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# Underfloor Multi-Zone Controller HCC100

Product Overview

**February 2024**



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# HCC100 – Training Content I

- Features and Benefits

- Install HCC100 Controller

- Resideo Pro App

- System Configuration

- Appliance Control

- Zone Configuration

- Advanced Parameters

- System Status

- System Test

# HCC100 – Training Content II

- HCC100 with evohome

- System Configuration with evohome

- Appliance Configuration with evohome

- Zone Configuration with evohome

- Examples of Applications and App Settings

- More Examples of Applications

# HCC100

# Features and Benefits

# HCC100 – Simply All-in-One

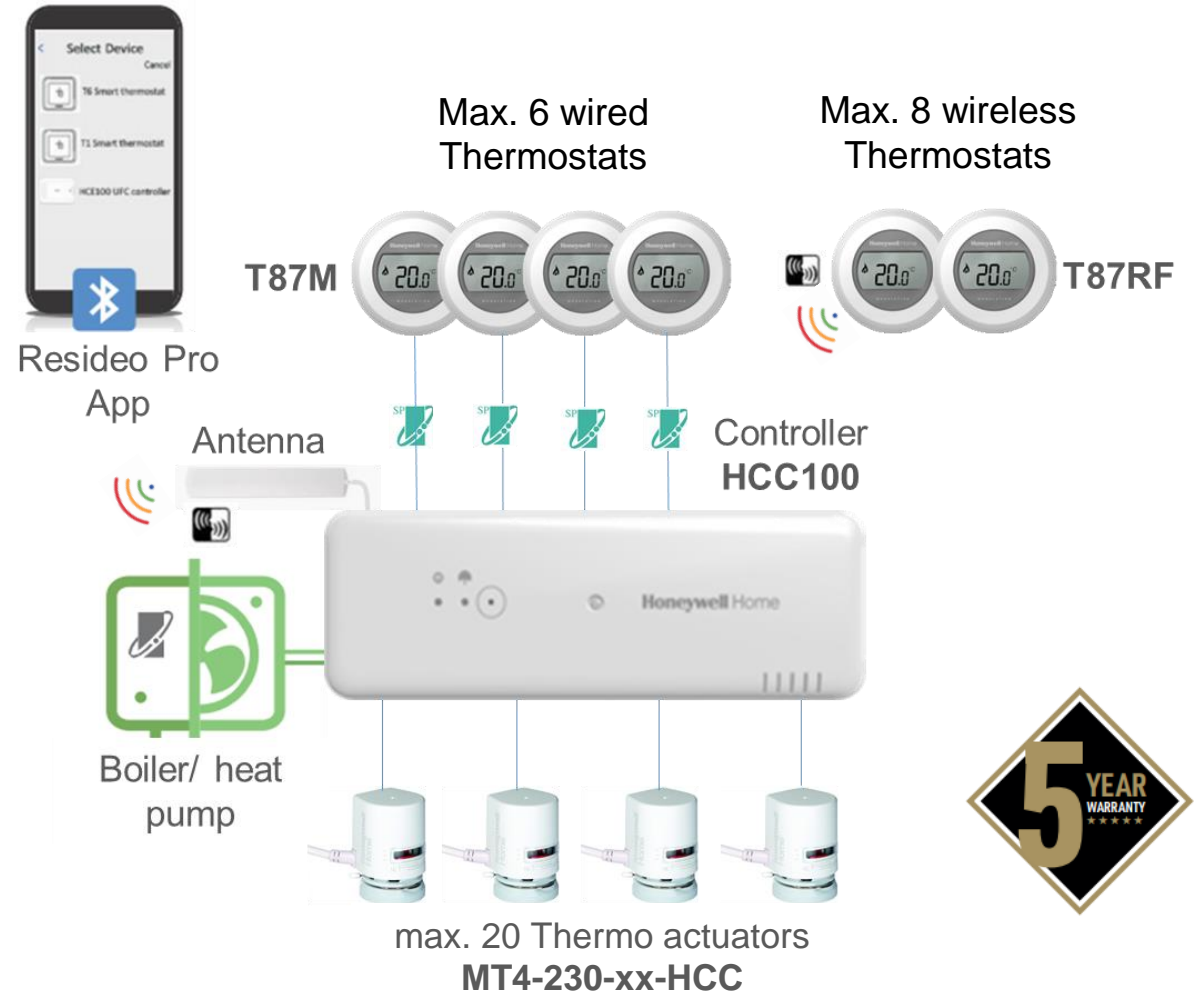Our controller is more than a collection of features:

- It efficiently controls the temperature per zone

- It has a unique Resideo Pro App for simple configuration and setup

- It is capable of wired and wireless zone control, both in one

- It has an integrated heating and cooling control function

- It optimizes the demand control for the appliance type (boiler, heat pump, etc.)

- It is the professional home comfort controller for underfloor applications
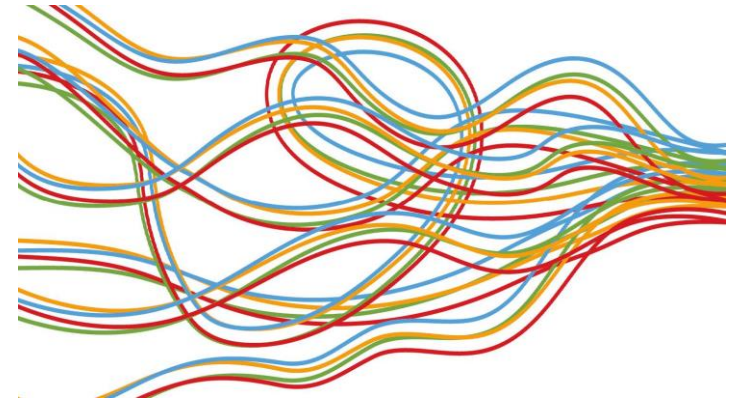
## HCC100M2022 – Underfloor Multi-zone Controller
## Bluetooth-enabled controller for heating and cooling

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# HCC100 Underfloor Multi-Zone Controller

- Up to 8 zones in total
  - Up to 6 wired zones
  - Up to 8 wireless zones

- Up to 20 wired MT4 actuators (free configurable)

- Heating and/or cooling control

- External or internal H/C change-over

- OpenTherm® appliance output

- Heat and cool demand relay outputs

- Condensation protection (input)

- Self-learning algorithm (fuzzy logic)

- Optimized zone demand heat pump control

- Outdoor compensation function (on/off)

- Heat/cool dump zone(s) configurable

- Optional connection with evohome



Resideo Pro App

Max. 6 wired Thermostats — T87M

Max. 8 wireless Thermostats — T87RF

Antenna

Controller HCC100

Boiler/ heat pump

max. 20 Thermo actuators
MT4-230-xx-HCC

5 YEAR WARRANTY

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# Wide Range of Functions

**Pump control**
Integrated pump relay ensures the pump runs only when there's a demand from one of the zones. Pump overrun time is settable via app.

**Intelligent output control**
Temperature of the zones are intelligently controlled via the powering of the thermo actuators. The controller will stagger the demands of all the zones in such a way that the number of open valves is constant. This creates a hydronic balancing effect resulting in a longer constant flow to improve efficiency.

**Zone control**
Up to 6 wired temperature zones and/or 8 wireless temperature zones, or a combination of both wired and wireless zones, with a maximum of 8 temperature zones.

**Appliance control intelligent**
Self-learning (fuzzy logic) control algorithm converts the individual zone demands into a single heat or cool demand for the appliance. Appliance type can be configured via the app, which automatically adjusts the parameters for optimal control.

**Heating or cooling mode**
As the cooling control comes as a standard integrated function, there are many ways to optimize the heating and cooling mode of the system through the app.

**Auto-detect function**
During power-up, the controller automatically checks the wired zone thermostat inputs, sensor inputs, thermo-actuator outputs, OpenTherm input and Link connection. This will be shown on the app at the start of the configuration and can be used to check if the wiring is correct.



Honeywell Home

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# Easy Configuration Using Resideo Pro App

- Simplifies and shortens commissioning
- Connect controller to smartphone
- Configure through guided menu
- View temperature and status information
- Tests the signal strength
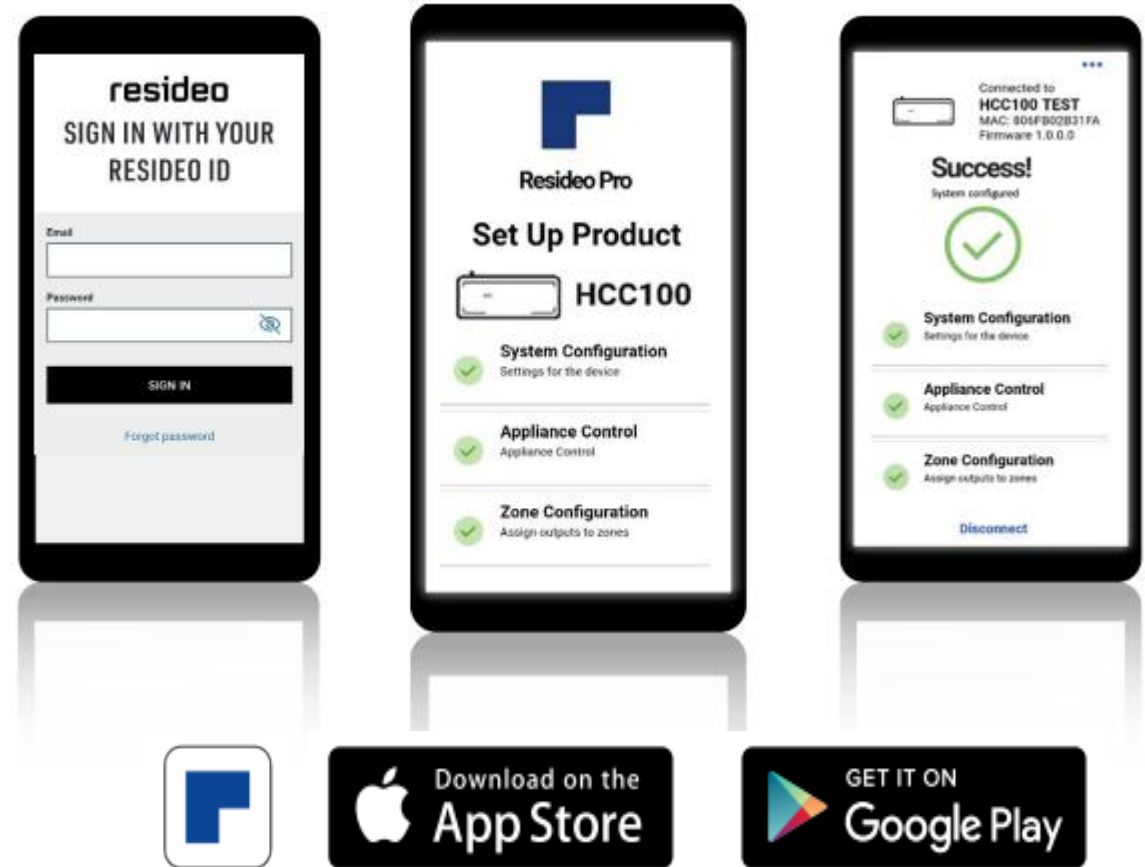
# Peripherals / Compatible Products

HCC100 is compatible with other Resideo products.



Evohome
**ATC928**

Underfloor controller **HCC100**

OpenTherm Thermostats

**T3M**

**T4M**

**T87M**

**T87HC**

Wireless
relay box
**BDR91T**

Wireless
OpenTherm
Bridge
**R8810**

Sensors/ Hygrostat

**SF20**

**AF20**

**EE046**

Thermal actuator

**MT4-230-xx-HCC**

Wireless
Thermostats

**Only with
Evohome**

**DTS92A**

**T87RF**

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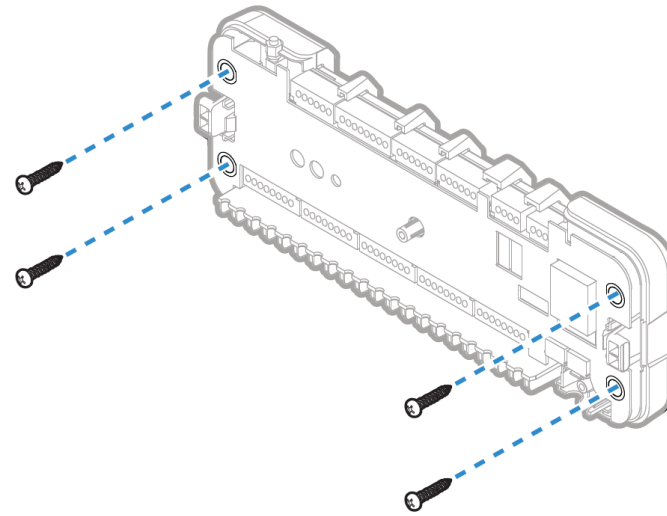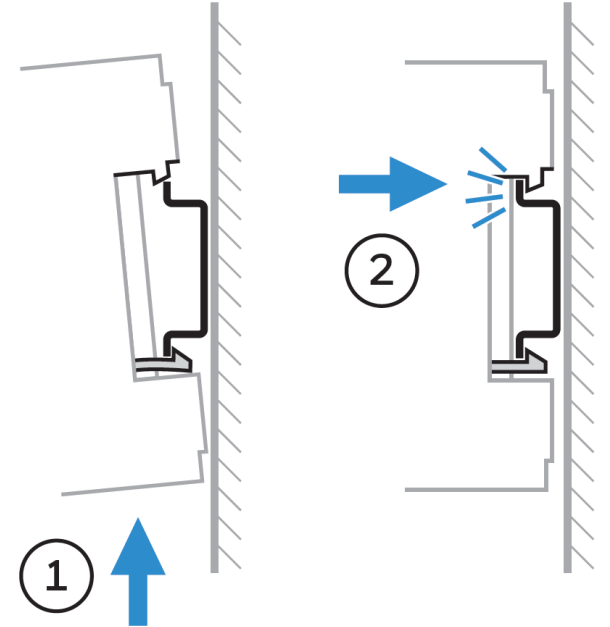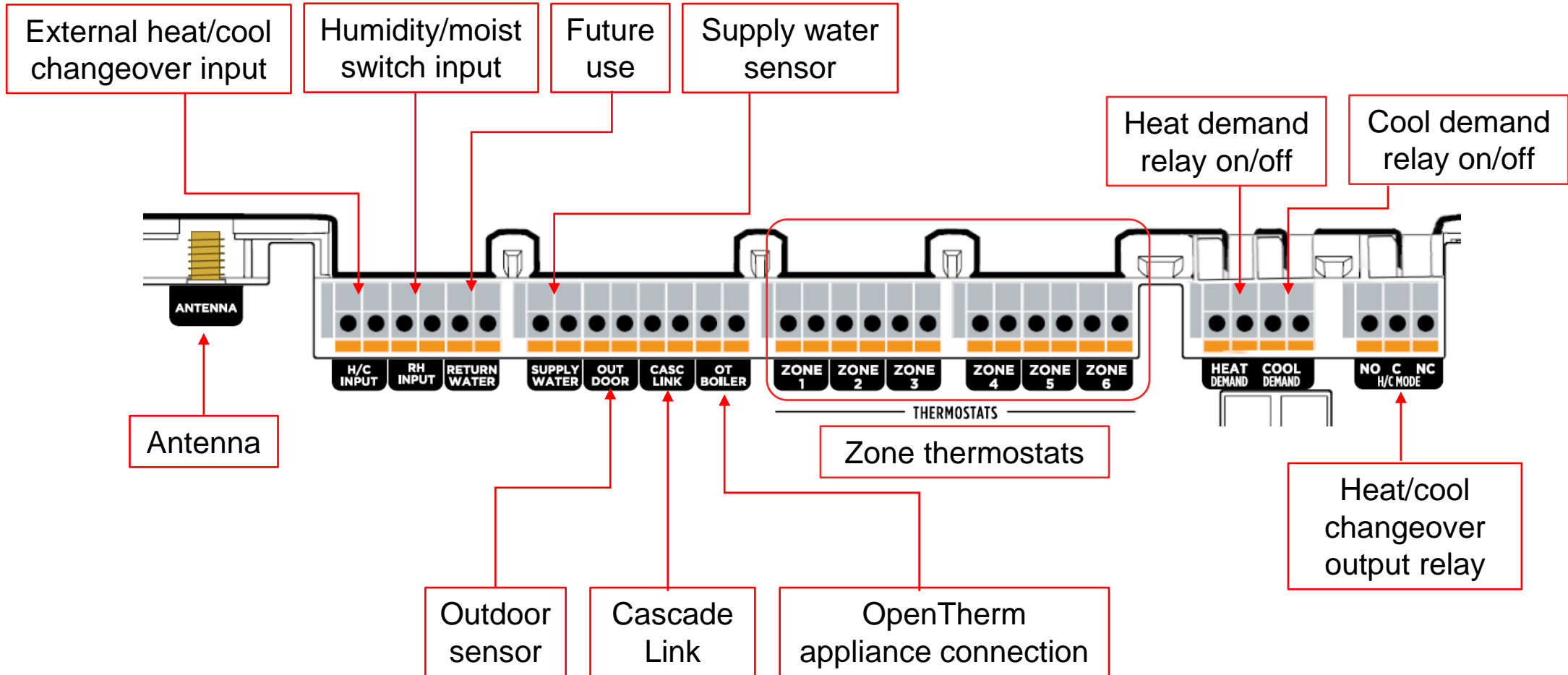# Install HCC100 Controller

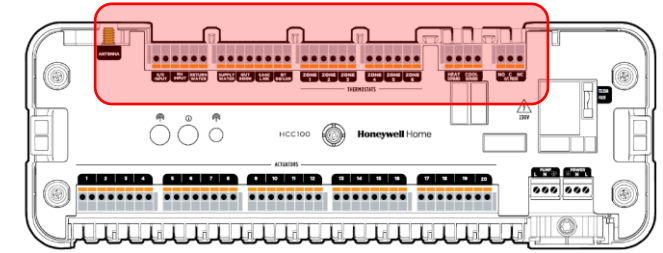# Install the HCC100
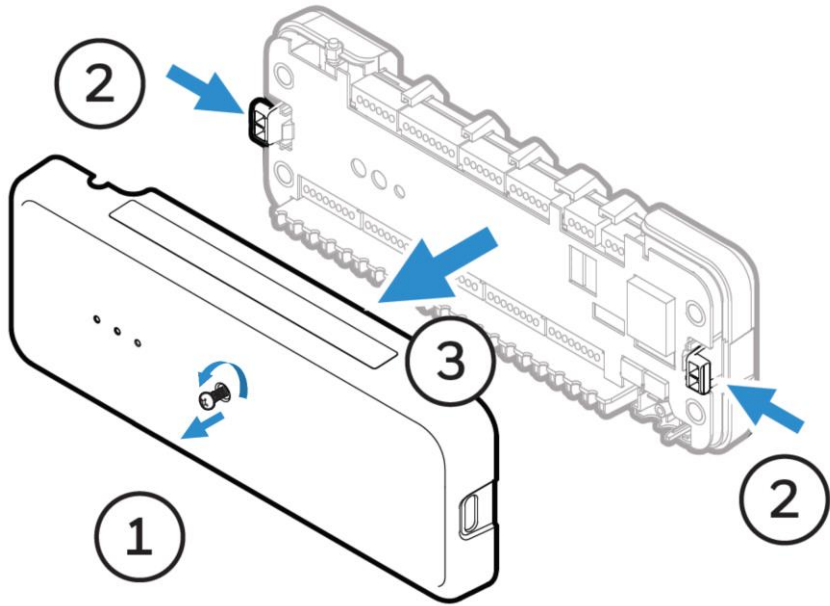


Remove the front cover

Wall mount with four screws

Install on DIN rail

**Mount directly to the wall or secure to a DIN rail**

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# HCC100 Terminals (upper part)



External heat/cool changeover input

Humidity/moist switch input

Future use

Supply water sensor

Heat demand relay on/off

Cool demand relay on/off

Antenna

ANTENNA

H/C INPUT · RH INPUT · RETURN WATER

SUPPLY WATER · OUT DOOR · CASC LINK · OT BOILER

ZONE 1 · ZONE 2 · ZONE 3 · ZONE 4 · ZONE 5 · ZONE 6

HEAT DEMAND · COOL DEMAND

NO C NC H/C MODE

THERMOSTATS

Zone thermostats

Outdoor sensor

Cascade Link

OpenTherm appliance connection

Heat/cool changeover output relay

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# HCC100 Terminals (lower part)
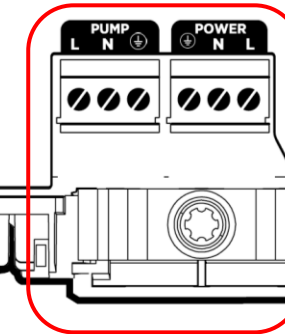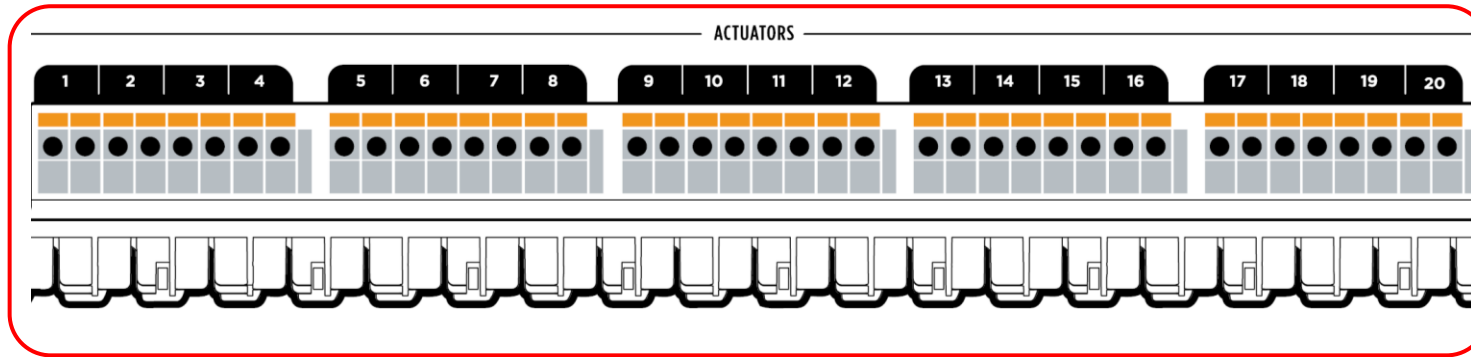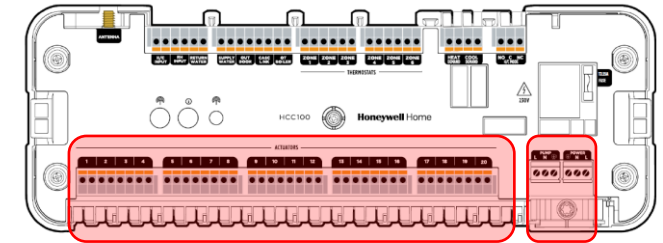


**ACTUATORS**

20 Thermal actuator outputs 230Vac

230Vac mains input and pump connections

**All terminal connections at the bottom of the HCC100 are HIGH voltage 230Vac**

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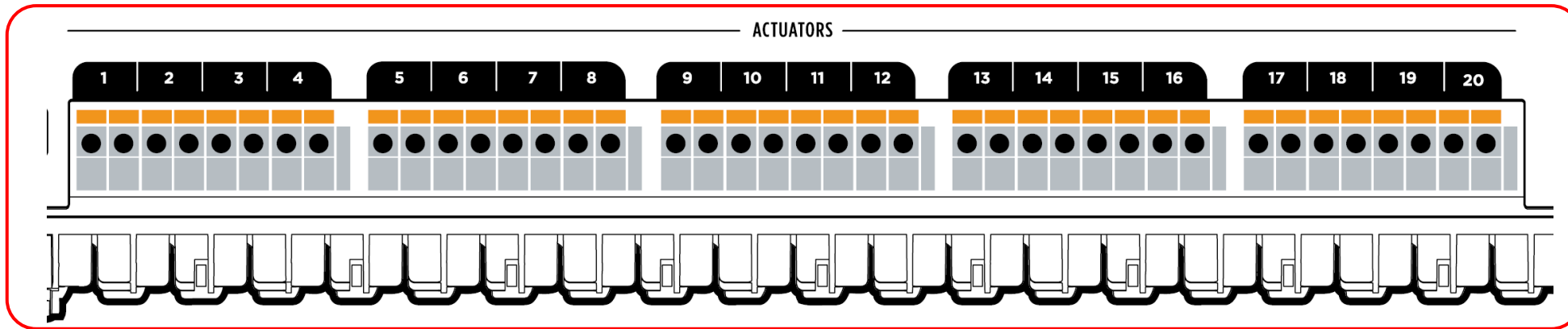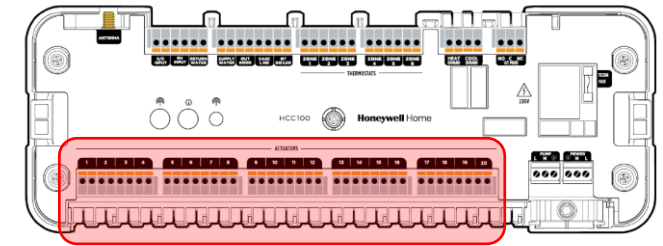
# Wiring Actuators

MT4-230-xx-HCC
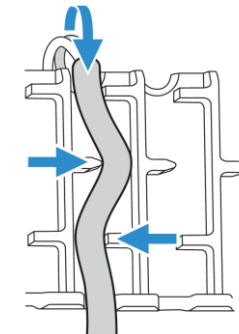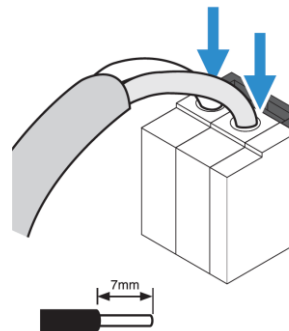
**Wire up to twenty actuators using the spring terminals for each zone and use the strain relief**
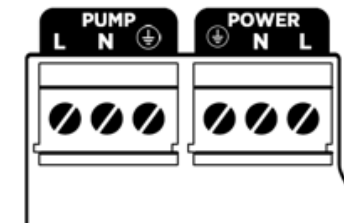
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# Wiring Mains and Pump
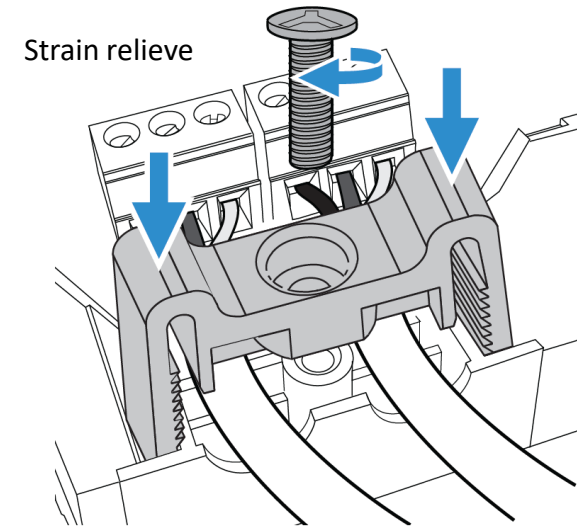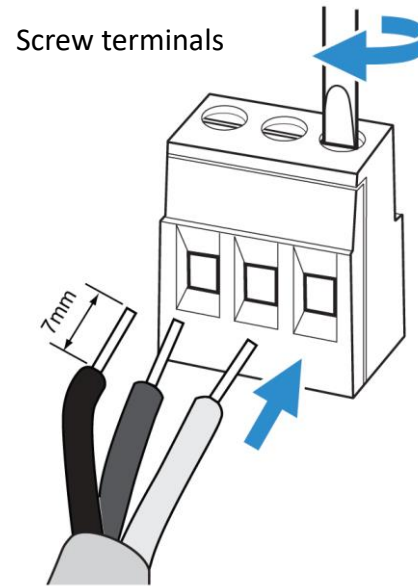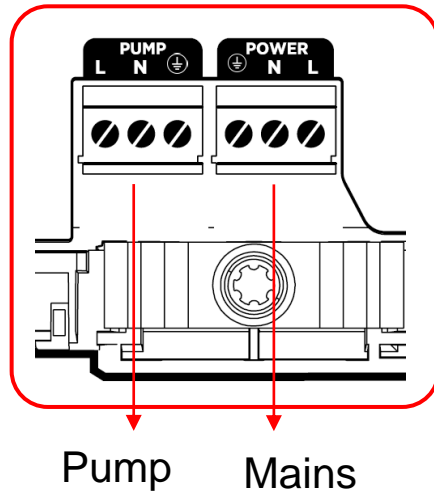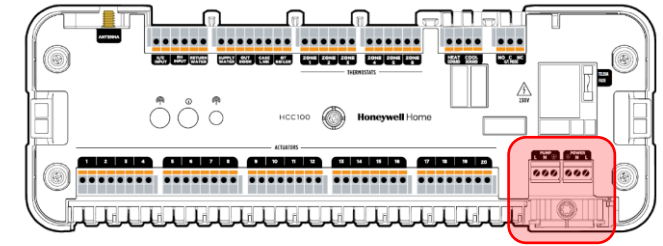


Pump    Mains

Screw terminals

7mm

Strain relieve

**Wire up to twenty actuators using the spring terminals for each zone and use the strain relief**

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# Connect Sensors, Thermostats, and Demand Output
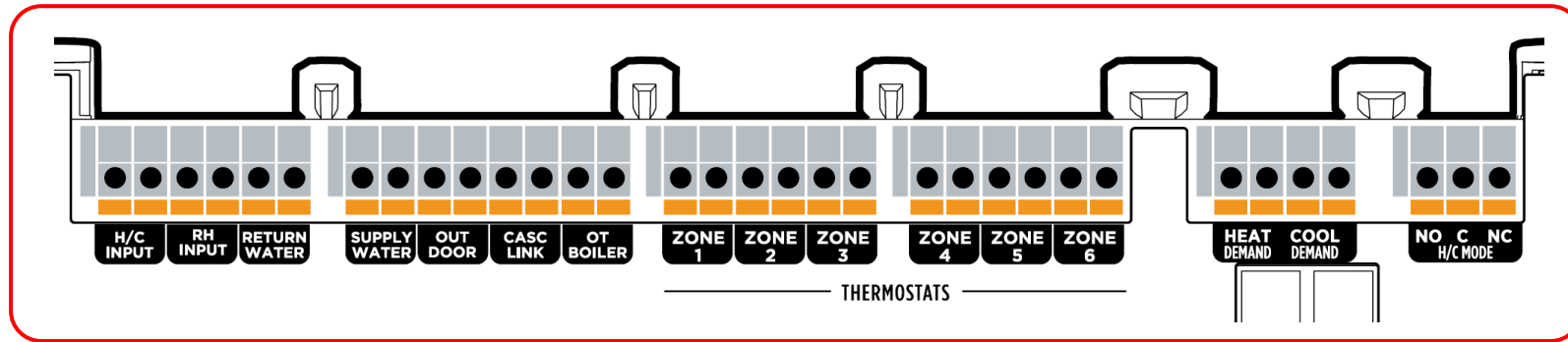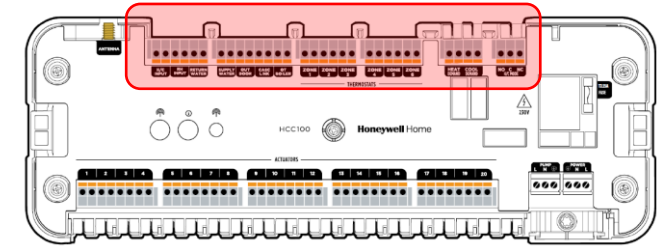


**Spring terminals are used for all sensor and appliance control connections**

# Wiring Sensors
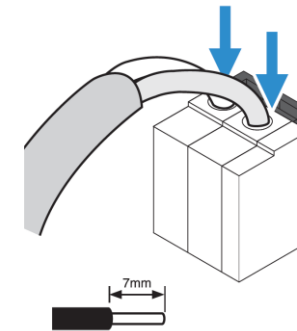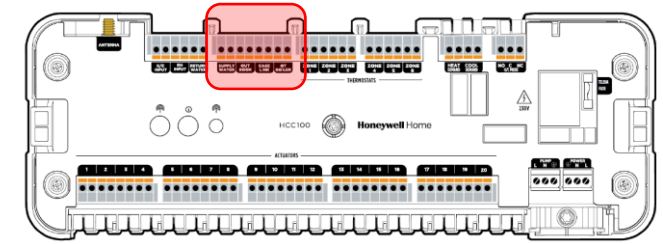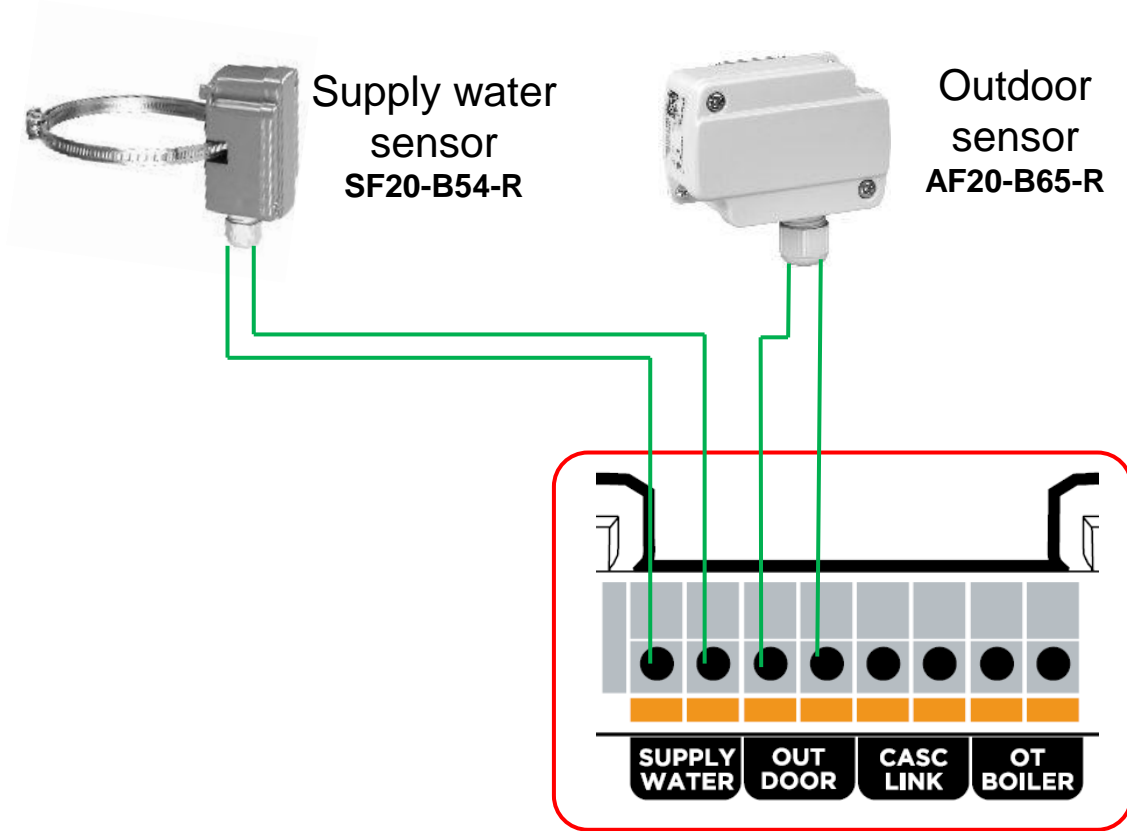


