Adia

Making heating smart, finally.

# Adia Hub v1.2 Installer Manual

Last Updated: September 2025

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# Getting Support

We're here to help with your technical support needs.

### Website Messaging

Scan to message us on our website

### WhatsApp Support

Scan to message us on WhatsApp

### Phone Support

Call our toll-free number:

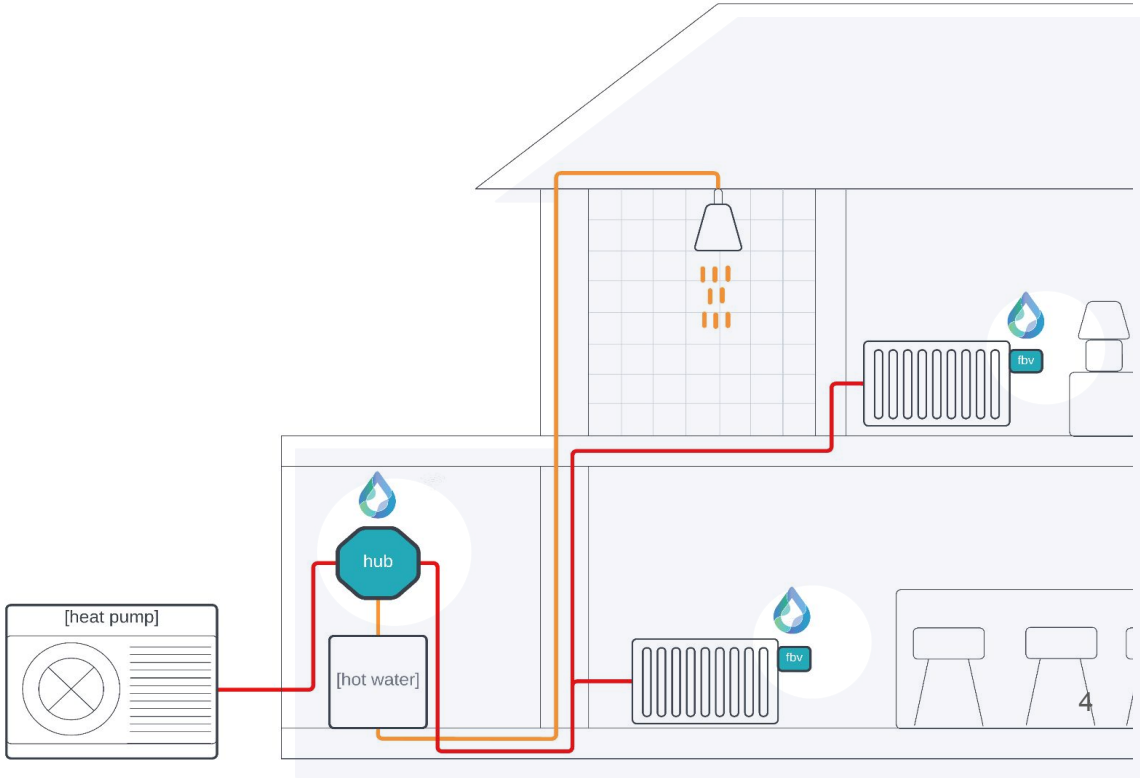
**0345 257 1001**

# Overview

Adia Thermal is an integrated controls system that connects the heating source, hot water, and radiators.

Its Hub and Flow Balancing Valves (FBVs) are installed alongside the heat pump, seamlessly retrofitting with existing pipework and radiators. Once in place, Adia Thermal measures room-by-room heat loss and dynamically balances the system to maintain load and keep the heat pump running efficiently.

For the first time, installers and homeowners can achieve intelligent zoning for heat pumps without compromising performance.

# Key Components

Adia Thermal has three main components for installation.


### Adia Hub

The Adia Hub is a pre-plumbed interface between the heat pump and the existing heating system, as well as the brains of the unit. The hub comprises smart hydraulic separation, a secondary pump and a hot water diverter valve for full control over the heating system.

### Flow Balancing Valve (FBV)

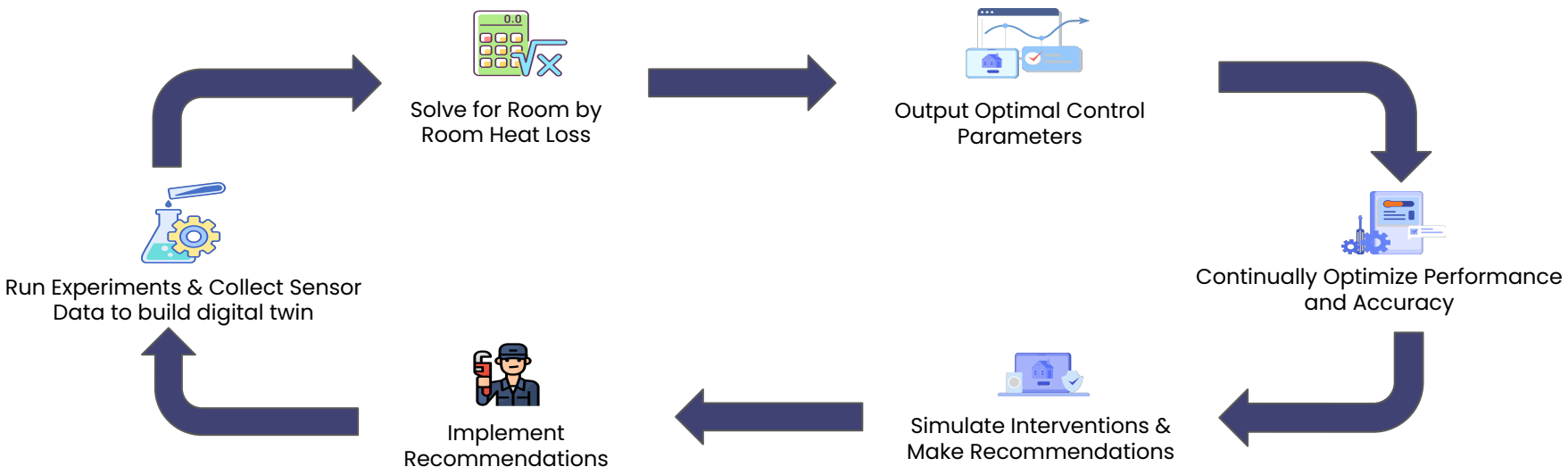
A Flow Balancing Valve is fitted to the TRV head on each radiator and these are used to modulate the output of heat from the radiator by controlling the position of the valve.

### Ambient Temperature Sensor (ATS)

An Adia Ambient Temperature Sensor needs to be placed in each room to guarantee optimal system performance.

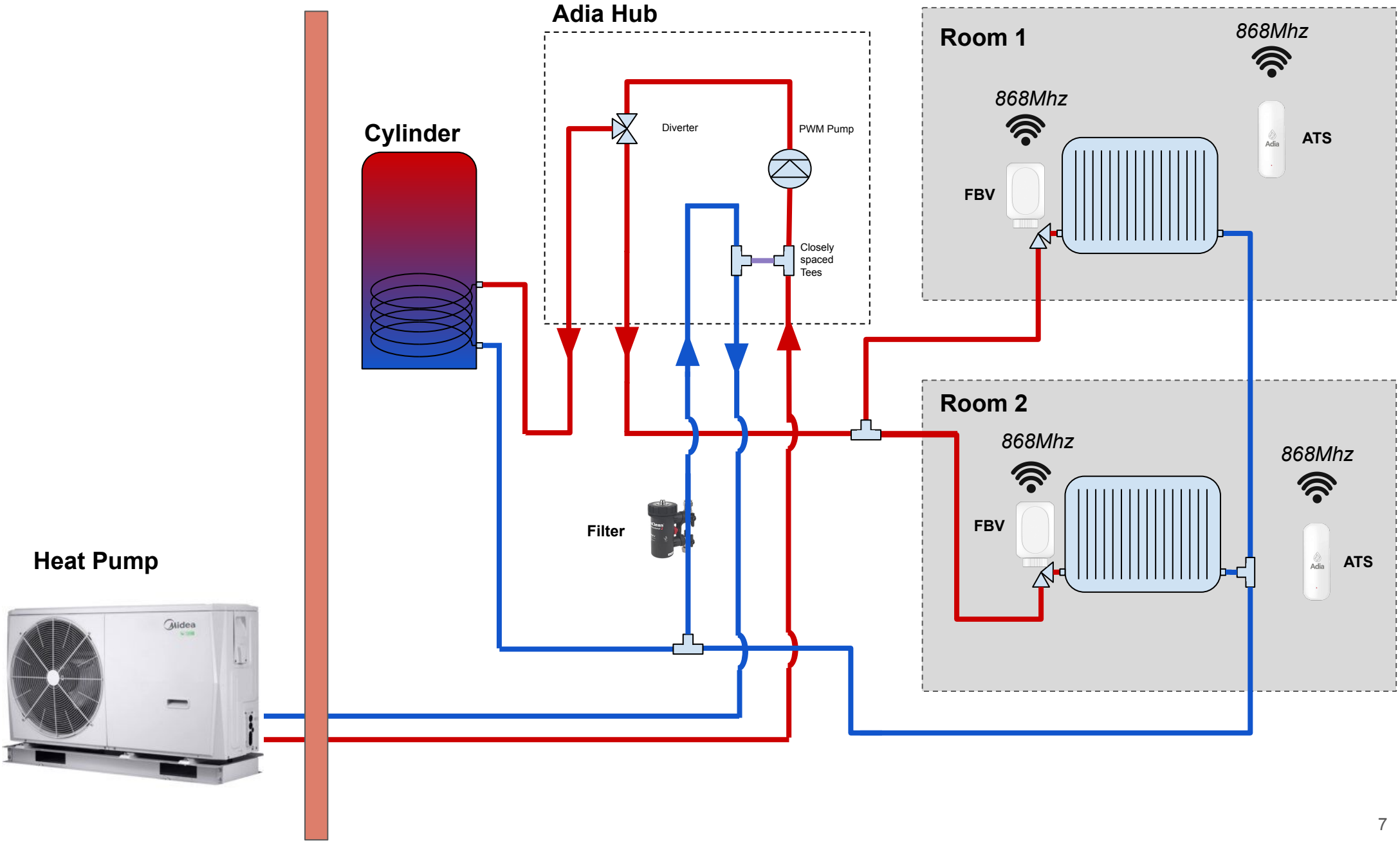
# How it Works

1. The heat pump is sized by the installer based on whole-home heat loss.
2. Adia Thermal is installed together with the heat pump, reusing the existing pipework and radiators.
3. Commissioning is completed through the Adia App, which also runs a system check before handover.
4. Adia AI performs an initial calibration, accounting for pipe lengths and flow rates to balance the system.
5. During operation, Adia AI builds a room-by-room heat loss profile and continuously adjusts flow and operating parameters to optimise comfort and efficiency.
6. The system detects bottleneck radiators or cold spots that drive up flow temperature and reports these to the homeowner and installer, including estimated savings.
7. When radiators are upgraded, Adia Thermal automatically recalibrates to the new system characteristics.




**A visualisation of the adaptive nature of Adia's controls**

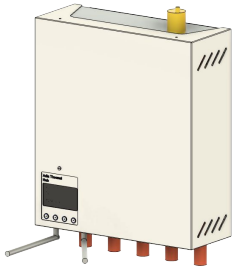
# System Reference Diagram



# Installation Prep

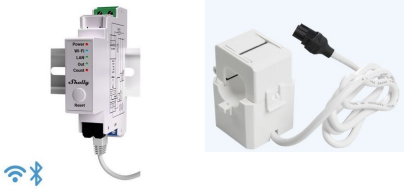
# What's in the box?

