



# INSTALLATION

## LOGIC AIR MONOBLOC HEAT PUMP SYSTEM CASCADE

**SCAN FOR:**

Installation &  
Maintenance  
Guide  
Schematics  
Guide



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.



# CONTENTS

|                                                                                                      |    |
|------------------------------------------------------------------------------------------------------|----|
| Section 1 - General.....                                                                             | 3  |
| 1.1 Introduction.....                                                                                | 3  |
| 1.2 Kit Contents.....                                                                                | 4  |
| Section 2 - Installation .....                                                                       | 5  |
| 2.1 Logic Air Cascade - Electrical Diagram.....                                                      | 5  |
| 2.2 Logic Air Cascade - Legend .....                                                                 | 6  |
| 2.3 Logic Air Monobloc Cascade - Heat Only, Decoupler with Two Zones .....                           | 7  |
| 2.4 Logic Air Monobloc Cascade - Third Party DHW Cylinder Decoupler with Two Zones .....             | 8  |
| 2.5 Logic Air Monobloc Cascade + Third Party DHW Cylinder + Multi-Port Decoupler with Two Zones..... | 9  |
| 2.6 Logic Air Monobloc Cascade Heat Only + Multi-Port Decoupler with Two Zones .....                 | 10 |
| 2.7 Installation Instructions.....                                                                   | 11 |
| Section 3 - Configuring .....                                                                        | 12 |
| 3.1 Controls.....                                                                                    | 12 |
| 3.2 Configuring: Primary.....                                                                        | 13 |
| 3.3 Configuring: Secondary.....                                                                      | 14 |
| 3.4 Configuring: Primary.....                                                                        | 16 |

ⓘ **IMPORTANT: PLEASE USE THIS MANUAL IN CONJUNCTION WITH THE LOGIC AIR MONOBLOC HEAT PUMP SYSTEM – INSTALLATION & SERVICING MANUAL**



**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



## 1.1 INTRODUCTION

The Logic Air monobloc can be connected in a cascade arrangement allowing two Logic Air's to provide central heating and domestic hot water requirements.

Cascade systems generally link up heat pumps in a parallel arrangement to one common flow and return header. The common headers usually connect to a low loss separator/ buffer vessel that provides hydraulic separation (decoupling) between the primary and secondary circuits allowing different flow rates while effectively transferring heat.

The cascade kit is suitable for many paired options and careful consideration must be given to design requirements. For example, the maximum output to central heating in all arrangements using the largest Logic Airs would be 2x10kW. For a domestic hot water arrangement, only one heat pump would be connected via a dedicated circuit to a cylinder allowing 1x10kW for domestic hot water.

Circuit arrangements for heat only and domestic hot water installations can be referred to on page 7 and 8 within this installation manual.

The kit is suitable for the following heat pumps:

- Logic Air 4 kW
- Logic Air 5 kW
- Logic Air 8 kW
- Logic Air 10 kW

One Logic Air control box is required for each heat pump with one being designated as the primary and one as the secondary.

The Secondary controller must be connected to the LPB-Bus and have an individual address (follow setup instructions).

### Notes:

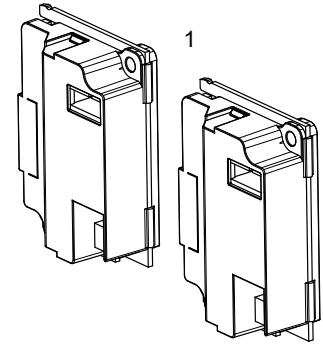
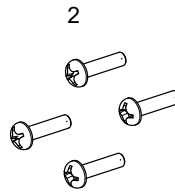
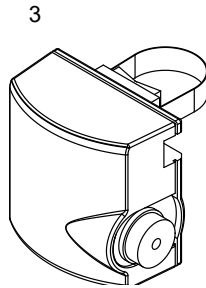
- The maximum number of cascade units is two.
- It is recommended that models of equal capacity are selected where possible.
- One control box is required for EACH heat pump in the cascade.
- Logic Air pre-plumbed cylinders with decoupling (buffer or LLH) are not compatible with Logic Air cascade.
- Refer to the table below for compatible domestic hot water storage cylinders that are intended for coupling with a range of heat pumps from 5kW.

