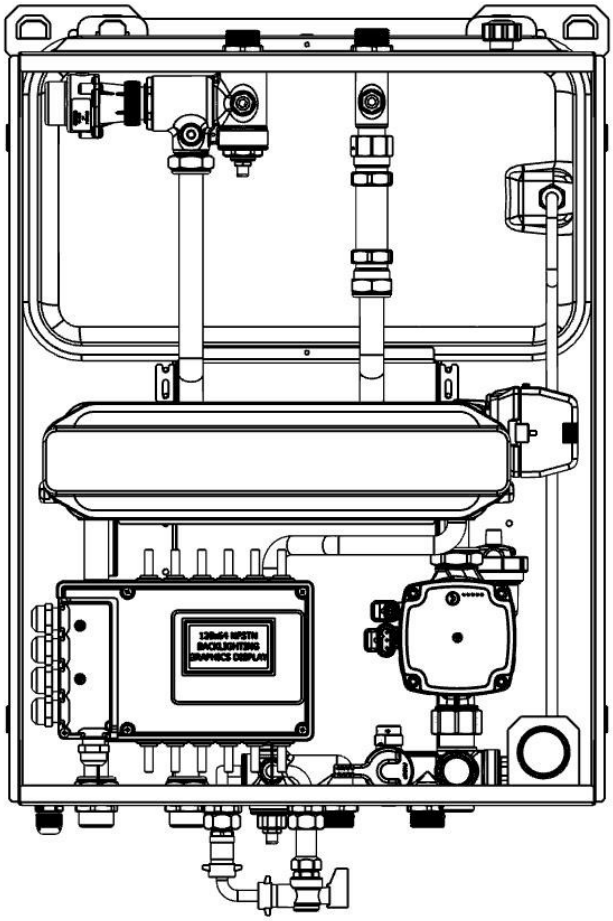
# HIPERII

HEAT INTERFACE UNIT

INDIRECT

# *Installation and Operation Manual*



## *Indirect Heat Interface Unit*
## *Instantaneous Priority Hot Water and Heating*

In this document Inta have endeavoured to make all the information and procedures accurate. Inta cannot accept responsibility should it be found that in any respect the information is inaccurate or incomplete as a result of future developments.

inta

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| Page 3 | 2. Dimensions. |
| Page 4 - 5 | 3. Components and Schematic. |
| Page 6 | 4. Accessories. |
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| Page 12 | 6. Electrical Connections. |
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| Page 21 - 27 | 10. Fault and 'E' Codes / Fault Finding Guide. |
| Page 28 | 11. Pump |
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| Page 39 - 40 | 16. Notes |


**Required HIPER II HIU documents.**

1. **Installation and Operation Manual (This document - LF175).**
2. Commissioning Report (Included with the HIU - LF176).
3. Controller Programming Guide (Only available direct from Intatec - LF173).

**Annual servicing is required to ensure that the conditions of the warranty are met.**

## Section 1 - Important Information and Introduction

These instructions describe the installation and operation and fault finding diagnostics of the HIPER II Heat Interface Unit (HIU). For operation of the entire plant, the technical documentation of all the components used such as, boiler, tank, pumps, pipework and valves must be complied with. Inta does not accept any responsibility for the design and performance of the heat network or components outside of the HIU, demarcation being the HIU isolation valves at the connection to the HIU.
Installation should only be carried out by a qualified and competent plumbing installer and a qualified and competent electrical installer in accordance with the current Building, Water and Electrical Regulations, Legislation and Standards.
Do not start installation until you have thoroughly read and understood all the Installation and Operating Instructions as listed above, and have complied with all safety provisions required.

Symbols used in these documents:

**DANGER** – Immediate risk of physical injury or even death.
**DANGER** – Immediate risk of serious damage.

**IMPORTANT** – Information critical to the installation or installer.
**IMPORTANT** – Information critical to the user.

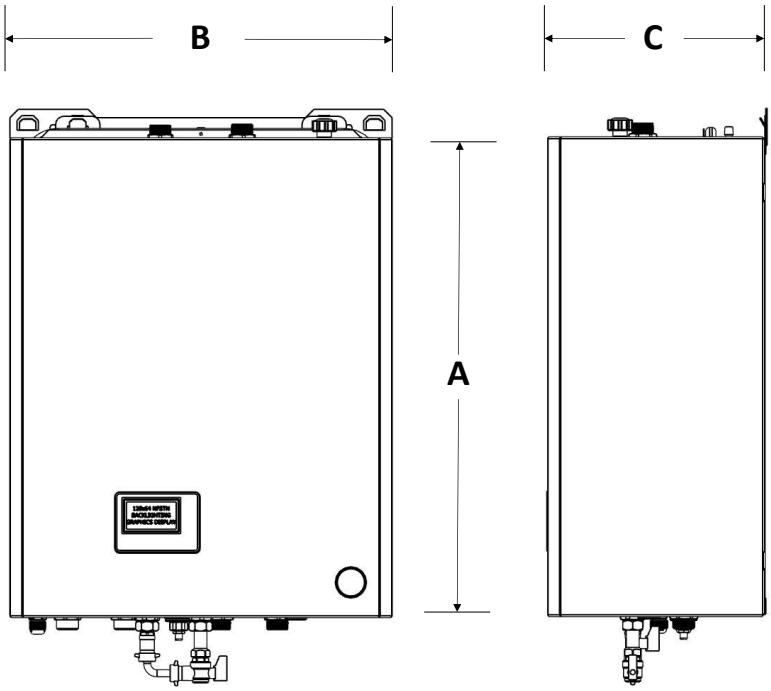
**NOTE** – Useful information regarding the operation or installation of the HIU.

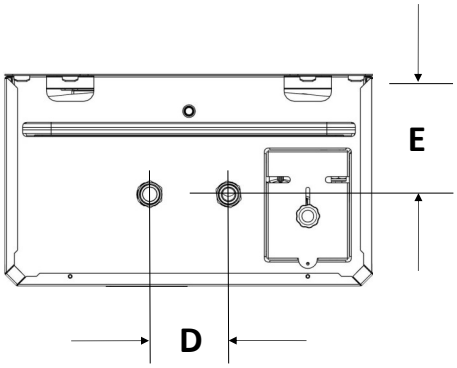
Do not tamper or make any alteration to the earthing connections provided as indicated on the casing with the provision of an earthing label.
One earthing point is on the outside of the lower casing, underneath the HIU. The other is inside the HIU on the casing backplate. Each earthing connections is provided with a metric M4 screw and locking washer.



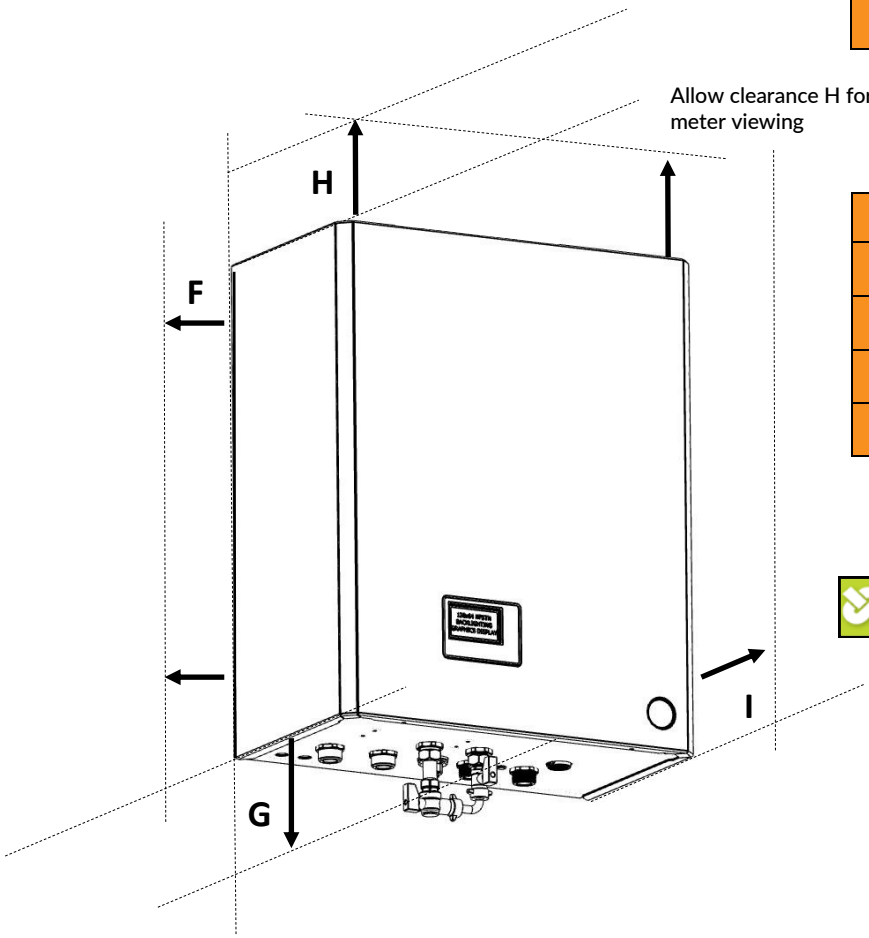
Earthing label.

| HIPER II HIU Description | Part Number |
|---|---|
| HIPER II Twin Plate HIU SZ 80kW DHW, 3 - 30 HTG WITHOUT Heat Meter | HIPER2TPSZ80 |
| HIPER II Twin Plate HIU SZ 80kW DHW, 3 - 30 HTG Zenner Heat Meter | HIPER2TPSZ80ZE |
| HIPER II Twin Plate HIU SZ 80kW DHW, 3 - 30 HTG Ista Heat Meter | HIPER2TPSZ80IS |



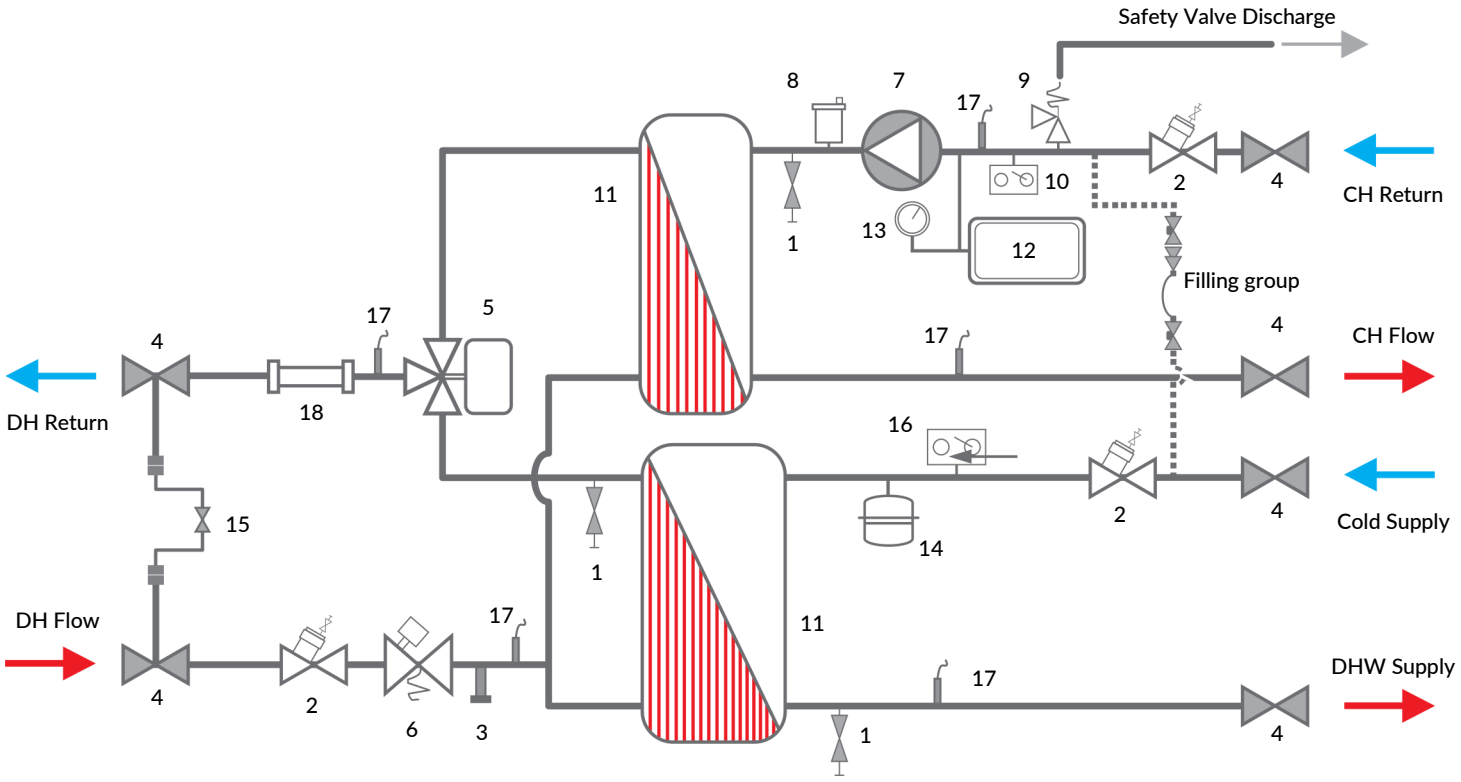

| Dimensions | | |
|---|---|---|
| A | 585 mm | Height |
| B | 465 mm | Width |
| C | 265 mm | Depth |
| D | 100 mm | Pipe Distance |
| E | 140 mm | Pipe Distance |



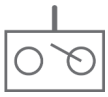
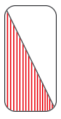

| Clearances | | |
|---|---|---|
| F | Sides | 30mm |
| G | Below | 300mm |
| H | Above | 200mm |
| I | In front* | 50mm |

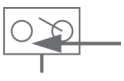
*Clearance of at least 300mm to allow the cover to be removed. Due care must be given by the installer that the cover, heat meter viewing door and components are all accessible.

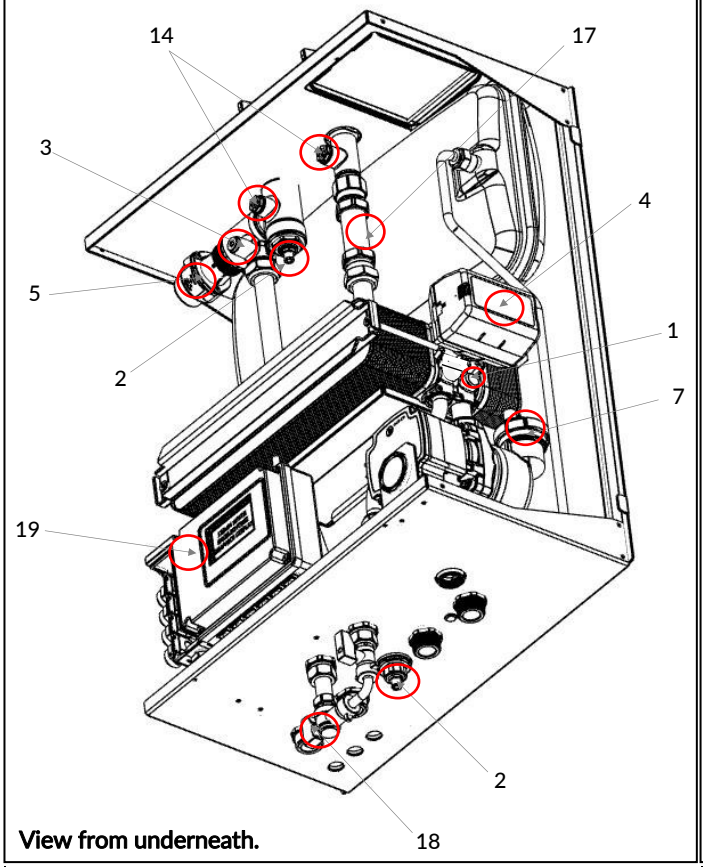
## Schematic HIPER II Twin Plate HIU




| | | |
|---|---|---|
| 1 |  | Drain valve / air venting |
| 2 |  | Strainer with drain valve |
| 3 |  | Pocket for heat meter sensor |
| 4 |  | Isolation Valves Red - Flow Blue - Return |
| 5 |  | Diverter Valve |
| 6 |  | Pressure Independent Control Valve (PICV) |

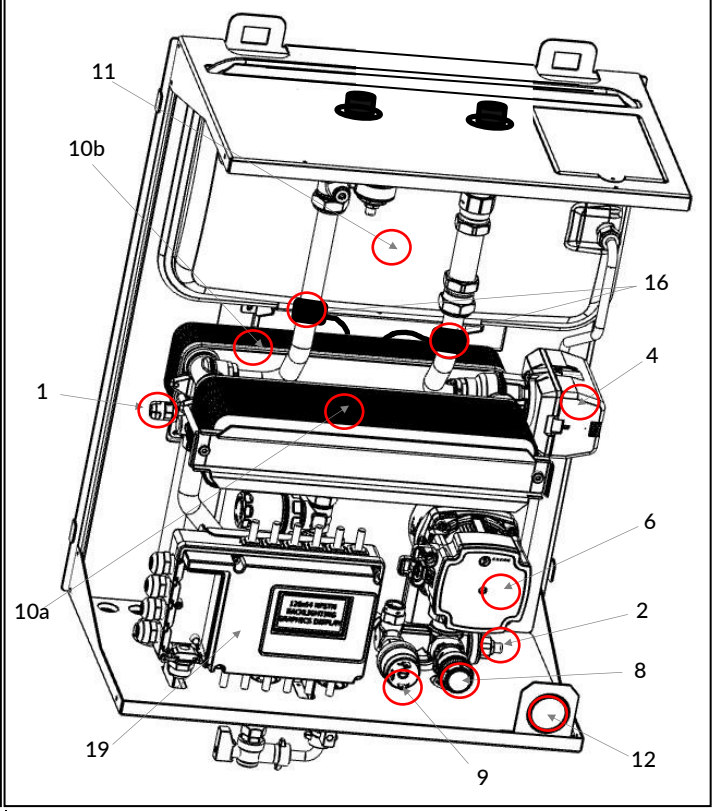
| | | |
|---|---|---|
| 7 |  | CH Circulating Pump |
| 8 |  | Automatic air vent |
| 9 |  | Safety pressure relief valve |
| 10 |  | Low pressure switch |
| 11 |  | Plate Heat Exchanger (PHE) |
| 12 |  | Expansion Vessel |

| | | |
|---|---|---|
| 13 |  | Pressure gauge |
| 14 |  | Shock arrestor |
| 15 |  | Flushing bypass |
| 16 |  | Flow meter switch |
| 17 |  | Temperature sensor |
| 18 |  | Heat meter position / 110mm pipe |