**1 x Adia Thermal Hub**



**1 x Hub Wall Mounting Bracket**

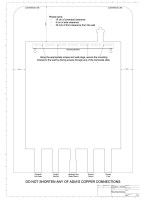
**1 x Shelly Pro EM 50A & 2 x CT Clamps**



**1 x 24VDC, 40A Relay**

**Blue and Red 3/16" Spade Connectors**

**1 x Paper Wall Mounting Guide**



**1 x AAV, G0.5", 10 bar**

**1 x Resistor, 120 Ohm**

**1 x Fuse, Glass, 250V, 5A, 20x5mm, Quick Blow**

**1 x Antenna, 868Mhz, Black, SMA**

**1 x Antenna, 2.4Mhz, ISM Band, TNC Connector**

# Installing the Adia App

The Adia App allows you to install Adia products, remotely test, configure and analyse system performance.

It is available on the Google Play store and Apple App stores. Scan the relevant QR code to the right.

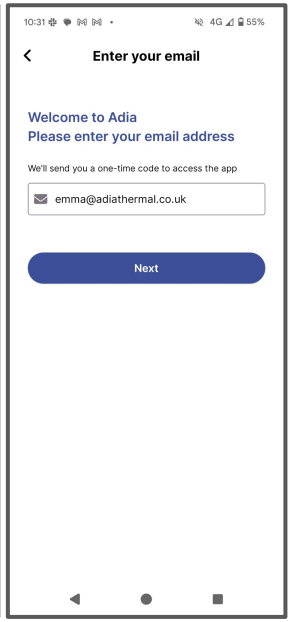
GET IT ON Google Play

Download on the App Store

Once you have installed the app, you can create an account and reach the ‘Scan Hub’ page.

1.


2.

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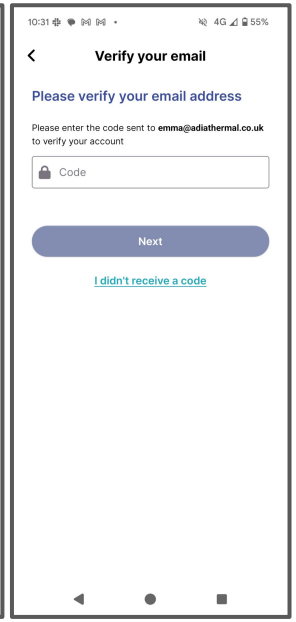


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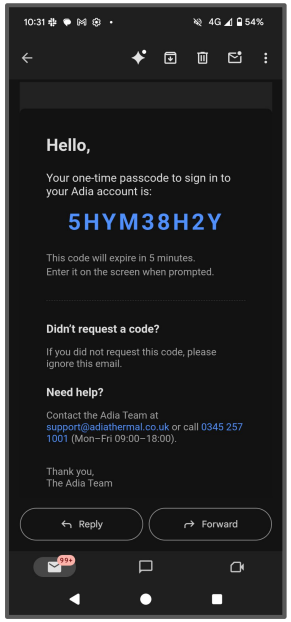


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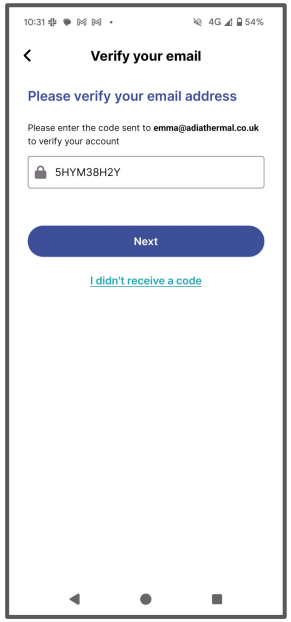


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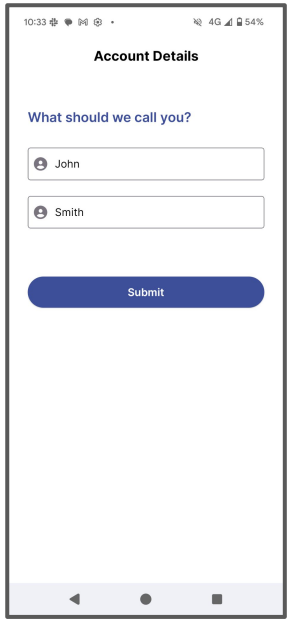


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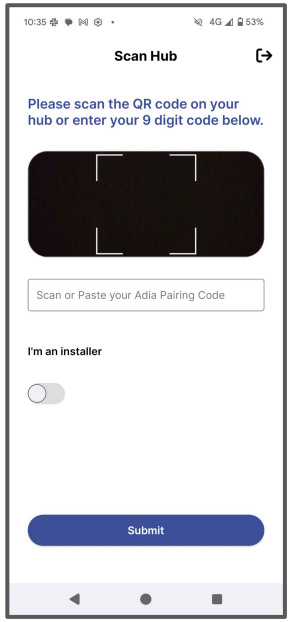


# Planning to install with Adia Thermal: Part 1

Installing a heat pump with Adia is straightforward, but several factors must be considered to ensure a smooth setup.

**Compatible Heat Pumps**
Adia Thermal connects to the heat pump via Modbus (or EBus for Vaillant) to control flow temperature.

**Refrigerants**
Adia works best with R290 high-temperature heat pumps, which provide higher flow temperatures and consistent comfort.

**Heating System Compatibility**
Adia Thermal is designed for homes with radiators plumbed in parallel. Each room must have its own heating loop (though multiple radiators within a room can be in series). This allows Adia to monitor flow through each loop and calculate heat input.

***Note:*** *Adia is not yet compatible with underfloor heating.*

**Hot Water Cylinders**
A hot water storage cylinder is required. Both specialised heat pump cylinders and existing cylinders or thermal stores are supported.

| Adia Compatible Heat Pumps (September 2025) | | |
|---|---|---|
| **Make** | **Model** | **Notes** |
| Ideal | HP290 | Basic screen controller unit (3 button) is required for Modbus connection to heat pump and **must be ordered separately.** |
| Midea (Riello, Clivet, Airwell) | All modern models, R32 and R290 | Basic screen controller unit is required for Modbus connection to heat pump. |
| Samsung | All modern models | A separate MIM-B19N board is required for Modbus and **must be ordered separately**. |
| Vaillant | Arotherm Plus | A sensoCOMFORT is required and **must be ordered separately.**<br><br>**Please get in touch with Adia for wiring instructions and required parts.** |
| Haier | Monobloc GT | **Please get in touch with Adia for wiring instructions.** |

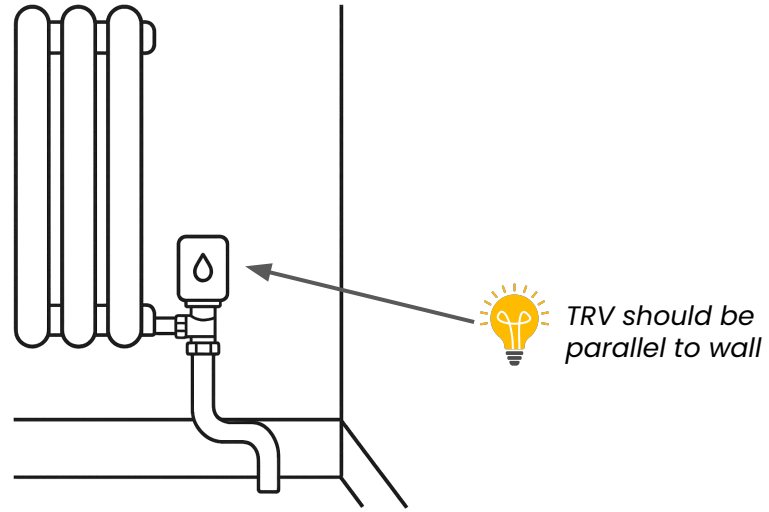
*If you wish to install Adia Thermal with a heat pump which is not on the list, please let us know at sales@adiathermal.co.uk and we can discuss an integration. Please note this will take a minimum of 1 month.*

# Planning to install with Adia Thermal: Part 2

## Radiator Considerations

Each radiator (including plumbed towel rails) requires a TRV body on which to fit the Adia Thermal FBV.

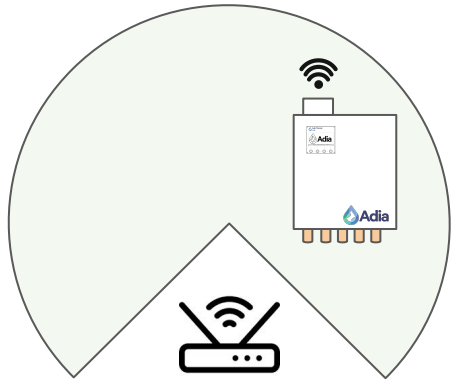
The valve pin should be parallel to the surface of the wall, to ensure that the FBV does not present a tripping hazard.




## WiFi Connectivity Requirements

Adia Thermal requires reliable WiFi both for system setup and for performance optimisation. Adia Thermal should not be installed in homes without working WiFi, and accommodations should be made to ensure the hub receives good signal.

The FBVs and ATSs do NOT connect to WiFi, but connect to the hub over their own network.



# Planning to install with Adia Thermal: Kit List

An Adia Thermal **replaces** the need for the following equipment for an installation:

- Diverter Valve
- Secondary Pump
- Buffer Tank / Low Loss Header / Volumiser
- Heat Meter
- Internet Module (certain heat pump brands)
- Third Party Monitoring
- Flow setters

However, it is important to consider how the system will communicate with the heat pump.

- **Manufacturer control module**. In most cases this is still required for system setup and in some cases for modbus control. For Samsungs, an extra MIM Modbus interface adaptor is required.
- **Ethernet cable**. Ethernet cables have multiple twisted pairs which are ideal for running comms between the heat pump and the Adia Hub & the manufacturer control unit.

## Not Required

## Required

Simple Screen Controller

Cat 5 Cable

Modbus Adapter (Samsung Only)

## Tools Needed

Multimeter

Screwdrivers

Crimpers

Pliers

Wire Strippers

# Adia Hub Setup

# Installing the Adia Hub

Most of the Adia Thermal setup occurs after plumbing and wiring are complete, but three considerations must be addressed before starting standard installation.

## Where to Mount the Hub

The Adia Hub is designed to fit within the footprint of the removed gas boiler, with all wet connections located on the bottom for straightforward plumbing.