### Suitable domestic hot water cylinders for Logic Air cascade

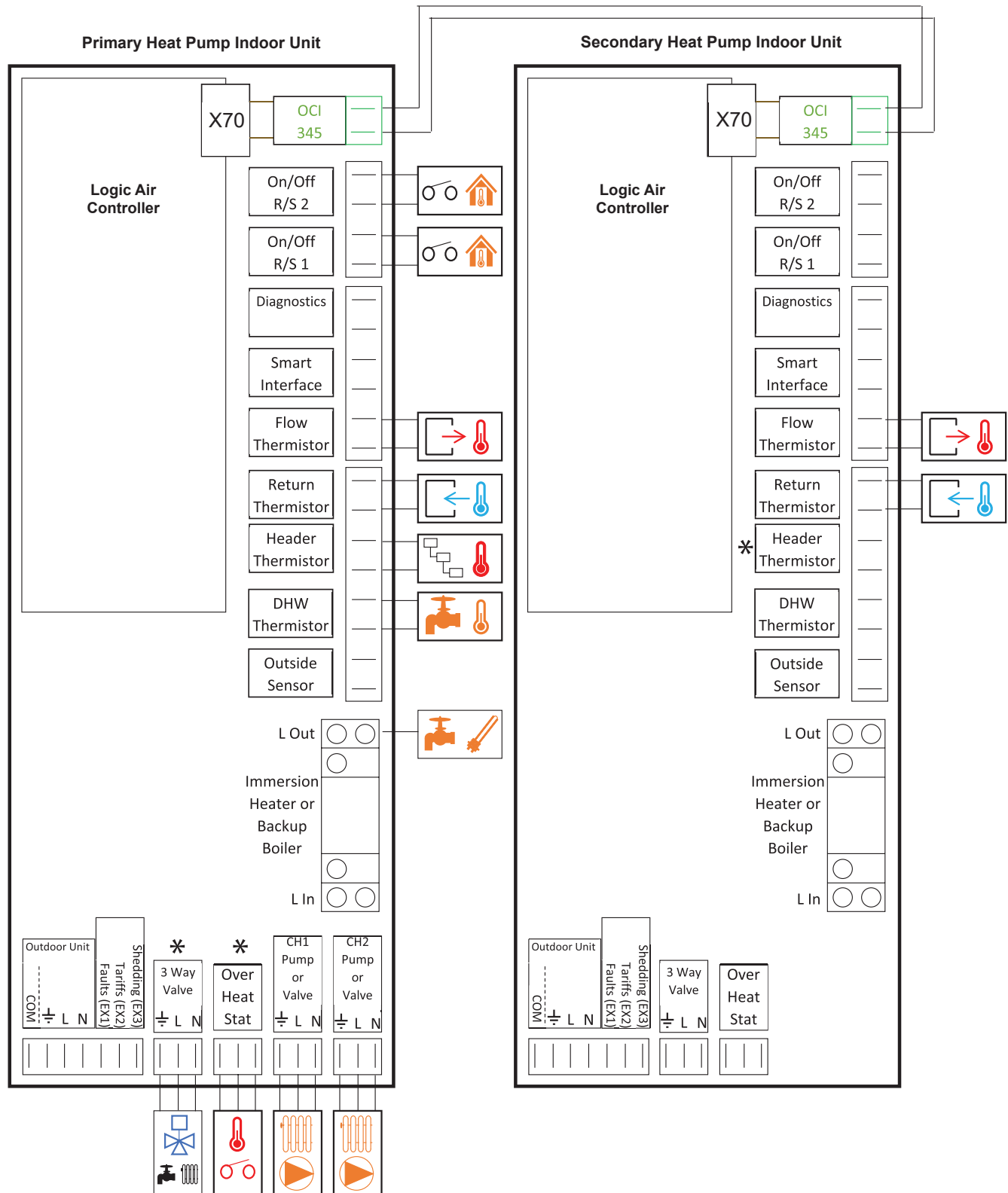
| Ideal HP Model              |                | HP180IND    | HP210IND    | HP250IND    | HP300IND    |
|-----------------------------|----------------|-------------|-------------|-------------|-------------|
| Product Stock Code          |                | IDEPLUHP180 | IDEPLUHP210 | IDEPLUHP250 | IDEPLUHP300 |
|                             |                | 180         | 210         | 250         | 300         |
| Heat loss (per hour)        | watts          | 55          | 62          | 74          | 86          |
| Capacity                    | litres         | 178         | 208         | 248         | 287         |
| Height                      | mm             | 1306        | 1494        | 1744        | 1990        |
| Diameter                    | mm             | 550         | 550         | 550         | 550         |
| Weight (empty)              | kg             | 34          | 38          | 43          | 47          |
| Weight (full)               | kg             | 212         | 246         | 291         | 334         |
| Surface area of coil        | m <sup>2</sup> | 2.5         | 3           | 3           | 3           |
| Immersion heater rating     | kW             | 3           | 3           | 3           | 3           |
| Secondary return connection |                | No          | Yes         | Yes         | Yes         |