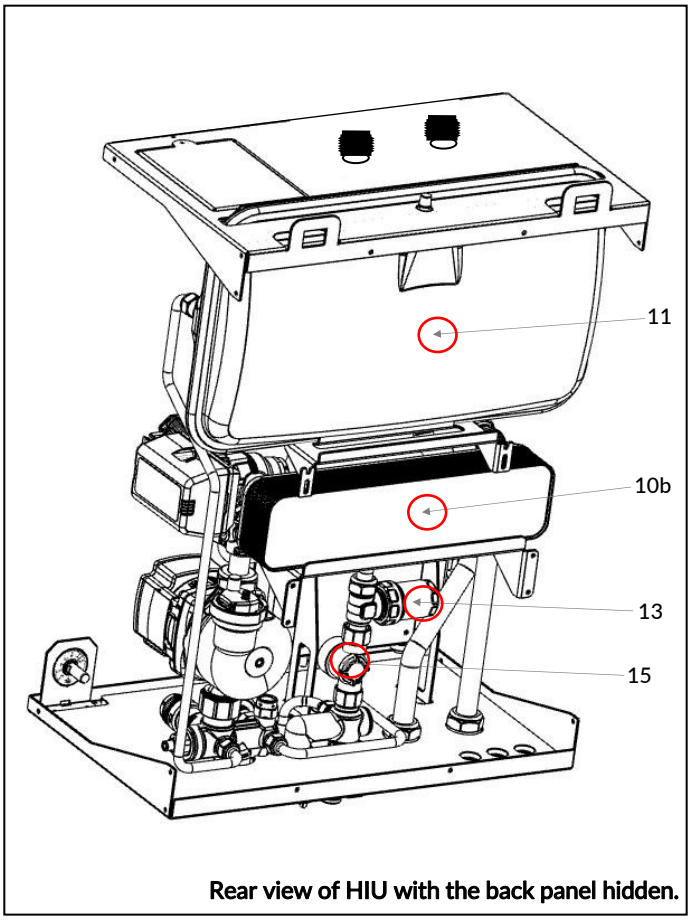



View from underneath.

View from above.




| | | |
|---|---|---|
| **1** | Drain / air venting. | HI200180200 |
| **2** | Strainer with drain valves. | HI29320003 |
| **3** | Pocket for heat meter probe. | N/A |
| **4** | Honeywell diverter valve actuator. | HI29314005 |
| **5** | Pressure Independent Control Valve (PICV) and primary strainer group. (*Not including PICV actuator. See Page 29*) | HI29320003 |
| **6i** | CH Circulating pump Inc. Manifold and Air Vent | HI29337005 |
| **6ii** | Grundfos Pump (Pump Only) | HI250105162 |
| **7** | Automatic air vent. *(Only available with pump. See 6i.)* | N/A |
| **8** | Safety pressure relief valve. | HI23520040 |
| **9** | Low pressure switch. | HI29308005 |
| **10a** | DHW Plate Heat Exchanger. | HI29342005 |
| **10b** | CH Plate Heat Exchanger. | HI28559005 |
| **11** | Expansion vessel 8 Ltr. | HI29340005 |
| **12** | Pressure gauge. | HI29339005 |
| **13** | Shock arrester. | HI29325003 |
| **14** | Flushing by pass connections. | N/A |
| **15** | Flow meter switch. | HI29338005 |
| **16** | NTC temperature sensor. | HI29531005 |
| **17** | Heat meter position / 110mm spacing pipe. | HI24933015 |
| **18** | Filling group. | HI29353003 |
| **19** | PID Controller. | PFAP-1380A00 |




Rear view of HIU with the back panel hidden.

**See breakdown of spares on pages 28 - 32.**

### Isolation Valves
### ¾" MxF Butterfly Ball Valves



*Set of four (2 red, 2 blue)*
**Part Code HIAC03BVPACK**

*Set of two (1 red, 1 blue)*
**Part Code HIAC02BVPACK**

*Single blue*
**Part Code BBV28430512B**

*Single red*
**Part Code BBV28430542R**

*3 Pack (2 Blue, 1 Red)*
**Part Code HIAC04BVPACK**



*Wired Programmable Thermo-stat*
**Part code T2H110A0069**

*Wireless Programmable Thermostat*
**Y2H310A0046**

### Remote Monitoring




*Guru Hub 3 Only*
**Part code GHUB3**

*iPulse and Loom Only*
**Part code I-PULSE**

### First Fix JIG



*To install pipework without the HIU*
**Part code HI2ACJIG**




*IntaKlean Nano Magnetic Filter ¾"*
**Part code HYIKN34**

*Other Magnetic Filters are available upon request.*

### Water Conditioners



*15mm Water Conditioner*
**Part code HYAF015**

*22mm Water Conditioner*
**Part code HYAF0222**

*View our full Activflo range on our website.*




*Ista Ultego III Ultrasonic Heat Meter*
**Part Code 77634**

*Other Heat Meters are available upon request.*



*Flushing Bypass Valve (FBPV) with insulation.*
**Part code HI2FBP34**
*Note: Image to the right shows Bypass without insula-*




*Inta Apartment Hub 3/4" Water Assembly*
**Part code HYWTA34**

*Inta Apartment Hub Mini (Without PRV and Insulation)*
**Part code HYTHM4**

### Top Entry Kits



*4 x Insulated pipes*
**Part code HI2ACCON**

*4 x Insulated pipes*
*4 x Isolation valves (MxM ¾")*
*Stand off brackets (Pair)*
**Part code HIACWBCONKIT**

*3 x Pipe Kit*
**Part code HIAC13CONKIT**

*2 x Pipe Kit*
**Part code HIAC14CONKIT**

*1 x Pipe Kit*
**Part code HIAC15CONKIT**

*4 x Pipe Kit W/ Magnetic Filter*
**Part code HIAC13PACK**

*Stand off brackets only (Pair)*
**Part code HI2ACBKT**

### Leak Detection




*ActivStopLeak and App*
**Part code HY-STOPLEAK1**

*ActivStopLeak With Remote Control and App*
**Part code HY-STOPLEAK2**

*ActivStopLeak With Remote Control, 4G & 5G Connectivity and App*
**Part code HY-STOPLEAK2**

## 5.1 Before installation read and comply with the following.

Comply with all safety provisions. Do not tamper with the earthing connections as indicated on the casing. To secure the casing when closing the cover, use the provided M4 screw and washer to ensure earth continuity on the casing.



The Installer's Responsibility - in accordance with Part L of the Building Regulations, all hot and cold water pipes should be labelled and insulated to the current standards.

Installation should only be carried out by a qualified and competent plumbing installer and a qualified and competent electrical installer in accordance with the current document Building Regulations, Legislation and Standards.

It is the installer's responsibility to ensure that the place of installation and wall is suitable.
An unsuitable location or provision of inadequate supplies (Primary Heating and Cold Water mains) will not justify any warranty or fault claim;

- The wall must be capable of bearing the weight of the HIU filled with water permanently.
- Locations where access is restricted for maintenance, see page 3.
- The HIU is only for WALL MOUNTING in the orientation shown in this manual.
- Locations where criminal damage or illegal tampering cannot be reasonably preventable.
- Locations where discharge pipe is not able to be safely or legally installed and connected.
- Supplies which are not suitably clean, and free from contaminants.
- Supplies which contain chemical contaminants.
- Supplies with inadequate flow or pressure (less than 1.5 bar).
- All cold and hot water pipes must be labelled and insulated in line with Part L of the Building Regulations.
- On site precautions must be made by the installer to protect the unit from builders dust and debris.

A double-check non return valve must be installed prior to the HIU on the incoming potable water supply, to prevent backflow from the heat interface unit.
Cold water mains supply should be protected from excessive high pressures.
A Pressure Reducing Valve is recommended and pre-set to 3 bar.

- Wall fixing bolts are to be provided by the installer and be suitable to bear the weight of the HIU permanently when full of water.
- The position of the HIU should be where the pipe run lengths to DHW outlets are kept to a minimum.

Before removing the cover turn off the power supply at the mains (fused spur 230v 50Hz).

## 5.2 Consider which installation method is to be used.

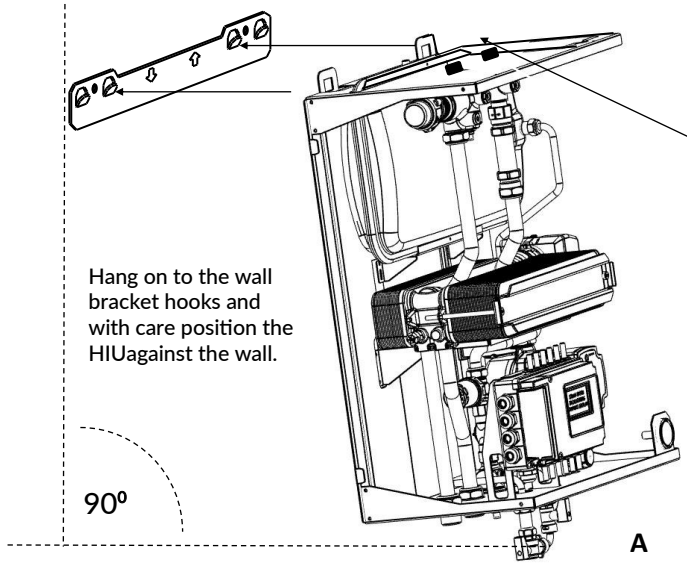
1. HIU as delivered to site.
2. HIU and stand off brackets as delivered to site.
3. HIU JIG at First Fix Pipework stage, with the HIU to follow later.
4. HIU JIG and stand off brackets, with the HIU to follow later.

## 5.3 General installation notes

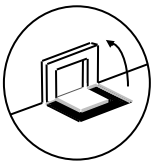
- Ensure all hot and cold water pipes are labelled and insulated in accordance with Part L of the building regulations.
- The HIU can only be installed in one orientation, with the heat network connections at the top, and in a vertical position.
- If the heating is OFF or the property is to be knowingly left unoccupied for over 2 months, then the pump protect parameter should be turned on, to protect the pump from any possibility of seizing due to water damage.

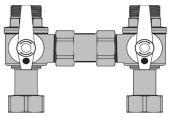
**5.4** Ensure the chosen installation site is inside the building, weatherproofed and provides good access for maintenance, minimum requirements as on page 3. Note where and which pipe connections will be required, pay attention to where the safety valve discharge pipe will terminate, and ensure this meets all current building regulations and has a continuous fall. All pipe runs for domestic hot water services (DHWS) should be at a minimum to prevent water wastage and maximise DHWS delivery times.

**5.5** Make sure the wall the HIU is to be mounted on complies with 5.1, mark up the position for the wall bracket. The position of the HIU is to be on a true vertical plane as in 5.3. Drill and plug the wall, and secure the HIU with suitable wall fixings (not provided with the HIU).



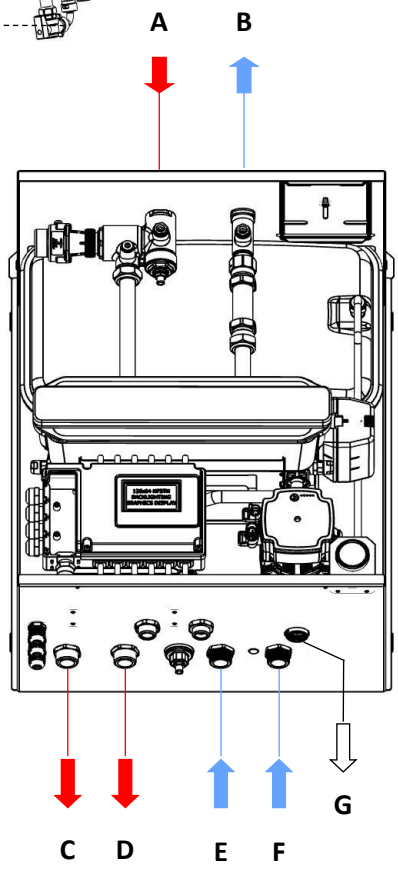

**5.6** Hang the HIU as shown in this illustration on to the inner hooks on the wall bracket.





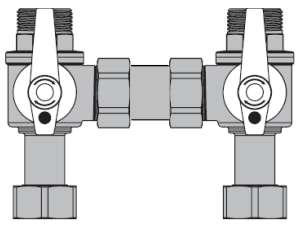
Use the Flushing Bypass Valve for primary isolation.
Part code **HI2FBP34**

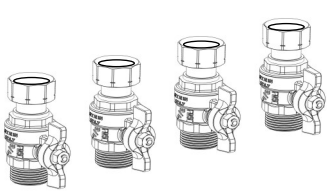
| 5.7 Plumbing Upper Connections | |
|---|---|
| A | Heat Network Flow. |
| B | Heat Network Return. |
| Make connections with Flushing Bypass Valve. | |




| 5.8 Plumbing Lower Connections | |
|---|---|
| C | 3/4” Heating Flow *(radiators or underfloor heating)* |
| D | 3/4” DHW Hot Outlet. |
| E | 3/4” DHW Cold Inlet. |
| F | 3/4” Heating Return. |
| G | 1/2” Safety valve discharge. |
| Make connections with **HIAC03BVPACK**. | |

**HI2FBP34**



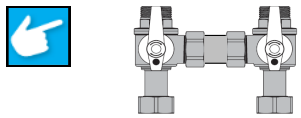
**HIAC03BVPACK**
C & D Red handles
E & Blue handles
3/4” F Union nut x 3/4” M

***Ensure a non-return valve is fitted, as per water regulation by-law, and ensure dynamic water doesn't exceed 2.5bar pressure.**

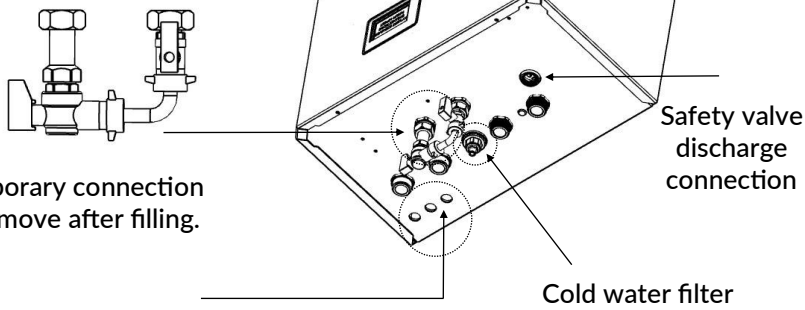
**5.9** For filling the Heating Circuit for the radiators or UFH, the filling valves and connecting pipes are integral to the HIU.

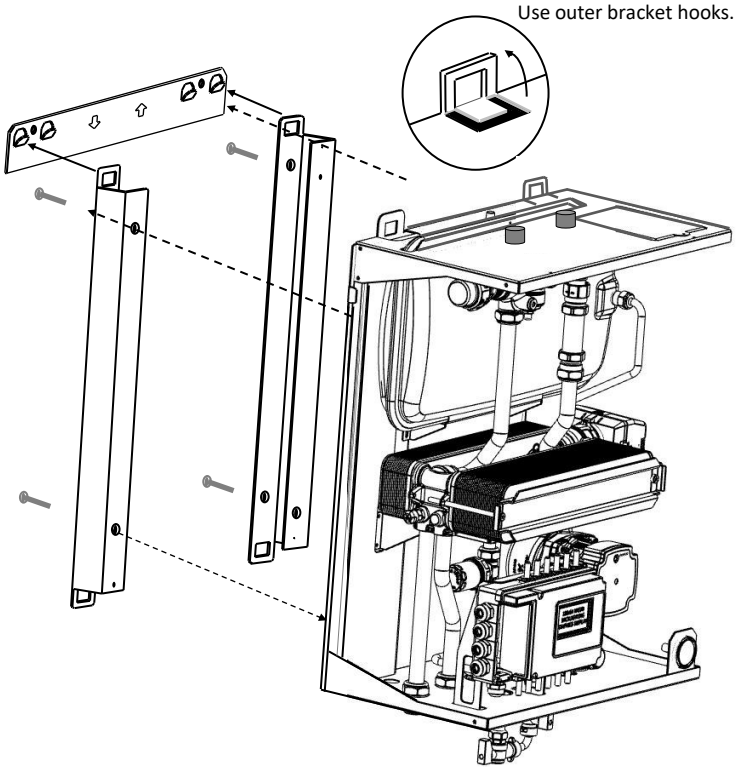
This may be removed while pipe work and isolation valves are made good. Refit when commissioning.

On completion of filling the Heating Circuit, the temporary connection pipe to the cold water supply should be removed. Place safely inside the unit for future filling operations.



For top connections select isolation valves or flushing bypass valve.




