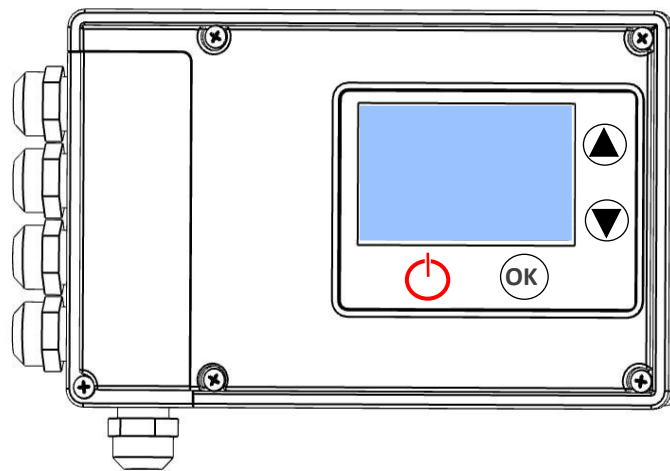


User interface and Maintenance



Relevant Hiper II HIU documents.

1. Installation and Operating Manual (included with the HIU)
2. **User interface and Maintenance. (this document)**
3. Commissioning report (included with the HIU)
4. Programming Guide (Only available to the approved and qualified commissioning or service engineers).



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

This guide details the maintenance regime that should be carried out annually. It is the responsibility of the network operator to ensure this is met to honour the conditions of the warranty.

Hiper II 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

User information menu



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 Temperature.

1.

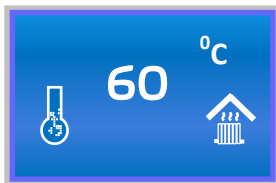


Hot Water
Factory set = 55 °C



The set temperature is flashing, change with the up and down arrow buttons, press OK

2.

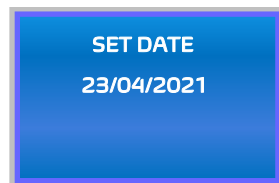


Heating type set by
the installer.
Factory set = 60 °C



Screen shows the programmed Heating set point.

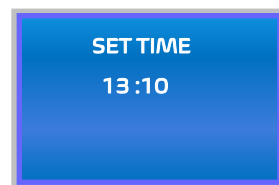
3.



Screen shows Date, (flashing) press OK to confirm.
Up or down to reset year/month/day.



4.



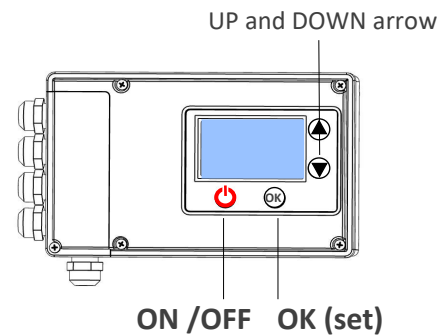
Screen shows time, (flashing) press OK to confirm.
Or change by up or down to reset minutes / hours.



5.



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



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 mode.



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 be allowed by the network operator.

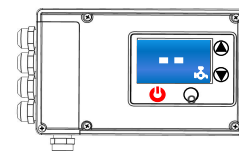


Symbols used on the controller screen.

| | |
|--|---------------------|
| | Hot Water |
| | Heating - radiators |
| | Underfloor heating |

| | |
|--|----------------------|
| | Optimised function |
| | Keep warm mode on |
| | Change settings mode |

| | |
|--|---------------------------|
| | ERROR warning |
| | 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**.

This document is only to be used by the commissioning or service engineer and not to be left with the HIU or the occupier of the home!



Features and operational options of the Hiper II heat interface unit.

