



# Enviritech User Manual



*Water-to-Water (Well) Geothermal Heat Pump*

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here

**Service & Warranty Dep't  
Enviritech Ltd  
Kilnattogue  
Rathangan  
Co. Kildare**

## 1. Introduction

Congratulations on selecting Enviritech's water-to-water Heat pump, Engineered and brought to you by Enviritech Engineering Ltd. With this heat pump, you can be assured that you have a product, which is of the highest efficiency, reliability and value for money.

The unit has been designed to bring the utmost of comfort to your home and to supply you with adequate domestic hot water up to a temperature of 55 °C while minimizing your energy cost.

Easy installation, future system extendibility, as well as user friendliness, have been comprehensively considered during the development of this product. Controlling the unit is also very flexible and can easily be integrated into an existing system or form part of a complex holistic building energy management system. We know that you will enjoy this product and will benefit from its superior quality, efficiency and short payback period.

## 2. Safety Instructions

Please read the instructions in this booklet carefully because they contain important information on how to install, use and maintain your heat pump safely as well as containing useful tips on how to make the most of it. Keep this booklet for future reference.

There are certain basic safety rules, which are valid for any domestic appliance. They are as follows:

- Never touch the appliance when your hands or feet are wet or damp
- Do not use the appliance when your feet are bare
- Do not leave the appliance exposed to the natural elements (rain, sun, frost etc. unless designed to do so).
- Do not let children (or others incapable of operating it safely) use the unit without supervision
- Do not remove covers this may only be carried out by authorised personnel.
- Heat Pumps contain gases. If you suspect a gas leak, treat it as any other gas leak. Ventilate the area, avoid use of naked flames & electric equipment. Call Enviritech. All faults must be reported to Enviritech Ltd on 00 353 45 524831 (Monday to Friday 10am to 12.00 pm) before any repair work is carried out.

## 3. Installation

Connect the cold-water feed from the source water to the primary water inlet via the Y strainer provided to the primary water inlet (1" BSP).

Connect the primary water outlet to the drain away via flow switch 1 (optional).

Connect secondary water outlet via flow switch 2 (optional) to the flow pipe of the heating system.

Connect the heating system return pipe via Y strainer provided to the secondary water inlet.

The electrical supply shall be provided via a 20amp motor rated MCB (3 phase models shall be triple pole MCB).

Connect flow switch 1 between terminals 1 and 4 (loop out in absence).

Connect flow switch 2 between terminals 2 and 4 (loop out in absence). Connect remote start signal via volt free contact between terminals 3 and 4.

Connect heating system circulating pump between the terminals 7 and 5.

Connect primary circulating pump/actuated valve between terminals 7 and 6.

### PRE-START CHECKS

1. Ensure system is purged of all air.
2. Ensure all necessary valves are correct.
3. Ensure all pump directions are correct.

## Warranty Registration Details

Please retain the following information for your records

Model No. \_\_\_\_\_ Serial No. \_\_\_\_\_

Dealers' Name: \_\_\_\_\_ Purchase Date: \_\_\_\_\_

**Enviritech Ltd.**

**Kilnantogue**

**Rathangan**

**Co. Kildare**

**Ph/Fax: 00 353 45 524831**

**E-mail: [Info@etech.ie](mailto:Info@etech.ie)**

**Website: [www.etech.ie](http://www.etech.ie)**

Calls for faults will be accepted 10am ~ 12noon (Monday to Friday) only



Please cut along the dotted line

### Enviritech Ltd Product Warranty Registration Form

Purchase Date: \_\_\_\_\_

Model Name: \_\_\_\_\_

Serial No: \_\_\_\_\_

Customer Name: \_\_\_\_\_

Customer Address: \_\_\_\_\_

\_\_\_\_\_

Contact No: \_\_\_\_\_

Place of Installation: \_\_\_\_\_

Name of Installer: \_\_\_\_\_

Contact No: \_\_\_\_\_

Date of Installation: \_\_\_\_\_

Name of Dealer: \_\_\_\_\_

Contact No: \_\_\_\_\_

I agree to Enviritech's Terms & Conditions

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

#### 4. Timer ① Range : 0 - 24hours

- ② The timer function will be disabled if the times for automatic on and automatic off are the same.