### 1.2 KIT CONTENTS

1. Module OCI345 (x2)
2. M4 x 16 Long Pozi Pan Heads (x4)
3. Header strap-on temperature sensor (x1)
4. Instructions

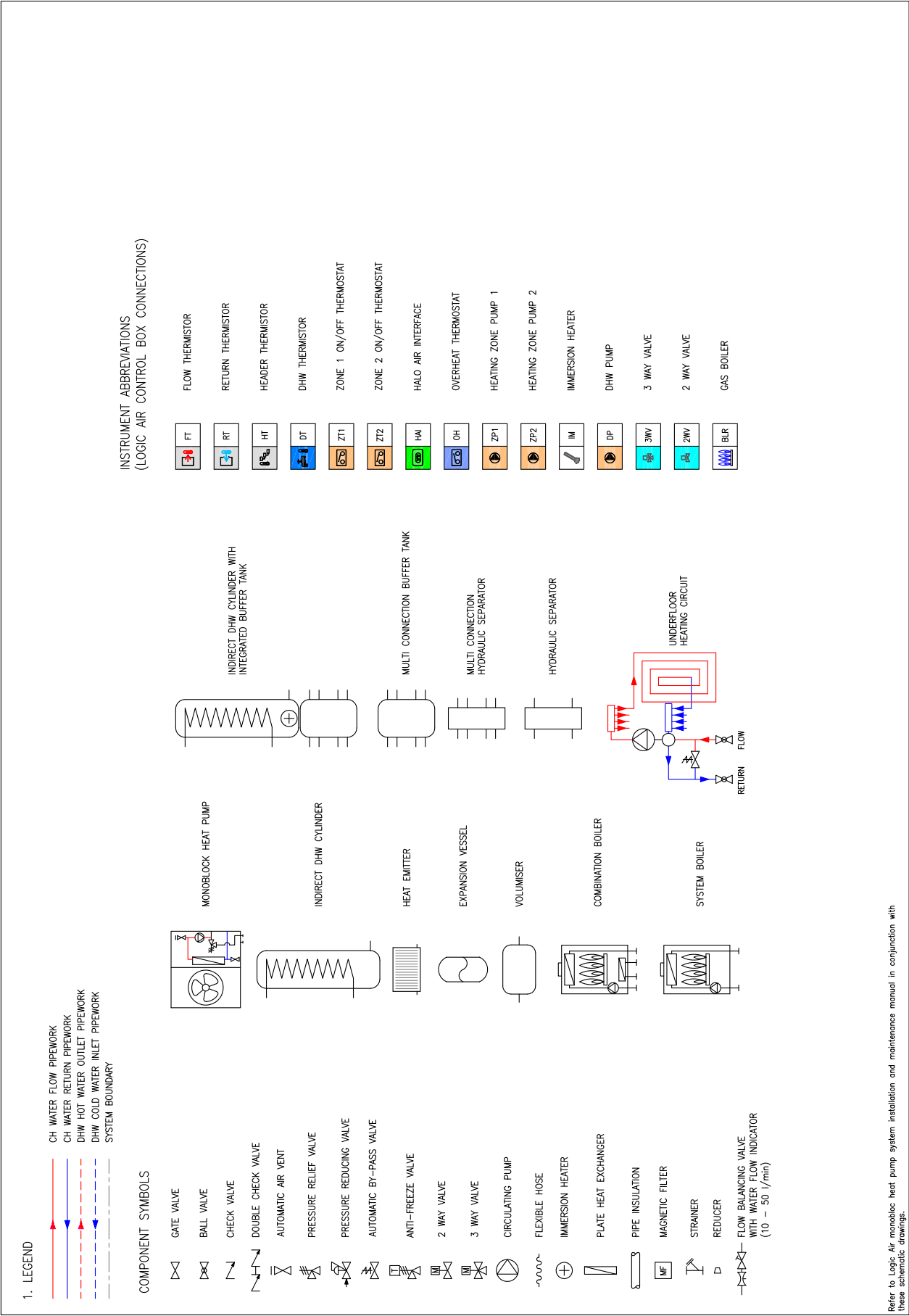


## 2.1 LOGIC AIR CASCADE - ELECTRICAL DIAGRAM



\* Note: DHW sensor, 3 Way valve and over heat stat are applicable to a DHW setup only.

2.2 LOGIC AIR CASCADE - LEGEND



INSTRUMENT ABBREVIATIONS  
(LOGIC AIR CONTROL BOX CONNECTIONS)