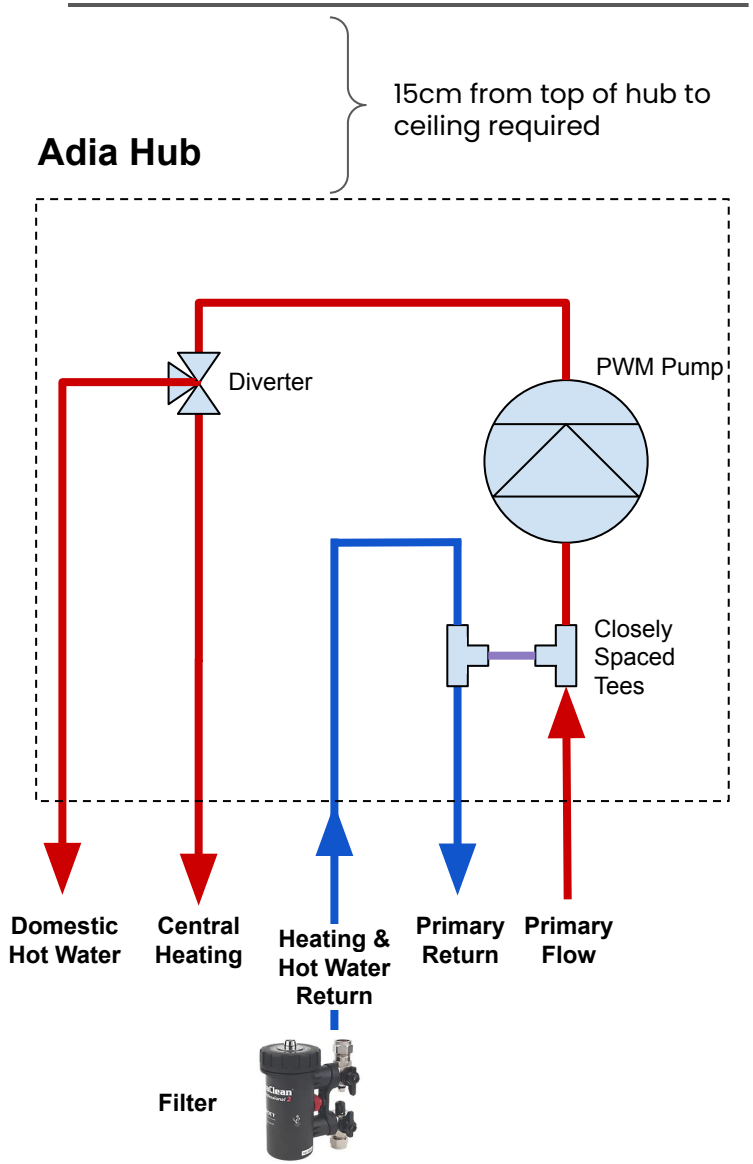
A reliable WiFi connection is required for both setup and ongoing performance optimisation. **The hub should be installed where the WiFi signal is strong, or a range extender should be added if necessary.**

## Wet Connections

Plumbing the Adia unit is simple. The five bottom connections are (from left to right):

1. Domestic Hot Water (DHW)
2. Central Heating (CH)
3. Shared Return (DHW & CH)
4. Primary Return
5. Primary Flow

DHW and secondary returns must be teed together after the last radiator, with the system filter installed between the tee and the Adia unit (see diagram).

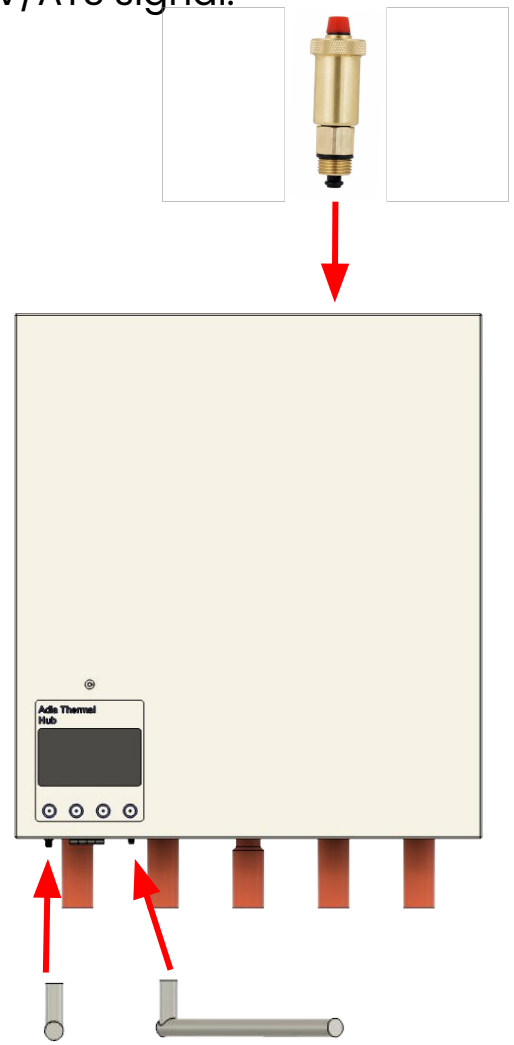



## Powering the Adia Hub

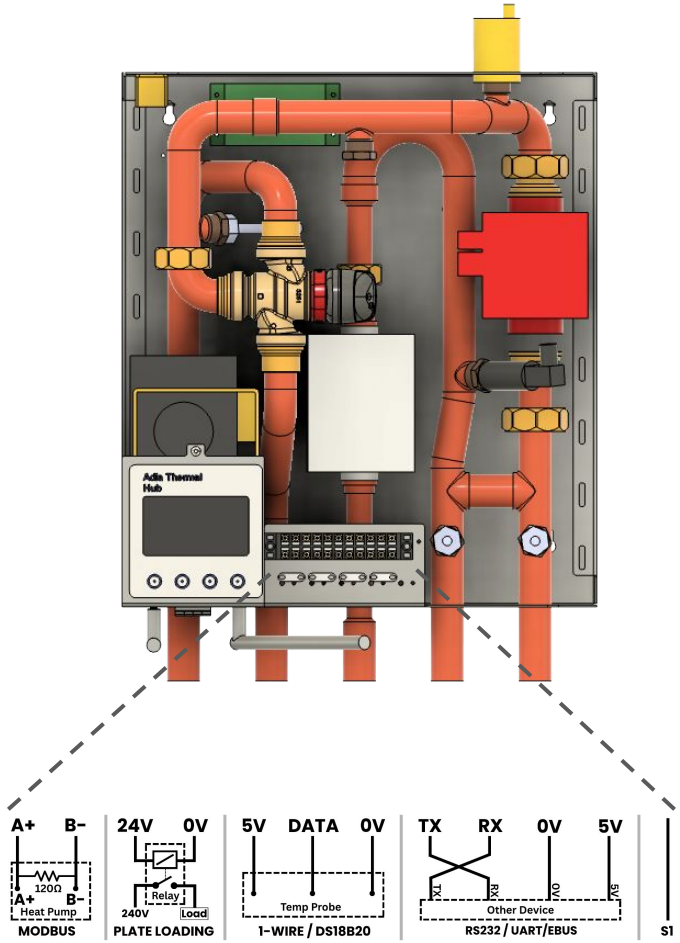
The Adia Hub requires a 240v power supply, with no more than a 5 Amp fuse necessary.

# Installing the Adia Hub: Accessories & Wiring

Make sure to mount the AAV to release air from the Hub and two antennas to ensure a strong WiFi and TRV/ATS signal.




You will need to remove the front panel to complete the power and Modbus wiring.



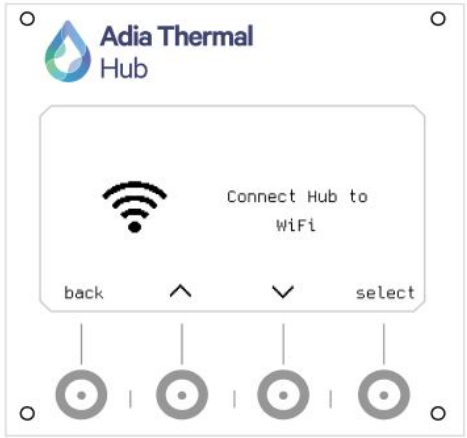

**Adia Hub Terminal Block**

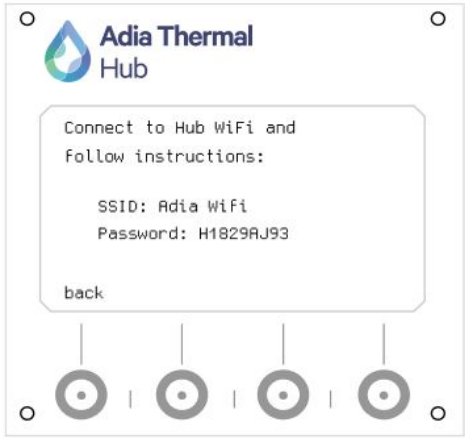
# Connecting the Adia Hub to WiFi

## Step 1

To start the Hub's captive WiFi, on the hub, press one of the middle buttons until 'Connect Hub to WiFi' is shown, and press 'select'.

The screen will display both the hub hotspot name and the password.

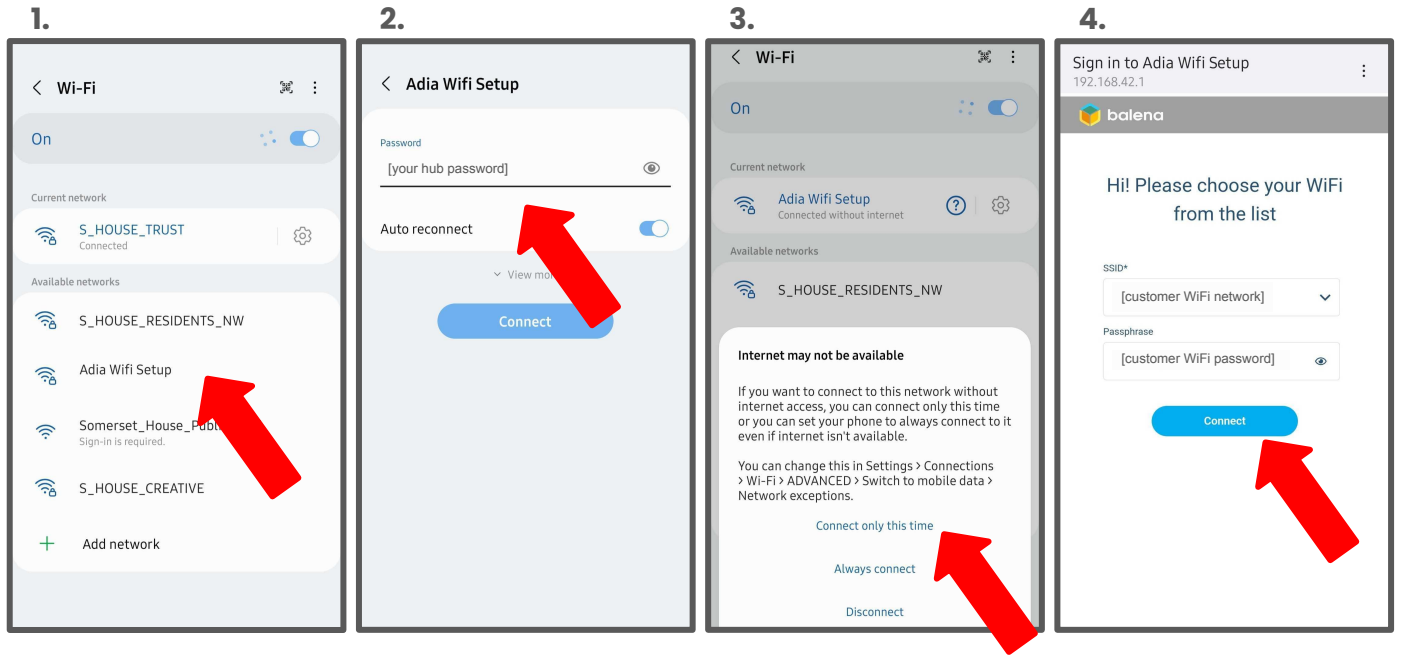



## Step 2

Enter these onto your mobile device to connect to the network.

Once connected to the Hub's captive network, you will be prompted to select the client's WiFi network from a list and to enter their password. Once you have submitted these details, you will see a success screen.