#### 5. Power Down Memory

The parameter settings will not be lost on power down occasions. If the wire controller is disconnected by accident, the system will remain working normally. Whether the power down occurs while the unit is on or off, once the power is restored the unit will be restored to the state prior to the occurrence of power down (if switch JP5 is disconnected). Timer settings before the occurrence of power down will become void after the power is restored.

#### 6. Unit Protection

##### • Winter Anti-freeze Protection

##### (1) For Secondary Water

While the unit is off once the inlet secondary water temperature is lower than the set value for P3, in sixty seconds the unit will automatically run heating mode to protect itself from freezing.

##### Anti-freeze Protection Process

Secondary water pump on → 4-way reversing Valve, primary water pump on → compressor On → inlet secondary water temp > 15°C → All Outputs closed in sequence → Unit back to off or Interlocked state.

If the inlet secondary water temperature is no bigger than P3 plus 3°C, the secondary water pump will run for five minutes every thirty minutes.

##### (2) For Primary Water

While the unit is off, or the 2-way valve is interlocked, once the inlet primary water temperature is lower than the set value for P3, in sixty seconds the unit will automatically start the primary water pump. After the inlet primary water pump is above 10°C, the primary water pump will stop and the unit go back to off or interlocked state.

##### • Compressor Running Protection

1. Time delay from Compressor On to Compressor Off: sixty seconds
2. Time delay from Compressor Off to Compressor On: three minutes.
3. To ensure that the compressors will run in a balanced way, the system will count the accumulated running time of each compressor. The system always starts the compressor with the shortest accumulated running time first, and shuts down the compressor with the longest accumulated running time.
4. To reduce the shock of starting current, for dual compressors system, there will be a delay of at least 30 seconds between the start-ups of 2 compressors, and at least 10 seconds between the shutdowns of 2 compressors.

##### • Insufficient Secondary Water Flow Protection

All outputs will be closed if water flow is insufficient. The system uses two approaches to check whether the secondary water flow is insufficient.

##### ① Water Flow Switch

The system will check Water Flow Switch (if fitted), forty seconds after the pump is on. Insufficient secondary water flow protection will be activated if the switch is observed to be disconnected for a continuous 10 seconds.

#### Note:

- (1) Errors 01, 02, 03, 04, 05, 07, 09, 11, 13, 15, 16, 17, 18, 24, 25 can be reset automatically after the errors have been corrected.
- (2) Reset errors 06, 19, 20, 21, 22, 23 can only be reset manually.
- (3) Errors 08, 10, 12, 14 cannot be reset on the panel but will require a power down sequence.
- (4) Errors 20, 21, 22, 23 will be disabled within the first five minutes after the compressor is started.

### 10. After Sales Service

#### Before calling for Service

1. Check the trouble-shooting guide carefully to see if you can correct the fault yourself.
2. Power the unit off at the mains isolator, wait for ten minutes and then try to operate the unit once more.  
If both attempts fail, please call for Service, describe the fault and give the Model Number, Service Number, your address and phone number.

#### WARNING

A certified Service technician only, must carry out Service. It is dangerous for anyone else to perform any repair service.

Where to find Model No and Service No:  
On left hand side of unit.

### 11. Warranty Details

The warranty applies solely to the heat pump. If any part is found to be defective due to faulty manufacture within the guarantee period of 2 years from date of purchase, Envirotech Engineering Ltd. through its Authorised Service Repairers will affect the repair or replacement to the customer providing:

- (a) The fault is reported immediately & directly to Envirotech Engineering.
- (b) Proof and date of purchase is provided.
- (c) The fault is not caused by bad installation, misuse, neglect or faulty adjustment by the user.
- (d) The failure has not occurred through fair wear and tear.
- (e) The machine has not been serviced or repaired, taken apart or tampered with by any person unauthorised by Envirotech Engineering Ltd.
- (f) The Machine has not been used for hire, commercially or in a portable manner.
- (g) The machine is owned by the original purchaser.
- (h) The correct voltage is supplied.
- (i) The product guarantee card has been returned.

