Thermal INTEGRATION Ltd

The DATA HIU

User Instructions

The DATA HIU, User Instructions, 10th March 2021

About Thermal Integration

About Us

We design and manufacture pre-fabricated Hot Water and Central Heating Cylinders, Thermal Stores, Buffer Tanks and Heat Interface Units to suit almost any domestic or commercial application. Our range of products is the end result of over 20 years of continuous development and improvement in heating technology. We hold to the philosophy that all customers deserve our best level of service for the life of the product, as well as complete honesty throughout the product selection process. We hold a significant number of patents in the fields of water storage, heat exchange, and the networking of communal heating systems, and continue to push the boundaries.

As well as the most comprehensive range of hot water systems in the UK, our headquarters in Sudbury also offers the UKs largest renewables training centre, including the first HETAS training and test centre, with working wood, pellet and log biomass rigs, as well as solar. There is also an extensive district heating demonstration and test facility attached to the factory, with the factory building services running from a twin pellet biomass boiler installation, buffer storage, and HIUs to provide services. The entire facility is controlled using our in-house IHIU Control Systems that allow any of our products to be network connected, with online monitoring and dashboard facilities.

For a complete history of the company please read History of Thermal Integration Limited on Heatweb Wiki.

Product Range

- Heat Interface Units
- Standard Cylinders
- Shortened Cylinders
- Buffer Cylinders
- Combination Cylinders
- Mains Pressure Thermal Stores
- Mains Hot Water Conversion Kits
- Prefabricated Systems
- Plate Heat Exchangers
- Boiler Conversion Kits
- Control Systems

Knowledge Base

To make the dissemination of technical material as simple as possible, we publish all our documentation through an online document storage system, the Heatweb Wiki. Links to further information may be found throughout documents.

Useful Contacts

- Commercial Sales and Operations: 0345 2411441
- Service: service@thermalintegration.com

Web Sites

- http://www.heatweb.co.uk Company Website
- http://www.systemdesigner.co.uk System Designer
- http://wiki.heatweb.com/wiki Heatweb Wiki
- http://www.heatweb.info Monitoring software and online APIs

