



# HYBRID INSTRUCTIONS

## HP290 MONOBLOC HEAT PUMP SYSTEM



When replacing any part on this appliance, use only spare parts that you can be assured conform to the safety and performance specification that we require. Do not use reconditioned or copy parts that have not been clearly authorised by Ideal Heating.

For the very latest copy of literature for specification and maintenance practices visit our website [idealheating.com](http://idealheating.com) where you can download the relevant information in PDF format.



## NOTES FOR THE INSTALLER

For any technical queries please contact the Ideal installer helpline : 01482 498663



**WEEE DIRECTIVE 2012/19/EU**  
**Waste Electrical and Electronic Equipment Directive**

- At the end of the product life, dispose of the packaging and product in a corresponding recycle centre.
- Do not dispose of the unit with the usual domestic refuse.
- Do not burn the product.
- Remove the batteries.
- Dispose of the batteries according to the local statutory requirements and not with the usual domestic refuse.



The code of practice for the installation, commissioning & servicing of central heating systems



NOTE TO INSTALLER: LEAVE THESE INSTRUCTIONS WITH APPLIANCE

*Ideal Heating reserve the right to vary specification without notice*

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## 1.1 GENERAL SAFETY INSTRUCTIONS

Prior to installation and maintenance of the product, make sure that:

- General safety instructions are read and understood.
- When working on the outdoor unit with the casing panels removed, a gas detector must be present which is set to  $\leq 25\%$  of the lower explosive limit of R290.

If the gas detector indicates that R290 is present, work must be stopped and a Cat I or Cat II F-gas certified engineer with a City and Guilds 6187-21 certificate or equivalent must be contacted.

- There is an awareness of relevant regulations and guidelines, and that they are obeyed.
- Sections specific to the work to be undertaken are read.
- Work performed is correctly documented.

### 1.1.1 Risks and Warning

**⚠ WARNING: Failure to obey the warnings can result in death or severe injury. Detailed hazardous events and how to prevent them are presented in their relevant sections throughout the document.**

#### Flammable Refrigerant

- The heat pump is charged with R290 which is a flammable, odourless, and colourless refrigerant. A leak from the refrigerant circuit can create a hazardous environment. To reduce the risk of a hazardous event, the installation instructions must be followed. The installation area must be kept clear of ignition sources, including but not limited to; electrical switches, electrical plug sockets, and lamps.

#### Transport and Storage of Boxed Unit

- The heat pump must be transported and stored in an upright position. When still in the packaging, the product and surrounding area should be kept clear of ignition sources and should be handled with caution.

#### Installation and Safety Devices

- If the installation requirements of this document are not upheld there is increased risk of a hazardous event occurring. All pre-installation checks and the specific installation requirements of each individual product and the system must be implemented and obeyed.

#### Modification of the Products and Installation Environment.

- The product is not to be modified or tampered with in any way that is not defined and approved by this document. Make sure that the requirements for both the products and installation environments are always followed. The end user should be properly informed of the installation area and product requirements during the handover process.

#### Improper Maintenance

- The product is to be regularly maintained and serviced by an appropriately qualified service engineer. The end user should be properly informed of maintenance and care requirements during the handover process.

#### Inappropriate Operation

- The product is to be operated as outlined in both this document and the user manuals. The end user must be properly informed of intended and acceptable operation methods during the handover process.

#### Electrical Risk

- Work on electrical components must only be done by a competent electrician. Electrical supplies must be locked in the off position when any work is done near electrical

components. Failure to comply with this requirement can result in severe injury or death.

If any of the supply cables are damaged, they must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

#### Correct Disposal of Waste

- Waste from the products, such as cardboard, plastics, and refrigerant must be disposed of appropriately and recycled where applicable. Refrigerant must not be released into the atmosphere.

#### Presence of Frozen Condensate in Walkways

- There is condensate produced by the Heat Pump which can potentially build up around the heat pump and freeze if not properly disposed of. Appropriate disposal methods of the condensate should be implemented and maintained to prevent slipping hazard.