**Accessory option - stand off brackets.**

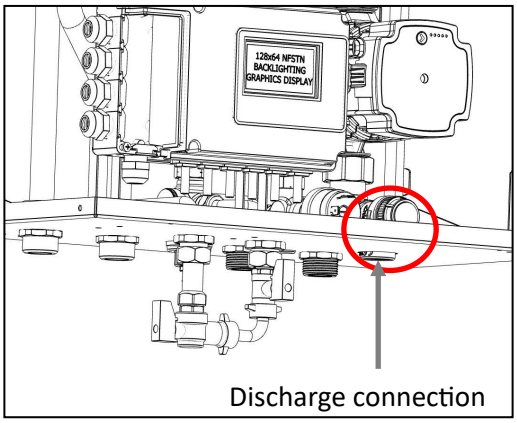
**5.10** Stand off brackets create a space behind the HIU that can be used to run pipes in.
The stand off brackets are 40mm off the wall allowing for 13mm pipe insulation thickness.

First attach the brackets using 4 x fixing screws to the back of the HIU in the matching fixing holes provided.

Fit the wall bracket as in 5.6 and per 5.1.

Then hang the HIU as in diagram 5.6, but this time using the outer wall bracket hooks.

**5.11** Safety valve discharge pipe.
The safety valve has a 1/2" F threaded connection for 15mm pipe to be connected to 15mm x 1/2" M compression coupling (to be provided by the installer).
The discharge pipe should have a continuous fall and conform to BS6798. The area where the pipe empties into the drain must be frost free.
Regulations stipulate a trap and tundish to be included to maintain any discharge. This is to ensure the presence of a visible air break.



## 5.12 Accessory option - Pre-formed pipes

Pre-formed pipes are also available to save time. These pipes are formed to run behind the HIU and make all the connections from above.

The isolation valve kit that can be used for this are 3/4" MxM union nuts and seal with fibre washers, they can be fitted either below or above the HIU.

First attach the brackets using 2 x fixing screws to the back of the HIU in the matching fixing holes provided.

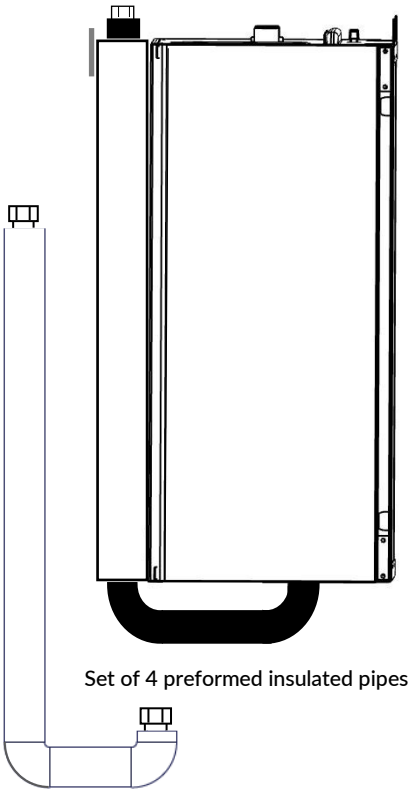
Fit the wall bracket as in 5.6 and per 5.1
Fit the stand off brackets as per 5.10
The isolation can be connected either;

- Below the HIU.
- Above the HIU.

Hang the HIU as in diagram 5.6, using the outer wall bracket hooks.

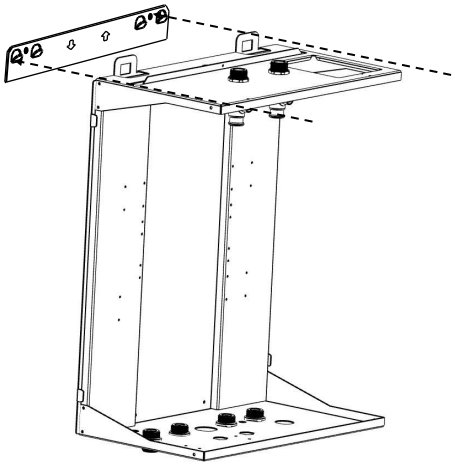
Flushing Bypass Kit fitted at this point in first fix installation.
Minimum 22mm pipe.
Clip and insulate pipes

All connections from above



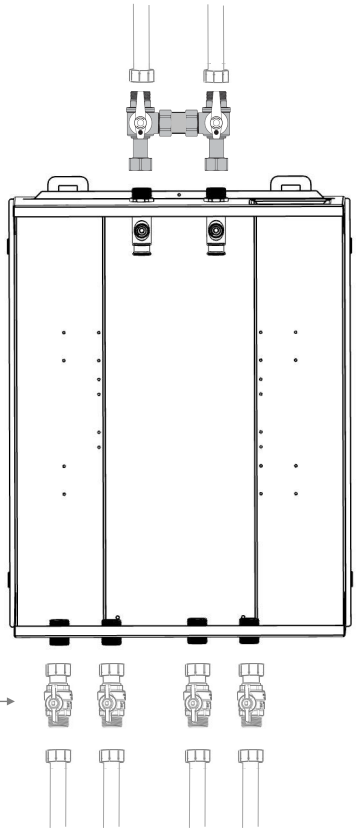
Set of 4 preformed insulated pipes

## 5.13 Accessory option - First fix JIG HI2ACJIG

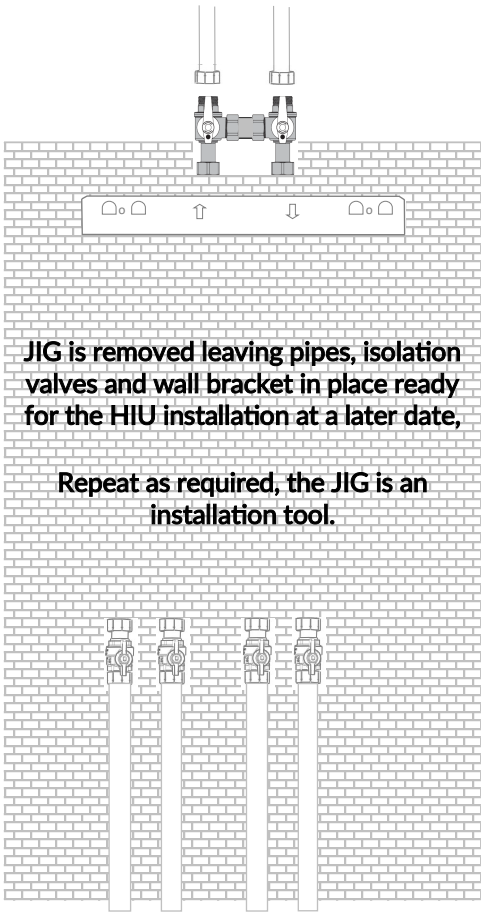


1. Fix the wall bracket.
2. Hang the JIG.
3. Make the isolation and pipework connections.
4. Remove the JIG and move on to the next installation site.

Wall bracket, valves and pipes are in position ready to receive the HIU at a later date.



**Isolation valves pack**
HIAC03BVPACK



**JIG is removed leaving pipes, isolation valves and wall bracket in place ready for the HIU installation at a later date,**

**Repeat as required, the JIG is an installation tool.**

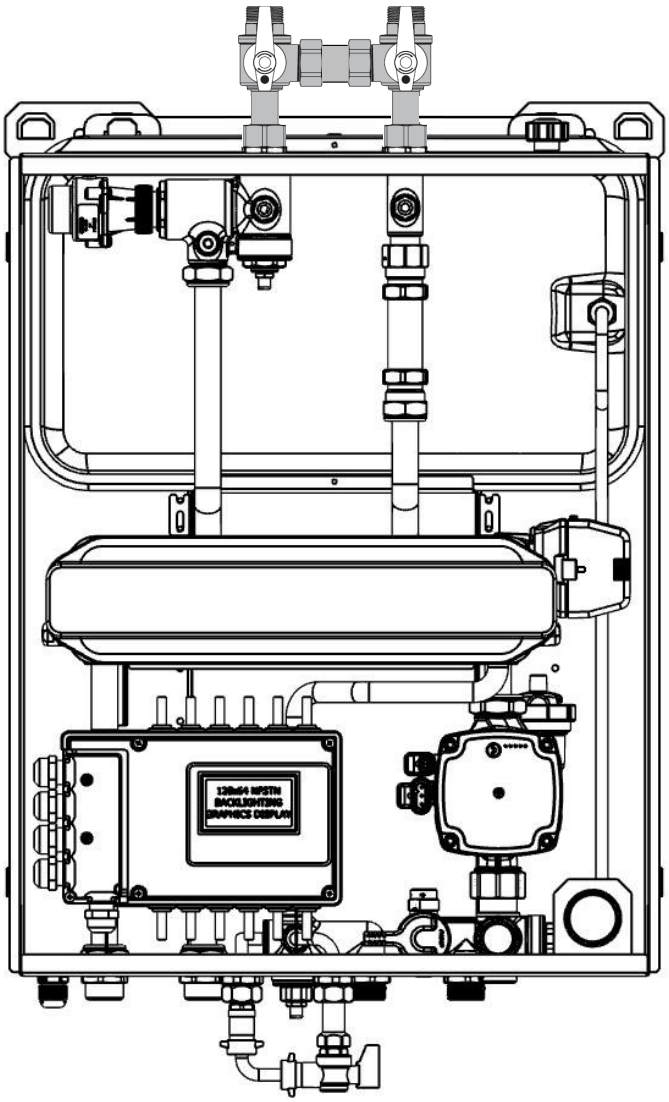
## 5.14 Checklist before filling and flushing

- Flow and Return in correct positions.
- **All internal fittings and unions must be tightened to 12nM and a visual inspection required to ensure no leaks.**
- Safety valve discharge pipe connected to the safety valve.
- Safety valve discharge pipe installation conforms to Building Regulations. (Pipework to comply with current Building Regulations and refer to BS6798).
- All drain valves and air vent valves are closed.

To conform with UK Heat Networks best practice the installer should use a Flushing Bypass Valve (FBPV) that meets these requirements.

- The bypass must be a temporary connection and removed after flushing.
- The valves must be lockable in the operation position.
- The valves should be insulated.
- The flushing pipe should be full bore.
- The position of the valve should be visually identifiable.

Inta only recommend using HI2FBP34 Accessory.



**Inta FBPV Accessory HI2FBP34**
Install as per instructions supplied with the Flushing Bypass Valve accessory.
The caps provided with the valve must always be fitted when the temporary pipe is removed.

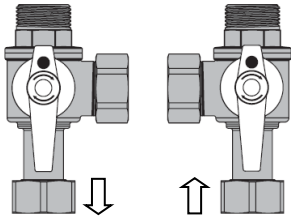


**Fig A** The valve is in it's operational position, temporary bypass valve removed and caps fitted.

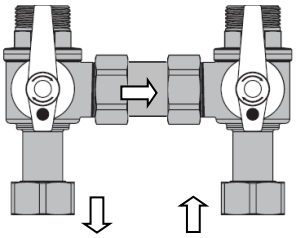


**Fig B** The valve flow path is open in all directions.

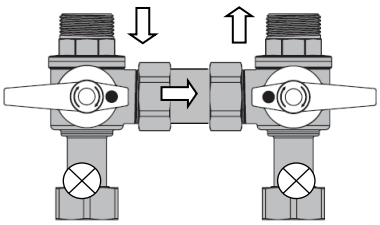


**Fig C** The valve flow path is in the FLUSHING BYPASS position with the temporary pipe fitted. HIU is isolated.

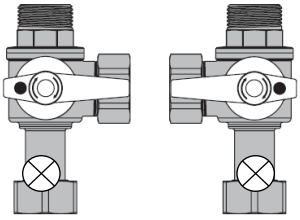


**Fig D** The valve is closed isolating the HIU and the bypass caps are fitted.

## 6.1 Before electrical connection read and comply with the following.

**Comply with all safety provisions.**

**Installation should only be carried out by a competent electrical installer and the installation conform to all IEE regulations.**

**Note that the Room thermostat switching must be VOLT FREE.**

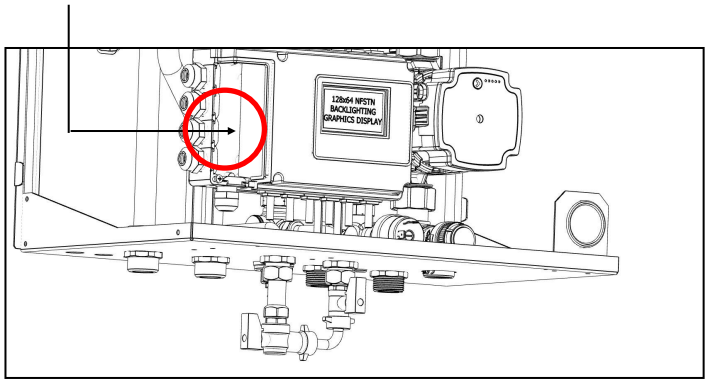
**Note that the billing connection for pre-payment function must be VOLT FREE.**

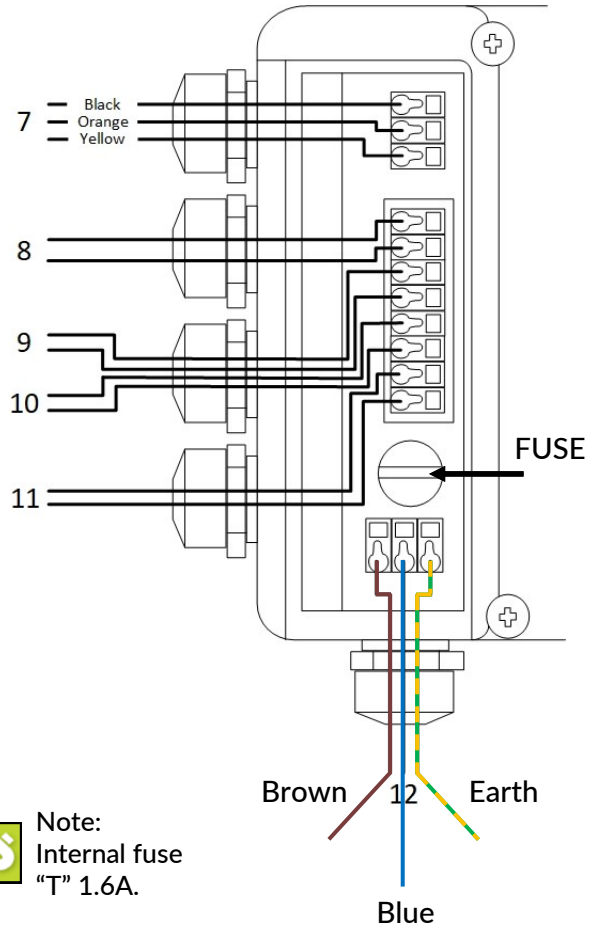
**Isolate all electrical supplies before removing the access panel.**

**6.2** The installer is to provide a 230vAC 3 amp fused non switched supply as per BS EN 7671:2008. Entry for cables is provided by 3 x cable glands located beneath the HIU (at the rear, LHS).
Live, neutral and earth connections as per the diagram below.

**6.3** Room thermostat connection as per the diagram below. This is a 2 core cable connection and VOLT FREE.
The room thermostat switching position is NORMALLY OPEN (though this can be changed to normally closed in the installer level programming of the controller, which is covered in the separate programming manual).

*Electrical connections access panel, remove securing screws to enter.*






| | |
|---|---|
| 7 | CN1 Modbus 9600K baud connection.<br>9600 baud means that the serial port is capable of transferring a maximum of 9600 bits per second (bps). |
| 8 | Room thermostat —VOLT FREE. |
| 9 | Optional Switching.<br>(VOLT FREE—relay required)<br>For 2nd pump to Load the optional addition of hot water tank. |
| 10 | Connection for OPTIONAL tank temperature sensor (Type NTC). |
| 11 | Pre-payment connection to VOLT FREE supply. |
| 12 | Power connection 230V. |

Note:
Internal fuse
"T" 1.6A.

**This is a 'one off' start up sequence to ensure the selection of radiators or UFH.**

On first power up, the controller will perform a check on all connected components. If all is OK, it will automatically proceed to the set up menu. If a fault or wiring error is detected, a warning symbol will appear until the error is corrected.

**START HERE**

SET LANGUAGE
ENGLISH

SET RT = 46.5 OK

ENGLISH, ITALIANO, FRANCAIS, NEDERLAND or DEUTSCH.

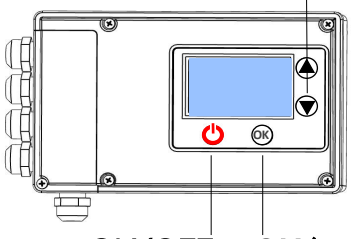
SET DATE
01/01/23

SET TIME
09:30

SET HEATING
FLOORHEATING

SET HEATING
RADIATOR

**UP** and **DOWN** arrow buttons



**ON/OFF** **OK (set)**

**Operation.**

**UP** and **DOWN** buttons - use to increase or decrease a value or number. **OK** button - to confirm and set a value or number. **ON/OFF** button will turn off the HIU. The unit will not be in standby mode. Heating, hot water, keep warm and frost protection functions are OFF.

## *SELECT FLOOR HEATING OR RADIATOR*
## *UFH is the factory default. Use the UP/DOWN arrow buttons to change to RADIATORS.*

SET TEMP FLOOR
30°C

Factory setting for UFH is 30° C. Press OK or change with the UP and DOWN arrow buttons to increase or decrease the heating flow temperature. Press OK to set.

SLAB DRYING
NO

Change to YES using the UP or DOWN button to initiate the floor drying for a new UFH system.