Explanation of symbols and abbreviations

Symbols


CAUTION, general safety remark


CAUTION, risk of electrical shock


CAUTION, hot surfaces, risk of burns


Important note

Requirement of 230 Volt Alternating Current


Dispose component


Recycle component if possible


Wrench, manual tool


Drill, motorized tool


Manual operation, no tools needed

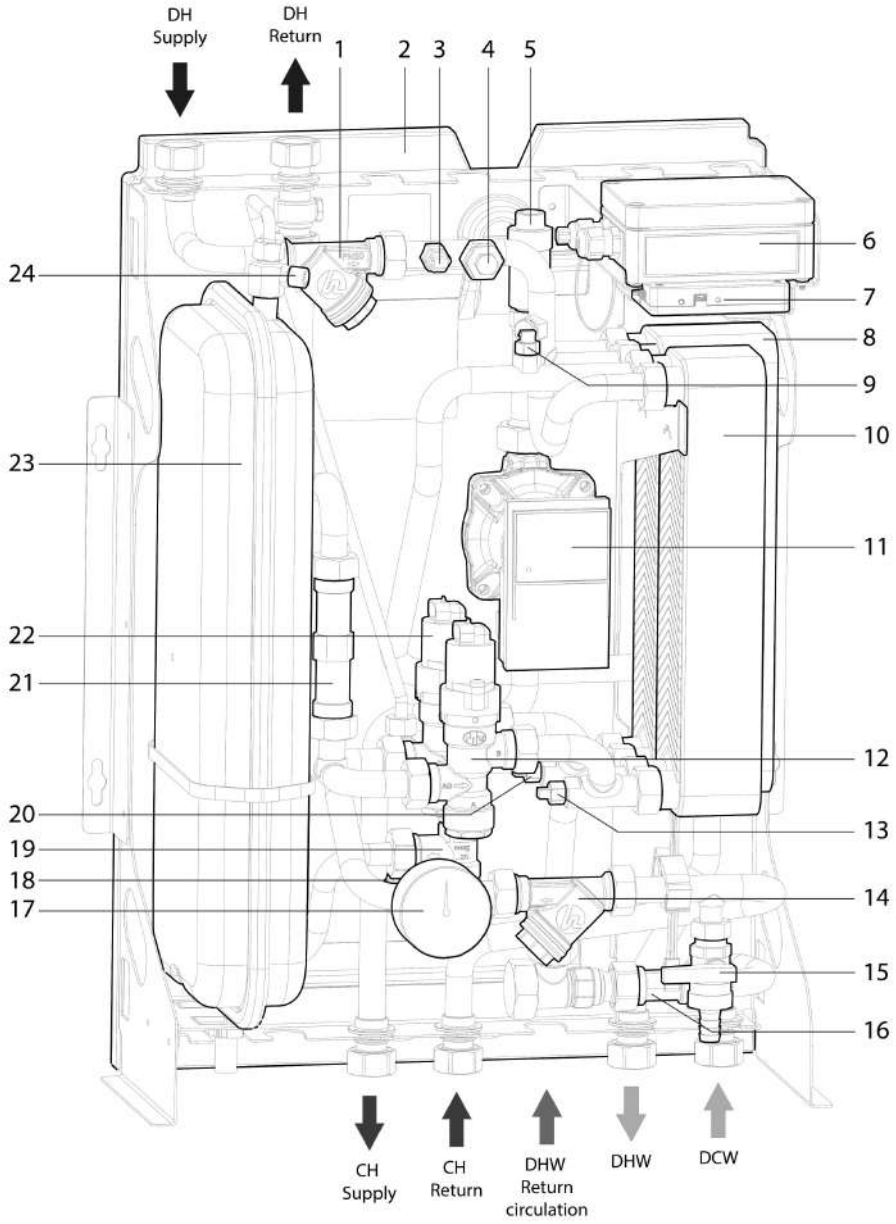

Phillips screwdriver

Insulated flathead screwdriver

Abbreviations

DH	District Heating	PE	Protective Earth
CH	Central Heating	°C	Temperature in degrees Celsius
DHW	Domestic Hot Water	kPa	Pressure Kilopascal
DCW	Domestic Cold Water	kg	Weight in kilograms
VAC	Volts Alternating Current	mm	Distance in millimetres
VDC	Volts Direct Current	PN	Pressure class in Bar
A	Current in Amps	"	Thread size in inch (ISO 228/1)
N	230VAC Neutral	HIU	Heat Interface Unit
L	230VAC Live (phase)	ABV	Automatic Bypass Valve

Overview of Components and Connections



1 Primary circuit strainer
2 Back casing
3 Primary flow temperature sensor
4 Heat meter sensor pocket
5 Automatic air vent (central heating)
6 Electronics 230 V
7 Electronics 24 V
8 Heat exchanger (central heating)
9 Domestic Hot Water Temperature sensor
10 Heat exchanger (DHW)
11 Central heating pump
12 Domestic Hot Water control valve
13 Domestic Hot Water primary return temperature sensor
14 Central heating strainer
15 Filling point
16 Flow sensor
17 Pressure/temperature gauge
18 Temperature/pressure sensor central heating supply
19 Pressure relief valve (3 Bar)
20 Temperature sensor central heating primary return
21 Heat meter spool piece
22 Central heating control valve
23 Expansion vessel
24 Expansion vessel bleed valve