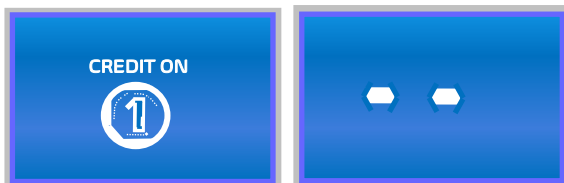
- Language options.
- UFH or Radiator Heating.
- UFH floor drying (slab drying)
- Minimum temperature limiting (HTG and DHW)
- Maximum temperature limiting (HTG and DHW)
- Optimised heating (uses less heat as temperature nears set point)
- Flow limiting in HTG mode, full power as used for DHW not required for lesser heating loads).
- Temperature control of primary return when in keep warm mode.
- Frost protection.
- PWM pump control.
- Manual switching of the pump.
- 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.



Prepayment

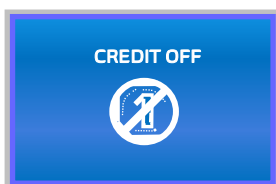
The HIU can be configured for pre-payment billing, (sometimes called Pay as You Go - PAYG).

All hot water and heating services are pre-paid to the billing company managing this property.



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

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.



Screen shows 'out of credit'. Heating and hot water are not available.

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.

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, and 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, and 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 is short circuit or broken circuit, or disconnected. | The controller disconnects the control of an optional hot water cylinder and all its parameters. | Check that the sensor cable plug connection is good, and 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, and 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, and 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, and 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 error 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 do a factory reset (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 - Error code definitions.

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

| code | Cause | Effect | Remedy |
|------|---|---|--|
| E1 | The measured primary temperature is lower than the set point temperature is for heating or hot water, so the HIU will not be able to achieve the set temperature, this is after 60 seconds of flow. | The function is re-enabled when the primary exceeds the setpoint temperature. | Remedy? Check the set point in the controller, adjust if the set point is set higher than the design supply temperature. Check that the primary temperature probe is correctly connected to the primary pipe. When the primary temperature and set point are aligned, the error 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 10C below the parameter 20 set point for maximum. Reset (turn power on and off) to recalibrate the PICV actuator. | . Check parameter 20 is set correctly, if too low, reset this at 5C higher than secondary heating flow set temperature. Check the temperature probe is positioned correctly. |
| E3 | The controller is recognising that the HIU performance is not as the algorithm predicts. The energy transfer is poor. | 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 lime scale. Check PICV fully open – check flow on the heat meter, low flow now would prove 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 reset after 10 minutes, but repeat the shutdown again if the issue is not resolved. | Check DHW temperature sensor position is correct. Reposition. 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. |
| 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. Resets after 30 seconds Or Error LEDs on the pump? Power ON and OFF 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 not at fault. | Check the following possibilities. - Primary is too low (heat network issue to resolve)? - Is the set temperature on the controller higher than the incoming primary (network) temperature and temperature is impossible to reach? Rest set the temperature so it is 10C lower than the primary. - PICV blocked / strainer blocked? - Diverter in the wrong position? |
| E6 | Temperature information from the heating temperature sensors is wrong or unusual. | Return temperature is too high with no apparent control being seen. | This error code is showing that either; 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. Verify by recording the primary temperatures. Advise the installer to rectify the mistake. |
| 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. | 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. Is the room thermostat positioned correctly to turn off before all the TRVs shut down? Is the radiator circuit balanced correctly at the radiator valves? E7 may occur under certain test conditions where unnatural operating conditions are forced. |



