Adia

Making heating smart, finally.

Adia Hub v1.2.1 Installer Manual

Last Updated: July 2026

Instructional Videos

ATS

FBV

Hub

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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:

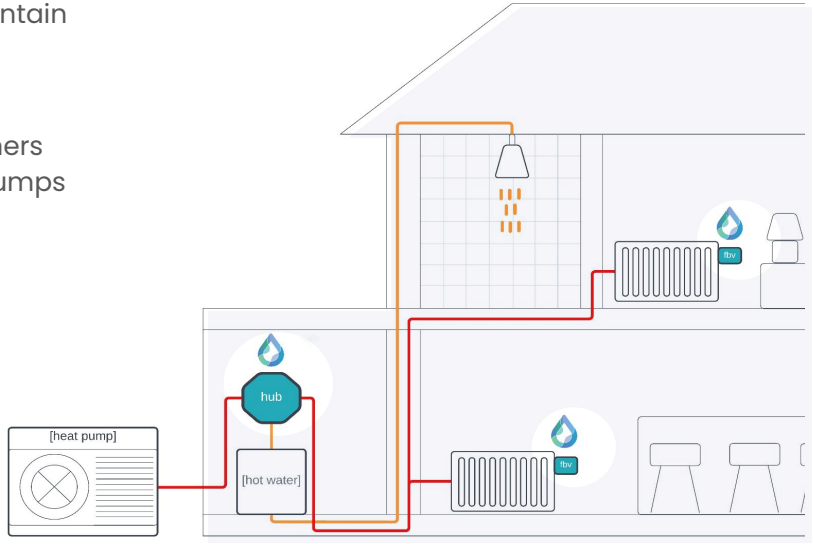
0345 257 1001

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)

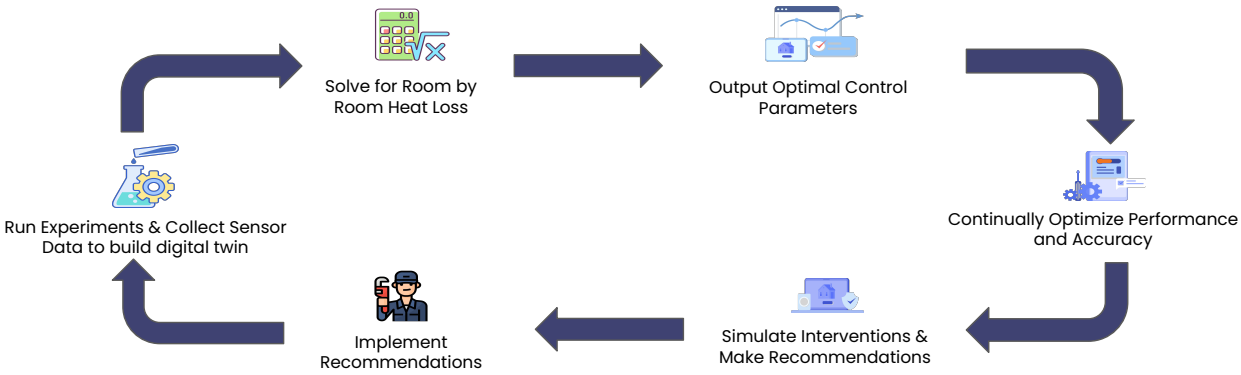
A Flow Balancing Valve is fitted to the TRV head on each radiator and these are used to modulate the output of heat from the radiator by controlling the position of the valve.

Ambient Temperature Sensor (ATS)

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

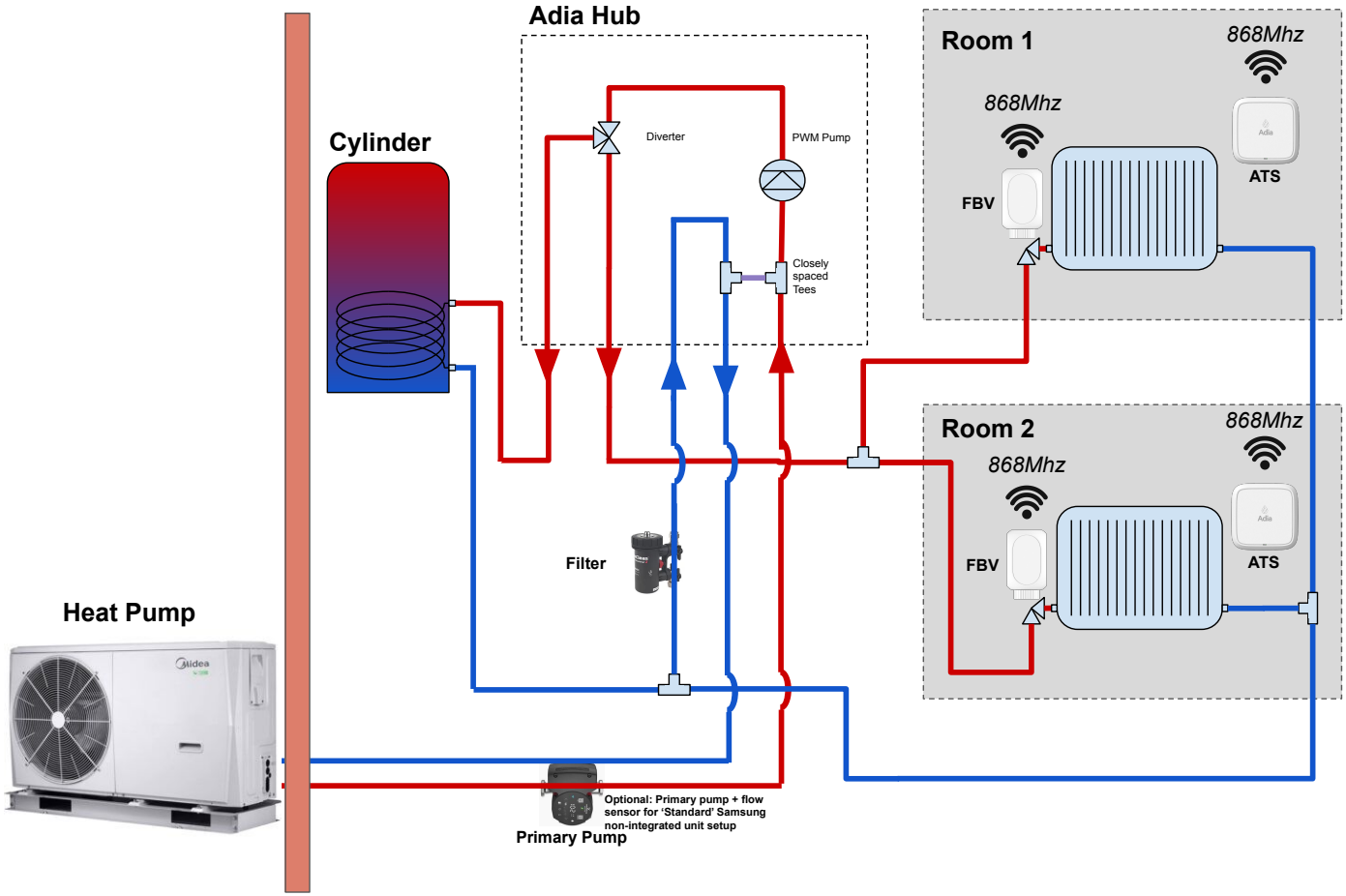
How it Works

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

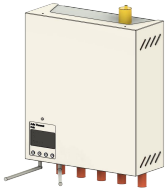
System Reference Diagram



Installation Prep

What's in the Box

1 x Adia Thermal Hub



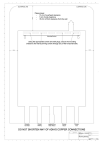
1 x Hub Wall Mounting Bracket

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.