SLAB DRYING
STOP = 167h 59m
TFLOOR = 24.5°C

Drying starts at the minimum temperature. 25°C as factory setting for 3 days then rises to the maximum temperature (40°C as factory set) for 4 days. The function can be stopped by pressing the OFF button.

**When setting the HIU to UFH, parameter 20 must be changed to 70°C.*

Factory setting for radiators is 60°C. Press OK or change with the up and down arrow buttons to increase or decrease the heating flow temperature. Press OK to set.

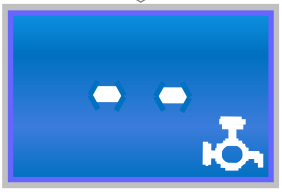
SET TEMP RADIATOR
60°C

**Next screen will be to set the hot water temperature. (Below)**

## *DHW (Domestic Hot Water) Settings*

SET TEMP DHW
55°C

**DHW** temperature is factory set to 55°C. Press OK or change with the up and down arrow buttons to increase or decrease the temperature.



**Controller screen shows two dashes when in standby mode.** The icon that can be seen shows 'Keep Warm' function is ON.

All features and functions can be accessed in the installer level programming. How to access, and a list of all the parameters which can be programmed are in a separate document that is not to be left with the end user as misuse of these set parameters my cause the HIU to not operate as efficiently as commissioned.
Refer to the '**Controller Programming Guide'**, available from Inta or the supplier request.

### Features available in the HIU Controller

- Language options.
- UFH or Radiator Heating.
- UFH floor drying (slab drying)*
- Minimum temperature limiting (HTG and DHW).
- Maximum temperature limiting (HTG and DHW).
- Optimised heating (uses less heat as the temperature nears the set point).
- Flow limiting in HTG mode, full power as used for DHW (not required for lesser heating loads).
- Temperature control of primary return when in keep warm mode.
- Frost protection.
- PWM pump control.
- Manual switching of the pump.
- Option to temperature control an additional hot water storage cylinder.
- Option to switch a second pump to load the cylinder.
- Keep warm function switch ON or OFF.
- Option to redirect the keep warm bypass through the heating PHE to prevent scaling of the DHW PHE.
- Anti-Legionella pasteurisation temperature and timed function.
- Prepayment operation and shutting down of the HIU when out of credit.
- Manual mode for the PICV actuator.
- Manual mode for the diverter valve.
- Room thermostat switching options for normally open or normally closed switching.

***SLAB DRYING** (first time of applying heat to the screed/floor). Select YES to initiate the floor drying for a new UFH system. Drying starts at the minimum temperature (25°C as factory set) for 3 days then rises to the maximum factory set temperature (40°C as factory set) for 4 days = 7 days total. These minimum and maximum temperatures can be reset respectively with parameter 03 and parameter 12 in the installer menu. The screen shows the time left for this operation. The function can be stopped by pressing the OFF button.

### Programming the HIU Controller.

Any changes to the factory settings should be carried out during commissioning. Details of programming parameters are to be found in the **'Controller Programming Guide'.**

### Contact Inta to request the Controller Programming Guide.

**This document is not to be left with the HIU or the occupier of the home.**

The **Controller Programming Guide** is available on request from Intatec by contacting;
Email—**HIUTechnical@intatec.co.uk** // Phone—**01889 272 196** for the HIU team.

The **'Controller Programming Guide'** is only for the use of the installer or commissioning engineer, and under no circumstances should be left with the user or home owner. Incorrect parameter programming may result in inefficient performance or 'E' code diagnostics which prevent the HIU operating as required.

Check the temperature sensors are clipped securely to the pipes for accurate control.
All the sensors are colour coded for ease of identification.

# Water component for corrosion limit on BPHE

| | | | Plate Material | | Brazing Material |
|---|---|---|---|---|---|
| WATER CONTENT | CONCENTRATION (mg/l or ppm) | TIME LIMITS Analyze before | AISI 304 | AISI 316 | COPPER |
| Alkalinity $HCO_3^-$ | < 70 | Within 24 h | + | + | 0 |
| | 70÷300 | | + | + | + |
| | > 300 | | + | + | 0/+ |
| Sulphate[1] $SO_4^{--}$ | < 70 | No limit | + | + | + |
| | 70÷300 | | + | + | 0/-- |
| | > 300 | | + | + | -- |
| $HCO_3^-/SO_4^{--}$ | > 1.0 | No limit | + | + | + |
| | < 1.0 | | + | + | 0/-- |
| Electrical conductivity[2] (Refer to Table 3 for oxygen content guidelines) | < 10 µS/cm | No limit | + | + | 0 |
| | 10÷500 µS/cm | | + | + | + |
| | > 500 µS/cm | | + | + | 0 |
| pH [3] | < 6.0 | Within 24 h | 0 | 0 | 0 |
| | 6.0÷7.5 | | + | + | 0 |
| | 7.5÷9.0 | | + | + | + |
| | 9.0÷10 | | + | + | 0/+ [4] |
| | > 10 | | + | + | 0 |
| Ammonium $NH_4^+$ | < 2 | Within 24 h | + | + | + |
| | 2÷20 | | + | + | 0 |
| | > 20 | | + | + | -- |
| Chlorides (Cl-) (Refer to Table2 for temperature- dependent values) | < 100 | No limit | + | + | + |
| | 100÷200 | | 0 | + | + |
| | 200÷300 | | -- | + | + |
| | 300÷700 | | -- | 0/+ | 0/+ |
| | > 700 | | -- | -- | 0 |
| Free chlorine (Cl2) | < 1 | Within 5 h | + | + | + |
| | 1÷5 | | -- | -- | 0 |
| | > 5 | | -- | -- | 0/-- |
| Hydrogen sulfide $H_2S$ | < 0.05 | No limit | + | + | + |
| | > 0.05 | | + | + | 0/-- |
| Free (aggressive) carbon dioxide ($CO_2$) | < 5 | No limit | + | + | + |
| | 5÷20 | | + | + | 0 |
| | > 20 | | + | + | -- |
| Total hardness[5] (Refer to "Scaling Document" for scaling aspect of hardness effect) | 4.0÷11°dH | No limit | + | + | + |
| | 70÷200 mg/l CaCO3 | | | | |
| Nitrate[1] $NO_3^-$ | < 100 | No limit | + | + | + |
| | > 100 | | + | + | 0 |
| Iron[6] (Fe) | < 0.2 | No limit | + | + | + |
| | > 0.2 | | + | + | 0 |
| Aluminium (Al) | < 0.2 | No limit | + | + | + |
| | > 0.2 | | + | + | 0 |
| Manganese[6] (Mn) | < 0.1 | No limit | + | + | + |
| | > 0.1 | | + | + | 0 |

| Table key | | |
|---|---|---|
| **+** = Good resistance under normal conditions | **0** = Corrosion problems may occur especially when more factors are valued 0 | **--** = Use is not recommended |

| **Important Note : The following paratmeters can also influence the corrosion resistence:** |
|---|
| **Temperature**: The data in the table are based water temperature of 20°C unless otherwise is stated. |
| **Presence of oxidants in the environment**: guidelines regarding the oxygen content are shown in Table 3. |
| **Product form**, heat treatment and presence of intermetallic phases: The data in the table is based on untreated raw material. |

# Water component for corrosion limit on BPHE

| Influence of water composition on corrosion resistance |
|---|
| [1] Sulfates and nitrates act as inhibitors for pitting corrosion caused by chlorides in pH-neutral environments. |
| [2] Electrical conductivity and Total Dissolved Solids (TDS) are connected and can be converted to each other. |
| [3] In general low pH (below 6) increases corrosion risk and high pH (above 7.5) decreases corrosion risk. |
| [4] In District Energy systems, due to good control over water quality, pH values up to 10 are considered safe: + |
| [5] Total Hardness/corrosion: water with high hardness can cause corrosion problems due to its high ion content (Ca+2, Mg+2, Fe+2) which also means a high electrical conductivity as well as a high total dissolved solid (TDS). For this reason, too high hardness values should be avoided not only due to higher risk of scaling but also for corrosion risk.<br>On the other hand, soft water, but not necessarily cation exchange softened water, may in contrast have a low buffering capacity and so be more corrosive. If the hardness values are outside the recommended range, other parameters such as oxygen content, conductivity and pH values should be considered to evaluate the corrosion risk. |
| [6] Fe3+ and Mn4+ are strong oxidants and may increase the risk for localized corrosion on stainless steels in combination with brazing material copper. |

**Table 2. Maximum chloride concentrations as a function of temperature for different plate material (Data for SS-316 and are based on Outokumpus Corrosion handbook, 11th edition, 2015).**

| CHLORIDE CONTENT | MAXIMUM TEMPERATURE | | | | | |
|---|---|---|---|---|---|---|
| Chloride (ppm) | 20°C | 30°C | 60°C | 80°C | 120°C | 130°C |
| = 10 ppm | SS 304 | SS 304 | SS 304 | SS 304 | SS 304 | SS 316 |
| = 25 ppm | SS 304 | SS 304 | SS 304 | SS 304 | SS 316 | SS 316 |
| = 50 ppm | SS 304 | SS 304 | SS 304 | SS 316 | SS 316 | Ti |
| = 80 ppm | SS 316 | SS 316 | SS 316 | SS 316 | SS 316 | Ti |
| = 200 ppm | SS 316 | SS 316 | SS 316 | SS 316 | Ti | Ti |
| = 300 ppm | SS 316 | SS 316 | SS 316 | Ti | Ti | Ti |
| = 700 ppm | SS 316 | SS 316 | Ti | Ti | - | - |
| = 1000 ppm | SS 316 | Ti | Ti | Ti | - | - |
| > 1000 ppm | Ti | Ti | Ti | Ti | - | - |

**Table 3. Oxygen concentration guide values for heating water depending on the conductivity of the water according to VDI 2035 / part 2.**

***Oxygen content:*** *Corrosion reactions in water installation are determined by the presence of oxygen. To avoid corrosion damage, oxygen concentrations in all parts of a water heating system should be kept as low as possible and a constant input of oxygen should be avoided. The higher the conductivity (and salt content) of the water, the lower level of oxygen is recommended to avoid corrosion.*

| | | Low saline (low salt content) | Saline (high salt content) |
|---|---|---|---|
| Electrical conductivity at 25°C | µS/cm | < 100 | 100 - 1500 |
| pH value at 25°C | | 8.2-10 | |
| Oxygen | mg/l or ppm | < 0.1 | < 0.02 |

**Other indications**

Brackish water and seawater are not recommended in standard BPHEs
Presence of dissolved salts in the fluid that affect the BPHE is another threat to copper resistence
Heavily polluted areas can add, in standard water, dust and/or corrosive gases (such as sulfur and nitrogen compounds) and could be corrosive for BPHE

Stable and turbulent water flow does not give corrosive substances the time needed to start the corrosion process. It is therefore important to maintain a stable water flow to avoid stagnant zones inside the BPHE. For the same reason as mentioned above, it is worth rinsing and drying the BPHE carefully before a long standby.

A strainer should always be installed in case of high risk of particle presence in the water
The recommended strainer stops particles larger than 0.5 mm.

**Important**

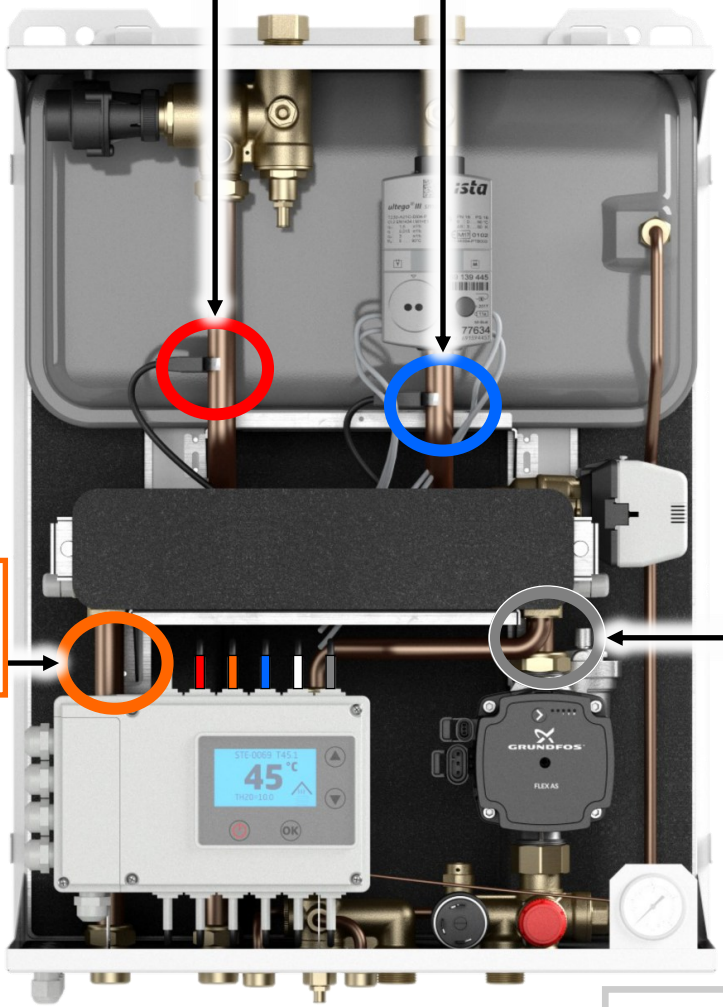
Corrosion is a phenomenon that depends on many possible variables. The above informaton are an indication from Zilmet, not a defined limit on possible corrosion. Zilmet can't take responsability about final application. Zilmet can only assure that its PHE are made with Stainless Steel AISI316 or AISI304 and copper at 99.9%.

## Sensor and cable Positions

RED = Primary FLOW

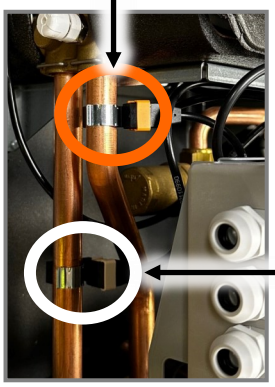
BLUE = Primary RETURN

Check the temperature sensors are clipped securely to the pipes for accurate control.
All the sensors are colour coded for ease of identification.



ORANGE = Hot Water OUT

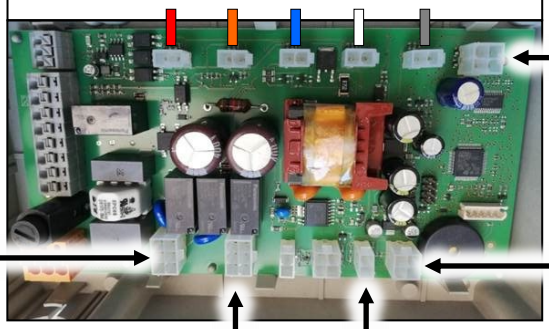




WHITE = Heating FLOW (Behind the Controller)

GREY = Heating RETURN (Above the pump)

View of internal PCB, showing where sensor cables are connected.



PICV Actuator

Circulation Pump

Flow Meter Switch

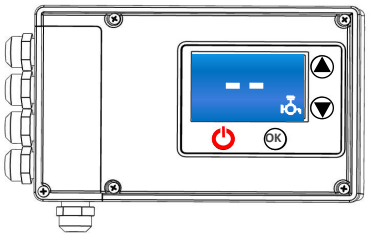
Honeywell Diverter

Pressure Switch

## *Symbols used on the controller screen.*

| | |
|---|---|
| | Hot water |
| | Heating - radiators |
| | Underfloor heating |

| | |
|---|---|
| | Optimised function |
| | Keep warm mode on |
| | Prepayment out of credit |

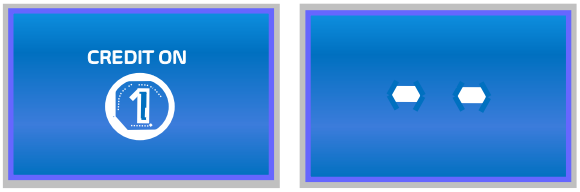


## Programming the HIU Controller

Any changes to the factory settings should be carried out during commissioning.
Details of programming parameters are to be found in the **'Controller Programming Guide'.**

## Prepayment

The HIU can be configured for pre-payment billing, (sometimes called Pay as You Go - PAYG).




Screen shows 'in credit' and is 'in standby'.




Screen shows 'out of credit'.
Hot water function is not available.

All hot water and heating services are pre-paid to the billing company managing this property.
The tenant or home owner pays for heat as used to make hot water and heating and measured by the heat meter in the HIU. Here the screen alternates. Approximately every 8 seconds between the CREDIT ON display, and the standby screen, hot water and heating are available on demand.

Should the tenant or home owner fall out of credit, then the billing system will at some stage (according to policy) send a signal to the HIU to shut down.
The screen shows CREDIT OFF.
Heating and hot water will not be available until the payment is made to the billing company at which point a signal will be sent to the HIU, allowing it to resume hot water and heating on demand.

For the user to view only the settings the HIU must be in standby mode, and not in heating or hot water modes.

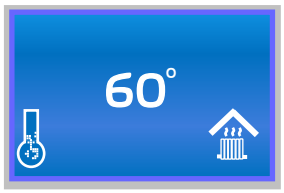
**HOLD THE OK BUTTON DOWN FOR OVER 3 SECONDS.**

First on the screen will be the DHW set

1. 

Hot Water
Factory set = 55°C.

The set temperature is flashing, change

2. 

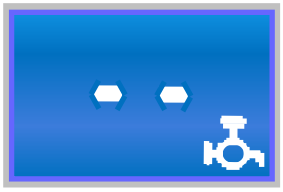
Heating type set by the installer. Factory set = 60°C. Screen shows the programmed Heating

3. 