Supply water sensor
**SF20-B54-R**

Outdoor sensor
**AF20-B65-R**

SUPPLY WATER | OUT DOOR | CASC LINK | OT BOILER

**Spring terminals are used for all sensor and appliance control connections**

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# HCC100 Condensation switch wiring
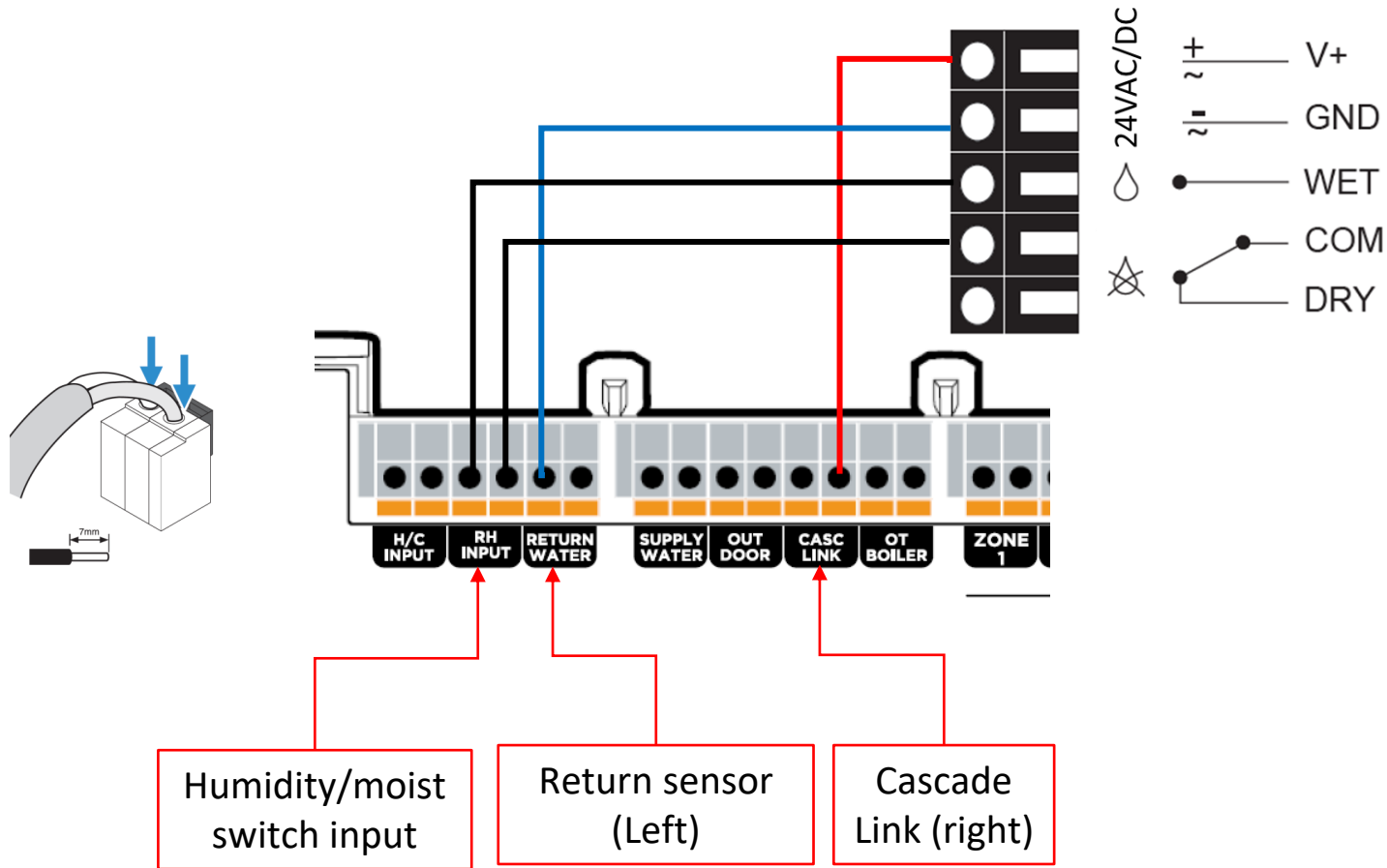
LED ON: no condensation danger
LED flashes: condensation danger
LED OFF: power supply off / failure

24VAC/DC

V+
GND
WET
COM
DRY

**EE046-T11**

**HCC100**

H/C INPUT | RH INPUT | RETURN WATER | SUPPLY WATER | OUT DOOR | CASC LINK | OT BOILER | ZONE 1

Humidity/moist switch input

Return sensor (Left)

Cascade Link (right)

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# Wired Thermostats

T87M

DT4M
**From April 2023**

T4M

T3M

T87HC

ZONE 1 | ZONE 2 | ZONE 3 | ZONE 4 | ZONE 5 | ZONE 6

THERMOSTATS

7mm
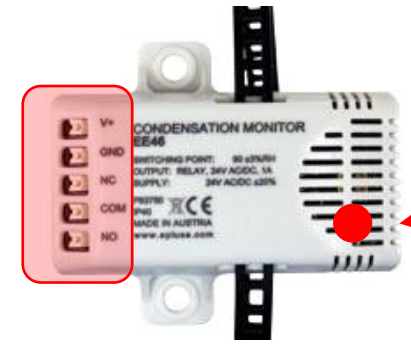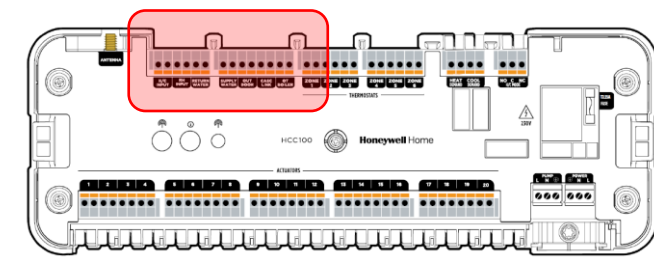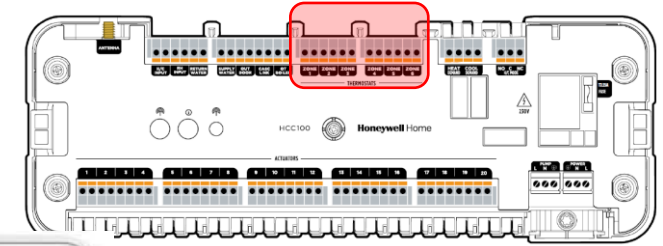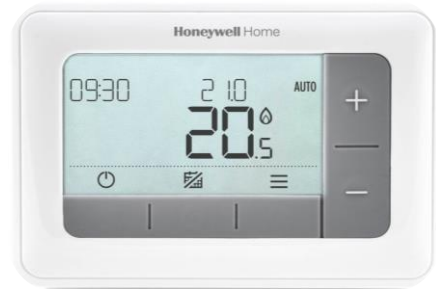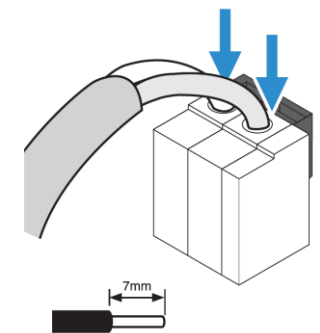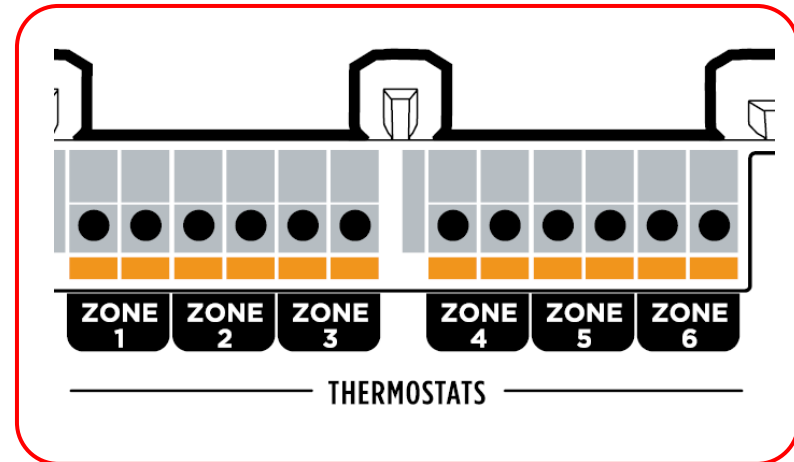
**Wired thermostats used with HCC100 can only be OpenTherm communicating thermostats**

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# Wiring Demand
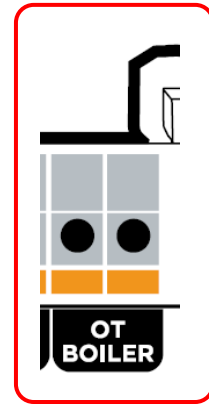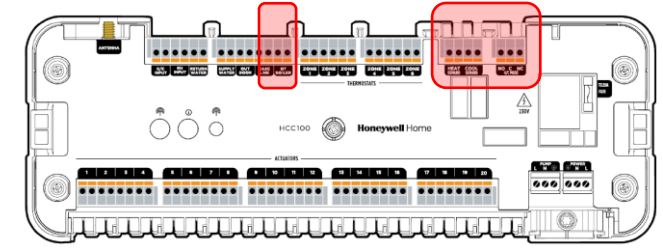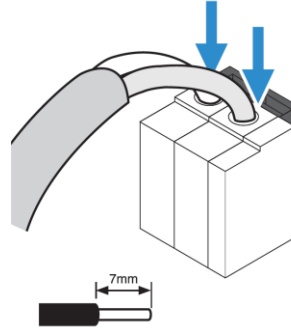


OpenTherm Appliance
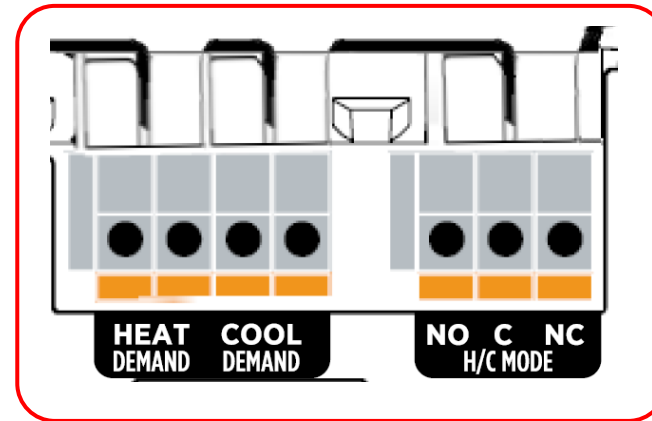
On/off Appliance

Heat / Cool changeover
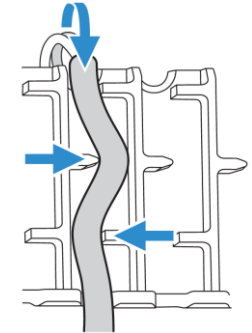
**On/Off Demand outputs suitable for also 230V/1A**

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# Wireless Thermostats



T87RF



**Only with Evohome**

DT92



**From April 2023**

DT4RF



evohome
integrated temperature
sensor
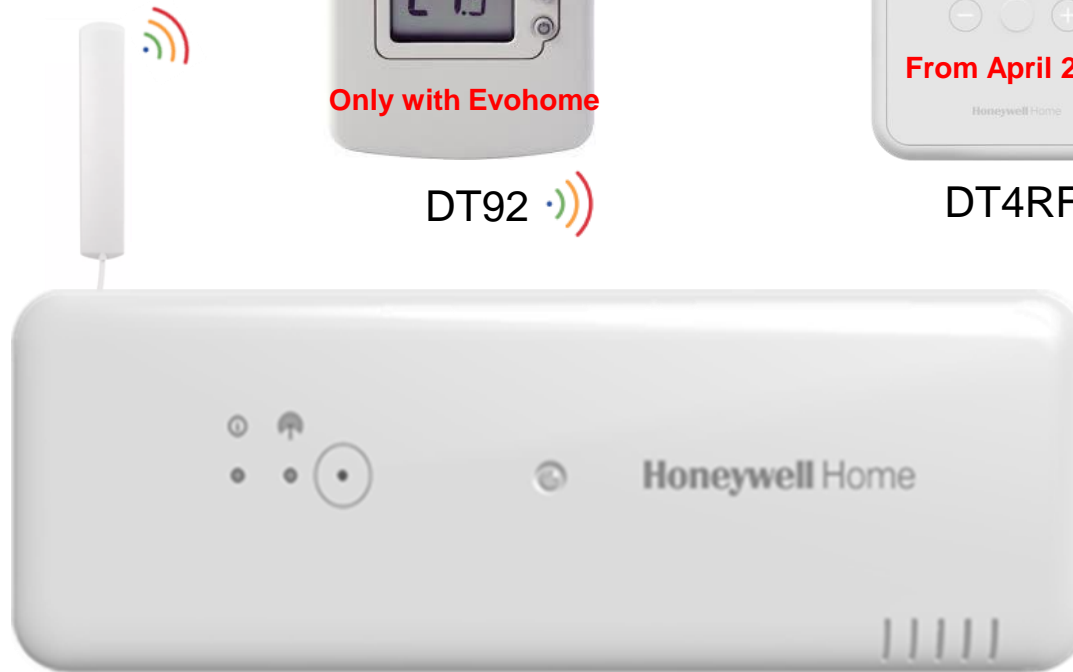


HCC100

**HCC100 can be also used with evohome**

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# Cascading System (Also Wireless Possible)



HCC100 Primary       HCC100 Secondary       HCC100 Secondary
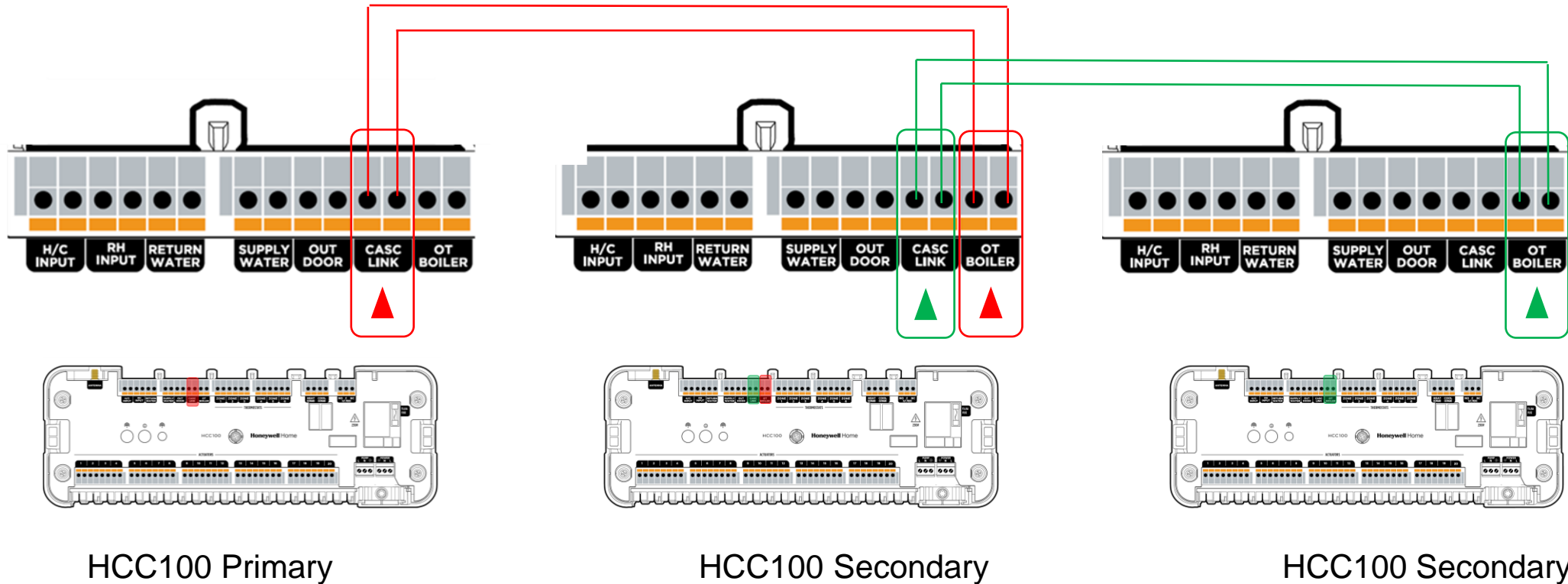
Note: wired cascading is auto-detected

**Up to 3 HCC100 controllers can be cascaded into one system**

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# Install the Antenna



Find a suitable location to mount the antenna
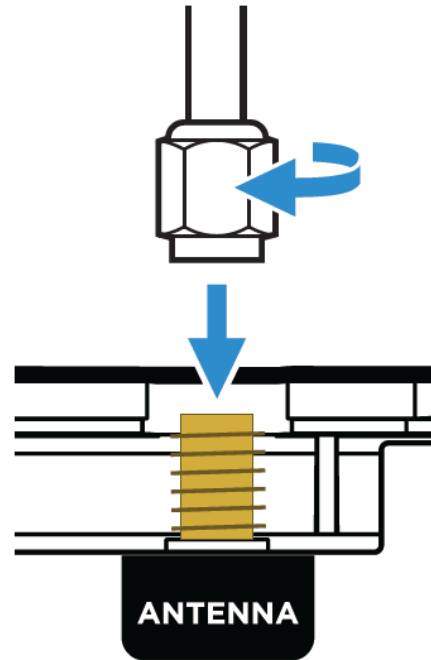


Screw the antenna cable onto the SMA connector
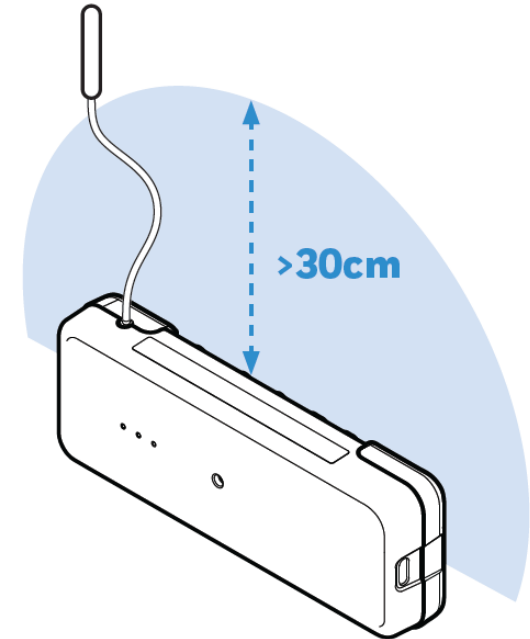


>30cm

Antenna must be at least 30 cm away from the controller

**The antenna MUST be at least 30 cm away from metal objects**

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# Replace Cover and Power Up
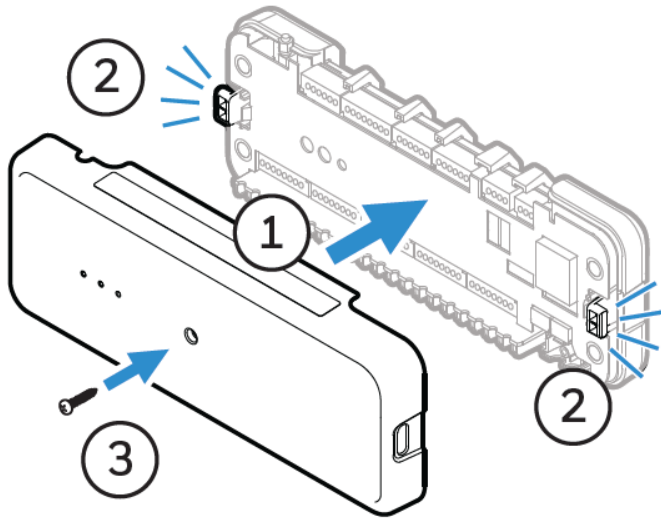


Replace front cover



Switch power back on



System not configured but OK

System configured and OK
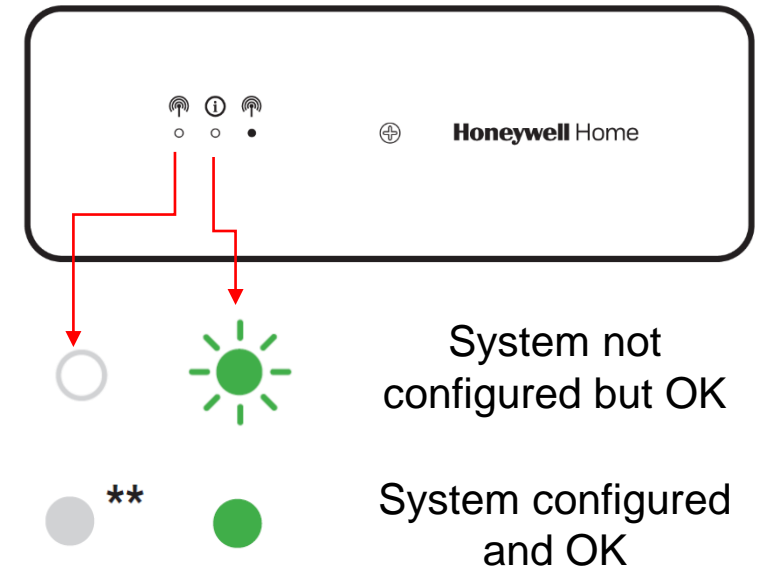
Check configuration

**Download and register the RPRO app to configure a new installation**

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# Create a Zone Plan

| Zone | Zone Name | Thermostat Location | Wired or Wireless | Acctuator Output |
|------|-----------|---------------------|-------------------|------------------|
| 1 | Kitchen | Table Stand | Wireless – DT92 | Outputs 1, 2, 3 |
| 2 | Living Room | Wall Mounted | Wired – T87HC | Outputs 4, 5, 6 |
| 3 | Dining Room | Wall Mounted | Wired – T4M | Outputs 7, 10, 12(Master Zone) |
| 4 | Bathroom | Wall Mounted | Wired – T87M | Outputs 8 and 9 |
| 5 | Bedroom 1 | Wall Mounted | Wireless – T87RF | Output 11 |
| 6 | Bedroom 2 | Wall Mounted | Wireless – T87RF | Output 13 |
| 7 | Hallway | Table Stand | Wireless – DT92 | Output 18 and 19 |
| 8 | | | | |

**Create a zone plan and list the actuator outputs that you want each zone to control**

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# Resideo Pro App

# Create a Resideo Pro Account

**Download, install and register the Resideo Pro App <u>before</u> you start the installation!**
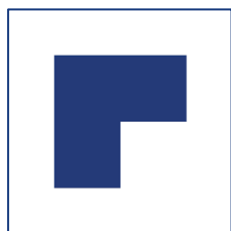
### Download the Resideo Pro App

### Create an account

**Be aware: HCC100 can be configured only by using Resideo Pro App!**
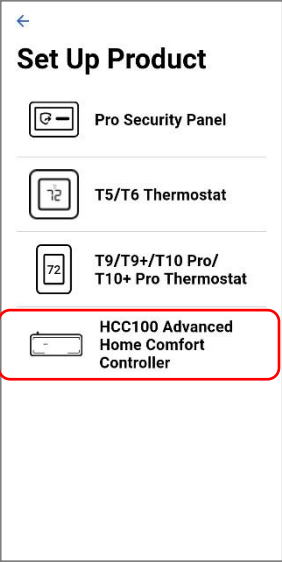
# Connect HCC100 to Resideo Pro App
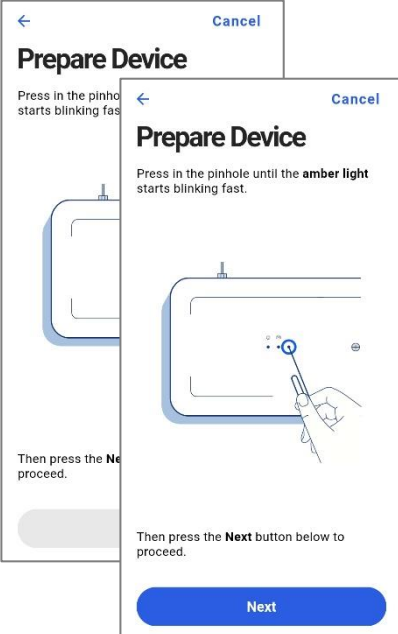


Log into account
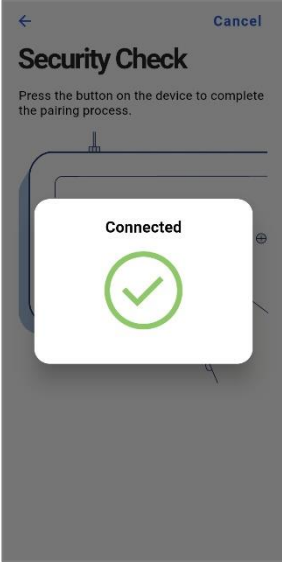
Select **Set Up Product**

Select **HCC100**

Select **HCC100**

Wait for confirmation

**On your smart phone, switch Bluetooth ON**

**resideo**

# Firmware Update



An automatic firmware check will take place.
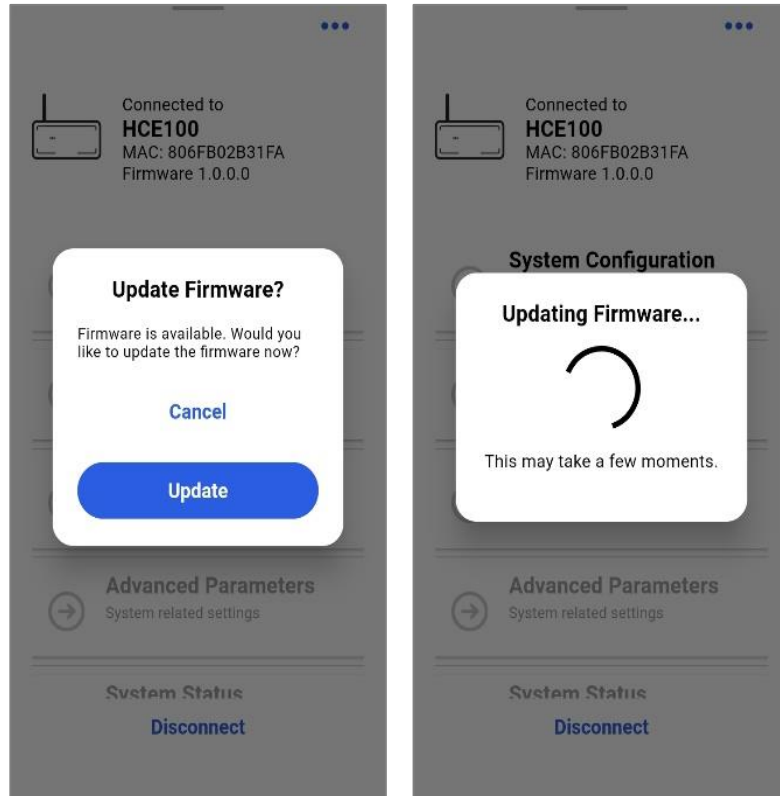
In the case of a newer firmware version, the app will automatically pop up a message to update the device firmware.

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# Overview of the Set-up Routine



Connected to
**HCC100 TEST**
MAC: 806FB02B31FA
Firmware 1.0.0.0

**System Configuration**
Settings for the device

**Appliance Control**
Appliance Control

**Zone Configuration**
Assign outputs to zones

**Advanced Parameters**
System related settings

**System Status**
Temperatures, Setpoints, Outputs

**System Test**
Outputs, Wireless Communication, Demand

**Customer Association**
Assign to a customer and location

**Disconnect**

Step by step through the guided, self explaining and user-friendly set-up menu.

Starting with **System Configuration** to **Customer Association.**

When a section is done a green check appea

Then it moves the next section.

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# System Configuration

# System Configuration
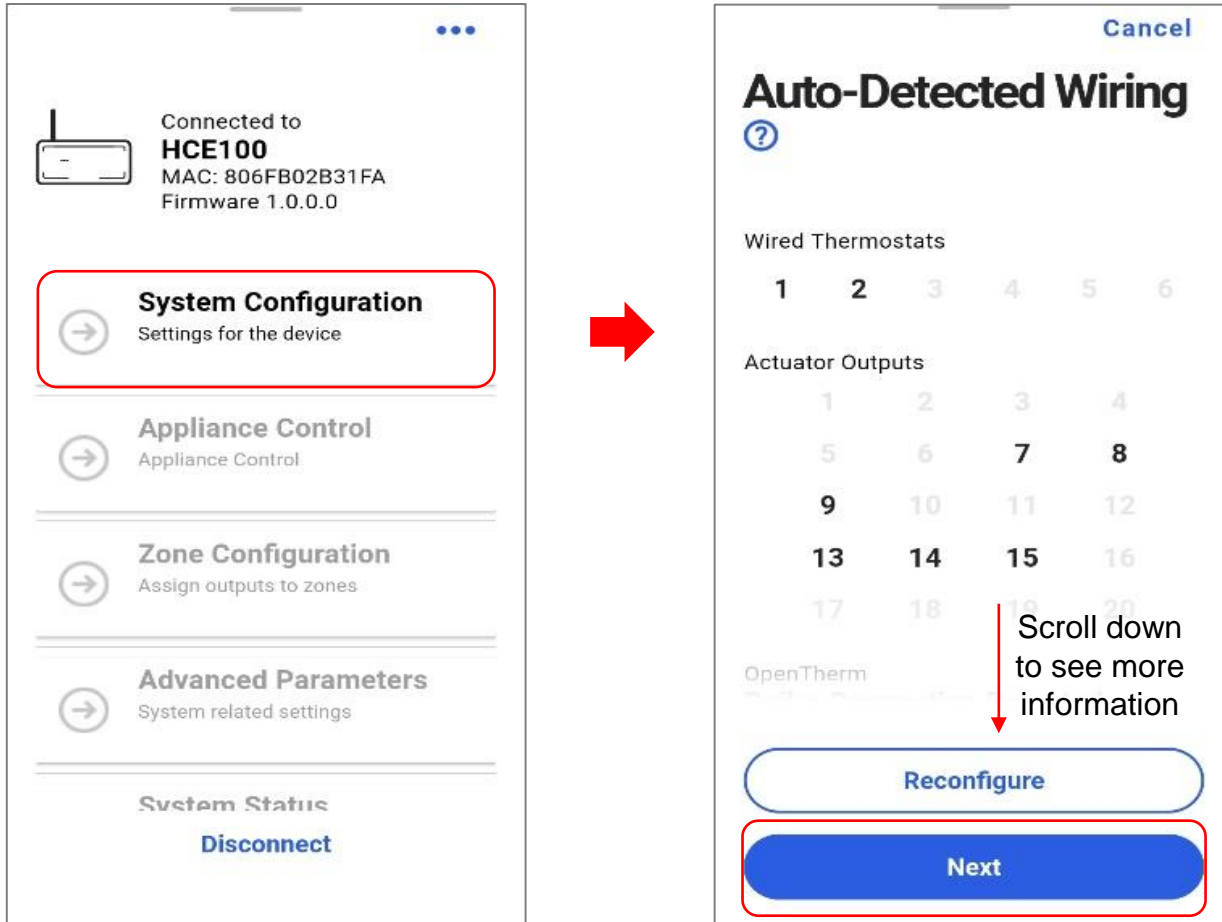


The Auto-Detect Wiring screen indicates all connected wired zone thermostats, actuators, OpenTherm boiler, and cascade device are wired into the HCC100-controller.

Scroll down to see more information

In case anything is missing, select **Reconfigure** and review wiring!

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# System Configuration

**System Name**

Enter a name for this system

HCC100 TEST

Give the system a name (only used in app).

**Evohome**

Is an Evohome Thermostat connected?

○ Yes

● No

Select **Yes** if your system includes an evohome controller and is already installed
(see "System configuration with evohome" chapter)

**System Type**

● Heat Only

○ Heat and Cool *

○ Cool Only

Select the type of system you want to configure.

*When selecting Heat and Cool, the next step is Heat/Cool changeover selection (see later)

**Thermo-Actuator** ⑦

● Normally Open

○ Normally Closed

Select the actuator type:
**Normally open:** opens the heating circuit when power is not present.
**Normally closed:** opens the heating circuit when power is present.

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# System Configuration - Heat / Cool Changeover Options

**System Type**

○ Heat Only

◉ Heat and Cool

○ Cool Only

When Heat and Cool in System Type is selected, choose a way to change the control mode from heating to cooling and vice versa.

**Changeover** ⑦

How is heat / cool mode controlled?

A. ◉ External heat / cool input used

B. ○ Heat / cool mode output used

C. ○ Heat / cool mode via Evohome

D. ○ Heat / cool mode via wireless module

A. Using an external on/off contact (e.g. from heat pump) to switch the HCC100 controller from heating to cooling and vice versa.

B. Use the HCC100 Heat/Cool relay output to switch the appliance or system from heating to cooling and vice versa.

C. Using the Heat/Cool System mode to switch the HCC100 controller from heating to cooling and vice versa.

D. Use a BDR91T relay module to switch the appliance or system from heating to cooling and vice versa.

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# System Configuration

**Device Type** ⓘ

⦿ **Stand-alone Device**

◯ **Cascaded 2 Devices**

◯ **Cascaded 3 Devices**
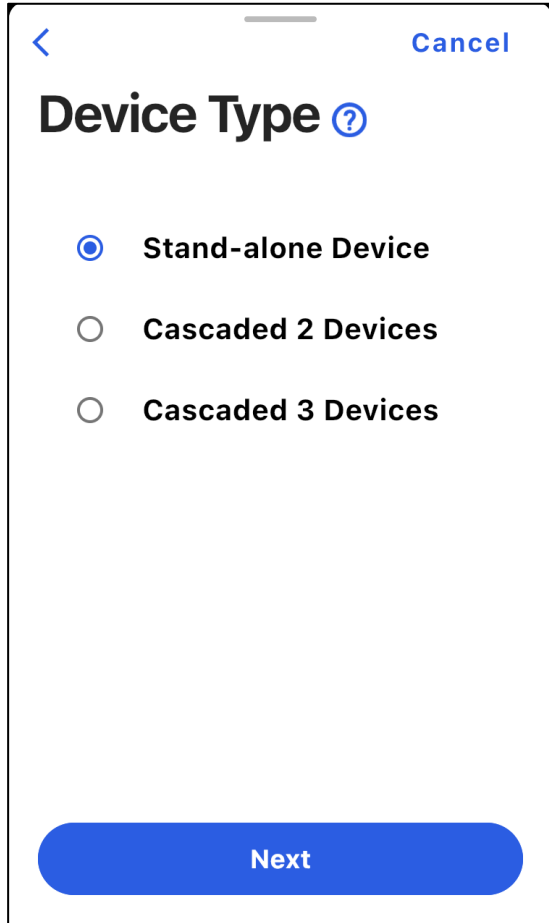
**Next**

Next slide

You can connect up to 3 HCC100 controllers in cascade to unify demand signal and pump control.
Make here a selection when using multiple controllers in wireless cascading, these must be interconnected via wirelessly binding.

note: Do NOT select when using **wired** cascading, this will be auto-detected.