#### Safe Handling

- The installer is responsible for their own health and safety. In the United Kingdom the manufacturer recommends that the installer refers to the newest revision of the guidance given in HSE document L23, Manual Handling Operations Regulations 1992 (Fourth Edition). The installer must do their own risk assessment to identify the correct and safest method of handling the heat pump (HSE Guide L23 - <https://www.hse.gov.uk/pubns/priced/l23.pdf>). In Ireland, the manual handling must comply with the Safety, Health and Welfare at Work, (General Applications) Regulations 2007.

## 2.1 INTRODUCTION

This kit is required for all hybrid installations consisting of the HP290 monobloc heat pump. The HP290 monobloc heat pump is compatible with heat only, system and combination boilers in hybrid installations.

All settings relating to hybrid installations should be set up and altered by a competent person. For full installation instructions, refer to the HP290 Installation & Maintenance manual.

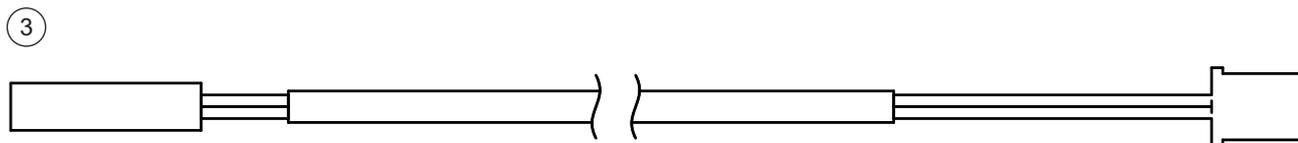
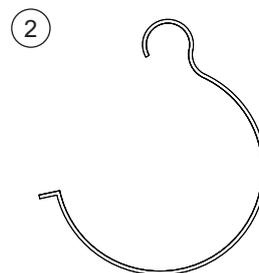
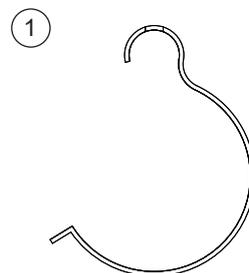
**Note.** The hybrid kit can be connected to the indoor PCB or the outdoor PCB.

## 2.2 GLOSSARY OF TERMS

<b>AHS</b>	Additional Heat Source
<b>T1</b>	Common Flow Thermistor
<b>T4HMIN</b>	Outdoor temperature at which the heat pump will turn off in heating mode.
<b>T4_AHS_ON</b>	Outdoor temperature at which the boiler will activate in heating mode.
<b>T4DHWMIN</b>	Outdoor temperature which the heat pump will turn off in DHW mode.

## 2.3 KIT CONTENTS

1. Thermistor Clip 22 mm x1
2. Thermistor Clip 28 mm x1
3. Thermistor (T1) 10 m x1



## Section 3 - Installation

### 3.1 INSTALLING THE HP290 HYBRID KIT

Install the HP290 Hybrid kit as follows (Refer to Figure 1):

1. Make sure that the appliance ON/OFF switch is set to OFF.
2. Make sure that the electrical power to the outdoor unit and indoor unit is isolated.
3. Remove the HP290 Monobloc top and side panels. Refer to the HP290 Installation & Maintenance manual 4.1.7 Accessing the Casing.
4. **On the Outdoor PCB (Figure 2), set dip-switch S2 (switch 1) to ON.** (Refer to the HP290 Installation & Maintenance manual Section 5.5).
5. Attach the T1 Common Flow Thermistor (supplied with the Hybrid Kit) to connector CN13 (Figure 2) on the outdoor unit or CN6 on the indoor unit (Figure 3).

**Note.** If it is preferred to connect the T1 Common Flow Thermistor to the indoor PCB. Make sure that power to the indoor control box is isolated, remove the cover and connect the Thermistor Wire to CN6 on the indoor PCB (Figure 3).

