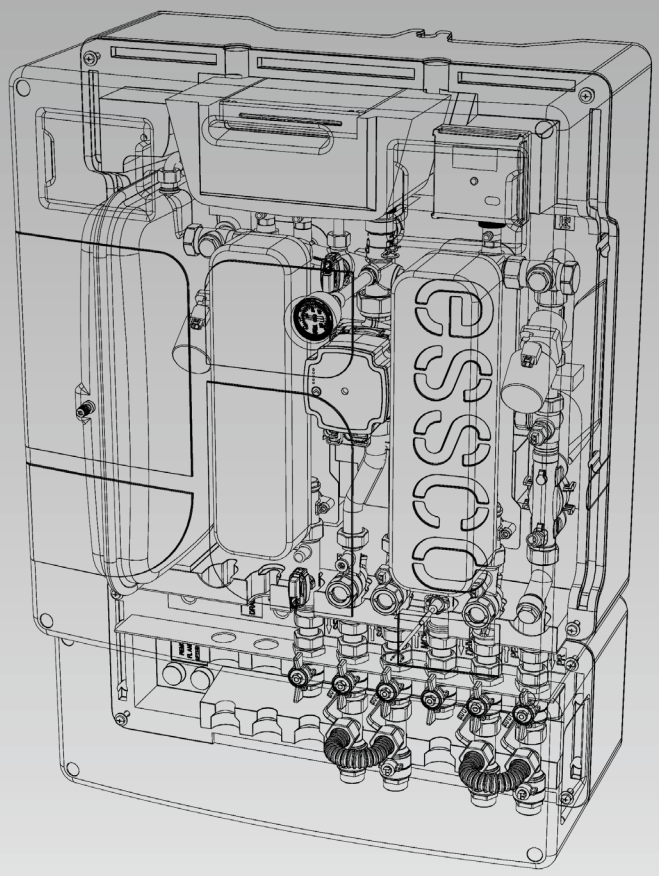
essco
ENERGY



Installation and Maintenance Instructions
EDGE2 T - Heat Interface Unit (EAHIUT)

For connection to a heat network supplying indirect Space Heating and instantaneous Domestic Hot Water.

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1. Key symbols and safety instructions

1.1 Key to symbols

Warnings

	Warnings in this document are identified by the warning triangle adjacent. Keywords are used at the start of a warning triangle to indicate both the type, and seriousness of the risk identified, if measures to prevent the risk are not taken.

Essco Group have defined the following Keywords and used them in this document:
• **NOTICE** Indicates a situation that could result in damage to property or equipment.
• **CAUTION** Indicates a situation that could result in minor to medium injury.
• **WARNING** Indicates a situation that could result in severe injury or death.
• **DANGER** Indicates a situation that will result in severe injury or death.

1.2 General safety instructions

Follow these guidelines

- Adhere to national and regional regulations, technical rules, and guidelines always.
- Observe the safety instructions and warnings identified and take appropriate care.
- Before starting the installation, any installation instructions (Heat interface unit, heating controls, etc.) should be carefully read through.
- Record all work carried out.

Risk of electrical shock

- Due to risk of electrical shock any electrical work or maintenance must only be carried out by qualified / registered person.
- Before carrying out any work on electrical components, isolate them from the power supply (230 V AC) (fuse, circuit breaker) and secure against unintentional reconnection.

Appliance operation
Cleaning and user maintenance should only ever be carried out by competent and authorised personnel.

Important handling instructions
Care should be taken when transporting, lifting, and carrying the appliance.

- Use a means of transport suitable for handling appliances (e.g. sack truck with strap, stair climbing or step trolley).
- When handling appliances, secure them against a fall.
- Let only trained personnel undertake the handling.
- The correct method for handling heavy objects should be strictly observed, always.

General handling guidelines
Only remove packaging at the time of the final installation to protect products from damage.

Always assess the weight of products before attempting to lift on your own. During handling and unpacking, wear safety gloves to prevent injuries to your hands through sharp-edged components.

Dispose of packaging materials appropriately.

Packaging
The following points should be observed during unpacking:

- Check the delivery immediately upon receipt for completeness and transport damage.
- Carefully unpack the unit.
- In the event of transport damage, the delivery should only be accepted conditionally.
- Do not use damaged components for assembly.
- The First Fix Kit can be fitted before the Heat Interface Unit, with secondary / tertiary circuits connected, allowing for pressure testing, and flushing of the Heat Network. Fitting the Heat Interface Unit later also reduces the risk of damage or loss on site.

Siting and installation
Correct siting, assembly and installation of the individual components are the fundamental requirements for safe and economical operation of the appliance.

- Only trained contractors are to site and install the appliance and its components.
- The appliance must only be installed in rooms and locations that meet the manufactures requirements.
- Wall setting out templates are provided for drilling.

Commissioning

- The appliance and the components must only be commissioned by a competent person.
- Commissioning reports should be completed during commissioning and kept as record documents after completion. Where commissioning engineers don't have templates for this, Essco Group have included copies of their report templates in this document, these can also be sent separately on request.
- Check all connections for leakages prior to starting up the heating system.
- All fixings and fittings must be checked and tightened before filling to ensure no leaks have been caused through transport vibrations and heat expansion.

Risk of damage due to operator error
Operator errors can result in injury and damage to property.

- Ensure that only personnel who can operate this appliance correctly have access to it.
- Inspection, maintenance, and repairs must only be carried out by competent persons.
- Use only original spare parts from the manufacturer. The manufacturer can assume no liability for damage caused by spare parts not supplied by the manufacturer. A spare parts guide can be found in the appendix of this installation operations manual.

Electrical work
Electrical work must only be carried out by a qualified electrician:

- Before starting electrical work
  - Ensure that the electricity supply is safely isolated and secure to prevent inadvertent re-connection.
  - Information on safe isolation can be found in the Health and Safety Executive Guidance HSG85.
  - Using test equipment approved to GS38 confirm that the electricity supply is disconnected.
- Refer to the manufacturer's information when installing other components with Essco equipment within the system.

Heat Exchanger
The unit contains copper-brazed stainless-steel heat exchangers. Please ensure the system complies with the requirements in BS EN 12502 Part 1 and 2 to avoid any damage caused by corrosion.

Danger of burns and scalds

- Surfaces of individual components, connections and leaking water can be very hot and cause severe burns and scalds.
- Do not touch hot surfaces.
- Caution should be taken not to touch any leaking water or drained system water unless the temperature is known and safe.



Notice:
An electronic Heat Interface Unit does not replace the need for thermostatic mixing valves at point of use where there is a risk of scalding.

Essco Group recommend that control valves conforming to BS EN 1111 or BS EN 1287 are used at each point of use, so that in the event of cold supply water interruption, these valves shut off the flow of hot water to prevent scalding.

Common Practice: Local TMV2 control at each hand-wash outlet, bath, and shower. Thermostatic taps (valves) can also be specified by the architect in lieu of TMV's to safe-guard users. Said valves should demonstrate that a maximum temperature of 48°C cannot be exceeded in operation and that the product will fail-safe (i.e., not discharge water above the maximum temperature). Such valves should also not be easily altered by building users.

It should also be noted that 44°C is also recommended as the maximum discharge temperature from outlets accessed by vulnerable people.

Leakage
If leaks are observed:

- Immediately close all isolation valves.
- Ensure all leaks are repaired by a suitably qualified professional.



Caution:
The districts heating side of the appliance can be operated with high pressure and high temperature systems.

- Please apply extreme caution and wear the appropriate safety equipment (PPE) when working on suspected leaks.



Notice:
Units come complete with internal PICV fitted; the maximum differential pressure is 600kPa (6bar).

- A suitable means of control should be installed to limit the differential pressure if the system design is expected to exceed the limits above.

Instructing the customer

- When handing over, instruct the user how to operate the heating system and inform them about its operating conditions.
- Make note on retrofit projects, where stored hot water is being replaced with heat interface units providing instantaneous hot water, that hot water can be less responsive, and a keep-warm program can be enabled where necessary.
- Explain how to operate the heating system and draw the user's attention to any safety-relevant action.
- Explain that modifications and repairs must only be carried out by an authorised contractor.
- Hand customers the appliance documentation for safekeeping.

2. Appliance Information

2.1 General Information
Main Features

- HIU is reversible in design, allowing for all-top or all-bottom pipework connections without additional fixing kits. Note the drainage pipe will differ however, and so the correct pipe must be ordered.
- Easy to install with minimal clearances required.
- Fully insulated to minimise heat loss.
- Provides instantaneous Domestic Hot Water and indirect Space Heating to properties.
- Hydraulic system separation with two heat exchangers.
- Domestic Hot Water demands take priority over Space Heating demands.
- The Domestic Hot Water plate heat exchanger temperature is optimised to reduce the risk of lime scale formation.
- The electronic control unit provides fully modulated Space Heating and domestic hot water temperature control.
- Programmable keep-warm can be set to ensure heat is promptly available when domestic hot water is required. Note this feature is enabled as standard and the energy still metered and therefore also charged for.
- Pressure independent control valves for tertiary isolation and control of heating and hot water.
- Proven low return temperatures in the secondary circuit through BESA testing maximises efficiency of the system.
- The appliance can be supplied with or without a heat meter fitted.
- First Fix Kit available for pre-plumbing of secondary and tertiary connections.

2.2 Intended use
The appliance provides instantaneous Domestic Hot Water and indirect Space Heating to properties that are serviced from district heating or central boiler plants. The appliance consists of two heat exchangers, one for the Domestic Hot Water providing instant hot water at a safe regulated temperature and the second for Space Heating. The appliance is indirect, so the heat network circuit is hydraulically separated from the tertiary circuits by plate heat exchangers. Domestic Hot Water takes priority over the Space Heating demand as standard.

This appliance must only be used as a source of Space Heating and Domestic Hot Water in a sealed system.

Refer to the details on the HIU identity plate / QR Code sticker and the specifications to ensure correct use of this appliance.

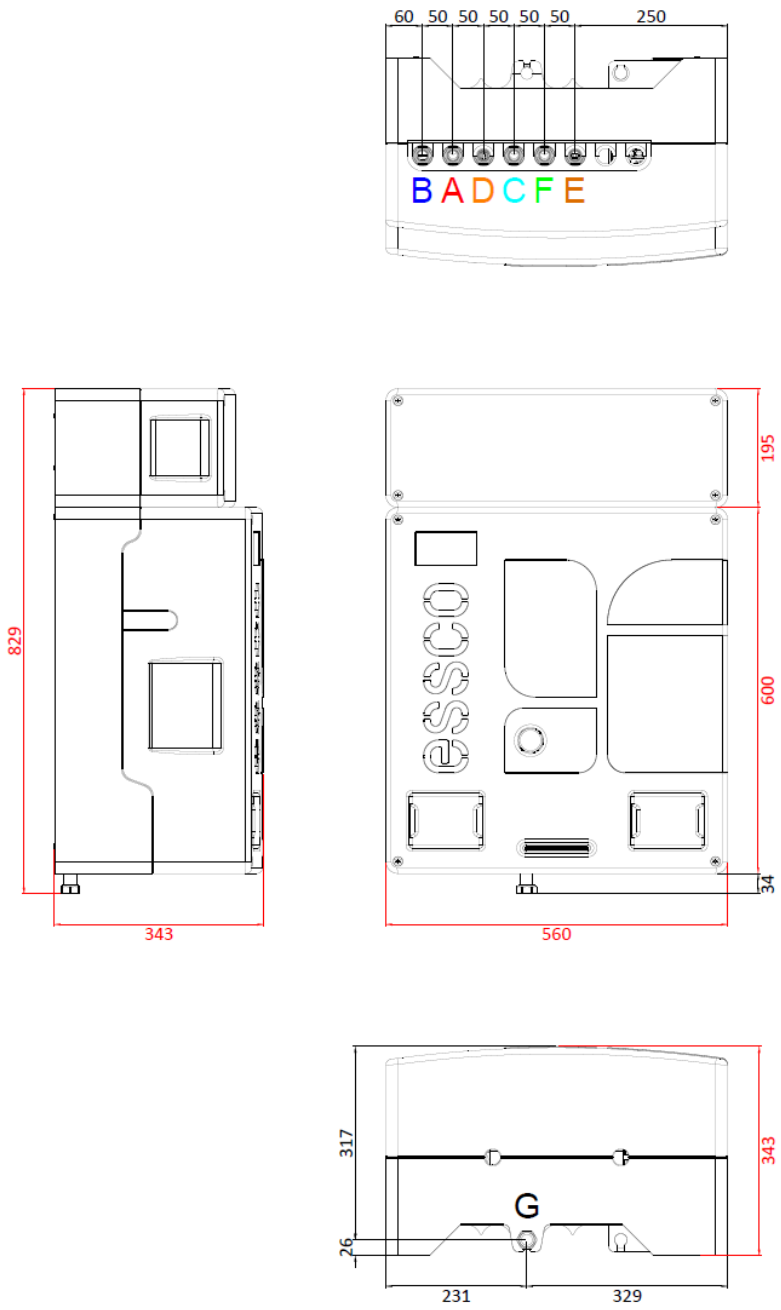
2.3 Misuse
Appliance must be used as per the intended use statement. Operation outside the parameters of the intended use is considered misuse and could cause harm to people and damage to property.

Using the appliance outside of its intended use may also invalidate the manufacturer's guarantee.

2.4 Declaration of conformity
This product, in design and operation, conforms to the European Directives and supplementary national requirements.
Compliance is demonstrated by the CE marking.
You can request the declaration of conformity for the product. To do so, send your request to the address on the back of the manual.

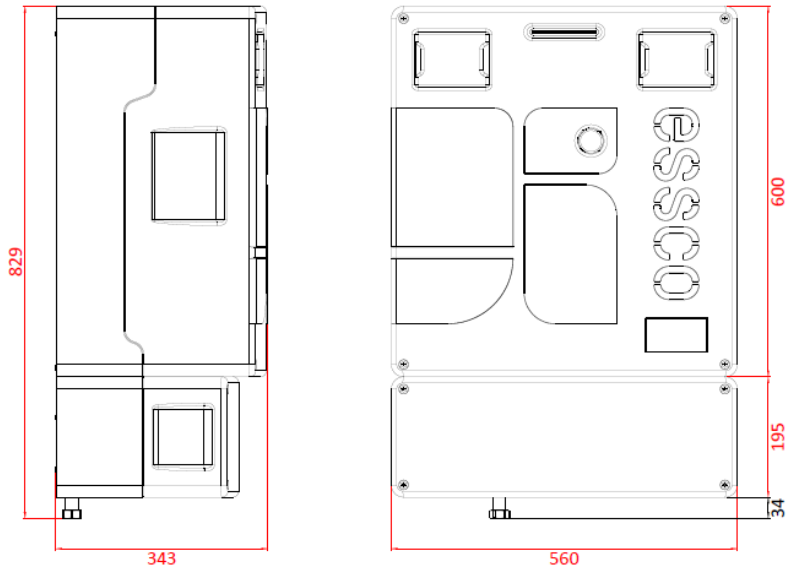
2.5 Appliance dimensions and hydraulic connections

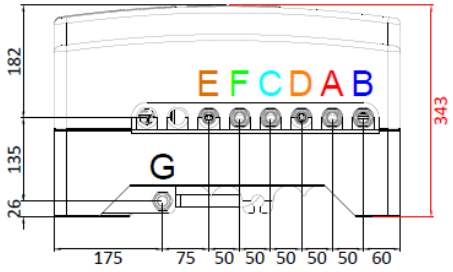
All Top Installation



Connections		**Notes**
Secondary *(District Heat Network)*	**Tertiary** *(within apartment)*	
A – Secondary Flow **B** – Secondary Return **C** – Mains Cold Water Inlet	**D** – DHW Supply **E** – Space Heating Flow **F** – Space Heating Return **G** – Drain	Dimensions shown in red are overall HIU dimensions. All other dimensions are for setting out of fixing holes or pipework. First Fix Kit comprises flushing bypass, filling loop & isolation valves.