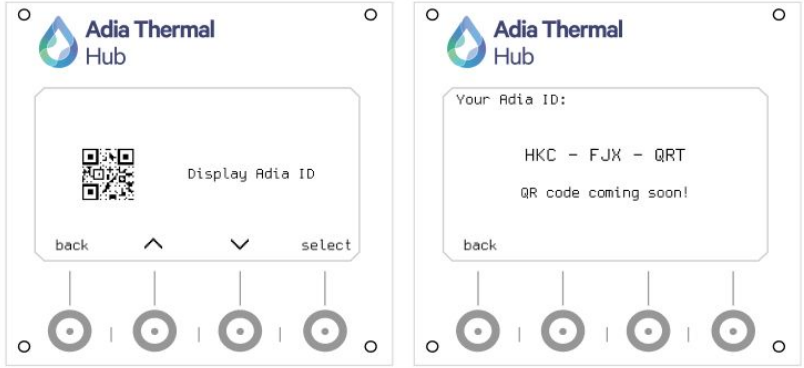
# Pairing the Adia Hub with the Adia App

To add devices and commission the Adia Thermal system, you will need to pair the hub with your account on the Adia App.

## Step 1.

On the hub, press one of the middle buttons until 'Display Adia ID' is shown, and press 'select'.

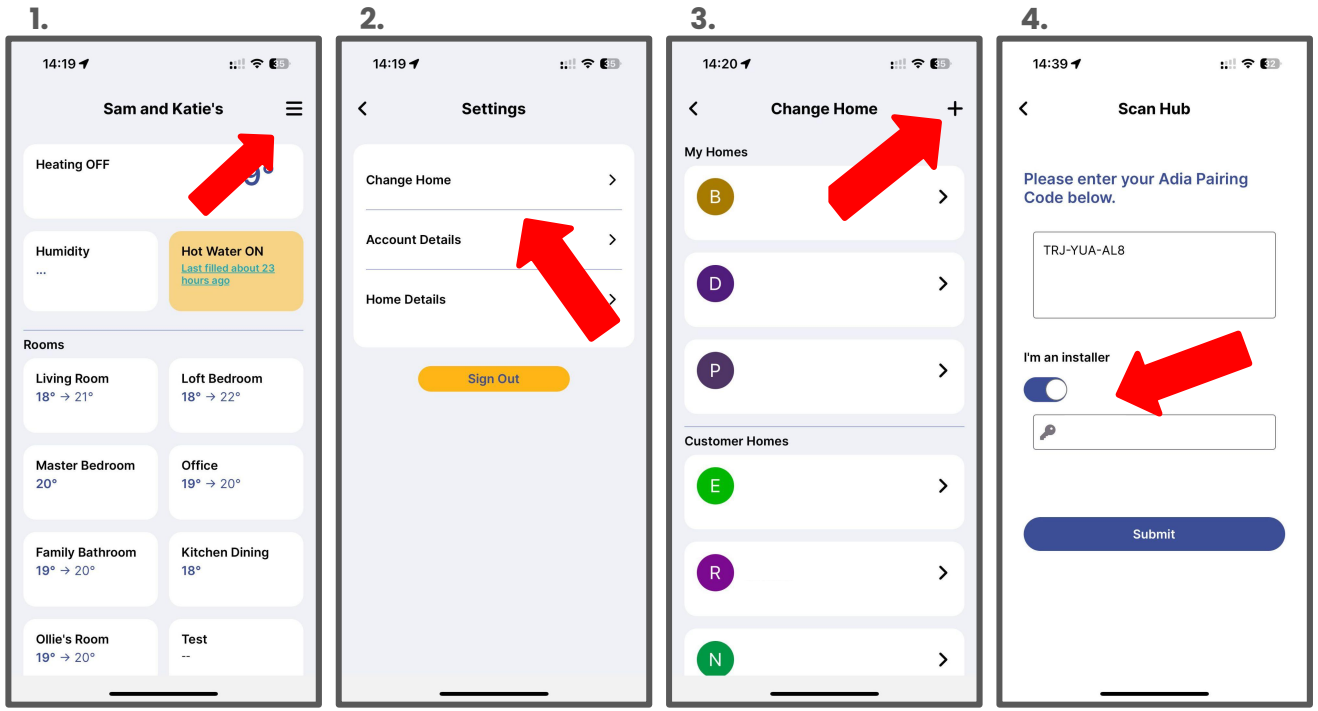
The Hub pairing code will be shown on this page.




## Step 2

Enter the pairing code on the 'Scan Hub' page in the Adia App, either after logging in for the first time, or by navigating to the 'Add Home' option as shown on the right.

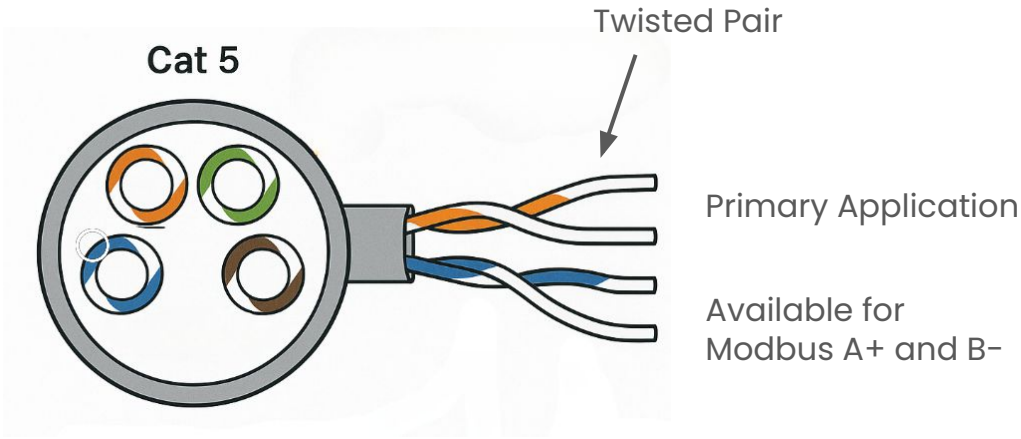
***Installer Note:*** *Ensure you toggle 'I'm an installer' so that the home is assigned to you in our database. Use the password given to you by Adia.*

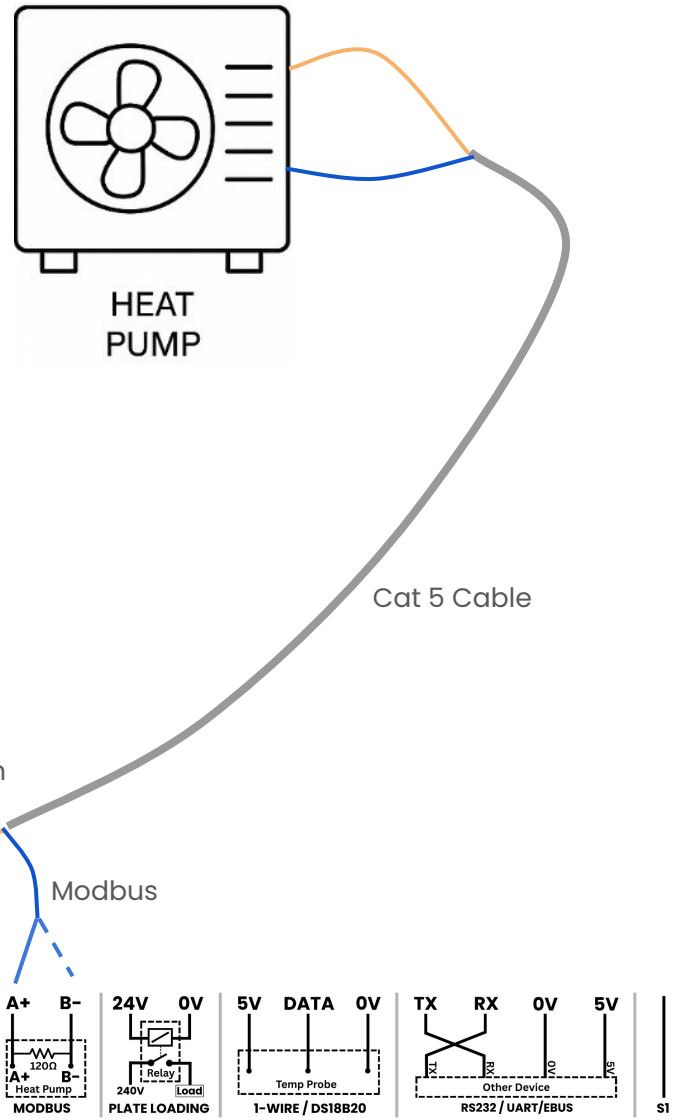


# Heat Pump Specific Wiring

# General Modbus Wiring Tips

If you're using a cat 5 cable for your controller wiring to the heat pump, we recommend using a spare stranded pair for the Modbus connection.




**Adia Hub Terminal Block**

For Modbus, we recommend using a twisted pair because the twist of the two wires cancels out electrical noise from pumps and compressors, keeping the signal clean and communication reliable.

# Controls & Modbus Setup: Samsung

## Step 1

Connect the Samsung controller to the heat pump following the manufacturer instructions. (see tips for monoblock units on the right)

Change the following settings on the Samsung controller.

1. Turn off Water Law mode. Navigate to 'Service Mode' by pressing both the up and down arrows at the same time. Enter the password 0202. Go to 'Water Law' and find '2091 External Thermostat Application #1'. Set to 'Not Use'.
2. Delete hot water schedules. Select 'DHW' on the controller. Press the cog icon and navigate to 'Schedule'. Ensure that no schedules are saved.

## Step 2

Install the MIM-B19N board into the Samsung outdoor unit. Follow the manufacturer's instructions included with the MIM-B19N. Make sure to connect **both** cables into the heat pump.

## Step 3

Connect a 2-wire cable from the Adia Hub to the MIM-B19N board. We recommend using a twisted pair cable (e.g Cat-5)

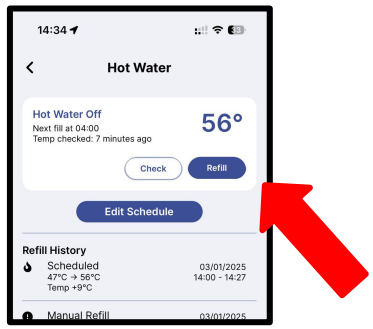
**On the MIM-B19N board**:

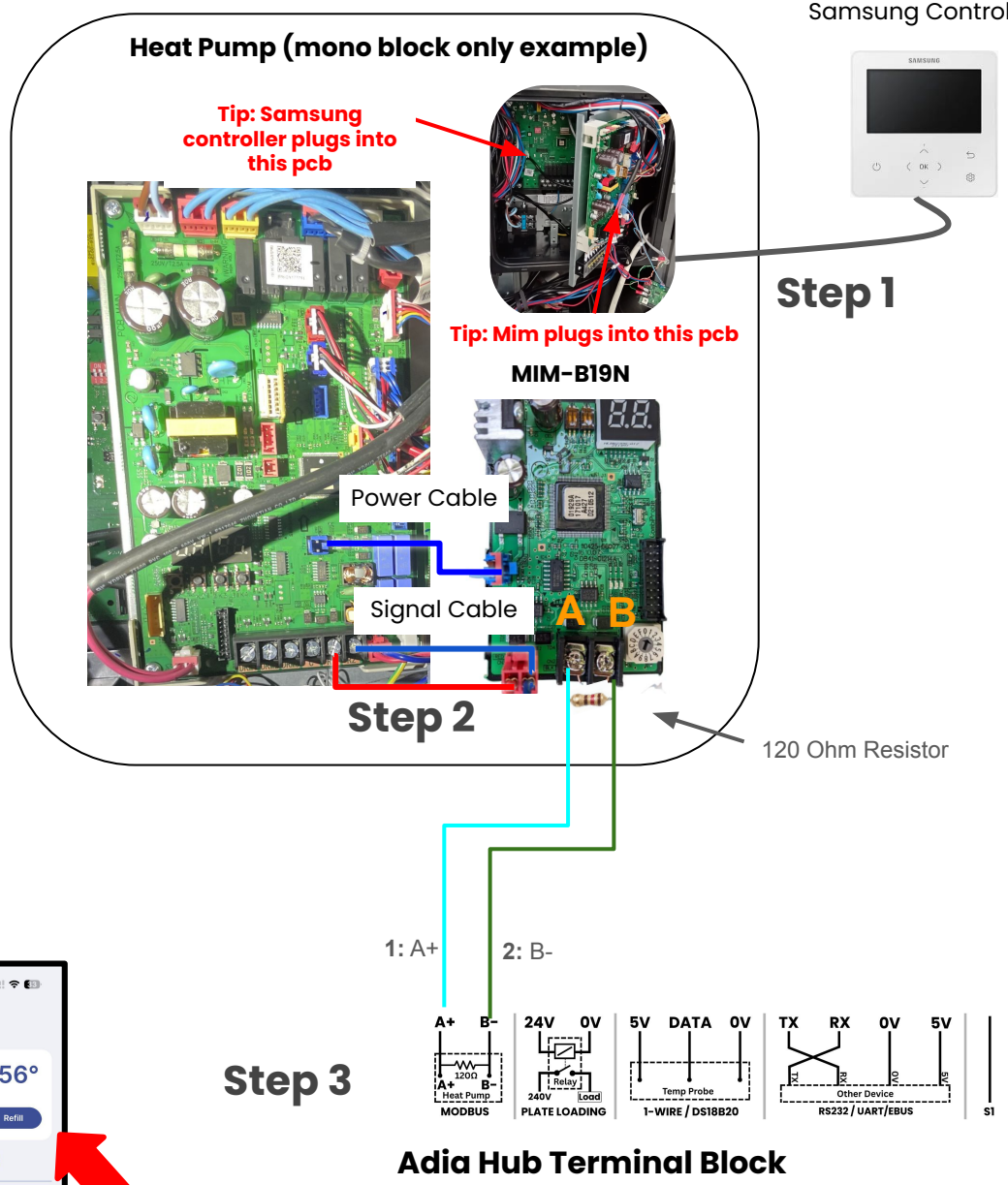
- Connect the A terminal to cable 1(A+)
- Connect the B terminal to cable 2(B-)
- Connect the supplied 120-ohm resistor between the A and B terminals on the MIM-B19N board as shown.

## Step 4

Once you have successfully finished the controls and the Home Setup in the Adia App, you should be ready to test the system by triggering a hot water refill in the app.

Check that the water temperature on the manufacturer controller shows 55 degrees (or the user defined setting) a few minutes after triggering a hot water run. It will NOT show that it is in DHW mode.

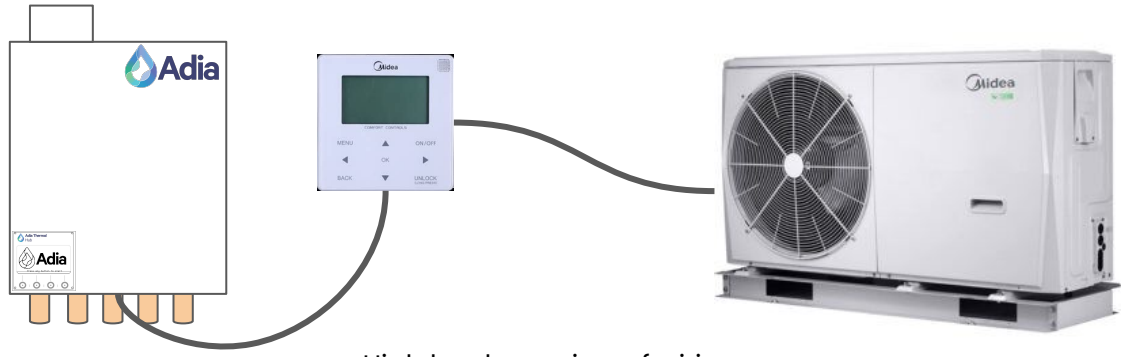


# Controls & Modbus Setup: Midea (and similar)

## Step 1

Connect the Midea indoor controller to the heat pump following the manufacturer instructions.

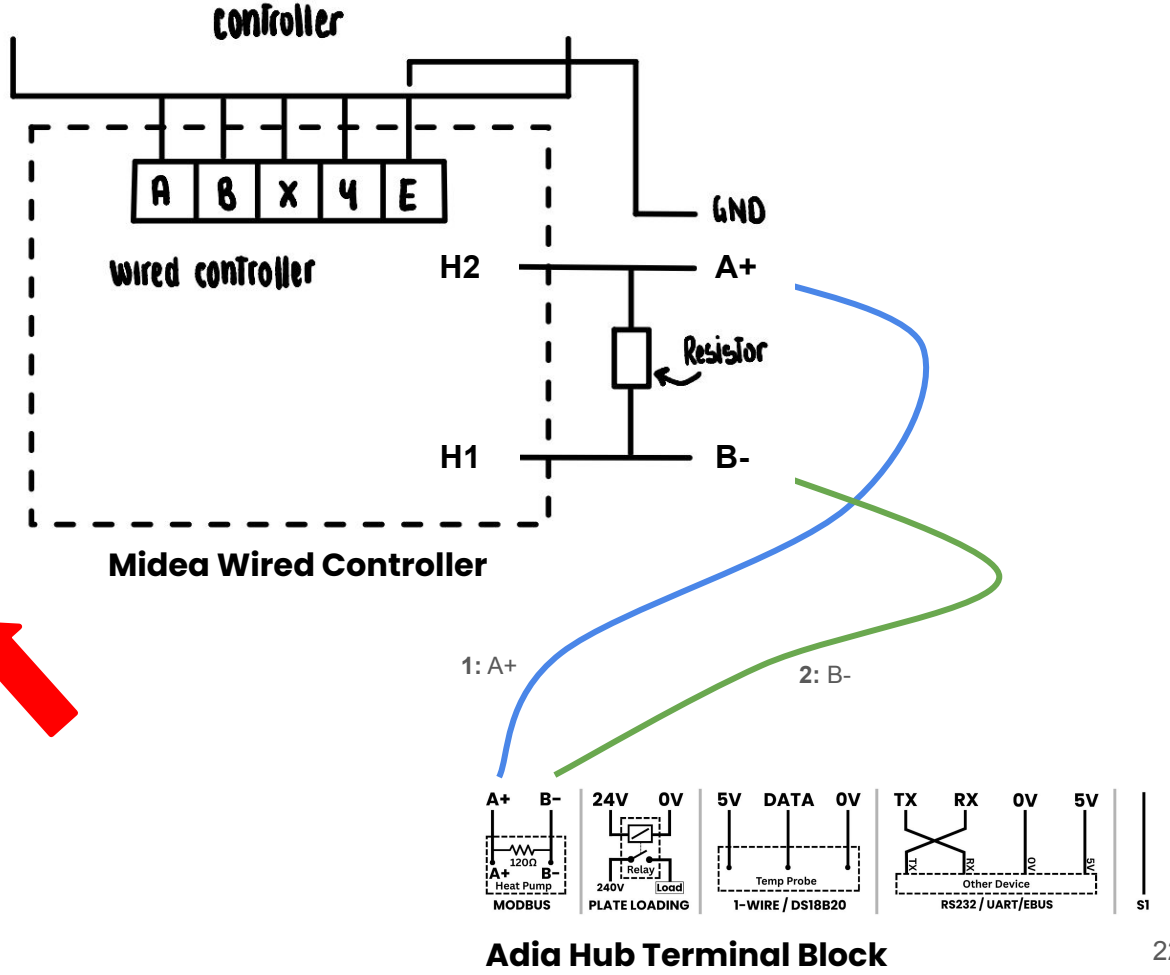



High level overview of wiring

## Step 2

Connect a 2-wire cable from the Adia Hub terminal block section labeled “MODBUS” to the indoor heat pump controller board.

- Connect the H2 terminal to cable 1(A+)
- Connect the H1 terminal to cable 2(B-)
- Connect the supplied 120-ohm resistor between the A and B terminals on the Midea board as shown.

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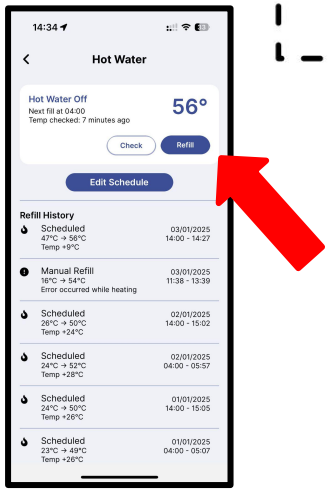


# The Adia App

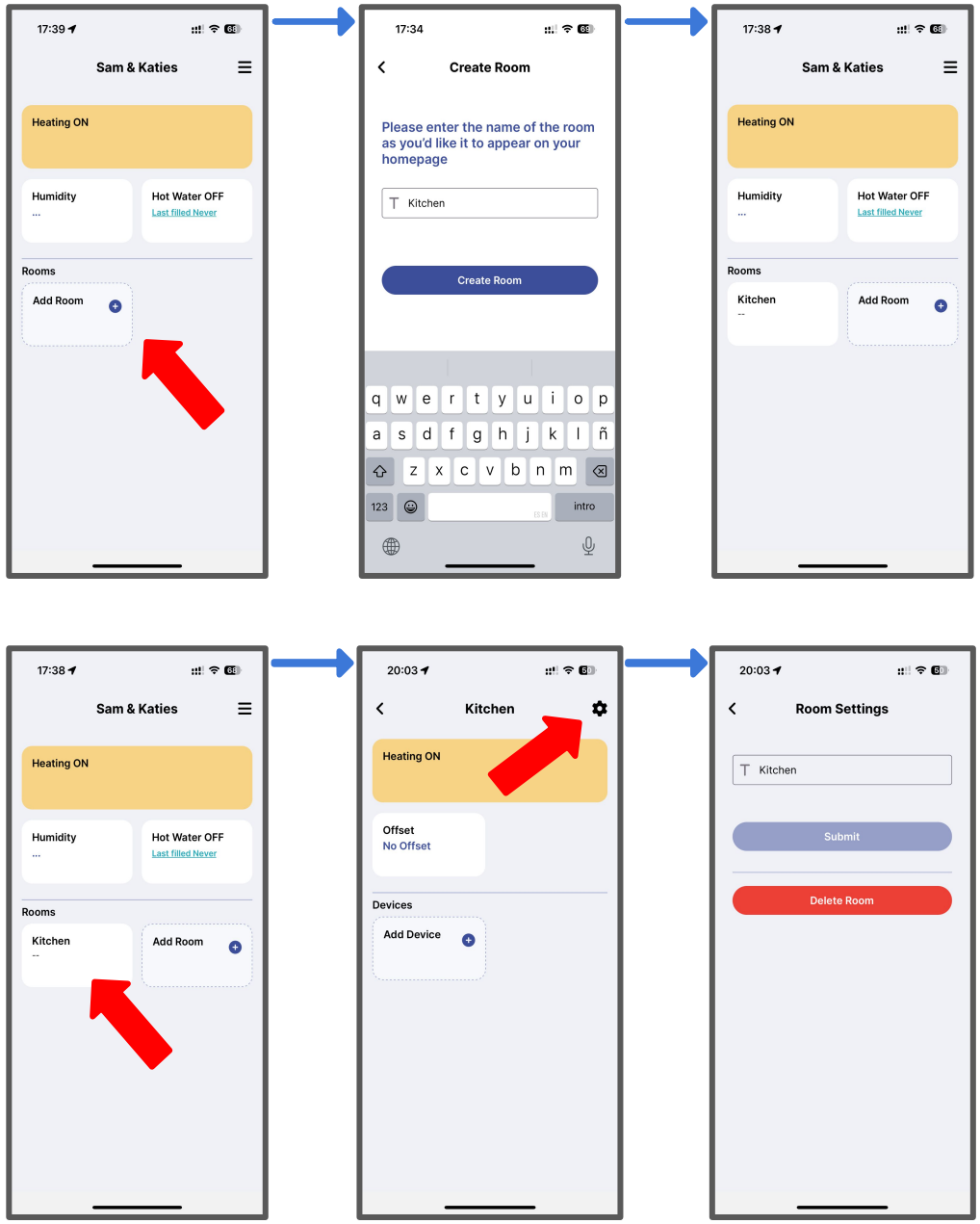
# Adia App: Adding Rooms

Adia enables room-by-room heating control. Every heated room with a radiator in the home should be added to the app for proper management.