< Cancel

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# System Configuration – Appliance Control
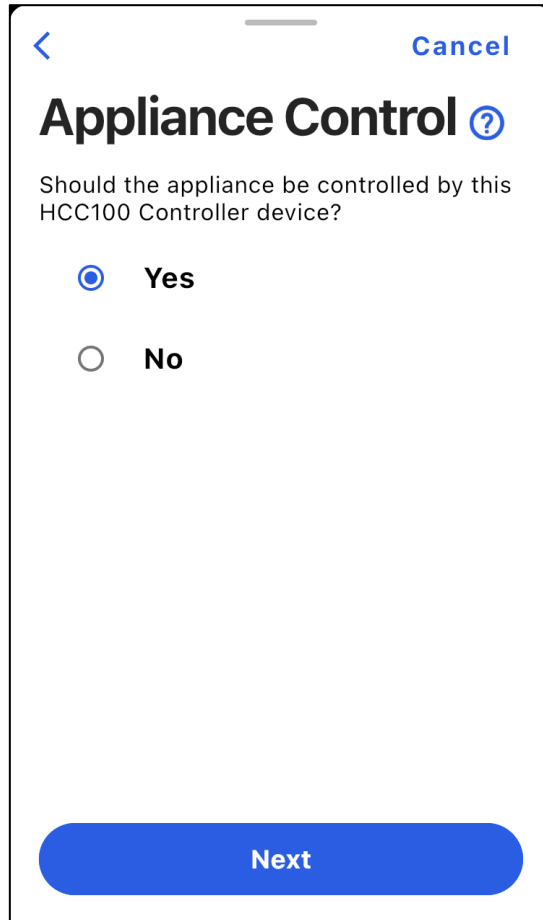


Select „Yes" when the controller needs to control an appliance according to the demands of the various zones.

**Note:** If evohome is going to control the appliance, you must select **No**. Next steps in "Appliance configuration with evohome". In case your system is underfloor only, we recommend appliance control by HCC100.

Next slide
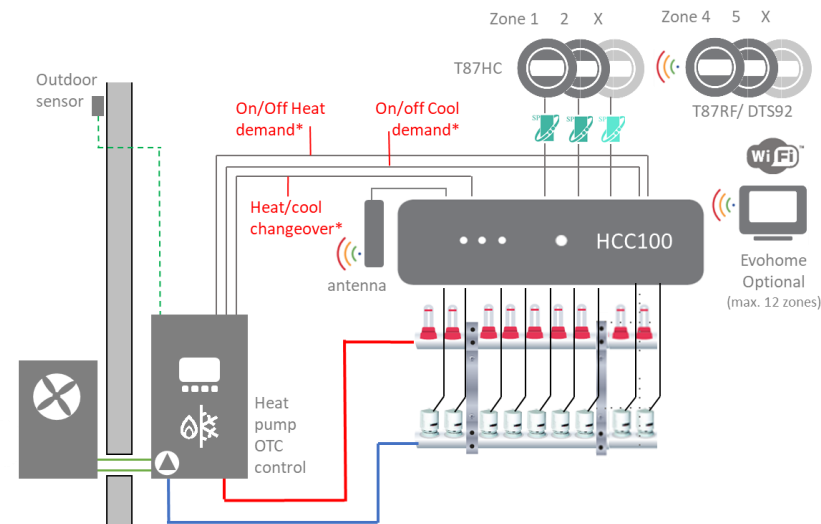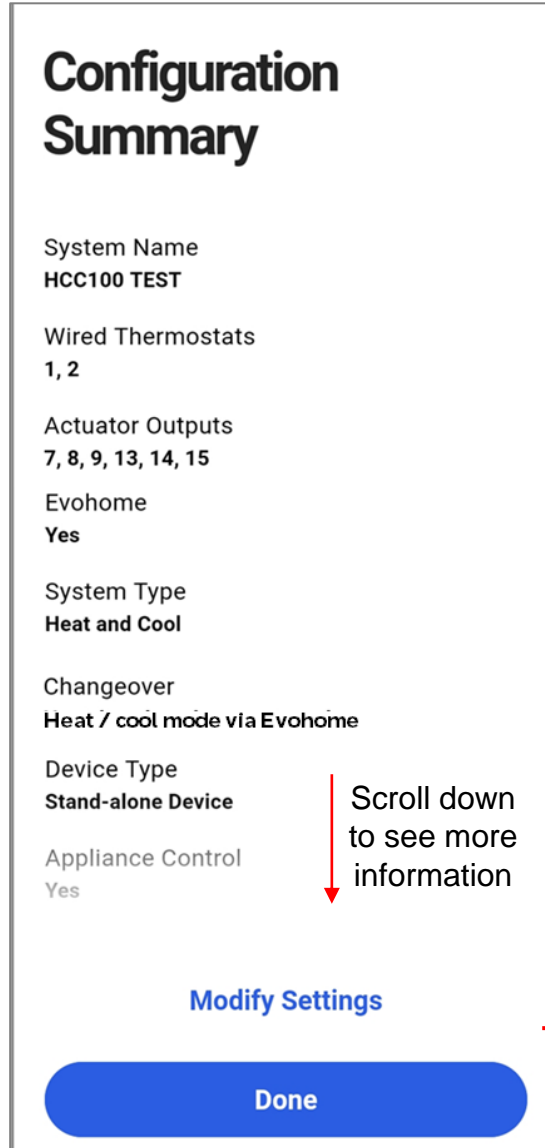
Application example

# System Configuration

Verify that the configuration shown is correct.

If yes, press **Done**.

If not, press **Modify Settings** to navigate to the different options.

## Configuration Summary

System Name
**HCC100 TEST**

Wired Thermostats
**1, 2**

Actuator Outputs
**7, 8, 9, 13, 14, 15**

Evohome
**Yes**

System Type
**Heat and Cool**

Changeover
**Heat / cool mode via Evohome**
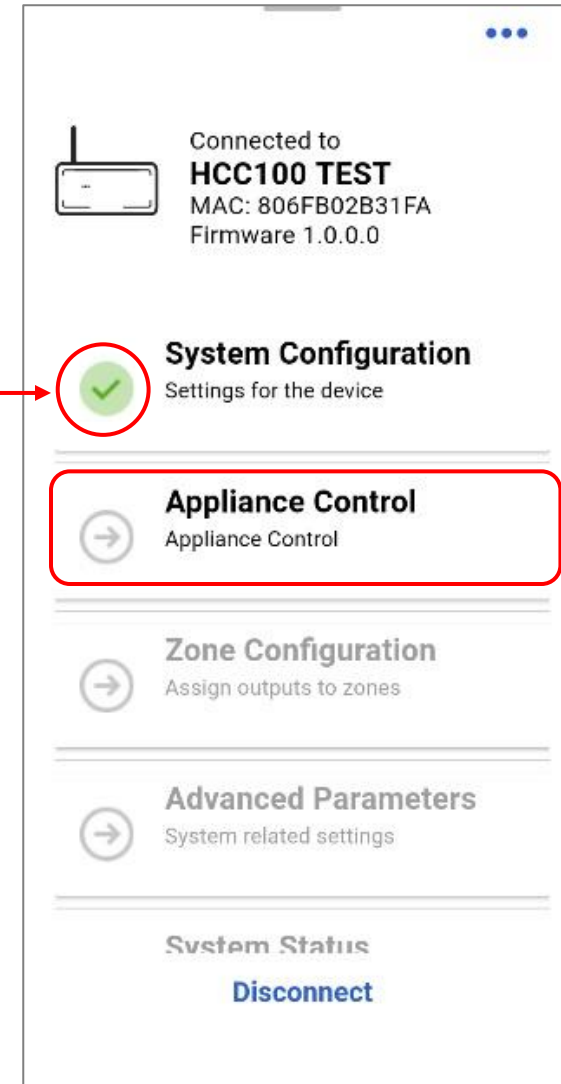
Device Type
**Stand-alone Device**

Appliance Control
Yes

Scroll down to see more information

**Modify Settings**

**Done**

Connected to
**HCC100 TEST**
MAC: 806FB02B31FA
Firmware 1.0.0.0

**System Configuration**
Settings for the device

**Appliance Control**
Appliance Control

**Zone Configuration**
Assign outputs to zones

**Advanced Parameters**
System related settings

**System Status**

**Disconnect**

Now start to set up **Appliance Control**.

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# Appliance Control

# Appliance Control – Appliance Type



Select the type of appliance which needs to be controlled by the controller. This setting adjusts the advanced parameters for the appliance type.

Note: The appliance type selection depends on the system type.

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# Appliance Control – Appliance Type Options

**Appliance control options are depending on the system type selection in "System Configuration".**

## Heating Appliance Type ⓘ

- Heating boiler
- Heat pump
- Heat network

**Heating boiler:**
- Cycle rate = 6 cycles/hr
- Min. On = 1 min
- Min. off = 1 min

**Heat pump:**
- Cycle rate = 2 cycles/hr
- Min. On = 20 min
- Min. off = 20 min

## System Type

- Heat Only
- Heat and Cool
- Cool Only

Select the system type in System Configuration

- Heat Pump
- Boiler & chiller
- Heat /cool network

**Heat Pump:**
- Cycle rate heat = 2 cycles/hr
- Cycle rate cool = 2 cycles/hr
- Min. On = 20 min
- Min. off = 20 min

**Boiler & chiller:**
- Cycle rate heat = 6 cycles/hr
- Cycle rate cool = 2 cycles/hr
- Min. On = 1 min
- Min. off = 1 min

- Chiller
- Heat pump
- Cool network

**Chiller:**
- Cycle rate = 2 cycles/hr
- Min. On = 20 min
- Min. off = 20 min

**Cool network:**
- Cycle rate = 6 cycles/hr
- Min. On = 1 min
- Min. off = 1 min

Selecting the appliance type will also adjust some of the control settings, like "Cycle rate" and "Min. On/off times".
When needed these can be adjusted in the Advanced Parameters menu later.

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# Appliance Configuration - Heat Only (continued)

**Heat Demand Connection**

- ● Wired Output
- ○ Wireless *
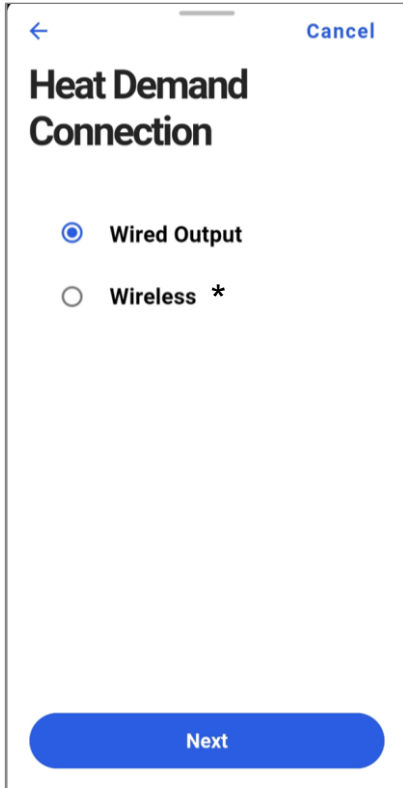
**Next**

Select **Wired Output** if you are wiring the heat relay output with the appliance.

Select **Wireless** when the demand control cannot directly be wired and will be done wirelessly using a BDR91T.

* Wireless option see next slide

---

**Appliance Control Summary**

Heating Appliance Type
**Heat Pump**

Demand Outputs
**Single Demand Output (Heat)**

Heat Demand Connection
**Wireless**

Cool Demand Connection
**Wired Output**

**Modify Settings**
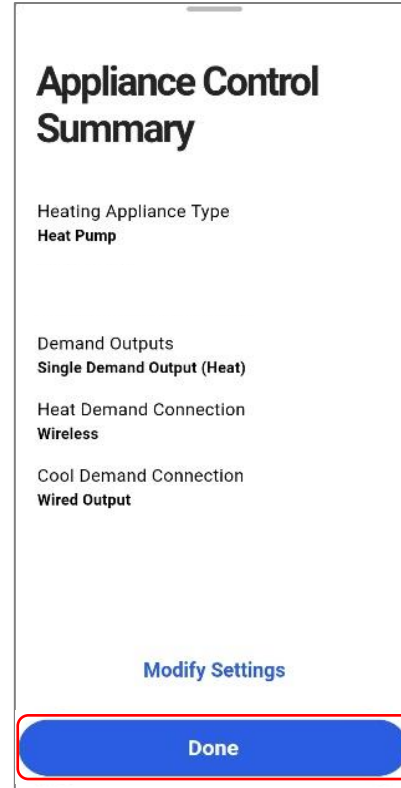
**Done**

Check that configuration is correct.
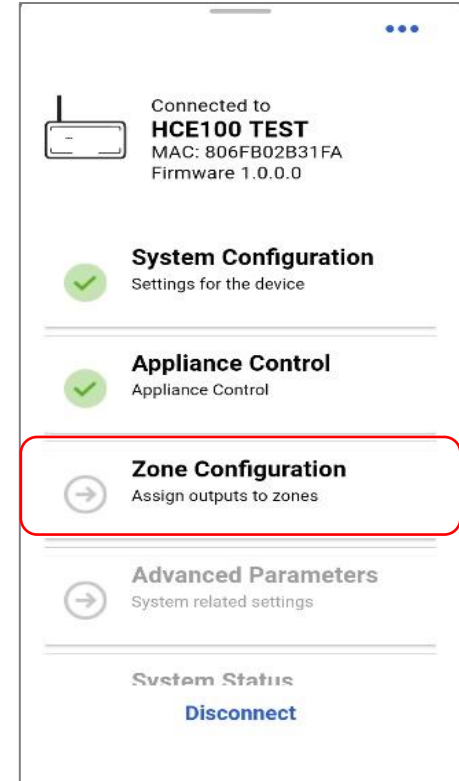
---

Connected to
**HCE100 TEST**
MAC: 806FB02B31FA
Firmware 1.0.0.0

✓ **System Configuration**
Settings for the device

✓ **Appliance Control**
Appliance Control

→ **Zone Configuration**
Assign outputs to zones
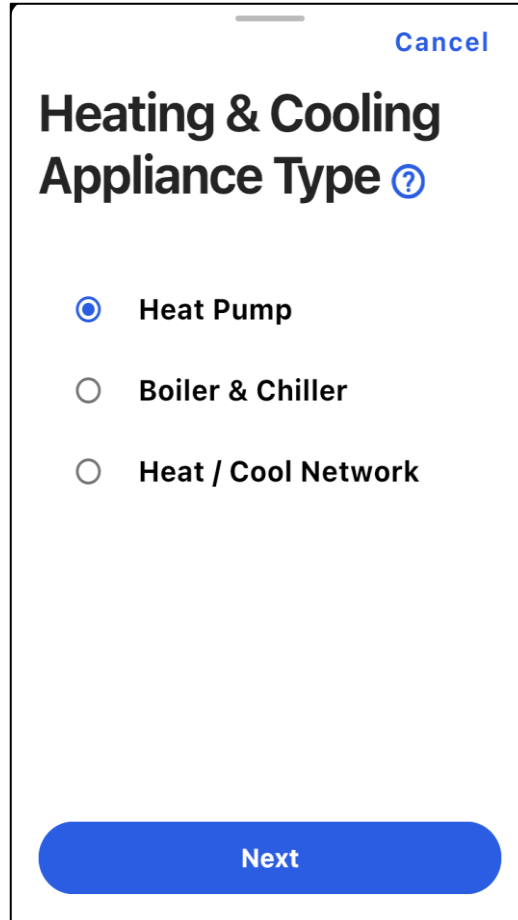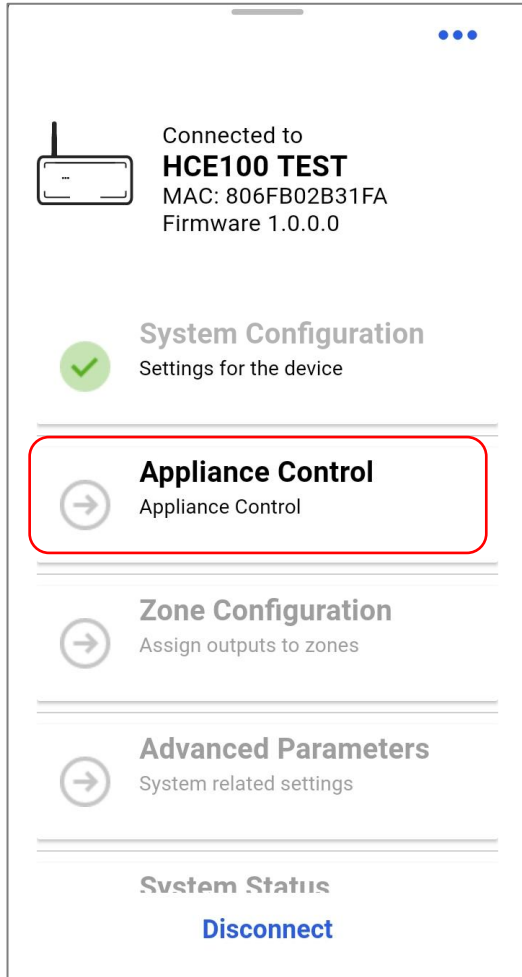
→ **Advanced Parameters**
System related settings

**System Status**

**Disconnect**

Appliance Control configuration is done, now start Zone Configuration.

# Appliance Control – Binding Wireless Demand Outputs
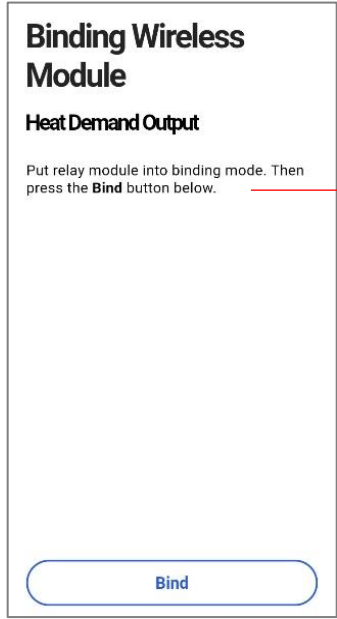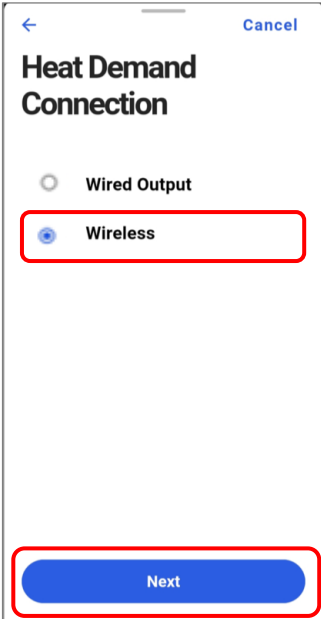


Activate binding on the relay module.
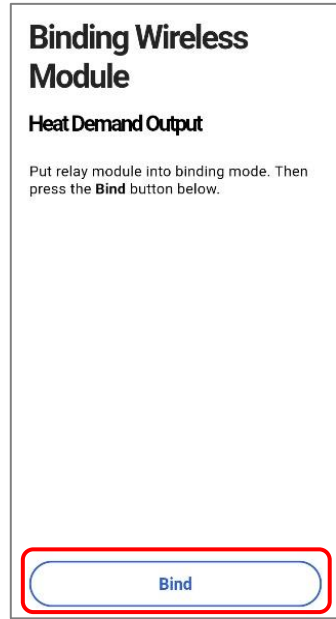
Now press **Bind** to send the bind message.
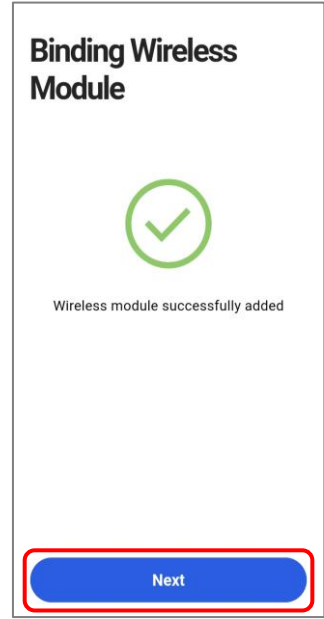
Binding was successful

Note: The wireless option is also available for Cool Demand and has the same order.

**Appliance control with wireless heat demand output**

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# Appliance Configuration – Heat and Cool

Selection how the demand is switching the appliance.

Select **Heat and Cool Demand Outputs** when the appliance has <u>separate</u> heat and cool demand inputs.

Select **Single Demand Output (Heat)** when the appliance has a <u>single</u> demand input and heat/cool mode input.
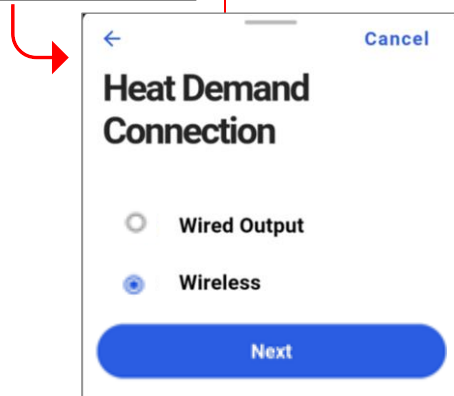
Select how the heat demand output is connected to the appliance.
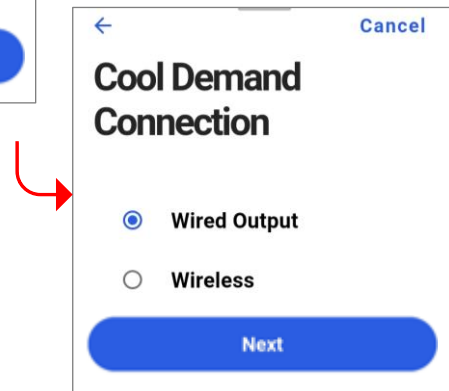
Select how the cool demand output is connected to the appliance.

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# Appliance Configuration – Heat and Cool (continued)
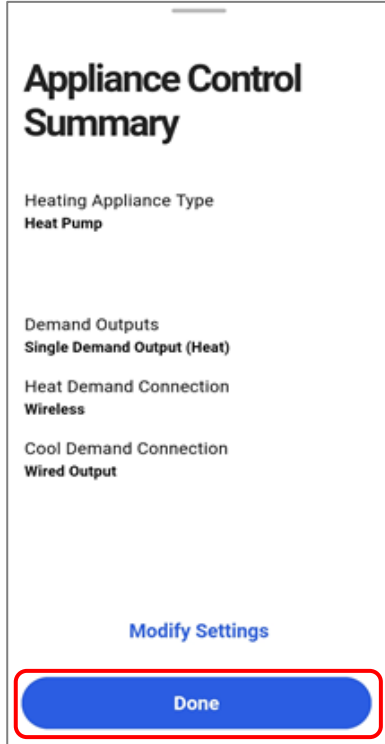


Verify the configuration.
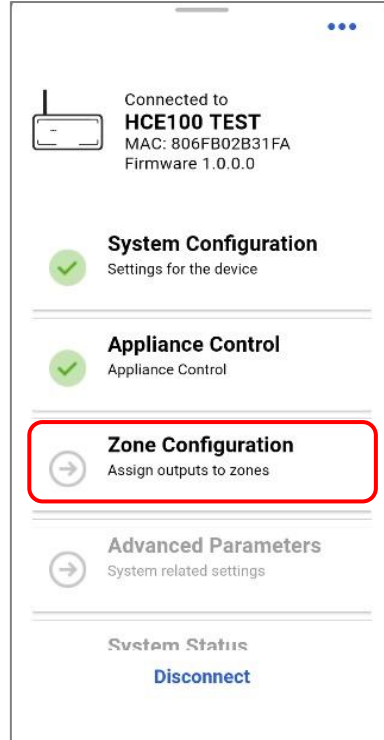
Appliance Control configuration is done, now start Zone Configuration.

**Heat pump installation with wireless heat demand and wired cooling demand**

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# Zone Configuration
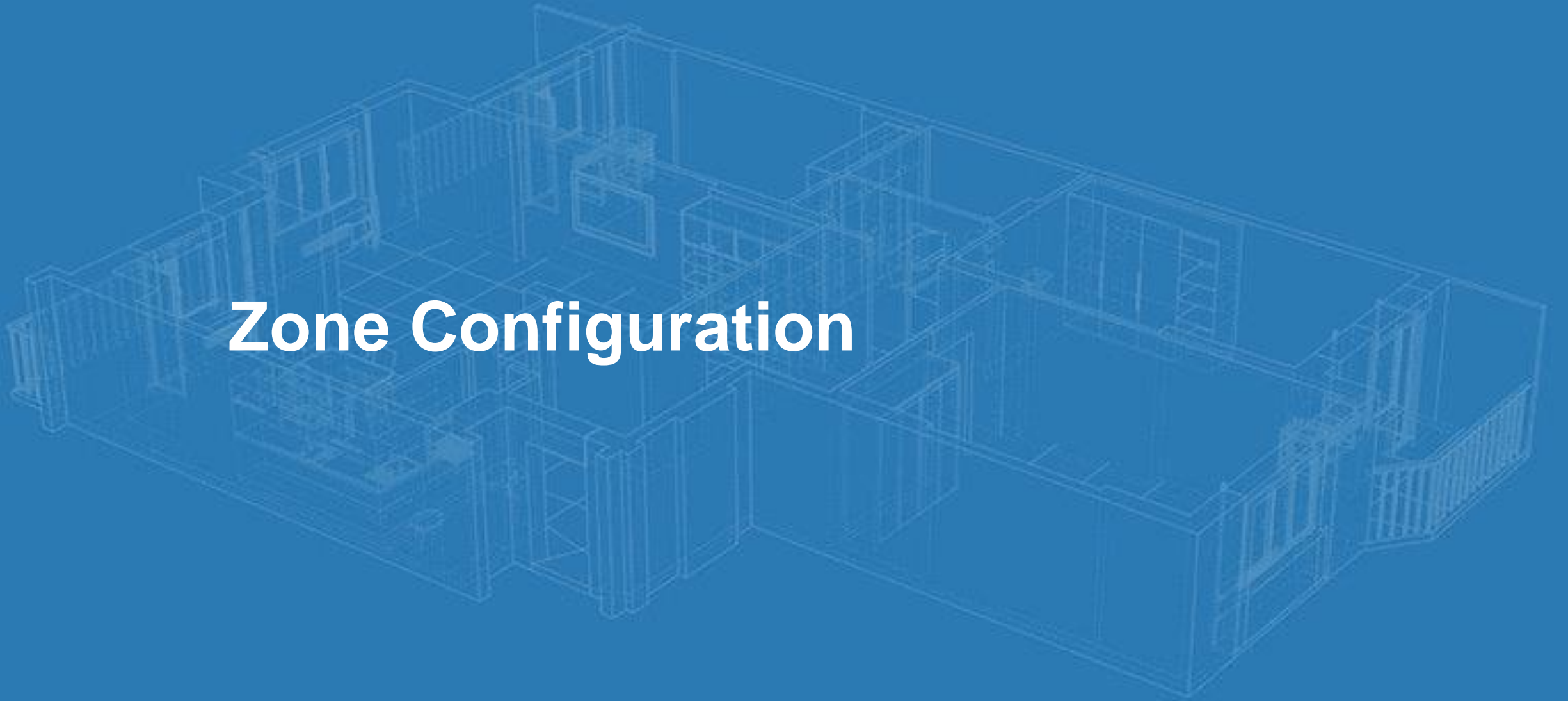
# Zone Configuration – Number of Zones
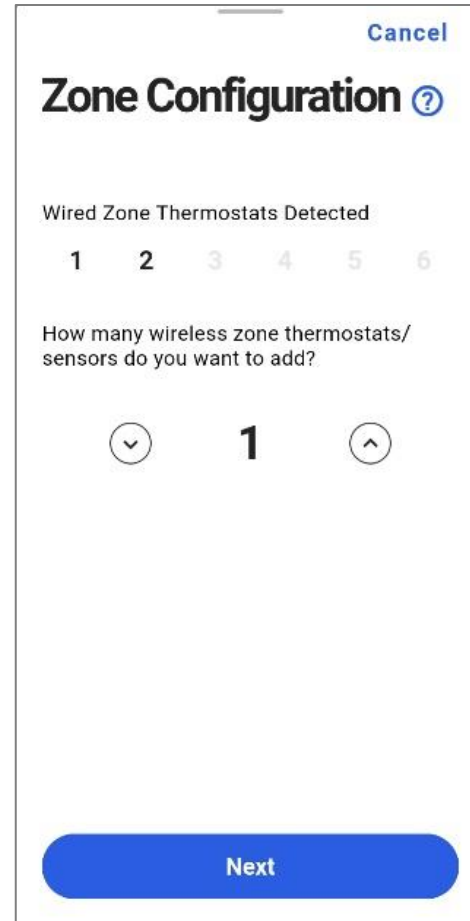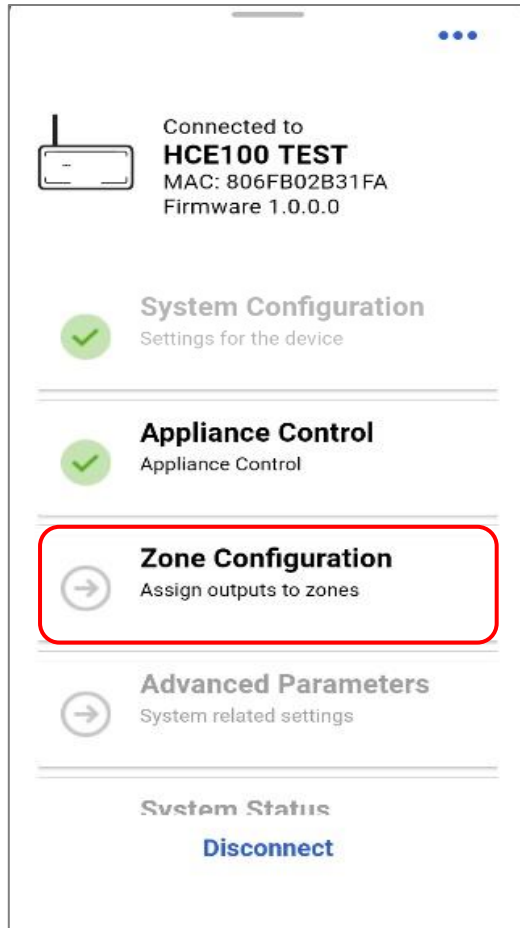


This screen shows the connected wired zone thermostats and asks to select the number of additional wireless zones.
Up to a maximum of 8 zones can be configured.

When using evohome and the internal sensor this is counted as a wireless zone thermostat.

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# Zone Configuration – Actuator Output Selection

**Outputs** ?

Select the outputs included in **Zone 1**.

- [x] 1
- [ ] 2
- [ ] 3
- [ ] 4
- [ ] 5
- [ ] 6
- [x] 7
- [ ] 8
- [ ] 9
- [ ] 10
- [ ] 11
- [ ] 12
- [–] 13 (Zone 3)
- [ ] 14
- [ ] 15
- [ ] 16
- [ ] 17
- [ ] 18

Cancel

**Next**

Free selection of the actuator outputs which belong to the zone.

- [ ] Output available
- [–] Output already assigned to a Zone
- [x] Output assigned to current Zone
- [ ] No actuator detected

Outputs can be reassigned via editing the zones.

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# Zone Configuration – Wired Zones



Select the number of wireless zones

Select the actuator outputs for Zone 1

Input Zone 1 name

Select **Next** when Zone 1 is correct.

**Wired thermostat options include T87M, T87HC, T3M and T4M**

# Zone Configuration – Wireless Zones
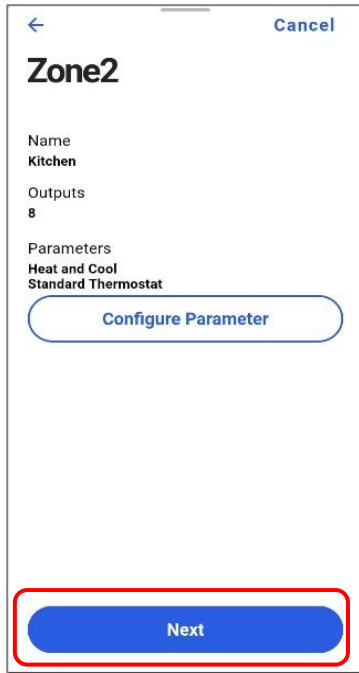


Last wired zone (2) correct
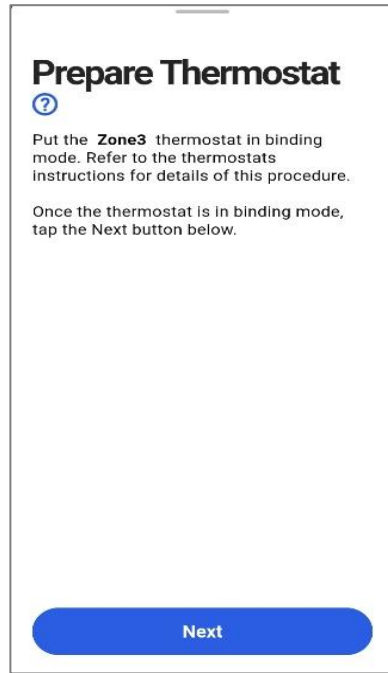
Wireless thermostat for Zone 3

Activate binding mode Round RF and 'Co' binding. Now press **Next**.
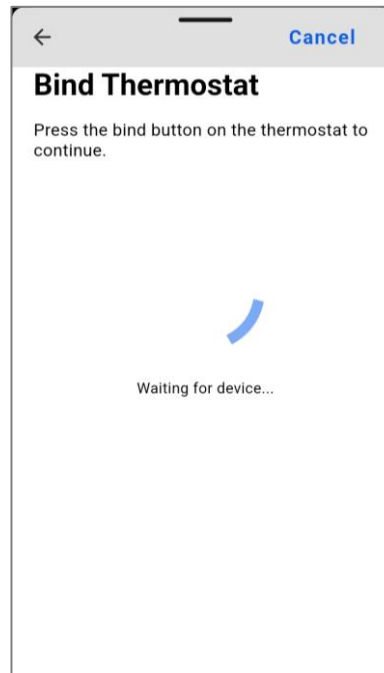
HCC100 waiting for bind message

Send bind message
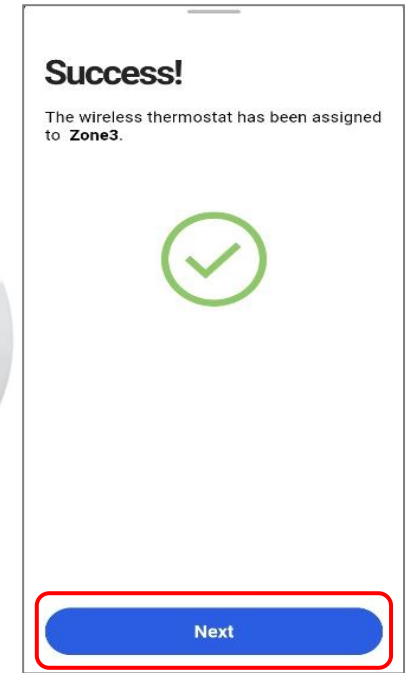
Bind message received

**Wireless thermostat options include T87RF and DTS92**

Note: DT92 from 2023!