Technical Data

Description	Data
Nominal primary supply temperature	80°C
Maximum primary supply temperature	85°C
Minimum primary supply temperature	55°C *
Nominal DHW supply temperature	55°C
DHW Set Range	45°C to 60°C
Return Temp Limit Range	35°C to 65°C
CH Limit Range	30°C to 80°C
Primary connections	Female / 18mm
Mains & DHW connections	Female / 18mm
Central heating connections	Female / 18mm
Pressure relief	15mm
Domestic Hot water heat exchanger (DHW)	E8LAS40
Central heating heat exchanger (CH)	E8LAS40
Maximal primary differential pressure (without dP regulator)	250kPa
Maximal primary differential pressure (with dP regulator)	450kPa
Minimal primary differential pressure	50kPa **
Pressure class DH circuit	PN16
Pressure class CH circuit (3 bar safety valve)	PN10
Pressure class DHW circuit	PN10
CH Maximum working pressure	2.5 Bar
Casing width	490mm
Casing height	640mm
Casing depth	275mm
Casing Material	EPP Expanded Polypropylene
Maximum Heat Losses	50W (1.2 kWh/day)
Typical Heat Losses (DHW Only, Keep Warm)	25W
Weight (basic version)	24kg ***
Electrical supply info	230V 50Hz
Fuse ratings	3 Amp
Sensor DHW	NTC 10kohm @ 25°C
Keep Warm Modes	Economy / Comfort
Max Return Temperature during Keep Warm Mode	DHW Setpoint - 2°C

* Minimum required DH supply temperature is DHW setpoint + 5°C with a minimum of 55°C.
** Depends on requested DHW output and available DH supply temperature.
*** Unit weight may vary depending on the optional components built into the unit.

Application

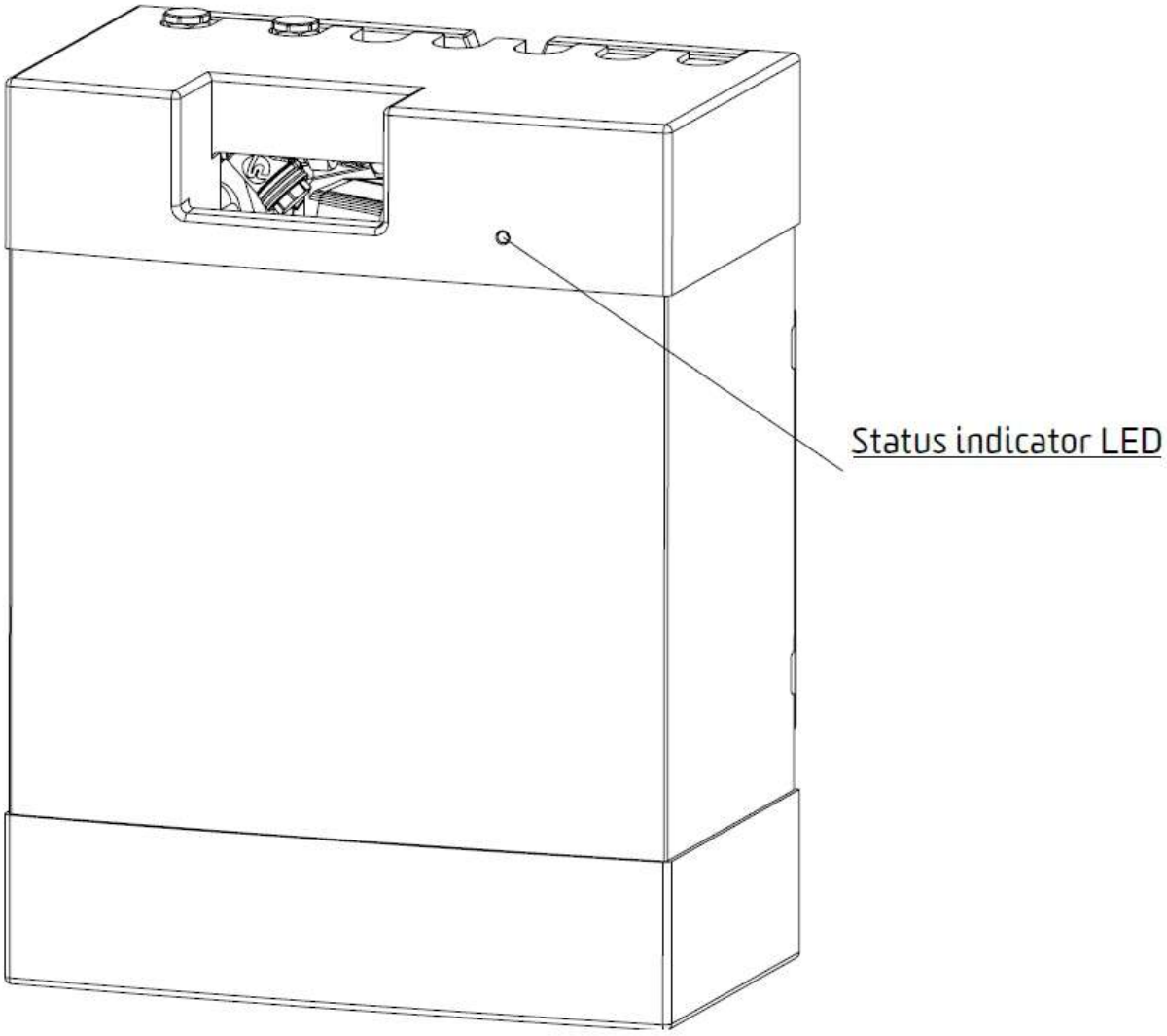
The Data twin plate Heat Interface Unit is used to provide hot water and central heating in properties connected to a district heating system using a centralised boiler.

