

# **End User Instruction Manual**

## **IHS Ground and Water Source Heat Pumps (HGL)**

**Models:**                    Terra Compact 5 – 15kW HGL  
                                  Terra Twin (2\*8, 2\*10, 2\*12kW) HGL  
                                  Terra Three Phase 17 – 33kW HGL

### **CONTENTS**

<b>Chapter</b>	<b>Page</b>
<b>Introduction</b>	<b>2</b>
<b>Underfloor Heating</b>	<b>3</b>
<b>Hot Water and Flow Rates</b>	<b>4-5</b>
<b>Navigating the Main Menu</b>	<b>6-7</b>
<b>Changing the Heating Parameters</b>	<b>8-9</b>
<b>Setting the Heating Program</b>	<b>10-12</b>
<b>Changing the Hot Water Settings</b>	<b>13-16</b>
<b>General Settings</b>	<b>17-18</b>
<b>Temperature and Relay Status Overview</b>	<b>19-20</b>
<b>Fault Finding</b>	<b>21-23</b>
<b>Routine Maintenance</b>	<b>24</b>
<b>Guarantees</b>	<b>25</b>

## Introduction

The HGL system has two separate hot water outlets: one for domestic hot water (which delivers up to 56°C) and one for heating. The heating temperature is calculated by the on-board computer which takes into account the outside temperature, the current indoor temperature and the target room temperature.

In some installations this heating flow is supplied to the whole building. In other installations further units called **compensating pump kits** are fitted. This allows for different parts of a building to be controlled independently by the heat pump. The heat pump can control two compensating pump kits as standard. In the case of a larger building, the system can be expanded to accommodate a further two kits.

The heat pump's on-board computer handles all the timing and temperature control for the domestic hot water and each heating zone. It also controls the required domestic hot water temperature at the taps.

You should contact your electricity provider in order to apply for a low cost electricity tariff, eg. Economy 10, Economy 7 and Eco Tariff. It's worth shopping around for utility providers to find the best deal.

Note: Economy 10 is an ideal tariff as it gives three periods of off-peak electricity spread over ten hours. These times can also be utilised to operate dishwashers, washing machines, etc.

Time periods vary from region to region but could be in the order of:

### Example Only

Cheap Tariff On	Cheap Tariff Off
*04.30 am	07.30 am
13.30 pm	16.30 pm
20.30 pm	*00.30 am

\*Note: When attempting to set the heating program (see page 7), please be aware that your heat pump's computer can only recognise a period setting to be within a standard 24-hour period, ie. no earlier than 0:00 and no later than 23:59. Unfortunately this could mean missing out on a short period of cheap tariff time.

## Underfloor Heating

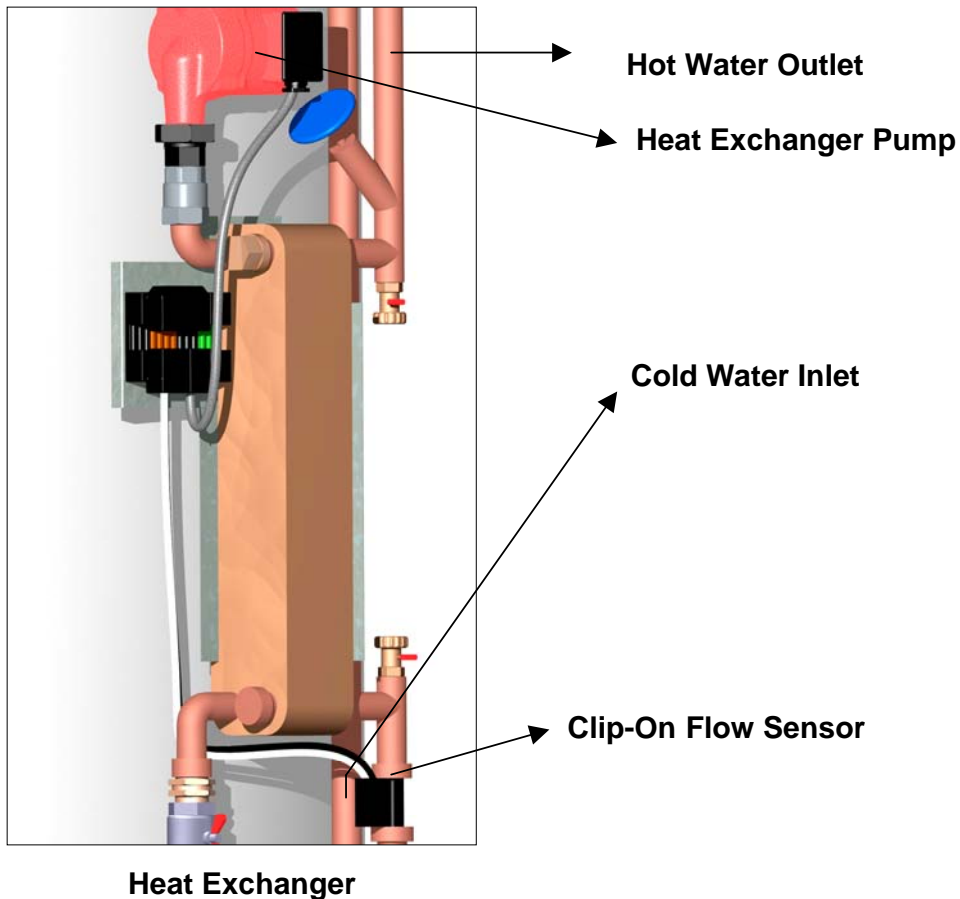
The heat pump determines the system's time control. This eliminates the need for additional clocks. A zone stat is the master stat for the heat pump. In a domestic situation it is normally fitted in a large area, typically a living room.

Other rooms have their own roomstats for underfloor heating control; these act as limit stats. This allows individual room control if required when the master zone stat is on. To avoid extreme temperature variations in your underfloor heating, it is important that you don't change the zone stat settings dramatically. If the area is too cold, move the zone stat up by 1°C. Similarly if it's too hot, reduce the temperature by 1°C. Leave for 24 hours before adjusting again. The individual underfloor stats should be similarly adjusted.