From the homepage, select **“Add Room”**, enter a name, and the room will appear on the homepage.

- Create one room per heated space (multiple radiators in a room count as a single room).
- Open-plan areas should be set up as one room for best results.

Room names can be edited or deleted at any time by selecting the **cog icon** on the room page.



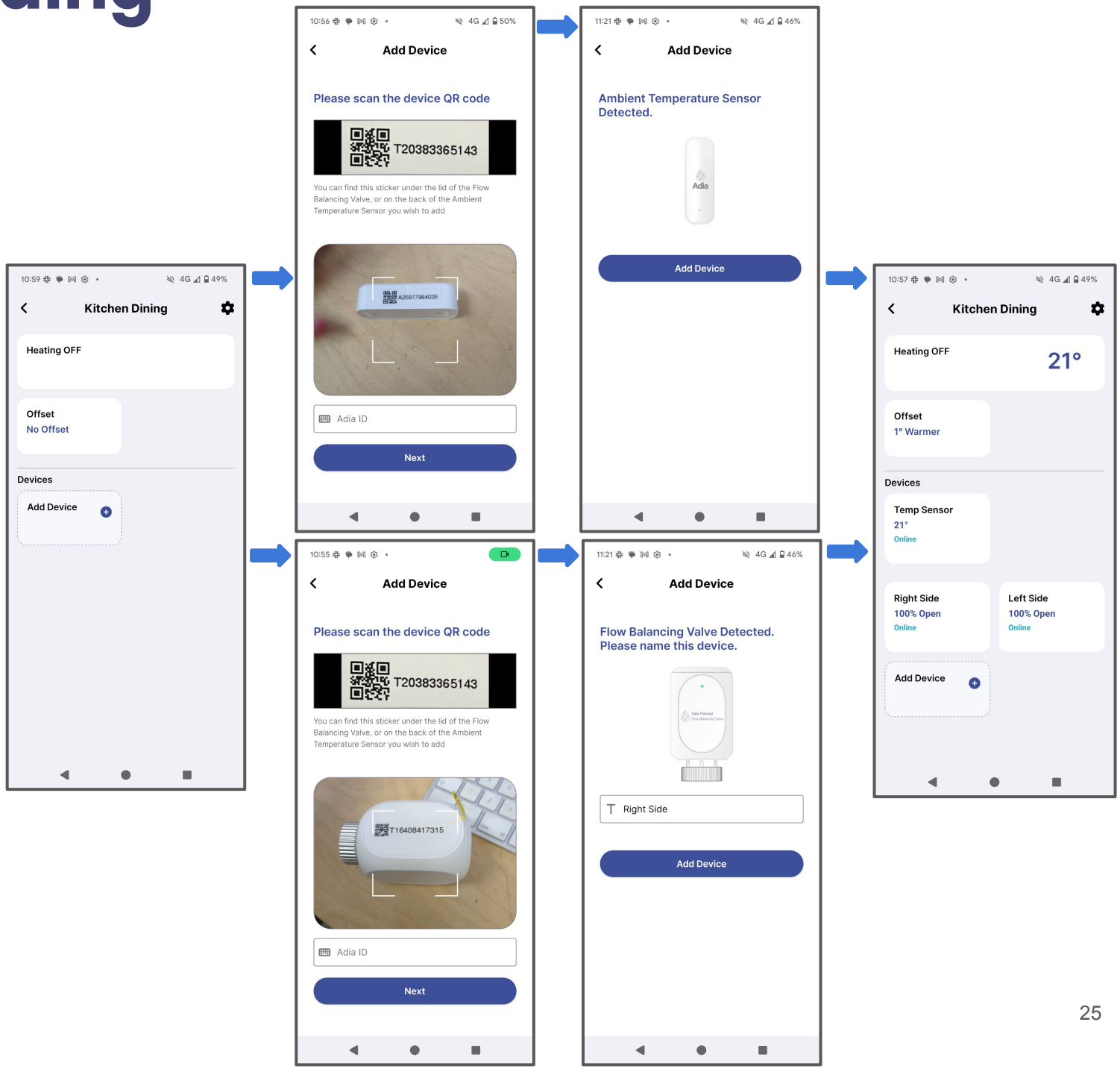
# Adia App: Adding Devices

Adding devices to rooms in the Adia app is straightforward. Select the **“Add Device”** card to begin.

You can then either scan the QR code or enter the device’s pairing code manually.

FBV codes begin with **“T”**
ATS codes begin with **“A.”**

You can assign multiple FBVs to a single room (one per radiator), but only **one ATS** can be added per room.



# Flow Balancing Valves: Placement


## Installing Flow Balancing Valves (FBVs)

FBVs are used to modulate flow consistently through a radiator. Follow these steps to install and prepare them correctly:

**1. Pair the FBV in the app**

- Each FBV must be paired in the Adia app *before* installation.

**2. Test the TRV piston**

- Press the piston in firmly to check full travel.
- If you feel friction, apply a short spray of WD40 or a drop of mineral oil.
- If friction persists, replace the TRV valve body.

**3. Seat the FBV on the TRV valve body**

- Ensure the FBV is fitted firmly.
- Use the included attachments to match different TRV models.

**4. Power and calibrate the FBV**

- Once the FBV is firmly seated, pull the power tab.
- This will initiate the calibration process (described on the next page).

**<- Pull Tab**

# Flow Balancing Valves: Calibration


| Light Colour | Status | Meaning |
|---|---|---|
| Red | Flashing Continuously | The motor is backing out to the top |
| Red | 5 consecutive flashes and then off | Unsuccessful drive of motor. Calibration completed unsuccessfully |
| Amber | Flashing Continuously | The motor is driving down attempting to find the valve contact point |
| Green | Flashing Continuously | The valve contact point has been found and the FBV is driving to find the valve close point |
| Green | 5 consecutive flashes and then off | Successful drive of motor. Calibration completed successfully |

### FBV Calibration and Fault Handling

- When powered on, an FBV automatically calibrates its motor and valve body.
- If calibration is attempted **without a valve body attached**, the FBV will enter a **FAULT** state.
  - To reset: mount the FBV on a valve body, then remove and reinsert the batteries.
- At the end of calibration, the LED will flash:
  - **5 green flashes** = calibration successful
  - **5 red flashes** = fault detected
- If a fault occurs:
  - Check that the FBV is properly seated on the valve body.
  - Retry calibration by removing and reinserting the batteries.
  - If the fault persists, report the FBV to Adia for replacement.

# Ambient Temperature Sensors: Placement

## Installing Ambient Temperature Sensors (ATSs)

Adia Thermal uses Ambient Temperature Sensors (ATSs) to determine when a room has reached its target temperature. For accurate readings, ATSs must be placed consistently and away from factors that could distort measurements.

**1. Prepare the sensor**

- Apply the adhesive strip to the back of the ATS.

**2. Choose a placement**

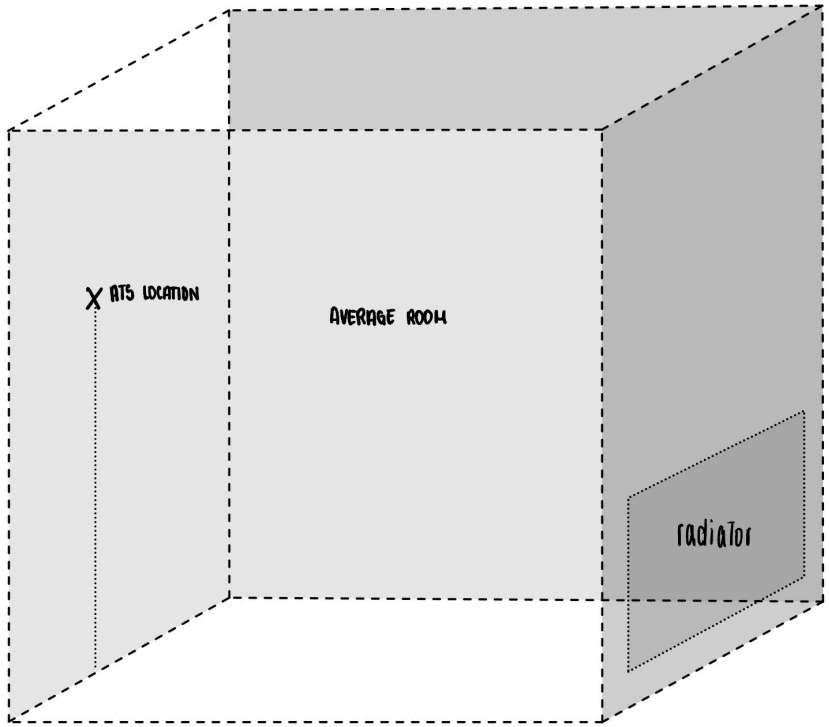
Avoid direct sunlight, very cold walls, heat sources, drafts, and doorways.

**3. Mount the sensor**

- Stick the ATS to the wall in a **vertical position**, at approximately **eye level**.
- Ensure placement height is consistent across all rooms.

**4. Verify correct placement**

- Double-check that the correct ATS is installed in each room.
- Mixing up ATSs can cause abnormal heating system behaviour.



# Commissioning: Set Points

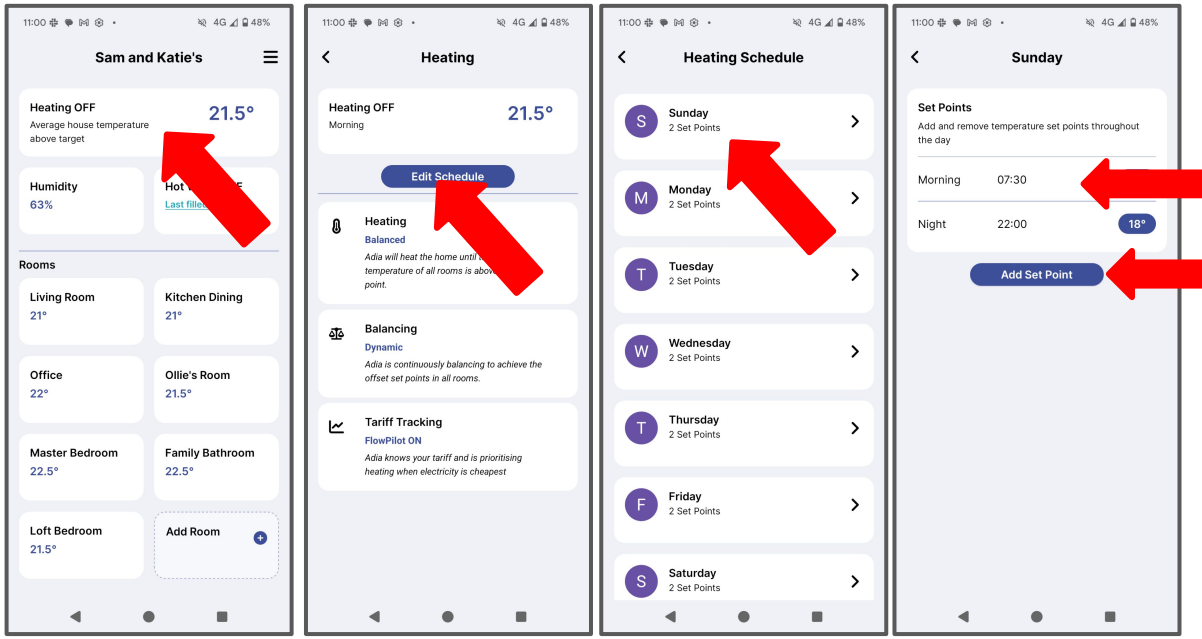
## Setting House Temperature Set Points

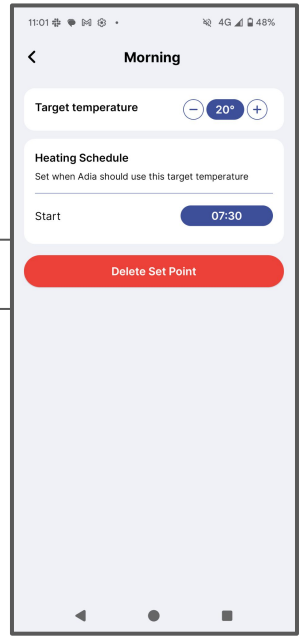
1. **Define set points**
   - Set points are the default temperatures that all rooms aim to reach at different times of day.
   - Room-specific adjustments (offsets) can be applied later through the individual Room screens.