FT

FLOW THERMISTOR

RT

RETURN THERMISTOR

HT

HEADER THERMISTOR

DT

DHW THERMISTOR

ZT1

ZONE 1 ON/OFF THERMOSTAT

ZT2

ZONE 2 ON/OFF THERMOSTAT

HA

HALO AIR INTERFACE

OH

OVERHEAT THERMOSTAT

ZP1

HEATING ZONE PUMP 1

ZP2

HEATING ZONE PUMP 2

IM

IMMERSION HEATER

DP

DHW PUMP

3WV

3 WAY VALVE

2WV

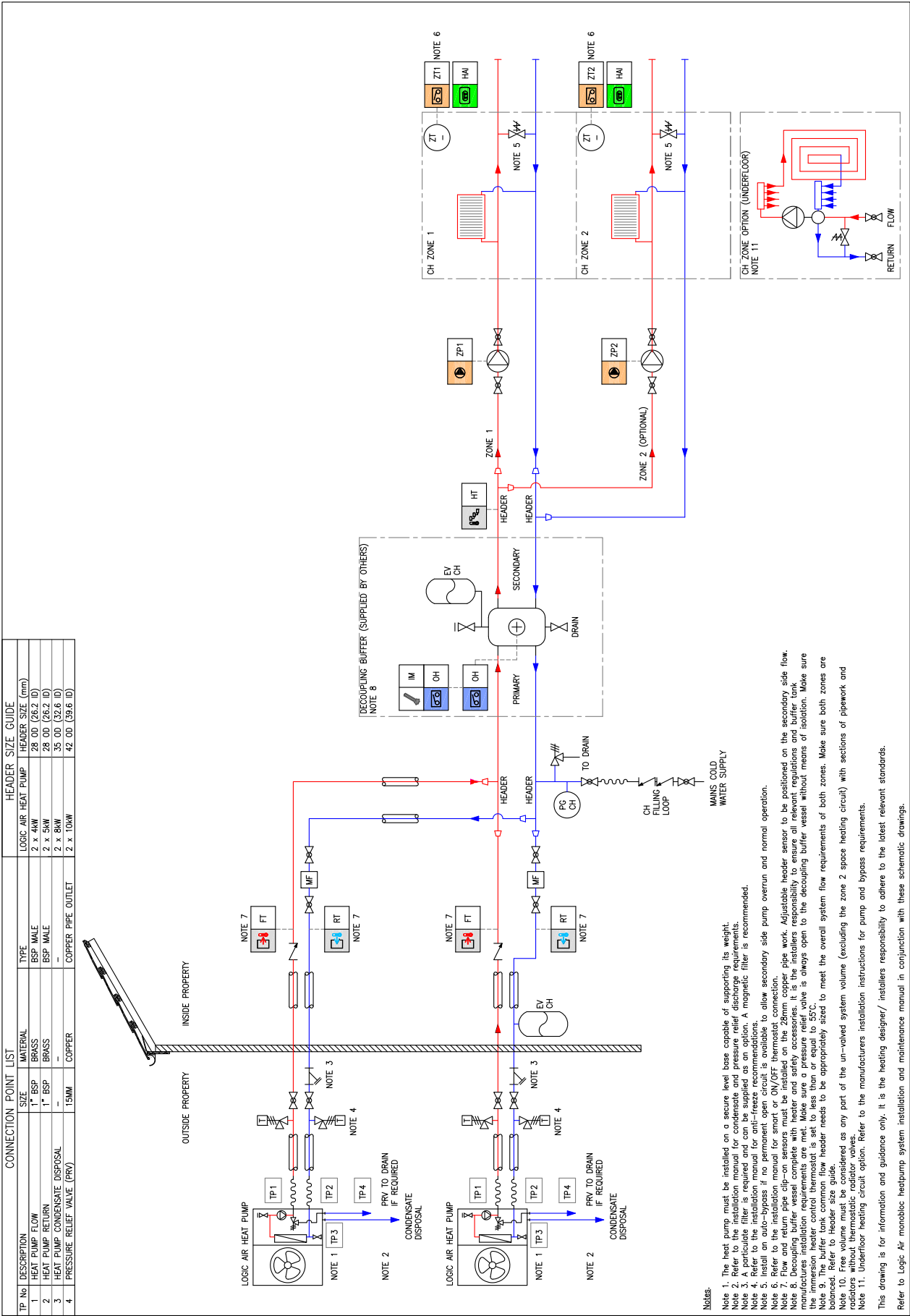
2 WAY VALVE

GBR

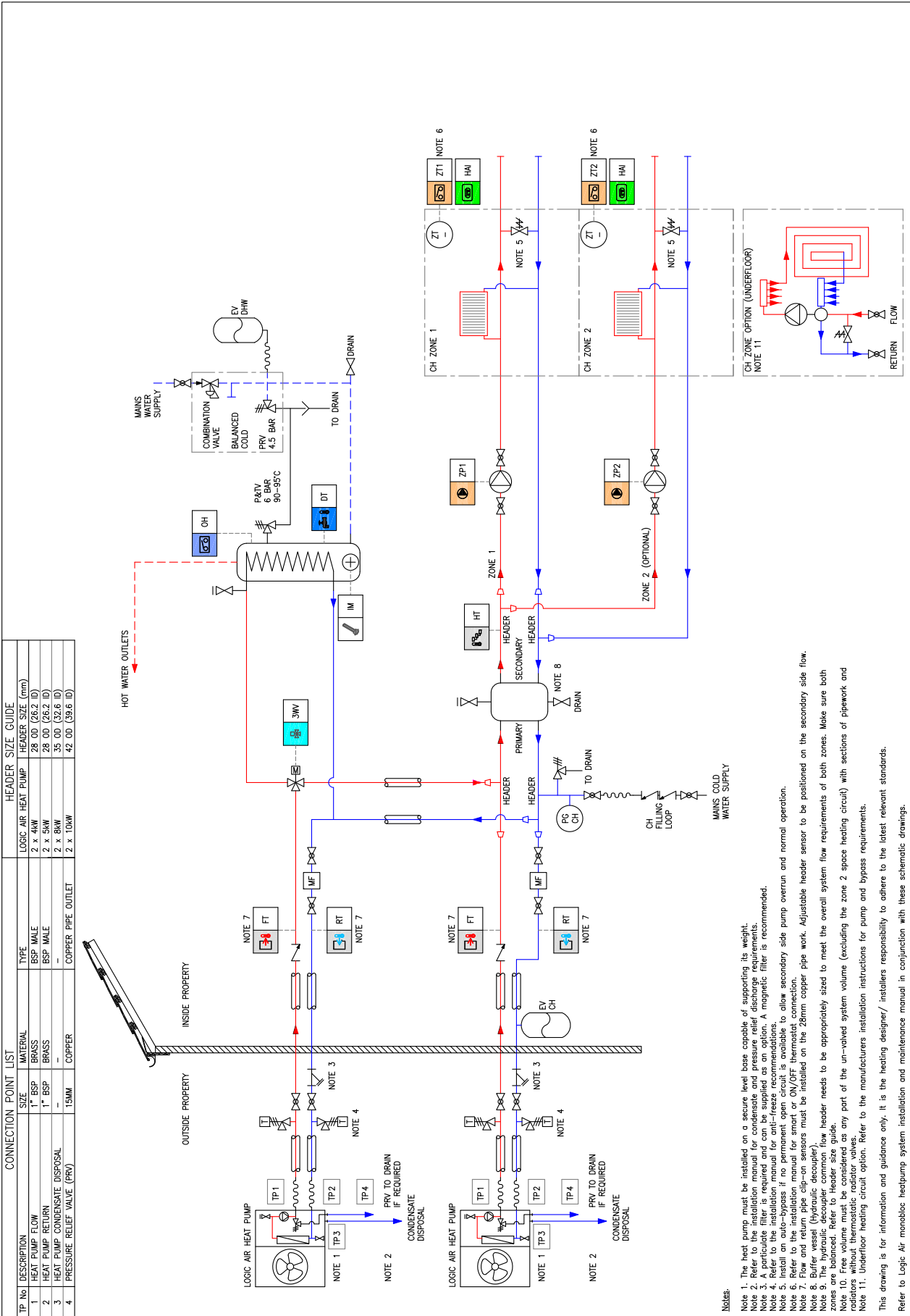
GAS BOILER

Refer to Logic Air monobloc heat pump system installation and maintenance manual in conjunction with these schematic drawings.