The secret to underfloor heating is to set the system for stable comfort temperatures rather than what the actual stat reads.

In winter, ten hours of cheap tariff time may not be enough to keep your building up to temperature however the system has been designed to cope with this. The computer has a target zone temperature and a minimum zone temperature. Even if a particular zone is timed off, the computer will still strive to maintain the minimum temperature.

## Hot Water



The Hygienik Tank acts as a thermal store for the domestic hot water system. It is fitted with a heat exchanger. A heat pump, solar panels or other heat sources such as a wood burning stove or a conventional boiler can be integrated and connected to it.

The heat exchanger is fitted on the side of the tank. The primary side of the heat exchanger is fed from the Hygienik tank. The other (secondary) side is connected to the domestic mains water system.

On the secondary side, once the hot water tap is turned on, the flow switch gives a signal to the heat exchanger pump to come on. It will pump the water from the top of the tank through the plate heat exchanger to the bottom of the tank, while mains cold water will flow in the opposite direction through the plate heat exchanger extracting the heat from the primary circuit.

In this way, the fresh mains water in the heat exchanger is heated instantly and is delivered straight to the tap resulting in fresh hot water that has never been stored. This avoids development of the legionella bacteria (hence the name Hygienik).

The on-board computer calculates the water temperature being supplied to the tap and automatically adjusts the primary pump speed to maintain the domestic hot water target temperature.

## Flow Rates

A label on the plate heat exchanger states the flow rate applicable to the relevant model.

Depending on the size of the plate heat exchanger, domestic water flow rates are delivered in 25 litres, 35 litres, 50 litres and 70 litres per minute (l/min).

**It is important to ensure that the amount of water drawn is no more than the stated flow rates.** This can be checked by performing a bucket test. Use a 10-litre bucket and a watch for timing purposes. Simply open the biggest tap (probably the bath tap) and time how long it takes to fill the bucket.

A modern high-pressure shower should use no more than 11 l/min; therefore a 25 l/min heat exchanger should run two showers at once. An eco-shower uses 7 l/min. These are good high-pressure showers. If your shower uses more water, you should place a restrictor on it. The shower is most likely designed around a non-pressurised system.

Shower types such as a deluge model or full body showers are not recommended for modern energy efficient heating systems.

## Navigating The Main Menu



### **Main menu above (Multitalent.002 = control unit)**

**Top row:** This displays date and time. It is important that these are correct otherwise the program timing functions will be out and the heat pump may not benefit from of reduced tariffs.

#### Heat circuit A

Moon symbol  
Clock symbol  
19.5°C

This means that Zone A is currently timed off  
This means that Zone A is running on the heating program  
This is the room temperature in Zone A

#### Heat circuit B

Sun symbol  
Pump symbol

This means that Zone B is currently timed on  
(Beside sun symbol.) This means that the pump for Zone B is currently on

Clock symbol  
19.1°C

This means that Zone B is running on the heating program  
This is the room temperature in Zone B

#### “Outd. Temp.”

This means outside temperature. If there is a symbol for a parasol here it means that the outside temperature is above the pre-set “Summer Winter” changeover temperature. Normally it’s set for 20°C, meaning if the outside temperature is above 20°C the heat pump will not supply heating until the temperature drops below that. It will however continue to heat the domestic hot water.

#### “Heatpump: on”

The heat pump is currently on or will be shortly on.

#### “[1]”

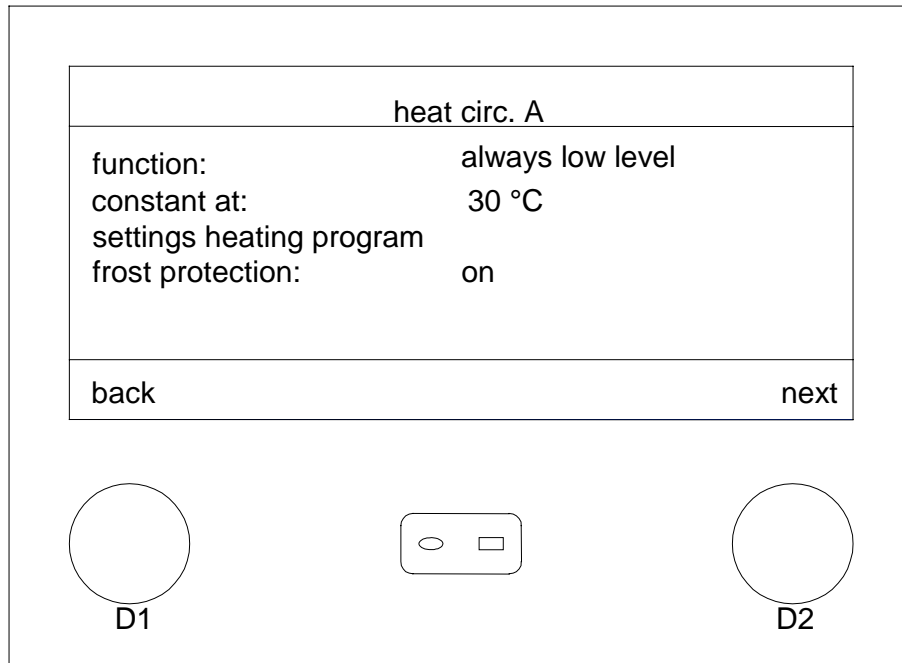
Compressor 1 is being called for. In twin compressor systems, you may see [1] or [2], or [1] and [2] together. This also applies where the heat pump is being used to control another heat source, eg. a boiler in which case [1] would be the heat pump and [2] would be the other heat source.

**Tap Symbol** This indicates that the heat pump is heating the hot water. If the tap symbol is absent then the heat pump output is going to the heating. You will find two other temperatures here which are the flow and return temperature of the heat pump.

**“buffertemp”** This is the temperature of the hot water in the Hygienik tank. The illustration shows a tap symbol followed by 28°C/29°C (flow and return temperature).

**NB** All references to ‘buffer’ throughout this document or on the controller screen refer to domestic hot water. In most cases, the buffer tank is a Hygienik tank.

## Changing The Heating Parameters



Most of the menu navigation is done with the right hand button "D2". Turn it quite fast to highlight options and push it to set or enter.