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

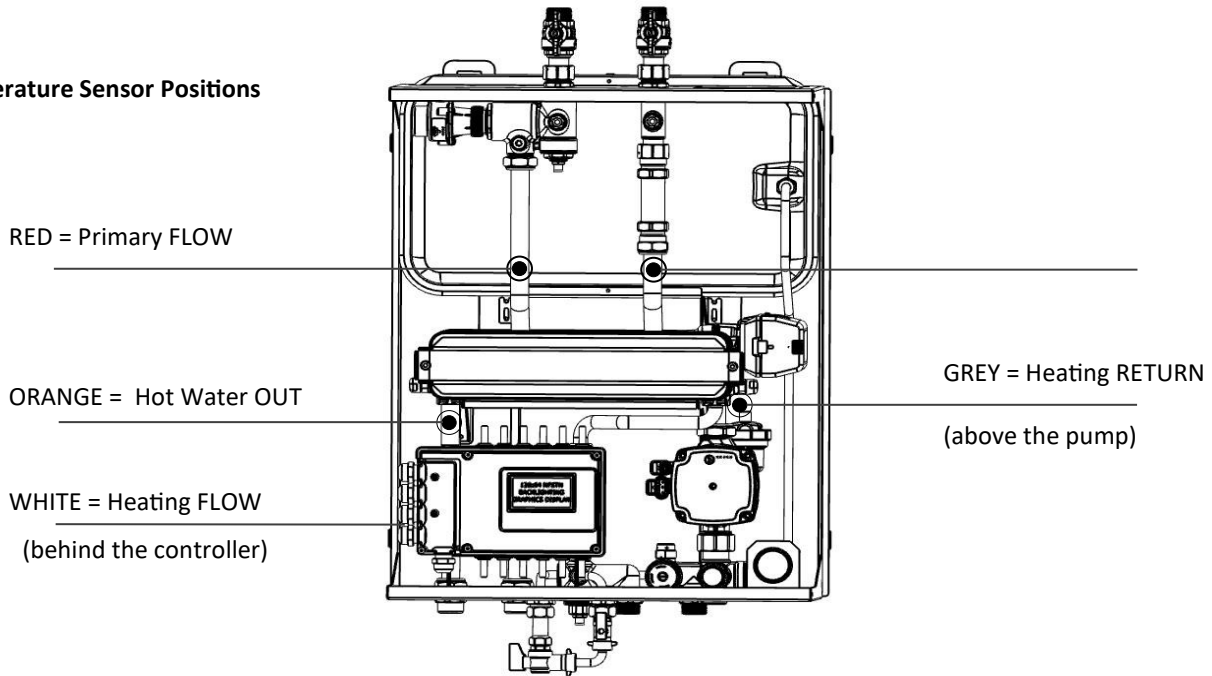
Record the Heat network design
flow temperature °C

Record the Heat network design
temperature M³/hr

| Ref | Checklist - Maintenance | ✓ | Remarks /Notes |
|-----|--|---|----------------|
| 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. REMOVE CAP, REMOVE MESH, CLEAN AND REPLACE. Sample the Primary water chemical composition and check against specification. Report any abnormalities to the Building manager immediately. | | |
| 3 | DRAIN the HIU secondary heating circuit using the built in drain valves. See page 5 for of strainers (position 2). | | |
| 4 | Check all strainers, including filters fitted on the cold water mains supply. 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 re-charge to 0.75 bar. | | |
| 7 | PLATE HEAT EXCHANGERS - MAINTENANCE Special attention should be given to the plate heat exchangers, recent reported loss of performance may be caused by dirty or blocked plates (lime scale). 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. 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 (noted on page 17) | |
| 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, and record the time at the tap for the hot water to reach 50C. This should conform to BS 8558. 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. Record these are correct as per the design requirements. | |
| 16 | Sign and complete the Service Record (as found in the User Guide | |

Temperature Sensor Positions



| |
|---------------------|
| SERVICE DATE |
| Engineer name |
| Company |
| Phone |
| Comments |
| Signed |

| |
|---------------------|
| SERVICE DATE |
| Engineer name |
| Company |
| Phone |
| Comments |
| Signed |

Annual Service Record



Enter contact company name and number here for maintenance calls

| |
|---------------------|
| SERVICE DATE |
| Engineer name |
| Company |
| Phone |
| Comments |
| Signed |

| |
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| SERVICE DATE |
| Engineer name |
| Company |
| Phone |
| Comments |
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