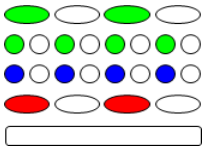
Adjusting Settings

The Data requires connection to either a PC running the commissioning software, or by the use of an iHIU Controller, in order to adjust settings.

End users cannot adjust settings, unless an iHIU Controller is used.

Status indicator LED





- Green blinking (slow ~ 2 seconds): Stand-by
- Green blinking (fast ~ 1 second): Heating demand
- Blue blinking: Domestic Hot Water Mode / Tap draw-off
- Red blinking: Error
- White continuous: Service mode (installer only)
- No LED: HIU is switched off

Operation

Central Heating

The heat exchanger physically separates the district heating network and the central heating circuit. The application minimises the riskof contamination of district heating water as well as the risk and consequences of leakage in the central heatingsystem.

Components, pipes and radiators in, and connected to the unit may be hot. The DATA heat interface unit is designed for use with centralised heating systems up to 85°C. The pipes and components in the unit and the pipes and radiators in the central heating installation can reach temperatures of 80°C and contact may lead to burns.

Domestic Hot Water

The unit is equipped with single walled plate heat exchangers. The front heat exchanger transfers the heat from the district heating system to the DHW. The electronics within the unit, together with domestic hot water control valve, temperature sensors and flow sensor, regulate the temperature of the hot water to it's set point (As Standard 55°C).

Each HIU has two domestic hot water keep hot modes, Eco or Comfort mode. These can only be selected during commissioning or by a trained engineer.

The default setting is Eco mode, and this can be specified to run for 0 minutes (which turns the feature off all together), 15, 30, 60 or 120 minutes after the last hot water draw off. In Eco mode the heat exchanger is kept to a specified temperature (between 25 and 60°C) for the selected period of time and after this period of inactivity has elapsed the stepper motor closes completely and the temperature in the domestic hot water circuit is allowed to drop through natural dissipation to minimize energy consumption. If a hot water draw off is made any time throughout the Eco mode function the unit will deliver hot water as usual and the Eco mode function will begin counting down for the selected time once again. In Comfort mode the heat exchanger is continuously supplied with a trickle of primary water for quicker hot water delivery, however energy consumption will be slightly higher than if the unit was set in Eco mode.

To prevent legionella from growing the heat exchanger is heated to 57°C for at least 30 minutes every 24 hours. (it is not possible to specify the time at which this occurs) Again this feature can only be selected during commissioning or by a trained engineer.