### How to Change The Setting

**To set Zone A** Push the D2 button to highlight Zone A. To cycle between the zones, turn D2 rapidly. Push D2 once more to select "heat.circ. A". The menu heading should now read: "**heat. circ. A\***" (as shown in above picture).  
\* heat.circ.A equals Zone A

### On/Day – Off/Night Terminology

It's much easier to think of Day as 'On' and Night as 'Off'. With economy times, "On/Day" could be in the middle of the night and "Off/Night" could be during daytime.

## **“Function”**

In this field, the choices are as follows - “Heating program”, “constant temp”, “cool”, “always high level”, “always low level” and “off”. The only applicable choices are **“Heating program”**, **“constant temp”** and **“off”**.

**“Heating program”** is the normal setting. This means that Zone A will operate under time control. The actual output temperature of the heat pump is calculated by the computer.

**“Constant temp.”** means that Zone A will always run to the output temperature indicated on the next line. Temperature remains constant and no time control is possible.

**“Off”** means that the heat for Zone A is off.

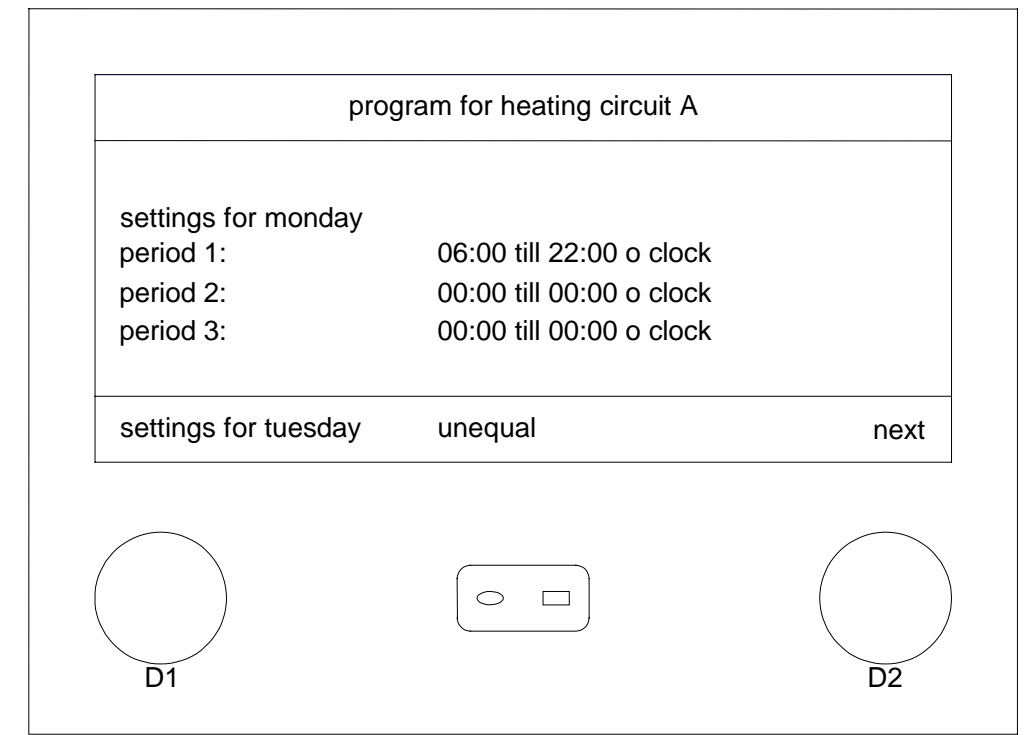
**“Always high level”** means that Zone A will always run at the desired day temperature. This can be amended if required, see “Room Temp. Day” on page 11.

**“Always low level”** means that Zone A will always run at the set back temperature. This can be amended if required, see “Room Temp. Day” on page 11.

**NB IHS does not recommend the use of the settings titled “always high level”, “always low level” and “Cool” in any situation. Do not select them unless instructed to do so by your installer.**

**“Constant at”** This is the temperature at which the **“constant temp”** option operates. It has no influence on the heating program, or any of the other modes. Normally this setting should not be used, however, it can be useful in situations such as drying screeded/concrete floor. Refer to underfloor heating manual for advice or call IHS.

## Setting The Heating Program



### “Settings heating program”

To change programme times, push D2 to highlight  
Turn D2 until the “**settings heating program**” is highlighted.  
Push D2 to enter the heating program screen.

The D2 button allows the setting of three separate 24-hour periods.

When you have set the times for Monday you can then copy them in to the rest of the days. To do this:

Move the cursor to the bottom of the screen by pressing D2 and scrolling until the “settings for Tuesdays” is highlighted.  
Push D2 to highlight “**unequal**”.  
Turn D2 until this changes to “**equal**” and push D2 once more so that “**next**” is highlighted.  
Push D2 once more.

The screen will now change to the settings for Tuesday, which should be the same as set for the previous day.

Continue to change each day as required.