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# Zone Configuration – Wireless Zones (continued)
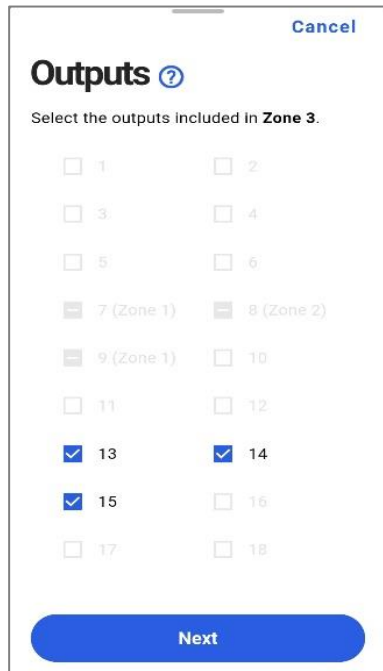


Select actuator outputs for Zone 3
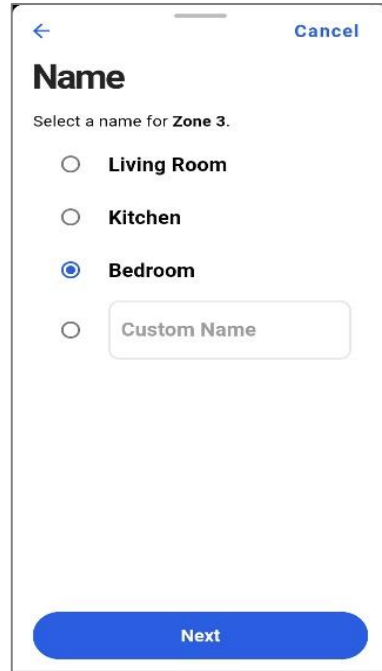
Input Zone 3 name.
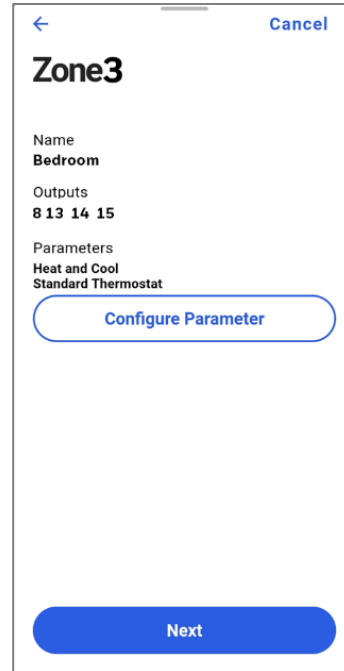
Select **Next** when Zone 2 is correct
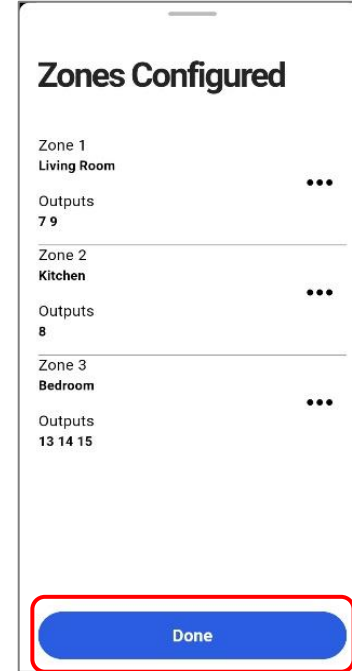
When all actuators are assigned and a wireless zone is not set up yet, this screen is shown.

# Zone Configuration - Configuration Parameters

**Zone Parameters**

Zone Function
Heat and Cool

Heating Maximum
35° C

Heating Minimum
5° C

Cooling Minimum
5° C

Cooling Maximum
35° C

Master Function
Standard Thermostat

Zone Function: Select if the zone is **Heat only** (e.g. bathroom), **Cool only**, or **Heat and Cool** (system type dependent).

Heating limits for this zone.

Cooling limits for this zone.

Master Function: Selection of the zone is the "Master Thermostat" thermostat and determines the comfort/eco mode as well as the heat/cool changeover, depending on heat/cool changeover setting

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# Zone Configuration - Master Zone



Master Zone Function:
1. When the setpoint of the 'Master Thermostat' goes below the 'ECO limit' (Advanced Parameter), all other zones are set to this 'ECO' setpoint. When the 'Master Thermostat' setpoint goes again above the 'ECO limit', all other zones are set back to their 'old' setpoint.



2. In a system with heating and cooling the Heat/Cool mode changeover can be set by the zone thermostat and this needs to be the 'Master Thermostat'. For this function, the Changeover setting should be 'Heat/Cool mode output used' or 'Heat/cool mode via wireless module'.

Note: There can only be 1 Master Thermostat in a system

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# Advanced Parameters

# Advanced Parameters

## Adjustable application parameters
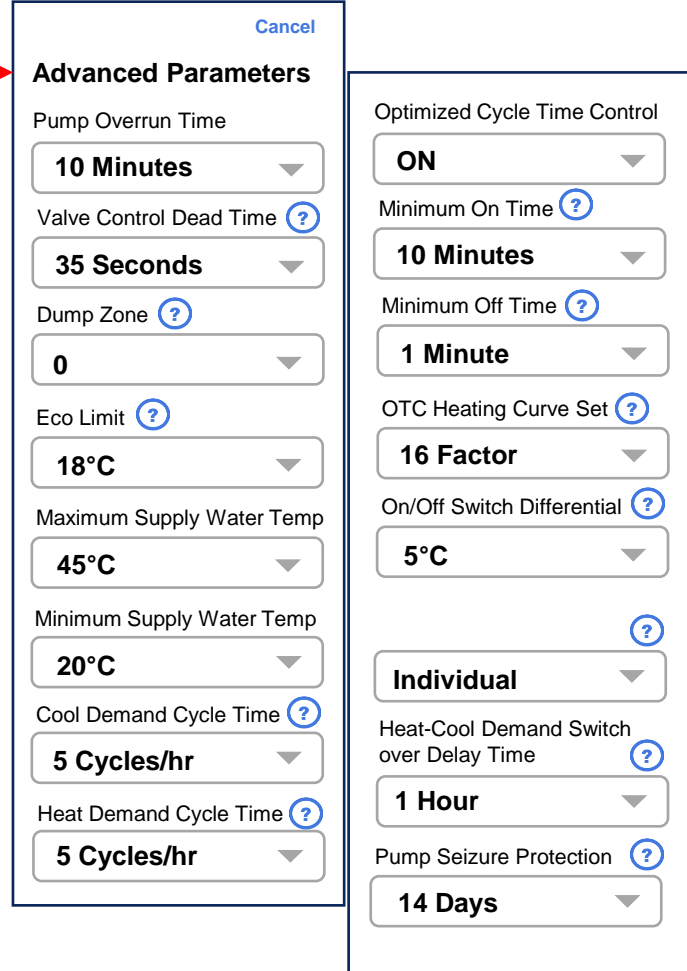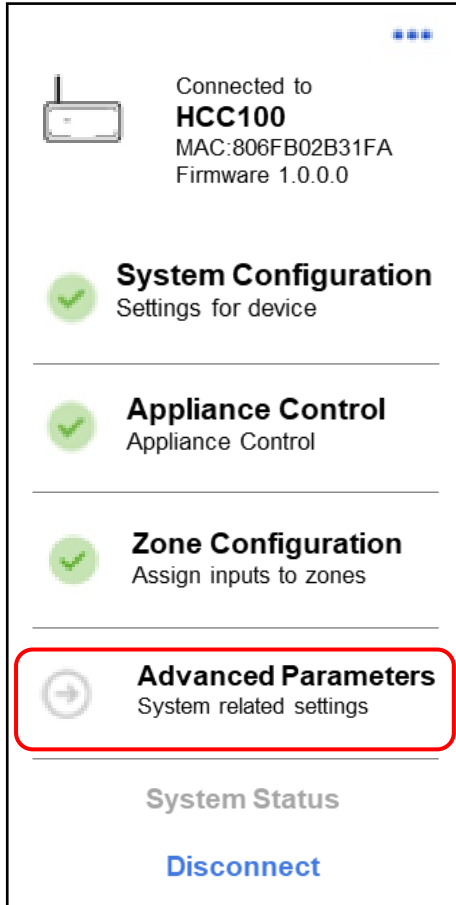


By adapting the parameters to the respective application, optimum system operation can be achieved.

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# Advanced Parameters

| | Description | Default | Unit | Range | Steps |
|---|---|---|---|---|---|
| **1** | Pump overrun time (and opening dump zone): Duration that the pump runs, and dump zone opened after heat or cool demand. | **10** | Min. | 0-60 | 5 |

Delay time before pump switches off after a demand and finish the appliance cycle

| | Description | Default | Unit | Range | Steps |
|---|---|---|---|---|---|
| **2** | Valve control dead time: Delay time before demand starts due to the slow open or close time thermal actuators. | **35** | Sec. | 0-240 | 1 |

Delay time on pump and demand to allow thermal actuators to start to open the valve.

| | Description | Default | Unit | Range | Steps |
|---|---|---|---|---|---|
| **3** | Dump zone: Zone which is opened during pump over-run time (finish aplliance cycle). 0 = zone which had demand remains open. | **0** | | 0-8 | 1 |

Select the zone which needs to be opened during pump overrun time and finish the heat/cool demand cycle. When selecting "0" the zone which had demand remains open.

| | Description | Default | Unit | Range | Steps |
|---|---|---|---|---|---|
| **4** | ECO limit (changeover value comfort-ECO mode) Setpoint of zone 1 which triggers all zones to change. | **18** | °C | 7-30 | 1 |

Setpoint of Master zone which triggers all zones to change to ECO mode (energy saving). Only valid in heating mode!

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# Advanced Parameters

| | Description | Default | Unit | Range | Steps |
|---|---|---|---|---|---|
| **5** | Maximum supply water temperature. | **45** | °C. | 0-90 | 5 |
| **6** | Minimum supply water temperature. | **20** | °C | 0-90 | 5 |
| **7** | Heat demand cycle time (5 cycles per hour =12min.): Cycle time related to on/off heat demand. | **5** | Cycles/hr | 1-12 | 1 |
| **8** | Cool demand cycle time (5 cycles per hour 0 12min.): Cycle time related to on/off cool demand. | **5** | Cycles/hr | 1-12 | 1 |

> Cycle time related to the appliance heat and cool demand run time (12min. = 5 cycles per hour).

| | Description | Default | Unit | Range | Steps |
|---|---|---|---|---|---|
| **9** | Optimized demand control: On = Longer demand periods, less cycling (heat pump). | **1** | Min. | 1-30 | 1 |

> Optimized demand control and heat distribution over the zones to obtain a longer cycle time (for heat pump and high efficiency boiler).

| | Description | Default | Unit | Range | Steps |
|---|---|---|---|---|---|
| **10** | Min. On time: Minimum on time for the demand cycle rate. | **1** | Min. | 1-30 | 1 |

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# Advanced Parameters

| | Description | Default | Unit | Range | Steps |
|---|---|---|---|---|---|
| **11** | Min. Off time: Minimum off time for the demand cycle rate. | **1** | Min. | 0-30 | 1 |

On time: Minimum duration that the appliance needs to run before switching off.
Off time: Minimum duration that the appliance needs to be of before switching on again.

| | Description | Default | Unit | Range | Steps |
|---|---|---|---|---|---|
| **12** | Outdoor Temp. Compensation (heat curve setting): Ratio between measured outside air temperature and calculated supply water temperature (0 = OTC disabled). | **0** | Factor | 0-40 | 1 |

Heat curve setting for outdoor temperature compensation
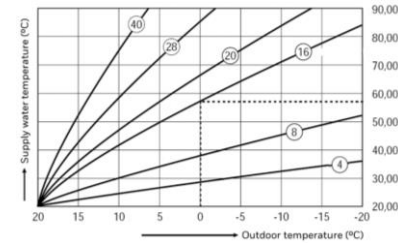


| | Description | Default | Unit | Range | Steps |
|---|---|---|---|---|---|
| **13** | On/OFF switch differential of supply water temperature during on/off OTC control. | **5** | °C | 1-25 | 1 |

Switch differential of supply water temperature during On/Off OTC control

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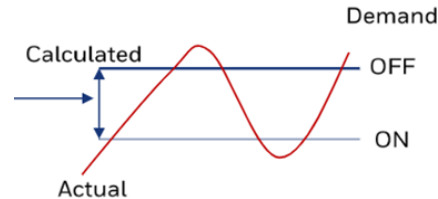
# Advanced Parameters (examples)

If using an outdoor temperature sensor, the correct OTC heating curve must be set up.

**Examples:**

If using OTC 16 factor

OTC Heating Curve Setting ⑦

16 Factor ▾

If outdoor temperature is 0°C the supply water temperature is around 53°C

If using OTC 40 factor

OTC Heating Curve Setting ⑦

40 Factor ▾

If outdoor temperature is 10°C the supply water temperature is around 60°C
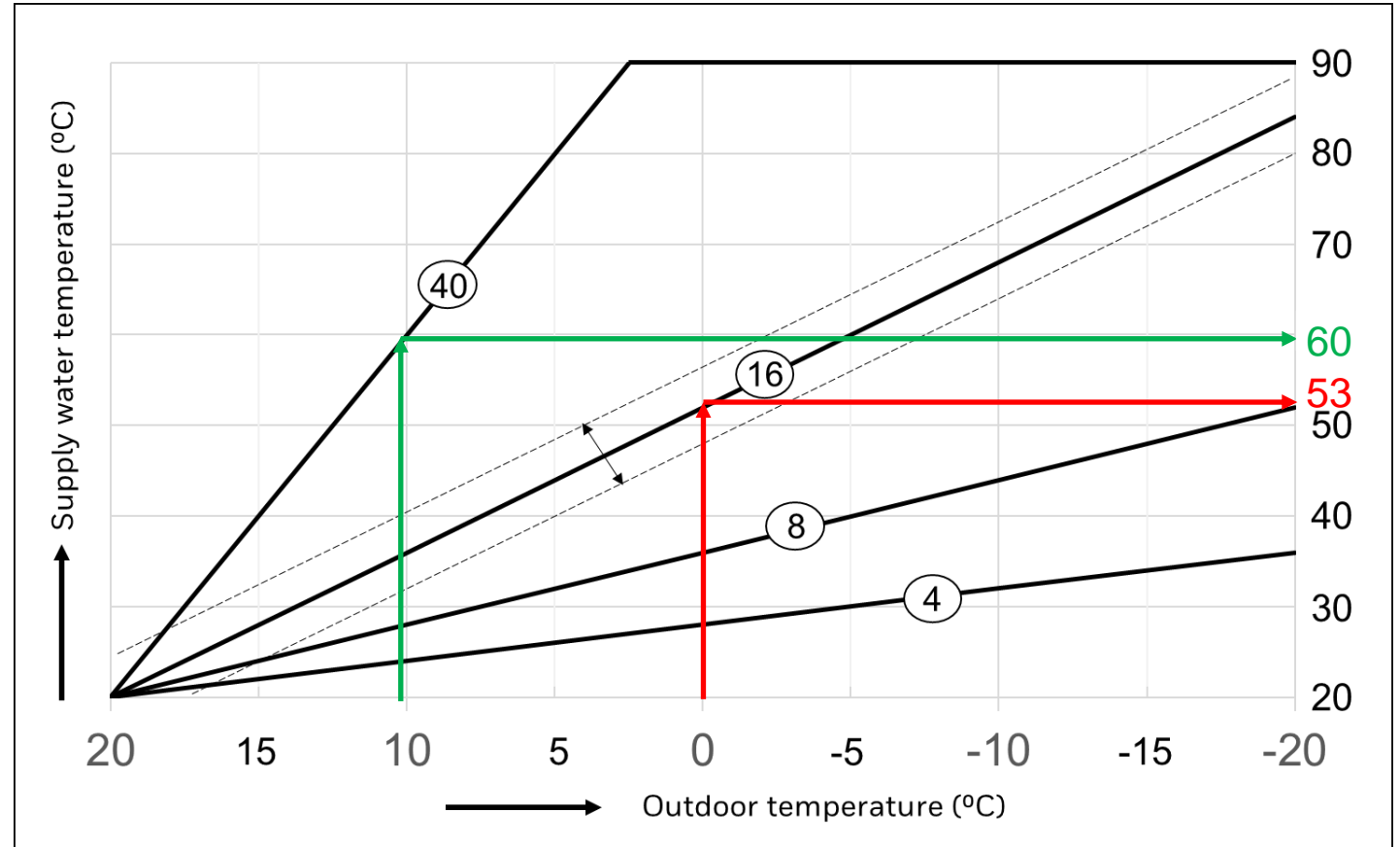


On/OFF switch differential of supply water temperature during on/off OTC control: 5ºC (default settings, range 1 – 25º)

# Advanced Parameters

| | Description | Default | Unit | Range | Steps |
|---|---|---|---|---|---|
| **14** | Central or individual pump control | **Individual** | | Central individual | |

> When cascading multiple controllers, each controller can control its individual pump output, or the the master controller can control a central pump.

| | Description | Default | Unit | Range | Steps |
|---|---|---|---|---|---|
| **15** | Heat-Cool demand switch over delay time: Time delay between demand call from heating after cooling or vice versa. | **0** | Hour | 0-24 | 1 |

> To avoid fast heat/cool mode changeovers and energy wasting a delay time can be set before a changeover can be done. The delay time is timed from the end of the last demand.

| | Description | Default | Unit | Range | Steps |
|---|---|---|---|---|---|
| **16** | Pump seizure protection: Number of days of stand still before pump and actuator outputs will be powered for min. amount of time. | **14** | **Days** | 0-60 | 1 |

> To avoid that moving parts lock in place and prevent the system from proper operation after a long period of no demand, the pump and actuators can be operated once every x days before switching on again.

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# System Status

# System Status
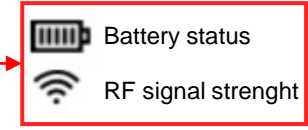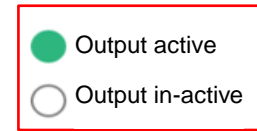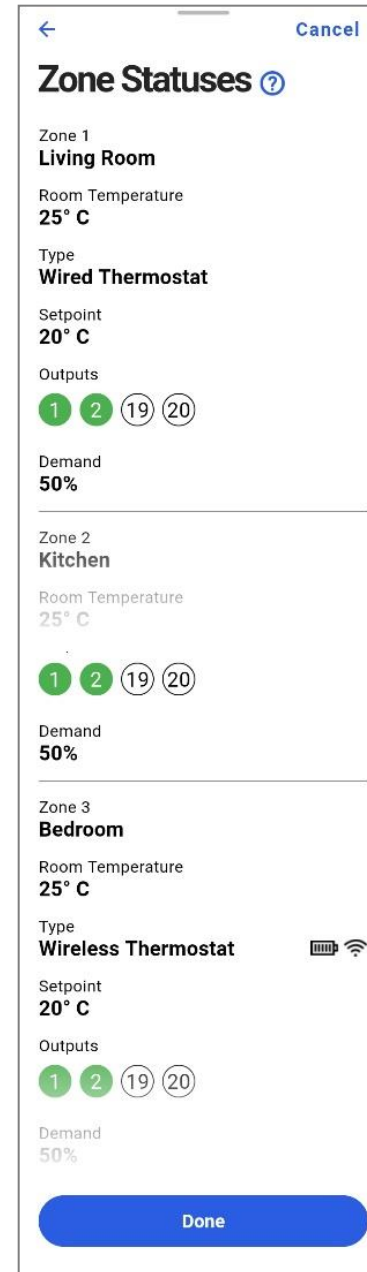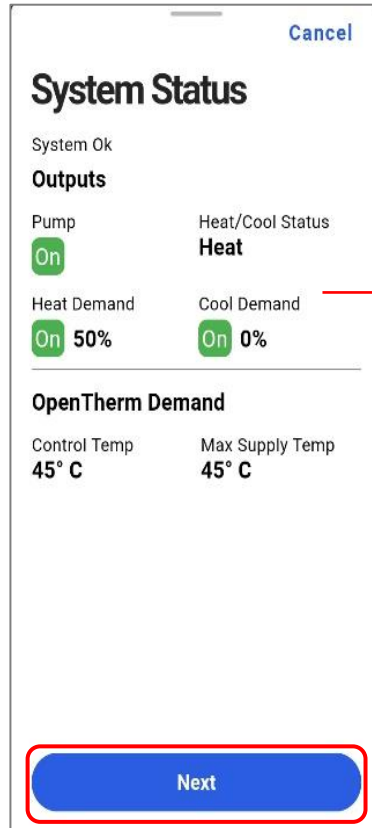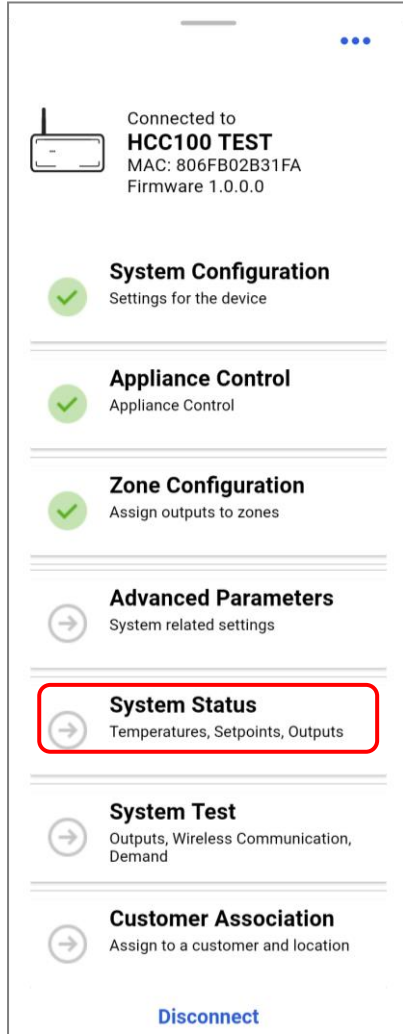
# 3-Dot Menu
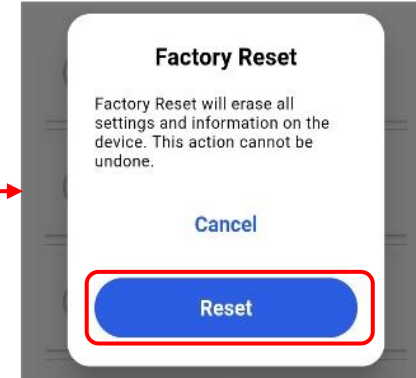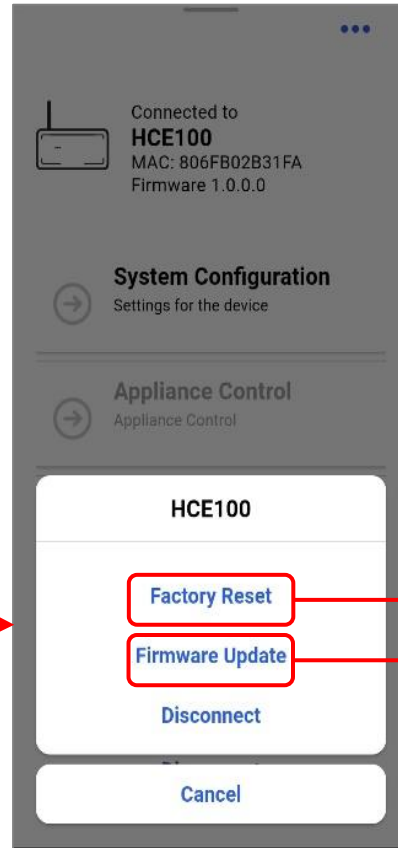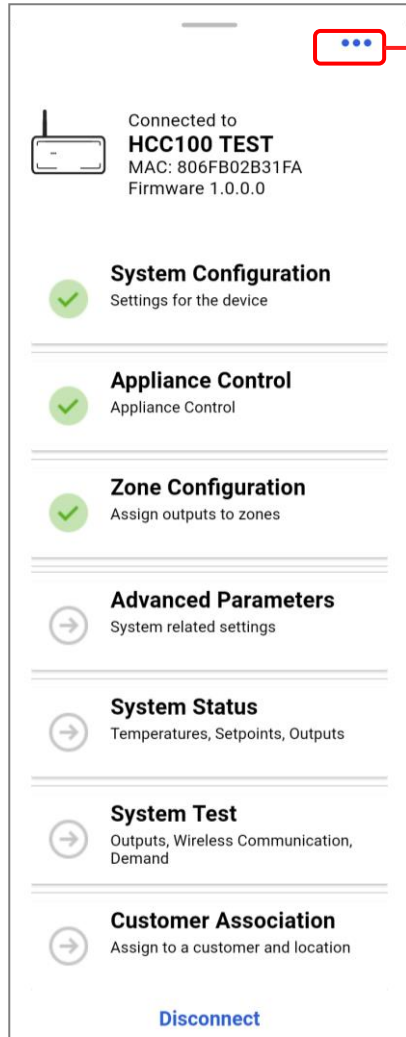


Reset controller to factory default.
Be aware if you click on "Reset" the entire configuration will be deleted!
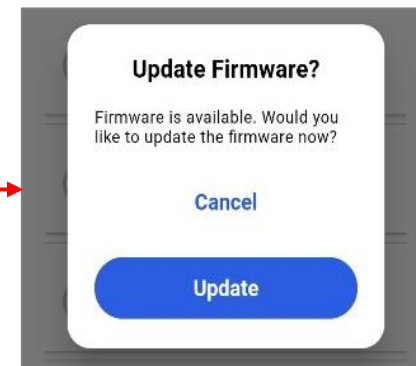
In case of a newer firmware version, you can update the device firmware.

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# System Test

# System Test – Testing Outputs
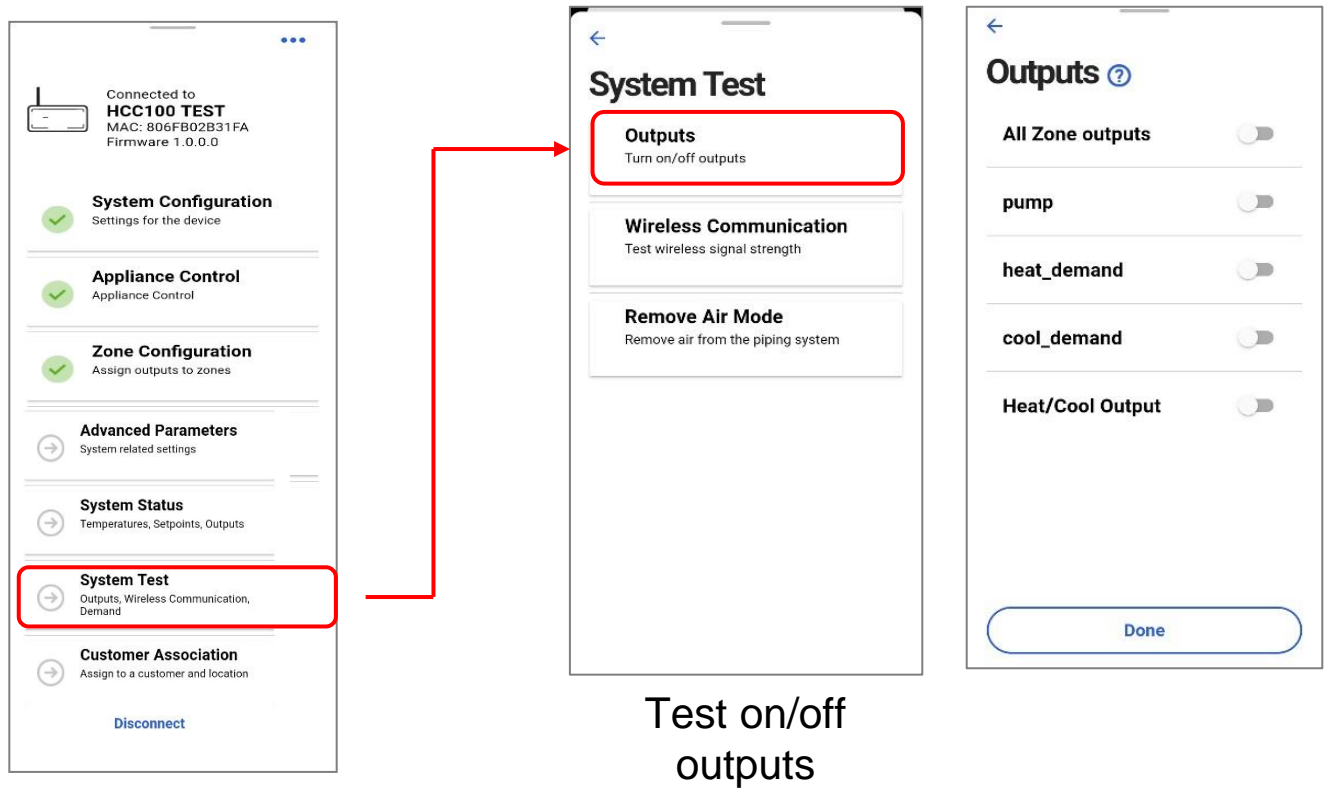


Select
System Test

Test on/off
outputs

All outputs can be tested, but the 'Pump' can only be switched on when 'All Zone Outputs' are on.

The 'Heat or Cool Demand' can only be switched on when the 'Pump' and 'All Zone Outputs' are on.

Select **Done** when ready to disable test mode and return to normal operation.

**After the set up all relevant outputs can be tested for their function**

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# System Test – Testing Wireless Communication
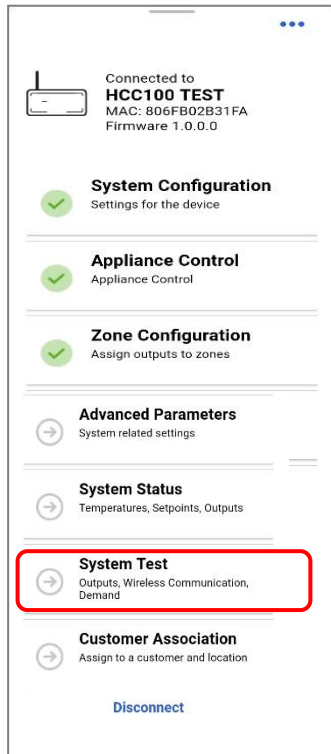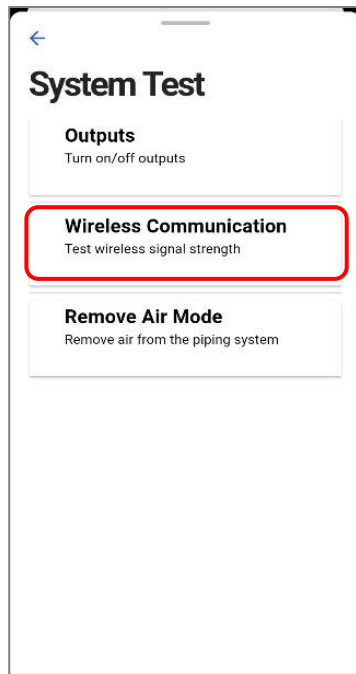


Select
**System Test**

Test wireless
communications
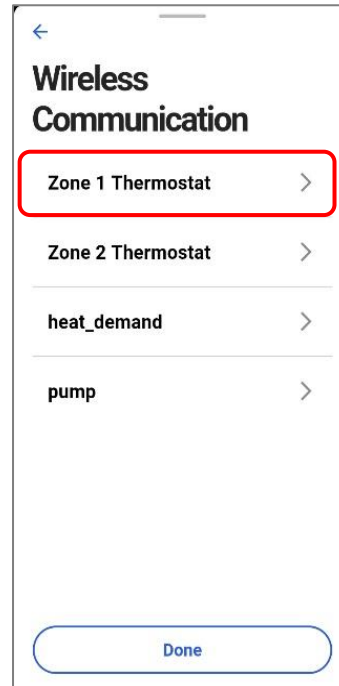
Zone thermostat
communication
check
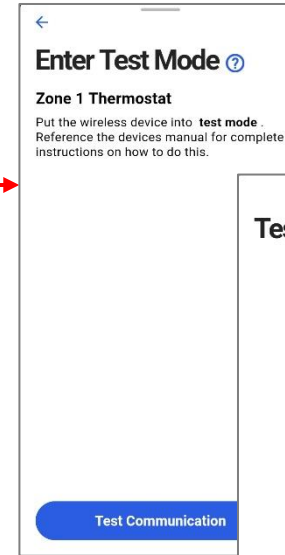
Tested device needs
to be put in test mode
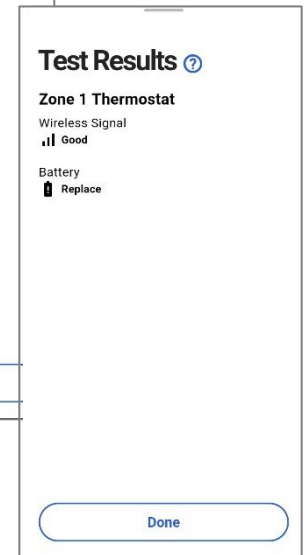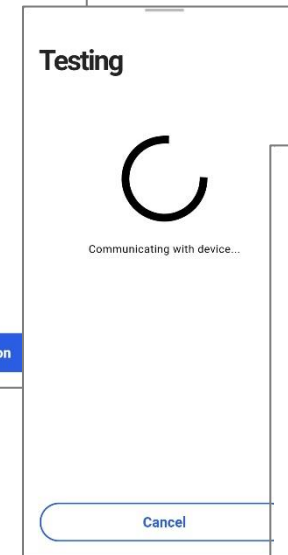
Select **Done** when ready to disable test
mode and return to normal operation.

# System Test – Testing Wireless Communication
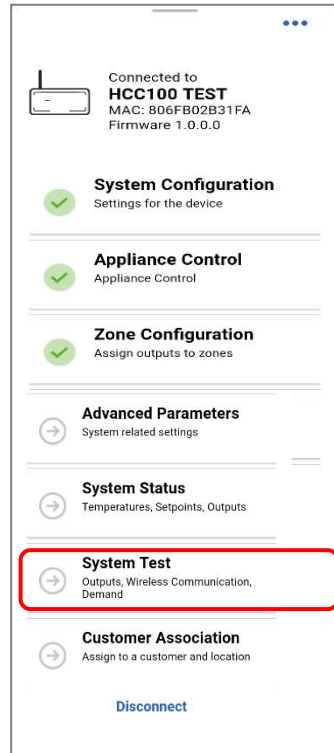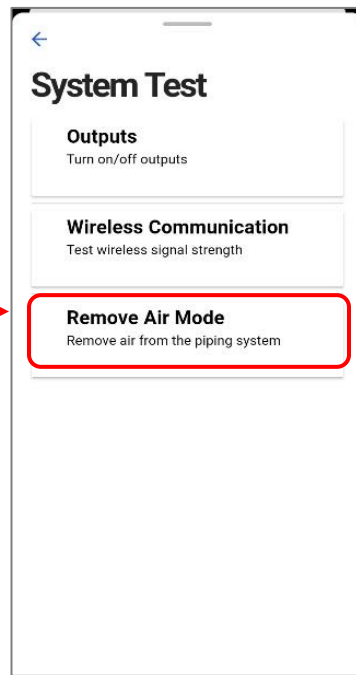


Select
System Test

Test on/off
outputs
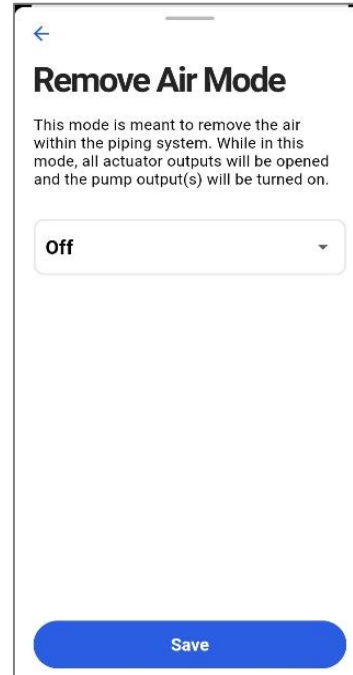
"Remove air mode" will open valves and switches on the pump for set duration (1 - 24 hours).