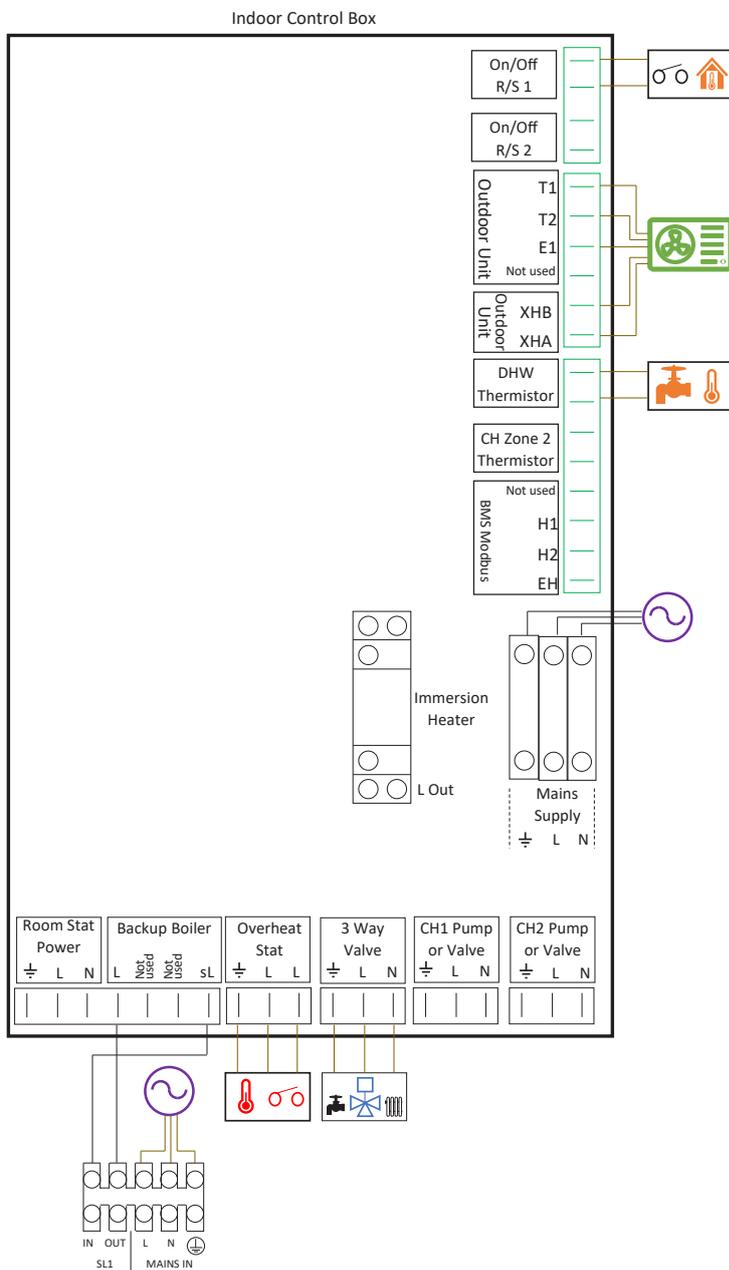