### **Important Notes**

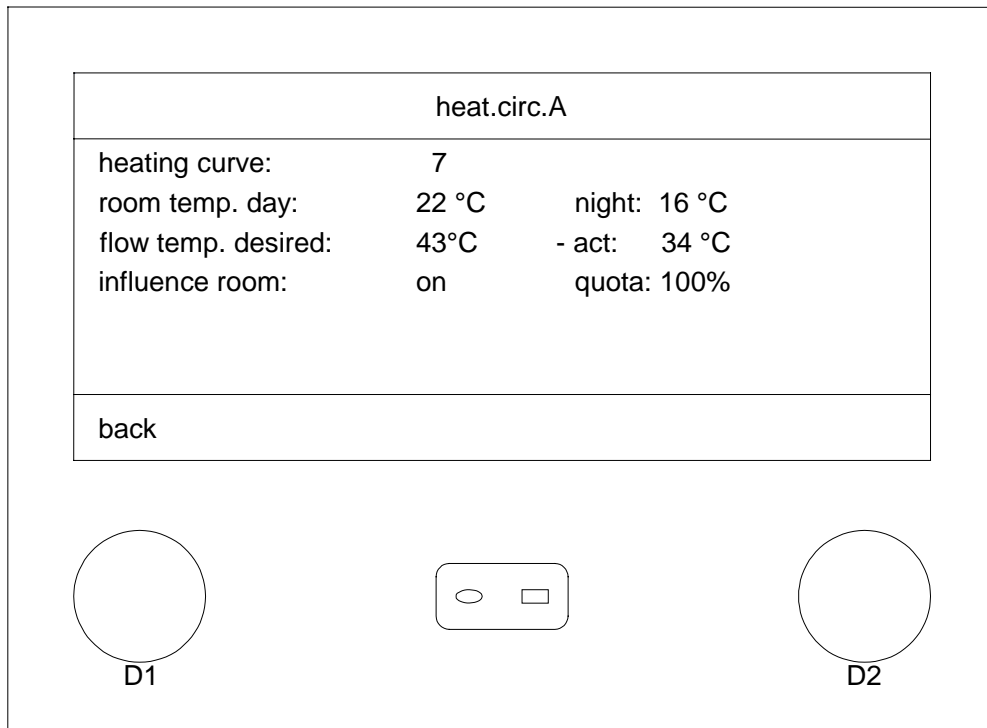
- You cannot set times earlier than 0:00 or later than 23:59 for any period.
- The computer has a slight time lag and sometimes the changes don't copy to the next day. You may have to go back again. It's a matter of not rushing. We find that the following always works: When you have highlighted "next" wait until the "equal / unequal" line changes back to "unequal" and then push D2.

**“Frost Protection”**

Using this option simply means that pumps for the zones will run constantly. In a well-insulated house this should not be necessary.

**To continue scrolling through Zone options:**

Select “**next**” at the bottom of the screen. This brings you to page two for that particular zone. The menu heading is still “heat.circ.A” (see below).



**“Heating curve”**

This determines how the heat pump output temperature reacts to outside temperature variations. The normal setting should be 7. A larger number will mean a higher overall temperature.

**“Room Temp. Day”**

This is the target temperature for Zone A when the heating programme is on. Typically a living area is set to 20°C. The temperature can be set by accessing the menu (as explained above the illustration), highlighting **Room Temp. Day** and then turning **D2** until the desired temperature has been reached. This temperature can be further adjusted at the zone stat as required. As in all underfloor heating installations, it is much better to make a small adjustment every 24 hours until a comfortable level is reached.

**“Room Temp. Night”** Located to the right of “room temp. day”, this displays the target temperature when the heating program is off. This is the setback temperature which is typically set to 17°C. This feature ensures that the temperature will not fall below 17°C.

**NB** It's much easier to think of Day as 'On' and Night as 'Off'. With economy times, “On/Day” could be in the middle of the night and “Off/Night” could be during daytime.

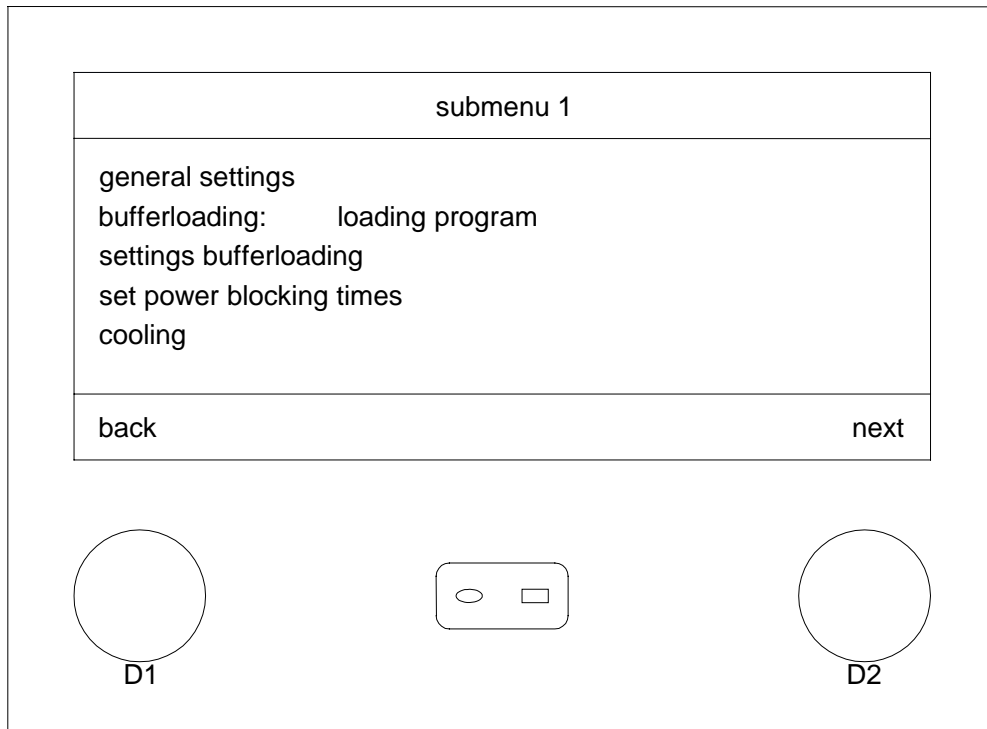
**“Flow Temp. Desired”** This is the temperature the heat pump is trying to achieve. It cannot be changed as it's a computation depending on outside temperature, zone stat, pipe sensor and Day/Night room temperature.

**“Act.”** This is the flow temperature that the heat pump is measuring for that particular zone. If it's lower than the desired temperature, the heat pump should be sending heat to that zone.

**“Influence Room”** This is a critical setting that should always be 'on'. It determines whether the computer is acting on the information received from the zone stat. If for any reason the heating function is changed to “constant temperature” then the “influence room” setting defaults to “off”. This should be one of the first areas to check if you experience overheating or underheating problems.

**“Quota”** Should be set at 100%. Do not adjust.

## Changing The Hot Water Settings



### To navigate:

From the main screen push D2 to highlight the cursor, then turn rapidly until "next " is highlighted at the bottom left of the screen.

Push D2 once more. This displays sub menu 1 and a page that starts off with "generell settings" (forgive the incorrect spelling). Ignore this line for now.

Scroll down to "**buffer loading**". (Remember that this terminology applies to the domestic hot water). By selecting this function using D2, you will be offered the following options: "always off", "always on" and "loading program".