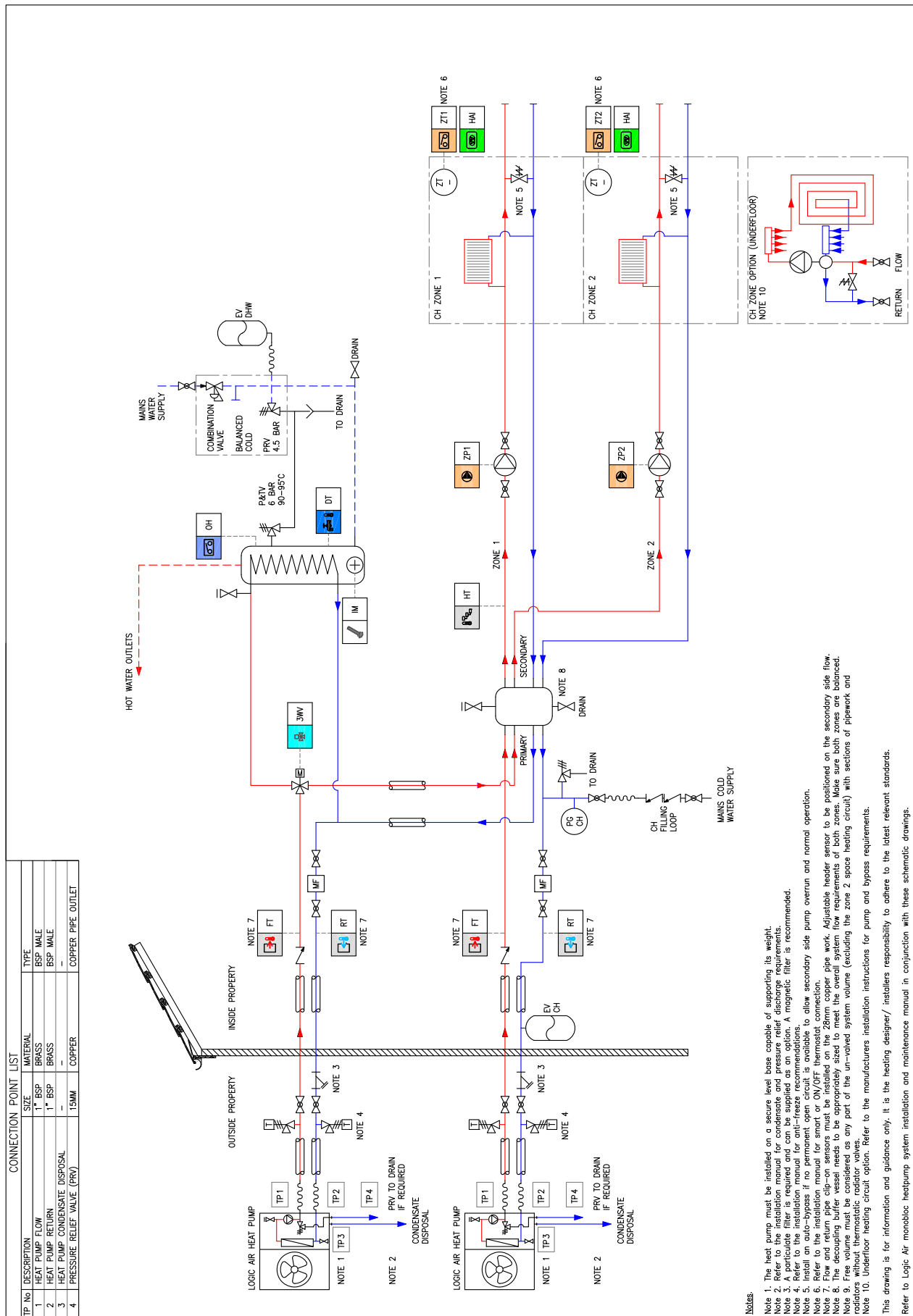
2.3 LOGIC AIR MONOBLOC CASCADE - HEAT ONLY, DECOUPLER WITH TWO ZONES



2.4 LOGIC AIR MONOBLOC CASCADE - THIRD PARTY DHW CYLINDER DECOUPLER WITH TWO ZONES

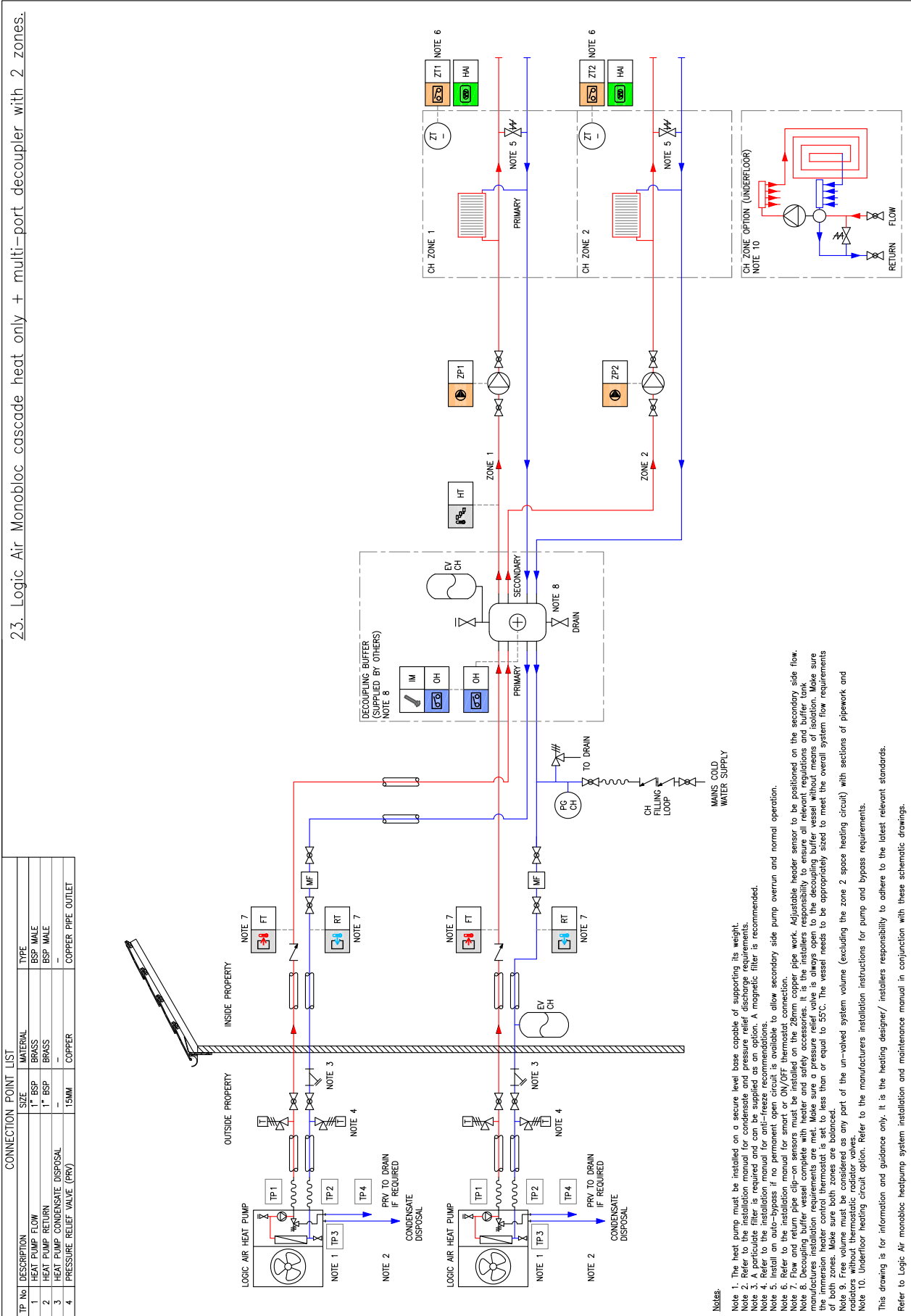


## 2.5 LOGIC AIR MONOBLOC CASCADE + THIRD PARTY DHW CYLINDER + MULTI-PORT DECOUPLER WITH TWO ZONES



2.6 LOGIC AIR MONOBLOC CASCADE HEAT ONLY + MULTI-PORT DECOUPLER WITH TWO ZONES

23. Logic Air Monobloc cascade heat only + multi-port decoupler with 2 zones.



## 2.7 INSTALLATION INSTRUCTIONS

Consideration must be given to ensure the primary and secondary circuits operate independently without any hydraulic interference.