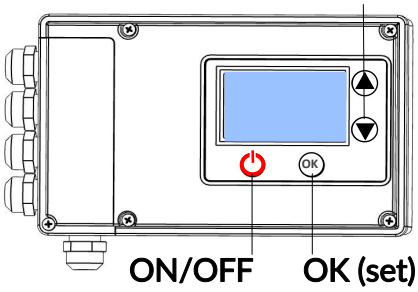
Screen shows Date, (flashing) press OK to
confirm. UP/DOWN to reset day/month/

4. 

Screen shows time, (flashing) press OK to
confirm. Or change

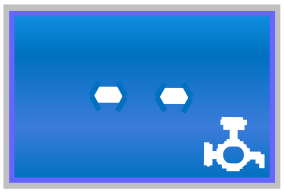
5. 
After confirming the time, the unit will then return to standby mode.

**UP** and **DOWN** arrow buttons

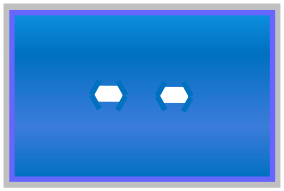



## Operation.

**UP and DOWN** buttons - use to increase or decrease a value or number.
**OK** button - to confirm and set a value or number.
**ON/OFF** button will turn off the HIU.
The unit will not be in standby mode.
Heating, hot water, keep warm and frost protection
functions are OFF.


HIU controller screen display
shows the HIU is ready for operation and in standby


The screen also shows the symbol for Keep Warm function ON.


HIU controller screen display
shows the HIU is ready for operation and in standby mode.

With Keep Warm function OFF.

Re-programming shall only

| Param | Description | Fact Set |
|---|---|---|
| 03 | Start temperature Slab drying (slow warm up function). | 25°C |
| 08 | Factory set temperature for Under Floor Heating UFH). | 30°C |
| 09 | Factory set temperature for Radiators heating. | 60°C |
| 10 | Select heating type. | FLOOR HEATING |
| 11 | Set minimum temperature for Under Floor Heating (UFH). | 20°C |
| 12 | Set maximum temperature for Under Floor Heating (UFH). | 40°C |
| 13 | Set minimum temperature for Radiator Heating. | 40°C |
| 14 | Set maximum temperature for Radiator Heating. | 65°C |
| 15 | Optimised heating function switch ON (YES) or OFF (NO). | NO |
| 16 | Set ΔT optimized function for UFH (ΔT opt. UFH) - As set in param 10. | 5°C |
| 17 | Set ΔT optimized function for radiators (ΔT opt. RAD) as set in param 10. | 10°C |
| 18 | Set the time period for measuring the ΔT in optimized function. | 25°C |
| 19 | Limiting the primary flow for Heating (max travel of the stepper motor in heating mode) value 99% valve fully closed. | 70% |
| 20 | Set max. primary return temperature limit. | 60°C |
| 21 | Select pump protection. | NO |
| 22 | Set time for pump activation (after a full 24 hours, the time the pump will run for to prevent it 'seizing' due to long periods of inactivity). | 2 Minutes |
| 23 | Set frost protection (temp. measured by heating return sensor). | 3°C |
| 24 | Set PWM function (00 = OFF) 01 to 99 allows pump modulation. The selected value affects the pump speed variation in setpoint reached during optimised heating mode through PWM function.<br>The PWM cable is available as an accessory. | 00 |
| 25 | Manual overrides room thermostat. Heating is 'on'. | NO |
| 26 | Select type of contact room stat connection switching.<br>(NO = Normally Open / NC = Normally Closed). | NO |
| 28 | Manually operation of the pump only.<br>00 = AUTO / 01 = ON / 02 = OFF. | 00 |
| 29 | Manual operation of optional relay switching.<br>Connection 9 in the wiring compartment.<br>(00 = Automatic / 01 = Manual turn on Relay / 02 = Manual turn OFF relay). | 00 |
| 50 | Set temp DHW. | 55°C |
| 51 | Set DHW temperature in the hot water cylinder/buffer when parameter 53 is set YES . This now over-rides parameter 50. | 60°C |
| 52 | Set ΔT for loading the cylinder/buffer when parameter 53 is ON (YES). | 5°C |

| Param | Description | Fact Set |
|---|---|---|
| 53 | **OPTION for connecting to the DHW a storage cylinder/buffer**. (NO = No cylinder/YES = Cylinder).<br>This automatically activates parameter 51 and 52, and sets parameter 54 to 01. **An additional temperature sensor is required at position 10 in the controller wiring compartment.** A relay must be added to wiring **connection 9** in the wiring compartment as this relay is only VOLT FREE switching. Keep Warm parameter 56 automatically switches OFF, and parameter 61 is now automatically set ON. | NO |
| 54 | **Optional - connection of relay switching at connection 10.**<br>Off = 00. / Switching a loading pump or heating element = 01. (via a VOLT FREE relay accessory)<br>Switching remote fault or error indicator = 02 (via a VOLT FREE relay). | 01 |
| 56 | Select keep warm function (YES/NO). | YES |
| 57 | Set delay time for activating the keep warm function after closing the PICV (last operation heating or DHW).<br>Set time in 10 minute values (1=10 minutes). | 1 |
| 58 | Set maximum primary return temperature during keep warm function. | 40°C |
| 59 | Set minimum primary return temperature during keep warm function. | 37°C |
| 60 | Select which PHE will be used in combination with the keep warm function, or program to single plate HIU operation.<br>00 = PHE for DHW / 02 = Heating ONLY /<br>01 = PHE for Heating / 03 = DHW ONLY | 00 |
| 61 | **Legionella cycle -** Only available when Parameter 53 is on.<br>00 = No / 01 = Yes. | NO |
| 62 | **Legionella cycle** - Time of cycle once the pasteurisation set temperature is reached as sensed by the additional temperature sensor fitted. | 30 Minutes |
| 63 | Time for the Legionella cycle to start after the last demand for DHW Function. | 7 Days |
| 64 | Set the temperature to pasteurise in the legionella cycle. | 65°C |
| 90 | Prepayment - Select Prepayment (PAYG) connection to a billing system. | NO |
| 91 | Manual operation of the PICV actuator stepper motor.<br>00 = Auto / 01 = Fully closed / 02 = Fully open | 00 |
| 92 | DIVERTING VALVE manual operation -<br>00 = Auto / 01 = DHW / 02 = Heating | 00 |
| 93 | Language - Select from English/Italiano/Francais/ Nederland/Deutsch. | English |
| 94 | SLAB - Start the slab drying function. | NO |
| 99 | Reset to Factory Settings.<br>Note: If operating as a single plate HIU - Reset parameter 60. | NO |
| 00 | Diagnostics (display shows operation, temperature, valve opening position in number of steps). | NO |

**Programming HIU Controller.**
Any changes to the factory settings should be carried out during commissioning. Details of programming parameters are to be found in the **Controller Programming Guide.** This document is available on request from your Inta Specification Manager involved with this installation project. Alternately by contacting; Inta website—**https://intatec.co.uk/contact-us/** - Phone—**01889 272 196** for the HIU Team.

## Diagnostics - Fault code definitions.

When a fault occurs the relevant code will be displayed on the controller screen.
Fault codes inform that the controller has diagnosed a fault in one of the HIU's components.

| Code | Cause | Effect | Remedy |
|---|---|---|---|
| F0 | DHW temperature sensor is short circuit or broken circuit, or disconnected. | The HIU will not operate in DHW demand. It will still operate in heating demand mode. | Check that the sensor cable plug connection is good, if OK then check the connection inside the controller. If this doesn't clear the F0 code, then replace the sensor. The F0 will clear and return to normal operation. |
| F1 | Primary flow temperature sensor is short circuit or broken circuit, or disconnected. | The HIU will not operate in DHW or heating demand. Without information of the primary temperature in, the controller can not function. | Check that the sensor cable plug connection is good, if OK then check the connection inside the controller. If this doesn't clear the F1 code, then replace the sensor. The F1 will clear and return to normal operation. |
| F2 | DHW storage tank temperature sensor has a short or broken circuit, or has been disconnected. | The controller deactivates the control of an optional hot water cylinder and all its parameters. | Check that the sensor cable plug connection is good, if OK then check the connection inside the controller. If this doesn't clear the F2 code, then replace the sensor. The F2 will clear and return to normal operation. |
| F3 | Heating flow temperature sensor is short circuit or broken circuit, or disconnected. | The HIU will not operate in Heating mode. It will still operate in hot water demand mode. | Check that the sensor cable plug connection is good, if OK then check the connection inside the controller. If this doesn't clear the F3 code, then replace the sensor. The F3 will clear and return to normal operation. |
| F4 | Primary return temperature sensor is short circuit or broken circuit, or disconnected. | The HIU 'keep warm' function is disabled as this sensor controls the DHW PHE temperature during periods of non-use. Also efficiency is reduced as there is no control of the primary return temperature. DHW and Heating are both still operational. | Check that the sensor cable plug connection is good, if OK then check the connection inside the controller. If this doesn't clear the F4 code, then replace the sensor. The F4 will clear and return to normal operation. |
| F5 | Heating return temperature sensor is short circuit or broken circuit, or disconnected. | The HIU 'heating optimisation' function is disabled as this sensor controls the heating return temperature . DHW and Heating are both still operational. | Check that the sensor cable plug connection is good, if OK then check the connection inside the controller. If this doesn't clear the F5 code, then replace the sensor. The F5 will clear and return to normal operation. |
| F6 | It is a notification that unexpected fluctuations in the return temperature have been monitored during hot water production. Probable cause is the network supply to the HIU. | The F6 code is a notification that this is unusual. F6 will reset back to normal operation after 60 seconds. | Check the network supply temperature and flow and remedy. If F6 persists, then make a factory reset on the controller (parameter 00). This will recalibrate the PICV actuator. Check DHW sensor is in the correct position. Check with a manual operation of the PICV. Set this on parameter 91. If not working, replace the PICV actuator as a last resort. |
| F7 | Either the pressure in the heating system is too low or the pressure switch is faulty. | The HIU will not operate in heating mode. It will still operate in hot water mode. | Check the system pressure on the gauge on the HIU. The pressure switch will cut out at 0.15 bar. Refill system to 1.2 bar. Resets normal operation after 30 seconds. If low pressure is not the issue, replace the pressure switch. |
| F8 | The controller is recognising from the feedback from the electrical connection that the rotation of the pump is not what it is expected to be. | Depending on the issue, it's most likely that heating will not be available. | Check wiring connections to the pump. Check pump for red LED lights signifying a fault. Check PWM is not set as ON in parameter 24. Setting must be 00 as factory set. Only consider replacing the pump head once all else has been checked Check water quality which is usually the cause of a premature pump failure |

**Diagnostics - 'E' code definitions.**
When an 'E' code is seen, the controller is warning of unsuitable operating conditions that may be causing the HIU to operate inefficiently or not at all. Also could be potential operating conditions that could become a safety issue, if left in that state.



**If an 'E' numbered code is seen on the screen, this is NOT a HIU fault, it is an operational message.**
**'E' = Environmental.**

| Code | Cause | Effect | Remedy |
|---|---|---|---|
| E1 | The measured primary temperature is lower than the set point temperature for heating or hot water, so the HIU will not be able to achieve the set temperature. This is after approximately 60 seconds of flow. | E1 does not stop operation, it is recording that the supply is not up to temperature yet. It will clear automatically after 10 minutes when normal supply to the HIU is resumed from the network. E1 does limit the control valve travel as a precaution for this period. | Check the set point in the controller, adjust if the set point is set higher than the design supply temperature. Check Primary flow. Check that the primary temperature sensor is correctly connected to the primary pipe. When the primary temperature and set point are aligned, the code E1 automatically disappears. |
| E2 | In installations where Radiators are at very high temperatures, then this is a warning that the return temperature is higher than the maximum allowed in parameter 20. | As this is a safety function, the PICV closes until the sensor on the primary return sees a temperature drop of 10°C below the parameter 20 set point for maximum.<br><br>In some instances, the Keep Warm function may spike the temperatures. | Check parameter 20 is set correctly, if too low, reset this at 70 -75°C. Check parameters 58 and 59 for keep warm function temperatures set correctly. Check the temperature sensor is positioned correctly. Reset (turn power off and on) to recalibrate the PICV actuator. When on DHW demand, possible cause external by-pass open and this causes the return pipe to super heat up to with primary temperature when demand is turned off. This strongly indicates an issue on the district and open bypasses. Check district valves. |
| E3 | The controller is recognising and warning that the HIU performance is not as the algorithm predicts. The energy transfer is poor, and the HIU is not delivering heat as it should be. | Heat transfer is inefficient, hot water production reduced and temperature control unstable. | If signs of blockage it could be the strainer is blocked or the PHE is partially blocked with limescale. Check the PICV is fully open and check flow on the heat meter. Low flow value would prove that a blockage of some sort is the issue. |
| E4 | No hot water. | The controller has detected that the hot water temperature control behaviour is consistent with the sensor being in the wrong position, and shut down hot water production as a safety precaution. The HIU will automatically rest after 10 minutes. | Check DHW temperature sensor position is in the correct position as seen in this manual. If not, re-position the sensor into its correct position. Then system reset, turn off the power at the supply, and then turn on again to allow the PICV actuator to re-calibrate its position. Check Honeywell diverter and the cartridge, possible poor water quality. Check for corrosion. Check diverter arm is moving over to the correct positions. Check incoming water pressure does not exceed 2.5 bar. |

Notes:

**Diagnostics - 'E' code definitions.**
When an 'E' code is seen, the controller is warning of unsuitable operating conditions that may be causing the HIU to operate inefficiently or not at all. Also could be potential operating conditions that could become a safety issue, if left in that state.

**If an 'E' numbered code is seen on the screen, this is NOT a HIU fault, it is an operational message.**
**'E' = Environmental.**

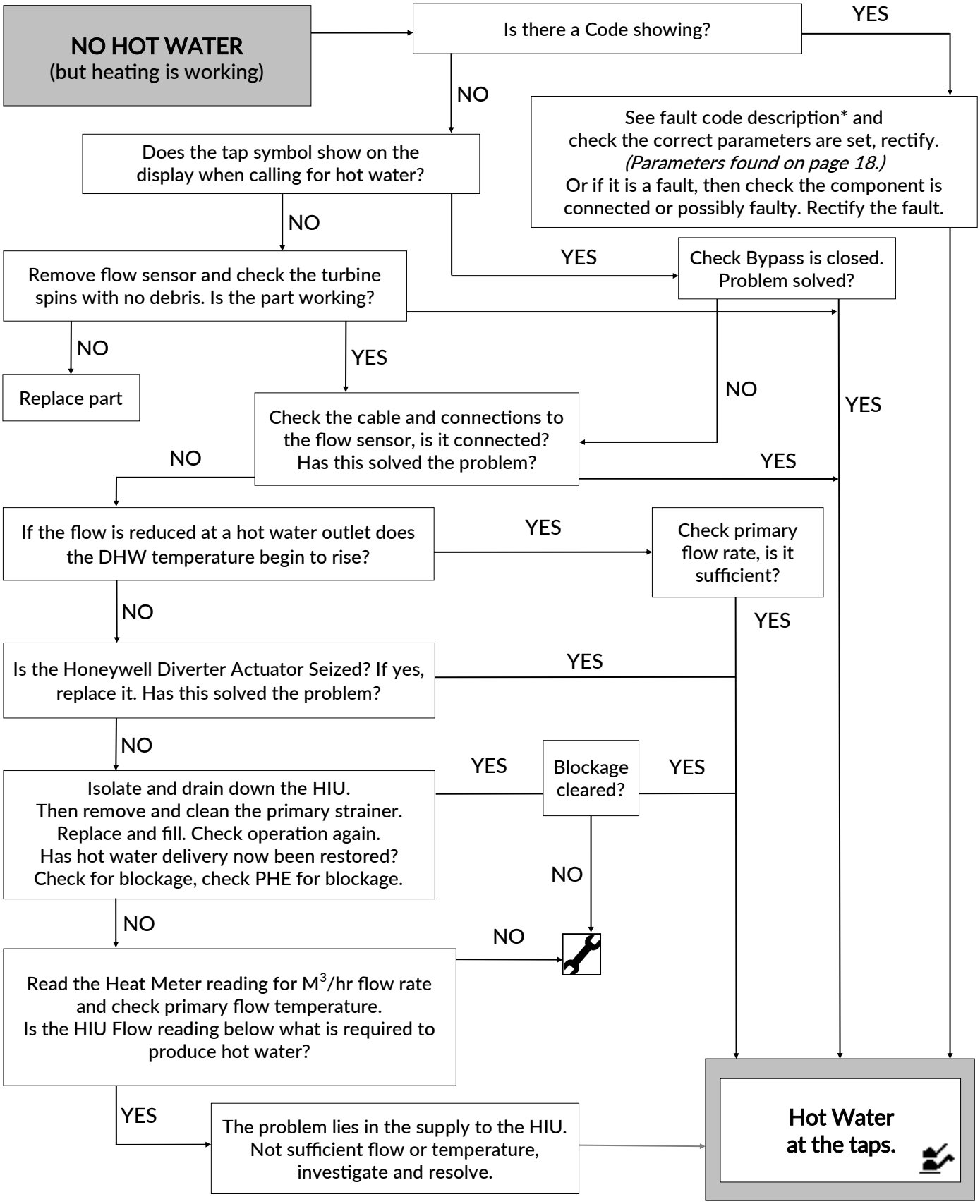
| Code | Cause | Effect | Remedy |
|---|---|---|---|
| E5 | Heating is not reaching the set point so is performing poorly or not at all. | Heating stops after 20 minutes and shows the E5 code.<br>Resets after 30 seconds<br>Or Error LEDs on the pump?<br>Power OFF and ON at the mains switch, this allows the PICV to recalibrate, and in doing this will allow a small flow into the PHE, which then proves the PICV and Diverter are not at fault. | Check the following possibilities.<br>- Primary temperature is too low.<br>- Is the set temperature on the controller higher than the incoming primary (network) temperature and temperature is impossible to reach? Reset the temperature so it is 10°C lower than the primary.<br>- PICV blocked/strainer blocked?<br>- Diverter in the wrong position?<br>- Check primary flow rate.<br>On new installations check the DHW for signs of air in the pipework, possible PHE kettling.<br>- Check pump LEDs and ensure pump is running. |
| E6 | Temperature information from the heating temperature sensors is wrong or unusual. | Return temperature is too high with no apparent control being seen. | This code is showing that either;<br>1.The heating temperature sensors have been wrongly positioned with the flow on the return and the return on the flow, change them to their correct position. 2.The installer has not connected the primary connections correctly, with the flow connected to the return connection. Check temperatures. |
| E7 | The heating return temperature is too high and the HIU is warning the operator. | Various causes may be considered, example all TRVs may be closed with only 1 x small radiator open, but the room thermostat is still calling for heat. The return temperature is much too high, so the HIU ceases. The effect is that the controller shuts down the pump before re-starting again after 10 minutes. | The E7 will automatically reset itself after 10 minutes. Attention should be paid to the set up of the heating radiators and controls.<br>Is the room thermostat positioned correctly to turn off before all the TRVs shut down?<br>Is the radiator circuit balanced correctly at the radiator valves? E7 may occur under certain test conditions where unnatural operating conditions are forced. |
| E8 | The PICV actuator cable has been disconnected from the controller or<br>No DHW available, so to avoid scalding risk due to very high DHW temperature. The E8 code appears on the screen. Both Heating and DHW are no longer available. | To avoid scalding risk, when the HIU detects a DHW or Heating flow temperature 10°C above setpoint for more than the programmed time interval (90 seconds factory set, adjustable up to 210 seconds) the HIU will shut down and show an E8 code. The diverter will move into the Heating position and Pump will switch off. | Allow the unit to cool down first. Check PICV actuator connection, and that the valve stem pin is not jammed (free if possible).<br>Power OFF then ON again, check for movement in the actuator stem. Replace the actuator if failed, or replace the valve cartridge if found to be seized.<br>This code will not automatically reset. When the issue has been identified and resolved. press and hold the on/ off button whilst the E8 code is on the display until the standby mode (two dashes) are seen on the display. E8 should then be fully reset. If the E8 code is displayed again repeat the E8 fault diagnosis process. |