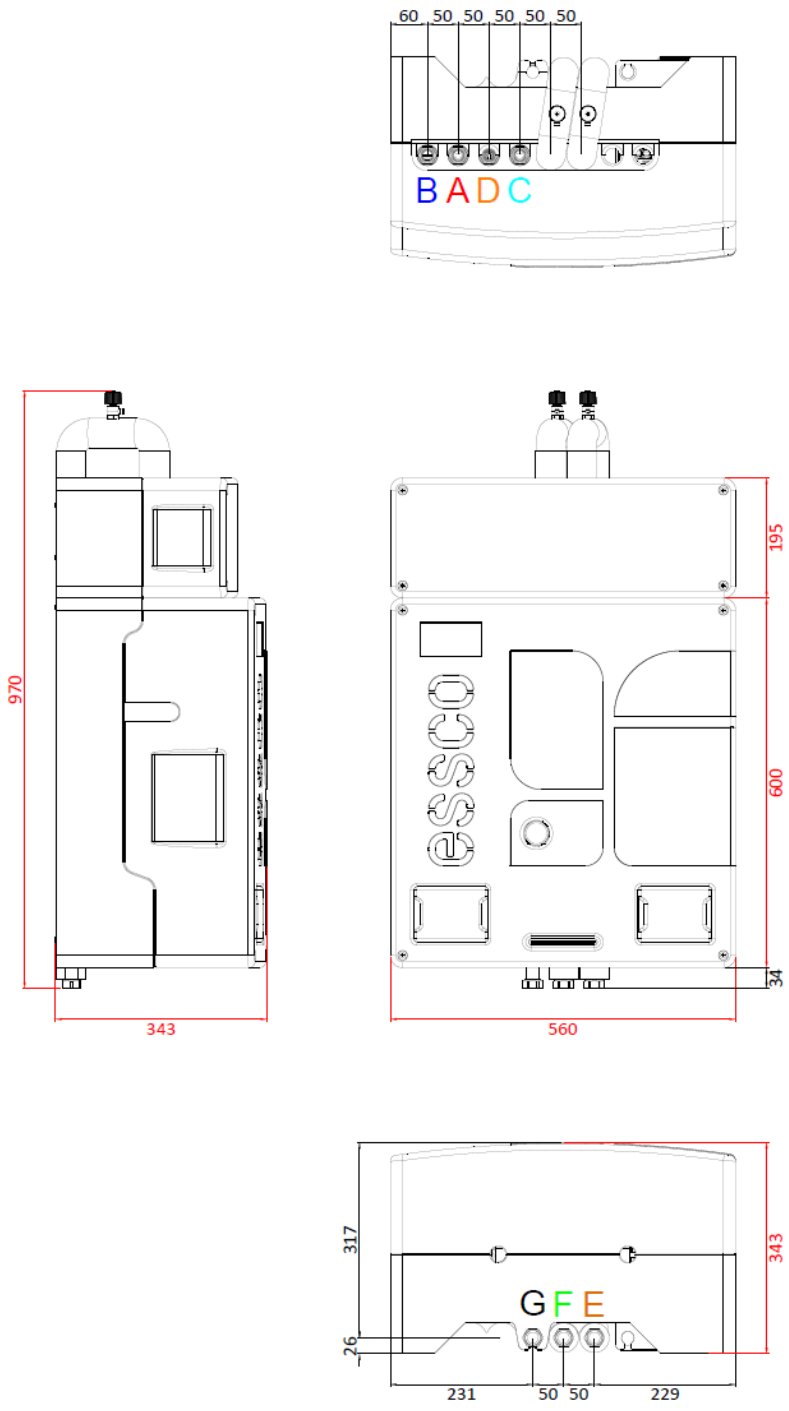
All Bottom Installation





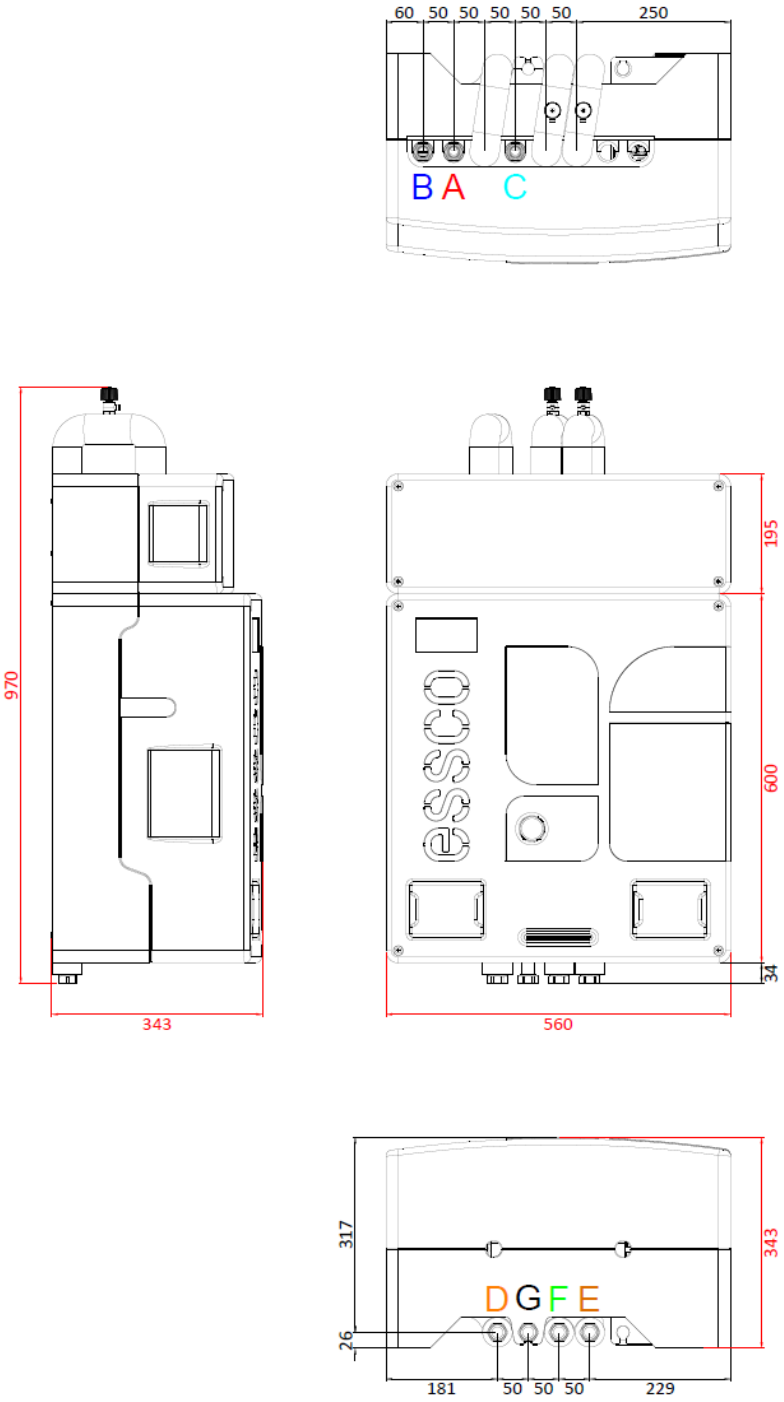
Connections		Notes
Secondary *(District Heat Network)*	**Tertiary** *(within apartment)*	
A – Secondary Flow **B** – Secondary Return **C** – Mains Cold Water Inlet	**D** – DHW Supply **E** – Space Heating Flow **F** – Space Heating Return **G** – Drain	Dimensions shown in red are overall HIU dimensions. All other dimensions are for setting out of fixing holes or pipework. First Fix Kit comprises flushing bypass, filling loop & isolation valves.

Secondary Top, Heating Bottom



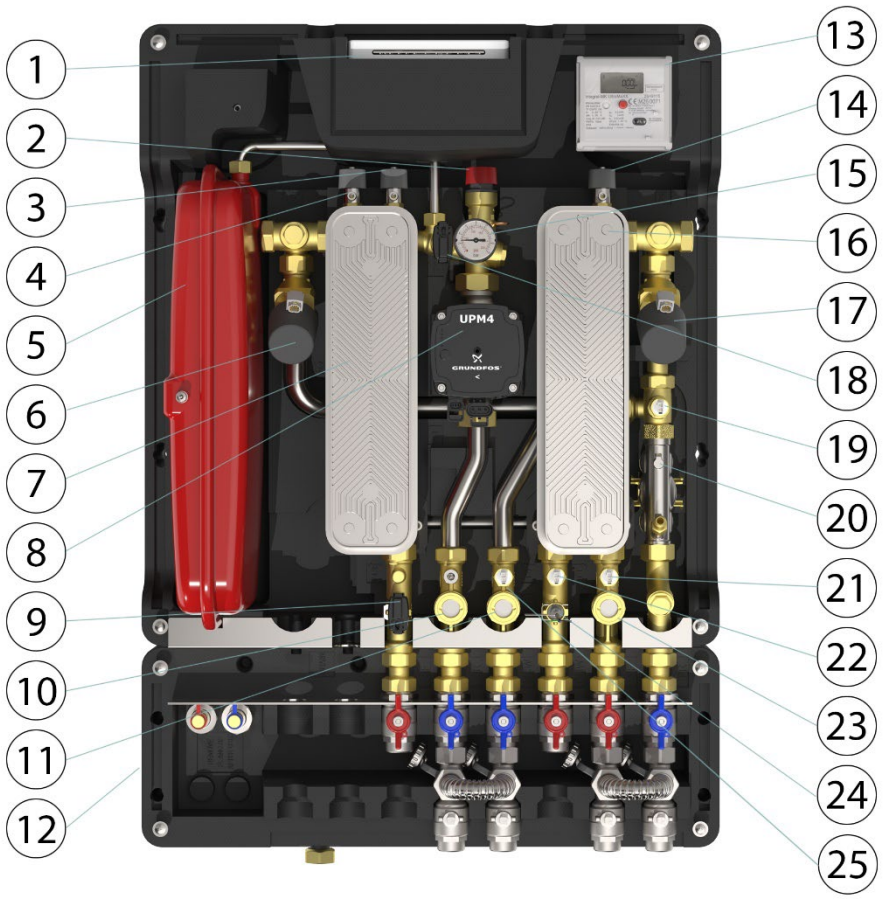
Connections		Notes
Secondary *(District Heat Network)*	**Tertiary** *(within apartment)*	
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Secondary Top, Tertiary (Heating & Hot Water) Bottom



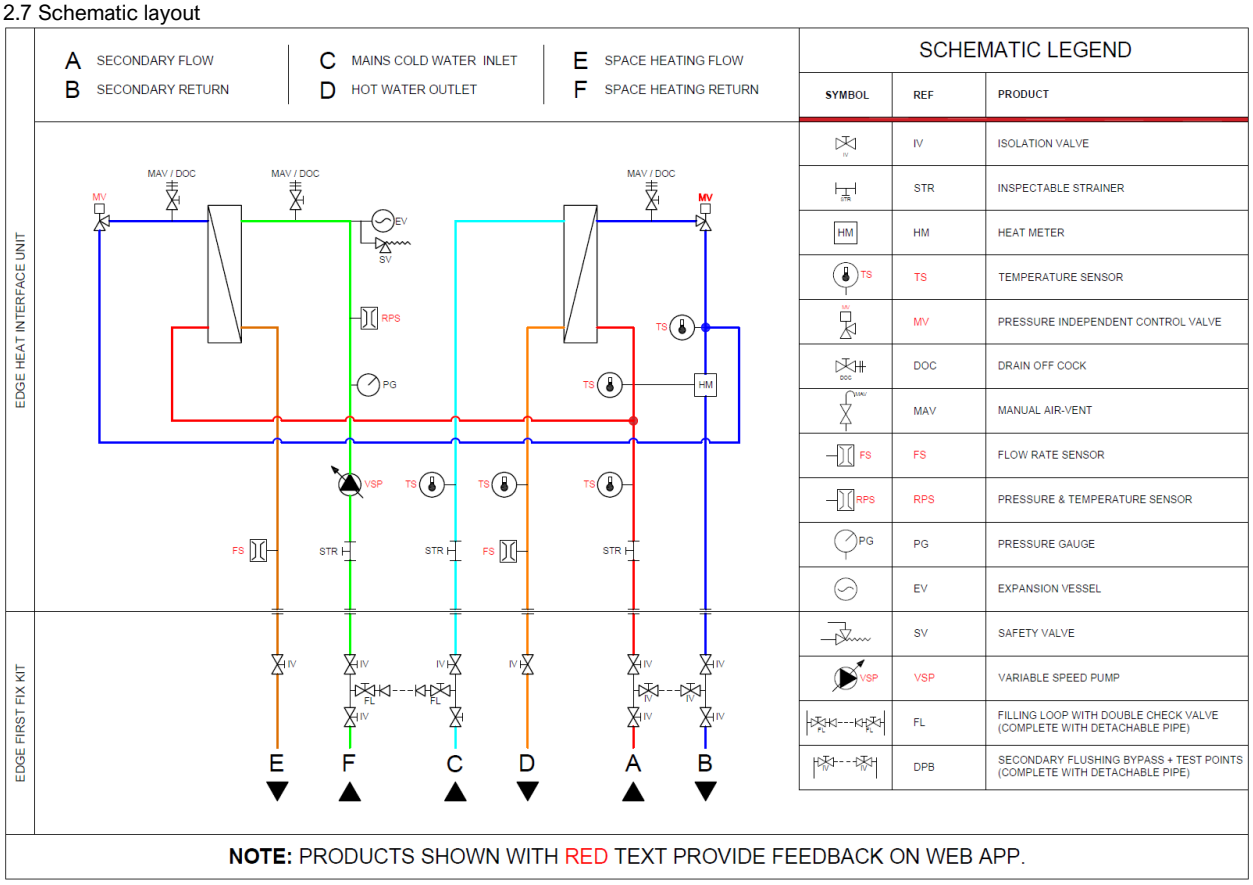
Connections		Notes
Secondary *(District Heat Network)*	**Tertiary** *(within apartment)*	
A – Secondary Flow **B** – Secondary Return **C** – Mains Cold Water Inlet	**D** – DHW Supply **E** – Space Heating Flow **F** – Space Heating Return **G** – Drain	Dimensions shown in red are overall HIU dimensions. All other dimensions are for setting out of fixing holes or pipework. First Fix Kit comprises flushing bypass, filling loop & isolation valves.

2.6 Internal layout



Item No.	Circuit	Component Description
4	Heat Network (Secondary)	Air / drain valve (HTG side)
6		Heating control valve & actuator (PICV)
14		Air / drain valve (DHW side)
17		Hot water control valve & actuator (PICV)
19		Return temperature sensor
20		Energy meter (body)
21		Flow temperature sensor
23		Inspectable flow strainer
2	Space Heating (Tertiary)	Pressure relief valve
3		Air / drain valve
5		Expansion vessel
7		Heating plate heat exchanger
8		Circulation pump
9		Heating flow rate & flow temperature sensor
10		Inspectable heating strainer
15		Pressure gauge
18		Heating pressure & return temperature sensor
11	DHW (Tertiary)	Inspectable mains cold water strainer
16		Hot water plate heat exchanger
22		DHW flow temperature sensor
24		DHW flow rate sensor
25		Mains cold water temperature sensor
1	(Control)	Essco MK3 HIU controller
13		Energy meter (calculator)
12	First Fix Kit	Comprising isolation valves, filling loop, bypass valve and binder test points kit

2.7 Schematic layout

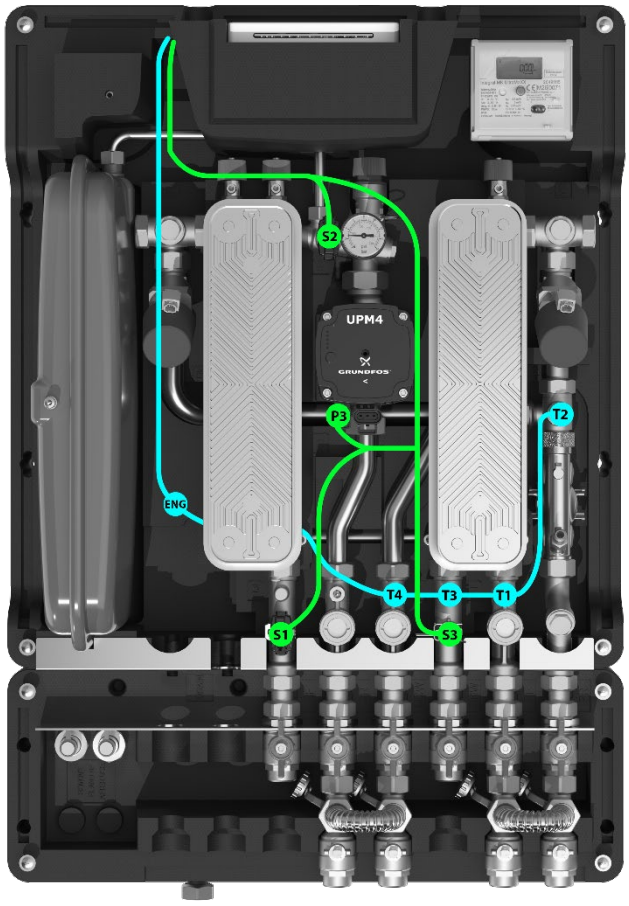


SCHEMATIC LEGEND

SYMBOL	REF	PRODUCT
	IV	ISOLATION VALVE
	STR	INSPECTABLE STRAINER
	HM	HEAT METER
	TS	TEMPERATURE SENSOR
	MV	PRESSURE INDEPENDENT CONTROL VALVE
	DOC	DRAIN OFF COCK
	MAV	MANUAL AIR-VENT
	FS	FLOW RATE SENSOR
	RPS	PRESSURE & TEMPERATURE SENSOR
	PG	PRESSURE GAUGE
	EV	EXPANSION VESSEL
	SV	SAFETY VALVE
	VSP	VARIABLE SPEED PUMP
	FL	FILLING LOOP WITH DOUBLE CHECK VALVE (COMPLETE WITH DETACHABLE PIPE)
	DPB	SECONDARY FLUSHING BYPASS + TEST POINTS (COMPLETE WITH DETACHABLE PIPE)

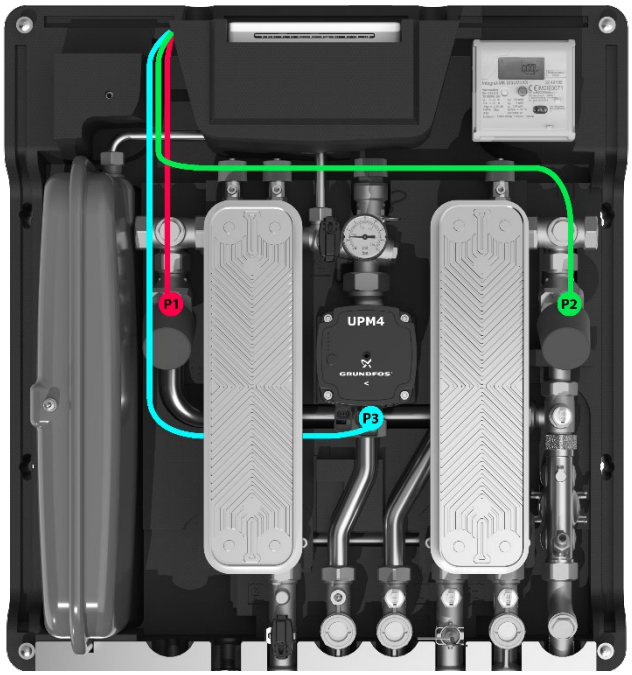
NOTE: PRODUCTS SHOWN WITH RED TEXT PROVIDE FEEDBACK ON WEB APP.