The system designer should select the heat pump outputs to best meet the system requirements, allowing the total system load to be shared by both heat pumps while considering domestic hot water if applicable.

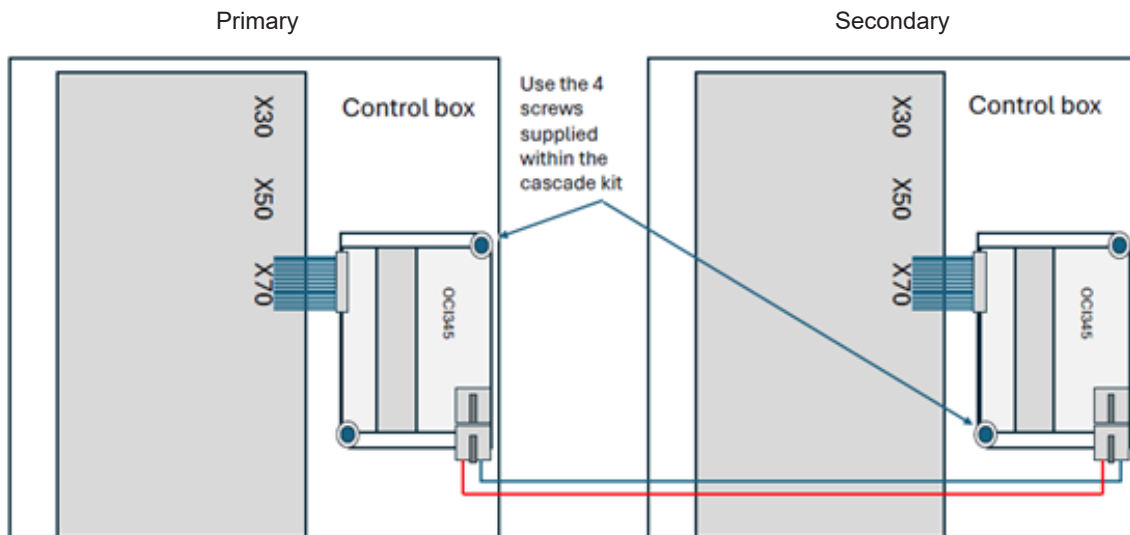
The system schematics within this manual can be referred to for information on a typical cascade system layout.

Install the Logic Air cascade kit as follows:

**⚠ WARNING: Make sure that electrical power for the Outdoor Units and Indoor Units is set to OFF. Working with electricity is dangerous and can cause serious injury or death.**

1. Remove the cover panels from both control boxes
2. Connect the header thermistor onto the secondary flow header (post buffer).
3. Extend the cable as required from the header thermistor to the Primary heat pump controller and connect to the corresponding terminal "Header Thermistor"
4. If the system has a DHW cylinder, connect the 3-Way valve and the cylinder overheat thermostat to the corresponding connections on the Primary controller.
5. Secure the OCI345s into the control boxes using the M4 x 16 mm screws and connect the ribbon cables to RVS21 connection X70. Refer to diagram below for orientation.
6. Using a 2 core cable, connect LPB MB on the Primary OCI345 to LPB MB on the Secondary OCI345 and connect LPB DB on the Primary OCI345 to LPB DB on the Secondary OCI345.
7. Replace the electrical covers of both control boxes and switch the electrical power back on to both heat pumps.
8. Go through the configuration process on the following pages.

## Orientation of OCI345 in Control box

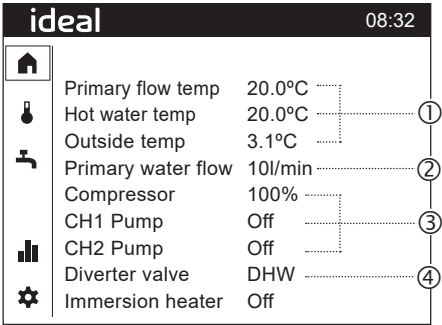
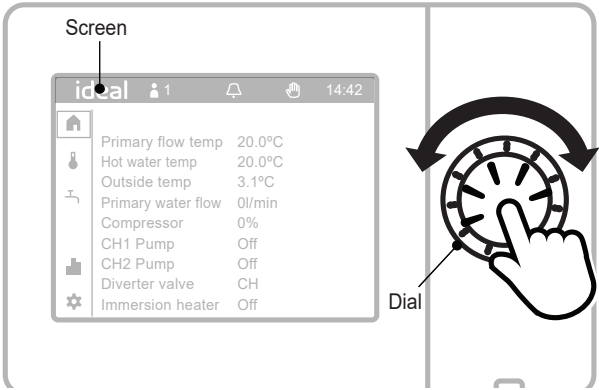


3.1 CONTROLS

The heat pump controls are located on the front of the control box. The centralised control for the full heating system is located on the Primary heat pump control box.

❶ **IMPORTANT:** To use the control screen the dial can be rotated clockwise to move selection downwards, anti-clockwise to move selection upwards, and pressed to select. When options are selected, the dial can be turned to cycle through the setting options. To exit menus or return to previous screens, a selectable option will be displayed at the bottom of the screen.

- Rotate the dial clockwise for downwards selection
- Rotate the dial anti-clockwise for upwards selection
- Press the dial to make selection



| OPERATING SYMBOLS |                                                              |
|-------------------|--------------------------------------------------------------|
|                   | Home Screen                                                  |
|                   | Space Heating                                                |
|                   | Domestic Hot Water                                           |
|                   | System Information                                           |
|                   | Settings Menu                                                |
|                   | Return to Previous Screen                                    |
|                   | General                                                      |
|                   | Configuration                                                |
| OPERATING MODES   |                                                              |
| ❶                 | Operating Temperatures                                       |
| ❷                 | Water Flow from Heat Pump to Indoor Unit                     |
| ❸                 | Heat Pump Output                                             |
| ❹                 | Hot Water and Central Heating System Control Actuator Status |

## 3.2 CONFIGURING: PRIMARY

Once the system has powered up, the following screen will be shown:-

Set the time and date by rotating the dial to move around the screen, pressing the dial to select the setting you wish to modify, rotating the dial again to change the setting and then pressing the dial again to save the setting.