#### **"Always off"**

The domestic hot water will not be heated.

#### **"Always on"**

The heat pump will always heat the tank when the temperature in the tank falls below 47°C. Please be aware that there is no time control if this option is selected meaning the heat pump could be heating the domestic hot water at expensive times.

#### **"Loading program"**

The hot water is timed according to the program which you can set on the next line as follows.

**NB As this system has hot water priority, when the heat pump is in hot water mode, heat is not delivered to the heating circuits to heat the house.**

To programme your hot water:

Select “**Settings Buffer Loading**”

Push D2 to highlight and turn D2 until the “**periods for buffer loading**” is highlighted.

Push D2 to enter the time periods desired.

There are three periods of 24 hours that can be set by using the D2 button.

When you have set the times for Monday you can then copy them in to the rest of the days. To do this:

Move the cursor to the bottom of the screen by pressing D2 and scrolling until the “settings for Tuesdays” is highlighted.

Push D2 to highlight "unequal".

Turn D2 until this changes to "equal" and push D2 once more so that "next" is highlighted.

Push D2 once more. The screen will now change to the settings for Tuesday, which should be the same as set for the previous day.

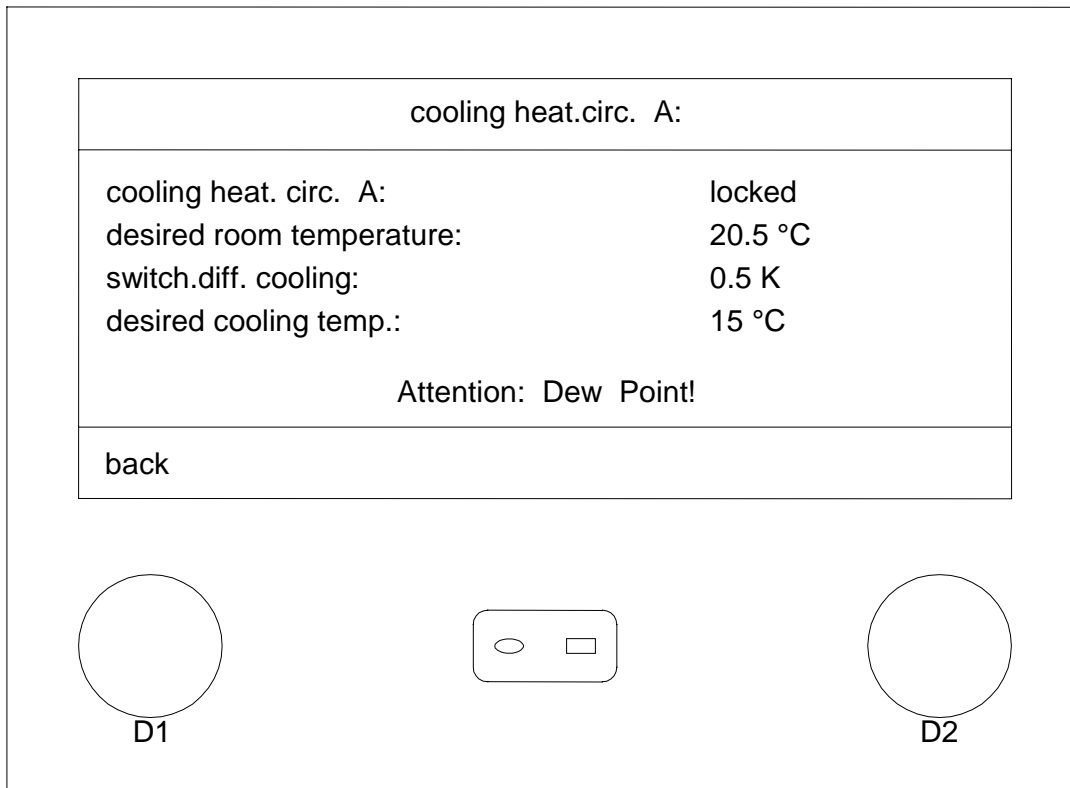
Continue to change each day as required.

### **Important Notes**

- You cannot set times earlier than 0:00 or later than 23:59 for any period.
- The computer has a slight time lag and sometimes the changes don't copy to the next day. You may have to go back again. It's a matter of not rushing. We find that the following always works: When you have highlighted "next" wait until the "equal / unequal" line changes back to "unequal" and then push D2.

### **“Set power blocking times”**

This setting allows you to set times at which you don't want the heat pump to operate. We do not recommend the use of this option.



**“Cooling”**

These functions are only relevant if your heat pump has an integrated cooling option.

*\*If you do not have a cooling option, ignore this section.*

On entering the cooling sub menu, you will see:

**“Cooling heat.circ. A”**

The option choice is either ‘locked’ or ‘released’. “Locked” means that the cooling function is off. “Released” means that the heat pump will automatically go into cooling mode if the “summer-winter-change” temperature is exceeded.

**“Desired room temperature”**

This is the temperature at which a particular zone can be maintained (illustration above refers to Zone A). If, for example, the “desired room temperature” is set to 20°C then the heat pump will deliver cooling to that zone.

**“Switch diff. cooling”**

This is the differential where the cooling will be enabled typically 0.5 or 1°C above the room temperature.

**“Desired cooling temp”**

This is the minimum flow temperature that the heat pump delivers, typically 18°C. If you have more than one zone, the settings for Zone B, C, D etc can be found by selecting ‘next’ at the bottom of the screen.

**NB** Special attention should be paid to the dew point. Dew point is the temperature below which condensation can occur. Please confirm with your underfloor heating supplier that dew point monitoring has been included in the system. The monitoring system should include a method of shutting down the cooling if conditions are such that condensation could form on any floor or wall cooling, causing damage or potential slip hazards.

Click on **next** for two further settings on the next page.

**“Settings domestic water”**

Here you can set the desired hot water tap temperature. The heat pump will modulate the pump (ie control the pump speed) on the buffer tank’s heat exchanger to try and maintain this temperature. This setting is normally 49°C. Do not adjust this setting without authorisation from your supplier.