2.8 Electrical wiring harness layouts



Device	ID	Harness
T1	Flow temperature sensor	CanBUS
T2	Return temperature sensor	
T3	DHW flow temperature sensor	
T4	MCW temperature sensor	
ENG	Spare port for engineer sensor	
S1	HTG flow rate & flow temperature sensor	Low voltage
S2	HTG pressure & return temperature sensor	
S3	DHW flow rate sensor	
P3	Pump (signal)	

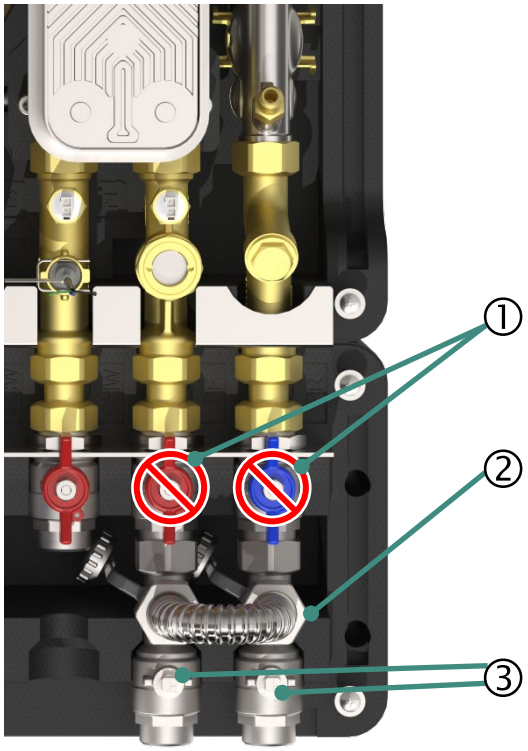
2.9 Electrical cable runs



Device	ID	Cable
P1	HTG valve (24V power, 0-10V control/feedback)	
P2	DHW valve (24V power, 0-10V control/feedback)	
P3	Pump (230V power supply)	

2.10 Modes of operation

1	**Bypass Mode:** Isolation valves closed to HIU. Bypass loop fitted, and isolation valves open below to allow full bypass. Purpose: Manual mode, to flush & clean secondary circuit. Note: bypassing must be done independent of HIU, as not to pass dirt through PHE or valves.



1. The HIU is installed with isolation valves closed to ensure unit is 'off'. Alternatively, pipework connections are made to the First Fix Kit only at this stage with no HIU installed.
2. The secondary bypass is fitted to divert heat network flow to return without flushing through the HIU itself.
3. The isolation valves below the bypass are opened and used to flush through the bypass loop, and to isolate / remove the bypass again after flushing is completed. After flushing is complete, the bypass loop can be replaced with the binder test points kit supplied. See Section 7.1.4 for further instruction.

The flushing bypass is required on all terminal units during commissioning of the heat network. With HIU isolation valves closed, bypass loop fitted and open, this allows for flushing and ensures that dirty water is not flushed through the HIU's. Doing so helps protect control valves and other sensitive control components from damage caused by flushing through with poor quality water.

The bypass must be removed after flushing is complete. This can be stored in the first fix kit insulation shell.

2	**<u>Heating Mode:</u>** In heating mode: There is a call for heat by room thermostat, common enable signal via UFH wiring centre, or BMS etc., after detecting a fall in ambient temperature below the target set-point. The call for heat may also be received automatically if a heating schedule has been set up on the online dashboard or residents display unit where applicable.

Heating Circuit Control:

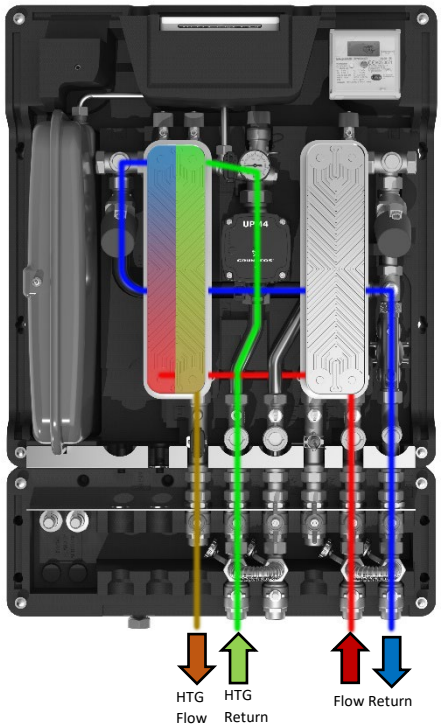
1. For the heating circuit to run, the following conditions must first be met *(note **a-c** are confirmed by lit LED on controller):*

   a. The Heating Demand signal must be received by the controller
   b. The high temperature limit relay must be satisfied (or linked out where no underfloor heating limit device fitted)
   c. The billing "in-credit" relay must be also satisfied (or linked out where not required)
   d. There must be no hot water events, as controller prioritises hot water over heating
   e. The heating circuit must be filled and the pressure higher than the low-pressure threshold set (standard setpoint = 0.5 bar)

2. When above conditions are satisfied, heating control valve & actuator (PICV) modulate open to pull energy from the heat network to heat the secondary side of the PHE and deliver the heating temperature set for emitters (temperature can be adjusted however typically pre-set before delivery).

3. The Heating circulation pump modulates to circulate water to emitters while flow rate adjusts to target the heating return temperature set (temperature can again be adjusted however typically pre-set before delivery).

Secondary Circuit Control: Space Heating

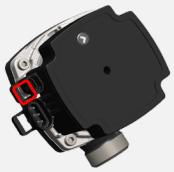


Under Floor Heating Systems

Composite pipework used for underfloor heating systems utilise lesser flow temperatures due to the increased surface area of the heat emitter, when compared to traditional radiator systems.

It is important not only for energy conservation, but also to protect the composite pipework, to limit the secondary temperature through UFH circuits to 35 – 55°C.

The secondary flow temperature should be specified by the UFH designer, however when in doubt manufacturers data sheets should be used.



When using the EDGE2 Heat Interface Unit to assist in the UFH warm-up procedure, the pump data cable can be removed which will set the pump running full speed. It must be refitted afterwards.

Care must be taken to ensure a flow temperature limitation thermostat is fitted and set correctly to protect the system.

Should any floor coverings require further surface temperature protection, fail-safe sensors must also be fitted.

3	**<u>DHW Mode:</u>** In Domestic Hot Water mode: The DHW flow sensor detects flow rate during a hot water event.

DHW Circuit Control:

1. The controller prioritises hot water. As one or more hot water outlets are opened, if the heating is running the Space Heating control valve is closed, allowing 100% of flow rate to be pulled through the DHW PHE. The pump speed is then optimised on the heating circuit to pull energy left in the heating PHE out and around the heat emitters, until the hot water event has ended.

2. The flow rate and temperature of hot water outlet is monitored by the flow & temperature sensors, and the DHW control valve position is modulated to achieve the temperature required on the tertiary side of the PHE. The DHW setpoint is preset and can be adjusted in software using the controller web app.

3. After hot water events have ended, the unit will either return to keep-warm mode or space heating.



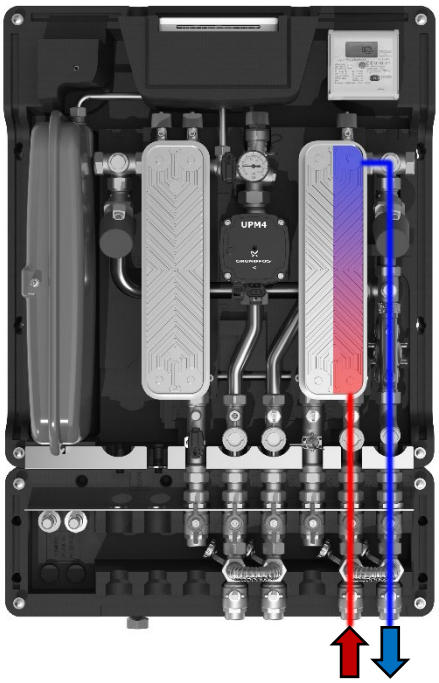
Mains Cold-water Flow Rates

HIU's require sufficient cold mains water pressure supplied to them, in order to deliver the Domestic Hot Water flow rate required on the secondary side. We recommend the Essco Water Meter Assembly ('WMA') as a means of setting and adjusting the cold mains pressure in to each dwelling, as this assembly also includes double check valve to prevent back-flow, while displaying the outlet pressure to aid with commissioning and fault finding.

Where an Essco WMA / similar is not fitted, care must be taken to ensure the mains cold water reaches each unit at the required pressure and does not exceed the maximum 10 bar rating.

5	**KWM Mode:** In Keep-warm mode: The heating may be on demand or off, but there is no demand for hot water.

1. The keep-warm program looks at temperature feedback from temperature sensor(s) within the HIU to maintain the set temperature at the DHW PHE. This ensures that after longer periods of inactivity, the HIU still responds quickly to a hot water event and achieves target temperature at the taps promptly. The secondary DHW control valve opens only to the position required, for the time required to achieve the set temperature, it is not always open or fully open.



All energy transferred from the heat network to indirect PHE's within the EDGE2 Heat Interface Units is metered and therefore billable. This means on any units where a keep-warm program is deployed, while it only draws a small amount of energy, this energy is chargeable to the end-user.

Within the software is the option to enable or disable this feature, and while this can be done at any time, there can be certain installations where the heat network operator has removed this permission. This may be where there are longer lateral / terminal runs or higher heat losses before the HIU, and the KWM is required to deliver the comfort and response levels required.

2.11 Technical & performance specification

Description	Unit*	A HIU only	B HIU + First Fix Kit
General			
Height	mm	600	795
Width	mm	560	
Depth	mm	343	
Heat Network maximum working pressure	bar	16	
Heat Network maximum differential pressure rating	bar	6	
Domestic Hot Water maximum working pressure	bar	10	
Pressure relief valve setting secondary heating side	bar	3	
Pressure relief valve factory pre-charge (+/-20%)	bar	1.5	
Maximum temperature	°C	90	
Control valve flow rate range	l/h	50 - 1800	
Control valve leakage rate (of max rated volumetric flow)	%	0.01	
District heating flow and return connections	mm	20	
Tertiary heating flow and return connections	mm	20	
Cold feed and DHW connections	mm	20	
Pressure relief valve connection	mm	15	
Expansion vessel	litre	8	
HIU insulation	Ave. 30mm EPP Shells		
Approvals	BESA HIU Test Standard 3.1. KIWA regulation 4 pending. CE marking		
Electrical			
Electrical power supply voltage	V	230	
Frequency	Hz	50	
Maximum power consumption	Watts	<100w	

Space Heating performances *[standard 20 PHE]*

Heat Network (secondary)				Heating Circuit (tertiary)			
Flow	**Return**	**Flow Rate**	**Pressure**	**Flow/Return**	**Power**	**Flow Rate**	**Pressure**
°C	°C	l/s	kPa	°C	kW	l/s	kPa
80	45.0	0.137	40.1	**70/40**	**20**	0.159	34.3
70	42.5	0.130	36.8	**60/40**	**15**	0.179	43.4
65	44.3	0.139	41.5	**60/40**	**12**	0.144	27.8
60	40.5	0.098	21.4	**50/40**	**8**	0.191	49.4
55	41.5	0.141	43.1	**50/40**	**8**	0.191	49.4
55	35.6	0.098	21.7	**45/35**	**8**	0.192	49.5

Domestic Hot Water performances *[standard 40 PHE]*

Heat Network (secondary)				DHW Circuit (tertiary)			
Flow	**Return**	**Flow Rate**	**Pressure**	**MCW/DHW**	**Power**	**Flow Rate**	**Pressure**
°C	°C	l/s	kPa	°C	kW	l/s	kPa
80	12.5	0.177	16.9	**10/50**	**50**	0.299	42.6
70	14.7	0.216	25.2			0.299	42.6
65	16.1	0.220	26.1		**45**	0.269	34.5
60	18.3	0.230	28.4		**40**	0.239	27.3
55	21.5	0.214	24.8		**30**	0.180	15.3

Other plate options are available and can be discussed with Essco Group to suit other duties and design temperatures as required.

3. Regulations

3.1 General

The installation and maintenance of the unit must be performed by a qualified person in accordance with regulations and rules of the local area where installation is to take place.

3.2 Standards and Guidelines

When installing and operating, please refer to country-specific regulations and standards, note in particular:

- The local standards and regulations on the installation conditions.
- The provision for the electrical connection to the power supply.
- The standards and regulations relating to the safety equipment of the water heating system.

3.3 Inspection and maintenance

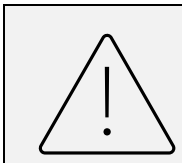
The heating system should be inspected regularly for the following reasons:

- To achieve and maintain a high efficiency.
- To ensure operational safety.

The recommendation from BSRIA BG62/2015 is a maintenance check every 3 years should be sufficient; however, water quality should be checked frequently, and strainers checked/emptied as often as required.

4. Pre-Installation requirements

4.1 General



Notice: High differential pressure could affect the performance of some components in the unit.
- The maximum allowable supply differential pressure is 600kPa (6 bar).

4.2 System preparation
Water system and pipework

- Any plastic pipework used on the Space Heating system must have a polymeric oxygen barrier coating and at least 1000mm length of copper or steel pipe connected to the appliance.
- Plastic pipework used for under-floor heating must be correctly controlled and must not exceed the under-floor manufacturers' specifications.
- Under-floor heating zones can be controlled by the HIU provided the under-floor heating design does not exceed the hydraulic capacity of the HIU Space Heating circulation pump.
- The district circuit is completely separated from the Space Heating circuit using a plate heat exchanger. However, to protect the under-floor circuit in the event of a failure condition, a limiter thermostat must be fitted onto the flow pipe to the under-floor circuit and wired into the control unit. This switches off the Space Heating pump in the event of an over temperature condition.
- Reduced flow temperatures associated with under-floor heating circuits can also be controlled by the HIU without the need for an external mixing valve.



Notice: (Underfloor heating circuits) Damage caused by excessive flow temperature.
- Ensure the flow temperature does not exceed the requirements of the underfloor heating circuit manufacturer.

Secondary circuit/connections/valves
- All system connections, tap, and mixing valves must be capable of sustaining a pressure of 3 bar.
- Radiator valves should confirm to local regulations.
- A pre-settable thermostatic radiator valve (P-TRV) must be fitted to radiators in all rooms except the room with the thermostat. This must be fitted with lock-shield valves and left open.
- Drain cocks are required at all the lowest points on the system.
- Air vents are required at all high points on the system.

4.3 Domestic water supply

The maximum temperature of the DHW heat exchanger is limited by the electronic controller which reduces limescale formation.

In areas where temporary water hardness exceeds 200 ppm, consideration may need to be given to the fitting of a scale prevention device, such as a limescale inhibitor fitted prior to the HIU on the mains cold water inlet. In such circumstances, the advice of the local water authority should be sought.

Showers/bidets:
- Ensure that the shower is suitable for use with mains water pressure.
- If a shower head can be immersed in water or comes closer than 25mm from the top edge of a bath or shower tray spill over level, then an anti-siphon device must be fitted to the shower hose.
- Bidets with direct hot and cold mains water can be used (with the approval of the local water authority) and must be the over rim flushing type with shrouded outlets to prevent the fitting of handheld sprays.

Water mains pressure
Speak to an Essco technical representative to confirm minimum inlet pressure to achieve nominal DHW flow rates.

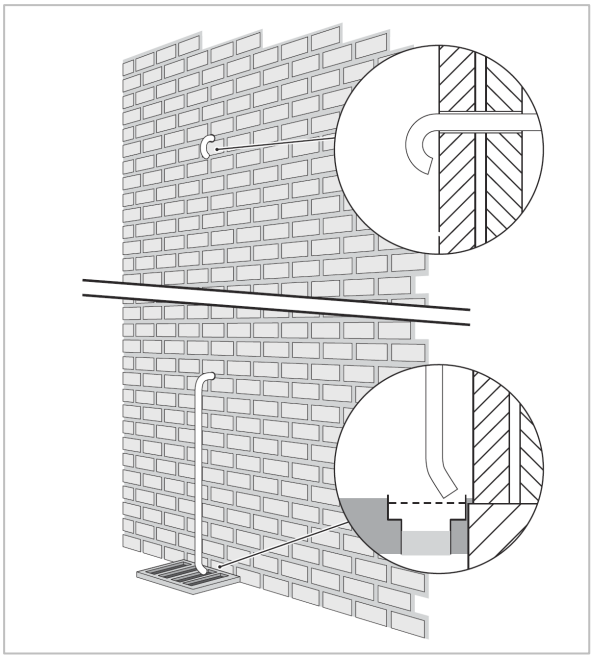
Maximum mains fed water pressure 10 bar.
- A pressure reducing valve should be fitted to reduce this to the level required (typically 3 bar).
- Where the mains water supply has a non-return, back flow prevention valve fitted, a mini expansion vessel should be connected to the mains water inlet pipe between the non-return valve and the appliance.
- Thermal expansion and provision for external expansion vessel should also be considered where hot water recirculation is necessary. Change of software is also needed, so Essco must be aware at time of supply where this may be applicable.

	Notice: Risk of damage to household appliances. Non-return, back flow prevention devices fitted to the mains water supply can cause a pressure build up which could damage the appliance and other household appliances. • Fit a mini expansion between the non-return valve, back flow prevention device.