When finished select Continue.

The following screen will be shown:-

Set the Power Rating to 4, 5, 8 or 10 kW as appropriate.

Set the Heating Circuits number and; Type as appropriate from the following options:-

- 1 Radiator Circuit
- 1 Under floor Circuit
- 2 Radiator Circuits
- 1 Radiator and; 1 Under floor Circuit
- 1 Under floor Circuit and 1 Radiator
- 2 Under floor Circuits

When finished, select Continue.

The following screen will be shown:-

Set the Back-up Heater options as appropriate from the following options:-

- DHW Immersion Heater
- Heat Only
- Combi Hybrid
- Hybrid heat / system

**Note: If the system is a heat only design with no domestic hot water cylinder, set 5706 backup heater to heat only.**

Set the Legionella Protection to be either enabled or disabled as appropriate.

When finished select Continue.

The following screen will be shown:-

Select continue and once the system has configured then the home screen will be shown.

## 3.3 CONFIGURING: SECONDARY

Once the system has powered up, the following screen will be shown:-

Set the time and date by rotating the dial to move around the screen, pressing the dial to select the setting you wish to modify, rotating the dial again to change the setting and then pressing the dial again to save the setting.

When finished select Continue.

The following screen will be shown:-

- **Set the Power Rating to 4, 5, 8 or 10 kW as appropriate.**
- **Set the heating circuits number and type to Heat Pump Slave (Secondary).**

When finished, select Continue.

The following screen will be shown:-

- **Set the Back-up heater option to Heat Only.**
- **Set the Legionella Protection to disable.**

When finished select Continue.

The following screen will be shown:-

Select continue and once the system has configured then the home screen will be shown.

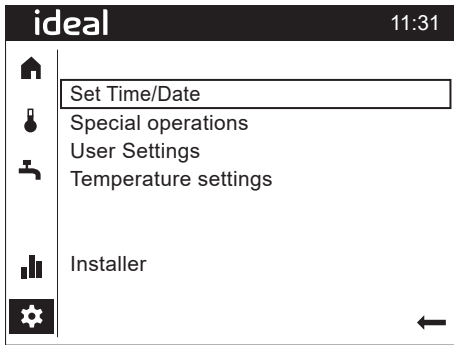
Note: Now power cycle both heat pumps. You are likely to see an error on the Secondary controller.

Error 82 : LPB address/collision.

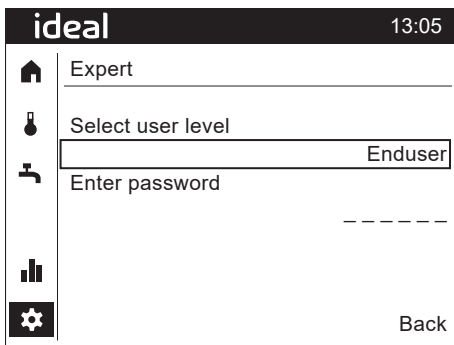
Follow **Configuring: Secondary Continued** on the following page.

## CONFIGURING: SECONDARY CONTINUED

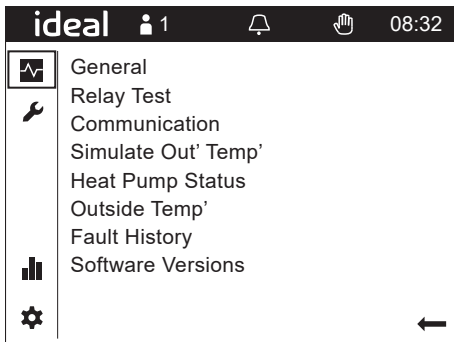
Rotate the dial until the settings icon  in the left-hand column is highlighted and press the dial. The following screen will be shown:-



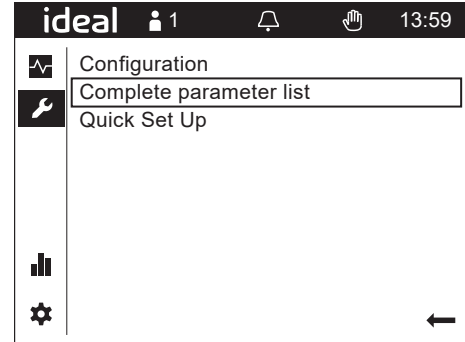
Rotate the dial until installer is highlighted and then press the dial and the following screen will be shown:-



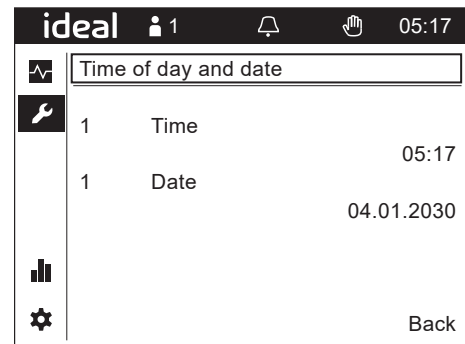
Press the dial and rotate the dial until Installer is shown then press the dial. Rotate the dial until the password line is highlighted and press the dial then rotate and press the dial in turn setting to 12345. Press the dial with Continue highlighted and the following screen will be shown:-



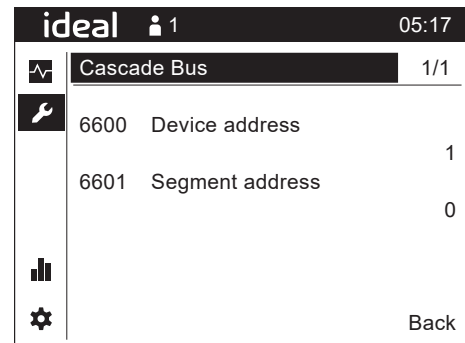
Rotate the dial until the spanner symbol is highlighted and press the dial then the following screen is shown:-



Rotate the dial until Complete Parameter List is highlighted and press the dial then the following screen is shown.



Press the dial and rotate until 'Cascade Bus' is shown. Press the dial and rotate until 'Device' address is highlighted.