The hot water temperature is regulated to approximately 55°C. If there is a power outage during DHW draw off, units not fitted with a landlord security valve will stop regulating the hot water temperature. This may lead to a hot water temperature that is higher or lower than 55°C. Hot water can cause burns.

Priority Switching

The unit is fitted with domestic hot water priority switching. When hot water is drawn off, the central heating control valve will close, diverting all primary flow to heat the domestic hot water circuit. Primary flow to the central heating is cut off during hot water delivery. Primary flow to the central heating is resumed after the hot water draw off has finished.

Service & Inspection

To ensure the unit functions properly, it is advised to periodically inspect the installation.

Maintenance and repairs should be carried out by recognised personnel only.

- Remove the power from the unit when performing maintenance and/or repairs.
- Connect the flow and return valve from the district heating network.
- Connect the flow and return valve on the unit.
- Check the unit for leaks.
- Check the primary and central heating strainer for debris and clean if necessary.
- Check valves for debris and clean if necessary.
- Check the unit operates satisfactorily in domestic hot water and central heating modes.
- The casing can be cleaned with a damp cloth. Do not use detergents of any kind.

CAUTION! The unit uses electrical components (230VAC and 24VDC). These components must stay dry at all times. Contact with these energized components can result in an electrical shock, burn, or electrocution.

Prolonged Absence

Do not switch off the unit during long absence or holiday. To prevent frost damage within the unit or the distribution network, the radiator and shutoff valves MUST remain open. Radiators can be switched to the frost protection position (slightly opened) and/or the room thermostat lowered to a MINIMUM of 10°C or placed in frost protection mode. It is recommended to flush all water tapping points and showers for at least 2 minutes after a long period of absence.

Troubleshooting (End Users)

What can you do?

CAUTION!

Please use caution when handling the unit.
Parts and components may be hot or energized.
Contact may lead to shock, burn or electrocution.

Always take in account the safety of yourself and others when performing a troubleshoot.

Leakage
1. Close all valves on the plumbing bracket under the unit and the mains cold water feed.
2. Contact your engineer.
Central Heating Circuit does not warm up
1. Make sure the power cord is plugged in and turned on. If in doubt contact an electrician.
2. Make sure the valves on the plumbing bracket are open (handle in vertical position).
3. Check radiator valves are open and calling for heat.
4. Check the programmer is set to ON, and calling for heat.
5. Set the room thermostat higher.
6. Problem solved? If not, contact your engineer.
No domestic hot water
1. Check that the mains cold water valve is open. If not, open the main valve.
2. Problem solved? If not, contact your engineer.
Tap water does not warm up
1. Ensure that all valves on the plumbing bracket under the unit and the main valve are open.
2. Make sure the power cord is plugged in and turned on. If in doubt contact an electrician.
3. Problem solved? If not, contact your engineer.
Sound
NOTE: It is normal that the HIU makes noise when hot water or heating are active. Also, the electronic valves will make a light (buzzing) noise during movement. If the HIU starts to make any loud or disturbing noises, contact your installer.

Guarantees and After Sales

Heat Interface Units (HIUs) carry the following guarantees as standard:

FACTORY WARRANTY

1. The warranty begins on the date of delivery. A dated delivery note will be issued to the customer and a copy will be stored by Thermal integration.

2. **12 Months Parts and labour** - Parts or labour proven to be defective will be replaced / repaired free of charge for a period of 12 months from date of delivery, provided the HIU is installed by a qualified engineer within 6 months of date of delivery.

24 Months Parts Only - Parts proven to be defective will be supplied free of charge (for fitting by others) for a period of 24 months from date of delivery.

3. Replacement of parts under warranty does not extend the duration of the warranty)

4. Any other costs are not covered by this warranty. All other damages of any nature whatsoever and howsoever arising, are expressly excluded from this guarantee.