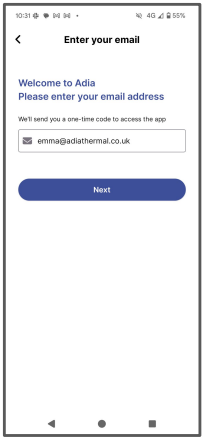
GET IT ON Google Play

Download on the App Store

Once you have installed the app, you can create an account and reach the 'Scan Hub' page. **The installer code is 'adiabatic'**

1.

2.



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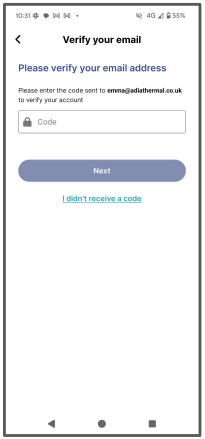

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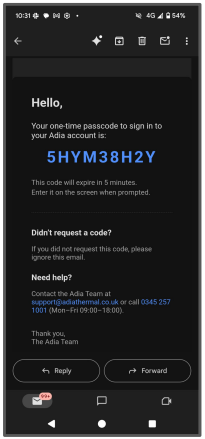

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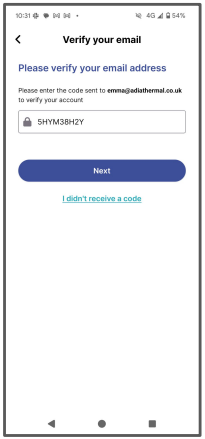

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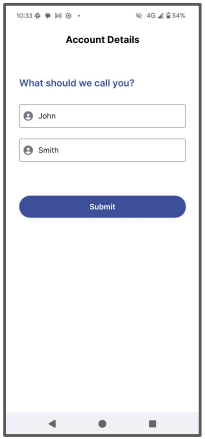

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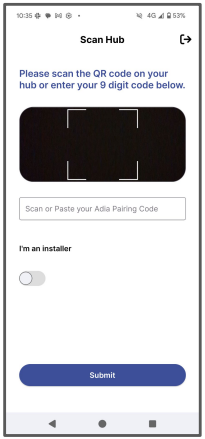


Planning to Install with Adia Thermal: Part 1

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 piloting with underfloor heating installs, get in touch if you're interested.*

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 (December 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.** **Please get in touch with Adia for wiring instructions and required parts.**
Haier	Monobloc GT	Standard install issue indoor unit and controller are required.

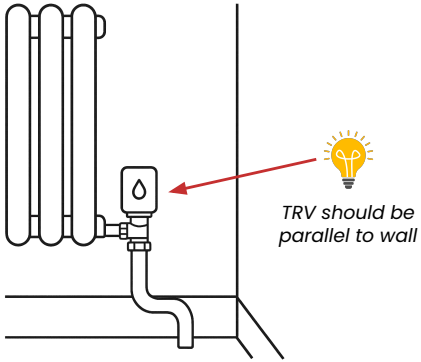
If you wish to install Adia Thermal with a heat pump which is not on the list, please let us know at sales@adiathermal.co.uk and we can discuss an integration. Please note this will take a minimum of 1 month.

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.

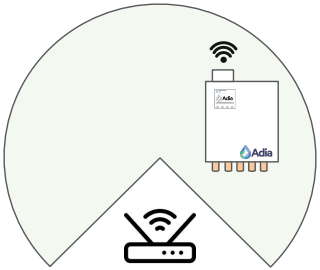
The valve pin should be parallel to the surface of the wall, to ensure that the FBV does not present a tripping hazard.



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 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

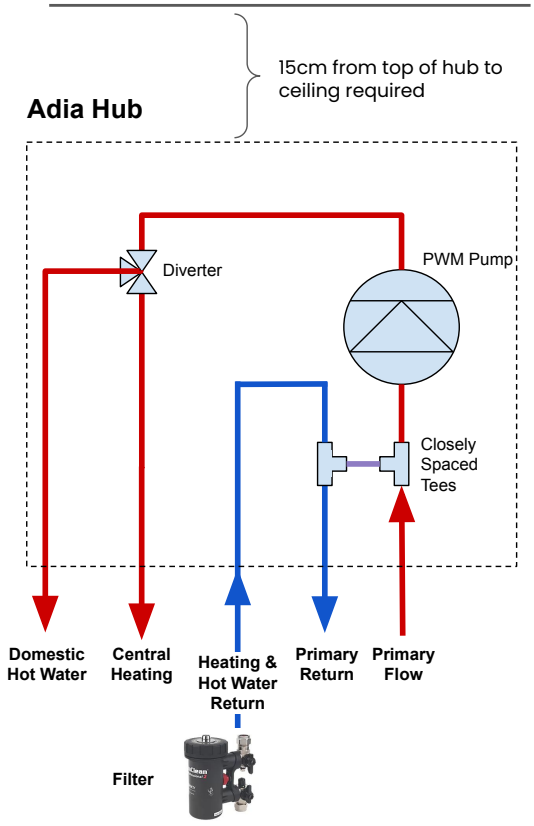
Plumbing the Adia unit is simple. The five bottom connections are (from left to right):

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

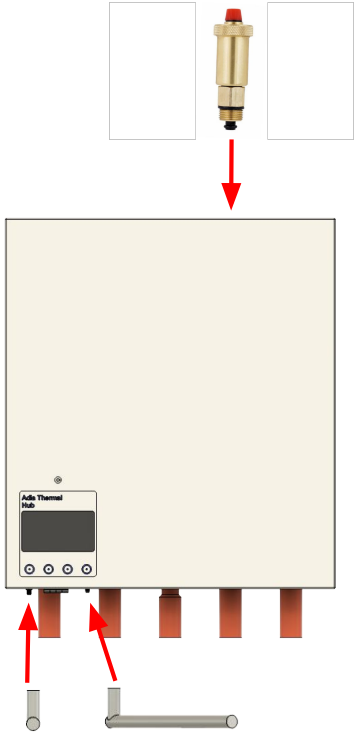
The Adia Hub requires a 240v power supply, with no more than a 5 Amp fuse necessary.



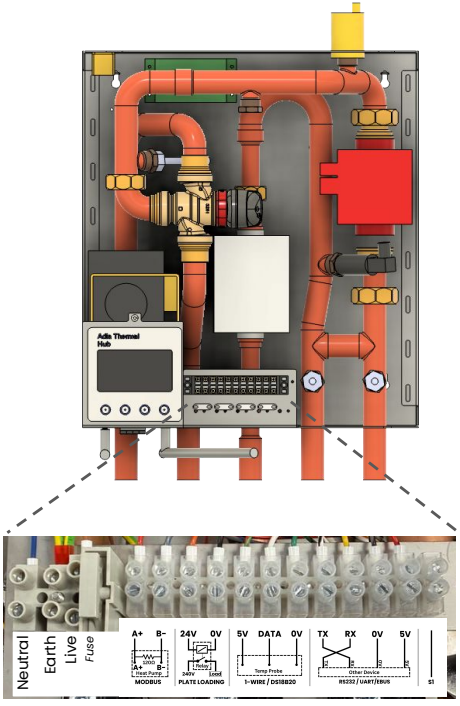
Hub Introductory video:

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.



