

# ZEB<sup>®</sup>+ZEB<sup>®</sup> for Space Heating Single Heating System

Use Cases and Installation Consideration



v1.0

This advice is not appropriate for multiple ZEB installations on different heating systems. For advice on multiple ZEB installations on independent heating systems please refer to the separate document on [tepeo.pro](https://tepeo.pro), or contact technical support.

## Why pair a ZEB + ZEB on a single heating system?

Installing individual ZEBs on independent heating systems provides the simplest ZEB installation option where possible, as these systems can be treated in isolation to each other.

However creating independent systems may not be feasible due to pipework arrangements; or desirable due to the relative heat demands between systems. Having multiple ZEBs on a single heating system offers greater resilience in the overall system in the event of a fault with a ZEB; the load can be evenly distributed between ZEBs to balance out wear and tear; as well as minimising overall standing losses from the system.

## When should you install more than 1 ZEB on a single heating system?

A ZEB + ZEB installation on a single heating system can be considered when:

- Total heating demand of the house exceeds the capacity of a single ZEB
- Power supply to the house can support a multiple ZEB installation
- The heating system cannot be configured as independent systems, each with dedicated controls, pipework and emitters
- Redundancy is an important consideration in the heating system design

# What are the limitations of pairing a ZEB + ZEB on a single heating system?

The ZEB has a peak electrical consumption of 9kW, so the mains supply must exceed the cumulative power consumption of all ZEBs.

The ZEB has a peak output power of 15kW, so the peak demand on the system should not exceed the total power output of all ZEBs - including scenarios of heating a space from cold.

## Consideration / Requirements

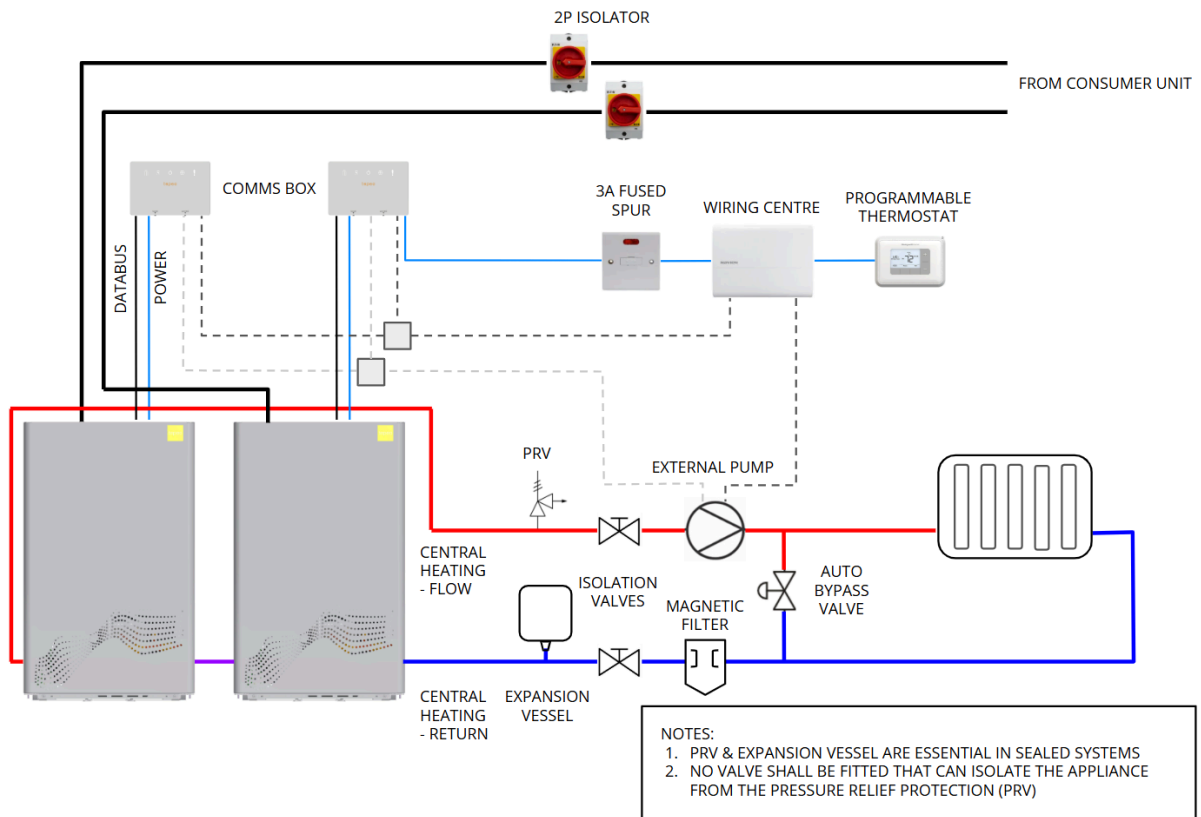
The cumulative power consumption of all the ZEBs must be considered along with the other power demands in the house, as in general a single phase of a mains supply can support a single ZEB. Therefore a multiple ZEB installation typically requires either a 3-phase mains supply to the house, or multiple single phase supplies to the house.

The peak heat demand of each heating system should be less than 15kW, as this is the peak power output of a ZEB.

If a heating system also includes an indirect DHW cylinder, factor in the coil power rating when considering the peak heat demand.