When selecting 'On until power cycle' the mode remains on until the mains power is switched off and on again.
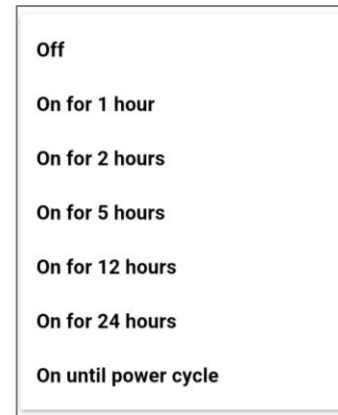
**After the set up all relevant outputs can be tested for function here**

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# HCC100 with evohome

# Evohome multi-zone system



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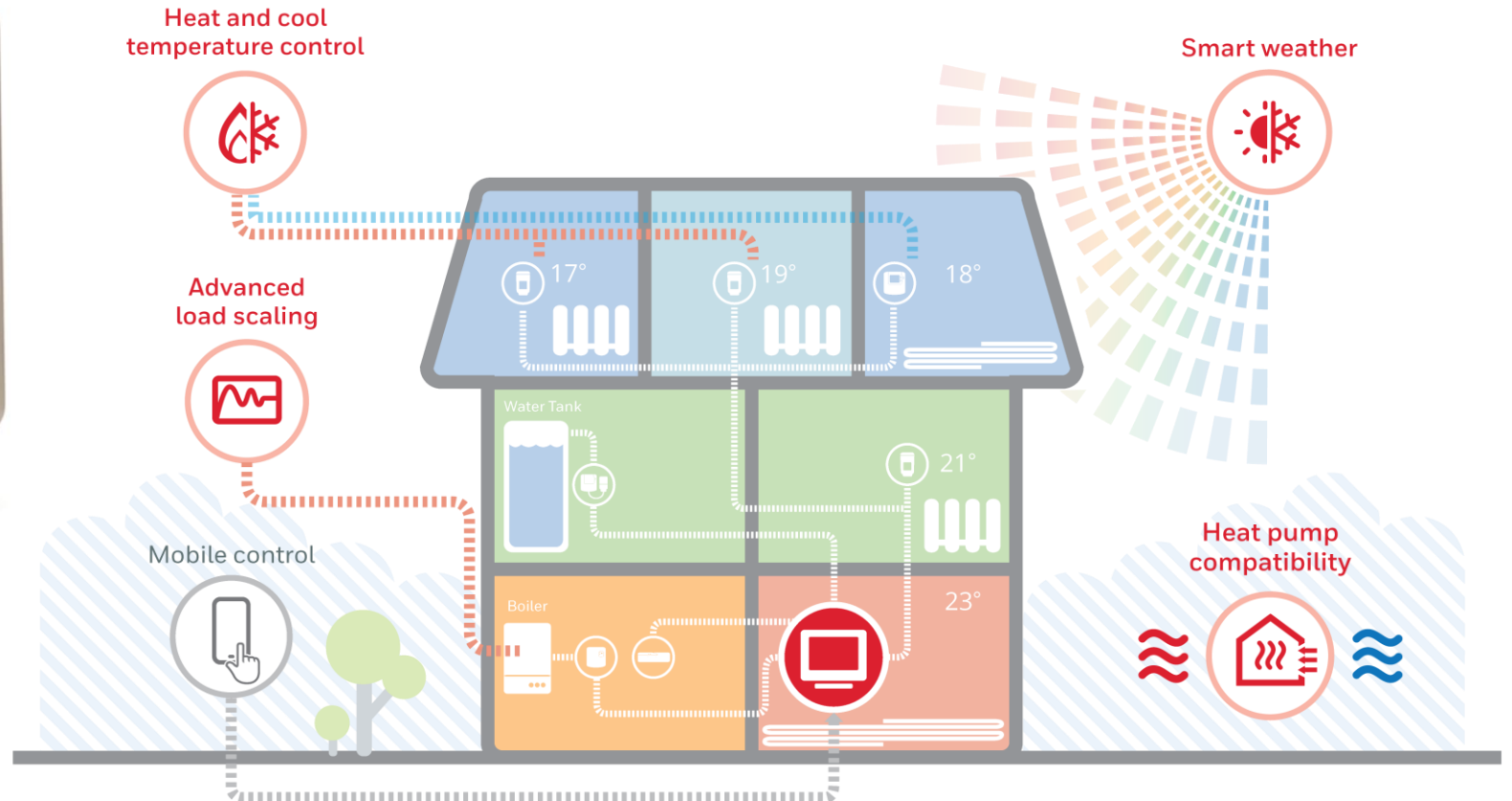
# evohome and HCC100



- Sophisticated zoning control system

- Controls up to 12 individual zones

- Each zone can be time and temperature controlled individually

- Works with radiators, underfloor systems, and zone valves

- Adds connectivity to underfloor systems thanks to its integrated Wi-Fi

- Multi zoning, room by room control saves energy

resideo
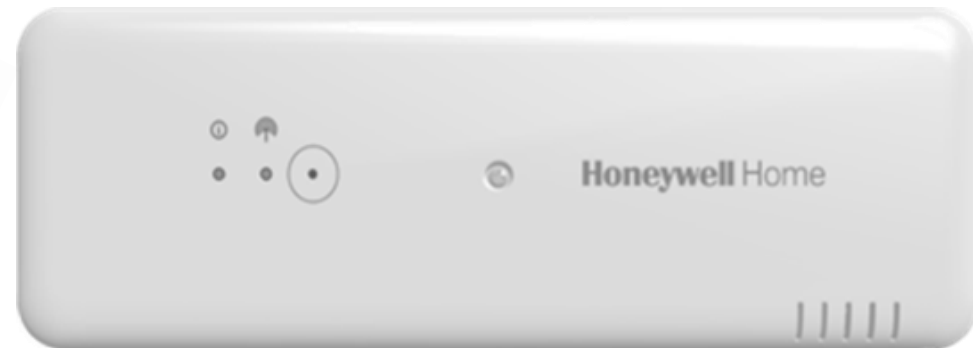
# evohome and HCC100 (continued)

- Can integrate HCC100 wired and wireless zones

- Heat/Cool changeover directly bound from evohome to HCC100 (no need of BDR91T)

- Appliance control can be done by:
    - ✓ HCC100 (recommended for systems with underfloor only)
    - ✓ evohome (mixed systems with radiators and underfloor)

- Wirelessly connected with HCC100
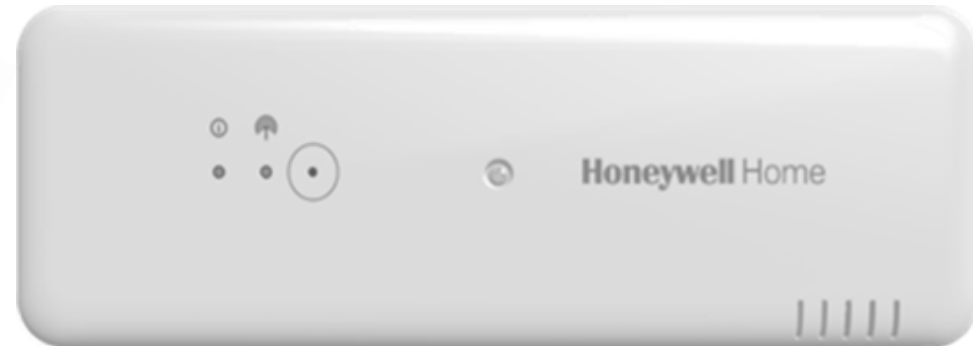
# What's Different with evohome and HCC100

evohome

DT92

T87RF

T87M/HC

*Honeywell Home*
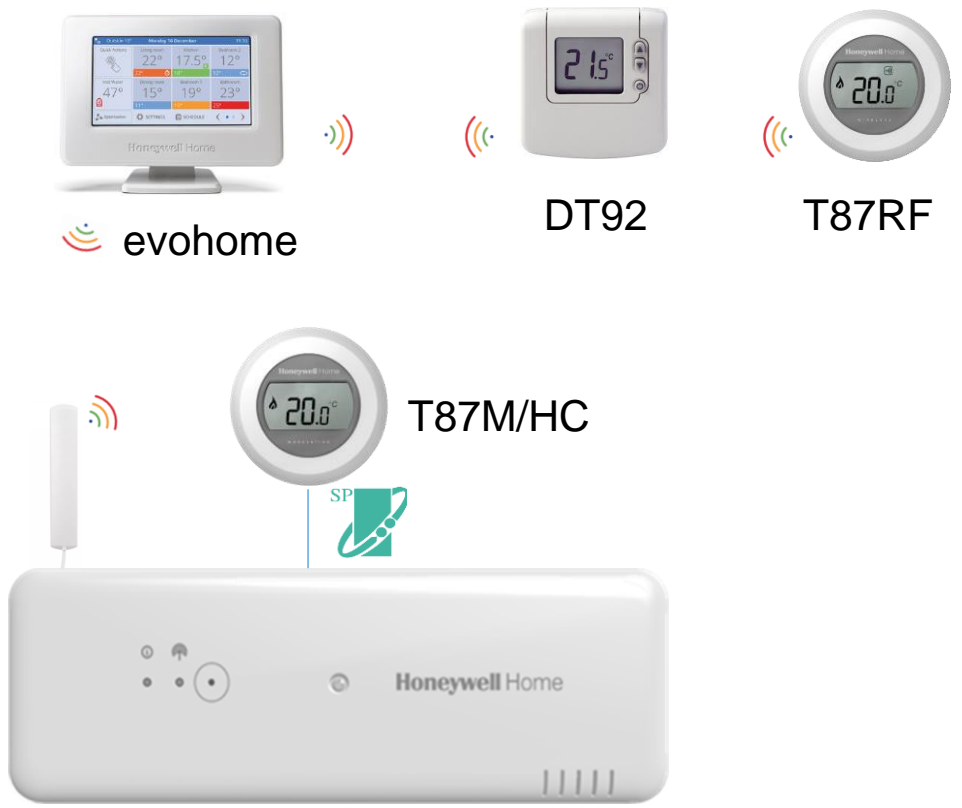
- All wireless communications must go through evohome:
  - Heat/Cool changeover is managed from evohome
  - Wired room thermostats are bound to evohome using Resideo Pro app steps
  - Wireless room thermostats are directly bounded to evohome
  - Zone names set on evohome controller will be automatically transferred to Resideo Pro app
  - HCC100 is bound as "actuator" from evohome
- For Heat/Cool systems, we recommend that changeover is done from evohome
- Appliance control can be done by HCC100 (recommended for systems with underfloor only) or by evohome (mixed systems with radiators and underfloor).

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# System Configuration

# with evohome

# Heat/Cool Changeover via evohome



evohome binding heat/cool
changeover
(see next)

Select Changeover Type

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# Evohome Configuration Changeover Heat/Cool

**1.)** Choose: „Guided configuration"
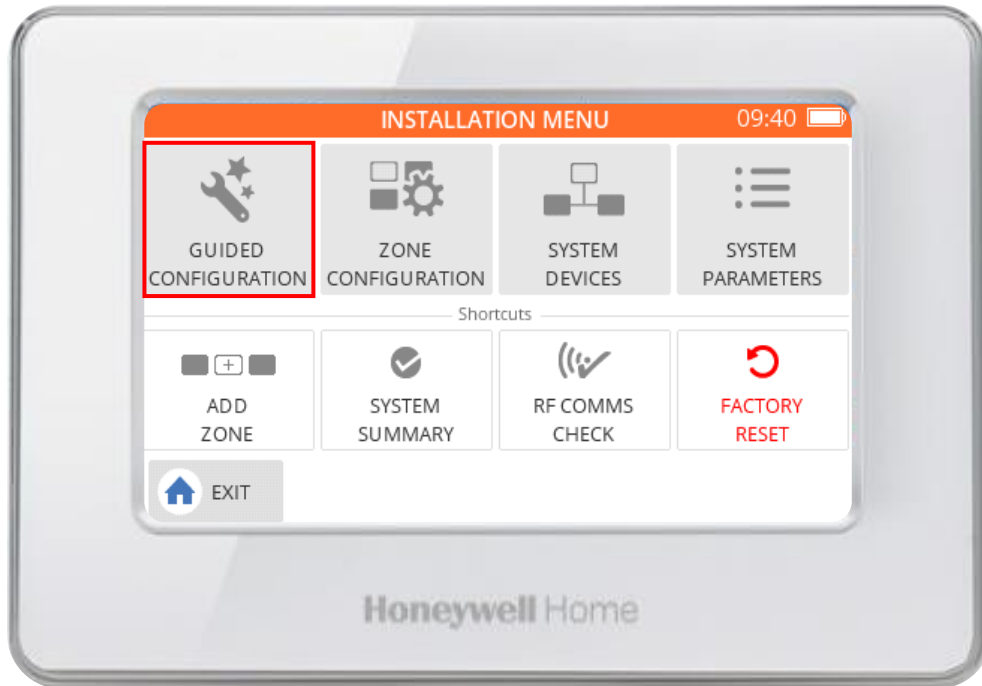


**2.) Choose:** „Heat/Cool configuration"

# Evohome Configuration Changeover Heat/Cool

**3.)** Choose: „Guided configuration"

**4.) Choose:** „Heat/Cool"

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# Evohome Configuration Changeover Heat/Cool

**5.)** Confirm to proceed
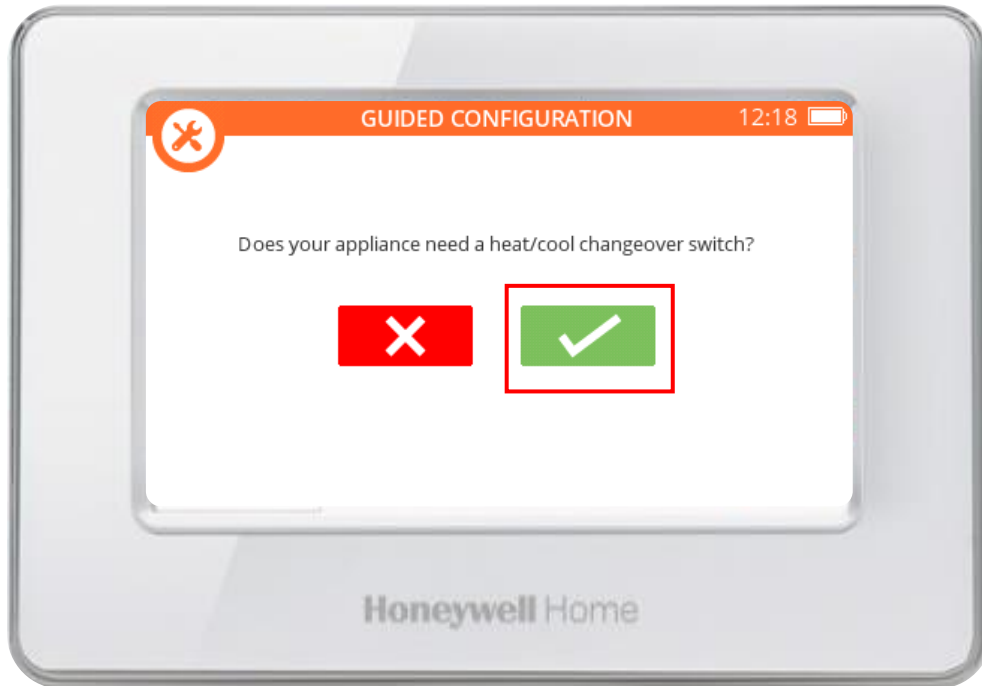


**6.)** Check and confirm if there is the right relay box



**Note:** BDR91T is **not** needed for Heat/Cool changeover, HCC100 can be bound directly from evohome following the same steps.

# Evohome Configuration Changeover Heat/Cool

**8.)** Guided configuration succesfully completed

**7.)** Bind evohome and relay box

resideo
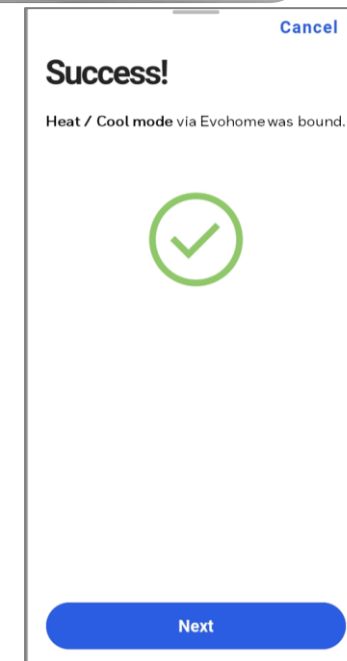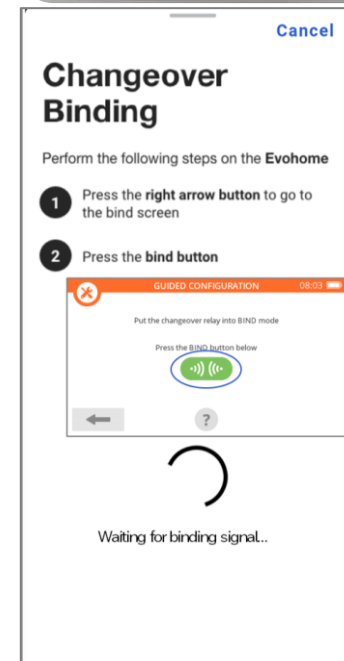
# Appliance Configuration

# with evohome

# Appliance Control With evohome

- If evohome controls the appliance, you should have configured that HCC100 is not controlling the appliance

- All the binding process is done exclusively from evohome and the relay boxes involved

- No need to use Resideo Pro app for this configuration



Zone 1    2    X    Zone 4    5    X

T87M

T87RF/DTS92

Evohome
(max. 12 zones)

BDR91T
demand

antenna

HCC100

Zone 7    8    …12

Boiler
on/off

pump

resideo
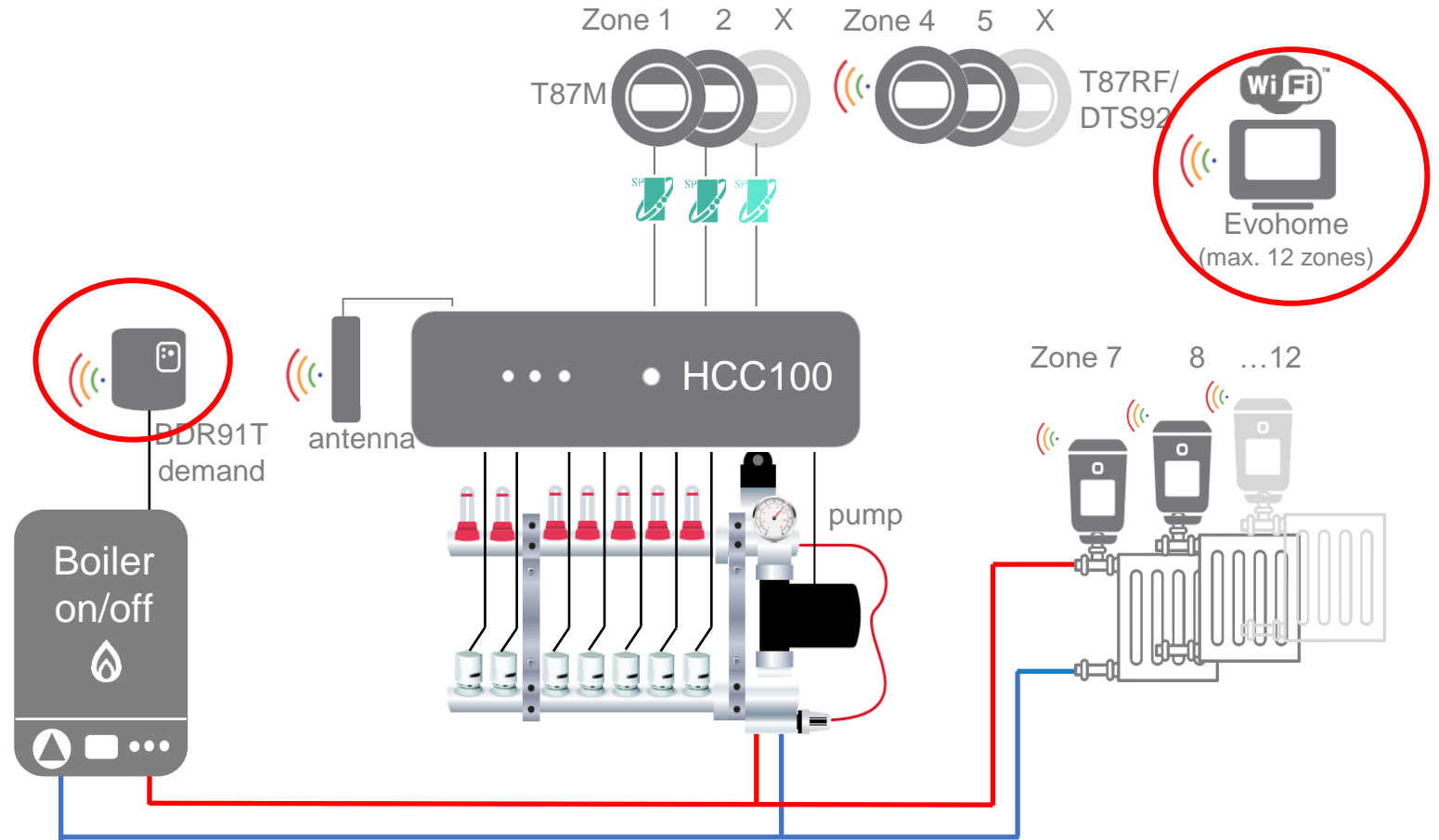
# evohome Demand Configuration Via Heatpump Relay

**1.)** Select **SYSTEM DEVICES**.
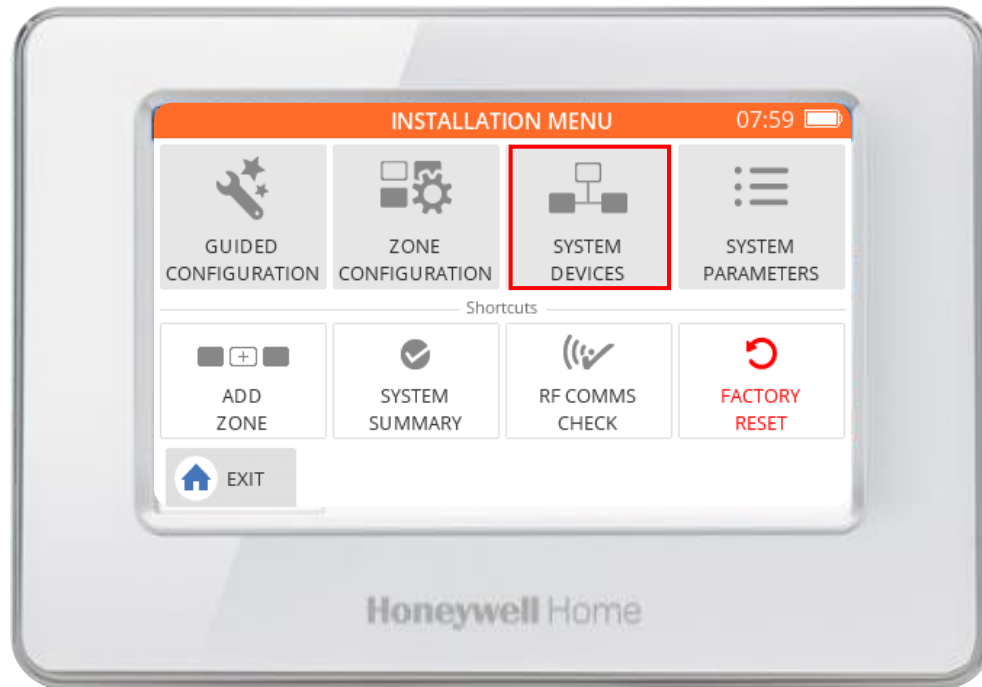
**2.)** Select **APPLIANCE CONTROL**.

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# evohome Demand Configuration Via Heatpump Relay

**3.)** Select **HEATPUMP RELAY**.
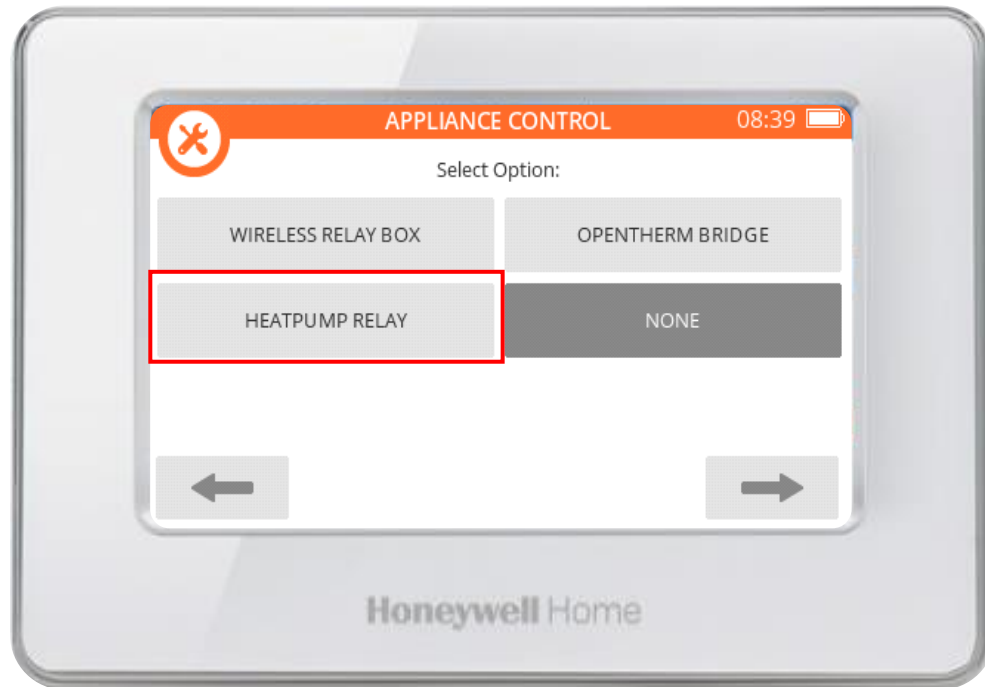
**4.)** Confirm note.
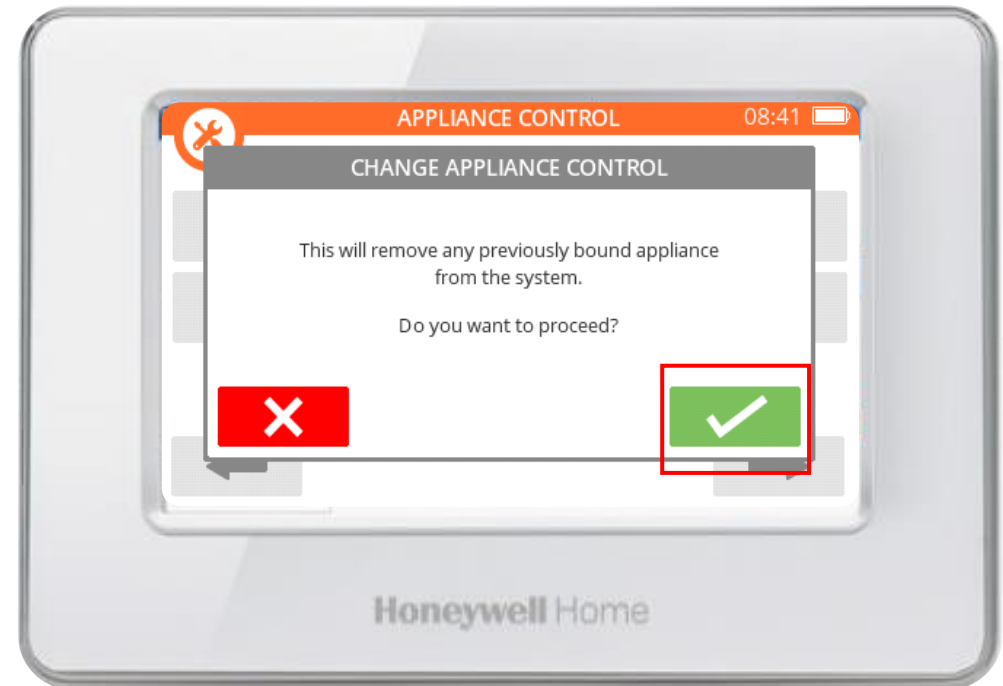
# evohome Demand Configuration Via Heatpump Relay

**5.)** Confirm note.
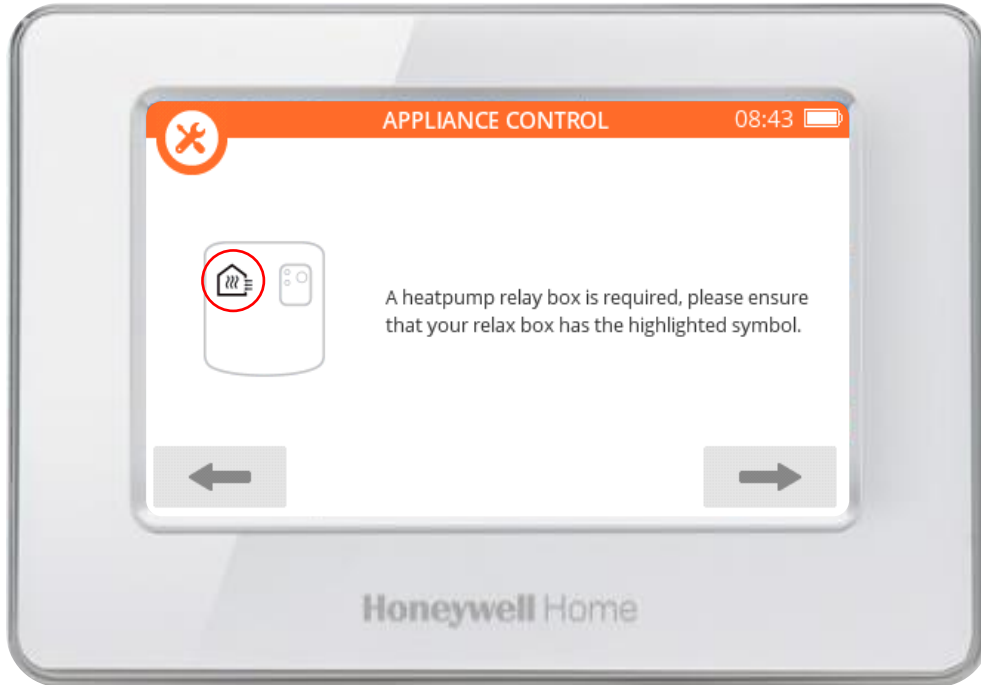
**6.)** Bind evohome and relay box
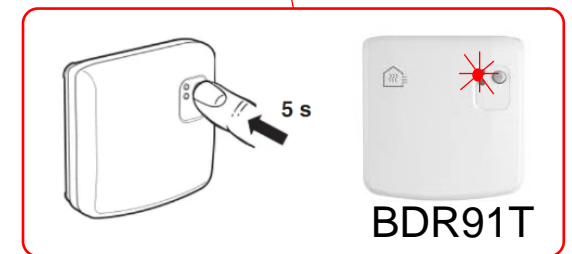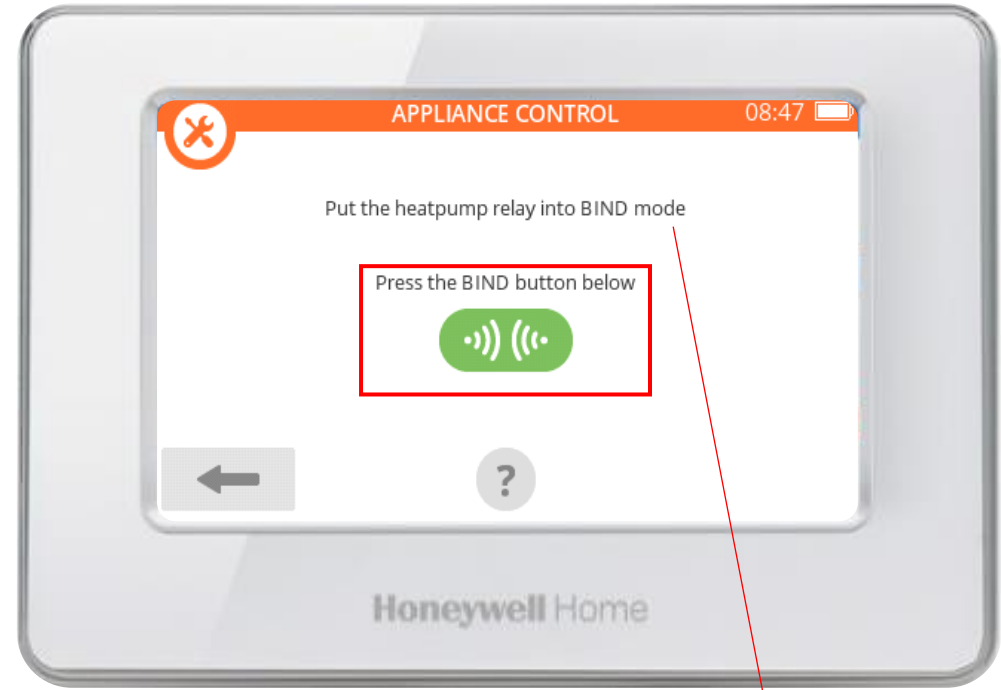
# evohome Demand Configuration Via Heatpump Relay

**7.)** Confirmation of a successful binding.



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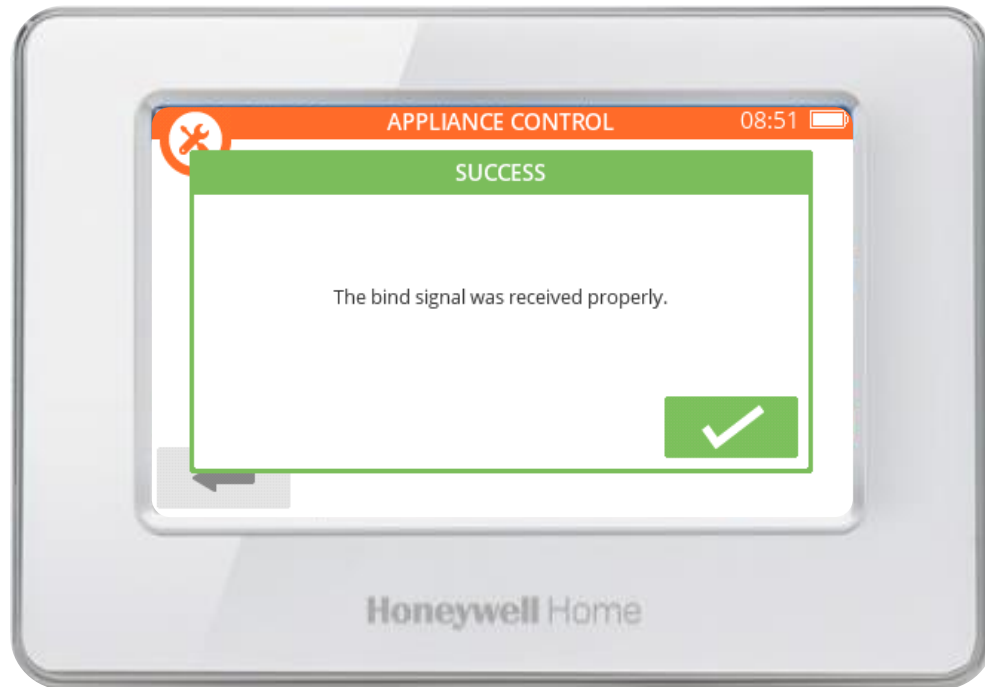
# Zone Configuration

# with evohome

# Zone Configuration with evohome

- If evohome was selected **Yes** in the System Configuration, zones must be added to evohome.