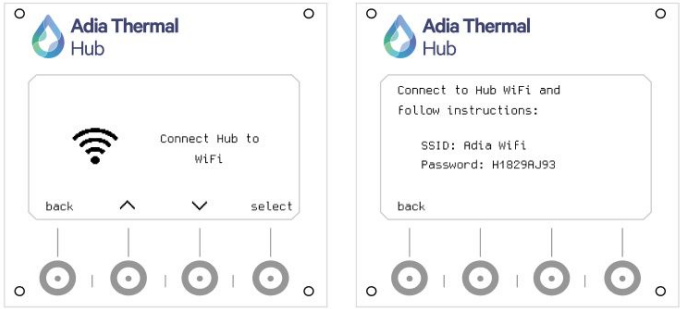
Adia Hub Terminal Block

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'.

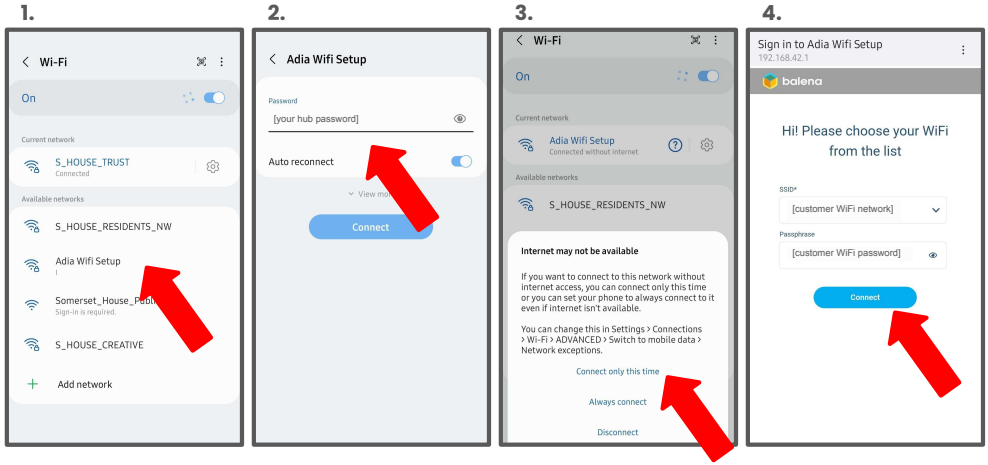
The screen will display both the hub hotspot name and the password.



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.



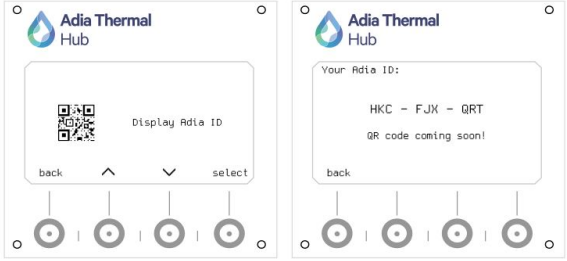
Pairing the Adia hub with the Adia App

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'.

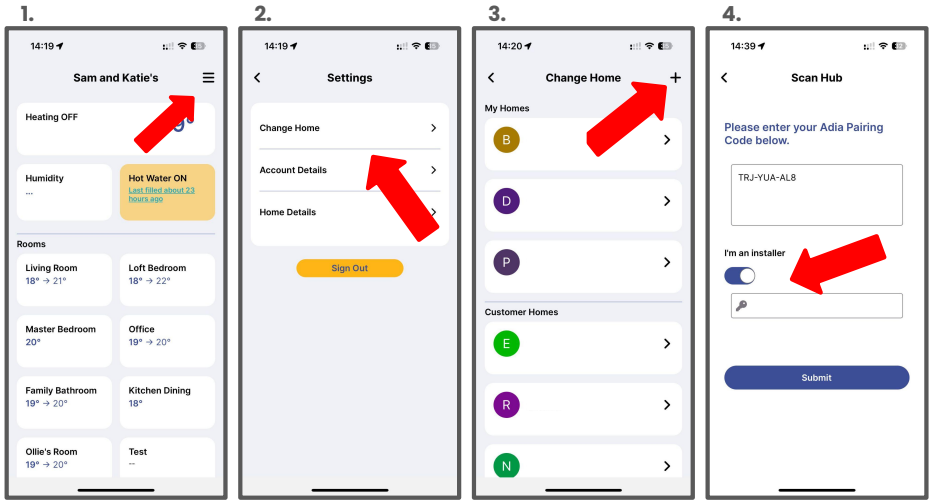
The Hub pairing code will be shown on this page.



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. If you haven't been given a code, use 'adiabatic'*



Heat Pump Specific Wiring

Controls & Modbus Setup: Samsung

Please see next two pages for specific wiring instructions for both the Samsung Integrated and Non-Integrated Units

Step 1

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 2

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 MIM-B19N A terminal to the Adia A+ Terminal
- Connect the MIM-B19N B terminal to the Adia B- Terminal
- Connect the supplied 120-ohm resistor between the A and B terminals on the MIM-B19N board as shown.

Step 3

Connect the Samsung controller to the heat pump following the manufacturer instructions.

Change the following settings on the Samsung controller.

1. Navigate to 'Service Mode' by pressing both the up and down arrows at the same time. Enter the password 0202.
    a. 2091 | External Thermostat Application #1 Set to "Not Use"
    b. 3011 | (Domestic Hot Water Tank) Set to "Not Use"
    c. 1061 | (Water out Hysteresis For Heat) Set to: 4.0°C
2. Delete hot water schedules. Select 'DHW' on the controller. Press the cog icon and navigate to 'Schedule'. Ensure that no schedules are saved.
3. On the main screen, select the central heating and ensure it is set to 'Heat' (not 'Auto' or 'Cool')

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:
Samsung Integrated

Outside Connections | **Inside Connections**

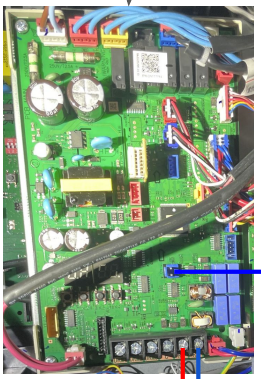
Tip: Wired Controller (F3/F4) plugs into this pcb

Tip: MIM-B19N (R1/R2) plugs into this pcb

Samsung Controller

Note: 4 cores needed between outdoor and indoor

F3/F4



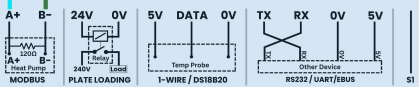
MIM-B19N

Power Cable

Comms Cable (R1/R2)