## Installation Schematic

It is recommended that the ZEBs are plumbed in series. This simplifies operation of the system.

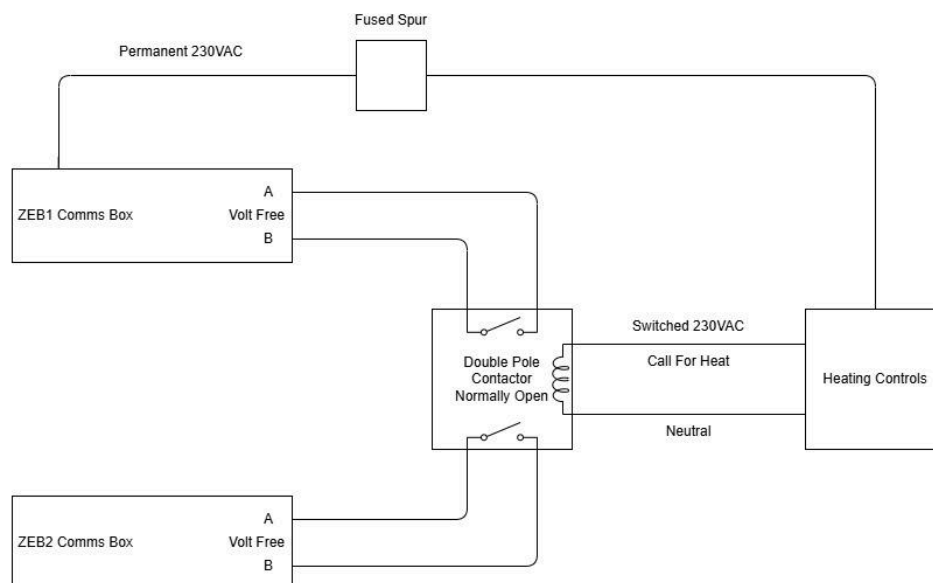


**Figure 1: ZEB + ZEB installed on single heating system (in series)**

## Guidance for Plumbing / Electrical Wiring

### Call For Heat

It is recommended that the call for heat from the thermostat/heating controls is connected to a double pole single throw relay, to operate both ZEBs from a single control source.

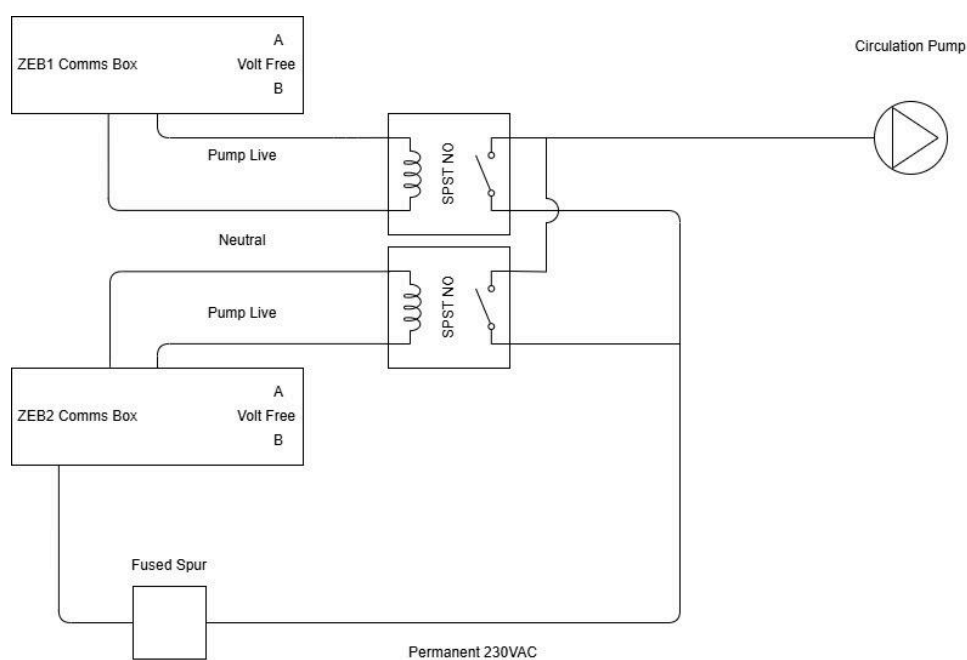


**Figure 2: Call for Heat power and controls wiring**

It is recommended that the permanent power from the first ZEB is used to power the heating controls centre.

### Pump Power

The permanent power from the second ZEB can be used to power the circulation pump, via a pair of relays wired in parallel. The pump live connection from each ZEB should be connected to a respective relay. In this way, the pump will operate whenever requested by either ZEB.



**Figure 3: Circulation pump power and controls wiring**

## Controls

### User Account

To manage two ZEBs in a single household, a user would need to create two accounts with separate login details - one for each ZEB - and they can only control one at a time via the tepeo App.

A single email address cannot be used as Primary User for more than one ZEB.

### Charge Control

Regardless of the charging control selected, it is recommended that the flow temperature of the first ZEB (connected to the radiator return pipework) is set to a midpoint temperature between ambient and the desired flow temperature; and that the second ZEB

is set to the desired flow temperature. This will assist in dividing the duty on each ZEB equally.

## Hot Water Implications

For all systems, hot water should be considered as per standard ZEB installation guidelines.