**“Cement floor heating program”**

This can be used to dry out a new screeded floor (standard European screed specification is DIN EN 1264-4). **NB. IHS does not recommend the use of this setting and accepts no liability for damage to floors arising from its use. Please contact IHS for alternative advice in this regard.**

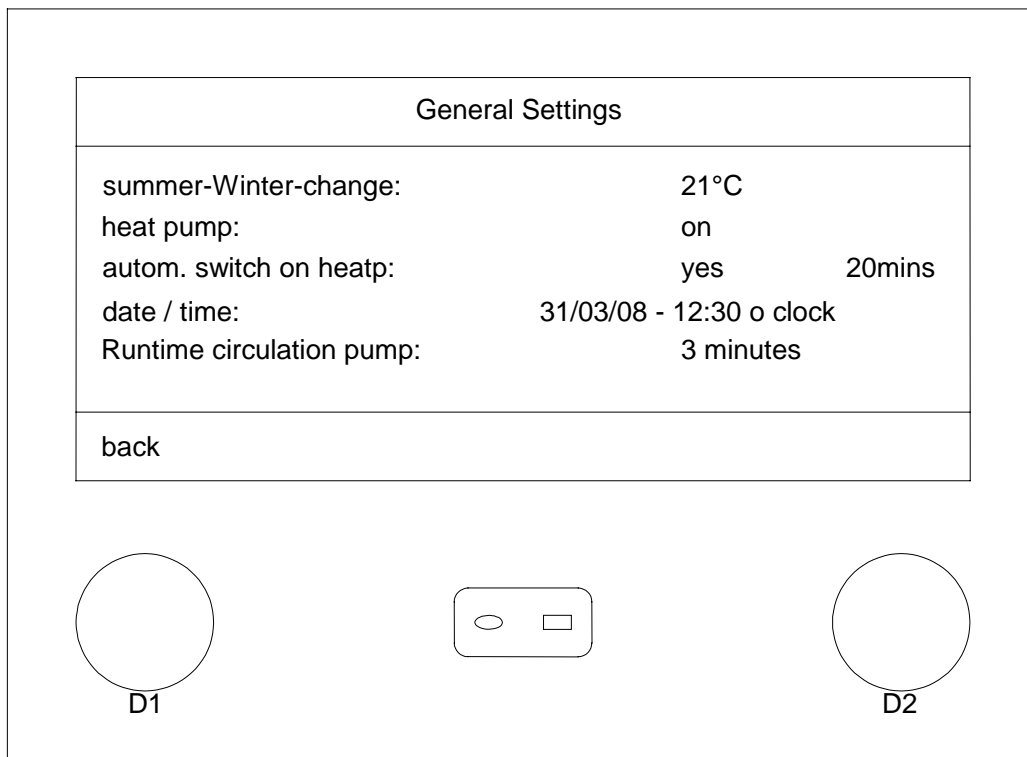
## General settings

To access further settings:

From the main screen push D2 to highlight the cursor, then turn rapidly until "next " is highlighted at the bottom left of the screen.

Push D2 once more. This displays sub menu 1 and a page that starts off with "generell settings" (forgive the incorrect spelling).

Highlight "**general settings**" and enter by pressing D2.



The following menu options are available:

### **“Summer-winter-change”**

This is the setting which causes the heat pump to stop heating in the summer. Normally it is set for 20°C. Above this temperature the heat pump will stop heating but will still make hot water.

### **“Heat pump”**

As a general rule, this setting should always be ‘on’.

### **“Autom. switch on heatp”**

Should be set to “yes”. The “20 min” on the screen refers to the typical time delay to which it should be set.

**“Date / time”**

This function allows programming of date and time. It is important that these are set accurately in order to achieve the maximum benefit from any economy tariffs. This setting should be checked on a regular basis.

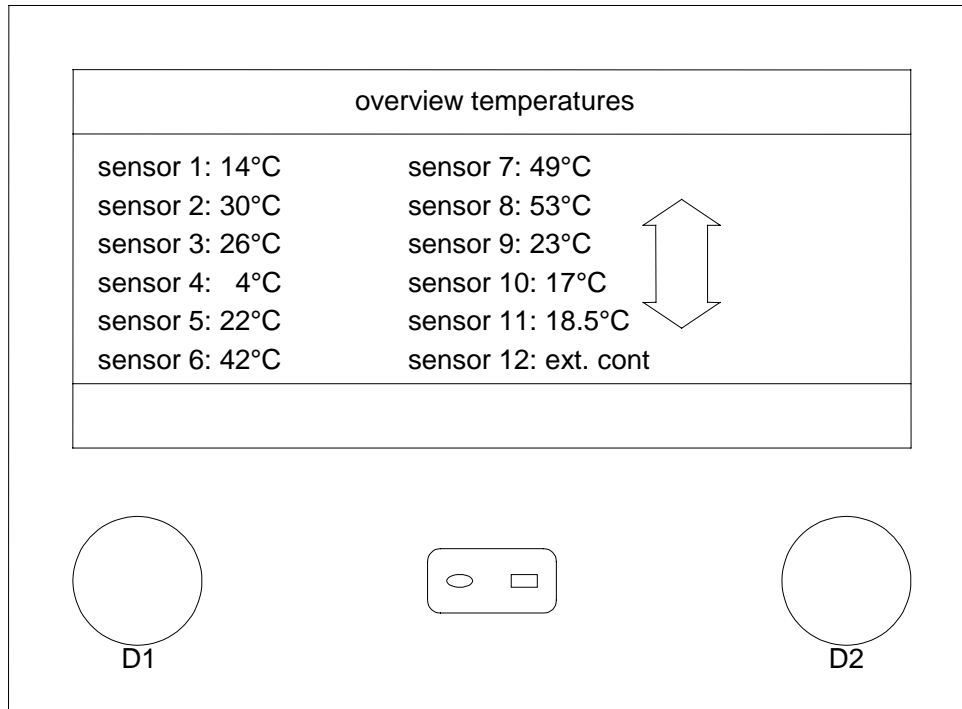
**NB Please note that the system does not automatically update to reflect seasonal time change (BST). You will need to update this yourself.**

**“Runtime circulation pump”**

This refers to the option of having your domestic hot water secondary return (bronze pump) controlled by the heat pump which would normally be controlled by a timer. Do not adjust this setting unless advised to do so by your installer.