120 Ohm Resistor

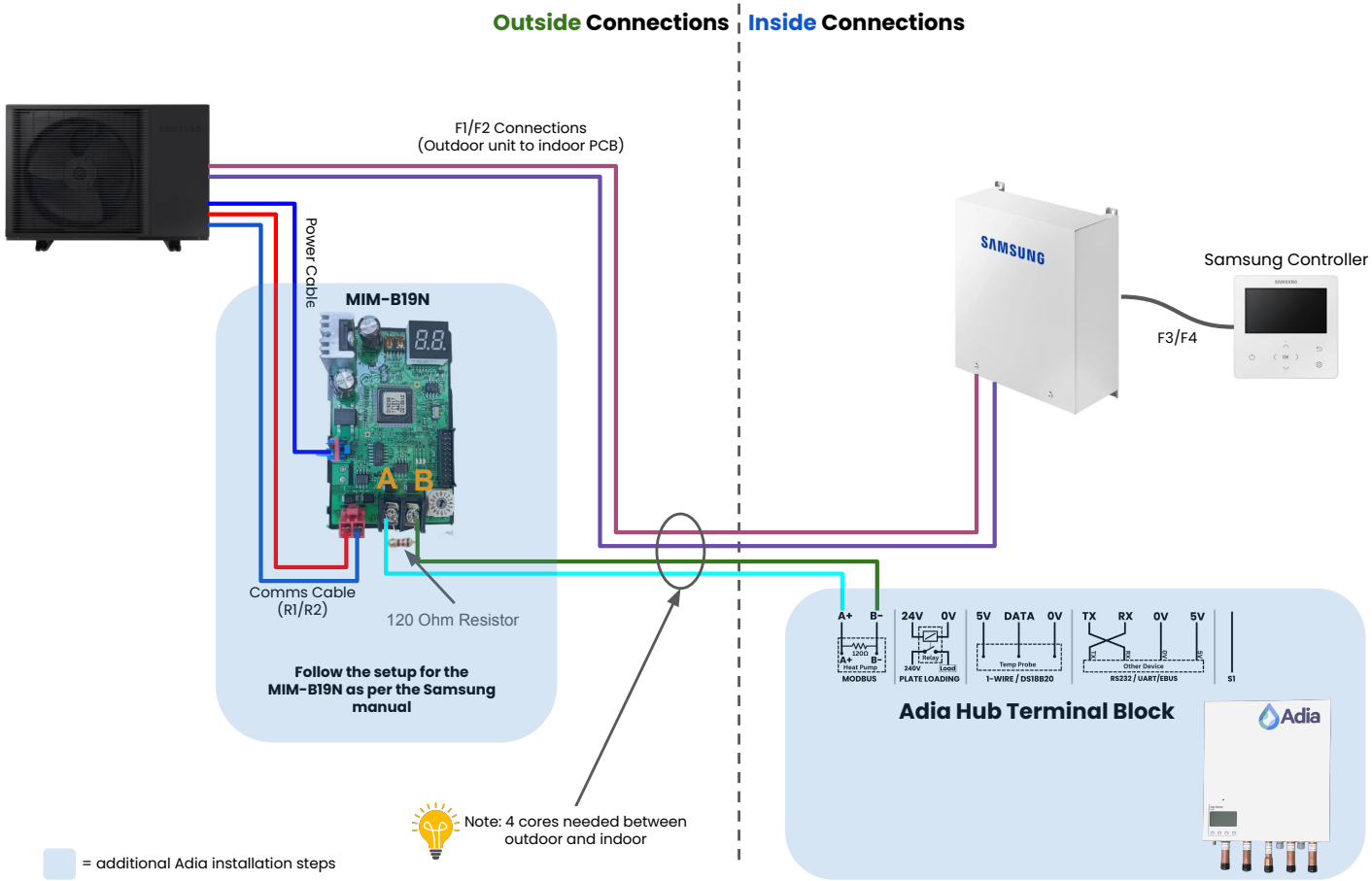
Follow the setup for the MIM-B19N as per the Samsung manual



Adia Hub Terminal Block

= additional Adia installation steps

Controls & Modbus Setup:
Samsung Non-Integrated (aka 'Mono')



Controls & Modbus Setup:
Midea (Clivet, Riello, Ideal HP290 etc)

Step 1

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

Step 2

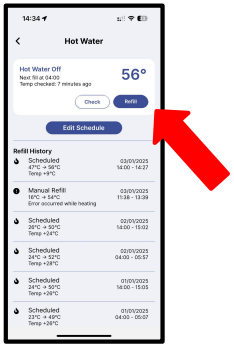
Connect a 2-wire cable from the Adia Hub terminal block section labeled “MODBUS” to the indoor heat pump controller board (see next page).

- Connect the Midea Controller H1 terminal to the Adia A+ terminal
- Connect the Midea Controller H2 terminal to the Adia B- terminal
- Connect the supplied 120-ohm resistor between the H1 and H2 terminals on the Midea board as shown.

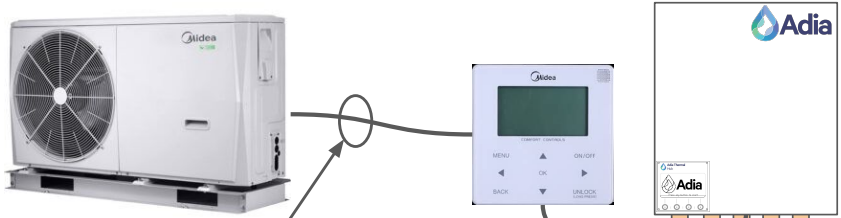
Step 3

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 changes (or the user defined setting) a few minutes after triggering a hot water run. It will NOT show that it is in DHW mode.

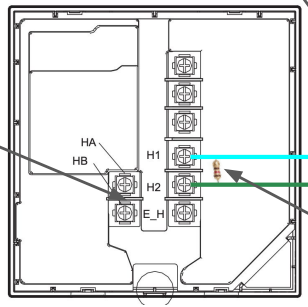


Controls & Modbus Setup: Midea (Clivet, Riello, Ideal HP290 etc)

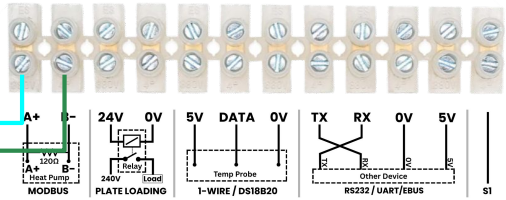


High level overview of wiring

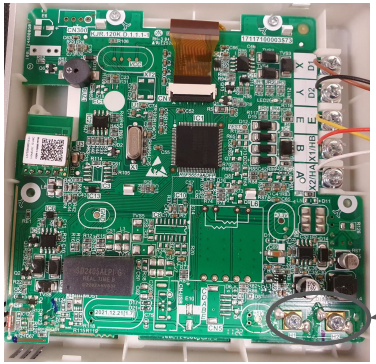
Follow regular manufacturer's instructions for connection between the controller and the outdoor unit



120 Ohm Resistor



Adia Hub Terminal Block



Note: For previous generation controllers (shown here), H1 and H2 are reversed (H1 -> B-, H2 -> A+)

Controls & Modbus Setup: Haier

Step 1

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

Step 3

After completing basic settings (Time/Date), change the following settings on the Haier controller:

- **Press ☰ → Installation**, *841226*, **OK**
- **Equipment installation**, set:
  - Zone 1: **ON**
  - DHW: **OFF**
  - Buffer tank: **OFF**
  - Allow cool mode: **OFF**
  - Allow tank heater: **OFF** (if immersion is not connected to the heat pump, **ON** if it is)
  - APP displays energy consumption: **YES**
  - App displays the thermostat information: **YES**.
  - Press return / back arrow.
- **System Installation,** set:
  - Control of Zone 1: **Main controller**
  - Zones water temp control mode: **Direct**
  - Ambient temp for heating off: **35C (Maximum Value)**
  - Press return / back arrow.
- **Indoor unit Installation,** set**:**
  - Selection of IDU electric heating type, **NONE**
  - Pump flow rate control mode, **Constant speed duty out**
  - IDU pump duty out, **0%, (note this is how much brake you apply, example if set to 30% the pump will run at 100 – 20% = 80%**
  - Press return / back arrow.
  - Flow rate can be read in menu / setting / status / (idu at bottom of screen) scroll down 4 screens IDU Flow meter is flow rate. Ignore Pump flow its not used.
  - Press return / back arrow.
- **Start up:**
  - Press power so Heating shows on screen. Note the temperatures shown are water temperatures NOT room temperatures.
  - Now adia will take over the control of the heat pump

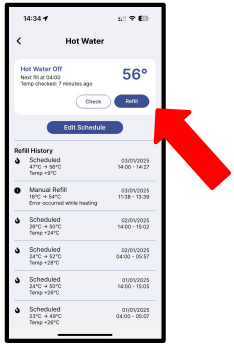
Step 2

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

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.