Notes:

## Performance issues where no fault code is displayed.

| Ref | Reported Issues | Trouble Shooting Checklist |
|---|---|---|
| 1 | The water from the hot taps is cold. | • Is there power to the HIU?<br>• Is the unit going into hot water mode?<br>• Possible blockages – if there is heat coming into the HIU from the communal heating system, follow the path through the Strainer, PICV, Diverter?<br>• Plate Heat Exchanger blockage, possibly scale. If suspected take the necessary steps to remove and clean.<br>• No flow or insufficient flow through the flow sensor or flow sensor not working?<br><br>Once blockages are cleared, then reconnect the unit, and follow the commissioning instructions. |
| 2 | There is no water at the hot taps. | • Is there water at the cold taps? If not, check the mains stop tap. If it is found to be closed, open it and check the fault is resolved. Check piping.<br>• Are the HIU isolation valves open or closed? If open, check for blockages on the cold water supply pipe. Check all filters and clean if blocked. |
| 3 | Insufficient hot water at the taps, but no error codes on the HIU Controller screen.<br><br>Is it a flow or temperature problem?<br><br>Is the primary flow sufficient?<br>Low primary flow causes poor or no DHW performance. | If all checks prove the HIU is working correctly,<br>• Is there a bypass fitted on the primary before the HIU, and has it been left open? Close the valve, the HIU will now work as designed.<br>• Is the TMV set at the correct temperature? Has it been tampered with or reset in error? Calibrate TMV correctly.<br>• Is there enough FLOW at the HIU? If the supply pumps have not been designed to the required flow of the HIU, then DHWS will not be sufficient.<br>• Similar for pipework, if not sized correctly, the HIU will not be able to deliver to its designed output. |
| 4 | • No Room Heating.<br>• Radiators are cold.<br>• Under Floor Heating is installed floor is cold.<br>• No room heating or hot water. | • Check the ambient temperature. Is the reason that the room thermostat setting is too low to switch on the heating?<br>• System low pressure. Has the safety valve discharged? Check system pressure and top up if necessary.<br>• Check for air blockage in the radiators/UFH.<br>• Check the Circulating Pump (see LED lights on the pump which can warn of a problem or a fault). Is the pump fully operational?<br>• Is the controller set up correctly? See Installer settings.<br>• Is the Room thermostat wired correctly? Is it working?<br>• Check that the communal heating is supplying heat to the unit.<br>• Check that the isolation valves to the unit are open.<br>• Is the Bypass Valve open on the valve above the HIU? |
| 5 | The control mode seems to be frozen in either Heating or Hot water modes, and will not change, regardless of demand or no demand. | A PCB in the Controller is damaged. Look for the cause first before replacing. Caution. Has a 230v supply been connected in error to a zero volt connection, either the T1 / T2 connection for the room stat or on the connection position for pre-payment connection?<br>This should be checked by a qualified electrician before attempting any repair. |

*Have the **'Controller Programming Guide'** at hand.




= Contact Inta technical department.

*Have the **'Controller Programming Guide'** at hand.

**NO HEATING**

Is there a Code showing?

YES

No fault code displayed.

See fault code description and check if the programming is correct* If prepayment used, is it in credit? If a fault code is showing* rectify the fault according to the code description.

Is the room thermostat is calling for heat.

NO

Set room thermostat and turn heating on.

YES

Symbol for heating appears and pump on.

YES

NO

Does the heating symbol show on the display when the room thermostat is calling for heating?

YES

NO

Is the primary FLOW rate and temperature sufficient?

YES

NO

Check the room thermostat wiring to the controller is as per page 12.

Rectify.
Problem is not the HIU.

Pump - are LED's flashing red?

YES

Replace pump.

Danger - 230v.

NO

Check room thermostat wiring.
N/open or N/closed switching?
See installer parameter 26*.
Check room thermostat by override on parameter 25* (manual heating).
Replace room thermostat if found faulty.

Vent the system of air.

If 230v has been applied to the room thermostat connections then the controller may be damaged beyond repair and will have to be replaced.
This is not covered under warranty.

**Heating On**

*See **'Installer Controller Parameter Settings Guide'.**

= Contact Inta technical department.

* Have the **'Controller Programming Guide'** at hand.

**NO POWER**

Is there power to the fused spur connecting to the HIU?

NO

Check power supply and Fuse feeding to the HIU. Fused spur requires a 3A Fuse all correct?

YES

Turn off the potential power supply using the isolation switch fused spur. Check Fuse and wiring within the HIU. "T" 1.6A Fuse.

YES

Check power is on the HIU electronic controller. Remove the installer panel and check live and neutral connections. Are they connected?

NO

Check that the VOLT FREE connections for room thermostat or Prepayment have NOT been wired to 230v.

YES

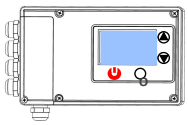
If 230v has been applied to the room thermostat connections then the controller maybe damaged beyond repair and will have to be replaced. Warranty will not cover this.

YES

Power is at the connections to the controller, but the controller screen is blank.

YES

Order a HIU new controller and replace.



NO

Make good the electrical connections to the HIU controller.

YES




**Power on, HIU operating normally.**

**Comply with all safety provisions.**

Installation and maintenance can only be carried out by a qualified and competent plumbing installer and a qualified and competent electrical installer in accordance with the current document Building Regulations, Legislation and Standards.

**SAFETY.** – Before any electrical work or maintenance ensure that the electrical supply is isolated.

**DANGER.**– Immediate risk of physical injury or even death.

**DANGER.** – Immediate risk of serious damage.

= Contact Inta technical department.

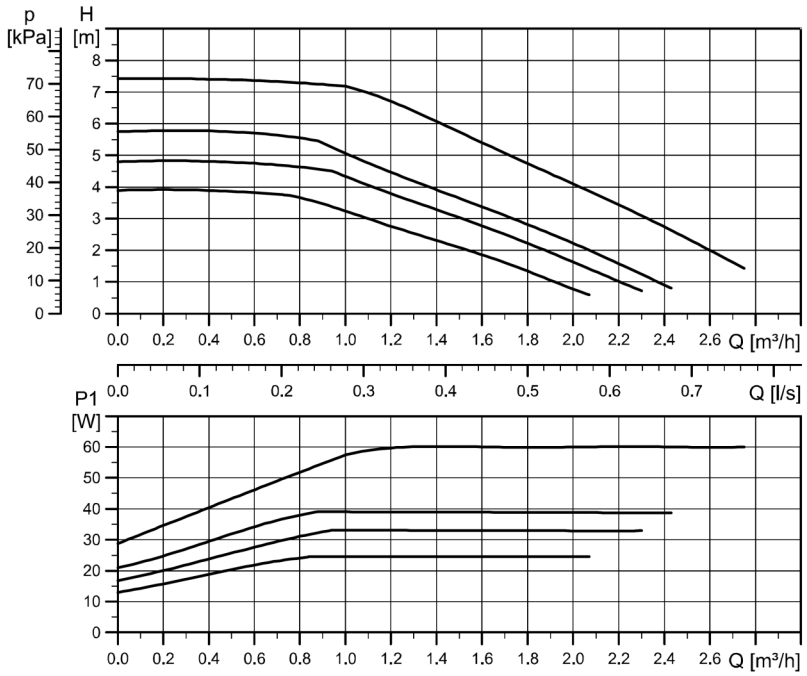
## Pump operating and Fault LEDs

| ALARM STATUS | FAULT |
|---|---|
| ● ○ ○ ○ ● | BLOCKED |
| ● ○ ○ ● ○ | LOW VOLTAGE |
| ● ○ ● ○ ○ | ELECTRICAL ERROR |

| FLASH INDICATION | |
|---|---|
| ✳ | 1 FLASH PER SECOND |
| ✳ | 8 FLASHES PER SECOND |

| | OPERATING PANEL | CONTROL MODE | |
|---|---|---|---|
| 0 | ✳ ○ ● ○ ○ | PWM PROFILE A 1 - SIGNAL OFF | |
| | ✳ ○ ● ○ ○ | PWM PROFILE A 1 - PWM SIGNAL ON | |
| 1 | ✳ ○ ● ● ○ | PWM PROFILE A 2 - SIGNAL OFF | |
| | ✳ ○ ● ● ○ | PWM PROFILE A 2 - PWM SIGNAL ON | |
| 2 | ✳ ○ ● ● ● | PWM PROFILE A 3 - SIGNAL OFF | |
| | ✳ ○ ● ● ● | PWM PROFILE A 3 - PWM SIGNAL ON | |

## UPM3(K) FLEX AS 15-75 CIAO2 (GFNJB)



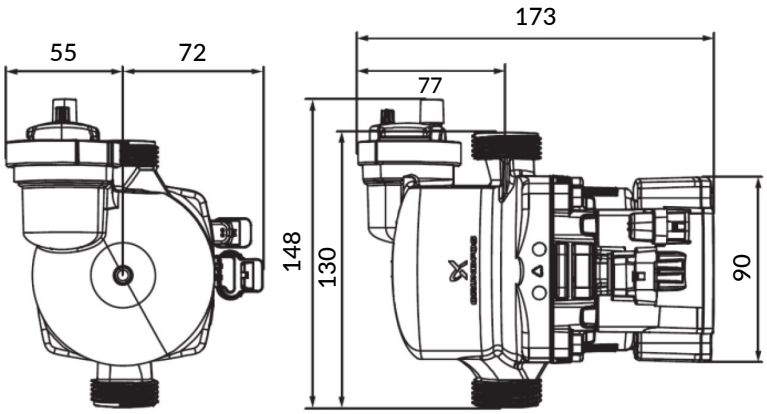

**High efficiency**

| Setting | Max. head $_{nom}$ |
|---|---|
| Curve 1 | 4 m |
| Curve 2 | 5 m |
| Curve 3 | 6 m |
| Curve 4 | 7.5 m |

| Setting | Max. $P_{1\ nom}$ |
|---|---|
| Curve 1 | 25 W |
| Curve 2 | 33 W |
| Curve 3 | 39 W |
| Curve 4 | 760 W |

**EEI ≤ 0.20 Part 3**
**$P_{Lavg}$ ≤ 28 W**

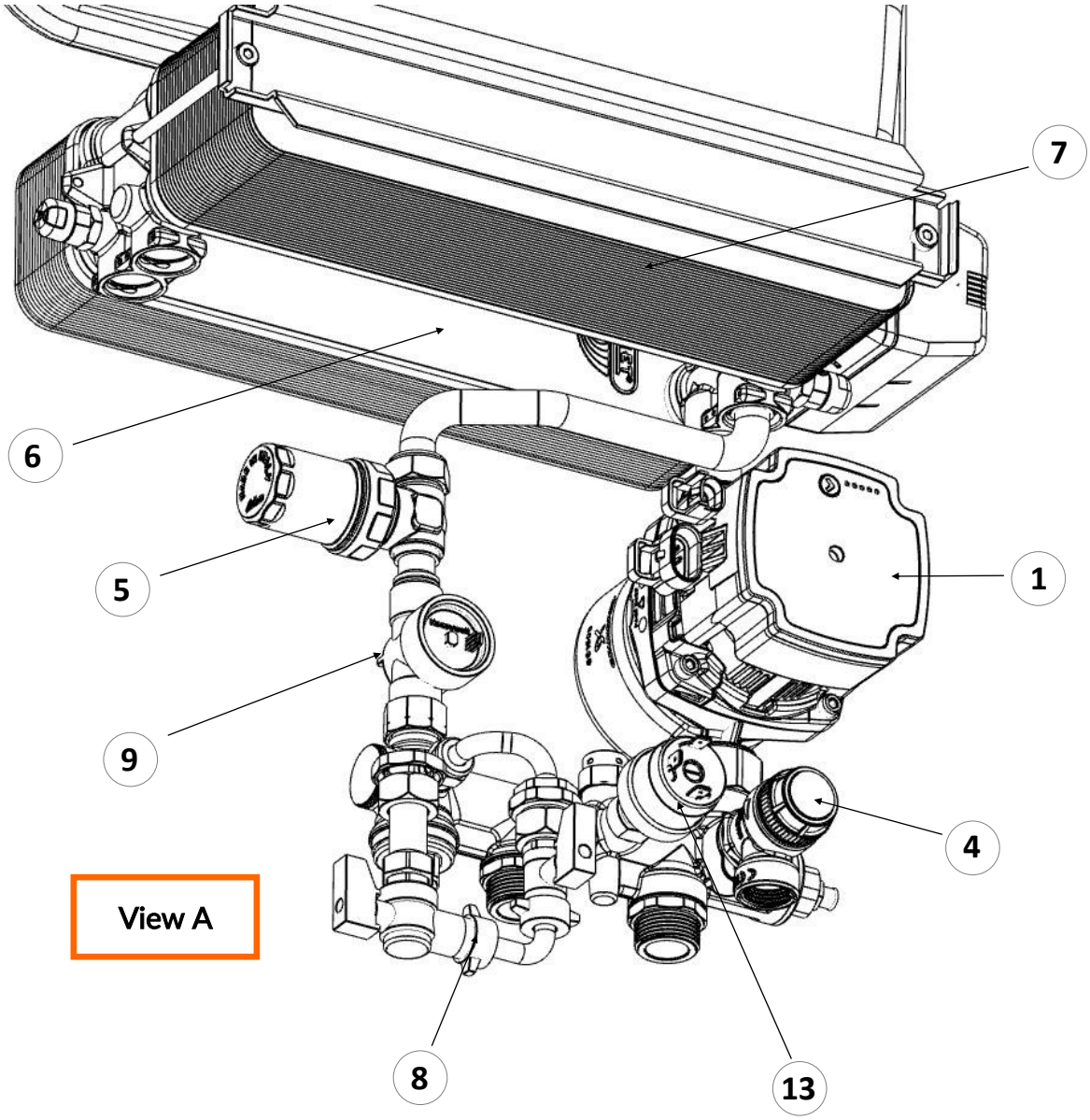
### Performance Curve




*UPM3(K) FLEX AS 15-75 CIAO2*
*Dimensions [mm]*

| General | |
|---|---|
| Part code without heat meter fitted. | HIPER2TPSZ80 |
| Part code with fitted Ista heat meter. | HIPER2TPSZ80IS |
| Control method. | Electronic PID controller with fast acting stepper / PICV |
| Plate Heat Exchangers. | Stainless steel—Insulated WRAS approved |
| Expansion Vessel. | 8ltr |
| Casing. | Fully insulated steel backplate and cover |
| Dimensions. (HxWxD) | 585mm x 465mm x 265mm |
| Heat meter options. | Ista Ultego Heat Meter QP1.5 with Mbus<br>* Any heat meter with 110mm spacer can be supplied upon request |
| Filters 1) Primary 2) Heating 3) CW inlet. | 800 Micron |
| WRAS approved shock arrester. | Inta - Mechanical spring loaded |
| Internal pipework. | Copper |