4.4 Pressure relief pipework

	Warning: Risk of scalding! Injury if discharge pipe is not routed correctly. • The pressure relief valve is safety device for the appliance and if activated may discharge boiling water or steam through the relief valve drainpipe. • Care should be taken when siting the outlet pipe so that it does not cause an obstruction or discharge above a window, entrance, or other public access where it could cause a hazard.

- The pressure relief drainpipe [1] and [3] from the appliance should be at least 15mm diameter copper pipe and run downwards to a safe point of discharge, away from any electrical equipment or other hazard, preferably to an external drain or soak away.
- Pipe [1] should be finished with a partial bend, near the outlet to face the external wall (as shown) to help prevent freezing.



Internal PRV discharge

The PRV discharge pipe may terminate internally to a safe position such as a waste pipe or soil pipe, provided that the following conditions are met:

- The material used must be capable of taking the maximum temperature provided by the District Heating secondary flow.
- The discharge must be directly or indirectly visible and will not discharge onto the occupants of the premises or onto any electrical wiring or components. An example of “directly” is a tundish and “indirectly” an audible indication of pressure loss.
- There is a continual fall towards the discharge point from the HIU.
- Where a tundish is used, a suitable trap is installed to protect against foul smells entering the living areas, whilst ensuring no undue resistance to the discharge. An example would be a washing machine trap with upstand.

4.5 Cleaning secondary system

	Notice: Risk of damage to system or appliance Debris from the system can damage the appliance and reduce efficiency. Failure to comply with the guidelines for the use of water treatment with the appliance will invalidate the appliance warranty. • Before installation, ensure that the Space Heating system is cleaned and thoroughly flushed in accordance with the standards and guidelines of the country of installation.

4.6 Application location and clearances

4.6.1 Location

- Follow local regulations for the location within the property that the appliance is to be installed.
- This appliance is only suitable for installing internally within a property at a suitable location onto a fixed rigid surface at least the same size as the appliance and capable of supporting the appliance weight.
- The appliance is not suitable for external installation unless fitted in a suitably weathertight and insulated enclosure.

	No surface protection is required against heat transfer from the appliance.

	Notice: Appliance damage. Damage caused by extreme temperatures. • Ensure the ambient temperature is above 2°C and below 30°C.

	Notice: System damage. Very cold temperature can cause the heating system to freeze if there is a power failure or fault in the system the units frost protection will be compromised. • Do not fit the appliance in areas with no heat emitters e.g., garage. • Drain the Space Heating system if it is to be shut down for an extended period.

4.6.2 Rooms containing a bath or shower

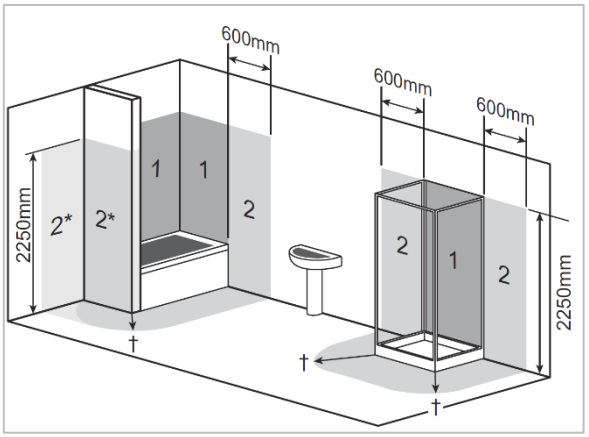
	Notice: Risk of electric shock. Any switch or appliance control using mains electricity must not be within reach of a person using the bath or shower.

- In all cases the installation must be in accordance with the latest amendments to the latest edition of the IET Wiring Regulations (BS7671).
- The IP rating of the appliance.
    - Units without internal heat meter, IPX4D.
    - The IP rating of the appliance allows it to be installed in, and outside of, zone 2.
    - Unit with internal heat meter, IP40.

The IP rating of the appliance dictates that it must be installed outside of zone 2.

- Circuit breaking devices should be used in accordance with the regulations.
- The diagram is for guidance only.

4.6.3 Installation and maintenance clearances
The HIU has been designed for full access to all components from the front. Side, top and bottom access therefore can be minimal, so we recommend approx. 50-100mm for hand clearance when/if removing the HIU in the future.



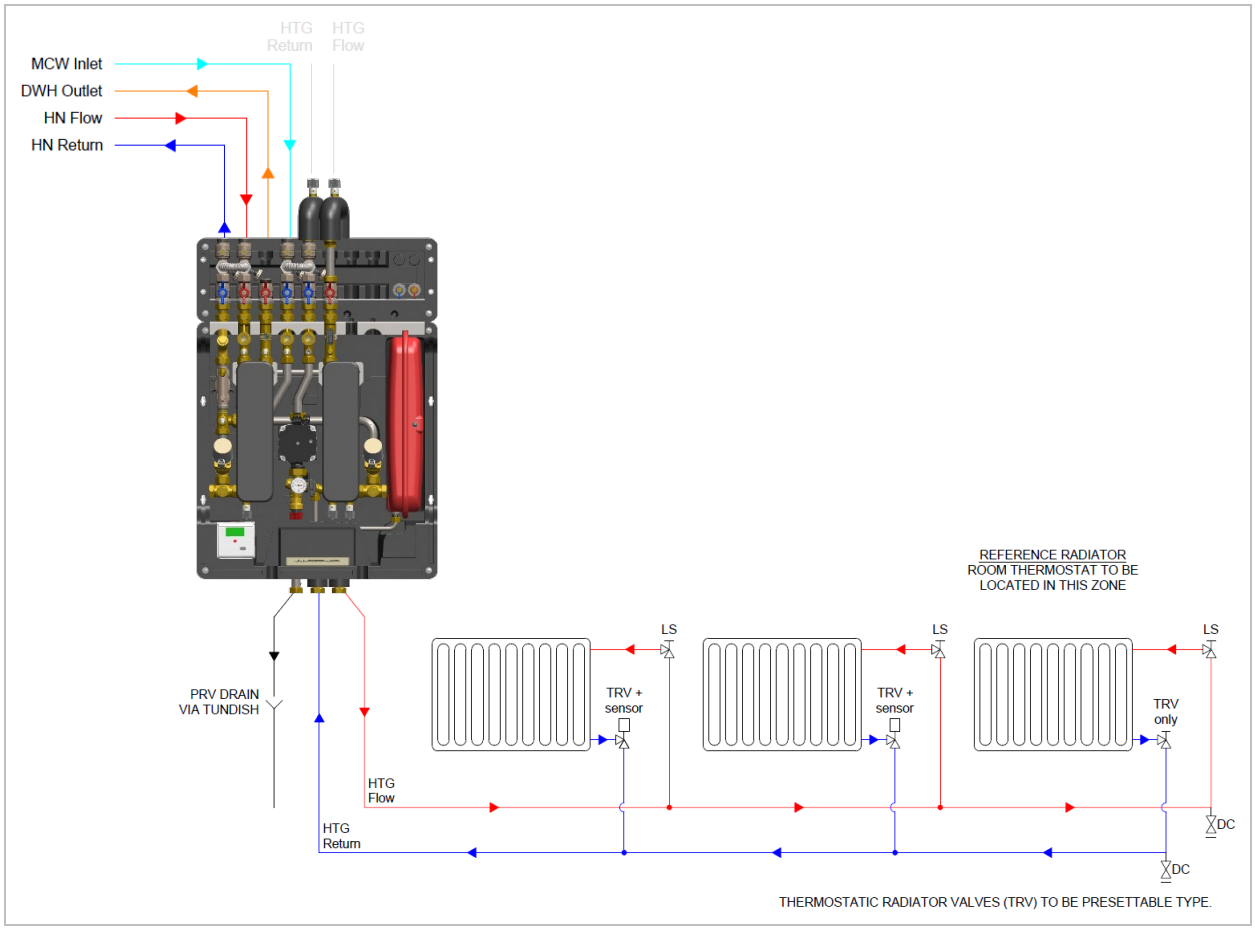
4.6.4 Compartment clearances
If the appliance is to be fitted in a compartment, the following is recommended.

- All service pipe work to the heat interface unit MUST be insulated when installed within a ventilated compartment.
- If the ambient temperature within the compartment exceeds 30 °C, then it is recommended to make provision for ventilation.

– Ventilation openings must be provided at the front of the compartment at the lower and upper positions. Each opening must have a minimum size of 300mm by 80mm, 240cm^2 free area.

4.7 Example layouts

a) Pressure relief valve drains to tundish.



5. Installation

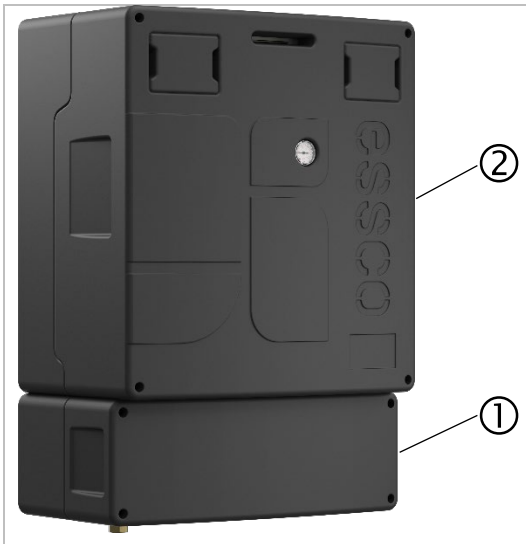
5.1 Wall mounting installation

The layout adjacent shows the relative positions of the HIU and First Fix Kit (example = all bottom connections).

- Determine best location and position for HIU, to ensure sufficient access for maintenance.
- A wall template is included with the first fix kit showing hole setting out and unit clearances.
- Using a spirit level and drill, drill fixing holes and then fit the First Fix Kit to the wall using fixings appropriate to the wall construction.
- Ensure secondary bypass is closed during flushing of heat network pipework.
- Following flushing and commissioning of primaries, HIU can be fitted to wall and pipes connected to First Fix Kit.
- Secondary pipework for space heating and hot/cold water can also be fitted and commissioned.

5.2 First Fix Kit / HIU installation

The First Fix Kit includes the isolation valves, flushing bypass, filling loop and binder points. Space must be left above or below the First Fix Kit for the HIU, depending on the orientation it is installed. Connections from first fix kit to HIU are telescopic to allow for some tolerance if needed. It may be necessary to loosen the bottom nut of the telescopic fitting to make the connection. Ensure all nuts are tightened following connection to HIU.



Item:	Description:
1	First Fix Kit
2	Heat Interface Unit

5.3 HIU electrical installation



Warning: Risk of electrical shock!

- Before carrying out any work on electrical components, isolate them from the power supply (230 VAC) (Fuse, circuit breaker) and secure against unintentional reconnection.
- Local double-pole switched Fuse Connection Unit (FCU) required for safe isolation.
- Information on safe isolation can be found in the health and safety executive guidance HSG85.
- Using test equipment approved to GS38 confirm that the electrical supply is disconnected.
- **Live supply to external inputs (room stat, UFH high limit, billing relay) must be fed from the controller itself and not fed external of it. See wiring diagrams for clarity.**

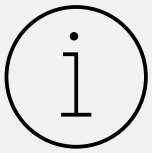
Electrical considerations

- All electrical work must be carried out by a competent and authorised person.
- All work must be in line with country specific and local standard and regulations.
- Supply: 230V AC - 50Hz
- This appliance must not be connected to a three phase supply.
- The wiring between the appliance and the electrical supply must comply with the latest IET wiring regulations that apply to wiring a fixed appliance.
- Type A RCDs must be employed where additional protection is required.
- External fuse 3 Amps to BS1362.
- The appliance must be earthed.
- The isolator must have contact separation of 3mm minimum between poles. Any system connected to the appliance must not have a separate electrical supply.
- Pre-wired mains cable supplied.
- When stripping the wire ensure copper strands so not fall into the control box.



DANGER: Risk of fire from hot appliance components. Hot appliance components can damage electrical cables.

- Ensure all electrical cables are in the correct cable guides and away from hot appliance components.



Cable routing

- Route cables through the insulation holes of the unit
- Run power cables separately from signal cables. Interference from power cables, ensure that there is at least 100mm separation from each other.
- Ensure that cables are of sufficient length to allow the control box to be hung in the service position.

6. Pre-commissioning

6.1 Pre-commissioning checklist

Pre-commissioning checklist		
1	Heat network and plant room fully operational and complete (Inc. flushing & water treatment) *	
2	Mains cold-water network and Essco WMA's (where applicable) fitted as per the hydronic connections. Fully pressure test and flush mains cold-water network with water and/or air, in accordance with BS EN 806-4, selecting the correct test method based on the material and size of the installed pipes.	
3	Secondary space heating system fully operational (Inc. flushing, water treatment) *	
4	Where required, installation to be disinfected after flushing.	
5	EDGE2 Heat Interface Unit installed as per the hydronic connections.	
6	All electrical connections are in place, connected and tested. This includes mains voltage to the HIU controller as well as any data connections required (MBUS, RS485 etc.).	
7	Space heating controllers (room thermostats / UFH wiring centres etc.) and energy / water meters are installed and commissioned.	
8	Design schedule of Space Heating flow rates prepared for finding commissioning settings on pre-settable TRV's or UFH balancing valves etc.	

* The pipework systems connected to any Essco Heat Interface Unit must have been cleaned and flushed in accordance with the relevant standards and regulations.
While Essco have summarised guidance from CIBSE CP1 2020 below in tables 6.2 and 6.3, engineers should refer to this guide, BSRIA BG29/2020 & VDI-2035 European water quality standards in full, for complete guidance on water quality requirements.

6.2 Water quality & pipe corrosion (initial fill with mains water and chemical treatment used in operation)

Parameter	Units	Control limit	Monitoring frequency	Reasons for using this parameter
Visual	-	Clear with no suspended solids or gassing	Monthly	A photograph of the system water in a clear container should be taken as soon as possible following sampling. An extended period before a visual check can lead to changes in appearance, e.g., precipitation of dissolved iron when contacting with oxygen.
Odour	-	No strong sulphurous or ammoniacal smell	Monthly	Sulphide smells indicate potential growth of sulphide-reducing bacteria (SRB). Ammonia smells can indicate growth of nitrate-reducing bacteria (NRB) (some inhibitors have a mild ammonia smell).
pH (Control range defined by least noble part of system metallurgy)	-	Aluminium < 8.5 Iron-based 9.2 – 10.0 Copper and brass 7.5 – 10.0	Weekly (or continuous)	Sudden changes in pH can indicate changes in system water quality, therefore continuous monitoring is advised. pH control should be based on the metallurgy of the system. Note: Where aluminium and steel are used in the same system the pH value shall be less than 8.5 to avoid corrosion of the Aluminium.
Conductivity	µS/cm	See note 1	Weekly (or continuous)	Sudden changes in conductivity can indicate changes in system water quality, therefore continuous monitoring is advised.
Oil and grease	mg/l	Not present	Annually	Oil and grease being present indicates contamination of the system water.
Chloride measured at 80°C	mg/l	< 100	Monthly	Excess chlorides in the heat network will increase the potential for corrosion, particularly stress corrosion cracking in stainless steels and dezincification in brass fittings.
Sulphate	mg/l	-	Monthly	Monitoring of trends recommended as changes can indicate bacterial growth
Iron total	mg/l	< 15.0 (see note 2)	Monthly	Monitoring of trends recommended as changes can indicate potential corrosion issues.
Iron dissolved	mg/l	< 3.0	Monthly	Monitoring of trends recommended as changes can indicate potential corrosion issues.
Copper dissolved	mg/l	< 1.0	Monthly	Monitoring of trends recommended as changes can indicate potential corrosion issues.
Aluminium total	mg/l	<1.0	Monthly	Monitoring of trends recommended as changes can indicate potential corrosion issues. Only relevant if aluminium used in the system.
Calcium harness	mg/l	See note 3	Monthly	High levels of hardness in the system will increase precipitation of calcium carbonate scale onto heat exchanger surfaces, which will reduce efficiency. It also increases the surface temperatures of the exchangers, which may lead to the potential for stress corrosion.
Total alkalinity	mg/l	> 250, < 1250	Monthly	Low levels of alkalinity indicate a lack of protection against corrosive water. High levels of alkalinity indicate the potential for caustic embrittlement.
Ammonia	mg/l	<30	Monthly	Increasing trend of ammonia in the system water is an indication of bacteria growth.
Oxygen	mg/l	See note 4	Monthly (or continuous)	Increases in dissolved oxygen content indicates ingress of oxygen which will potentially drive corrosion, therefore continuous monitoring is advised.
Suspended solids	mg/l	< 30	Monthly	Suspended solids indicate poor system water quality and further filtration, and treatment is required.
Settled solids	mg/l	As defined in BSRIA BG 29/2020 and BS 8552: 2012 – limits as specified for pipework at extremes of the system and for terminal units.	Monthly	Not all detrimental solids are in suspension; therefore it is also essential to test for settled solids. Settled solids can reduce flow rate and can lead to greater risk of corrosion.

Inhibitor(s)		Inhibitor levels should be checked in accordance with the water treatment specialist's and manufacturers' guidance.	Monthly	Inhibitor reserves should be monitored to ensure adequate reserves are present to minimalise the potential for corrosion.
TVC (Total viable count)	cfu/ml	<10,000 at 30ºC and no increasing trend	Monthly	Increasing trends of bacteria indicate poor water quality.
Pseudomonads	cfu/ml	< 1,000 at 30ºC and no increasing trend	Monthly	Increasing levels of pseudomonads indicate poor water quality and potential biofilm production.
SRB (Sulphate-reducing-bacteria) at 5 days	cfu/ml	Absent	Monthly	Counts of SRB indicate poor water quality and potential for pitting corrosion under deposits and biofilms.