2. **Access the menu**
   - From the home page, tap the **"Heating"** card to open the Set Point menu.

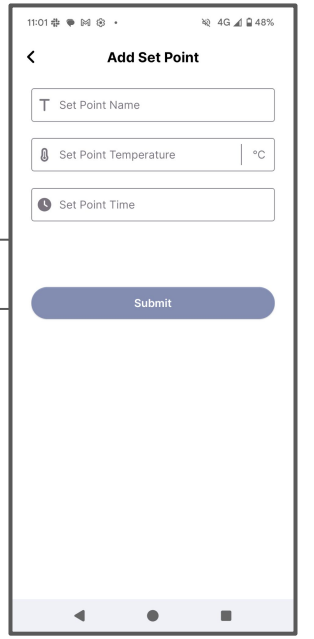
3. **How set points work**
   - **Step up:** Adia will heat the home so it reaches the higher set point by the scheduled time.
   - **Step down:** Adia will stop heating at the time of the lower set point.

*Note that you must repeat the process for each day of the week.*




*Edit Set Point Screen*




*Add Set Point Screen*

# Commissioning: Offsets

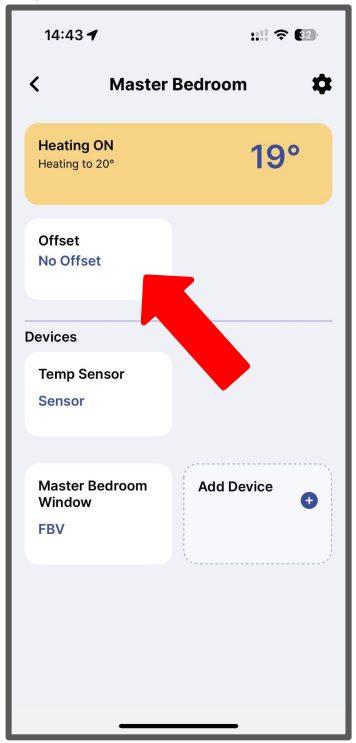
## Room Offsets and Balancing

Adia FBVs automatically balance the system to maintain comfort room by room, enabling zoned heating without reducing system volume or performance.

- If a customer wants a cooler bedroom or a warmer bathroom, adjust the **“Offset”** setting on the room page.
- Offsets apply consistently across all heating schedules and set points.

*Changing offsets restarts Adia’s balancing process, so avoid frequent changes to ensure stable comfort.*

1.

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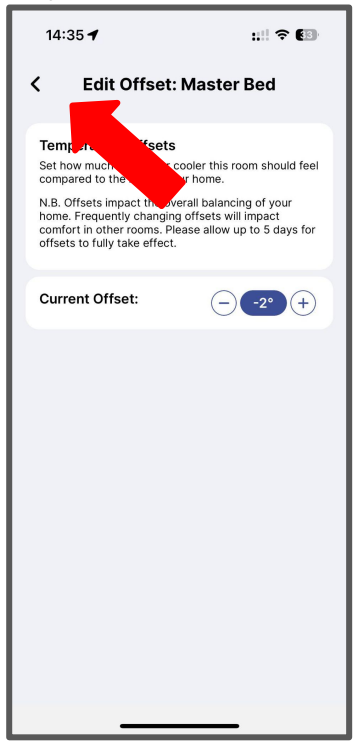


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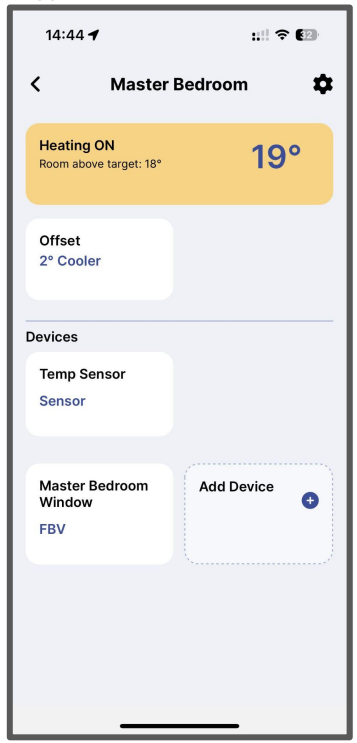


# Commissioning: Hot Water

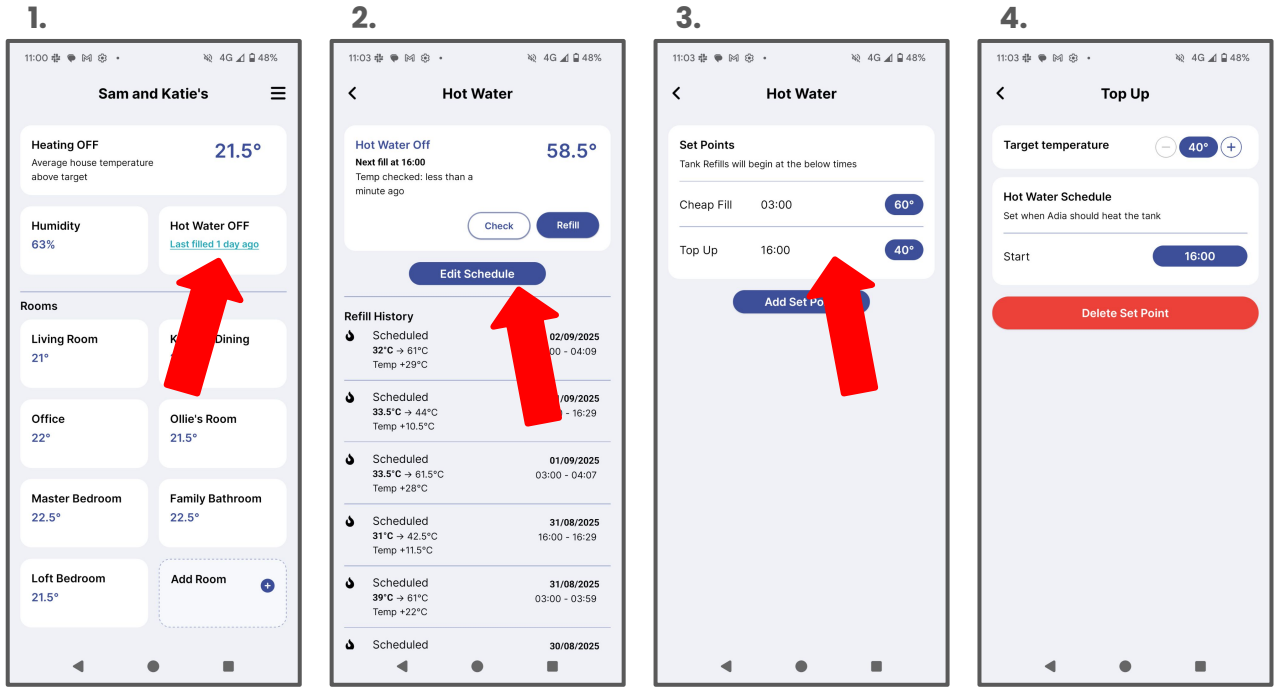
The Adia App controls DHW scheduling, both the times and the target cylinder temperature.

This allows customers with smart tariffs to heat their tanks to higher temperatures when energy is cheapest, and to do more modest refills at other times.

To access the domestic hot water settings, tap the ‘Hot Water’ card on the homepage and press ‘Edit Schedule’ on the ‘Hot Water’ page.

From here Set Points can be edited and added as with Heating.

*N.B. Adia does not need a tank sensor for DHW (though can be installed with one). Adia measures the secondary return temperature at the hub and stops heating the tank when this reaches the target temperature.*



# Handover

Once commissioning is complete, the customer should be set up on the Adia App. Instruct them to download the app with the relevant QR code, and to create an account using the menu.

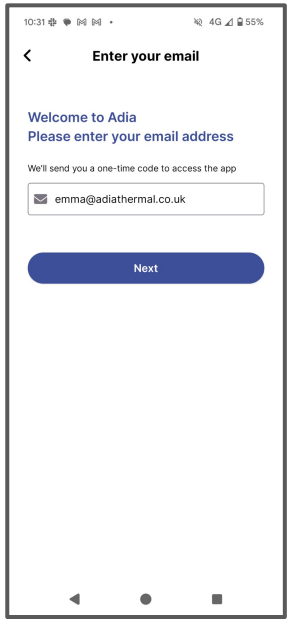
Once this account is created, they should pair the app with the hub as described in ‘Pairing the Adia Hub with the Adia App’.

GET IT ON Google Play

Download on the App Store

1.


2.