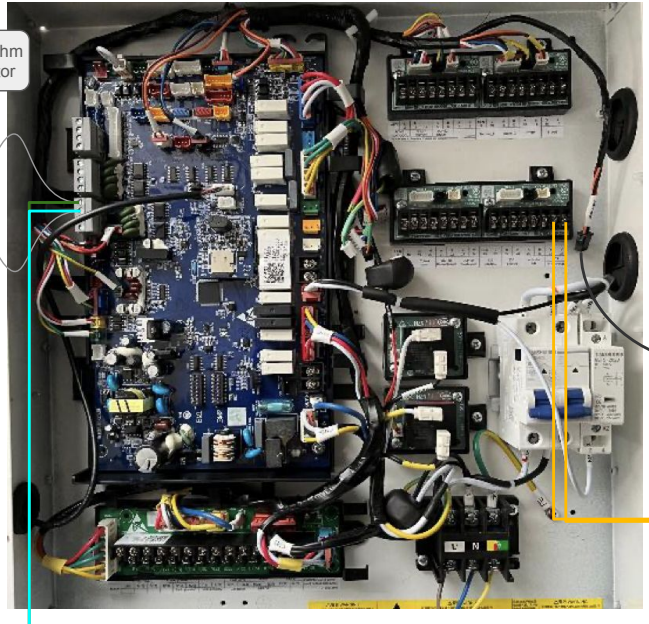
Errors/Faults

If an error occurs a warning triangle shows top left, Press 3 lines, error inquiry, careful check IDU and ODU at the bottom of the screen to see the latest error. Press Back return arrow. Most errors self clear but some need a power reset.

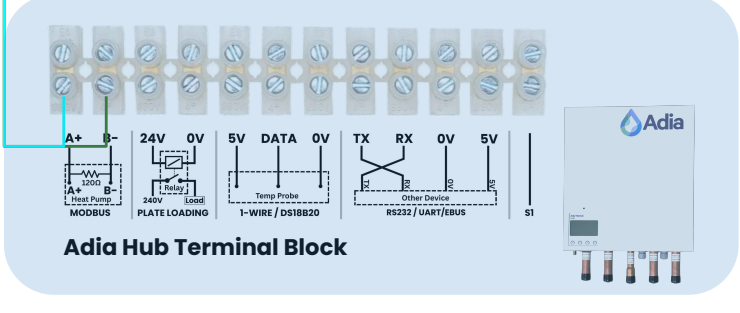
- Fault code videos can be found by searching “Haier Super Aqua Heat Pump Technical Videos” on YouTube
- To interrogate the system, press 3 lines, status, there are 3 screens System, IDU and ODU.

Controls & Modbus Setup: Haier

Inside Connections | **Outside** Connections

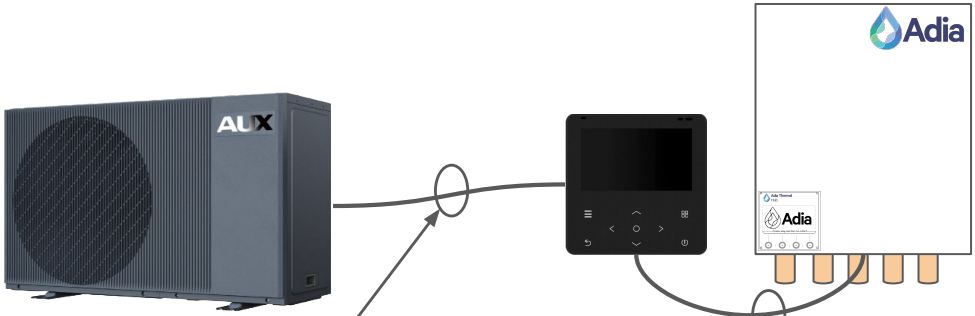


Comms Cable



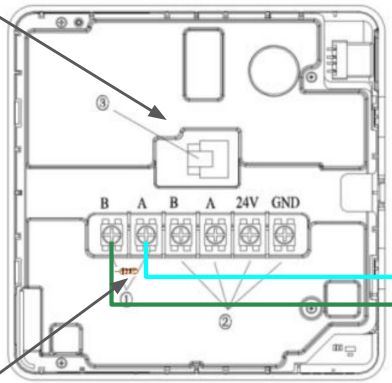
= additional Adia installation steps

Controls & Modbus Setup: AUX

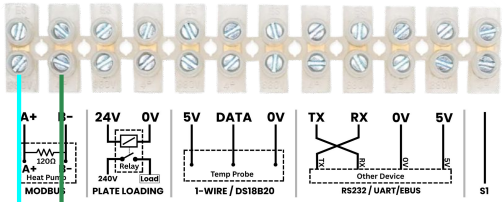


High level overview of wiring

Follow regular manufacturer's instructions for connection between the controller and the outdoor unit



120 Ohm Resistor



Adia Hub Terminal Block

The Adia App

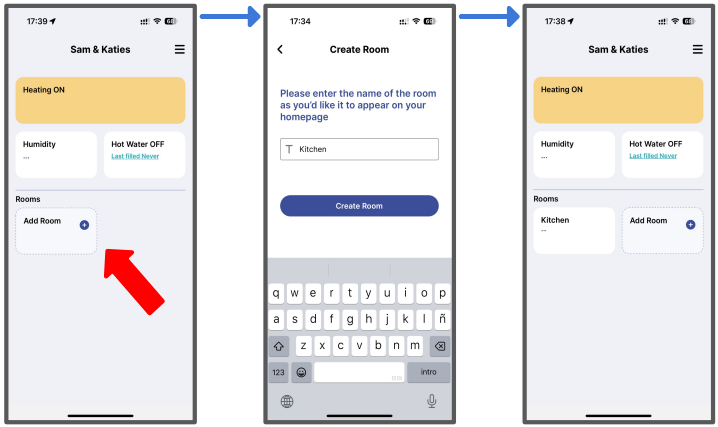
Adia App: Adding Rooms

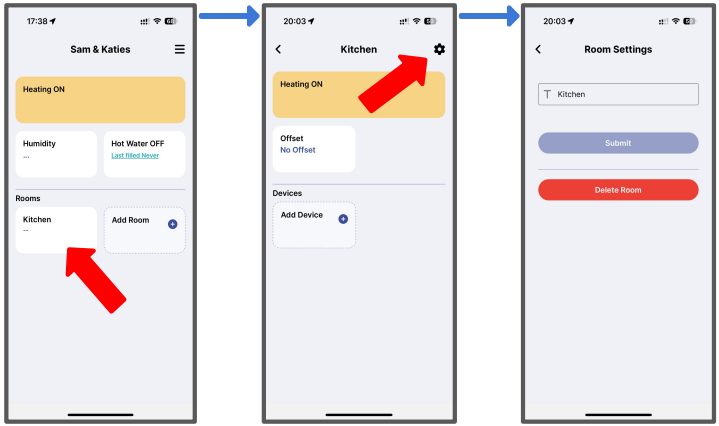
Adia enables room-by-room heating control. Every heated room with a radiator in the home should be added to the app for proper management.