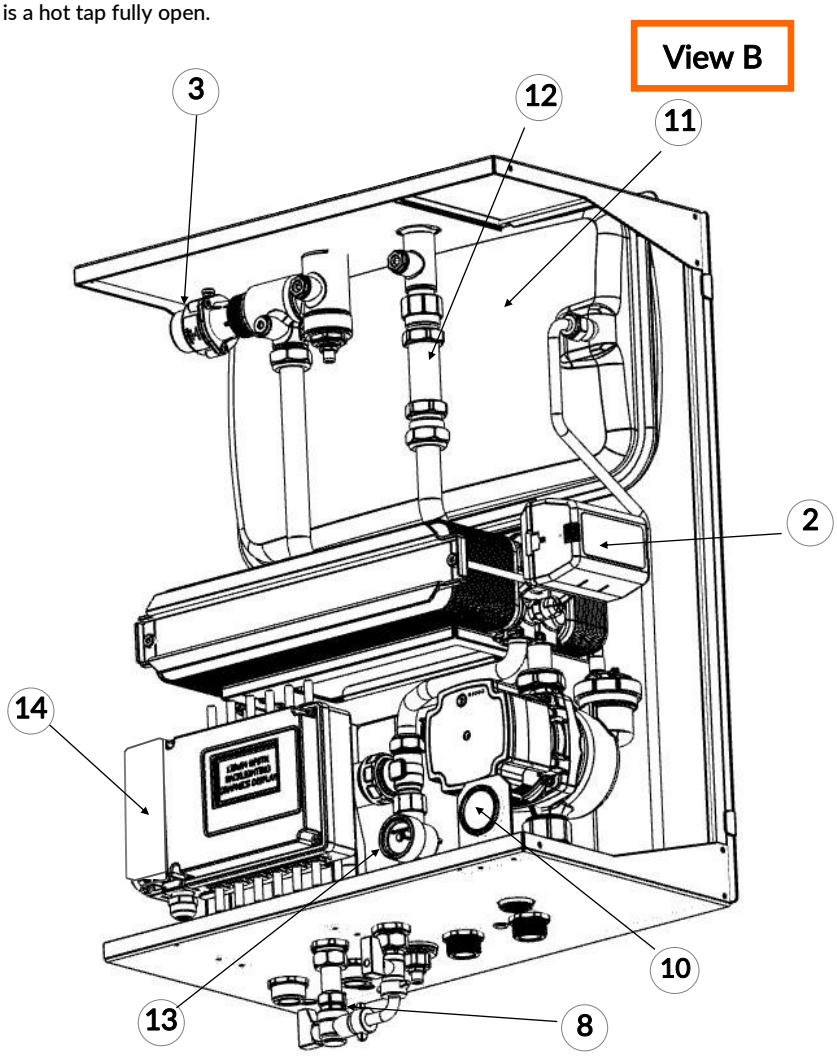
| Technical | |
|---|---|
| DH maximum pressure. | 16 bar |
| DH maximum temperature. | 85°C |
| DH maximum pressure differential. | 4 bar |
| HTG maximum working pressure. | 2.5 bar |
| HTG safety valve setting. | 3 bar |
| HTG maximum temperature. | 75°C |
| HTG - Radiators temperature adjustment. | 30°C to 75°C |
| UFH - Underfloor heating temperature adjustment. | 20°C to 50°C |
| HTG maximum output (85°C at 1330ltrs/hr). | 29kW |
| HTG minimum output. | 1kW |
| Heating pump nominal head capacity. | 70 kPa |
| DHW temperature adjustment. | 45°C to 65°C |
| DHW maximum output at 1300ltrs/hr with 80°C DH and ΔT 40°C. | Max 80kW |
| DHW minimum output at 400ltrs/hr with 55°C DH and ΔT 40°C. | Min 15 kW |
| DHW maximum flow at 1300ltrs/hr with 80°C DH and ΔT 40°C. | 28.5ltrs/min |
| DHW maximum flow at 1300ltrs/hr with 55°C DH and ΔT 40°C. | 5.8ltrs/min |
| DHW side maximum pressure . | 10 bar |
| Minimum required inlet pressure for cold water supply. (Recommended no higher than 3 bar) | 1.5 bar |
| Electrical supply. | 1ph 50Hz 230v |
| Average flow measured by BESA for 8 hour period of keep warm. | 4.5ltrs / hr |
| HIU installation weight, no cover. | 25.4kg |
| HIU weight - Gross, including packaging. | 32.5kg |




| View | Ref | Front line spares description | Part Code | Qty |
|---|---|---|---|---|
| A | 1 | Grundfos UPM3 Pump - Head and Block inc. automatic air vent | HI29337005 | 1 |
| A | 4 | Heating Group (Full diagram in View C) | HI29332003 | 1 |
| A | 5 | Shock arrester (mechanical assembly, prevents water hammer) | HI29325003 | 1 |
| A | 6 | Heating Plate Heat Exchanger x 18 | HI28559005 | 1 |
| A | 7 | DHWS Plate Heat Exchanger x 42 | HI29342005 | 1 |
| A&B | 8 | Filling group | HI29353003 | 1 |
| A | 9 | Flow meter switch | HI29338005 | 1 |
| A | 13 | Pressure switch 0.7bar | HI29308005 | 1 |

*Serial number for HIU must be supplied when ordering spares.*

Replacing Frese PICV Stepper ACTUATOR **(3).**
Always ensure the valve pin is FULLY RETRACTED as for example when there is a hot tap fully open.

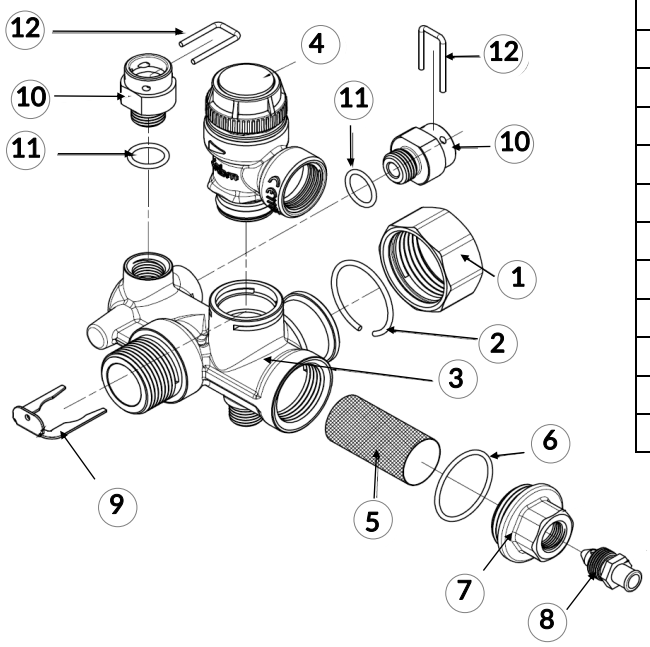



| View | Ref | Front line spares description | Part Code | Qty |
|---|---|---|---|---|
| B | 2 | Honeywell VC series diverter actuator | HI29314005 | 1 |
| B | 3 | Frese PICV Stepper actuator and Cable | HI29330005 | 1 |
| A&B | 8 | Filling group | HI29353003 | 1 |
| B | 10 | Pressure gauge | HI29339005 | 1 |
| B | 11 | Zilmet Expansion Vessel | HI29340005 | 1 |
| B | 12 | Pipe spacer for Heat Meter position (110mm) | HI24933015 | 1 |
| | | **Controller and Cables Spares** | **Part Code** | **Qty** |
| B | 14 | HIU PID Controller | PFAP-1380A00 | 1 |
| * | * | HIU PID Controller printed circuit board with casing base | PFAP-1462-00 | 1 |
| * | * | HIU PID Controller front cover with touch screen | PFFG0652-00 | 1 |
| * | * | HIU Controller cable gland | CMPD-4066-00 | 1 |
| * | * | Pump power cable | HI29532025 | 1 |
| * | * | Pump PWM cable | HI29532035 | 1 |
| * | * | Power supply cable | HI29532125 | 1 |

* Not shown in the views

**Serial number for HIU must be supplied when ordering spares.**

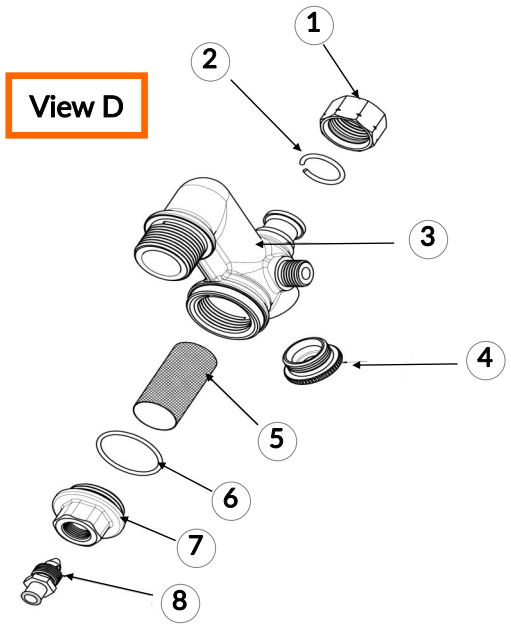
View C




| View | Ref | Heating Group | Part Code | Qty |
|---|---|---|---|---|
| C | | **Heating Group - Assembled** | **HI29332003** | **1** |
| C | 1 | 1" Nut | | * |
| C | 2 | Elastic ring Ø28, 2 x 2 | | * |
| C | 3 | Heating manifold body | | * |
| C | **4** | **3 Bar fast connection safety relief valve** | **HI23520040** | **1** |
| C | **5** | **L=60 Strainer 800 Micron ***** | **HI29321005** | **1** |
| C | 6 | O-Ring Ø26, 70 x 1, 78 | | *** |
| C | 7 | 3/4" Strainer cap | | *** |
| C | 8 | M12 x 1 Drain valve | | *** |
| C | 9 | Ø18 Fork clip | | ** |
| C | 10 | 1/4" Fast connection adapter | | * |
| C | 11 | O-Ring Ø10, 82 x 1, 78 | | * |
| C | 12 | Adapter clip | **HI09324005** | ** |

*Part of fully assembled group of components HI29332003
**Included with **Service Kit HI238940000**
***Purchase as **Service KIT2**

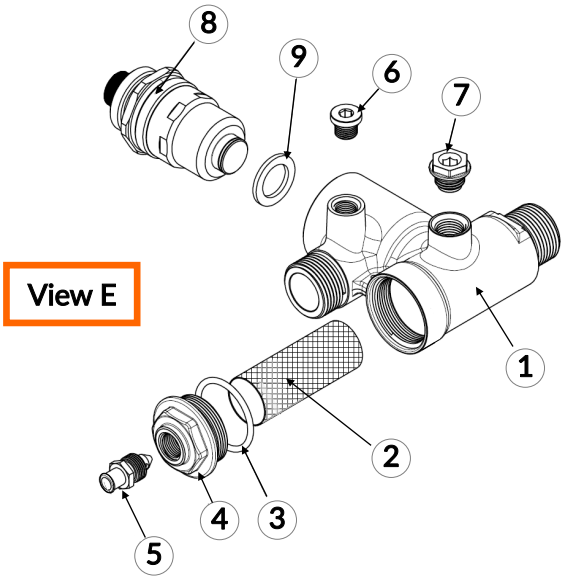
View D




| View | Ref | Cold Inlet Group | Part Code | Qty |
|---|---|---|---|---|
| D | | **Cold Inlet Group - Assembled** | **HI29297003** | **1** |
| D | 1 | 1/2" Nut | | * |
| D | 2 | Elastic ring Ø16, 6 x 2 | | * |
| D | 3 | Sanitary manifold body | | * |
| D | 4 | Side cap group | | * |
| D | 5 | L=41 Strainer 800 Micron*** | | *** |
| D | 6 | O-Ring Ø26, 70 x 1, 78 | | *** |
| D | 7 | 3/4" Strainer cap | | *** |
| D | 8 | M12 x 1 Drain valve | | *** |

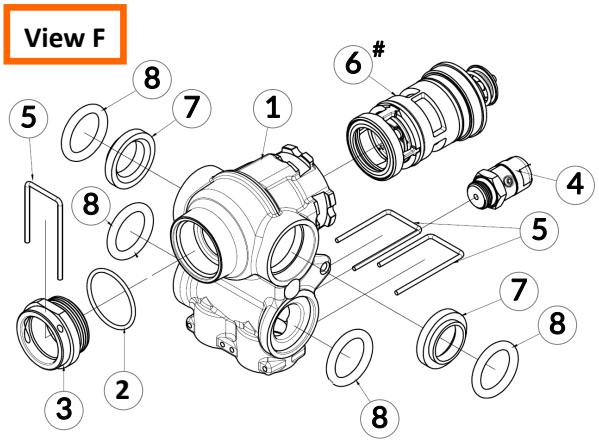
*Part of fully assembled group of components **HI29297003**
***Purchase as **Service KIT2**

**Serial number for HIU must be supplied when ordering spares.**




| View | Ref | PICV and Primary Strainer Group | Part Code | Qty |
|---|---|---|---|---|
| E | | **PICV and Primary Strainer Group - Assembled** | **HI29320003** | **1** |
| E | 1 | PICV and strainer manifold - Body only | | * |
| E | **2** | **L=41 Strainer mesh 800 Micron*** ** | **HI29321005** | **1** |
| E | 3 | O-Ring Ø29, 82 x 2, 62 | | *** |
| E | 4 | 1" Strainer cap | | *** |
| E | 5 | M12 x 1 Drain valve | | *** |
| E | 6 | M10 Heat meter temperature probe plug | | * |
| E | 7 | 1/4" test/flush port plug | | * |
| E | **8** | **Frese compact OEM cartridge** | **HI29329005** | **1** |
| E | 9 | PICV Cartridge flat sealing gasket | | * |

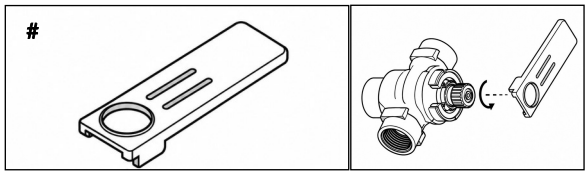
*Part of fully assembled group of components **HI29320003**
***Purchase as **Service KIT3**

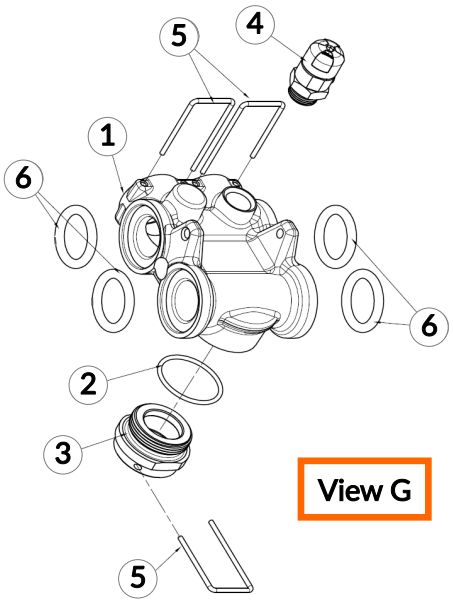



| View | Ref | PHE Block Return Group | Part Code | Qty |
|---|---|---|---|---|
| F | | **PHE Block Primary Return Group - Assembled** | **HI29310003** | **1** |
| F | 1 | PHE Primary return body | | * |
| F | **2** | **O-Ring Ø26, 70 x 1, 78** | **HI205022045** | **1** |
| F | 3 | Pipe fast connector | | * |
| F | 4 | 1/4" manual air vent | | ** |
| F | **5** | **Ø 2 x 21 U Clip** | **HI29363005** | **1** |
| F | **6 (#)** | **Honeywell diverter cartridge M35 x 1, 5** | **HI29313005** | **1** |
| F | 7 | Spacer ring | | ** |
| F | **8** | **O-Ring Ø 20 x 4** | **HI25198045** | ** |

*Part of fully assembled group of components HI29310003
**Included with **Service Kit HI238940000**

| # | Removal tool for Honeywell Diverter Cartridge - Magic Key | RB09787005 | 1 |
|---|---|---|---|




| View | Ref | PHE Block Flow Group | Part Code | Qty |
|---|---|---|---|---|
| **G** | | **PHE Primary flow group - Assembled** | **HI29318003** | **1** |
| G | **1** | **PHE Primary flow manifold** | **HI29318004** | **1** |
| G | **2** | **O-Ring Ø 25.12 x 1.78** | **HI25088045** | **1** |
| G | 3 | Pipe fast connector | | * |
| G | 4 | 1/4" Manual air vent | | ** |
| G | 5 | Ø2 x 21 U Clip | | ** |
| G | **6** | **O-Ring Ø 20 x 4** | **HI25198045** | ** |

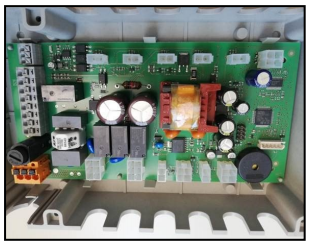
*Part of fully assembled group of components HI29318003
**Included with **Service Kit HI238940000**