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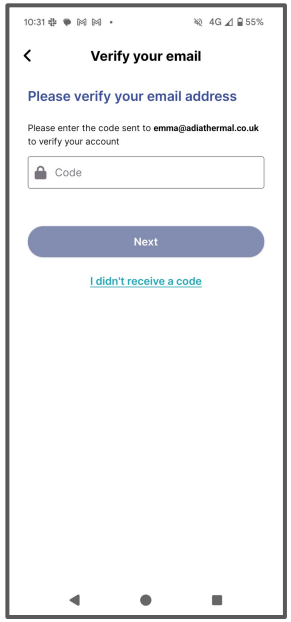


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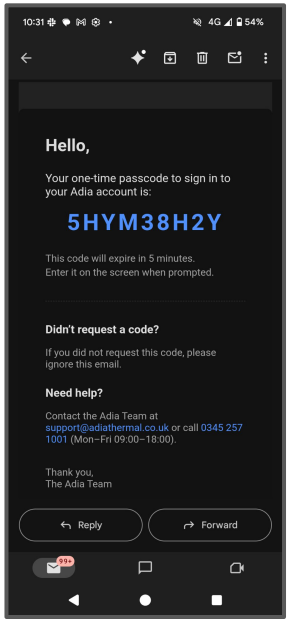


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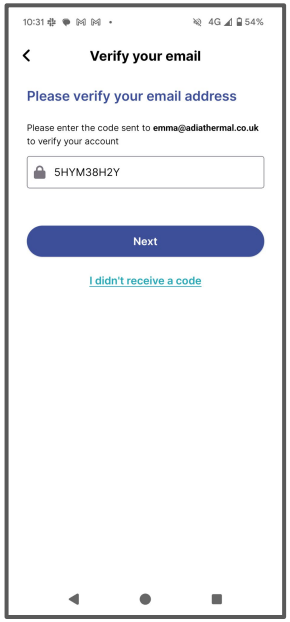


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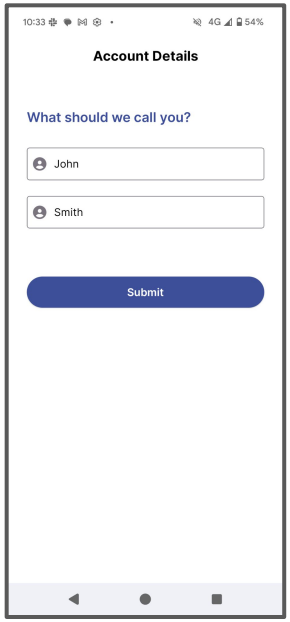


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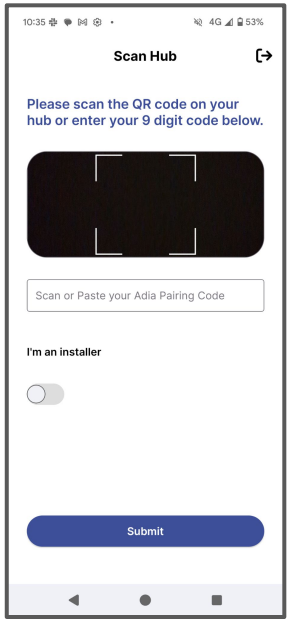
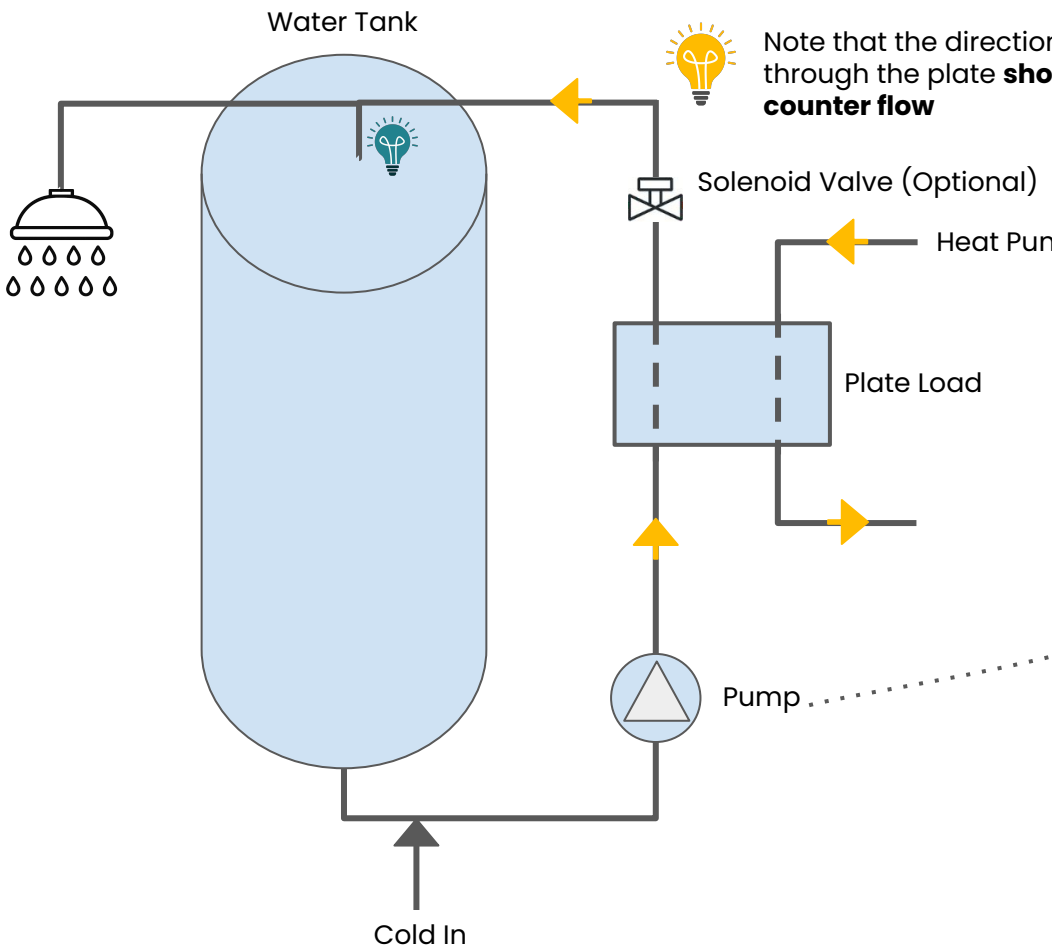


# Plate Loading

# Plate-loading Wiring

For open vented cylinders, a Yorkshire flange may be required to avoid overflow into the cold water feed tank




**Relay Note:** The relay is used to switch any load related to the plate running. By using a solenoid, any reverse or parasitic flow through the plate is eliminated when the cylinder is not charging.

## Wiring

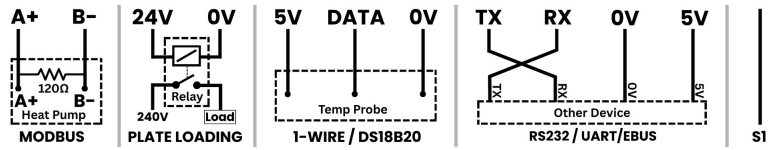
Pump and Solenoid can be powered together

**Relay**


24V

0V

240V Switched live to load




**Adia Hub Terminal Block**

Adia

Making heating smart, finally.

# Shelly Energy Meter Instructions

Last Updated: September 2025

# Shelly Energy Meter

### Disclaimer

This guide is intended for **qualified electricians only**. While the information provided is based on best efforts, it has not been written by certified electricians. Always follow local electrical codes, manufacturer documentation, and industry best practices. If any instruction here appears incorrect, defer to official sources and your professional judgment.

### Overview

Adia requires the ability to remotely monitor power consumption of the customer's heat pump.

## Parts List

**Supplied by Adia:**

- Shelly Pro EM Energy Meter
- 1–2 Shelly Pro EM CT Clamps

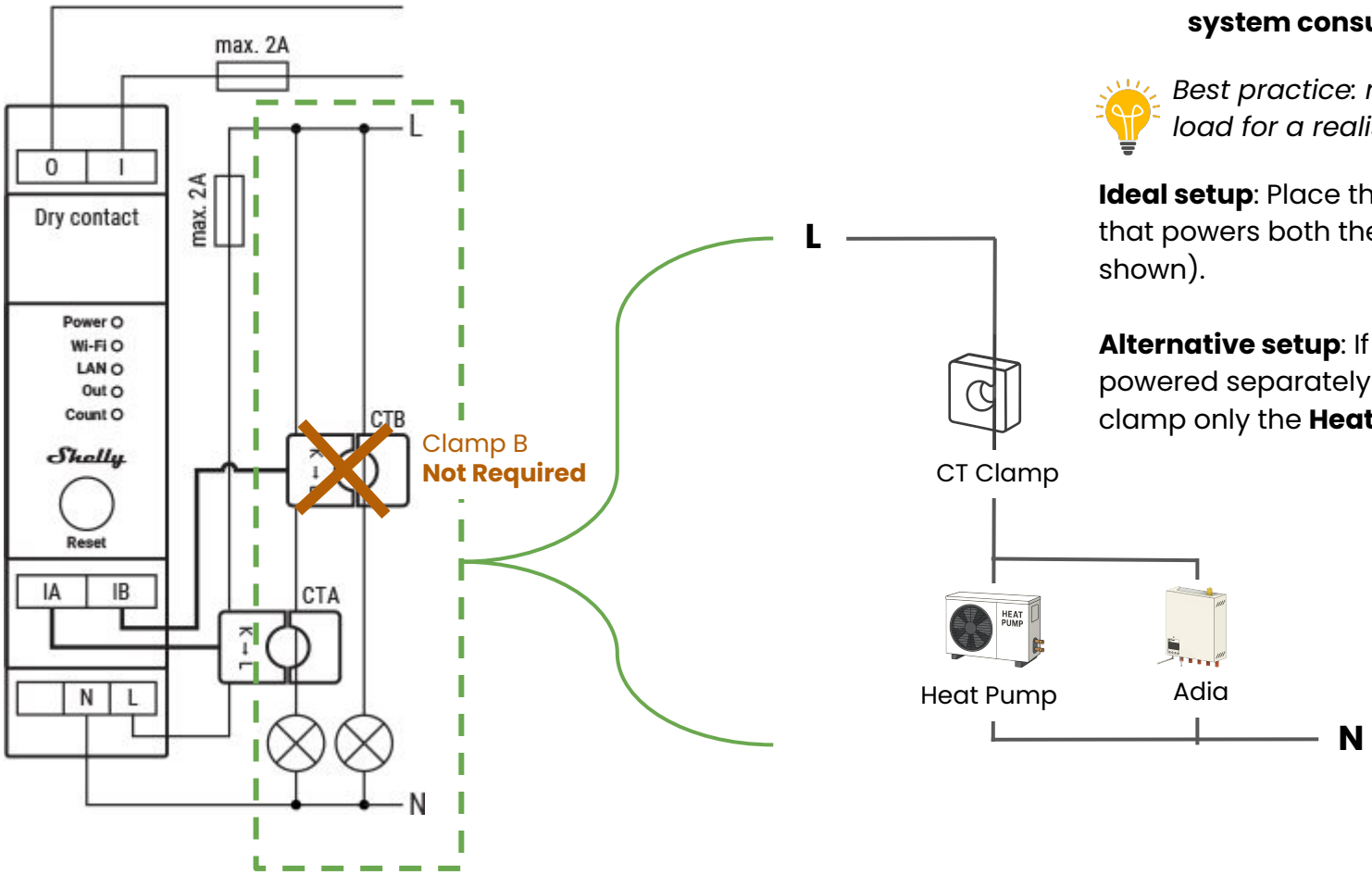
**To be supplied by Installer:**

- (Optional) DIN rail enclosure for energy meter, if space in the consumer unit is insufficient

# Shelly Energy Meter: Installation

## Wiring Overview

Please follow the Shelly supplied instructions for wiring in the energy meter.
Please note that you **only need to use CT Clamp A**, CT Clamp B is **not** required.




## Where to Place the CT Clamp

- Install the CT clamp on the **live (L) supply cable** feeding the system.
- Position it so it measures not only the **heat pump**, but also the **Adia Hub, pumps, fans, and controls**.
- This ensures the reading reflects the **total system consumption**, not just the heat pump.

*Best practice: measure the complete system load for a realistic view of energy usage.*

**Ideal setup**: Place the CT clamp on the single live cable that powers both the Adia Hub and the Heat Pump (as shown).

**Alternative setup**: If the Hub and Heat Pump are powered separately and cannot be measured together, clamp only the **Heat Pump's live cable**.

# Shelly Energy Meter: Commissioning and Verification

## Commissioning

Once all wiring is complete and the Shelly Pro EM is powered, confirm the device powers on by checking the front panel LEDs.

**If the Wi-Fi LED is not green:**

1. Press and hold the reset button on the Shelly Pro EM for 5 seconds.
2. Connect a phone or computer to the Wi-Fi network with an SSID containing the name ‘Shelly’.
3. Open a browser and go to: http://192.168.33.1
4. Click the Wi-Fi settings icon and enter the customer’s Wi-Fi credentials.
5. If configured correctly, the device should reboot and display a green LED.

## Verification

After connection, confirm with Adia support that:

- Remote monitoring of power usage is operational

Do **not** leave site until remote verification is complete.

*Contact Adia to request access to the Shelly app.*