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.





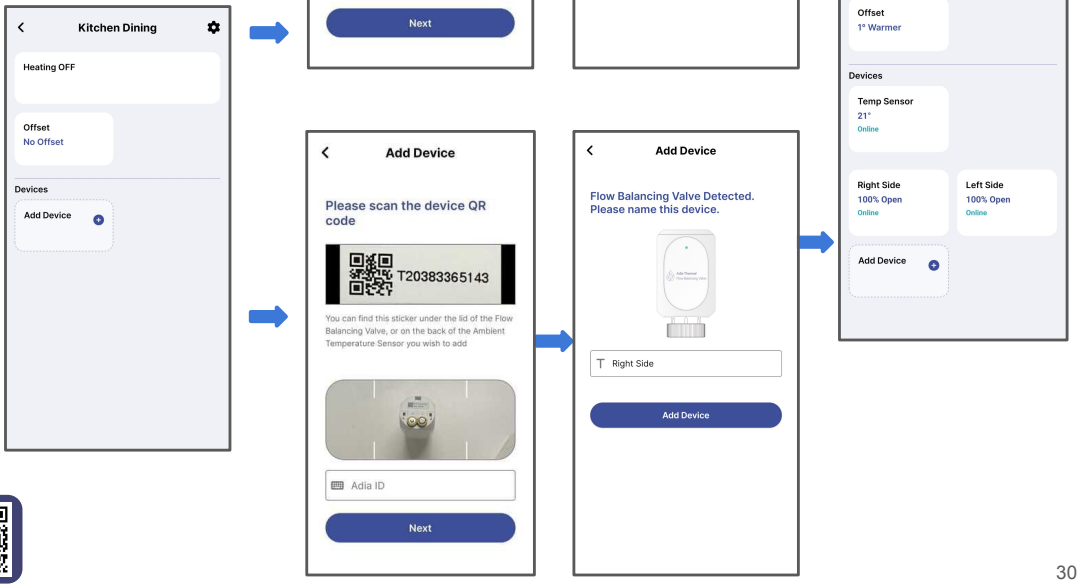
Adia App: Adding Devices

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.



Instructions:

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

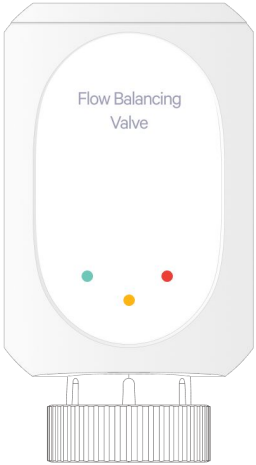
- Ensure the FBV is fitted firmly.
- Use the included attachments to match different TRV models.

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

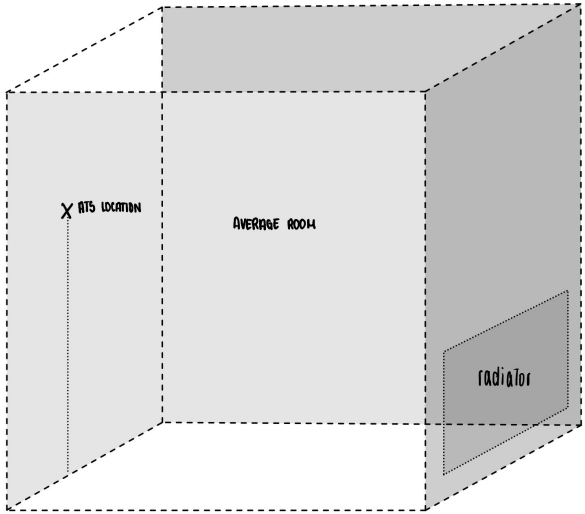
Avoid direct sunlight, very cold walls, heat sources, drafts, and doorways.

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

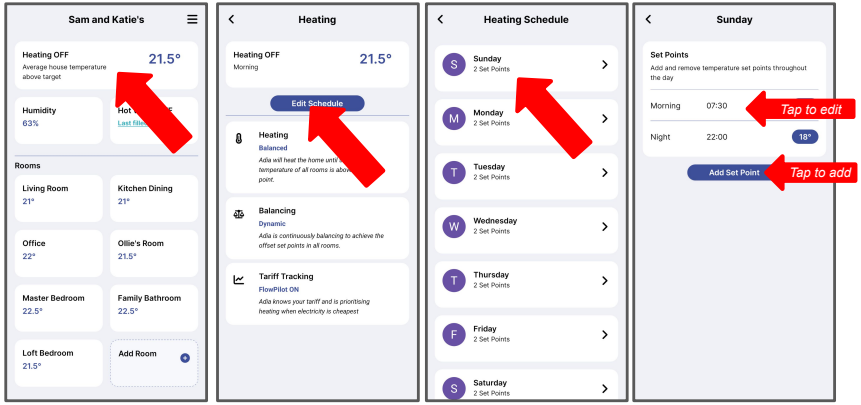
Setting House Temperature Set Points

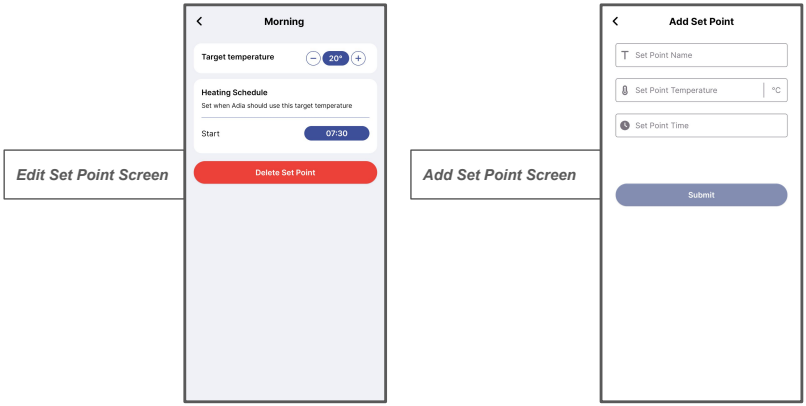
1. **Define set points**
   - Set points are the default temperatures that all rooms aim to reach at different times of day.
   - Room-specific adjustments (offsets) can be applied later through the individual Room screens.

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.