## Temperature & Relay Status Overview

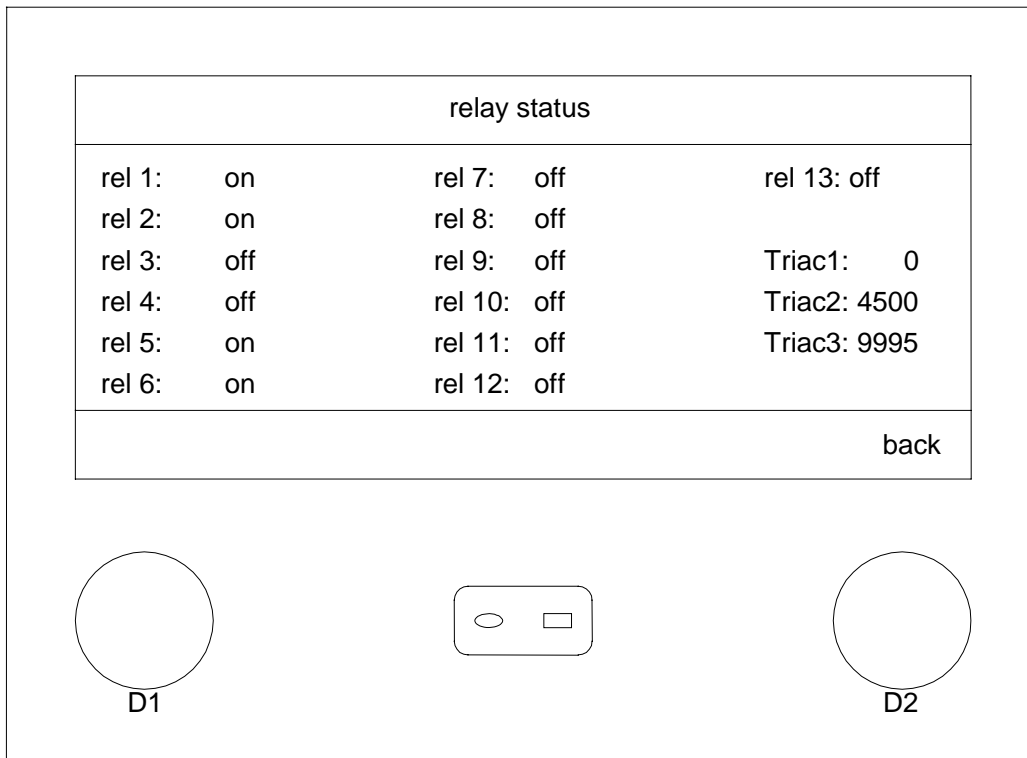
By lifting the lid of the controller unit you will see some additional function buttons. Pressing F6 will take you to **submenu 2**. Use D2 to highlight the first line "temperatures. operating hours, impulses". Press D2 once more to enter. The following screen will be displayed.



Sensor 1	Current external temperature	Sensor 7	Tap Temperature
Sensor 2	Heat Pump Flow	Sensor 8	HGL Circuit Temp
Sensor 3	Heat Pump Return	Sensor 9	Zone B Flow
Sensor 4	Ground Water Return	Sensor 10	Zone A Room
Sensor 5	Zone A Flow	Sensor 11	Zone B Room
Sensor 6	Buffer Tank Temp (domestic hot water)		

## Relay Status

If you go to the second line after initially pressing F6 you will find relay status: "relaisstatus". Here you can see what the heat pump is doing at any given moment.



Rel 1	Ground Water Pump	Rel 10	Mixer HGL open
Rel 2	First stage on	Rel 11	Mixer HGL closed
Rel 3	Mixer for A open (hot position)	Rel 12	Re-circulation pump (if closed)
Rel 4	Mixer for A closed (cold position)	Rel 13	Error display
Rel 5	Second stage on	Triac 1	Domestic hot water pump on heat exchanger
Rel 6	Pump for zone B on	Triac 2	Heat pump circulating pump (buffer loading)
Rel 7	Mixer for B open	Triac 3	Pump for zone A
Rel 8	Mixer for B closed		
Rel 9	Cooling valve		

**NB Do not use the remaining functions (F1 – F5) unless instructed by IHS.**

General Operating Problems  
HGL Ground & Water Source Heat Pumps

Code	Symptom	Checks
	<b>No display on heat pump; no green light on switch</b>	Are both the main isolator and auxiliary spur switched on? Check fuse on front panel. Are all the phases present? There are further circuit breakers inside the heat pump; call IHS for advice
<b>Error 1</b>	<b>Heat Pump High Pressure Fault</b>	Usually due to poor circulation on heat pump output. The most likely problem is a blocked filter on the return line from the Hygienik Tank. Switch the heat pump off and ensure the heat pump circulation pump is not running. Isolate with isolation valves, remove filter and clean as required.
		Check for air in the Hygienik Tank. Put a hose on the bleed point at the top of the tank. Open tap to see if any air comes out. Re-pressurise heating system to 1.5 bar as required.
		Is the heat pump circulating pump running? You can usually tell by feeling it. On the smaller Grundfoss pumps you can remove the silver screw on the face of the pump. This will allow you to see if the shaft of the impellor is turning. Be careful of scalding water coming out.
		Do you have sufficient system pressure? Check this on the pressure gauge next to the expansion vessel. If you have two expansion vessels, it will be the <u>larger</u> of the two. Normally it's between 1 and 1.5 bar. Re-pressurise as necessary but if pressure loss persists, look for evidence of leaks in the heating system.