5. **The warranty conditions above only apply:**
a. In the UK only on items provided exclusively by Thermal Integration.
b. If the product is installed by a Thermal Integration approved engineer in compliance with the installation instructions.
c. The installer must complete the commissioning checklist in full at the time the HIU is installed. This checklist must be returned to Thermal Integration within 30 days of commissioning. Checklists are enclosed in the HIU installation instructions.
d. If the installation complies with all current and relevant building regulations and codes of practice (including the requirement to clean the primary and secondary heating systems and add corrosion inhibitor in line with BS7593:2006)
e. If the product is used and maintained exclusively according to the manufacturer's instructions and proof of periodic inspection / maintenance by a Thermal Integration approved engineer is available.
f. If the returned item is accompanied by a fully completed Thermal Integration Warranty Return Form.

6. **Excluded are defects caused by:**
a. Failure to maintain in accordance with manufacturers instructions
b. Improper use
c. Any attempt at repairs / maintenance by un-qualified persons
d. where parts other than Thermal Integration Genuine Parts have been used in any service or repair
e. Lightning, fire or natural disasters.
f. Deterioration and / or pollution from the district heating system or water network, either domestic hot water or heating side.
g. PH values of the primary medium being less than 7.5 or greater than 9.0.
h. Harmful additives to the heating water.
i. Consumables as specified by us, including but not limited to: hoses, gaskets and batteries

7. Report any faults to your installer, service engineer or Thermal Integration directly. Faulty parts must be accompanied by a fully completed Thermal Integration Warranty Return form, to be returned to Thermal Integration. Returned items remain the property of Thermal Integration Ltd.

The Thermal Integration Warranty Return Form can be requested by phone or email. Returns are not accepted unless expressly agreed in writing.
Transport risk of returned items lies with the sender. The shipping of replacement parts are the responsibility of the supplier.

8. If the HIU breaks down, we may ask you to pay us a deposit before we visit you to repair it. We will return the deposit in full if we find a fault that is covered by this warranty. We may keep the deposit if we cannot access your property at the time we had arranged with you to visit or we find other conditions of this warranty have not been met. A responsible adult must be at the property to give our engineer this access to the HIU.

COMMISSIONING
9. Thermal Integration offer commissioning services across the UK. The service includes:
a. The fulfilment of the defined commissioning instructions
b. Completion and return of site wide commissioning paperwork
c. Rectification of any HIU problems
d. Confirmation of HIU performance to contract specifications

e. Engineer travel and subsistence

Commissioning rates are charged on a whole day basis, and it is the responsibility of the client to ensure:

a. Safe access to properties and HIUs
b. Correct operation of central plant with delivery of heat to HIUs at specified temperatures, flow and pressures
c. All pipework has been correctly tested and flushed
d. Credit on billing system to enable security valve

A minimum 2 weeks notice is required in writing to Thermal Integration before the requested commissioning date.

SERVICE
Technical assistance and engineer backup can be obtained by calling our offices:

- Commercial Sales and Operations: 0345 2411441
- Email: service@thermalintegration.com

FURTHER INFORMATION

The Heatweb Wiki website at www.heatweb.com/wiki contains information on all aspects of HIU design, function, and servicing, and is always the best place to visit for additional documentation or how to guides.

DATA EC Declaration

hsf

1 EC DECLARATION OF CONFORMITY

CE

2 DIRECTIVE 2004/108/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EE

DIRECTIVE 2006/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits

3 EC Declaration of Conformity Number: EC268A

4 Equipment or protective system: Electronic heating system, Model: EcoAdvance Dual Plate

5 Manufacturer: HSF B.V.

6 Address: Marketing 23, Duiven, The Netherlands

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this declaration and the documents therein referred to.

8 The examination and test results are recorded in Technical file no. 268A. Compliance with the Essential Requirements of the above specified directives has been assured by compliance with:

9 EN 61010-1 : 2010
EN 55014-1 : 2006 + A1 : 2009 + A2 : 2011
EN 61000-6-2 : 2005

10 The marking of the equipment or protective system shall include the following:

11 CE

12 The CE mark was first applied in: 2016

Duiven, April 1, 2016

HSF B.V.

M. van de Veen
Managing Director