- Wired and wireless zones can be added to the evohome system.

- Zones added to evohome can use all the features included on evohome (time programs, Smart Weather, and remote control).

System Configuration

**evohome**

**Is an evohome thermostat connected?**

- ● Yes
- ○ No

Next

evohome selected

resideo

# Configure the Controller with evohome

**Number of zones**



Connected to
**HCC100**
MAC:806FB02B31FA
Firmware 1.0.0.0

✓ **System Configuration**
Settings for device

✓ **Appliance Control**
Appliance Control

→ **Zone Configuration**
Assign inputs to zones

→ **Advanced Parameters**
System related settings

**System Status**

**Disconnect**

---

Cancel

**Zone Configuration** ?

Wired Zone Thermostats Detected

**1**  2  3  4  5  6

How many wireless zone thermostats/ sensors do you want to add?

⌄  **2**  ⌃

Next

---

Cancel

**Prepare evohome**

Start the Guided Configuration on the **evohome**

1  Select **Underfloor Heating**

2  Select the number of zones

3  Confirm zone names

4  Press the Next button below

Next

---

GUIDED CONFIGURATION  06:23

Select the heating type for the zones you are creating:

THERMOSTAT (1 zone)  UNDERFLOOR HEATING

MIXING VALVE  RADIATOR VALVE

ZONE VALVE  ELECTRIC HEAT

?

Honeywell Home

---

GUIDED CONFIGURATION  07:16

Select number of zones to create:

**3**

Honeywell Home

---

GUIDED CONFIGURATION  07:19

Press to edit zone name:

Living room

Dining room

Kitchen

Honeywell Home

---

Zone names will be set up on evohome.

**resideo**

# evohome Temperature Sensor
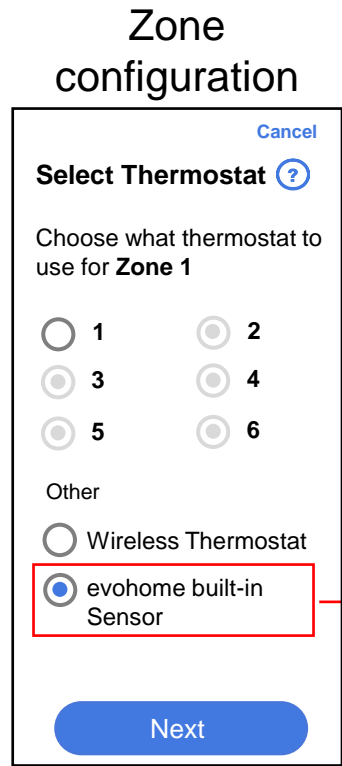
evohome has a built-in temperature sensor. It can be used to control one of the zones.

### Zone configuration



**Select Thermostat** ?    Cancel

Choose what thermostat to use for **Zone 1**

○ 1      ◉ 2
◉ 3      ◉ 4
◉ 5      ◉ 6

Other

○ Wireless Thermostat

◉ evohome built-in Sensor

Next

### Zone 1 evohome sensor



GUIDED CONFIGURATION    06:38

Use evotouch as the temperature sensor for Living room?
(evotouch must be located in this zone)

NO      YES
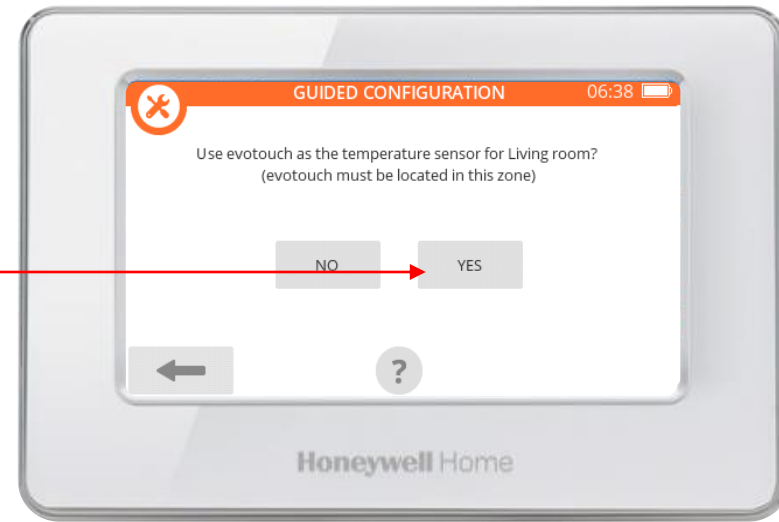
If yes, be aware that evohome is located in this zone!

resideo

# Binding evohome with HCC100 Zones

Zone configuration

**Assign Actuator**

Cancel

On the evohome, press the bind button to assign the actuator to Zone 1.

Waiting for binding signal

Next

---

**GUIDED CONFIGURATION**  06:48

Living room

Press BIND button on actuator(s)
Then press BIND button below

---

**GUIDED CONFIGURATION**  07:25

Living room

( 1 actuators bound 2 way)

Check the device, if unsuccessful go back to resend the BIND signal.

Honeywell Home

---

Cancel

**Success!**

**Zone 1 was assigned to evohome**

Next

---

Cancel

**Zone 1**

Name
**Living Room**

Outputs
**7      9**

Parameters
**Heat and Cool
Standard Thermostat**

Configure Parameter

Next

evohome name is synchronized

resideo

# Binding Wired HCC100 Zone with evohome

Zone Configuration

**Cancel**

**Select Thermostat** (?)

Choose what thermostat to use for **Zone 2**

Detected Wired Thermostats

- ● **1**        ○ 2
- ○ 3        ○ 4
- ○ 5        ○ 6

Other

- ○ **Wireless Thermostat**
- ○ Evohome built-in Sensor

Next

**Cancel**

**Sensor Binding**

On the evohome, go to the sensor binding screen for **Zone 2**.

Bind

Zone 2 Wired thermostat selected

GUIDED CONFIGURATION   07:36

Dining room

Press BIND button on sensor

GUIDED CONFIGURATION   07:43

SUCCESS

Binding signal was received properly.

**Cancel**

**Success!**

**Zone 2 was assigned to evohome**

Next

resideo

# Binding Wired HCC100 Zone with evohome

Zone configuration

**Cancel**

**Assign Actuator**

On the evohome, press the bind button to assign the actuator to Zone 2.



Waiting for binding signal

Zone 2
Wired stat



GUIDED CONFIGURATION    08:00

Dining room

Press BIND button on actuator(s)
Then press BIND button below

?

GUIDED CONFIGURATION    08:03

Dining room

( 1 actuators bound 2 way)

Check the device, if unsuccessful go back to resend the BIND signal.

**Cancel**

**Success!**

**Zone 2 was assigned to evohome**



Next

resideo

# Binding Wired HCC100 Zone with evohome

Zone
Configuration

**Outputs** ?        Cancel

Select the outputs included in **Zone 2**

☐ 1     ☐ 2
☐ 3     ☐ 4
☐ 5     ☐ 6
☐ 7 (Zone 1)   ☑ 8
☐ 9 (Zone 1)   ☐ 10
☐ 11    ☐ 12
☐ 13    ☐ 14
☐ 15    ☐ 16
☐ 17    ☐ 18

**Next**

Zone 2

Output 8
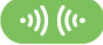selected

---

←           Cancel

**Zone 2**

Name
**Dining Room**

Outputs
**8**

Parameters
**Heat and Cool**
**Standard Thermostat**

( Configure Parameter )

**Next**

Overview
Zone 2

---

Done!   Zone 1
Living Room

evohome built-in
Sensor

Done!   Zone 2
Dining Room

Wired Stat

Zone 3
Kitchen

Wireless Stat

---

Now Zone 3
Wireless

resideo

# Binding Wireless HCC100 Zone with evohome

twist to 'Co'

Press here for 10 sec to activate 'Bo' binding wireless thermostat

Press sensor key briefly to send the binding signal

## Zone configuration

**Select Thermostat** (?)

Choose what thermostat to use for **Zone 3**

Detected Wired Thermostats

○ 1      ○ 2
○ 3      ○ 4
○ 5      ○ 6

Other

● **Wireless Thermostat**

○ Evohome built-in Sensor

Cancel

Next

Zone 3
Wireless stat
Wireless selected

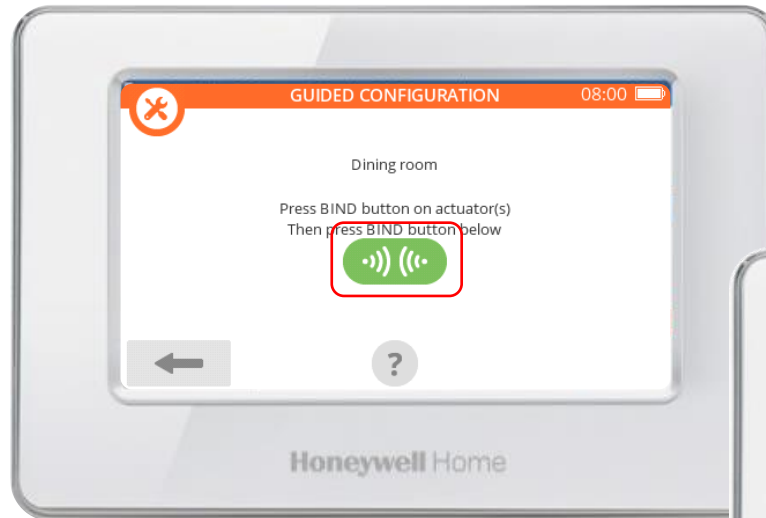**Assign Actuator**

On the evohome, press the bind button to assign the actuator to **Zone 3**.

Cancel

Waiting for binding signal

Bind

**Success!**

**Zone 3 was assigned to evohome**

Cancel

Next
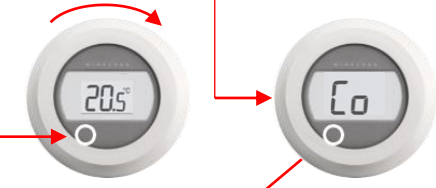
# Configuration Completed
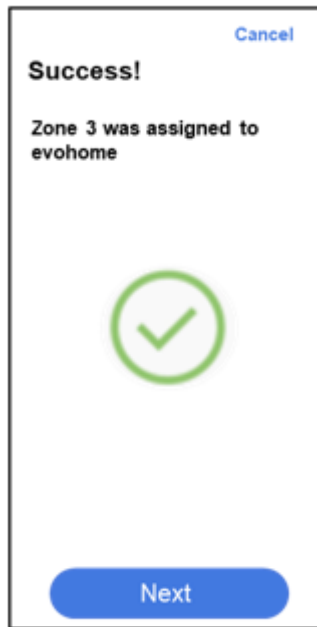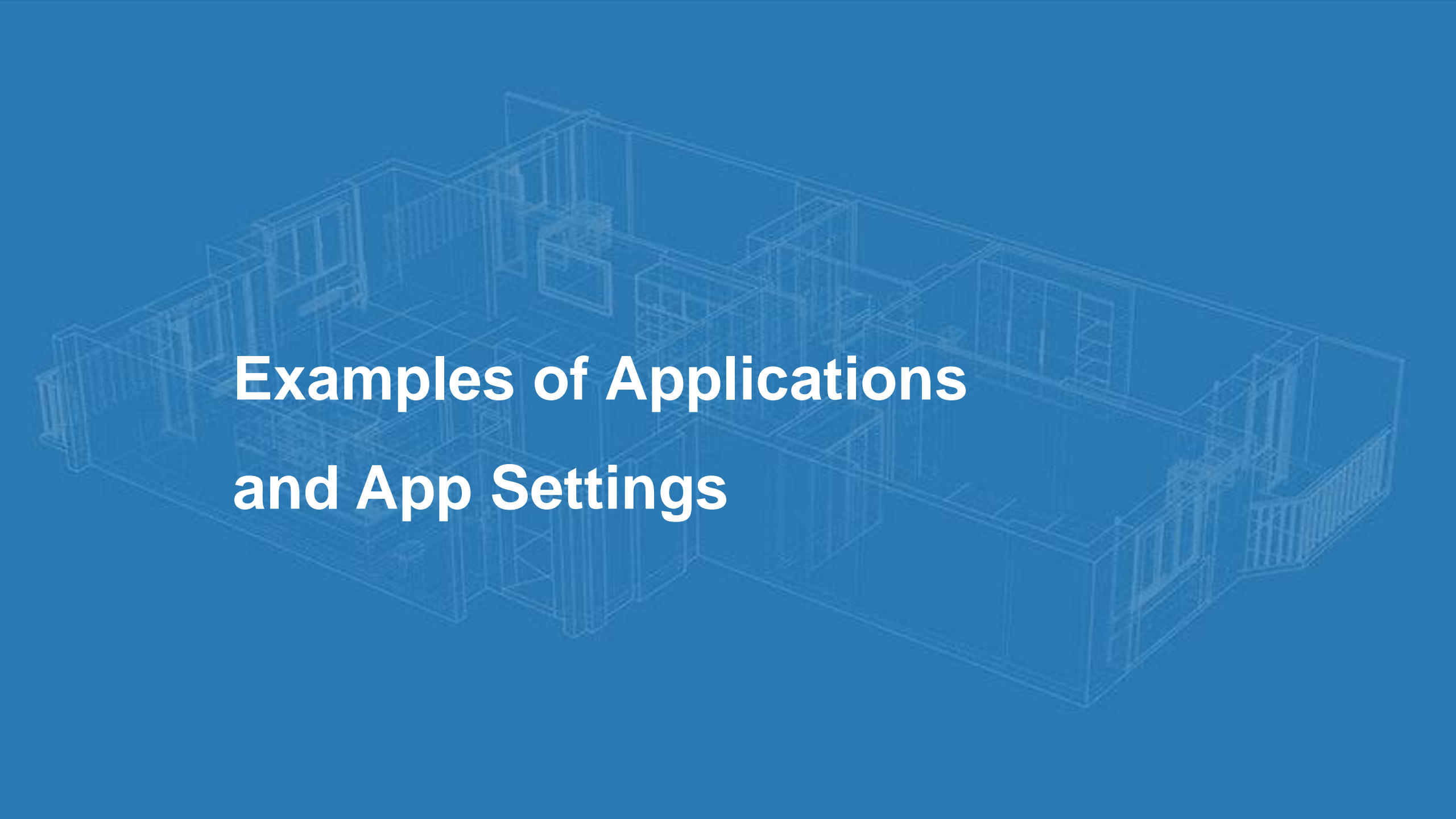

Zone configuration — Zone 3 Wireless Stat


Guided configuration completed




Zone configuration completed

resideo
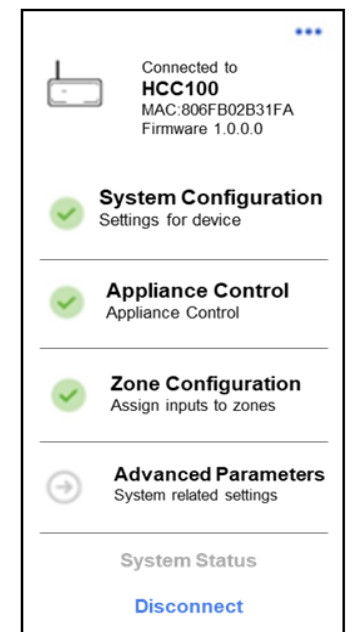
**Examples of Applications and App Settings**

# Applications

A wide range of different applications are available.

**WIRED**
Cost-effective solution for those who prefer wired thermostats or need to replace existing system. HCC100 supports up to 6 wired zones and the room thermostat makes it even easier to use.

**HYBRID**
A combination of wired and wireless adds flexibility to the system. The room thermostat will cover both needs, without compromising on quality or benefits.

**WIRELESS**
Wireless option is available for those who want rid of complicated wiring. HCC100 supports up to 8 wireless temperature zones. Configuration is fast and intuitive through the Resideo Pro app.

**EVOHOME**
Gives control of all rooms through one device, with touch-screen and remote control via the app. Its smart features provide perfect comfort, while reducing energy consumption.
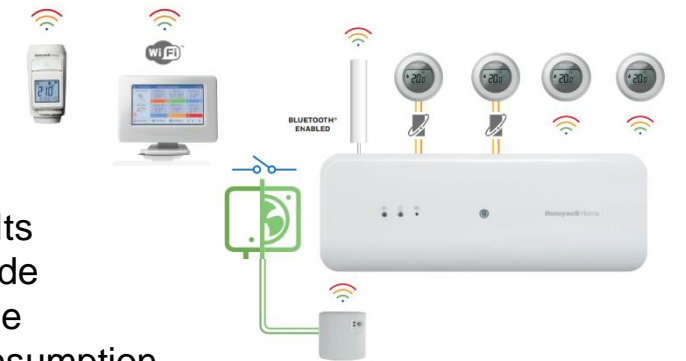
The HCC100 supports up to 20 thermo actuators (free configurable)

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# Wired, Wireless, or Mixed Zone Control, Heat Only

## Application 1.a.

System description:

- System can be configured as Heat only, Cool only or Heat/Cool.

- Room sensors can be wired (OpenTherm) or wireless.

- Pump can be controlled using the 230Vac integrated relay.

resideo
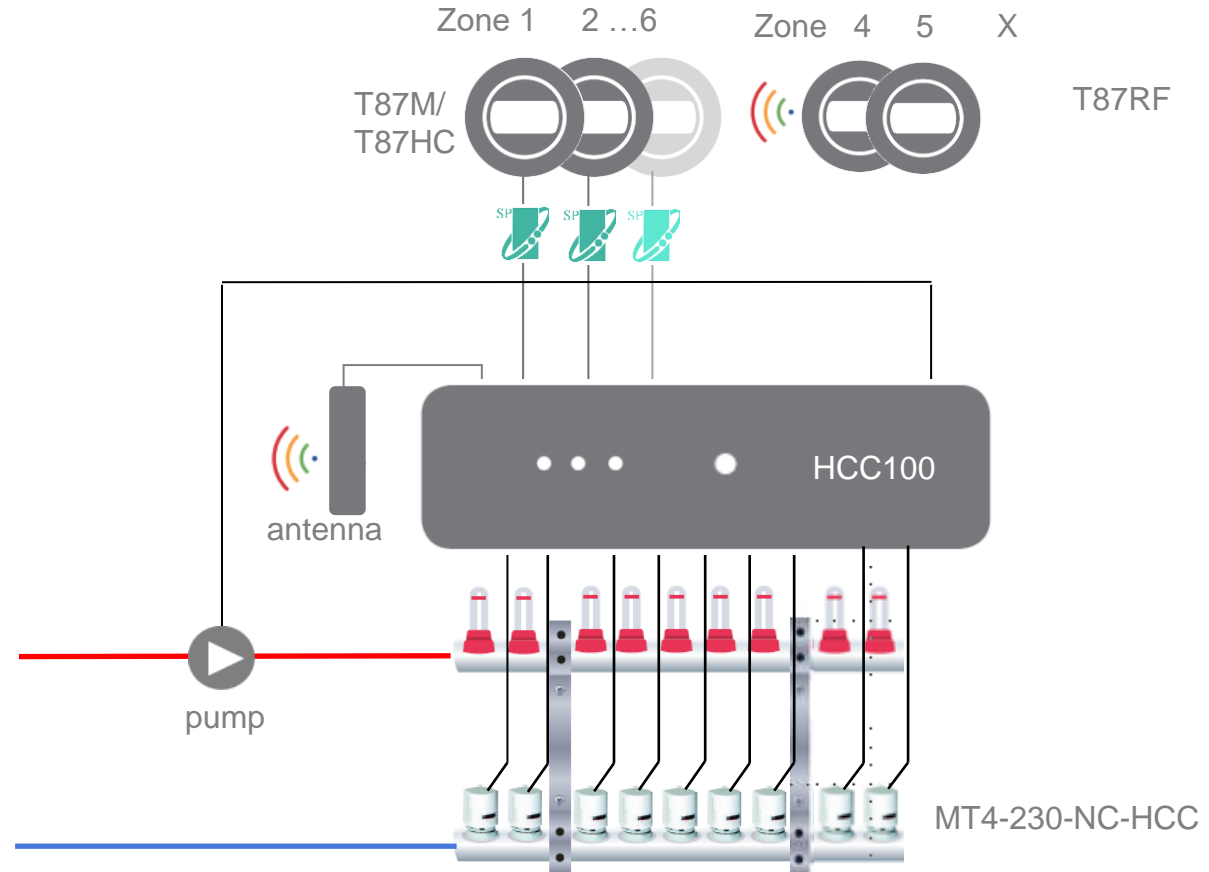
# Application 1.a.

## App settings
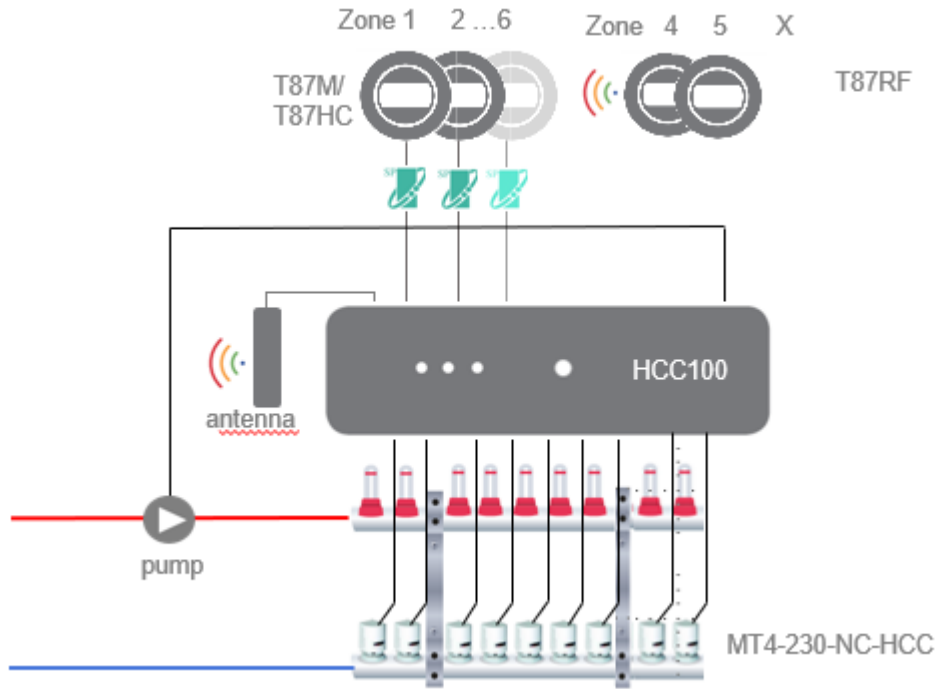


### System configuration

- Evohome: No
- System Type: Heat Only
- Thermo Actuator: Normally Closed
- Device Type: Stand alone Device
- Appliance Control: No

### Appliance Control

No settings needed

### Zone Configuration

- Select the number of wireless zones
- Select actuators for Zone 1
- Select a name for Zone 1
- Select the Outputs for Zone 1
- Repeat this process with all Zones
- Edit Zones to modify configuration or Zone settings

resideo

# Wired, Wireless, or Mixed Zone Control, Heat/Cool

**Application 1.b.**

System description:

- System can be configured as Heat only, Cool only, or Heat/Cool.

- Room sensors can be wired (OpenTherm) or wireless.

- Pump can be controlled using the 230 VAC integrated relay.

- evohome can be added to provide time programs to all zones and remote access using evohome Wi-Fi and the Total Connect app.



Zone 1    2 …6      Zone   4    5    X

T87M/
T87HC

T87RF/
DTS92

Evohome
(max. 12 zones)

antenna

HCC100

pump

MT4-230-NC-HCC

# Application 1.b.

## App Settings



**System configuration**

- evohome: Yes
- System Type: Heat/Cool
- Thermo Actuator: Normally Closed
- Changeover: Heat/Cool mode via evohome
- Device Type: Standalone Device
- Appliance Control: No

**Appliance Control**

No settings needed

**Zone Configuration**

- Select the number of wireless zones
- Prepare Evohome (Guided Configuration)
- Select actuators for Zone 1
- Select a name for Zone 1
- Select the Outputs for Zone 1
- Repeat this process with all Zones
- Edit Zones to modify configuration or Zone settings

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# Wired, Wireless, or Mixed Zone Control, Heat Only, Boiler On/Off Wired Control

## Application 2.a

- On/off boiler – heat only

- Appliance demand control by HCC100 (relay)

- evohome zone control

resideo

# Application 2.a

## App Settings



### System configuration

- Evohome: Yes
- System Type: Heat Only
- Thermo Actuator: Normally Closed
- Device Type: Stand alone Device
- Appliance Control: Yes

### Appliance Control

- Heating Boiler
- Wired output

### Zone Configuration

- Select the number of wireless zones
- Prepare Evohome (Guided Configuration)
- Select "Underfloor heating"
- Select the number of zones
- Select Thermostat for Zone 1
- Edit or confirm zone names
- Select the outputs for Zone 1
- Repeat this process with all Zones
- Edit Zones to modify configuration or Zone settings

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# Wired, Wireless, or Mixed Zone Control, Heat Only, Boiler On/Off Wireless Control

## Application 2.b

- On/off boiler – heat only

- Appliance demand control by HCC100 (relay)

- evohome zone control

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# Application 2.b

## App Settings
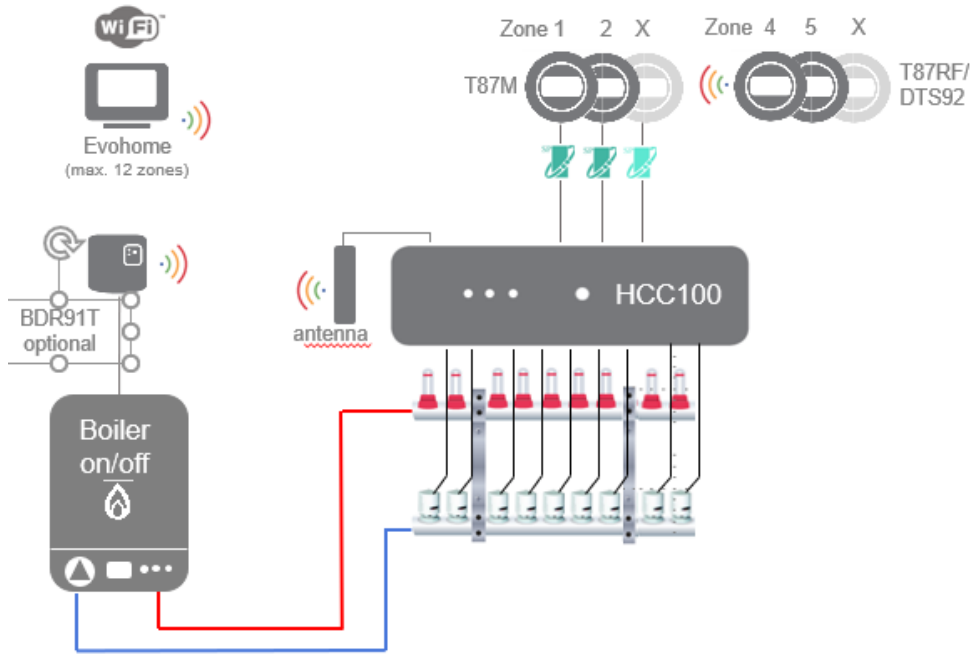


### System configuration

- Evohome: Yes
- System Type: Heat Only
- Thermo Actuator: Normally Closed
- Device Type: Stand alone Device
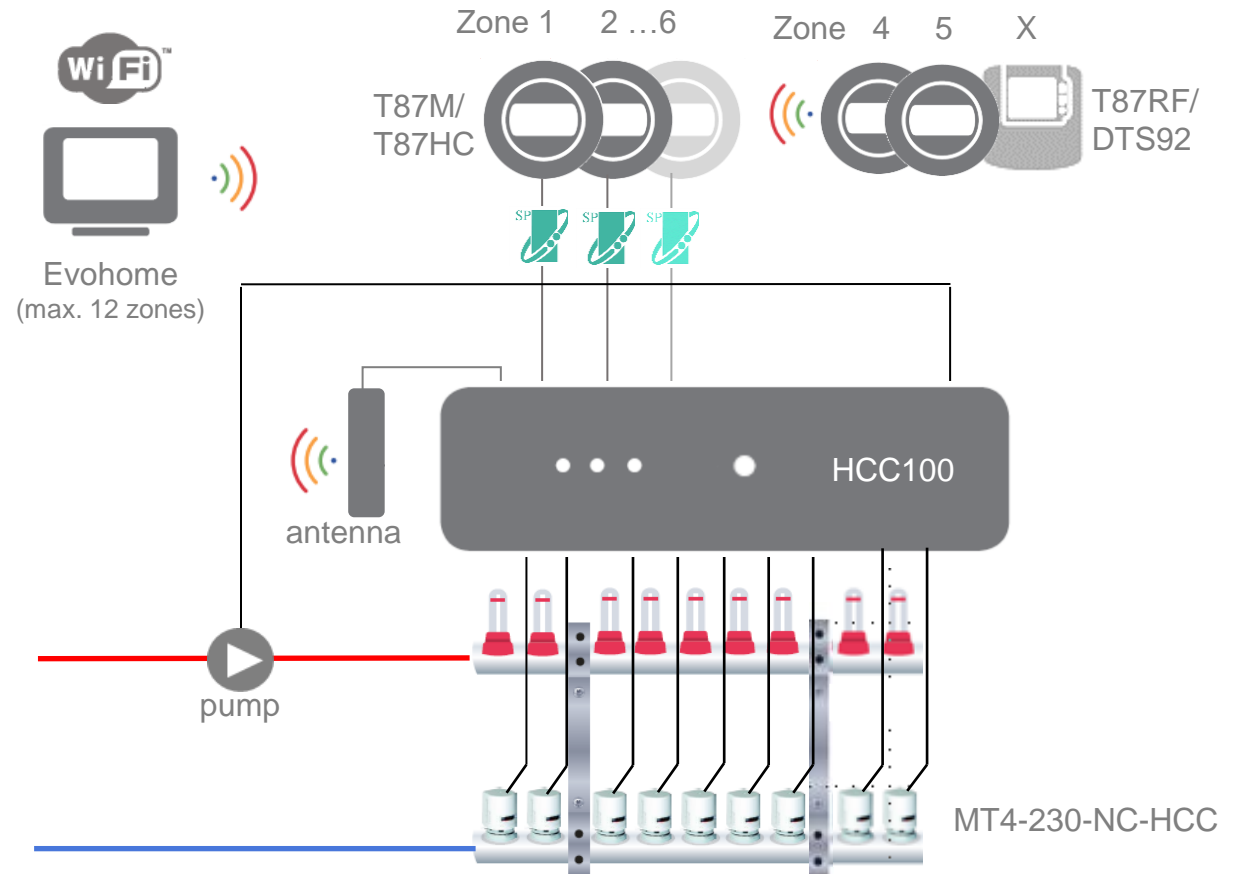- Appliance Control: Yes

### Appliance Control

- Heating Boiler
- Wireless

### Zone Configuration

- Select the number of wireless zones
- Prepare Evohome
  (Guided Configuration)
- Select "Underfloor heating"
- Select the number of zones
- Select Thermostat for Zone 1
- Edit or confirm zone names
- Select the outputs for Zone 1
- Repeat this process with all Zones
- Edit Zones to modify configuration or
  Zone settings
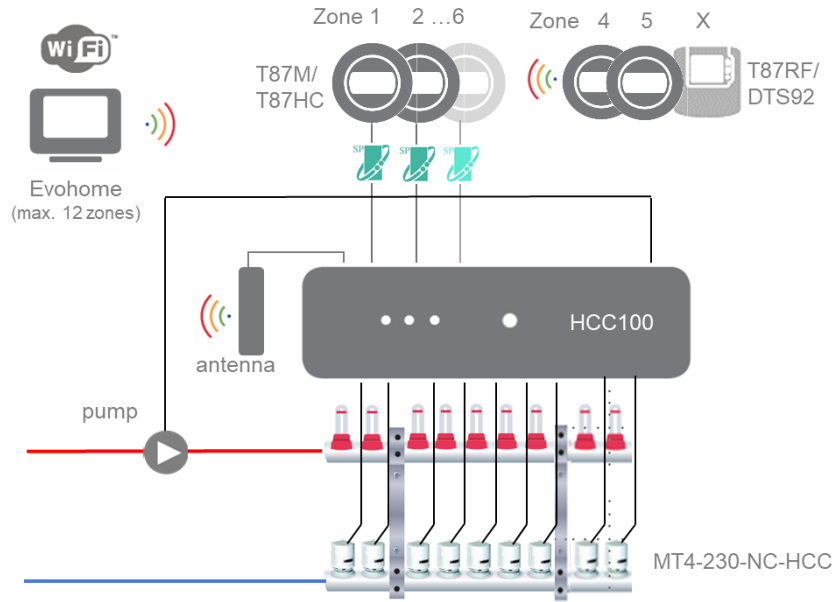
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# Wired, Wireless, or Mixed Zone Control, Heat only, Boiler OpenTherm

## Application 2.c

- OpenTherm boiler – heat only

- Appliance demand control by HCC100 (relay)