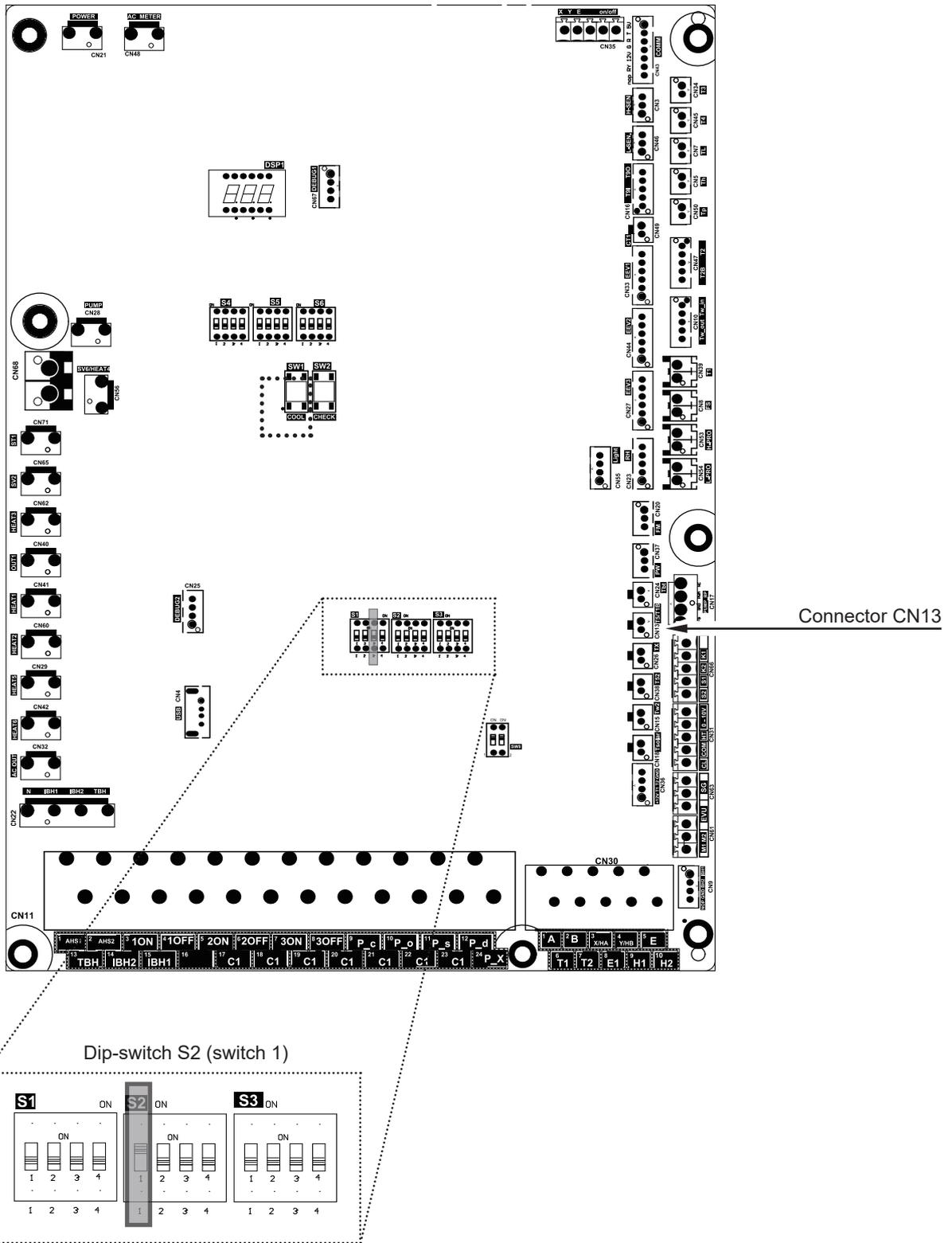