Note 1: Although it is important to monitor conductivity, a hard limit is not considered necessary.
Note 2: This value is from Table 5 of BG29/2020 (BSRIA, 2020), which also states that lower limits may be used.
Note 3: Total hardness will depend on the amount and type of softening applied.
Note 4: Oxygen limits are not defined in BG 29/2020 but should be as low as possible. BG 50/2013 (BSRIA, 2013) states that a value > 2 mg/l would indicate a problem with air entering the system.

6.3 Water quality & pipe corrosion (initial fill with demineralised water with a controlled pH within VDI parameters and treatment following VDI 2035 Parts 1 & 2).
Note: Specialist advise should be sought when adopting the VDI 2035 approach.

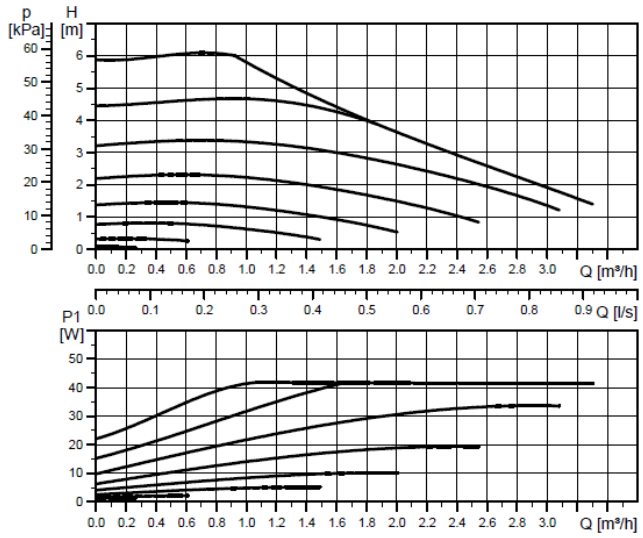
Parameter	Units	Control limit	Monitoring frequency	Reasons for using this parameter
Visual	-	Clear with no suspended solids or gassing	Monthly	A photograph of the system water in a clear container should be taken as soon as possible following sampling. An extended period before a visual check can lead to changes in appearance, e.g., precipitation of dissolved iron when contacting with oxygen.
Odour	-	No strong sulphurous or ammoniacal smell	Monthly	Sulphide smells indicate potential growth of sulphide-reducing bacteria (SRB). Ammonia smells can indicate growth of nitrate-reducing bacteria (NRB) (some inhibitors have a mild ammonia smell).
pH (Control range defined by least noble part of system metallurgy)	-	Aluminium < 8.2-8.5 Iron-based 8.2 – 10.0 Copper and brass 8.2 – 10.0	Weekly (or continuous)	Sudden changes in pH can indicate changes in system water quality, therefore continuous monitoring is advised. pH control should be based on the metallurgy of the system. Note: Where aluminium and steel are used in the same system the pH value shall be less than 8.5 to avoid corrosion of the Aluminium. Magnesium sacrificial anode technology may be used, which would allow a higher pH limit to be adopted.
Conductivity	µS/cm	> 50, < 100	Weekly (or continuous)	Sudden changes in conductivity can indicate changes in system water quality, therefore continuous monitoring is advised.
Oil and grease	mg/l	Not present	Annually	Oil and grease being present indicates contamination of the system water.
Chloride measured at 80°C	mg/l	< 10	Monthly	Excess chlorides in the heat network will increase the potential for corrosion, particularly stress corrosion cracking in stainless steels and dezincification in brass fittings.
Sulphate	mg/l	-	Monthly	Monitoring of trends recommended as changes can indicate bacterial growth
Iron total	mg/l	-	Monthly	Monitoring of trends recommended as changes can indicate potential corrosion issues.
Iron dissolved	mg/l	< 0.10	Monthly	Monitoring of trends recommended as changes can indicate potential corrosion issues.
Copper dissolved	mg/l	< 0.02	Monthly	Monitoring of trends recommended as changes can indicate potential corrosion issues.
Aluminium total	mg/l	-	Monthly	Monitoring of trends recommended as changes can indicate potential corrosion issues.
Total harness	mg/l	> 10, < 200	Monthly	High levels of hardness in the system will increase precipitation onto heat exchanger surfaces, which will reduce efficiency. It also increases the surface temperatures of the exchangers, which may lead to the potential for stress corrosion.
Total alkalinity	mg/l	-	Monthly	Low levels of alkalinity indicate a lack of protection against corrosive water. High levels of alkalinity indicate the potential for caustic embrittlement.
Ammonia	mg/l	-	Monthly	Increasing trend of ammonia in the system water is an indication of bacteria growth.
Oxygen	mg/l	< 0.1	Monthly (or continuous)	Increases in dissolved oxygen content indicates ingress of oxygen which will potentially drive corrosion, therefore continuous monitoring is advised.
Suspended solids	mg/l	< 1.0	Monthly	Suspended solids indicate poor system water quality and further filtration, and treatment is required.
TVC (Total viable count)	cfu/ml	<10 for 48 hours at 37°C and 72 hours at 22°C	Monthly	Increasing trends of bacteria indicate poor water quality.
Pseudomonads	cfu/ml	-	Monthly	Increasing levels of pseudomonads indicate poor water quality and potential biofilm proliferation in the system.
SRB (Sulphate-reducing-bacteria) at 5 days	cfu/ml	Absent	Monthly	Counts of SRB indicate poor water quality and potential for pitting corrosion under deposits and biofilms.

6.4 Checking the Pump Curve

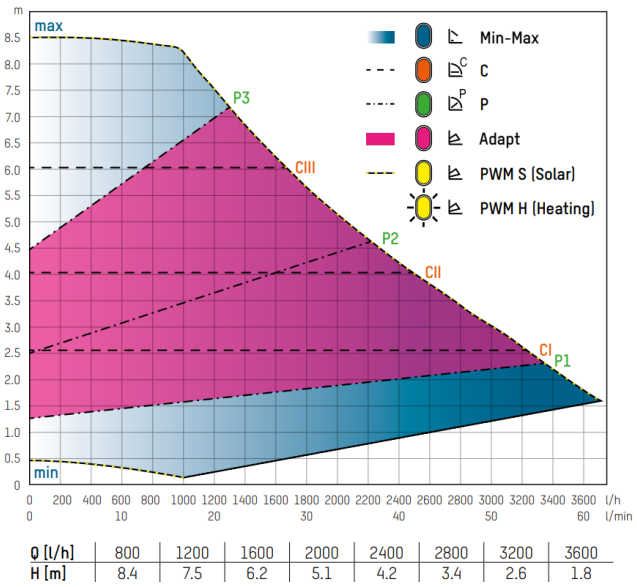
During the EDGE2 interface unit selection process, the PHE selection is made to achieve the required heating and hot water duties. The pump curve is also reviewed against the total head loss and flow rate of the system where known.

As the physical design and installation of the secondary space heating system are not carried out by Essco Group, the pump curve has been included in our manual below for others to also check as necessary.

6m Grundfos UPM3S PWM A-Rated circulation pump
(Standard)



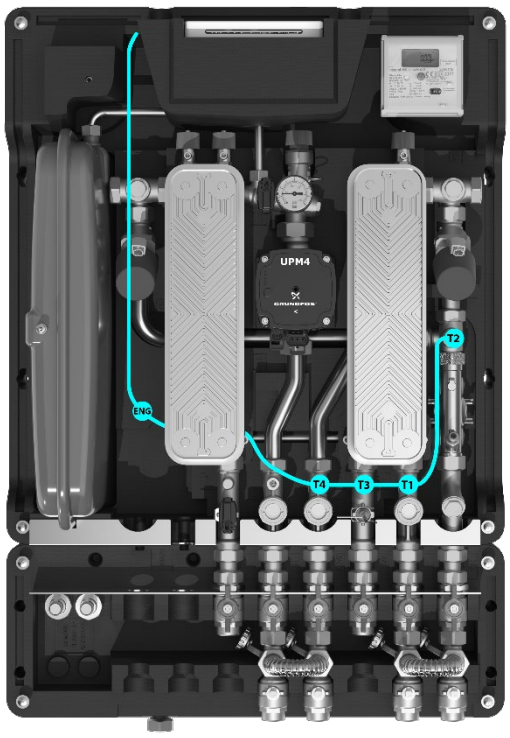
8.5m Taconova TF3 PWM A-Rated circulation pump
(Option)



Q [l/h]	800	1200	1600	2000	2400	2800	3200	3600
H [m]	8.4	7.5	6.2	5.1	4.2	3.4	2.6	1.8

6.5 Addressing the CAN bus devices

Wiring harnesses are detailed in section 2.8. For the CAN bus wiring harness, it's important that connected devices are addressed correctly using the DIP switches. The following addresses should be used for devices as follows:



Device	Name	Address	DIP Switches 1 (Binary 1)	2 (2)	3 (4)	4 (8)
T1	Flow temperature sensor	**1**	✓			
T2	Return temperature sensor	**2**		✓		
T3	DHW flow temperature sensor	**3**	✓	✓		
T4	MCW temperature sensor	**4**			✓	
ENG	Spare engineer sensor *(when fitted enables web-app user interface via IoT device)*	**15**	✓	✓	✓	✓

6.6 Operating the EDGE2 HIU Controller

Homeowners can have simple heating control of the HIU via a single time / temperature programmable room thermostat, or via multiple independent room controls wired back to a common wiring centre. The single room thermostat, or common wiring centre sends a ‘call for heat’ enable signal to the HIU Controller, when one or more rooms require heat. The HIU controller then takes it from there, providing heating, keep-warm or prioritising a hot water event.

Separate operating instructions are supplied alongside this document for any room controls supplied by Essco Group. Where these controls have been provided by others, instructions may form part of other installation & operations manual, so please refer to the handover pack.

In addition to physical heating controls, the HIU controller also has a peer-to-peer Wi-Fi based software interface which can be accessed through any internet connected device.

The EDGE2 User Interface is hosted inside the HIU and should only ever be accessed by authorised and competent personnel. All access is via a private webpage, which has been designed to time out after a 20-minute period for security purposes. No changes will take place until the “SAVE” button is pressed, so navigating to another level before pressing this button will result in any changes being lost. Should changes be lost, the HIU will continue to operate using the last valid settings.

When connecting to the controller, care should be taken in phone Wi-Fi settings to forget other networks, and to change any conflicting settings which may make it difficult to find the controller when searching for Wi-Fi devices.

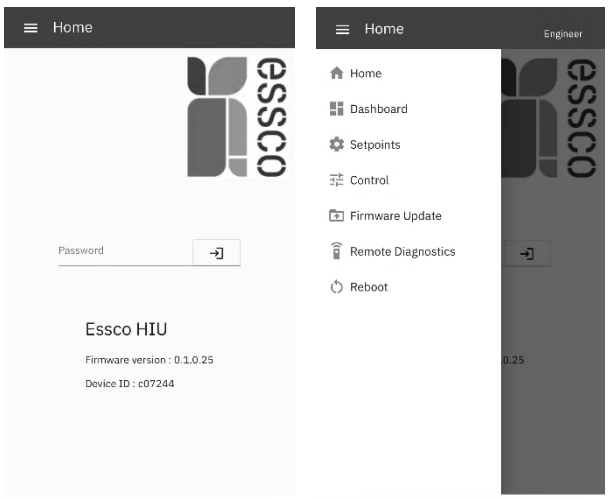
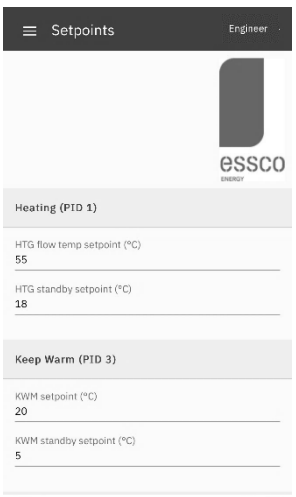
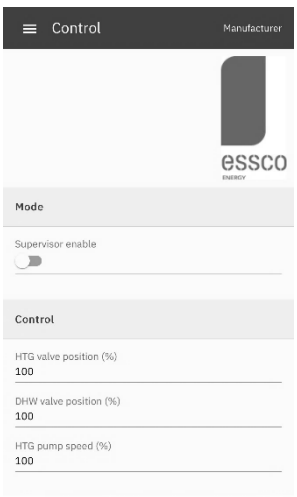
Resident / Engineer Level Access ➢ EDGE2 User Interface

Getting Started:

A mobile phone, tablet or laptop with wireless capabilities will be required to access the HIU hotspot webpage. Fit a ‘spare’ canBUS sensor as shown in Section 6.6 (sensor ENG, DIP switch address set to 15). Access to this webpage is then as follows.

1. Remove the HIU front cover.
2. Press and hold down the Wi-Fi button on right hand side of controller box for 5 seconds.
3. When released, connect your Wi-Fi device to the HIU. The Wi-Fi device will be named as per the HIU controller serial code (for example 1c602c). See HIU identity sticker for this code as required.
4. The password is set to **essco_edge2**.
5. Open a browser on your device.
6. Type in the search address bar **192.168.4.1** to connect directly to the home page.
7. Leave password blank for resident level access, where only temperature settings can be adjusted.
8. Remove the ‘spare’ ENG sensor following connection to the HIU.

From the home page you can navigate through the different levels of settings via the home page at the top of the page:

Home Screen + Menu	Setpoints	Control
		
Menu options vary based on user level. No password above = Resident mode (default).	Temperatures can be changed on this screen.	Valves and pump can be opened manually.

Advanced settings are also available for engineers which include the ability to update firmware in the field, reboot controls, and carry out remote diagnostics. For Engineer mode please contact Essco for password and further guidance.

The EDGE2 HIU Controller has a total of four software PID controllers on board: Heating > Hot Water > Keep Warm & Pump Optimisation. These software controllers use temperature and flow sensors fitted at different points on the Essco EDGE2 Heat Interface Units. A wiring diagram, including illustration of where these sensors are fitted can be seen on the next page for both an underfloor heating, and radiator installation.

6.7 Networking / Modbus RTU

The controller can be connected to a Modbus network using the Modbus RTU protocol over an RS-485 physical interface.

In addition to connecting the controller directly to a Modbus network, some billing service companies offer remote billing devices that can connect to the HIU via Modbus. This allows billing companies to collect data from both the M-Bus meter and the HIU via Modbus.

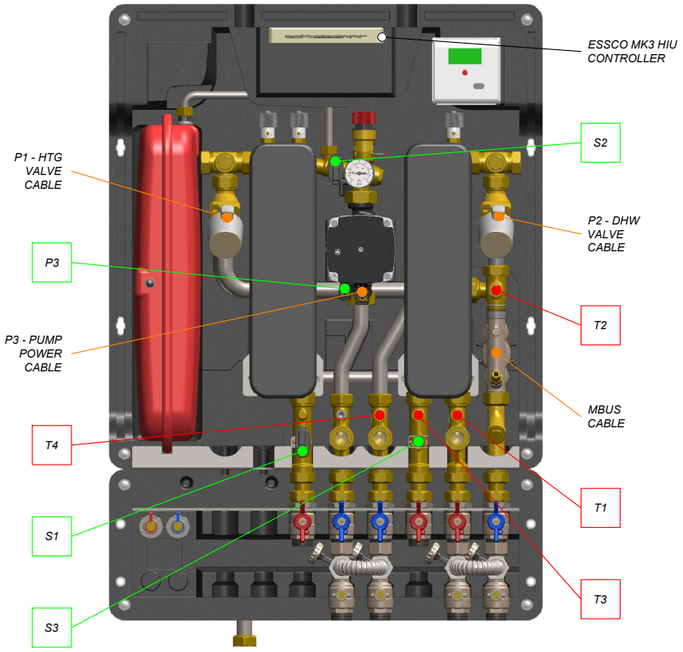
RS-485 is designed for multi-drop communication, with devices typically connected in a daisy-chain (bus) configuration using a single twisted pair for two-wire communication.

A conventional RS-485 segment can support up to 32 unit-load devices. However, the actual number of devices that can be connected depends on the electrical characteristics of the RS-485 transceivers, cable length, baud rate, termination, and other network design considerations. The Modbus RTU protocol itself does not impose a 32-device limit.

Where more than 32 devices are required, the following approaches can be considered:

- Reduced unit-load transceivers: RS-485 transceivers with a lower unit load, such as 1/2-unit-load devices, can allow more nodes to be connected to a single segment, subject to the manufacturer's specifications and overall bus loading.
- RS-485 repeaters: Repeaters can divide the network into multiple electrically independent segments, allowing additional devices to be connected. Each segment must remain within its applicable electrical limits.
- RS-485 hubs: Multi-port RS-485 hubs can create separate bus segments, often with electrical isolation between ports. This can simplify network topology and improve network robustness.
- Modbus TCP: Where appropriate, Modbus RTU devices can be connected to a Modbus TCP/Ethernet network using suitable gateways. Modbus TCP provides greater network scalability than a single RS-485 segment, although the practical number of devices remains dependent on the Ethernet network, gateway capabilities, and system architecture.