Commissioning: Offsets

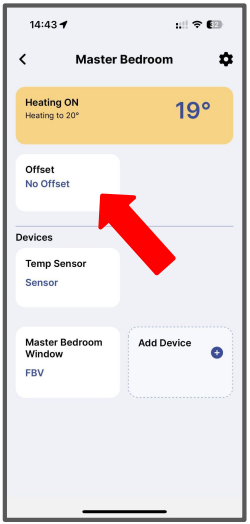
Room Offsets and Balancing

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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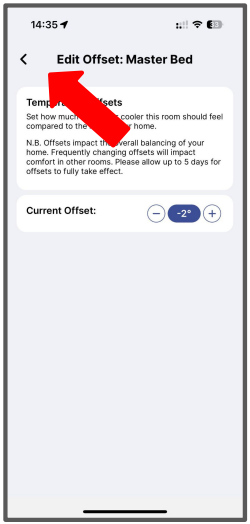

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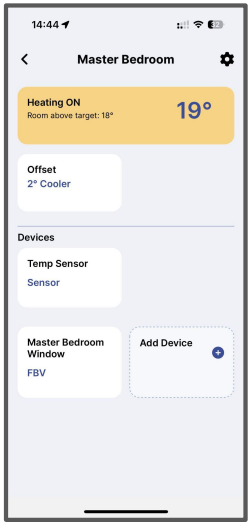


Commissioning: Hot Water

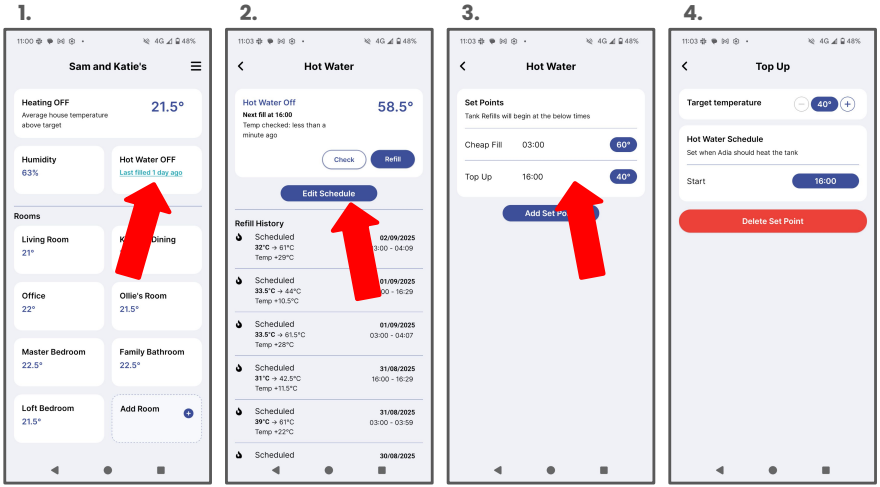
The Adia App controls DHW scheduling, both the times and the target cylinder temperature.

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

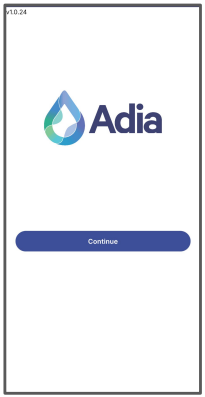
Once commissioning is complete, the customer should be set up on the Adia App. Instruct them to download the app with the relevant QR code, and to create an account using the menu.

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.



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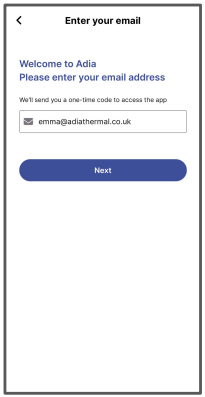

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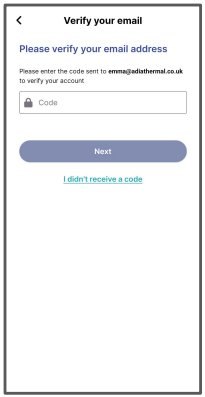

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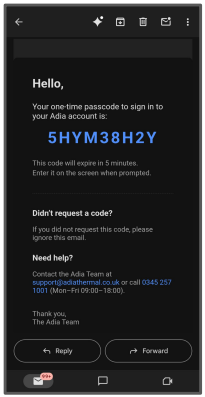

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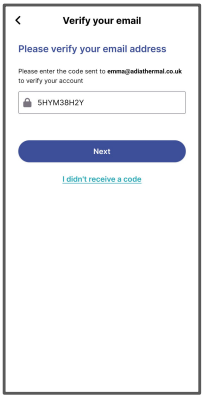

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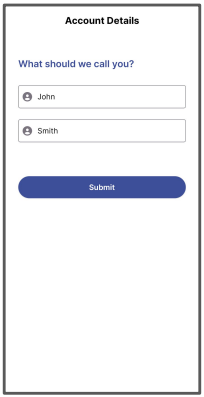

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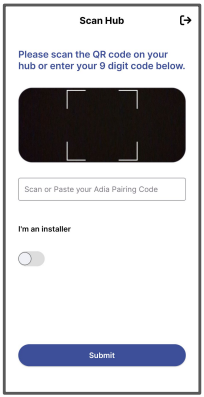


Adia
Underfloor Heating

Underfloor Heating

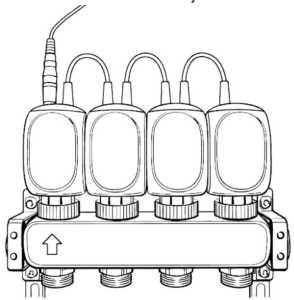
How it Works

Adia FBVs control both radiators and UFH circuits as a single integrated zone.

The system modulates our Flow Balancing Valves to manage underfloor temperatures (default max temp 27C), eliminating the need for a mixing group, mains water supply, or additional pump.

Install one Adia UFH FBV per actuator position on the manifold.

Use the provided 3V DC power supply and the connector cables to power one UFH FBV and daisy chain the rest



See full system diagram on next page for reference.

Key Principle

No zone valves anywhere in the system. Adia FBVs on radiators and UFH circuits work together to balance the entire home as one zone.

What You Need

- UFH manifold (standard, M30x1.5 thread, 50mm+ between valve centres)
- One Adia UFH FBV per circuit
- Adia Hub (pairs automatically over 868 MHz)
- Adia radiator FBVs on all radiators and towel rails

Do NOT Install With

- Mixing group / blending valve
- Separate cold water supply to manifold
- Additional circulation pump for UFH
- Zone valves (radiators or UFH)

Adia's pulsed flow technology replaces all of the above. Installing these components will conflict with the system and void performance guarantees.