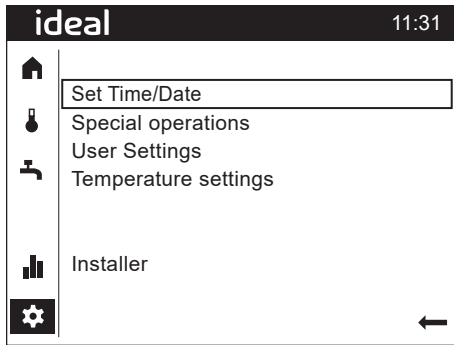
Press the dial and then rotate until 2 is shown and then press the dial to confirm.

| Cascade Bus         |      |                 |   |
|---------------------|------|-----------------|---|
| Primary heat pump   | 6600 | Device address  | 1 |
|                     | 6601 | Segment address | 0 |
| Secondary heat pump | 6600 | Device address  | 2 |
|                     | 6601 | Segment address | 0 |

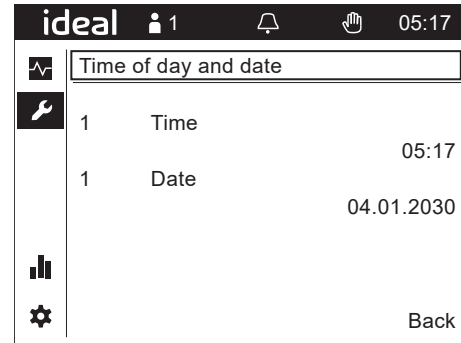
Press back button to exit the cascade bus screen, then press and hold the dial until the home screen is shown.

## 3.4 CONFIGURING: PRIMARY

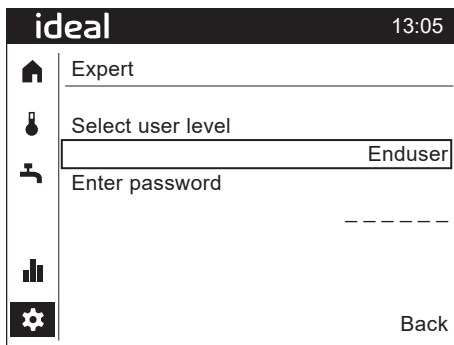
Rotate the dial until the settings icon  in the left-hand column is highlighted and press the dial. The following screen will be shown:-



Rotate the dial until Complete Parameter List is highlighted and press the dial then the following screen is shown.



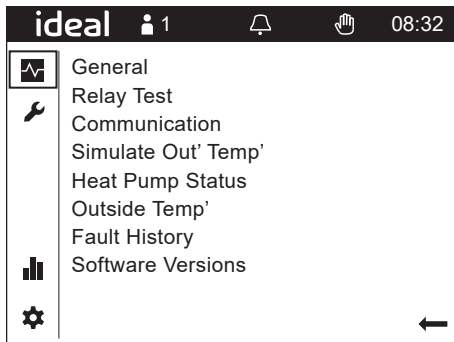
Rotate the dial until installer is highlighted and then press the dial and the following screen will be shown:-



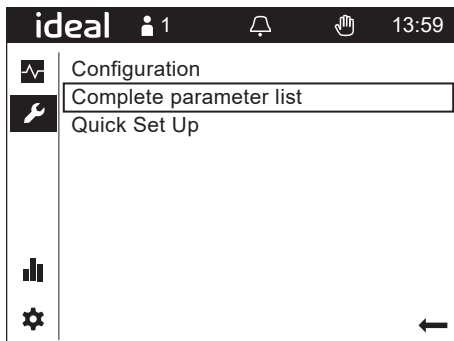
Now follow the steps referring to the headings for either:

- (1) Dedicated domestic hot water setup,
- (2) Heat only setup.

Press the dial and rotate the dial until Installer is shown then press the dial. Rotate the dial until the password line is highlighted and press the dial then rotate and press the dial in turn setting to 12345. Press the dial with Continue highlighted and the following screen will be shown:-



Rotate the dial until the spanner symbol is highlighted and press the dial then the following screen is shown:-



## CONFIGURING: PRIMARY CONTINUED

Refer to the tables below for setup and parameter settings.

### 1. Dedicated domestic hot water setup

Refer to the drawing within this manual: Logic Air cascade - Third party DHW cylinder, decoupler with two zone.

Press and rotate the dial until 'Configuration' is highlighted and press the dial.

Rotate the dial until page (1/7) is highlighted. Press and rotate until (3/7) is highlighted and press the dial to confirm.

Rotate the dial until DHW reset is highlighted. Press the dial and rotate to change DHW reset to On and press to confirm.

| Configuration (3/7) |      |           |    |
|---------------------|------|-----------|----|
| Primary heat pump   | 5736 | DHW reset | On |

Navigate back to Configuration by rotating the dial and press to select.

Rotate the dial until Cascade is highlighted and press to confirm.

Rotate the dial until 'Auto source seq ch'over' is highlighted. Press the dial and rotate to change to --h (Unused), press enter to confirm.

Rotate the dial until 'Leading source' is highlighted. Press the dial and rotate to change to source 2, press enter to confirm.

| Cascade (1/1)     |      |                          |          |
|-------------------|------|--------------------------|----------|
| Primary heat pump | 3540 | Time to leading producer | Unused   |
|                   | 3544 | Leading producer         | Source 2 |

Once complete, navigate back to the Enduser home screen.

### 2. Heat only setup

Refer to the drawing within this manual: Logic Air cascade - Heat Only, decoupler with two zones.

Repeat the steps above using the parameters below for Heat Only.

| Configuration (3/7) |      |           |     |
|---------------------|------|-----------|-----|
| Primary heat pump   | 5736 | DHW reset | Off |

| Cascade (1/1)     |      |                          |          |
|-------------------|------|--------------------------|----------|
| Primary heat pump | 3540 | Time to leading producer | 100h     |
|                   | 3544 | Leading producer         | Source 1 |

End of Cascade Configuration.

**ATTENTION: The cascade configuration process is now complete. Please refer to the Ideal Logic Air installation manual, and proceed to commission the Primary controller relative to DHW / CH schedules and temperatures, heat curve setting and pump speed(s) etc.**

## Notes

## Notes



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.

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