Failures due to the following are not covered, therefore it is important that you read the instructions contained in the Operator's Manual and understand how to operate and maintain your machine:

1. Incorrect parameter setting.
2. Isolation valves inadvertently turned off.
3. Poor or no circulation.
4. Insufficient and / or poor water quality supply.
5. Insufficient frost protection / Insulation.

6. Incorrect / Inadequate control.

The warranty does not cover damage caused by outside factors, such as lightning, water, fire, frost, nor does it apply if the unit numbers on the equipment have been changed, removed or rendered illegible.

Other failures not covered by guarantee;

- Failures as a result of not reporting an initial fault.
- Failures as a result of sudden impact.
- Failures as a result of not using the product in accordance with the instructions and recommendations contained in this Operator's Manual.
- Failure as a result of the machine been stored or transported in a non-up right position.
- Failure to service unit within one year of installation with authorized personnel.
- Failure as a result of any parts fitted to the unit, which are not the original manufacturer's parts.

**Caution!**

Enviritech Ltd. does not accept liability under the warranty for defects caused in whole or part, directly or indirectly by the fitting of replacement parts or additional parts that are not either manufactured or approved by Enviritech Ltd, or by the machine having been modified in any way.

**12. Who to contact in the event of a fault during guarantee period.**

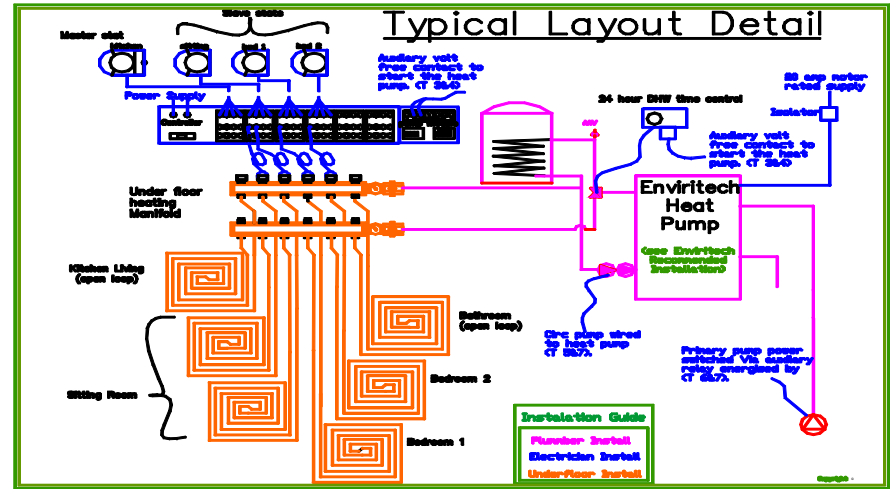
Please refer to warranty card provided.

The following items listed are considered as wearing parts and their life is dependent on regular maintenance and is therefore not normally subject to a valid warranty claim:

1. Screws and fixings
2. Refrigerant charge
3. Fouling of filters, pipelines, valves and heat exchangers.
4. Surface protection, painting & corrosion.
5. Fuses, switches, relays, MCB's and electrical protective devices.

This guarantee is additional to, and in no way diminishes the customer's statutory rights.

**The manufacturer declines all responsibility in the event of any printing mistakes in this booklet. The manufacturer also reserves the right to make appropriate modifications to its products, its warranty and its terms and conditions without changing the essential characteristics.**



**4. System Settings**

1. Multiple functions are available for selection by users (through switching between disconnected and connected state.)

Jumper	Disconnected	Loop Wired
JP1	Equipments self check-up. User regulation not allowed.	
JP2	Both Systems Valid	System 1 valid only
JP3	Compressor starts one minute after power is up	Compressor starts three minutes after power is up
JP4	Primary Unit	Secondary Unit
JP5	Automatic Unit Start-up allowed when power is restored	Only manual / remote signal unit start-up allowed when power is restored
JP6	Interlock control valid	Interlock control not valid
JP7		
JP8	Cooling only	Heat Pump

2. Default Values (D=disconnected, C=Connected):

JP1	JP2	JP3	JP4	JP5	JP6	JP7	JP8
D	D	C	D	D	D	D	C

3. For valid function selection, setting should be finished before power is up.

## 5. Panel Regulation & Parameter Setting

### 1. Panel Buttons



### 2. Panel Regulation

( 1 ) ON/OFF BUTTON Press this button to switch on or off the unit.