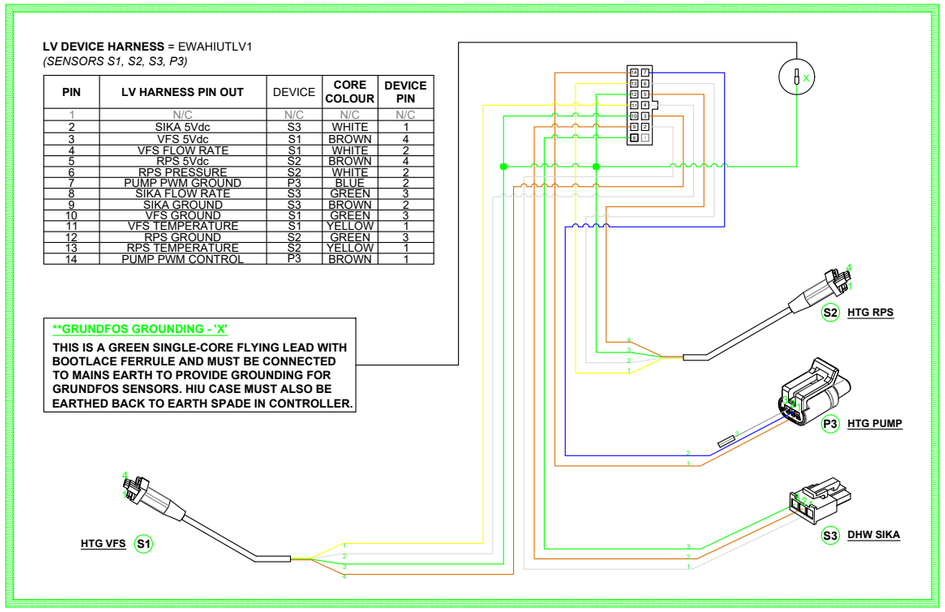
EDGE2-T HEAT INTERFACE UNIT + MK3 HIU CONTROLLER (EXAMPLE SINGLE HEATING ZONE BASIC)



LV DEVICE HARNESS = EWAHIUTLV1
(SENSORS S1, S2, S3, P3)

PIN	LV HARNESS PIN OUT	DEVICE	CORE COLOUR	DEVICE PIN
1	N/C	N/C	N/C	N/C
2	SIKA 5Vdc	S3	WHITE	1
3	VFS 5Vdc	S1	BROWN	4
4	VFS FLOW RATE	S1	WHITE	2
5	RPS 5Vdc	S2	BROWN	4
6	RPS PRESSURE	S2	WHITE	2
7	PUMP PWM GROUND	P3	BLUE	2
8	SIKA FLOW RATE	S3	GREEN	3
9	SIKA GROUND	S3	BROWN	2
10	VFS GROUND	S1	GREEN	3
11	VFS TEMPERATURE	S1	YELLOW	1
12	RPS GROUND	S2	GREEN	3
13	RPS TEMPERATURE	S2	YELLOW	1
14	PUMP PWM CONTROL	P3	BROWN	1

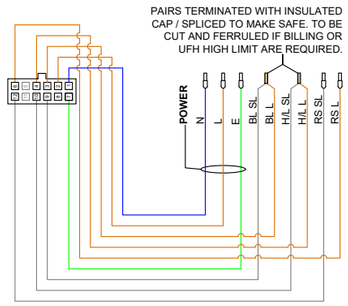
****GRUNDFOS GROUNDING - 'X'**
THIS IS A GREEN SINGLE-CORE FLYING LEAD WITH BOOTLACE FERRULE AND MUST BE CONNECTED TO MAINS EARTH TO PROVIDE GROUNDING FOR GRUNDFOS SENSORS. HIU CASE MUST ALSO BE EARTHED BACK TO EARTH SPADE IN CONTROLLER.



INSTALLER HARNESS = EWHIUX-001
(MAINS INPUT, ROOM STAT, BILLING, UFH HIGH LIMIT)

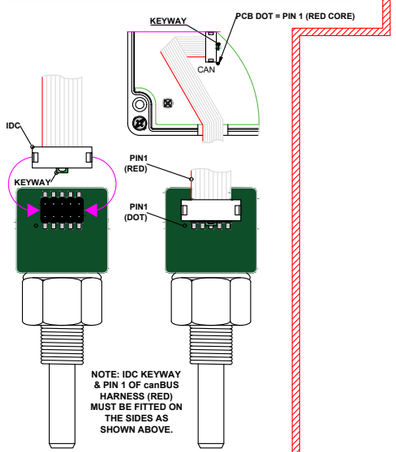
CONNECTOR	PIN #	COLOUR	LABEL
12-WAY MOLEX MINI-FIT JUNIOR	1	BLUE	N
	2	BROWN	L
	3	BROWN	BL L
	4	BROWN	HL L
	5	N/C	N/C
	6	BROWN	RS L
	7	GREEN	E
	8	N/C	N/C
	9	BLACK	BL S/L
	10	BLACK	HL S/L
	11	N/C	N/C
	12	BLACK	RS S/L

PAIRS TERMINATED WITH INSULATED CAP / SPLICED TO MAKE SAFE. TO BE CUT AND FERRULED IF BILLING OR UFH HIGH LIMIT ARE REQUIRED.

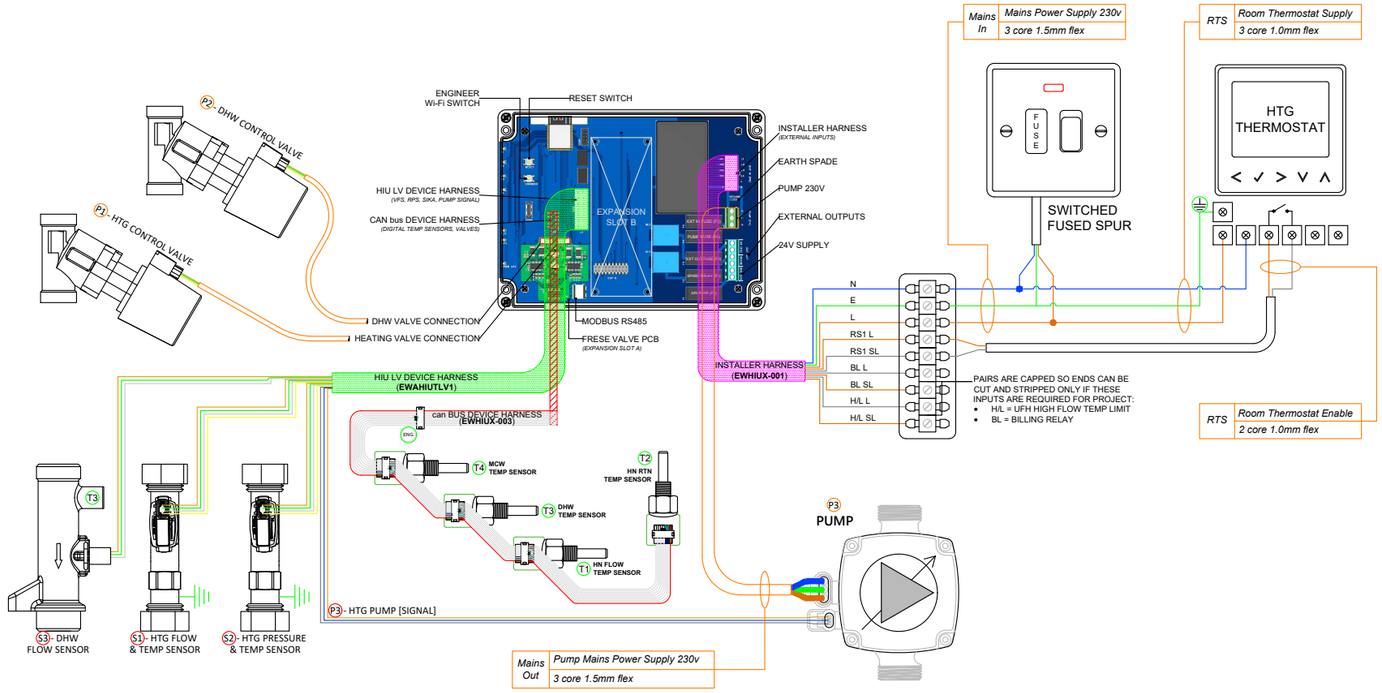


canBUS DEVICE HARNESS = EWHIUX-003
(SENSORS T1, T2, T3, T4 + ENG SW)

DEVICE	NAME	ADDRESS	DIP SWITCHES 1 2 3 4 (BINARY 1 2 4 8)
ENG	ENGINEER SENSOR	15	■ ■ ■ ■
T1	HN FLOW TEMP SENSOR	1	■ □ □ □
T2	HN RTN TEMP SENSOR	2	□ ■ □ □
T3	DHW FLOW TEMP SENSOR	3	■ ■ □ □
T4	MCW FLOW TEMP SENSOR	4	□ □ ■ □

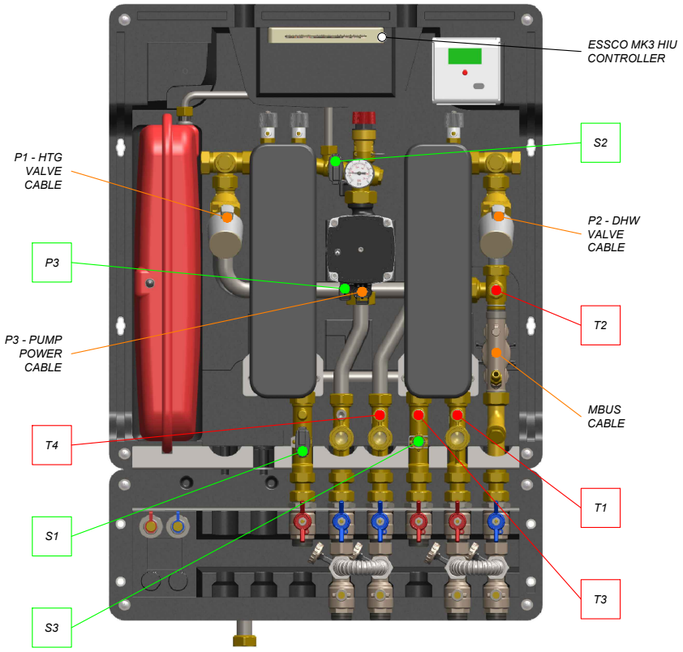


NOTE: IDC KEYWAY & PIN 1 OF canBUS HARNESS (RED) MUST BE FITTED ON THE SIDES AS SHOWN ABOVE.



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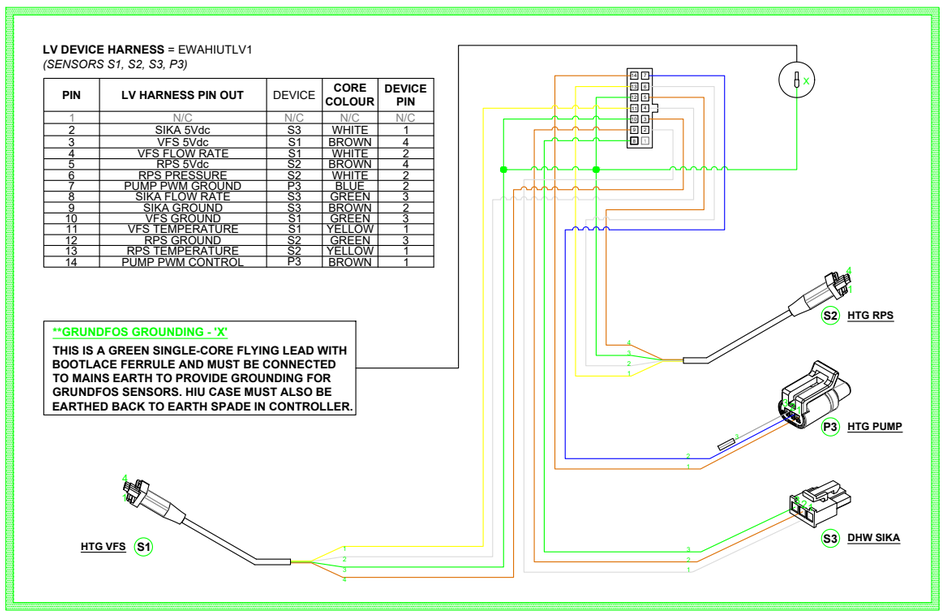
EDGE2-T HEAT INTERFACE UNIT + MK3 HIU CONTROLLER (EXAMPLE SINGLE UFH ENABLE W/BILLING + HIGH LIMIT)



LV DEVICE HARNESS = EWAHIUTLV1
(SENSORS S1, S2, S3, P3)

PIN	LV HARNESS PIN OUT	DEVICE	CORE COLOUR	DEVICE PIN
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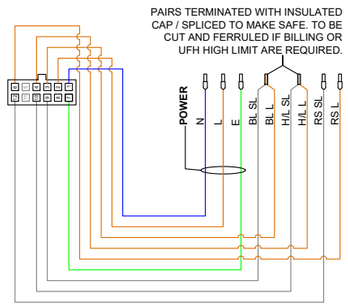
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INSTALLER HARNESS = EWHIUX-001
(MAINS INPUT, ROOM STAT, BILLING, UFH HIGH LIMIT)

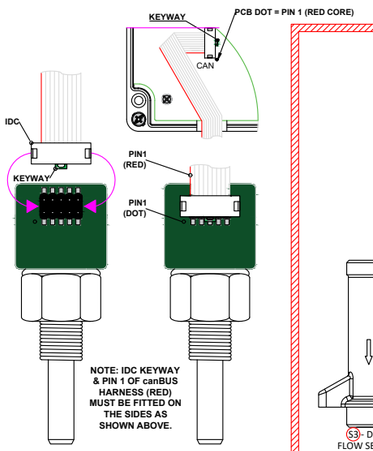
CONNECTOR	PIN #	COLOUR	LABEL
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	2	BROWN	L
	3	BROWN	BL L
	4	BROWN	HL L
	5	N/C	N/C
	6	BROWN	RS L
	7	GREEN	E
	8	N/C	N/C
	9	BLACK	BL S/L
	10	BLACK	HL S/L
	11	N/C	N/C
	12	BLACK	RS S/L

PAIRS TERMINATED WITH INSULATED CAP / SPLICED TO MAKE SAFE. TO BE CUT AND FERRULED IF BILLING OR UFH HIGH LIMIT ARE REQUIRED.



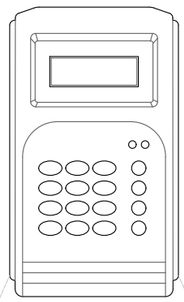
canBUS DEVICE HARNESS = EWHIUX-003
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DEVICE	NAME	ADDRESS	DIP SWITCHES 1 2 3 4 (BINARY 1 2 4 8)
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T3	DHW FLOW TEMP SENSOR	3	■ ■ □ □
T4	MCW FLOW TEMP SENSOR	4	□ □ ■ □



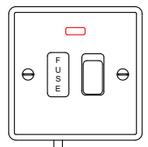
NOTE: IDC KEYWAY & PIN 1 OF canBUS HARNESS (RED) MUST BE FITTED ON THE SIDES AS SHOWN ABOVE.

ENERGY BILLING CONTROLLER
[EXAMPLE - BY OTHERS]



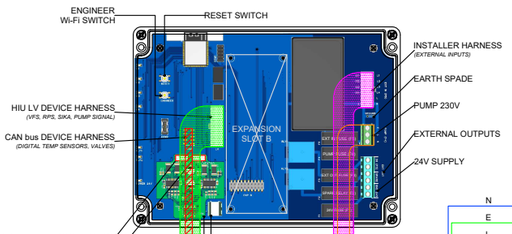
Mains Out	Mains Power Supply 230v 3 core 1.5mm flex
BILL RELAY	Billing Cut-off Relay 2 core 1.0mm flex
Mains In	Mains Power Supply 230v 3 core 1.5mm flex
UFH Mains In	UFH Power Supply 230V 3 core 1.0mm flex
UFH Demand	UFH Enable 2 core 1.0mm flex

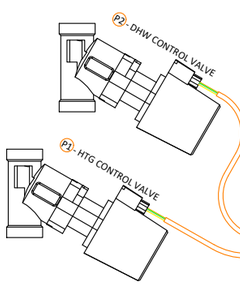
SWITCHED FUSED SPUR

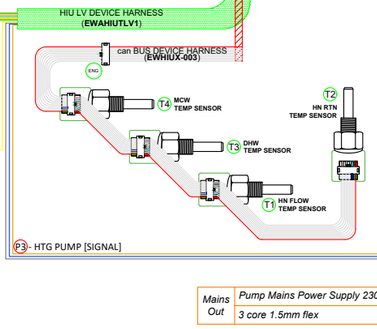


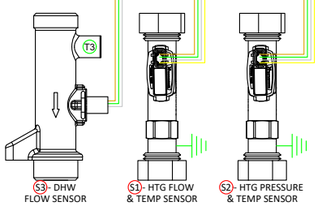
HTG THERMOSTAT (SINGLE ZONE) or WIRING CENTRE IF MULTIPLE ZONE

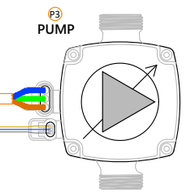
ESSCO MK3 CONTROLLER





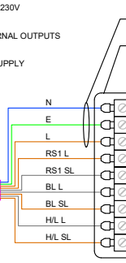


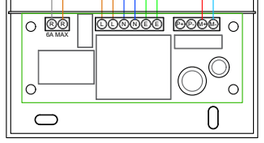




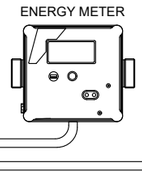
Mains Out	Pump Mains Power Supply 230v 3 core 1.5mm flex

INSTALLER HARNESS (EWHIUX-001)





ENERGY METER



ESBE TS122 H/L STAT

MBUS	Heat Meter MBUS Connection 1 pair screened twisted 0.5mm²
H/L STAT	High Limit UFH Flow Temp Stat 3 core 1.5mm flex

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6.8 Handover

- Complete the commissioning checklist section 6.4, page 21.
- Set up the appliance controls and show the customer how to operate all the controls for Space Heating.
- Show the customer where the serial number/appliance information is when they call in with a problem.
- Show the customer how to safely isolate the appliance.
- Advise the customer they can find information on the Essco website, https://esscogroup.co.uk/.
- Advise the customer that the varying external temperature will affect the output of the appliance.
- Ensure that the installation and maintenance manual and other details are provided as part of handover.
- If known, please fill in local warden/site agent/contractor engineers' detail in the fault or breakdown sections of the user instructions.
- If the appliance is unused and exposed to freezing conditions, shut off all the mains supplies and drain the system and appliance, label accordingly.