Figure 1. HP290 Hybrid Wiring Diagram

# Section 3 - Installation

**ⓘ IMPORTANT:** If you prefer to connect the Common Flow Thermistor to the outdoor unit, use the T1 thermistor (10 m) and connect to CN13.



**ⓘ IMPORTANT:** Refer to the HP290 Installation & Maintenance manual Section 5.5. (Only applicable if you have the HP290 control box)

Figure 2. HP290 Outdoor PCB

# Section 3 - Installation

**ⓘ IMPORTANT:** If you prefer to connect the Common Flow Thermistor to the indoor control box, use the T1 thermistor (10m) to connect to T1 on CN6.

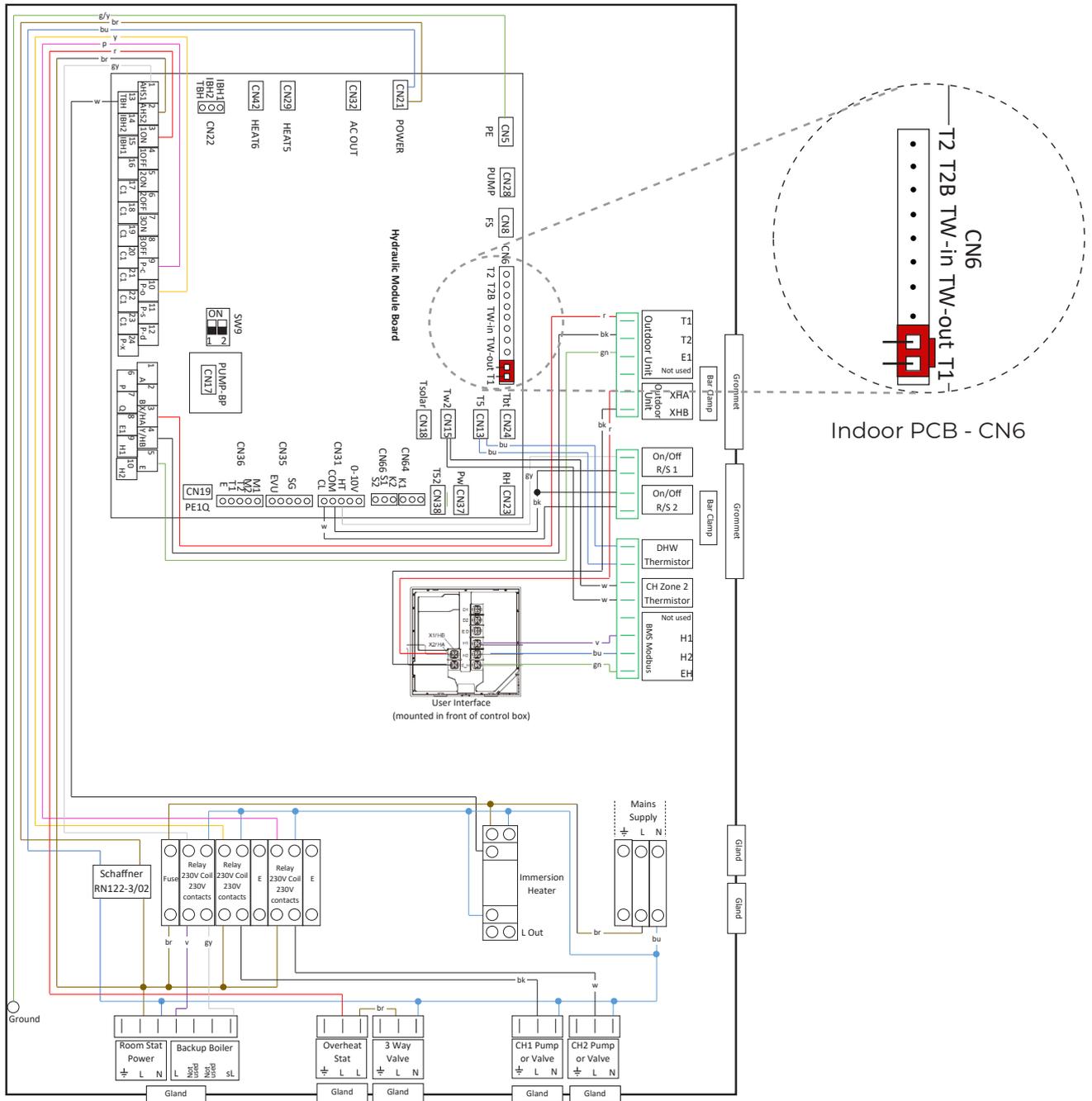


Figure 3. HP290 Control Box - Internal Wiring

INSTALLATION

## 4.1 HP290 INTERFACE LAYOUT

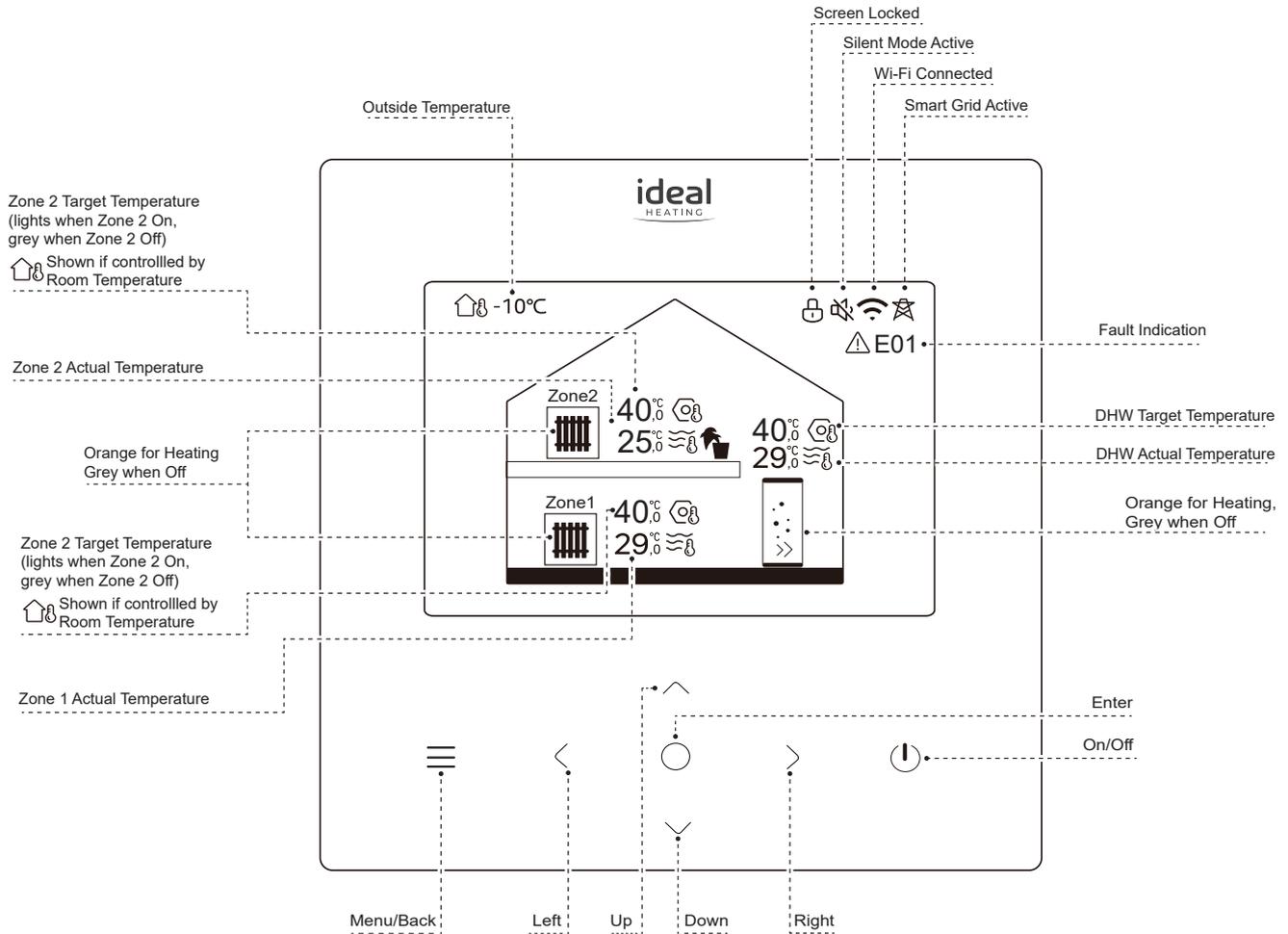


Figure 4. Control Box Homepage display

For Operating Status press O

For Menu press ≡

If no touch-buttons are pressed for 30 seconds the screen dims, switching off after a further 10 seconds.

Press any touch-button to re-activate the screen.

### To enable/disable the DHW function

To enable/disable the system DHW function, from the Home page display use the following touch buttons  $\vee$ ,  $\wedge$ ,  $\rangle$  and  $\langle$  until the DHW tank symbol is illuminated. Then press  $\odot$  to enable/disable. Set the system DHW function as instructed in Table 1.

## Section 4 - Commissioning

### 4.1.1 Hybrid Mode Settings

The settings in Table 1 must be inputted into the controller depending on the type of system. See sections 4.1.2 to 4.1.5 for setting instructions.