- evohome zone control

# Application 2.c

## App Settings
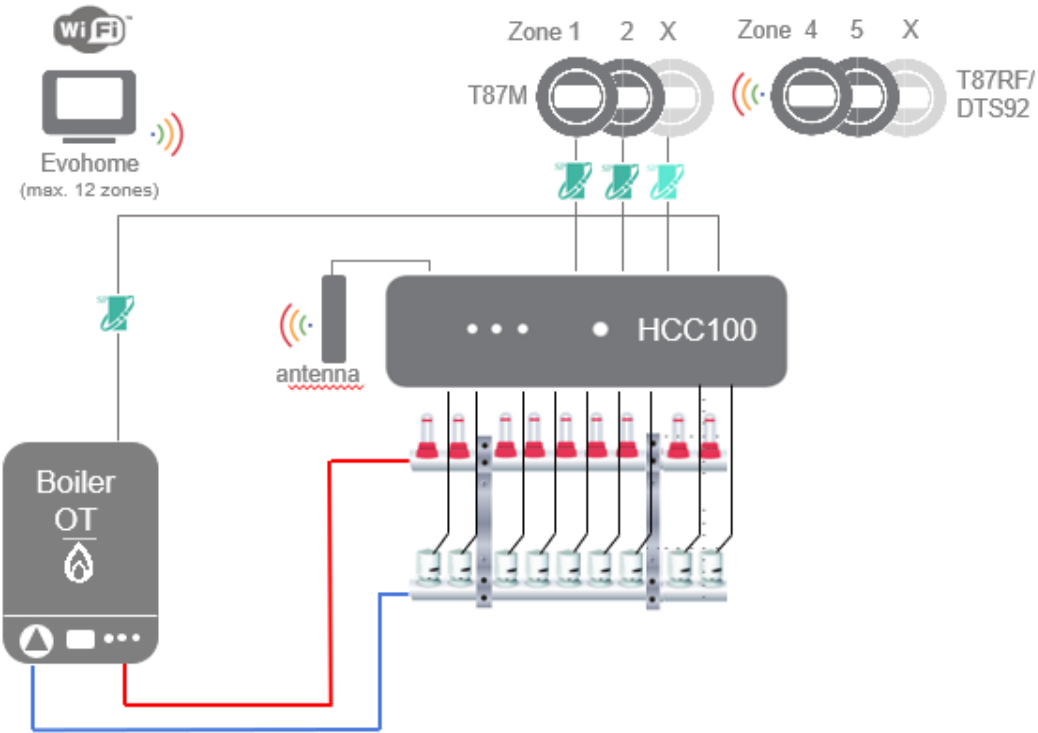


### System configuration

- Evohome: Yes
- System Type: Heat Only
- Thermo Actuator: Normally Closed
- Device Type: Stand alone Device
- Appliance Control: No

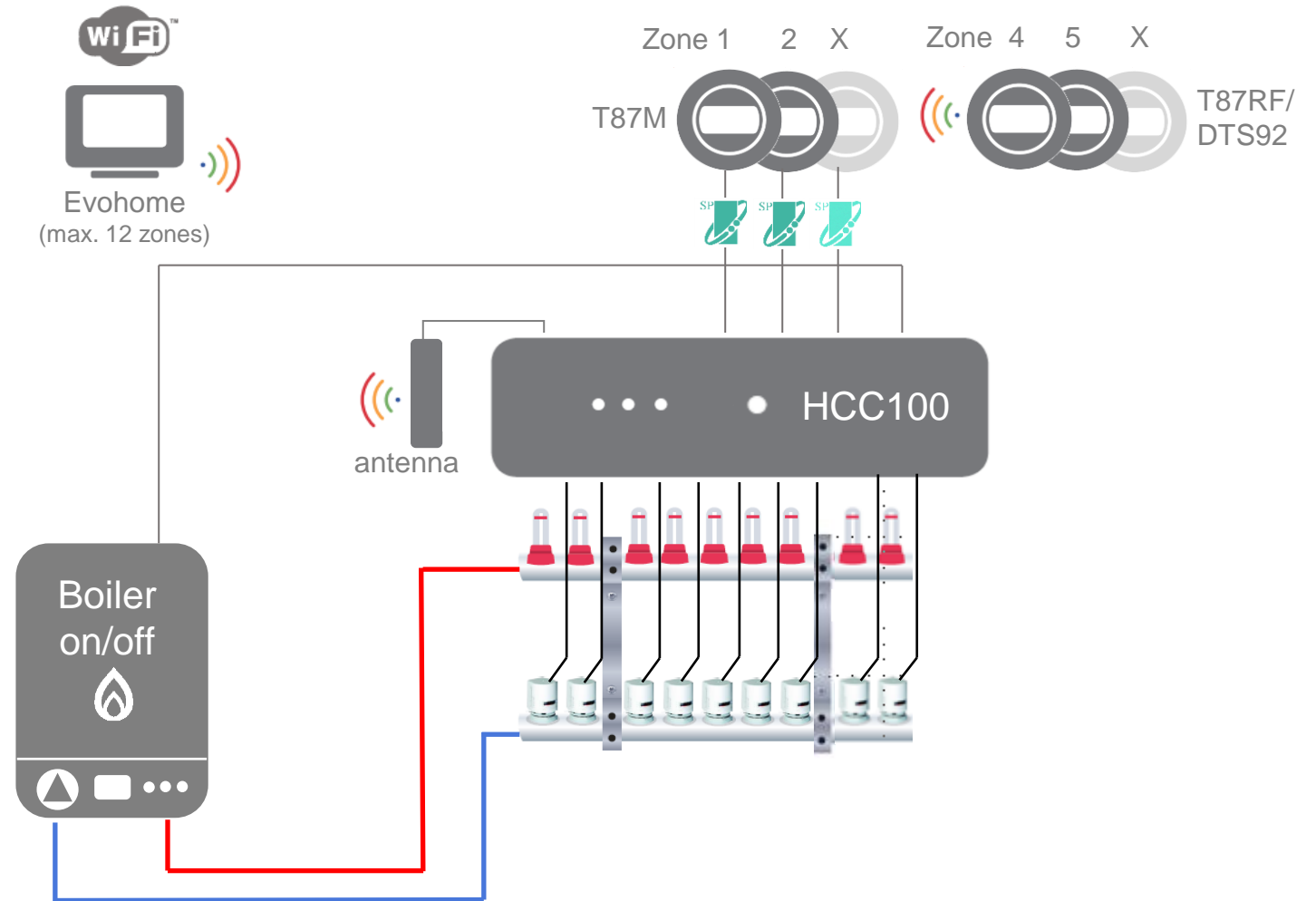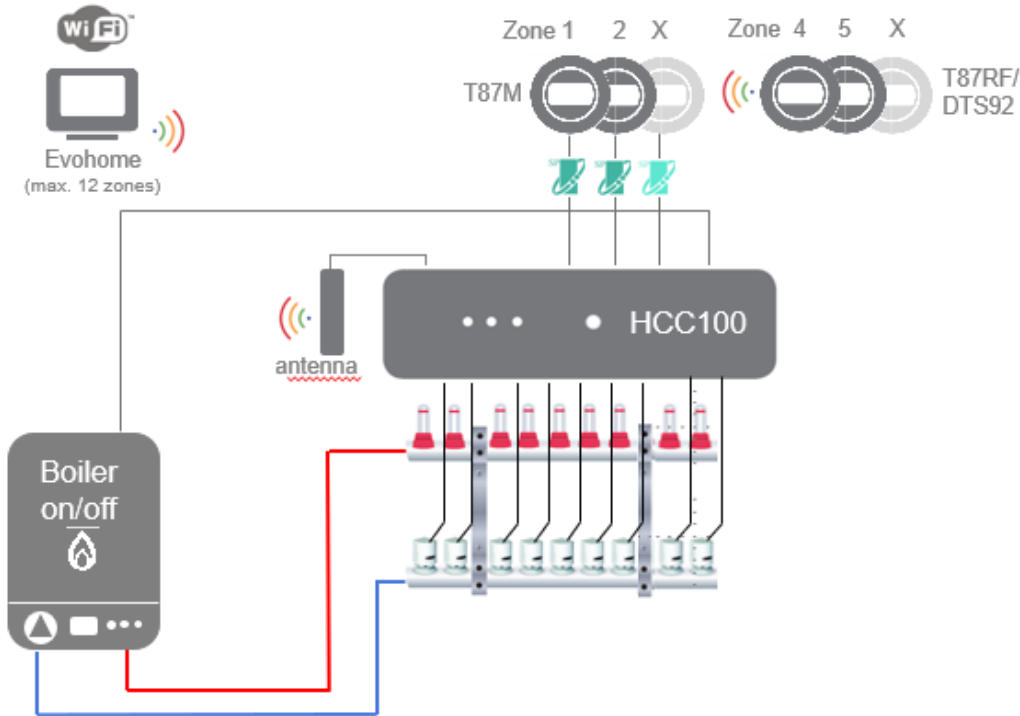### Appliance Control

- Heating Boiler
- Wired output

### Zone Configuration
- Select the number of wireless zones
- Prepare Evohome
  (Guided Configuration)
- Select "Underfloor heating"
- Select the number of zones
- Select Thermostat for Zone 1
- Edit or confirm zone names
- Select the outputs for Zone 1
- Repeat this process with all Zones
- Edit Zones to modify configuration or
  Zone settings

# Boiler On/Off OTC Control, Heat Only, Outdoor Compensated Supply Water Temperature

**Application 2.d**

- On/off boiler – heat only

- Heat demand control by HCC100 (relay) with outdoor compensation (optional)

- evohome zone control

- Supply water sensor is placed in the supply water pipe (direct contact with a <u>metal</u> part of the pipe)

resideo
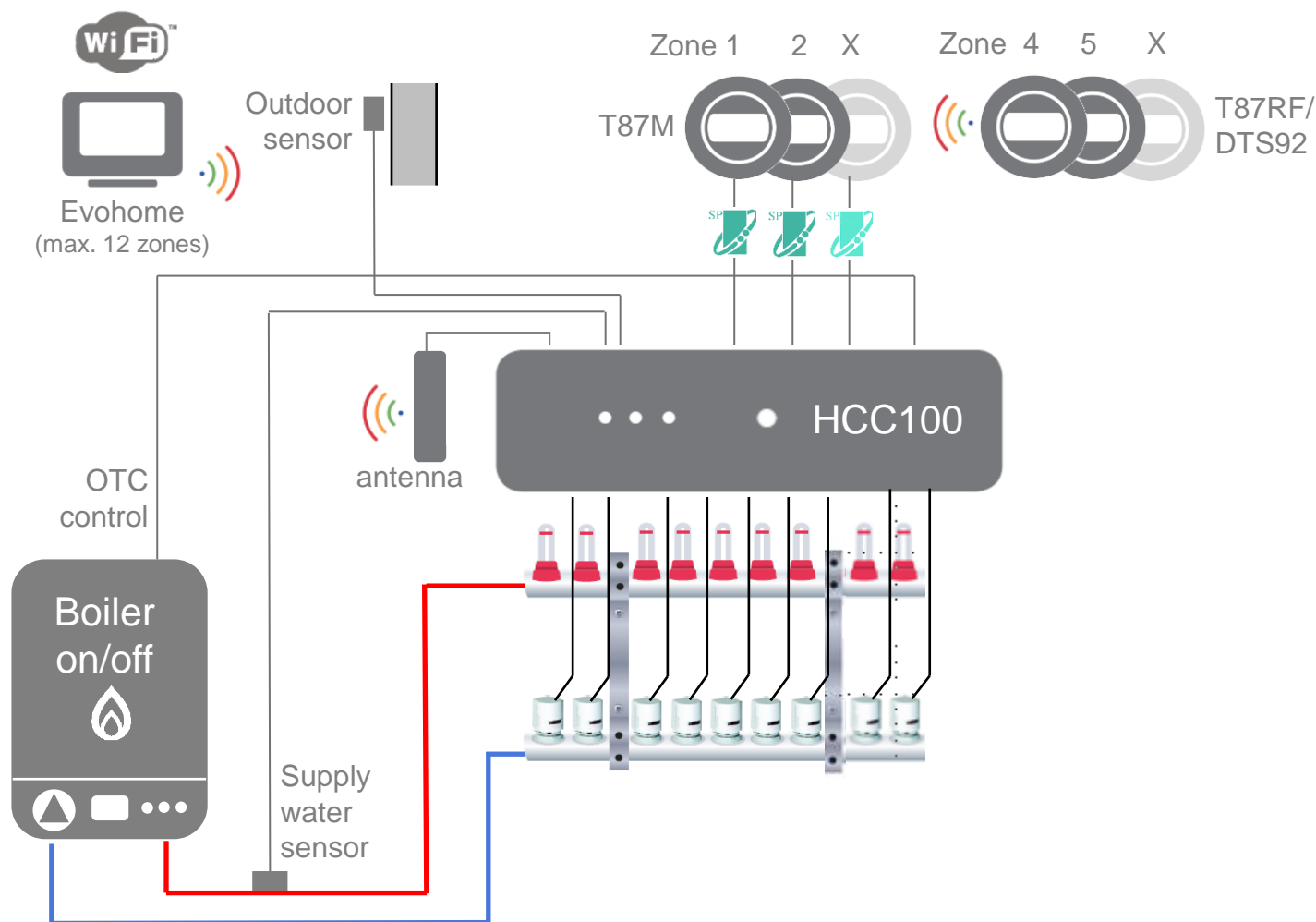
# Application 2.d

## App Settings
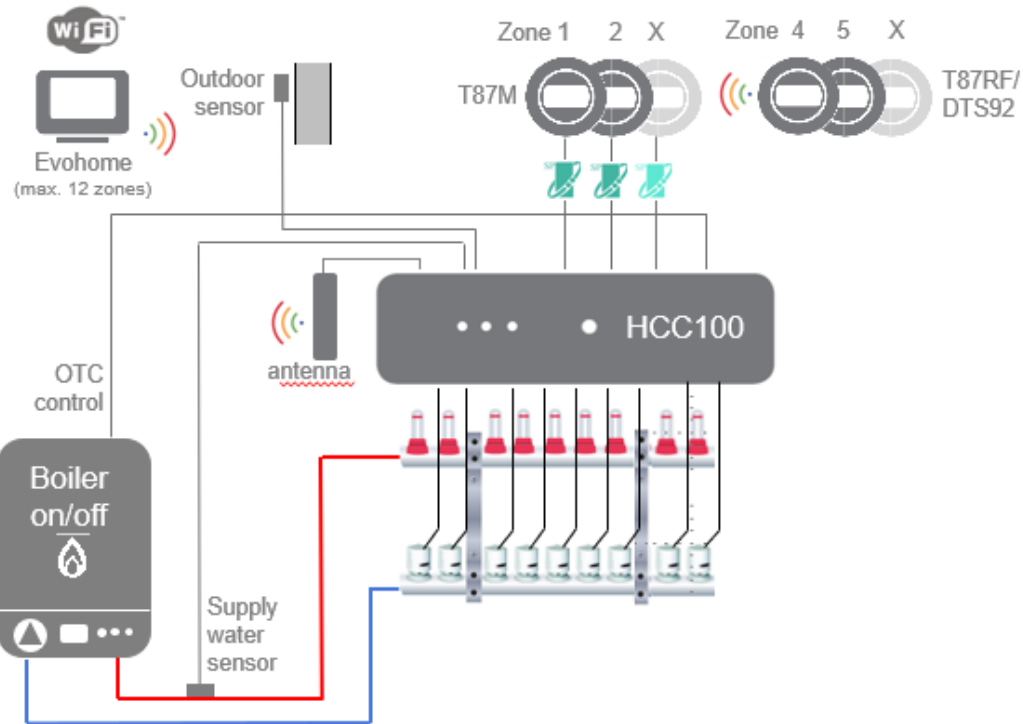


### System configuration

- Evohome: Yes
- System Type: Heat Only
- Thermo Actuator: Normally Closed
- Device Type: Stand alone Device
- Appliance Control: Yes

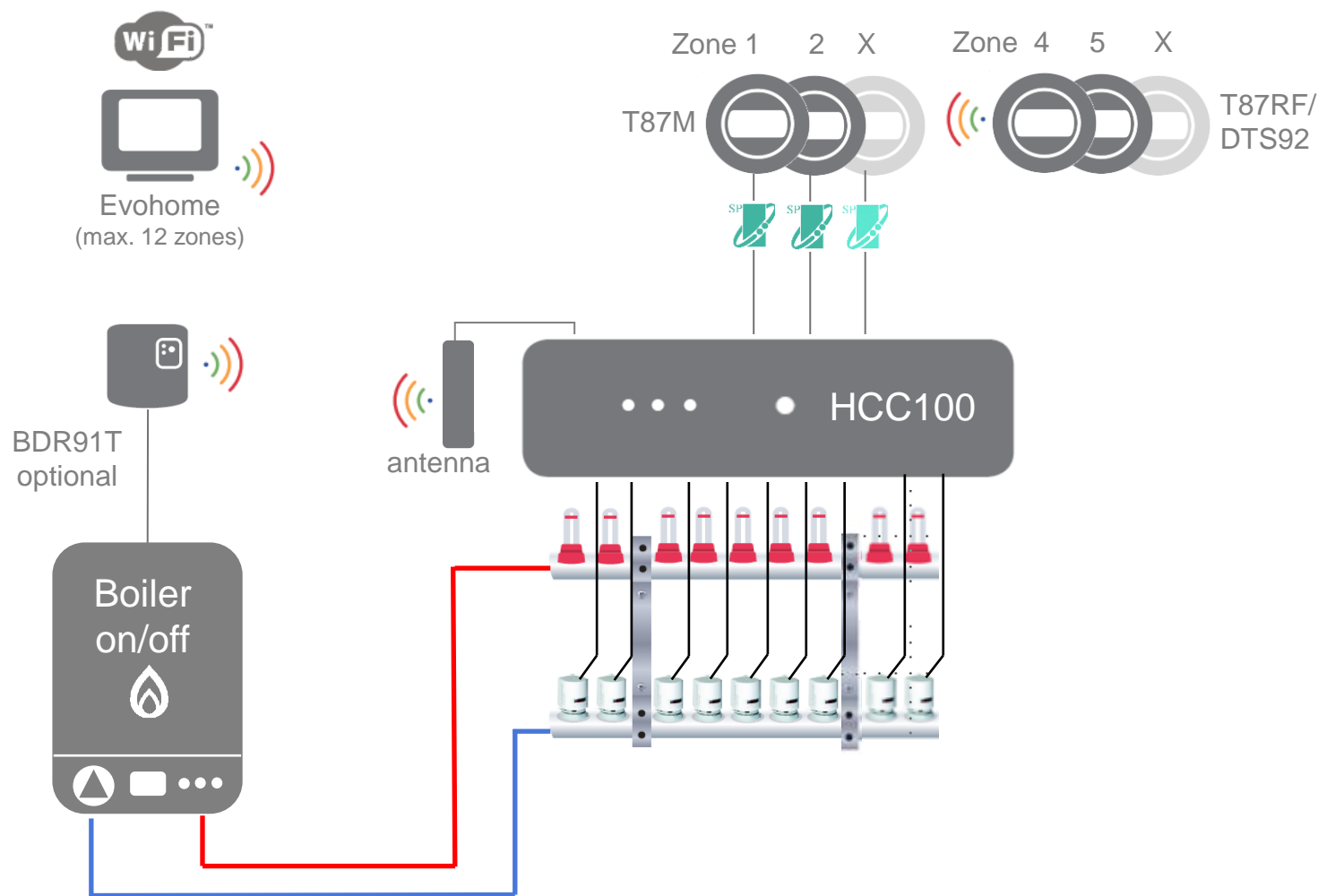### Appliance Control

- Heating Boiler
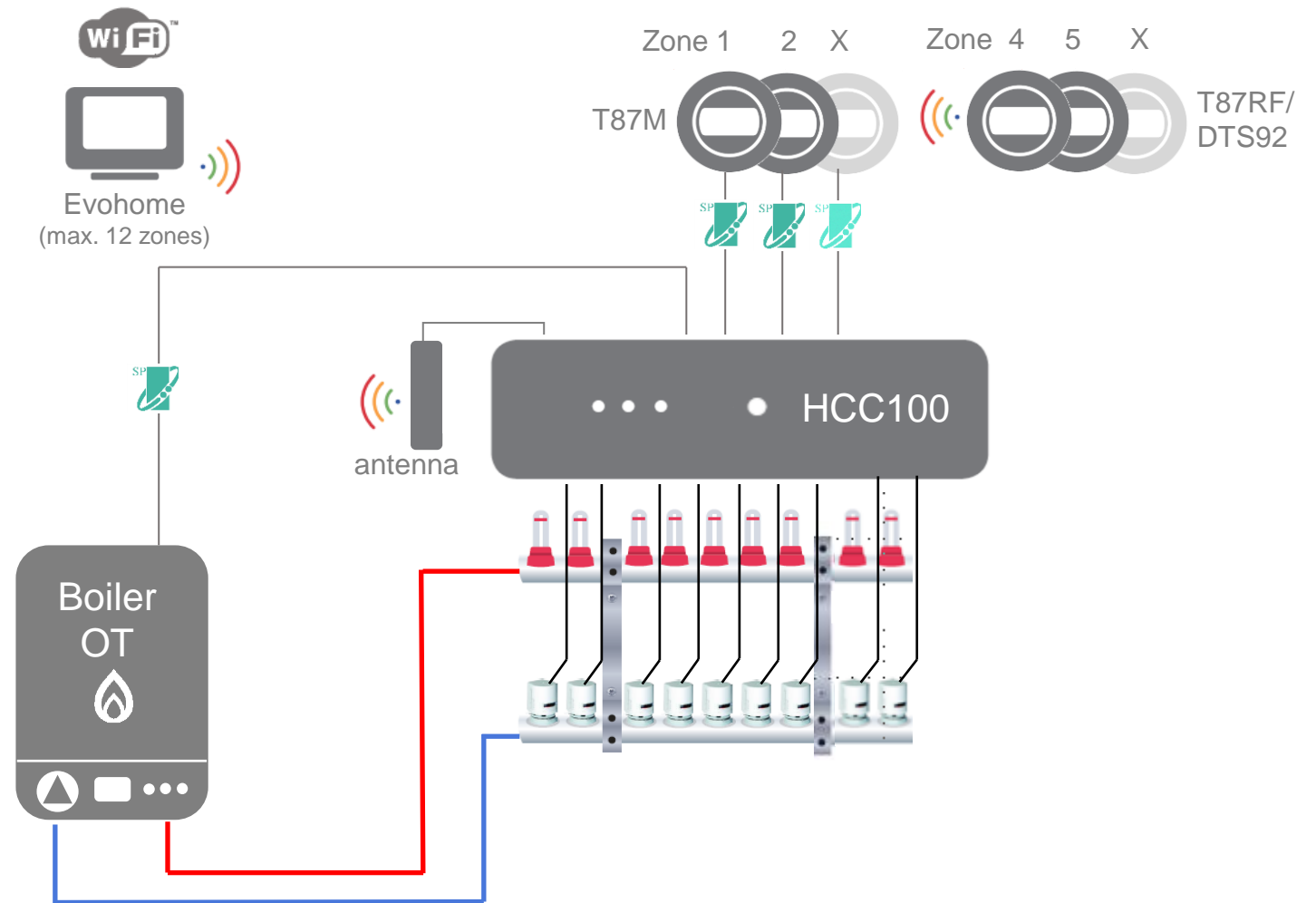- Wired output

### Zone Configuration
- Select the number of wireless zones
- Prepare Evohome
  (Guided Configuration)
- Select "Underfloor heating"
- Select the number of zones
- Select Thermostat for Zone 1
- Edit or confirm zone names
- Select the outputs for Zone 1
- Repeat this process with all Zones
- Edit Zones to modify configuration or Zone settings

### Advanced Parameters

- Maximum Supply Water Temp: 40ºC
- Minimum Supply Water Temp: 28ºC
- OTC Heating Curve Set: 16
- On/OFF switch differential: 5ºC

resideo

# Heat Pump with Buffer Storage - On/Off Control, Heating and Cooling and H/C Changeover by Thermostat

## Application 3.a

- Heat pump on/off control (with OTC)

- Heat/cool change-over: Thermostat and HCC100 relay contact (output)

- Heat and cool demand controlled by HCC100 (relays)

resideo
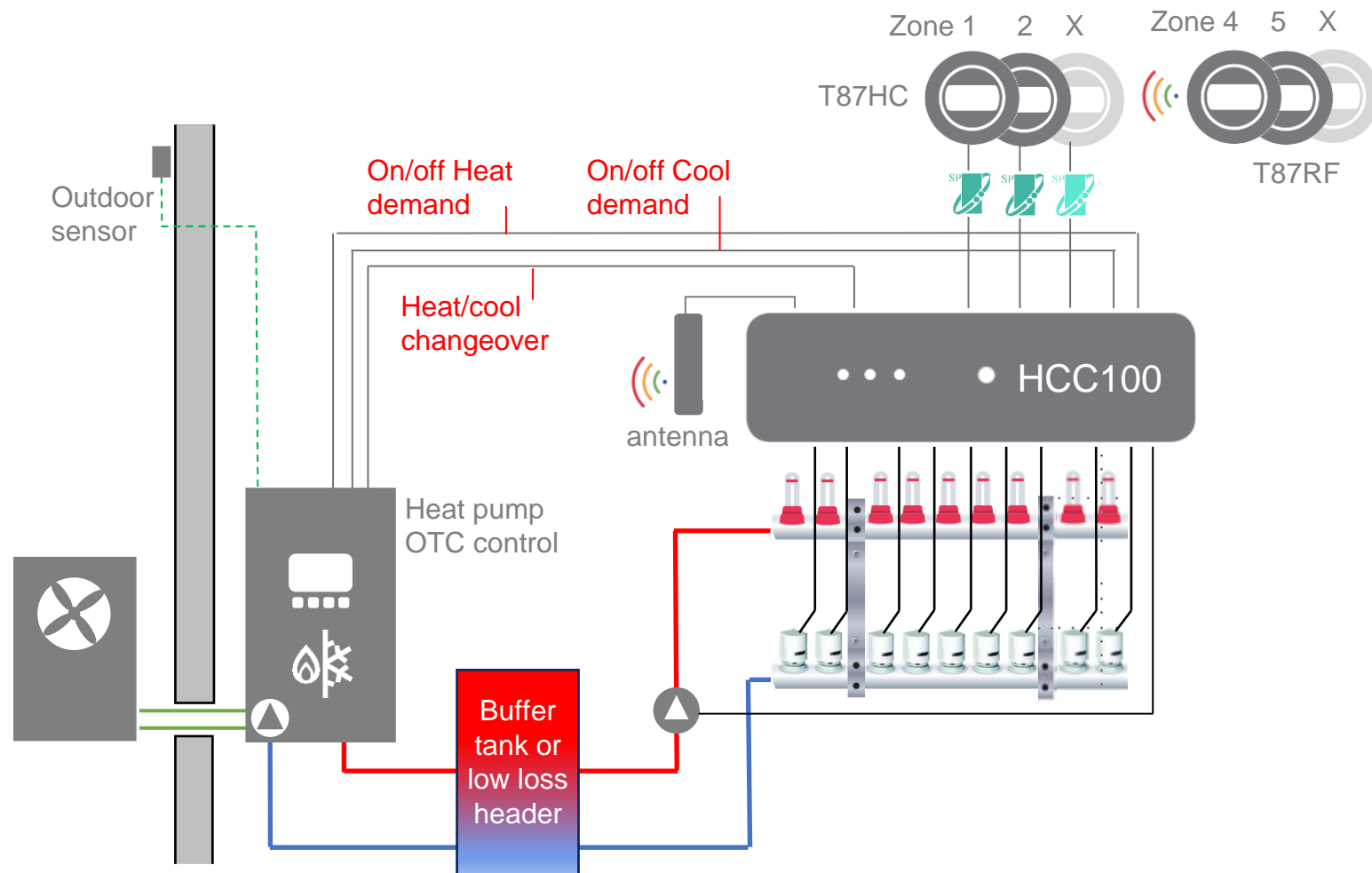
# Application 3.a

## App Settings
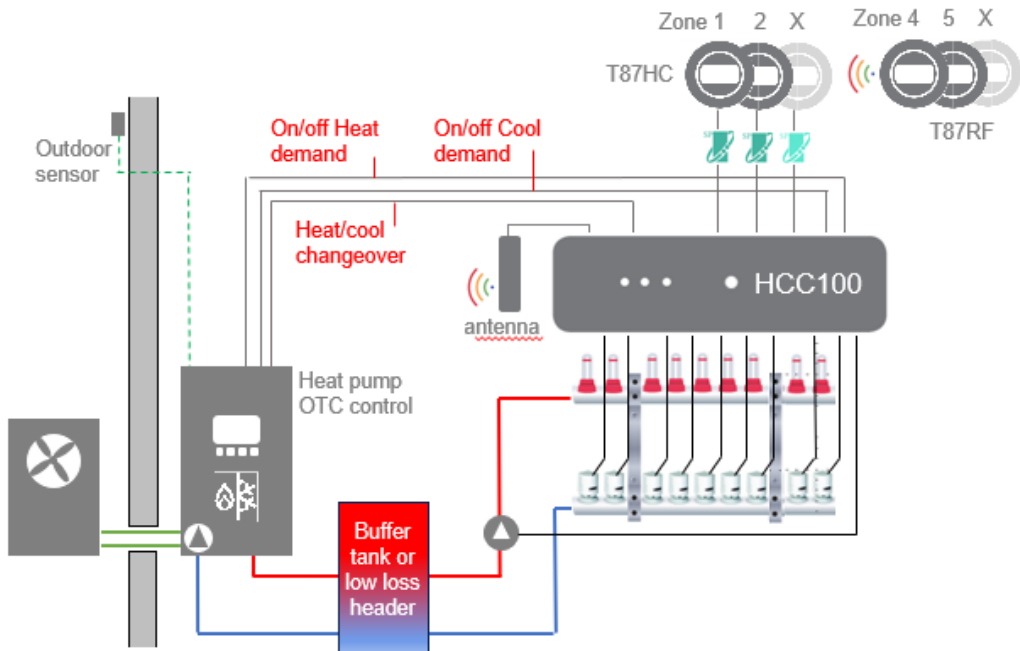


### System configuration

- Evohome: No
- System Type: Heat and Cool
- Thermo Actuator: Normally Closed
- Changeover: Heat/Cool mode output used
- Device Type: Stand alone Device
- Appliance Control: Yes

### Appliance Control

- Heat Pump
- Heat and Cool demand outputs
- Heat demand: Wired output
- Cool demand: Wired output

### Zone Configuration

- Select the number of wireless zones
- Select actuators for Zone 1
- Select a name for Zone 1
- Select the Outputs for Zone 1
- Repeat this process with all Zones
- Edit Zones to modify configuration or Zone settings

resideo

# Heat Pump with Buffer Storage - On/Off Control, Heating and Cooling and H/C Changeover by Heat Pump

## Application 3.b

- Heat pump on/off control (with OTC)

- Heat/cool change-over by heat pump with external contact (or pipe thermostat)

- Heat and cool demand controlled by HCC100

Zone 1  2  X          Zone 4  5  X

T87HC

T87RF

Outdoor sensor

On/off Heat demand

On/off Cool demand

Heat/cool changeover

antenna

HCC100

Heat pump OTC control

Buffer tank or low loss header

resideo

# Application 3.b

## App Settings
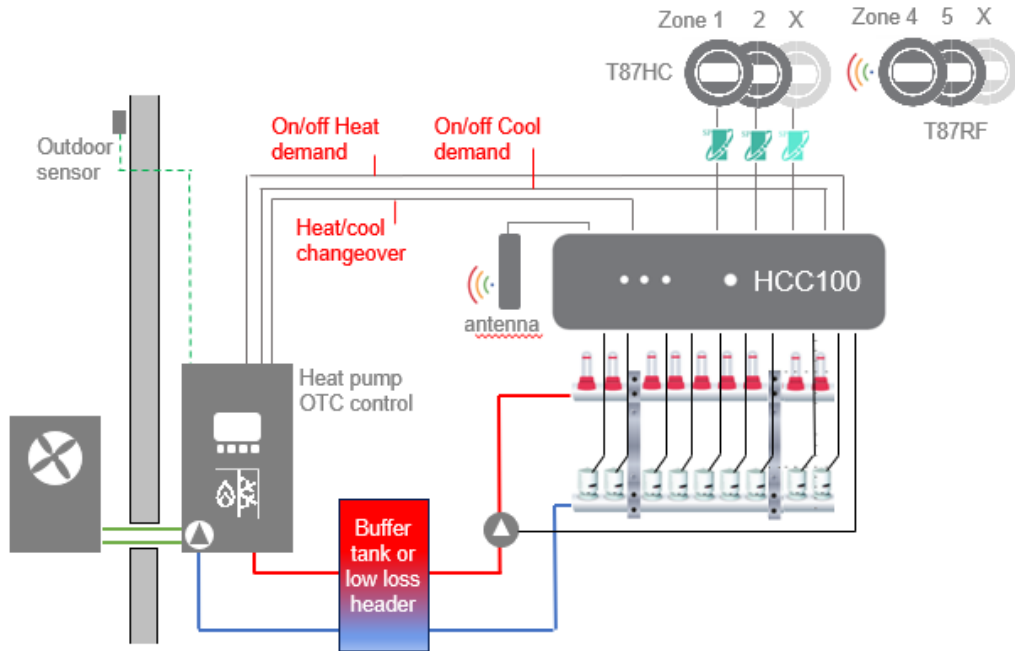


### System configuration

- Evohome: No
- System Type: Heat and Cool
- Thermo Actuator: Normally Closed
- Changeover: External heat/cool input used
- Device Type: Stand alone Device
- Appliance Control: Yes

### Appliance Control

- Heat Pump
- Heat/ cool mode output used
- Heat and Cool demand outputs
- Heat demand: Wired output
- Cool demand: Wired output

### Zone Configuration

- Select the number of wireless zones
- Select actuators for Zone 1
- Select a name for Zone 1
- Select the Outputs for Zone 1
- Repeat this process with all Zones
- Edit Zones to modify configuration or Zone settings