( 2 ) MODE BUTTON

Press this button to switch the unit between HEAT and COOL mode. Only avail on deluxe models

( 3 ) TIMER BUTTON

Pressing this button once, the user can set the "HOUR" digit for "AUTOMATIC ON".

Pressing this button once more, the user can set the "MINUTE" digit for "AUTOMATIC ON".

Pressing this button once more, the user can set the "HOUR" digit for "AUTOMATIC OFF".

Pressing this button once more, the user can set the "MINUTE" digit for "AUTOMATIC OFF".

Pressing this button once more will restore the screen back to normal display. Pressing this button continuously for 5 seconds, the user can adjust the clock time.

Further adjustment through "Δ" "▽" buttons.

( 4 ) RESET BUTTON

If a fault has already been remedied, pressing RESET Button will clear up the fault code on the display screen. Otherwise, pressing RESET Button is void.

( 5 ) "Δ" "▽" BUTTONS Press these buttons to change the values of the parameters.

( 6 ) SET BUTTON

Press this button to check up the running parameters. Press this button continuously for ten seconds to set parameter values. The control panel will be restored from parameter setting mode if no buttons are pressed within 5 seconds.

## 6. Parameter Setting & Display

Serial No.	Parameter Name	Max	Min	Precision	Default
P0	Outlet Secondary Water Temp Too Low in Cooling	10	0	°C	5°C
P1	Outlet Secondary Water Temp Too High in Heating	67	40	°C	60
P2	Temp Difference Between Inlet and Outlet Secondary Water Temps for Insufficient Water Flow Protection	30	5	°C	20
P3	Winter Anti Freeze Protection Cut-in Temp	5	0	°C	3
P4	Inlet/Outlet Primary Water Temp Too High in Cooling	65	40	°C	55
P5	Inlet/Outlet Primary Water Temp Too Low in Heating	25	3	°C	10
P6	Backup Electricity Heating Element Cut-in Air Temp	10	-5	°C	5
P7	Temp Difference Between Inlet and Outlet Water Temps	10	0	°C	5

## 7. Temperature Check-up (press the set button to display)

Serial No.	Parameter
0	Outlet Secondary Water Temp
1	Ambient Air Temp
2	Inlet Primary Water Temp
3	Outlet Primary Water Temp

## 8. Trouble Shooting Guide

### If the Heat Pump does not operate, please check the following:-

1. Is there power getting to unit
2. Has the MCB tripped?
3. Are all valves open?
4. Is there a fault reading on the control panel.
5. Is there sufficient circulation in the system?
6. Is there adequate water flow.
7. Check refrigerant gases on side panel, ensure both are reading above 0.4Mpa

### How to maintain the Heat Pump and it's Accessories

- Cleaning is the only maintenance operation normally required. It must be carried out with the unit Isolated. Use a liquid detergent, water and a cloth or sponge to clean it.
- Do not use chemical products or abrasive compounds to clean any part.
- Annual service by an authorized agent is advised In order to ensure that your heat pump continues to operate efficiently and effectively. Enviritech Engineering can advise you of a suitable agent in your area.
- Y strainers may require cleaning periodically depending on the water quality. Simply open the cap and remove the strainer. Rinse until clean and replace.