**Table 1 Hybrid Mode Controller Settings**

Hybrid System Type		Controller Settings						
Boiler Function	Heat Pump Function	System DHW Function (See 4.1.6)	AHS Function Setting (See 4.1.2)	T4HMIN (See 4.1.3)	T4_AHS_ON (See 4.1.4)	t_AHS_Delay (See 4.1.4)	T4DHWMIN (See 4.1.5)	TBH Function (See 4.1.7)
Combination Boiler Providing Heating & Hot Water	Heat Pump Providing Heating Only	OFF	Heating	Bivalent*	Bivalent*	5 minutes	- 25 °C	Yes
System Boiler Providing Heating Only	Heat Pump Providing Heating Only	OFF	Heating	Bivalent*	Bivalent*	5 minutes	- 25 °C	Yes
System Boiler Providing Heating Only	Heat Pump Providing Heating & Hot Water	ON	Heating	Bivalent*	Bivalent*	5 minutes	- 25 °C	Yes
System Boiler Providing Heating & Hot Water	Heat Pump Providing Heating & Hot Water	ON	Heating and DHW	Bivalent*	Bivalent*	5 minutes	Bivalent*	No

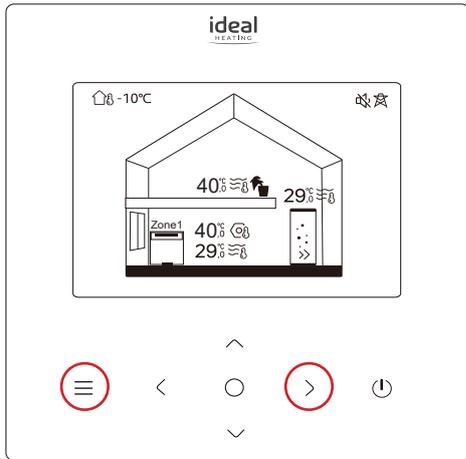
\* Set to the bivalent temperature based on heat loss calculations for the property.

**ⓘ IMPORTANT! T4HMIN AND T4\_AHS\_ON MUST BE SET TO THE SAME VALUE TO PREVENT IMPROPER OPERATION.**

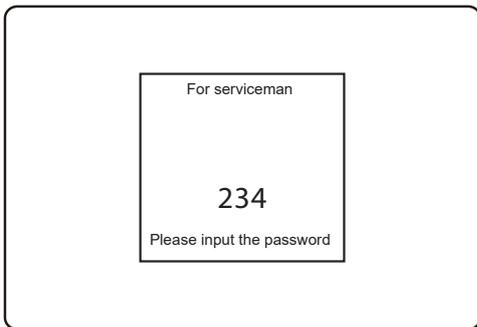
# Section 4 - Commissioning

## 4.1.2 Configuring Hybrid Mode

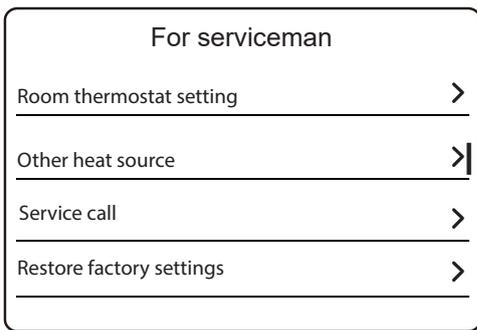
From the Indoor Control Box Homepage display (Figure 4), set the Additional Heat Source (AHS) function as follows:



Press and together for 3S. Then the next screen will be shown.



Enter the password (234).



Select **Other heat source**

Other heat source	
AHS function	Heating and DHW
AHS_Pump_I Control	Run
dT1_AHS_ON	5°C
t_AHS_Delay	30minutes

In AHS function select either **Heating and DHW** or **Heating** in accordance with Table 1.



Other heat source	
AHS function	Heating
AHS_Pump_I Control	Not run
dT1_AHS_ON	5°C
t_AHS_Delay	30minutes

In **AHS Pump\_I Control** select **Not run**



Other heat source	
AHS function	Heating
AHS_Pump_I Control	Not run
dT1_AHS_ON	5°C
t_AHS_Delay	30minutes

Pump\_I will not run when AHS is running alone. Please confirm there is independent pump for AHS.

NO YES

Select **YES**

## Section 4 - Commissioning

### 4.1.3 Setting the Heating Bivalent Point (T4HMIN)

**Note:** T4HMIN is the outdoor temperature below which the heat pump will not operate in heating mode.

From the For Serviceman menu, set the T4HMIN as follows:

For serviceman	
Cooling setting	>
Heating setting	>
Auto mode setting	>
Temp. type setting	>

Select **Heating setting** then the next screen will be shown.