6.9 Product guarantee

This product has a non-transferable 5-year guarantee from the date of delivery. This covers faulty product or workmanship to the terms and conditions that can be found on our website.

This O&M has been designed to provide recommendations throughout, which if carried out will help to prolong product lifespan and provide better functionality and accuracy. Essco recommend the use of over pressure limitation in any systems where the maximum operating valves of the HIU might be exceeded.

If a valve fails and is returned to us for inspection and damage can be seen because of water quality or through overpressure etc., this will also void the warranty.

For further details and to read full terms and conditions please visit us online at https://esscogroup.co.uk/wp-content/uploads/2021/04/Essco-B2B-Terms-Conditions-APRIL-2021.pdf. Your statutory rights are not affected by the manufacturer's guarantee.

Water quality
Advanced heating systems need suitably treated water.

Technical applications demand high standards of water quality, which is why Sections 6.2 and 6.3 of this IOM provide the latest CIBSE CP1 2020 recommendations for controlling water quality and pipe corrosion.

Essco Group have partnered with Elexion to also provide customers with the very best products and advice needed to meet the latest VDI-2035 European Water Quality Standards. This ensures that gases, minerals, and pollutants are removed from water using environmentally responsible and chemical free processes, until the water is suitable for the required application. When Elexion Elector tanks are fitted, Essco also increase the HIU product guarantee from 2 years to 5 years.

Speak to one of our technical sales representatives to select a suitable product to avoid these common issues:

- Sludge deposits in systems and pipes due to the products of corrosion.
- Blocking of regulating valves and pumps.
- Corrosion holes and further system water damage to boilers and other heat sources.
- Excessive flow noise caused by corrosion related gas formation.
- Increased energy consumption due to irregular heat distribution.
- Increased maintenance costs.

EleXion Elector Model	Image	Max System Capacity (m^3)		Max. Temp	Max. Pressure	Max. Flow *	Regulated Flow
		LTHW (m^3)	CHW (m^3)	(°C)	(bar)	(m^3/h)	(m^3/h)
XS5 (Full Flow)		0.5 m^3	0.25	90 °C	6 bar	2.4	-
XS5-B		0.5 m^3	0.25	90 °C	6 bar	-	0.2
S10-B		1.5 m^3	0.75	90 °C	6 bar	-	0.12
S10-V (Full Flow)		1.5 m^3	0.75 m^3	90 °C	6 bar	4.3	-

M25		5 m^3	2.5 m^3	90 °C	6** bar	-	0.3 m^3/h
L60		10 m^3	5 m^3	90 °C	6** bar	-	0.6 m^3/h
XL130		30 m^3	15 m^3	90 °C	6** bar	-	1.2 m^3/h
XL+300		80 m^3	40 m^3	90 °C	10 bar	-	3.0 m^3/h
XL+500		150 m^3	75 m^3	90 °C	10 bar	-	6.0 m^3/h

** Full flow units only.*
*** These reaction tanks can be supplied rated to 10 bars as a special order.*

- All reaction tanks, except for the XS5 and S10-V are designed to be installed in bypass configuration across systems pumps or on the return with their own circulation pumps.
- All reaction tanks except for the XS5 & S10-V are supplied with water meter and preset ABV's.
- Reaction tanks should always be installed in conjunction with a top unit after the PU to pre-condition any mains water tops.

7. Inspection and maintenance

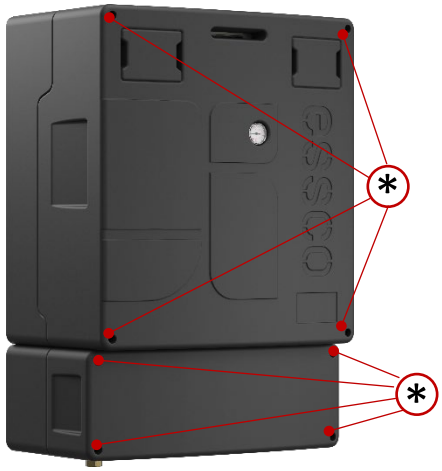
As HIUs are an inherently low maintenance space heating system, the recommendation from BSRIA BG 62/2015 is that a maintenance check every 3 years should be sufficient. Essco Group recommend that strainers however are checked at least once annually, depending on the water quality of the installation. Any build-up of debris can cause flow restriction and when left unchecked, damage to components within the HIU. Strainers have inspectable sight glass for ease and speed of inspection.

BSRIA inspection and maintenance procedure guidance recommends the following checks are carried out.

- No leaks associated with HIU or secondary distribution.
- Secondary isolation valves are operable.
- Internal strainers are clear.
- Supply differential above required minimum.
- Thermal insulation is intact.
- Control valves respond to demand signals for heating and hot water.
- Supply temperatures to heating and hot water are as when the unit was commissioned.
- Check mains pressure storage water heater safety valve (where fitted).
- Heat meter registers demand (or replace and commission new heat meter if scheduled).
- Consumer is satisfied with heating and hot water performance.

7.1.1 Removing the insulation shells

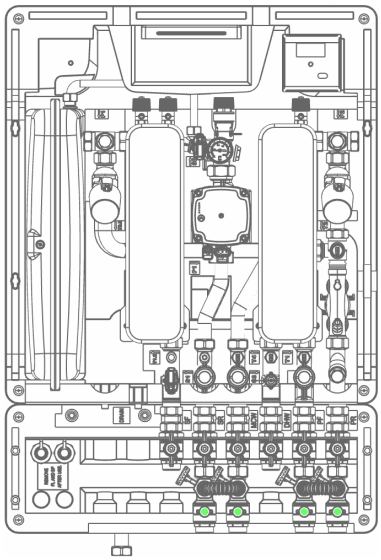
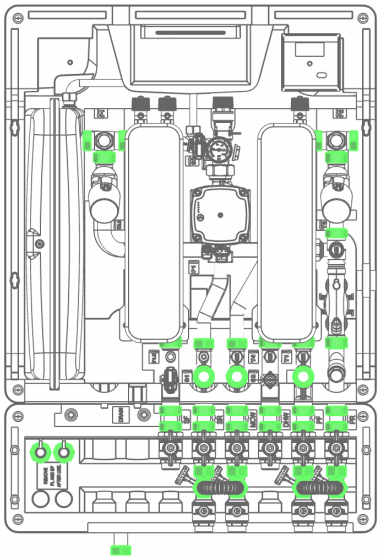
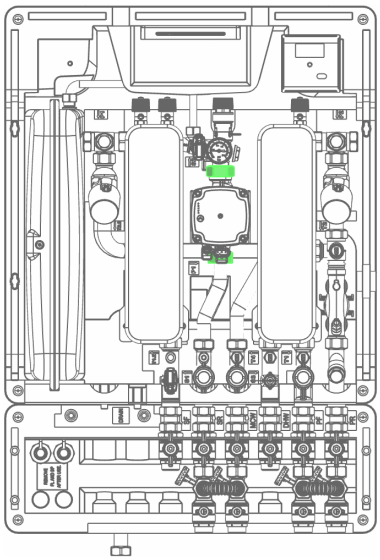
1	To remove either the HIU or First Fix Kit Shells, the process is the same. First check and remove the locking screws shown below.	2	Next, use the hand holds at the sides to pull the outer shells forward. After the shell(s) are removed, set these aside safely so they can be refitted when works are complete.





7.1.2 HIU wrench

Common Connection Sizes: For ease of maintenance, a HIU wrench is included in the first fix kit with the three most common nut sizes. This tool is intended only for installers & engineers maintaining units.	

A	7mm	B	30mm	C	37mm
					
A 7mm	Square stem shown above for: • Flushing Bypass. • Filling Loop.	B 30mm	All ¾" Nuts as shown above, plus: • PRV drainpipe (behind unit). • PHE nuts (behind plates).	C 37mm	1" Pump Nuts as shown above.

Connection sizes not covered by tool:

Expansion Vessel = 21mm

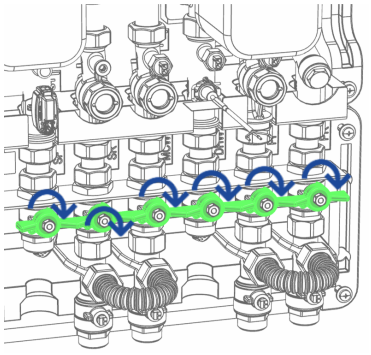
7.1.3 Draining the appliance & filter maintenance

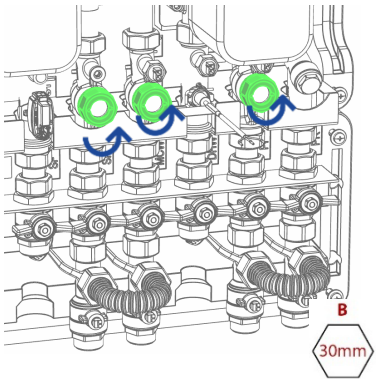
The EDGE2-T Heat Interface Unit features three strainers, one on the Heat Network secondary inlet designed to protect the PHE and secondary control valve, a second on the Space Heating return to protect tertiary side components, and a third on the Mains Cold Water (MCW) inlet. These strainers should be checked as regularly as system conditions dictate; however, we recommend they are checked at least once annually.

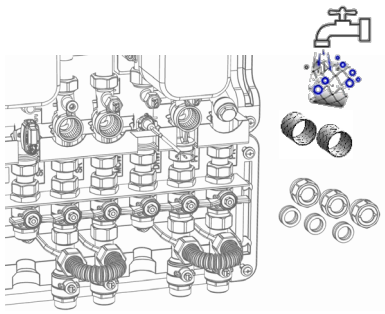
⚠	**Notice:** Risk of water damage to appliance or property! Damage from disconnecting water pathways which may have retained some water. • Take care after draining appliance to protect equipment/property from residual water content within components.	ⓘ	Draining the appliance. • Open the air vents at the top of the desired circuit to aid draining of the appliance. Ensure they are closed after draining has been completed.

Bottom Entry Connections: When pipework is bottom entry, the Air/Drain valves are positioned at the top of the unit to vent air from the HIU circuits for maintenance purposes. Strainer caps are therefore used to drain water content at the bottom as follows:

1	1) Quarter-turn flow and return ball valves CW to isolate. 2) Allow the unit and water content to cool.	**2**	Place a Wet Vac or collection bucket below the strainer sight glasses. One at a time, remove the strainer caps using a 30mm wrench and safely empty the water content.	**3**	When drained fully, remove the strainer mesh and clean thoroughly under running water to remove any dirt or debris.



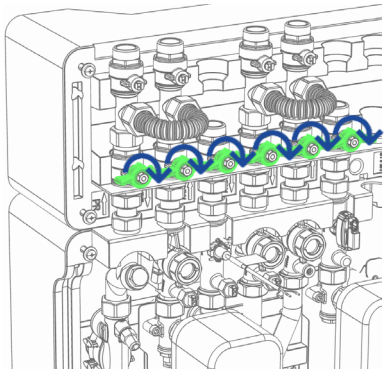


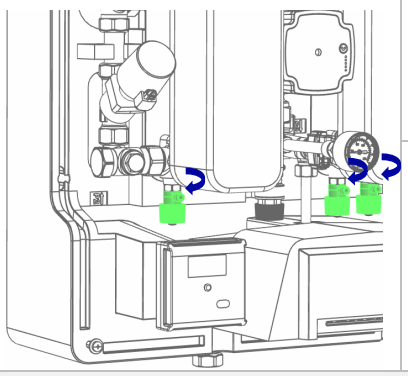


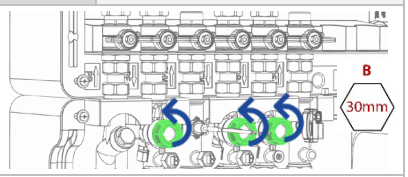
After strainer mesh has been cleaned, check rubber gaskets before refitting and replace if necessary. Reassemble strainers and refit strainer caps before tightening. Reopen ball valves slowly by quarter-turning CCW, checking for leaks when opening. Use air vents to vent air in circuits.

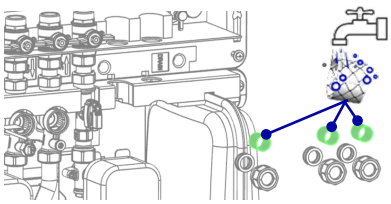
Top Entry Connections: When HIU pipework is connected top entry, air vents should be fitted in the lateral pipework above the HIU at the highest point, as venting in this case is not carried out at the HIU itself. Air/Drain cocks are provided however low level to drain water content from the HIU circuits for maintenance purposes.

1	1) Quarter-turn flow and return ball valves CW to isolate. 2) Allow the unit and water content to cool.	**2**	Connect a section of hose to each drain and open to drain water content.	**3**	Remove the strainer caps using a 30mm wrench and remove the strainer mesh and clean thoroughly under running water to remove any dirt or debris.







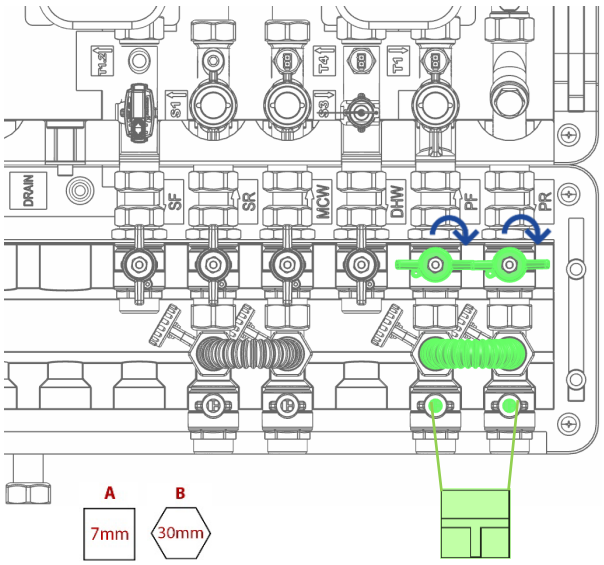
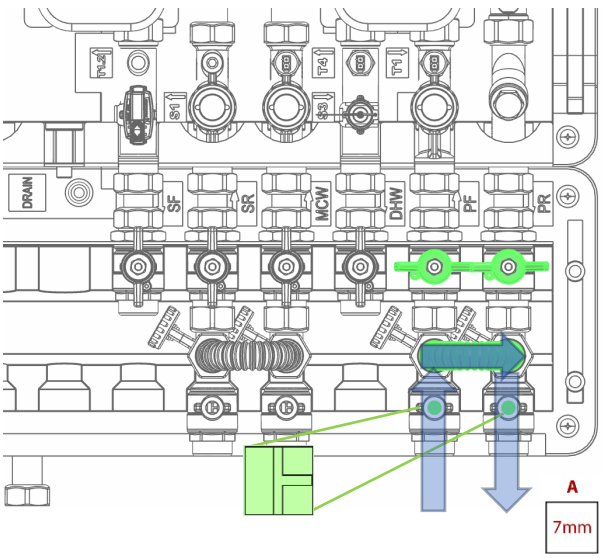
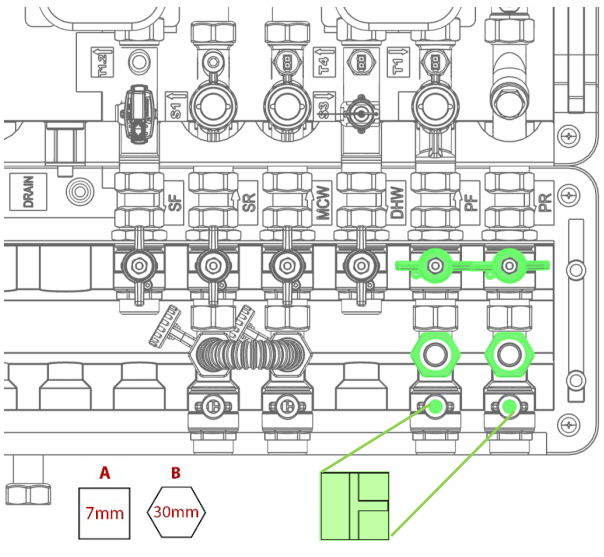


After strainer mesh has been cleaned, check rubber gaskets before refitting and replace if necessary. Reassemble strainers and refit strainer caps before tightening. Reopen ball valves slowly by quarter-turning CCW, checking for leaks when opening. Use air vents to vent air in circuits.

7.1.4 Flushing the appliance

The First Fix Kit features a removable flushing bypass valve. This loop must only be fitted during flushing of the secondary circuit from the Heat Network and then removed once flushing is complete as recommended. Note bucket or Wet Vac maybe required to drain any water content in this section during fitting or removal of flushing bypass.