## 9. Unit Fault and Protection

Error No.	Input Port	Fault	Code	Treatment
1	TH1	Inlet Secondary Water Temperature Sensor Fault	01	Close All Outputs (Except For Water Pump)
2	TH2	Outlet Secondary Water Temperature Sensor Fault	02	Close All Outputs (Except For Water Pump)
3	TH3	Ambient Air Temperature Sensor Fault	03	Close All Outputs (Except For Water Pump)
4	TH4	Inlet Primary Water Temperature Sensor Fault	04	Close All Outputs (Except For Water Pump)
5	TH5	Outlet Primary Water Temperature Sensor Fault	05	Close All Outputs (Except For Water Pump)
6	FLOW	Insufficient Water Flow	06	Close All Outputs
7	HP1	High Pressure Protection-Compressor 1	07	Compressor 1 Off
8	///	More Than 2 Times High Pressure Protection in One Hour-Compressor 1	08	Compressor 1 Off
9	LP1	Low Pressure Protection-Compressor 1	09	Compressor 1 Off
10	///	More Than 2 Times Low Pressure Protection in One Hour-Compressor 1	10	Compressor 1 Off
11	HP2	High Pressure Protection-Compressor 2	11	Compressor 2 Off
12	///	More Than 2 Times High Pressure Protection in One Hour-Compressor 2	12	Compressor 2 Off
13	LP2	Low Pressure Protection-Compressor 2	13	Compressor 2 Off
14	///	More Than 2 Times Low Pressure Protection in One Hour-Compressor 2	14	Compressor 2 Off
15	///	Outlet Secondary Water Temp Too High in Heating	15	Compressor(s) Off
16	///	Inlet Secondary Water Temp Too Low in Cooling	16	Compressor(s) Off
17	///	Winter Anti Freeze Protection for Secondary Water	17	Starts Heating Mode
18	///	Winter Anti Freeze Protection for Primary Water	18	Starts Primary Water Pump
19	FW-C	Primary Water Flow Switch Protection	19	Close All Outputs (Except Water pump)
20	///	Inlet Primary Water Temp too High in Cooling	20	One Compressor Off
21	///	Outlet Primary Water Temp too High in Cooling	21	One Compressor Off
22	///	Inlet Primary Water Temp too Low in Heating	22	One Compressor Off
23	///	Outlet Primary Water Temp too Low in Heating	23	One Compressor Off
24	///	Communication Fault	24	Close All Outputs
25	BUS	Synthetic Fault	25	Close All Outputs

②Temperature Difference between Inlet and Outlet Secondary Water Temperatures

When the difference is bigger than the set value for P2, insufficient water flow protection will be activated.

- **Primary Water Flow Switch Protection**

The system will check the Primary Water Flow Switch (if fitted) forty seconds after the primary water pump is on. If the switch is observed to be disconnected for a continuous 10 seconds, Insufficient Primary Water Flow Protection will be activated and the compressor(s) will be shut down.

- **High/Low Pressure Protection**

- 1 High Pressure Protection: If the High Pressure Switch is observed to be disconnected, High Pressure Protection will be activated and the corresponding compressor will be shut down.
- 2 Low Pressure Protection: When the Low Pressure Switch is observed to be disconnected for a continuous 30 seconds, the corresponding compressor will be shut down. (Low Pressure switch will not be observed within 30 seconds before the compressor is started).

The system will reset automatically (if the fault is corrected) if the number of Protection occurrence is not more than two in one hour; otherwise, the fault will be locked.

- **Outlet Secondary Water Temp Too High in Heating**

In heating mode, if the outlet secondary water temperature is higher than the set value for P1, compressor(s) will be shut down till the outlet water temperature becomes 15°C lower than the set value.

- **Inlet/Outlet Primary Water Temp Too High in Cooling**

In cooling mode, five minutes after the compressor is started, if the inlet or outlet primary water temperature is higher than the set value for P4, one compressor is shutdown.

- **Inlet/Outlet Secondary Water Temp Too Low in Heating**

In heating mode, five minutes after the compressor is started, if the inlet or outlet secondary water temperature is higher than the set value for P5, one compressor is shutdown.

### Heating/Cooling Signal Output

Cooling Signal (P-C): In cooling mode, thirty seconds after the first compressor in the Primary unit is started, the signal will be transmitted to other units. After both compressors are shut down, the signal will be cut out.

Heating Signal (P-H): In heating mode, thirty seconds after the first compressor in the Primary unit is started, the signal will be transmitted to other units. After both compressors are shut down, the signal will be cut out.

### Interlock Function (Remote Start signal T3&4)

When the unit is off, the system will keep checking the state of the interlock switch. If the switch is connected, the unit will be started. If the switch is disconnected, the unit will be shut down.