**Serial number for HIU must be supplied when ordering spares.**

** Not illustrated

| Various Components Spares | Part Code |
|---|---|
| Flow meter cable | HI29532045 |
| Pressure switch cable | HI29532055 |
| Diverter Actuator Cable | HI29532015 |
| Primary flow temperature sensor cable RED | HI29532065 |
| Primary return temperature sensor cable BLUE | HI29532075 |
| Heating flow temperature sensor cable WHITE | HI29532085 |
| Heating return temperature sensor cable GREY | HI29532095 |
| DHW temperature sensor cable ORANGE | HI29532105 |
| Casing earth wire | HI29532115 |
| Cable gland | HI29287005 |
| NTC Temperature sensor | HI29531005 |
| Fibre washer Ø30 x Ø21 x 2 | HI27176005 |
| Fasit Gasket Ø24 x Ø16 x 2 | HI27175005 |
| Fasit Gasket Ø18,5 x Ø11 x 2 | HI29366005 |
| Fasit Gasket Ø14,6 x Ø9 x 2 | HI29367005 |
| Fasit Gasket Ø11 x Ø6.2 x 2 | HI29368005 |
| PHE fixing bar | HI209343005 |
| Screw DIN 912 M5 x 40 | HI29357005 |
| Screw DIN 912 M5 x 110 | HI29358005 |
| Screw DIN 912 M5 x 16 | HI29359005 |
| O-Ring Ø17, 86 x 2, 62 | HI25017045 |
| Pump Manifold Only Inc. Automatic Air Vent | HI250105163 |

| Various Components Spares | Part Code |
|---|---|
| HIU Insulated Cover | HI29293015 |
| HIU Casing back plate | HI29282005 |
| PHE metal bracket | HI29283005 |
| Pressure switch bracket | HI29284005 |
| Screws for HIU Outer Case | HI2CASESCREWS |
| Insulation for DHW plate heat exchanger | HI29667005 |
| Insulation for Heating plate heat exchanger | HI29668005 |
| Zenner Heat meter bracket | SY0002XX |
| Heat meter bracket handle | RB08383015 |
| Heat meter door | HI2HMDOOR |
| Controller Fuse | HI2420088 |

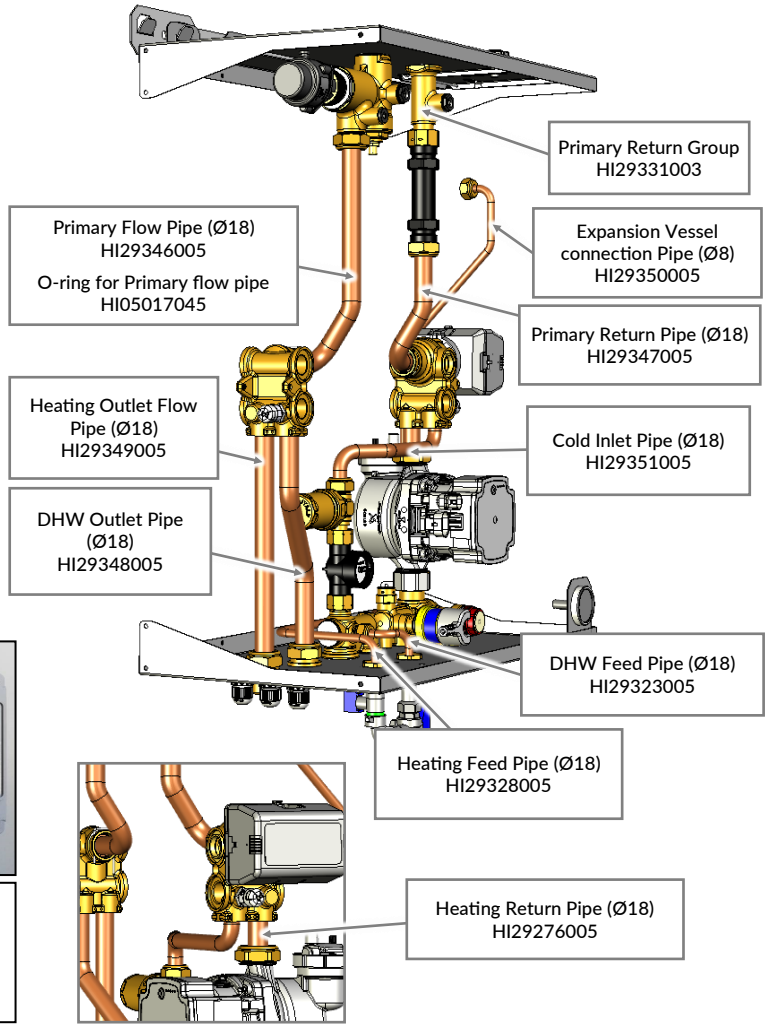


**PFAP-1462-0**
HIUC PID Controller printed circuit board with casing base.



**PFFG0652-00**
HIUC Controller front cover with touch screen.

| Contents of Service Kit 1 HI238940000 Seals, Clips, O-rings and Air Vents. | | |
|---|---|---|
| **Description** | **Part Code** | **Qty** |
| Ø18 Fork clip | HI234400002 | 1 |
| Clip | HI29324005 | 2 |
| 1/4" Manual air vent | HI200180200 | 2 |
| Spacer ring | HI29311004 | 2 |
| PHE O-Ring Ø20 x 4 | HI25198045 | 8 |
| Ø2 x 21 U Clip | HI29363005 | 6 |
| Fibre washer Ø30 x Ø21 x 2 | HI27176005 | 2 |
| Fasit Gasket Ø24 x Ø16 x 2 | HI27175005 | 5 |
| Fasit Gasket Ø18,5 x Ø11 x 2 | HI29366005 | 3 |
| Fasit Gasket Ø14,6 x Ø9 x 2 | HI29367005 | 1 |
| Fasit Gasket Ø11 x Ø6.2 x 2 | HI29368005 | 3 |
| O-Ring Ø17,86 x 2,62 | HI25017045 | 6 |




| Contents of FIXINGS KIT 7801119 Assorted screws | |
|---|---|
| **Description** | **Qty** |
| Screw DIN 912 M5 x 40mm | 6 |
| Screw DIN 912 M5 x 110mm | 6 |
| Screw DIN 912 M5 x 16mm | 6 |
| Self tapping Screw 4.2 x 13 | 20 |

| Contents of Service KIT 2 7801115 Secondary Strainer | |
|---|---|
| **Description** | **Qty** |
| Strainer 800 Micron x 41mm | 1 |
| O-Ring - Strainer - Dia 26mm | 1 |
| 3/4" Cap - Strainer | 1 |
| Drain Valve | 1 |

| Contents of Service KIT 3 7801117 Primary Strainer | |
|---|---|
| **Description** | **Qty** |
| Strainer 800 Micron x 60mm | 1 |
| O-Ring Dia 26mm | 1 |
| 1" Cap - Strainer | 1 |
| Drain Valve | 1 |

**HIU Serial number must be supplied when ordering spares.**

**Extended Product Warranty**

Intatec Limited (company number 04359938) (**we, us, our**) offers any business customer which has purchased directly from us (**Buyer/you**) any of those products which are part of our HIPER HIU range of products described in paragraph 2 of Section A of this extended warranty document (**HIPER HIU**), the benefit of an extended warranty in respect of manufacturing defects, subject to the following conditions and exclusions.

**Section A: Our Warranty**

1. Intatec warrants to the Buyer that the HIPER HIU shall be free from manufacturing defects under normal and proper use (**Warranty**) for a period of 3 years following the Warranty Commencement Date (as defined in paragraph 5 of this Section A) (**Warranty Period**).

2. The Warranty only applies to the following products which are part of our HIPER HIU range:
- Twin Plate HIU;
- Single Plate HIU;
- Cooling Interface Unit;
- HIU with HW Cylinder arrangement but not including the cylinder.

3. Subject always to the warranty exclusions set out in Section B of this extended warranty document, during the Warranty Period we will repair or replace at our discretion, the HIPER HIU or any defective part thereof, which is proven to be a component failure caused by manufacturing defects.

4. The HIPER HIU must be correctly installed and commissioned by a competent and qualified installer and in accordance with the installation manual to which this extended warranty document is enclosed (which includes the requirement for you to issue to us (or procure the issue of), those commissioning documents requested by us from time to time such as the 'Benchmark' commissioning checklist), otherwise the Warranty may not apply. Proof of installation and commissioning in accordance with this paragraph 4 may be required to validate the Warranty.

5. The Warranty must be registered by you (or on your behalf) via the internet at https://www.intatec.co.uk/HIU-product-registration/ or by post to Intatec Limited, Airfield Industrial Estate, Hixon, ST18 0PF. The **'Warranty Commencement Date'** for the purposes of the Warranty, shall being once the HIU has been fully registered as per instructions above. In the event that you fail to register the Warranty in accordance with the paragraph 5, then the Warranty commencement date shall be deemed to the date that we dispatch the HIPER HIU to you.

6. The Warranty only relates to the HIPER HIU and integrated controls and does not extend to any connected system or accessories including without limitation any external pumps, external wiring, filters and valves.

7. The Warranty extends to the owner and the owner has the rights to transfer the warranty without our prior written consent. However, nothing in this paragraph shall prevent the Buyer's customers and/or the end-users of the HIPER HIU from contacting us in accordance with paragraph 1 of Section C.

8. The Warranty is not insurance backed.

**Section B: Warranty Exclusions and Our Liability**

1. The Warranty shall not apply and we shall not be liable where:
a) any alterations or adjustments have been made to the HIPER HIU (including without limitation alterations or amendments to its design and/or construction);
b) further use is made of the HIPER HIU after we have been notified of an alleged defect:
c) repairs have been attempted by anyone other than us or our authorised representatives; the HIPER HIU has been moved from its original place of installation;
d) defects are caused by:
i. wilful damage, neglect, negligence or abnormal storage or working conditions;
ii. accidental or malicious damage (e.g. vandalism) or events outside of our control (e.g. fire, flood or explosion);
iii. theft or attempted theft;
iv. fair wear and tear;
v. a failure to adhere to installation, usage, maintenance and/or servicing instructions provided (orally or in writing) by us from time to time, including, without limitation, the installation manual issued to you and available via our website at www.intatec.co.uk;
vi. incorrect or improper installation, fitting or use of the HIPER HIU (including without limitation where damage is caused to the controller of the HIPER HIU by connecting voltage to connections that are in the installation manual advised as being "VOLT FREE");
vii. use of non-genuine spare parts (which have not been approved by us in advance in writing) in the installation, maintenance, service or repair of the HIPER HIU;
viii. any problems or defects caused by the supply of services (such as electricity, gas or water) to the property where the HIPER HIU is installed;
ix. any fault or failure in the systems to which the HIPER HIU is connected (e.g. pumps and boilers);
x. any damage caused by the condition of water which supplies the systems (including without limitation hard water scale deposits or sludge resulting from corrosion).

2. The Warranty only applies to any HIPER HIU bought in and installed and used in the United Kingdom and Republic of Ireland.

3. Except as provided in this extended warranty document and our Standard Terms and Conditions of Sale (which can be found online at www.intatec.co.uk), which form the basis of the contract between you and us, we shall have no liability to you in respect of any defect in the HIPER HIU supplied.

4. The terms implied by sections 13 to 15 of the Sale of Goods Act 1979 are, to the fullest extent permitted by law, hereby excluded.

5. We shall in no circumstances be liable to you in contract, tort (including negligence), breach of statutory duty, or otherwise for any of the following losses arising under or in connection with the Warranty:
a) Any indirect, consequential or special losses;
b) Any loss of profit (whether direct, indirect or consequential); and
c) Any loss of sales or business (whether direct, indirect or consequential).

6. Nothing in the Warranty excludes or limits any liability which cannot legally be limited including liability for death or personal injury caused by negligence or fraud or fraudulent misrepresentation.

7. The Warranty shall apply to any repaired or replaced HIPER HIU supplied to you by us. For the avoidance of doubt, any repair or replacement carried out under the terms of the Warranty does not extend the Warranty beyond the Warranty Period.

**Section C: How to Claim**

1. In the unlikely event that you encounter a problem with the HIPER HIU, you or your customer and/or end-user should contact us promptly in writing (whether by post or email) or by telephone, using the contact details set out below in this Section and in any event within 10 days of the defect becoming evident. Any claim made under the terms of the Warranty must be made within the Warranty Period.

2. Once you or your customer and/or end-user have contacted us in accordance with paragraph 1 above to report a problem, we will contact you or your customer or end-user (as the case may be) by telephone in the first instance so that we can ask a series of initial questions to get a better understanding of the nature of the problem and provide some initial guidance. If we are unable to resolve the problem by telephone remotely, we will arrange, at a mutually agreed time, for an engineer to visit the site where the HIPER HIU is installed to examine the HIPER HIU.

3. Please note, health and safety is of paramount importance to us and if our engineers cannot gain safe access to the HIPER HIU or our engineer cannot gain access to the property where the HIPER HIU is located, then an abortive charge equal to our 'initial call out charge' (as referred to in paragraph 5 of this Section C) shall apply and shall be payable by you on demand.

4. After examination by our engineer, we will arrange to repair or replace any part(s) of the HIPER HIU, which are in our opinion a component failure caused by manufacturing defects, free of charge.
***Important note: We will require you to provide details of the serial number of the HIPER HIU in order for us to be able to consider any claim, so please have such details readily available upon request.***

**Our contact details:**
Email: HIUTechnical@intatec.co.uk
Telephone: 01889 272 196
By Post:
F.A.O HIU Department
Airfield Industrial Estate
Hixon
Stafford
Staffordshire
ST18 0PF

5. If, after examination by us, we are of the opinion that the defect(s) is/are not covered by the terms of the Warranty, additional call out charges (including without limitation an initial call out charge) shall apply. Details of such charges (and our payment terms) are displayed on our website at www.intatec.co.uk.

**Section D: General**

1. In the event that we receive any personal information from you, we will only use such personal information to administer the Warranty. We may share such personal information with our engineers in order to conduct any repairs or replacements covered by the Warranty.
We will process such personal information in accordance with our privacy policy (a copy of which is available on request or can otherwise be found at https://www.intatec.co.uk/privacy_policy).

2. This extended warranty document does not give rise to any rights under the Contracts (Rights of Third Parties) Act 1999 to enforce any term of the Warranty.

3. If the terms and conditions set out in this extended warranty document have not been complied with in full, then we reserve the right to declare the Warranty as null and void.

4. Any words following the terms including, include, in particular, for example or any similar expression shall be construed as illustrative and shall not limit the sense of the words, description, definition, phrase or term preceding those terms.

5. If any exclusion or limitation expressly set out in this extended warranty document is or becomes invalid, illegal or unenforceable, it shall be deemed deleted, but that shall not affect the validity and enforceability of the rest of this extended warranty document.

6. The terms of this extended warranty document are subject to the law of England and Wales and the courts of England and Wales shall have exclusive jurisdiction to settle any dispute or claim arising out of or in connection with this extended warranty document.

**Annual servicing is required to ensure that the conditions of the warranty are met.**

Record the Heat network design flow temperature °C. | | Record the Heat network design temperature $M^3$/hr. | |

| Ref | Maintenance and Service Guidelines |
|---|---|
| 1 | Turn off all HIU Isolation valves. |
| | Isolate the electrical supply to the HIU at the fused spur switch. |
| | Drain the Primary side pipework of the HIU. |
| | If leaving the installation while maintenance is in progress notices should be placed accordingly to prevent others from interfering with equipment and valves. |
| 2 | Inspect STRAINER on the HIU Primary side flow.<br>REMOVE CAP, REMOVE MESH, CLEAN AND REPLACE.<br>Sample the Primary water chemical composition and check against specification. Report any abnormalities to the Building Manager immediately. |
| 3 | DRAIN the HIU secondary cold water/hot water supply pipework using the built in drain valves. |
| 4 | Check all strainers, including filters fitted on the cold water mains supply.<br>This may also include Pressure Reducing Valves with integral strainer cartridges. Always isolate any components before maintenance. |
| 5 | Central Heating side of the HIU - Check the safety valve discharges by twisting the cap. Check the safety valve re-seats and seals. |
| 6 | Central Heating side of the HIU - Check the expansion vessel pressure and adjust or recharge to 0.75 bar. |
| 7 | PLATE HEAT EXCHANGERS - MAINTENANCE<br>Special attention should be given to the plate heat exchangers, recent reported loss of performance may be caused by dirty or blocked plates (limescale). After cleaning (or replacing) refit both plate heat exchangers. |
| 8 | Check all drain valves are closed, open isolation valves and REFILL (secondary and primary), check for leaks and vent air from the systems. |
| 9 | Check all the temperature sensors are in their correct positions and securely clamped onto the pipes. |
| 10 | If you are satisfied that all is correct, replace the casing securely. |
| 11 | Power up the HIU, and let the automatic diagnostics run the initial check.<br>The HIU should then go immediately to the standby mode. If by chance a fault code appears, the this should be attended to immediately. Note this in the service record. |
| 12 | Network supply test. Run a Kitchen tap, and record the time the network supply reaches the HIU at the design temperature. |
| 13 | Network supply test. During action 12, note the flow as can be seen on the heat meter and record this. Check this is adequate for the design peak flow expectations. |
| 14 | Tapping Test. Open the kitchen tap. It should reach 45°C within 45 seconds, rising to 50°C within in a reasonable time, to comply with THE HEAT NETWORK TECHNICAL STANDARD (TS1). If not look again at 12 and 13, is the supply adequate? |
| 15 | Heating check. Run the heating, and record the flow and return temperatures.<br>Record these are correct as per the design requirements. |
| 16 | Sign and complete the Service Record. |

**If the heating is OFF or the property is to be knowingly left unoccupied for over 2 months, then the pump protect parameter should be turned on, to protect the pump from any possibility of seizing due to water damage.**

| SERVICE DATE |
| --- |
| Engineer name:<br><br>Company: |
| Phone: |
| Comments:<br><br>Signed: |

| SERVICE DATE |
| --- |
| Engineer name:<br><br>Company: |
| Phone: |
| Comments:<br><br>Signed: |

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| Comments:<br><br>Signed: |

| SERVICE DATE |
| --- |
| Engineer name:<br><br>Company: |
| Phone: |
| Comments:<br><br>Signed: |

Intatec Ltd
Airfield Industrial Estate, Hixon, Staffordshire, ST18 0PF
01889 272 196 - HIUSales@intatec.co.uk - HIUTechnical@intatec.co.uk

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