

Adia Thermal System – Technical Datasheet

1. System Overview

Adia Thermal is an integrated controls and hydraulic interface system for retrofitting air-source heat pumps onto existing radiator systems. The system provides smart zoning and balancing, full control over heat pump flow temperature, domestic hot water switching, and room-level sensing and optimisation.

The system comprises three main components: the Adia Hub, Flow Balancing Valves (FBVs), and Ambient Temperature Sensors (ATs).

2. Adia Hub

2.1 Hydronics

The Adia Hub features smart hydraulic separation with closely spaced tees, an integrated Grundfos PWM secondary pump with a head of 7.5 metres, and an integrated ESBE SLB130 motorised diverter valve for hot water and space heating switching. The hub includes an integrated Class 2 heat meter.

ESBE SLB130 Diverter Valve Specifications:

- High-speed motorised linear valve with approximately 2-second changeover
- Suitable for applications using R290 refrigerants (supports hot-water switching)
- Brass body, G1" threaded, DN20, Kvs = 12 m³/h
- Temperature limits: -10°C to +90°C continuous, +110°C temporary

2.2 Connection Ports

The hub features 28mm copper connections with five ports:

- Heat pump FLOW
- Heat pump RETURN
- Central heating FLOW
- Domestic hot water FLOW
- Shared secondary RETURN

A magnetic filter is required on the shared secondary return. The system is compatible with existing hot water cylinders when used with R290 heat pumps.

2.3 Dimensions

Dimension	Measurement
Height	454 mm
Width	404 mm
Depth	150 mm

2.4 Connectivity

- Heat pump connection via Modbus
- Home connection via Wi-Fi or Ethernet
- Internal 868 MHz network for FBVs and ATSS
- Power: 240V AC

2.5 Heat Pump Compatibility

Supported heat pumps: Haier, Midea, Clivet, Riello, Bosch, Samsung (requires MIM-B19N), Vaillant (requires eBus adapter), Stiebel Eltron

2.6 System Capacity

The secondary pump head is 7.5 metres. The flow meter supports heat pumps up to 16kW range (depending on ΔT and system flow rate). The system supports up to 50 radiators.

2.7 Warranty

7 years

3. Flow Balancing Valves (FBVs)

FBVs are electronic TRV-mounted valves for radiator flow modulation. One FBV is required per wet loop emitter, including every radiator and every towel rail.

3.1 Specifications

Parameter	Specification
Power Source	2× AA batteries
Battery Life	2-3 years (typical)
Wireless Protocol	868 MHz long-range
Installation	One per wet loop emitter (every radiator and towel rail)

Maximum per Hub 50 rooms

Warranty 2 years

4. Ambient Temperature Sensors (ATSs)

One ATS is recommended per room to guarantee optimal system performance and good customer experience.

4.1 Specifications

Parameter	Specification
Power Source	3× AAA batteries
Battery Life	~5 years (typical)
Wireless Protocol	868 MHz long-range
Installation	One per room
Maximum per Hub	50 rooms supported
Warranty	2 years

5. Wireless Network

The system uses a proprietary 868 MHz low-frequency indoor-penetration network. 868 MHz repeaters are available if required.

6. Electrical & Monitoring

- Power: 240V AC plug-in
- Integrated Class 2 heat meter
- Shelly CT clamp included for electrical performance measurement

7. Installation

The hub requires five 28mm copper connections as detailed in Section 2.2. A magnetic filter is required on the shared secondary return. After plumbing and Modbus connection, commissioning is completed in the Installer App.

FBV Installation: One FBV per wet loop emitter (every radiator and towel rail).

ATS Installation: One ATS per room.

8. System Compatibility

8.1 Underfloor Heating

UFH is supported only when flow temperature matches radiators. Dual-temperature support is coming soon.

8.2 Existing Cylinders

Existing cylinders are supported with R290 heat pumps.

8.3 System Volume

Because Adia's FBVs never close, the full system volume of the wet loop is available to the heat pump at all times. A buffer tank is not needed. This allows Adia Thermal's controls to reduce cycling and to respond to defrost cycles.

9. Warranty Summary

Component	Warranty Period
Hub	7 years
FBVs	2 years
ATs	2 years