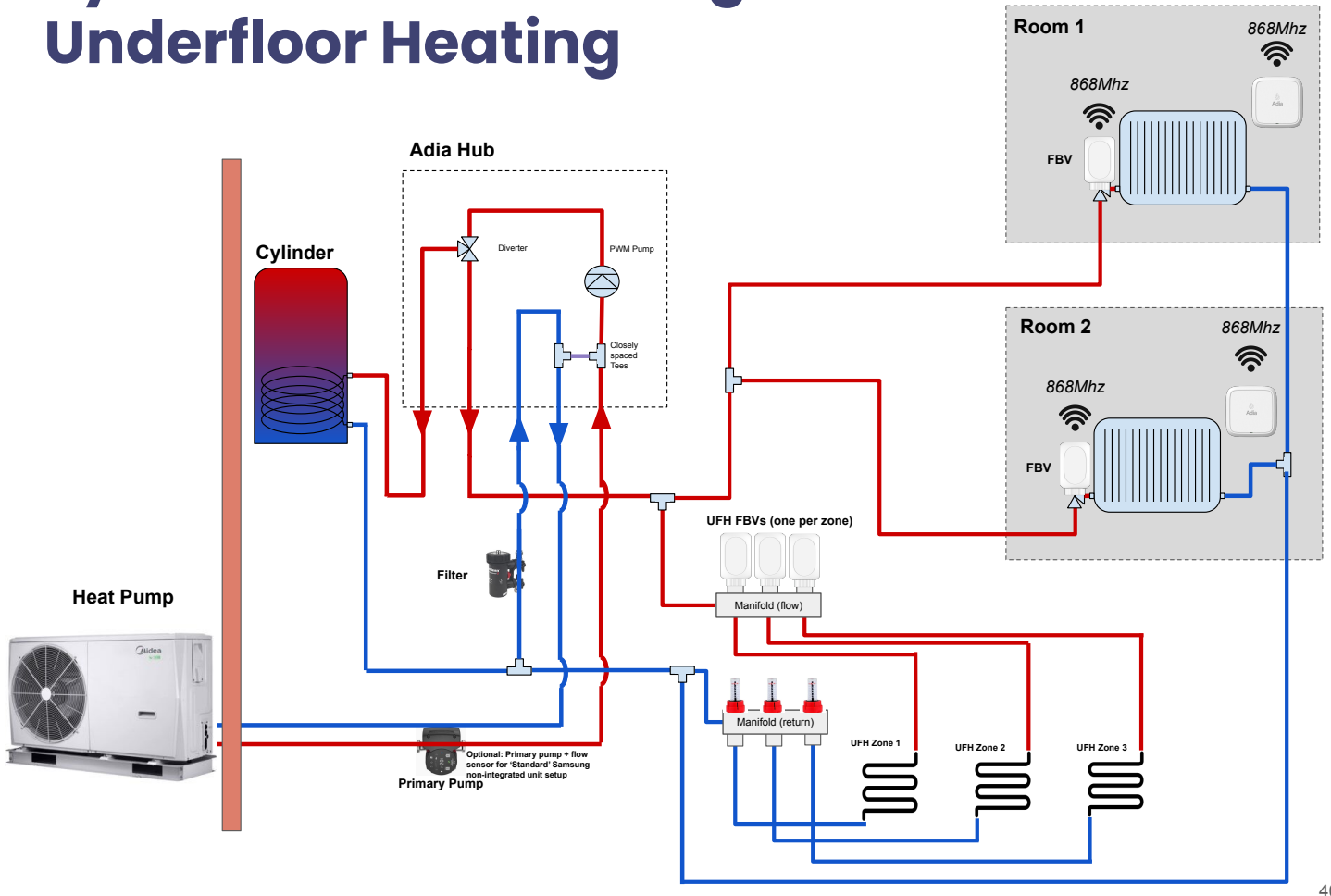
Set the Flow Temperature

Cap the system flow temperature to suit the floor construction, coverings and room heat loss, calculated to **BS EN 1264**. Where no calculation is carried out, the Adia default of 40°C applies.

Use our calculator at adiathermal.co.uk/flow-temp-calculator as a starting point.

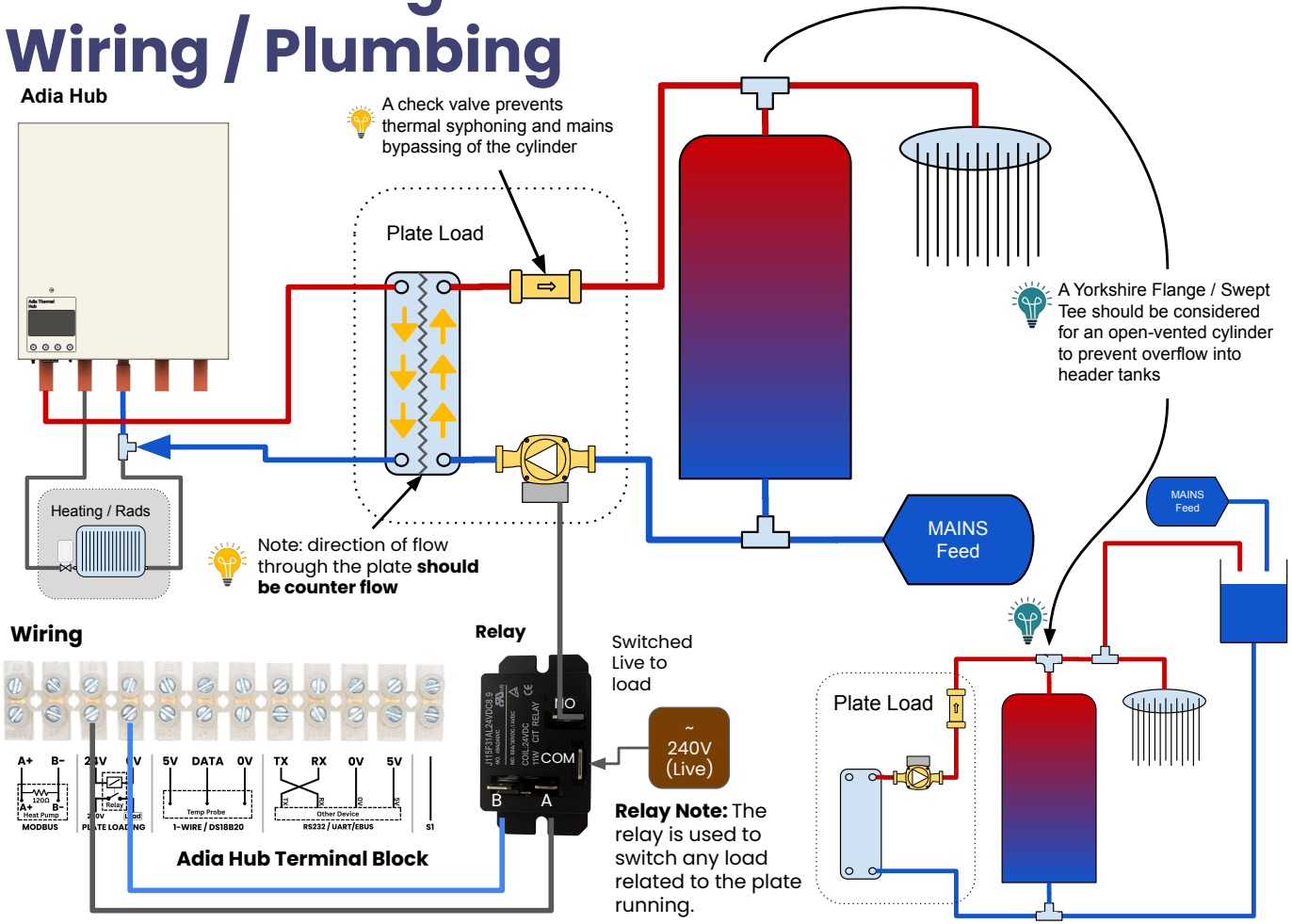
Guide only. Responsibility for the final design flow temperature rests with the installer.

System Reference Diagram: Underfloor Heating



Appendix

Plate-Loading Wiring / Plumbing



Warranty & Maintenance

Warranty

The Adia Hub is covered by a **7-year warranty**.

The Flow Balancing Valves and Ambient Temperature Sensors are covered by a **2-year warranty**.

Warranty periods commence from the **date of system registration**, which is recorded by Adia during commissioning using the Adia App.

The warranty covers defects in materials and workmanship under normal use and installation.

Warranty claims process: Homeowners should reach out to Adia directly for support and making warranty claims.

NOTE: The warranty does not cover damage caused by incorrect installation, misuse, neglect, unauthorised repair, or normal wear and tear.

Maintenance

- Clean or replace water filter as part of routine system maintenance
- TRV and ATS batteries should be replaced when indicated on the application