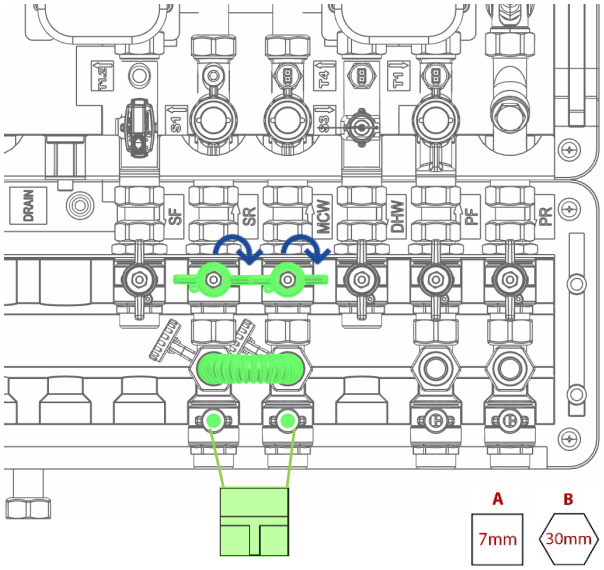
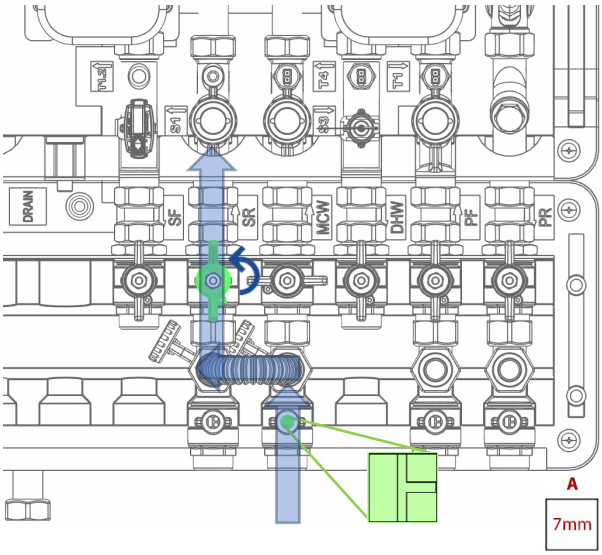
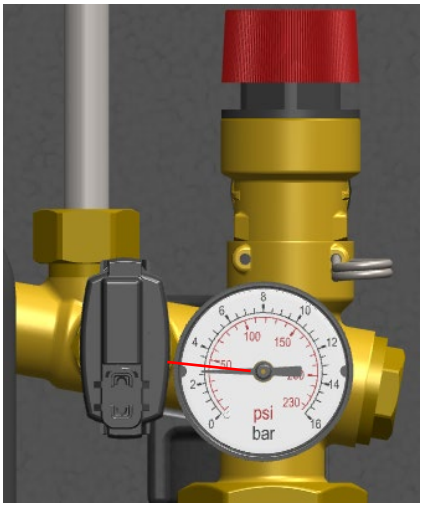
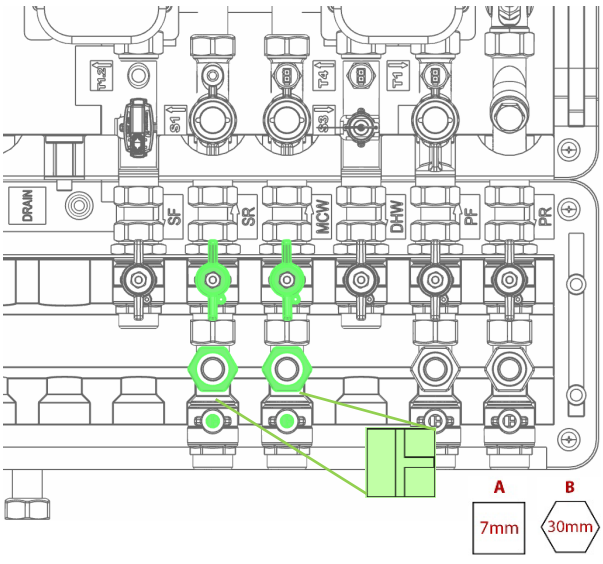
When a unit is first delivered, the flushing bypass valve and filling loop are fitted, with all isolation valves, bypass valve and filling loop closed from supply.

1	Quarter turn the Heat Network flow and return ball valves (PF, PR) to isolate as necessary. Use a **7mm wrench** (or square tool provided) to also isolate bypass loop valves below. Use a **30mm wrench** to remove blanking caps and then fit the bypass loop in place and retighten.	**2**	Open the bypass valve connections to allow the flow from Heat Network to flush and bypass through the bypass loop fitted.
			
3	Post flushing of circuit, close bypass valves below and then replace bypass loop with blanking caps and tighten, before reopening flushing loop valves, Heat Network flow and return ball valves (PF, PR) while checking for leaks.		
			

7.1.5 Filling the appliance

The First Fix Kit features a removable filling loop. This loop must only be fitted during filling of the tertiary Space Heating circuit and then removed once filling is complete as recommended. Note bucket or Wet Vac maybe required to drain any water content in this section during fitting or removal of filling loop.

When a unit is first delivered, the flushing bypass valve and filling loop are fitted, with all isolation valves, bypass valve and filling loop closed from supply.

1	Quarter turn the MCW inlet (MCW) and Space Heating Return (SR) ball valves CW to isolate as necessary. Use a **7mm wrench** (or square tool provided) to also isolate filling loop valves below. Use a **30mm wrench** to remove blanking caps and then fit the filling loop in place and retighten.	**2**	Fill the heating circuit by opening the Space Heating Return (SR) ball valve and the MCW inlet side of the filling loop valve. **Note:** MCW fill valve marked 'out' to indicate flow out from MCW. SR valve for heating return marked 'in' to indicated flow in from MCW into heating circuit.
			
3	Monitor CH pressure on pressure gauge and top up to required pressure as necessary. Design pressure is typically 1.5 – 2 bar, however, must be less than 3 bar. Reverse step (2) when filling is complete, and design pressure achieved to isolate.	**4**	Replace filling loop with blanking caps and tighten, before reopening filling loop valves, MCW inlet and Space Heating return while checking for leaks.
			

8. Appendix

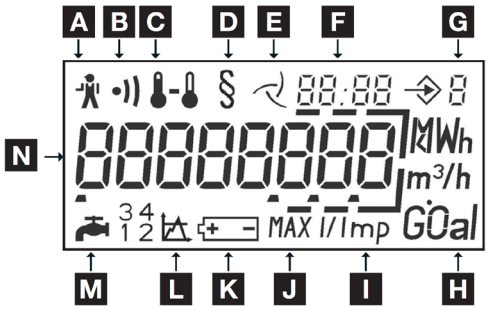
8.1 Itron CF-UltraMaXX Energy meter (where applicable)

This is a wired battery powered Class II MID approved energy meter as standard, unless requested otherwise. The Itron CF-UltraMaXX-V meter is the standard option and detailed below, however other ¾" x 110mm options are also available.



Battery	Type	Lithium cell	
	Lifetime	10+1	*years*
Minimum flow	qi	6	*l/h*
Nominal flow	qp	1.5	m^3/h
Maximum flow	qs	1.2	m^3/h
Overload flow	qss	1.32	m^3/h
Head loss	kv	3.27	m^3/h
Accuracy class		Class II	*EN1434*
Temperature range		0-90	*°C*
Protocol	EN 13757-3, 300/2400 Baud, variable data protocol		
Data	Energy, Volume, Flow, Power, Temperatures, operation time, status, monthly indexes.		
WM pulse input	Visualization of 2x WM. Current and monthly indexes, remote reading by optical interface or M-Bus. Max. 0.25Hz max pulse frequency.		

Calculator Screen



A	**Alarm Icon** Operation error
B	**Transducer warning** Low signal level
C	**Temperatures** Permanent: Ts, Tr or dT. Blinking: error
D	**Metrological indicator** Index approved for billing
E	**Flow indicator** Permanent: flow. Blinking: no flow
F	**Date and Time** Fixed dates, peak, tariff
G	**LCD Loop indicator** 1. Billing loop 2. Fixed date reading loop 3. Service loop
H	**Units** Actual physical unit
I	**Pulse input value** Of external water meters
J	**Peak value** Thermal power, flow, supply temperature
K	**Battery warning** End of battery lifetime expected
L	**Tariff index**
M	**External water meter** Number of meters connected
N	**Main index 8 digits** Digit size: 6.5mm x 3.3mm

Mode Button > *Fault Codes*

Press red button to wake the screen if screen is off. Press and hold red button > 2 secs after awaking to change loop indicator from 1>2, then again from 2>3. **Loop 3 is recommended for fault finding** as this shows live flow rate (3.1), flow/return temperatures (3.3/3.4) and dT (3.5). When the meter is in Service Loop 3, the LCD Loop Indicator (7) will display a number 3. Fault codes below are also displayed on 3.9. If there is more than one error, these are displayed at the same time (e.g. 12---6--):

1	Error in the supply sensor >> check the supply sensor including cable for correct function and check that they are correctly installed	**5**	Return flow in the flow sensor >> check that the flow sensor has been installed correctly (flow direction)
2	Error in the return sensor >> check the return sensor including cable for correct function and check that they are correctly installed	**6**	Air in the flow sensor >> flush the air out of the flow sensor by means of a high flow rate
3	Temperature sensor transposed >> check that the temperature sensors are correctly installed	**7**	Current flow over maximum flow >> reduce the flow in the flow sensor
4	Error A/D transducer >> replace the meter by a new meter	**8**	Electronic error >> replace the meter by a new meter

8.2 Commissioning templates

On the next four pages are copies of Essco commissioning templates, designed to assist commissioning engineers on site when commissioning units to the latest CIBSE CP1 2020 guidelines.

These can be sent as separate files on request.

ESSCO GROUP : COMMISSIONING CHECKLIST > EdgeT with UFH.

*In line with latest **CIBSE CP1 2020** Guidance.*

KEY:	***Green**: Essco to complete prior to commissioning.*	***Orange**: Commissioning engineer to complete on site.*

HIU Model:	{please select}	**Controller Model:**	{please select}
HIU Serial №:		**Controller Serial №:**	
Building Visited:		**Meter Serial №:**	
Flat Number:		**kWh on Meter:**	
Engineer:		**Date:**	
Start Time:		**End Time:**	

Section A : Initial Checks.

	Checklist	Design Value	Confirmation	Notes
1	Flushing Bypass closed	-		*Should be closed*
2	Strainer clean			*Should be empty*
3	Primary supply temp			*Run DHW first to check*
4	Energy Meter: responsive, with no errors & positive dT	-		*If there are issues, stop and report to Essco*

Section B : Central Heating on, check heat into flow header of underfloor heating manifold while heating up, then check circuit balancing valve settings and that air has been vented fully.

	UFH Manifold Circuit / Room Name	Heat at flow and return headers of UFH manifold	Pre-setting value for balancing lock-shield valves	Confirm setting and isolation valves F.O.	Confirm air has been vented from pipes & manifold
1	{please select}	{please select}		{please select}	{please select}
2	{please select}	{please select}		{please select}	{please select}
3	{please select}	{please select}		{please select}	{please select}
4	{please select}	{please select}		{please select}	{please select}
5	{please select}	{please select}		{please select}	{please select}
6	{please select}	{please select}		{please select}	{please select}
7	{please select}	{please select}		{please select}	{please select}
8	{please select}	{please select}		{please select}	{please select}
9	{please select}	{please select}		{please select}	{please select}
10	{please select}	{please select}		{please select}	{please select}
11	{please select}	{please select}		{please select}	{please select}
12	{please select}	{please select}		{please select}	{please select}
	Central Heating pressure on pressure gauge:				

Section C : Confirm Central Heating (CH) commissioned to achieve design objectives.				
With DHW off, set all room thermostat(s) to maximum temperature. Use clamp-on thermometer fitted to HIU primary flow & return pipework to monitor temperatures until stabilised (allow 120 mins for UFH). HIU online dashboard and/or energy meter can also be used where required.				
Check	**Design Value**	**Tolerance**	**Actual Value**	**Criteria Met**
CH Flow temp				{please select}
CH Return temp*				{please select}
Primary return temp*				{please select}
Energy Meter consumption (kW)				{please select}
Calculate flow rate based on kW and measured dT under full load				{please select}
Confirm room thermostats switches UFH circuit actuators off *(~4-6min delay)*:				{please select}
If Criteria has not been met: *next its necessary to check each individual UFH circuit return temperature*				

Section D : Set up and test DHW				
Check	**Design Value**	**Tolerance**	**Actual Value**	**Criteria Met**
DHW delivery temperature at Kitchen tap. Should be minimum of 45°C within 45 seconds				{please select}
DHW temperature at HIU Plate exchanger outlet (Dashboard check)				{please select}
Cold Main temperature	-			
Primary Return temperature on energy meter (or Dashboard)				{please select}
Power output – check kitchen tap output is 10-20 kW				{please select}

Section E : Further checks *(only where information has been provided with this checklist)*	
Check	**Criteria Met**
Check operation of pre-payment system	
Check plant room can deliver total diversified design load to heat network	

Please Note:

This form has been designed to be completed by site contractor, however it can also be used by an Essco HIU Commissioning Engineer when HIU commissioning forms part of an order with Essco Group.

It should be noted however that in either instance, radiator valve setting, balancing, and venting must always be carried out by site contractor. If Essco have been appointed to commission the HIU, these activities need to be completed in advance of this visit to avoid aborted visit costs or delays.

ESSCO GROUP : COMMISSIONING CHECKLIST > EdgeT HIU with Radiators.

*In line with latest **CIBSE CP1 2020** Guidance.*

KEY:	***Green**: Essco to complete prior to commissioning.*	***Orange**: Commissioning engineer to complete on site.*

HIU Model:	{please select}	**Controller Model:**	{please select}
HIU Serial Nº:		**Controller Serial Nº:**	
Building Visited:		**Meter Serial Nº:**	
Flat Number:		**kWh on Meter:**	
Engineer:		**Date:**	
Start Time:		**End Time:**	

Section A : Initial Checks.

	Checklist	Design Value	Confirmation	Notes
1	Flushing Bypass closed	-		*Should be closed*
2	Strainer clean			*Should be empty*
3	Primary supply temp			*Run DHW first to check*
4	Energy Meter: responsive, with no errors & positive dT	-		*If there are issues, stop and report to Essco*

Section B : Central Heating on, check flow into top of radiator while heating up, then check valve setting and that air has been vented fully.

	Room Name	Flow top of radiator & return at bottom	Pre-setting value for pre-settable TRV	Confirm setting and lock shield is F.O.	Confirm air has been vented from radiator
1	{please select}	{please select}		{please select}	{please select}
2	{please select}	{please select}		{please select}	{please select}
3	{please select}	{please select}		{please select}	{please select}
4	{please select}	{please select}		{please select}	{please select}
5	{please select}	{please select}		{please select}	{please select}
6	{please select}	{please select}		{please select}	{please select}
7	{please select}	{please select}		{please select}	{please select}
8	{please select}	{please select}		{please select}	{please select}
9	{please select}	{please select}		{please select}	{please select}
10	{please select}	{please select}		{please select}	{please select}
	Central Heating pressure on pressure gauge:				

Section C : Confirm Central Heating (CH) commissioned to achieve design objectives.

With DHW off, set all room thermostat(s) and TRV's to maximum temperature. Use clamp-on thermometer fitted to HIU primary flow & return pipework to monitor temperatures until stabilised (60 mins for rads, 120 mins for UFH). HIU online dashboard and/or energy meter can also be used where required.

Check	Design Value	Tolerance	Actual Value	Criteria Met
CH Flow temp				{please select}
CH Return temp*				{please select}
Primary return temp*				{please select}
Energy Meter consumption (kW)				{please select}
Calculate flow rate based on kW and measured dT under full load				{please select}
			Confirm room thermostat switches heating off:	{please select}

****If Criteria has not been met:** next its necessary to check each individual radiator return temperature*

Section D : Set up and test DHW				
Check	**Design Value**	**Tolerance**	**Actual Value**	**Criteria Met**
DHW delivery temperature at Kitchen tap. Should be minimum of 45ºC within 45 seconds				{please select}
DHW temperature at HIU Plate exchanger outlet (Dashboard check)				{please select}
Cold Main temperature	-			
Primary Return temperature on energy meter (or Dashboard)				{please select}
Power output – check kitchen tap output is 10-20 kW				{please select}

Section E : Further checks *(only where information has been provided with this checklist)*	
Check	**Criteria Met**
Check operation of pre-payment system	
Check plant room can deliver total diversified design load to heat network	

Please Note:

This form has been designed to be completed by site contractor, however it can also be used by an Essco HIU Commissioning Engineer when HIU commissioning forms part of an order with Essco Group.

It should be noted however that in either instance, radiator valve setting, balancing, and venting must always be carried out by site contractor. If Essco have been appointed to commission the HIU, these activities need to be completed in advance of this visit to avoid aborted visit costs or delays.

8.2 Appliance order codes

Essco HIUs have been designed to offer maximum flexibility to suit different load requirements on projects. For projects requiring higher heating or hot water loads, the plate heat exchangers and/or heating pump selection can be changed to achieve what's required. It's therefore important to note this order code when ordering any spare parts in the future.

HIU Order Codes							
Essco assembled heat interface unit		EAHIU					
Unit type	Twin plate		T				
	Single plate		*S*				
	Cylinder		*C*				
	Direct		*D*				
	DHW		*H*				
Secondaries	Single			-			
	Dual			1			
DHW plate heat exchanger	N/A				0		
	40xP				1		
	60xP				2		
	70xP				3		
HTG plate heat exchanger	N/A					0	
	20xP					1	
	40xP					2	
	60xP					3	
	70xP					4	
HTG circulation pump	N/A						0
	6m Grundfos UPM4						1
	8.5m Taconova TF3						2
	9m Grundfos UP4MXL						3

Full assembled code in highlighted example:

Full assembly code: (EAHIUT-111)									
E	A	H	I	U	T	-	1	1	1
Essco assembled heat interface unit					Twin plate	Single secondary	40xP Hot water	20xP Heating	6m Grundfos pump

8.3 Spare parts

To assist with the identification and supply of any spare parts required during the products lifespan please contact an Essco technical representative and confirm the full assembly code and any part(s) required.

essco

essco
PROCESS VALVES

essco
HYDRONICS

essco
ENERGY

essco
FIT & FORGET

essco
PREFAB

Essco Group
Unit J1, Adanac North
Adanac Drive
Southampton
SO16 0BT

T. 01489 779068
www.esscogroup.co.uk

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