Heating setting	
T4HMAX	21°C
T4HMIN	7°C
dT1SH	5°C
dTSH	2°C

Select **T4HMIN** and set to the bivalent temperature based on heat loss calculations for the property.

### 4.1.4 Setting the boiler heating mode activation temperature (T4\_AHS\_ON)

**Note:** T4\_AHS\_ON is the outdoor temperature below which the additional heating source is on.

From the For Serviceman menu, set the T4\_AHS\_ON as follows:

ⓘ **IMPORTANT:** When setting the T4\_AHS\_ON make sure that the temperature is the same as T4HMIN, this is the outdoor temp at which the back-up boiler comes on.

For serviceman	
Cooling setting	>
Heating setting	>
Auto mode setting	>
Temp. type setting	>

Select **Other heat source** then the next screen will be shown.

Other heat source	
t_AHS_Delay	30minutes
T4_AHS_ON	7°C
EnSwitchPDC	NO
GAS-COST	0,85

Select **t\_AHS\_Delay** and set to 5minutes.

Select **T4\_AHS\_ON** and set to the bivalent temperature based on heat loss calculations for the property.

## Section 4 - Commissioning

### 4.1.5 Setting domestic hot water bivalent point (T4DHWMIN)

**Note:** T4DHWMIN is the outdoor temperature below which the heat pump will not operate in domestic hot water mode.

From the service menu set the **T4DHWMIN** as follows:

For serviceman	
Cooling setting	>
Heating setting	>
Auto mode setting	>
Temp. type setting	>

Select **DHW setting** then the next screen will be shown.

DHW setting	
T4DHWMIN	-10°C
t_INTERVAL_DHW	5minutes
T5S_DISINFECT	65°C
t_DI_HIGHTEMP.	15minutes

Select **T4DHWMIN** and set to the desired outdoor temperature at which the heat pump will turn OFF in Domestic Hot Water mode. At this selected outdoor temperature the AHS will turn ON to satisfy a Domestic Hot Water demand.

### 4.1.6 Setting DHW function to OFF

Press  and  together for 3S. Then the next screen will be shown.

For serviceman	
234	
Please input the password	

Select **DHW setting**.

DHW setting	
DHW setting	>
Cooling setting	>
Heating setting	>
Auto mode setting	>

Set **DHW mode** to NO.

DHW setting	
DHW mode	NO
Disinfect	YES
DHW priority	YES
Pump_D	YES

### 4.1.7 Turning off TBH function

From the For Serviceman menu, set the TBH function as follows:

Select **Other heat source**.

For serviceman	
Room thermostat setting	>
Other heat source	>
Service call	>
Restore factory settings	>

Set **TBH function** to NO.

For serviceman	
TBH function	NO
dT5_TBH_OFF	5°C
t_TBH_Delay	30minutes
T4_TBH_ON	5°C

## 5.1 SYSTEM SCHEMATICS

For the HP290 Hybrid System Schematics refer to the HP290 Heat Pump Guides.





At Ideal Heating we take our environmental impact seriously, therefore when installing any Ideal Heating product please make sure to dispose of any previous appliance in an environmentally conscious manner. Households can contact their local authority to find out how. See <https://www.gov.uk/managing-your-waste-an-overview> for guidance on how to efficiently recycle your business waste.

#### Technical Training

Our Expert Academy offer a range of training options designed and delivered by our experts in heating. For details please visit: [expert-academy.co.uk](http://expert-academy.co.uk)

Ideal Boilers Ltd., pursues a policy of continuing improvement in the design and performance of its products. The right is therefore reserved to vary specification without notice.

Hereby, Ideal Boilers Ltd declares that the radio equipment type (model HP290 Heat Pump System) is in compliance with: Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address

**[idealheating.com/declaration-of-conformity](http://idealheating.com/declaration-of-conformity)**

RF frequency is 2.4000GHz to 2.4835GHz

Max RF output power is less than or equal to 20dBm

Ideal is a trademark of Ideal Boilers.

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