<b>Error 2</b>  Ground Loop/Closed Borehole Systems <b>Only</b>	<b>Low Pressure Fault</b>	This is a low-pressure fault usually caused by insufficient flow rate on the input side of the heat pump. The most likely cause is a blocked strainer/filter on the flow from the ground loop. Switch heat pump off and ensure the ground loop pump is not running. Isolate with isolation valves, remove filter and clean as required.
		Ensure that the ground loop is running. You can usually tell if the pump is running by feeling it. On the smaller Grundfoss pumps you can remove the silver screw on the face of the pump which will allow you to see if the shaft of the impellor is turning.
		Is there sufficient system pressure? Check this on the pressure gauge by the expansion vessel. If you have two expansion vessels it will be the <u>smaller</u> of the two. Normally it's between 1 and 2 bar. Re-pressurise as necessary but if <u>pressure</u> loss persists, look for evidence of leaks in the ground loop system. In a compact heat pump, the pressure gauge is on the bottom left hand side.
		Sufficient anti-freeze level? If the heat pump has shut down after a few hours before showing Error 2, contact IHS. It may be necessary to send an anti-freeze sample to IHS for testing.
<b>Error 2</b>  Open Borehole Systems <b>Only</b>	<b>Blocked Strainer on Flow From Well</b>	Switch heat pump off and ensure the well pump is running. Isolate with isolation valves and clean cartridge with an old toothbrush.
		If the system is a constant pressure one, check that the pressure is indicated on the gauge.
		Check that the outlet 2-port valve is open. You can see the arrow of the actuator heat through the motor casing. It should be pointing in line with the pipe – not at right angles to it. Check that the fault light is not illuminated on the well controller.
		For variable speed units, check that the speed controller is not switched off.
		Is it possible that you have run out of water?

<b>Error 3</b>	<b>Compressor's thermal overload has cut in</b>	<b>Please contact IHS who will recommend that the following are checked by a qualified technician:</b> Is the ambient temperature too high in the heat pump room? It should be less than 35°C. Is the main electricity supply to the heat pump within limits? Are all the phases present? Are the cable terminals tight? Is the heat pump starting and stopping more than four times per hour?
<b>Error 4</b>	<b>Ground water is colder than the pre-set threshold</b>	For ground loops or trenches, the threshold will typically have been pre-set to -8°C by your installer. For open well systems, it should be pre-set to +3°C. This fault will clear when the water temperature rises. Please contact IHS if the problem persists.
<b>Error 5</b>	<b>Heat pump has not increased its temperature over a three-hour period</b>	Consult IHS for advice.
<b>Error 6</b>	n/a	Does not exist
<b>Error 7</b>	<b>Sensor Error</b>	Push F6 to check the temperature status and call IHS for advice.
<b>Error 8</b>		The heat pump is making too many starts per hour. Call IHS for advice.
<b>Error 9</b>		The temperature difference between the flow and return is too large. This can happen in a new building when the floor is being heated for the first time. The heat pump will continue to run.
<b>Error 10</b>		The heat pump has reached its maximum preset temperature. <i><u>This is not a fault.</u></i> The heat pump will switch back on when the temperature falls.
<b>Error 11</b>		The battery on the computer board or display may need to be changed.

## **Routine Maintenance**

The heat pump system needs very little maintenance.

There are three main strainers (filters) to check; ground loop strainer, central heating strainer and hot water plate heat exchanger strainer.

After the heat pump has been in service for more than three months (where any initial problems should arise) they only need to be checked annually (see below). The system however may need to be checked if the heat pump is showing error codes (table above)

Well systems (often referred to as open borehole systems) may require more regular checks - see below.

### **Airing the Hygienik Tank**

In the first three months of operation, regularly check for air in the Hygienik Tank. You can do this by carrying out the following steps:

Place a hose on the bleed point at the top of the tank.

Take to a sink or outside.

Gently open the tap. If air is heard, then wait till it stops.

Re-pressurise the heating system to 1.5 Bar. Get your installer to show you how to do this before leaving the job.

### **Checking the Ground-loop Strainer**

#### **Compact Unit**

To check the strainer in the compact unit:

- Open door and switch off power to the heat pump. Flush / auto switch must be in auto.
  - The ground-loop pump is on the left hand side; underneath this is an isolator valve.
  - Close the isolator valve.
  - Find and identify the strainer, to the left of the strainer is another isolator valve. Close this.
  - Place a small bowl under the strainer and undo the chamber head with a suitable spanner. Remove the mesh and check it has no foreign objects in it. Clean under a tap if need be. Re-fit the strainer.
  - Open the valve to the left.
  - Finally, open the valve inside the heat pump.
  - Ensure that the pressure of the ground-loop system is set to 1.5 Bar.
- Re-pressurise if necessary.

#### **Larger/ Twin Units**

There is no isolation valve inside the heat pump; instead there is one on each side of the strainer. Check as above.

## Checking the Heating Strainer

The strainer is found in the return line between the Hygienik Tank and the heat pump

### Compact Unit

Open door and switch off power to the heat pump.

The heat pump circulation pump is on the right hand side; underneath this is an isolator valve.

Close this.

Find and identify the strainer, to the right of the strainer is another isolator valve. Close this.

Place a small bowl under the strainer and un-do the chamber head with a suitable spanner. Remove the mesh and check it has no foreign objects in it. Clean under a tap if need be. Refit the strainer.

Open the valve to the right.

Finally open the valve inside the heat pump.

Ensure that the pressure of the heating system is set to 1.5Bar.

Re-pressurise if necessary.

### Larger/ Twin Units

There is no isolation valve inside the heat pump; instead there is one on each side of the strainer. Check as above.

### Well System

Switch off the power to the heat pump and switch off the well pump control unit. There is an isolator valve on either side of the filter. Close these. There is a small red drain tap. Place a bowl under this and open the tap. When the water stops flowing unscrew the bottom of the filter and remove the cartridge. If necessary, clean, using a toothbrush. Well systems should be checked every quarter or more frequently if required.

Additionally, check that both the heating and ground loop system is holding pressure at 1.5 Bar.

IHS recommends that the installer has been through a Ground Source Heat Pump course prior to installations

You should ask your plumber/commissioning engineers to demonstrate how to carry out maintenance tasks.

In the case of well systems, you should learn how to check the filter yourself.

## Guarantees

The IDM system carries a two-year labour and parts guarantee.

An extended four-year maintenance contract can be purchased which will give an extra four-year warranty on parts. Under this maintenance agreement, you will be entitled to two system check visits. The engineer will check your heat pump and will compare readings taken when the original commissioning was done with new readings. Additionally the engineer will check you still have sufficient anti-freeze protection in your ground loop system.