# Cascading System with Heat Pump On/Off Control, Heating and Cooling, changeover by Thermostat

## Application 4

- Multiple HCC100 controllers (max. 3)
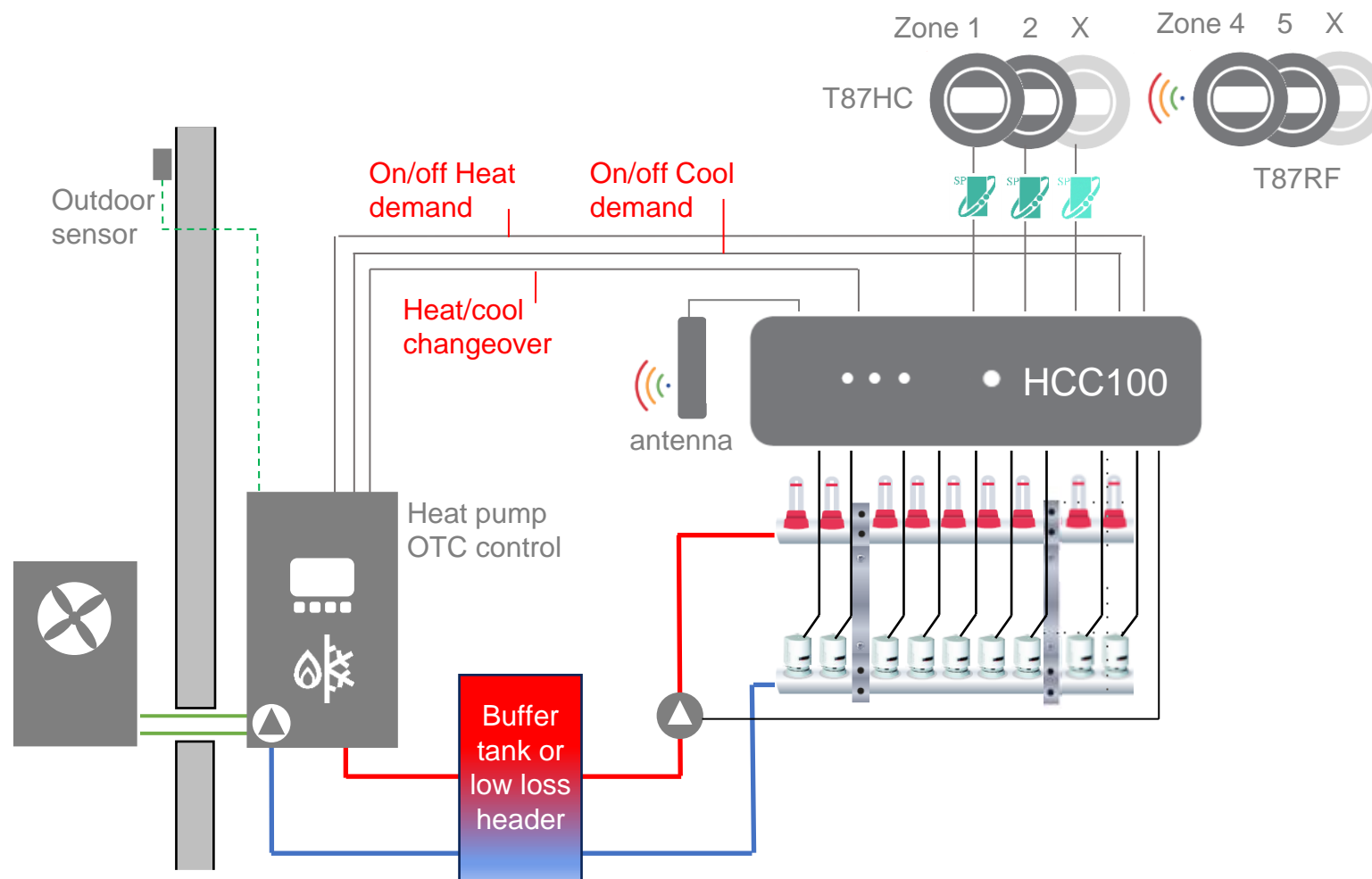
- Heat pump on/off control (with OTC)

- Heat/cool changeover by thermostat and HCC100 relay contact (output)

- On/off demand controlled (heat and cool relays)

- Wired or wireless link between controllers

- Centralized or individual pump

resideo

# Application 4

## App Settings
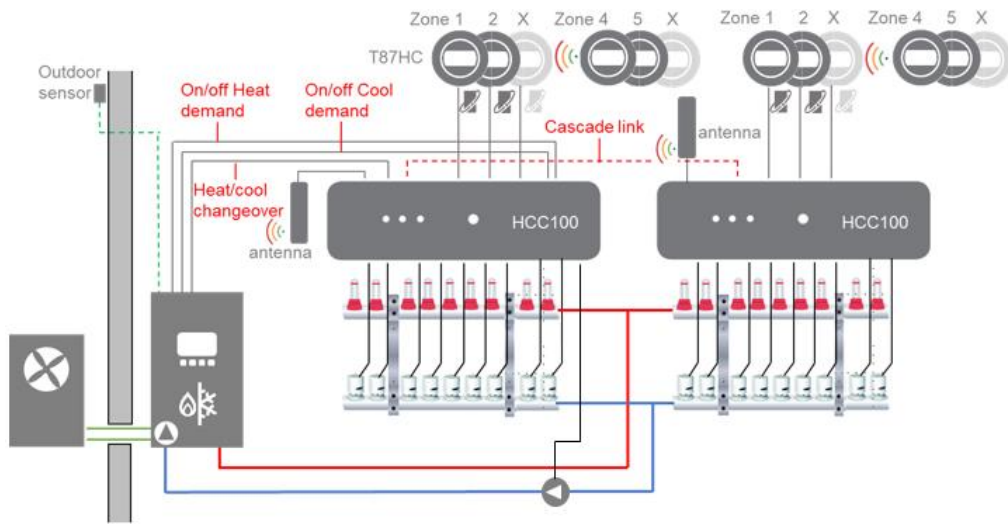


### System configuration

- Evohome: No
- System Type: Heat and Cool
- Thermo Actuator: Normally Closed
- Changeover: Heat/Cool mode output used
- Device Type: Cascaded 2 Devices
- Appliance Control: Yes

### Appliance Control

- Heat Pump
- Heat and Cool demand outputs
- Heat demand: Wired output
- Cool demand: Wired output

### Zone Configuration
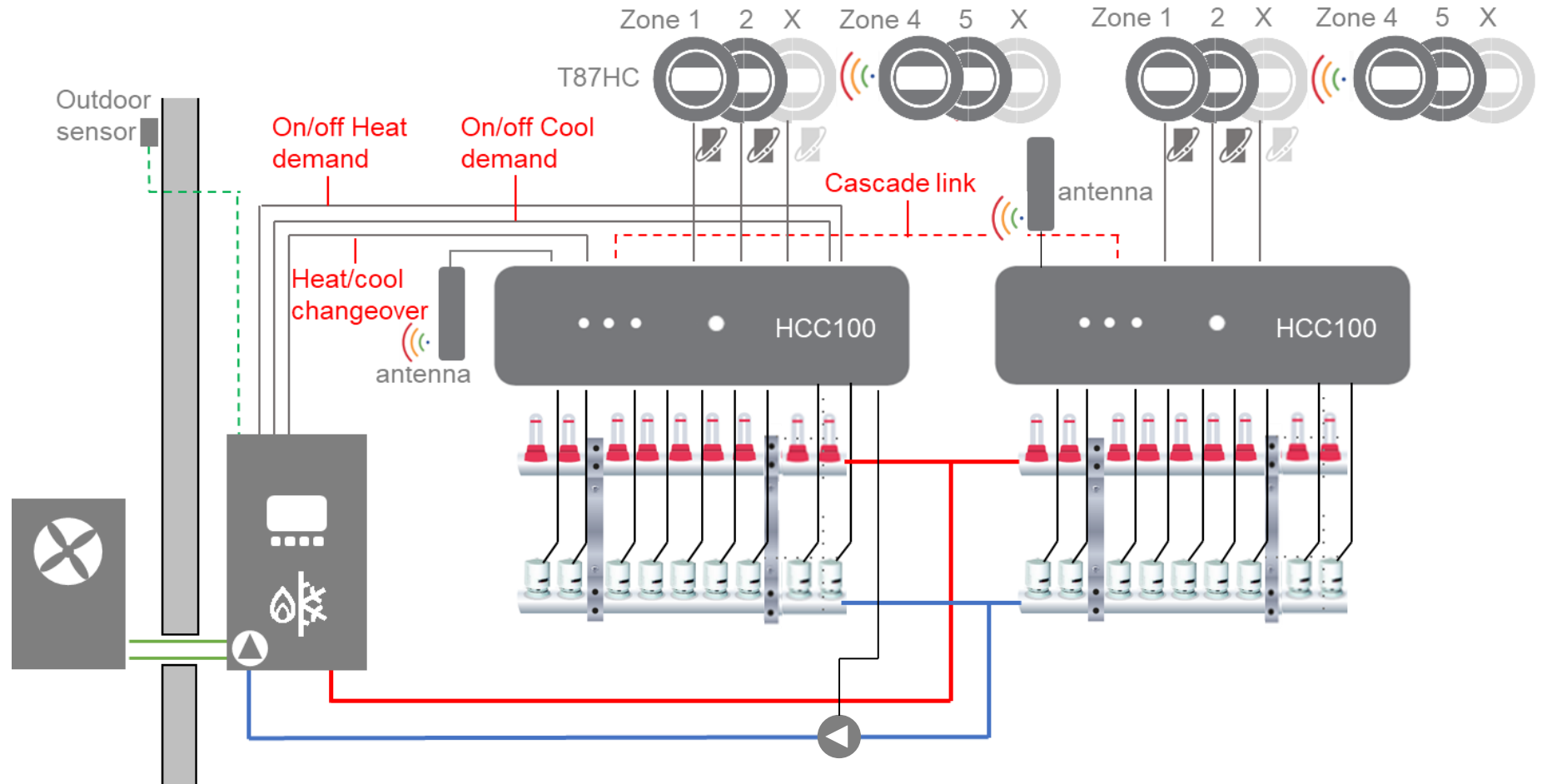
- Select the number of wireless zones
- Prepare Evohome (Guided Configuration)
- Select actuators for Zone 1
- Select a name for Zone 1
- Select the Outputs for Zone 1
- Repeat this process with all Zones
- Edit Zones to modify configuration or Zone settings

### Advance Parameters

- Central or individual pump control: Central

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# More Examples of Applications

**Application 5**

- On/off boiler – heat only
- Heat demand control by evohome
- evohome zone control
- BDR91 for on/off demand control
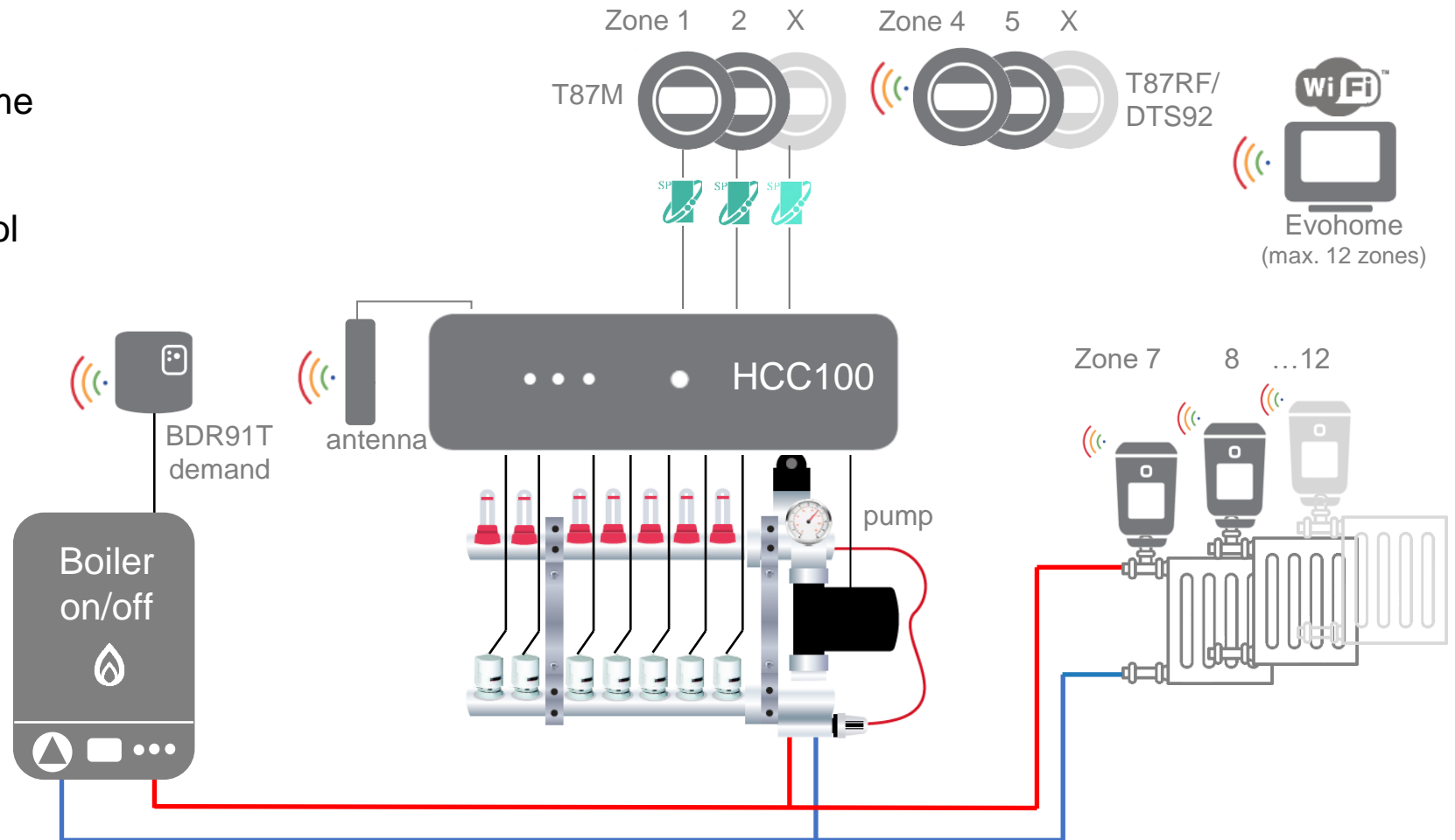


Zone 1    2    X       Zone 4    5    X

T87M                              T87RF/DTS92

WiFi

Evohome
(max. 12 zones)

BDR91T
demand

antenna

HCC100

Boiler
on/off

pump

Zone 7    8    …12

resideo

## Application 6

- Heat pump (with OTC) – heat & cool

- OpenTherm communication
  - Heat and cool demand control by HCC100
  - Heat/cool change-over (set in handshake)
    a. heat pump is leading
    b. thermostat is leading

- Optional evohome zone control and heat/cool changeover*

* when heat pump controls heat/cool changeover, evohome will not see this!

Outdoor sensor

OpenTherm communication

antenna

Zone 1    2    X    Zone 4    5    X

T87HC

T87RF/ DTS92

HCC100

Evohome* Optional
(max. 12 zones)

resideo

# Heat Pump On/Off Control, Heating and Cooling and H/C Changeover by Heat Pump or Thermostat

## Application 7

- Heat pump on/off – heating and cooling (with OTC)

- Heat/cool change-over (system related)
  a) heat pump with external contact (H/C change input)
  b) thermostat and HCC100 relay contact (output)

- Heat and cool demand controlled by HCC100 (relays)

- Optional evohome zone control

- Optional wireless demand control (BDR91T)*

> \* Heat demand, cool demand and H/C changeover also wireless possible (BDR91T)

Outdoor sensor

On/Off Heat demand*

On/off Cool demand*

Heat/cool changeover*

antenna

Heat pump OTC control

HCC100

Zone 1   2   X      Zone 4   5   X

T87HC

T87RF/ DTS92

WiFi

Evohome Optional (max. 12 zones)

BDR91T optional

resideo

# Boiler OpenTherm Control - Modulating

**Application 8**

- OpenTherm boiler – heat only

- Heat demand control by HCC100 (relay)

- Optional evohome zone control

- Optional OpenTherm RF module (R8810)
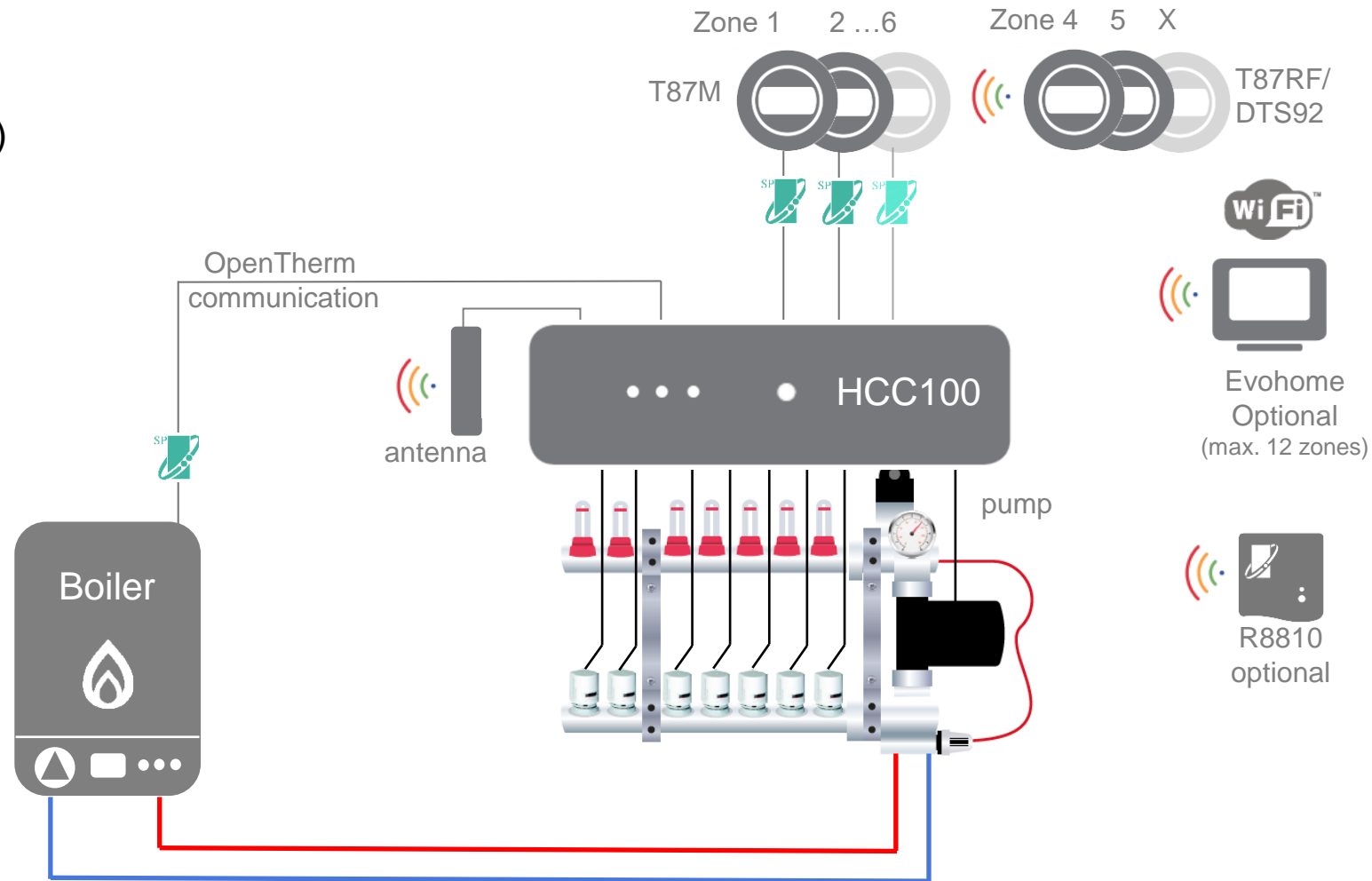
Zone 1    2 …6    Zone 4    5    X

T87M

T87RF/ DTS92

Wi Fi

OpenTherm communication

antenna

HCC100

Evohome Optional
(max. 12 zones)

Boiler

pump

R8810 optional

resideo

# Cascading System with Central Source - On/Off Control, Heating and Cooling and Heat/Cool Changeover by Heat Pump or Thermostat
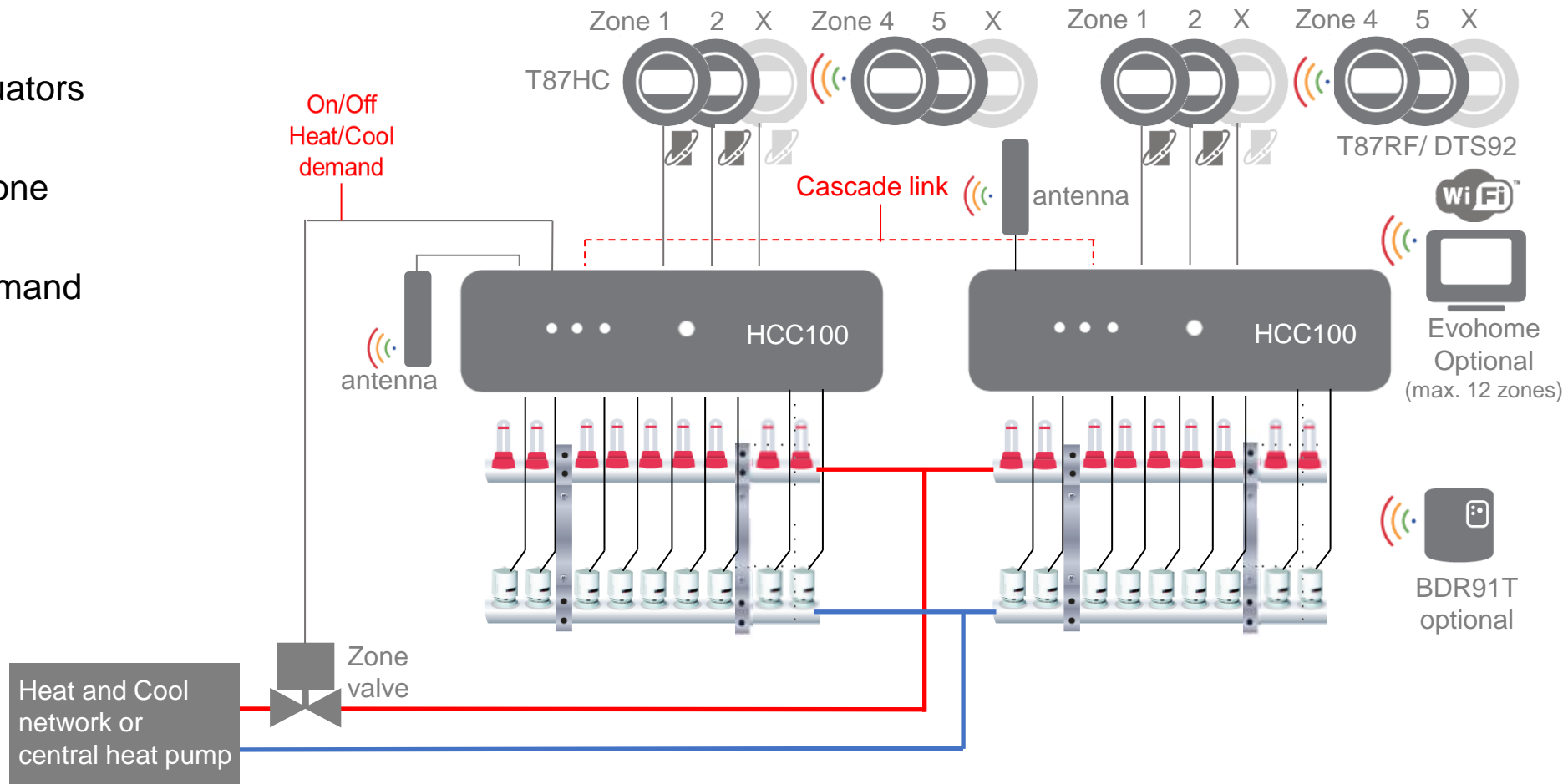
**Application 9**

- Multiple HCC100 controllers (max. 3)

- Central heat network (always available) with integrated pump

- On/off demand controlled (heat relays)

- Wired or wireless link between controllers

- Centralized pump

- Up to 18 wired and/or 24 wireless zones

- Wired and/or wireless zone thermostats
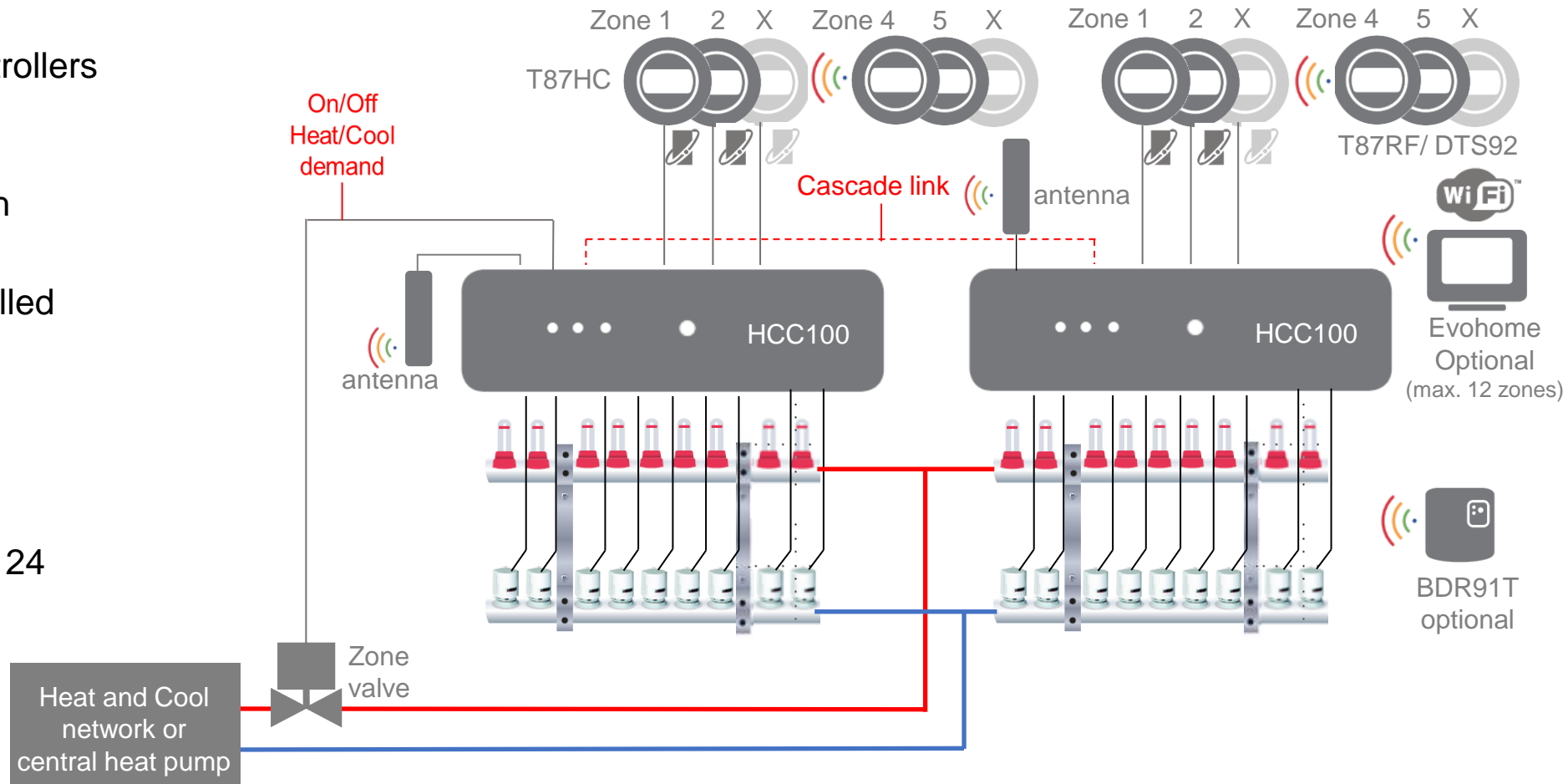
# Cascading System with Central Source - On/Off Control, Heating and Cooling and Heat/Cool Changeover by Heat Pump or Thermostat (continued)
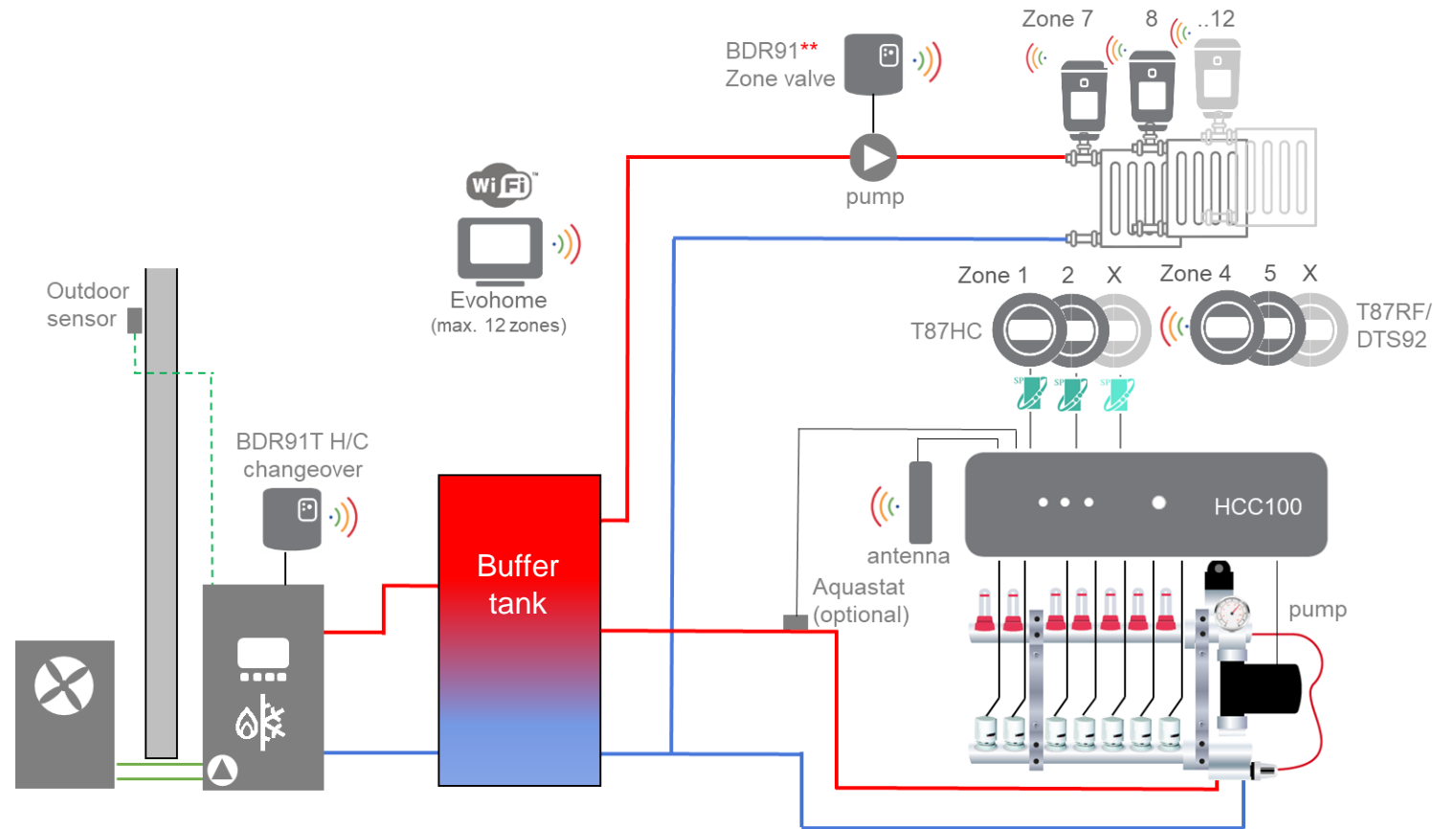
**Application 9**

- Up to 60 thermo actuators (free configurable)

- Optional evohome zone control

- Optional wireless demand control (BDR91T)

**resideo**

# Heat Pump with Buffer and Low + High Water Circuit - On/Off Control, Heating and Cooling with H/C Changeover by Heat Pump or Thermostat

**Application 10**

- Heat pump on/off control with OTC
  - Heat only system
  - High and low temperature circuits
- Low temp system pump HCC100 controlled
- High temp system pump evohome controlled*
- Aquastat triggers cool control HCC100 only (optional)
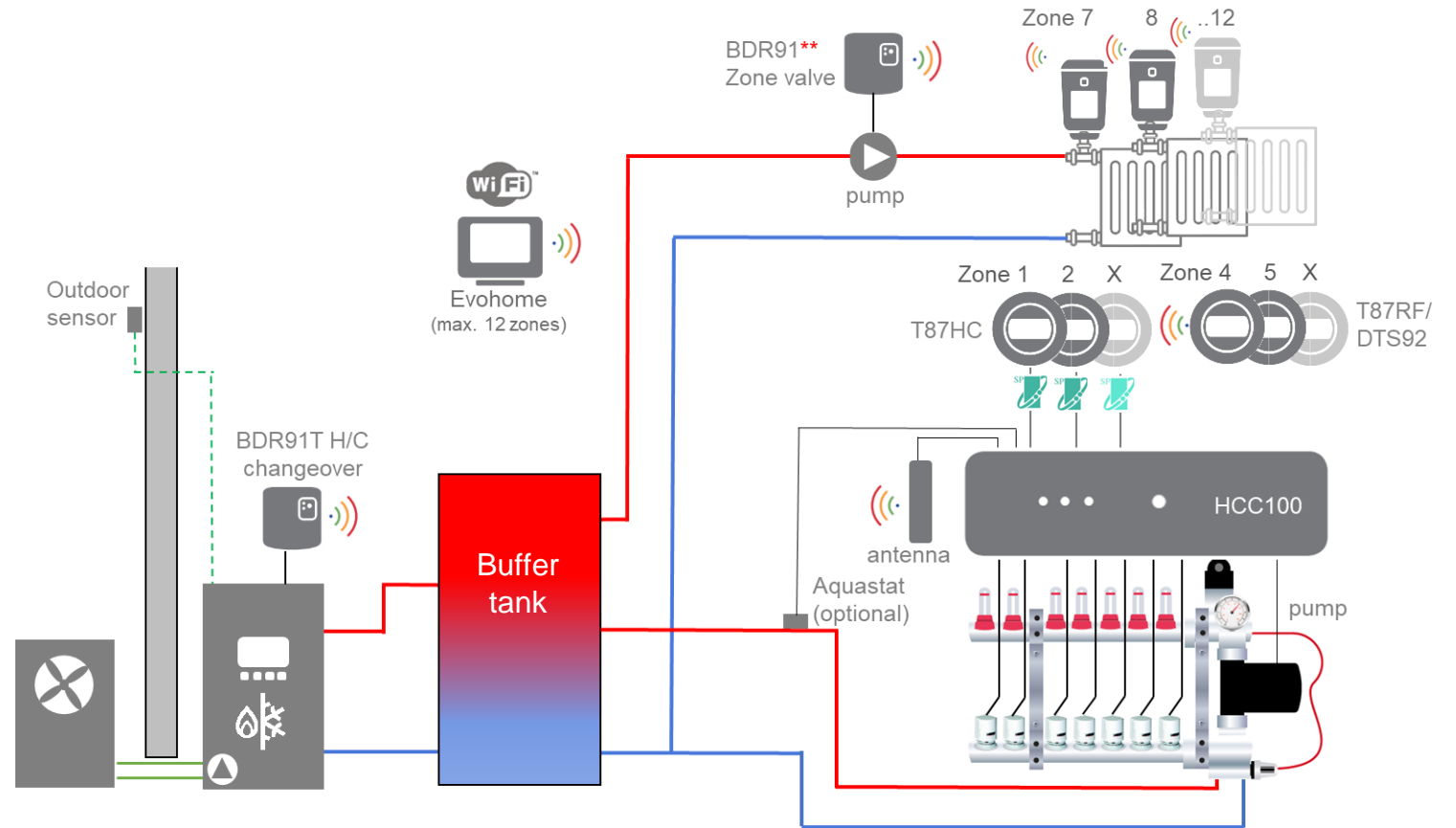- Wired and/or wireless zone thermostats

resideo

## Application 10

- evohome zone control incl. radiators*

- Wireless pump control (BDR91T)
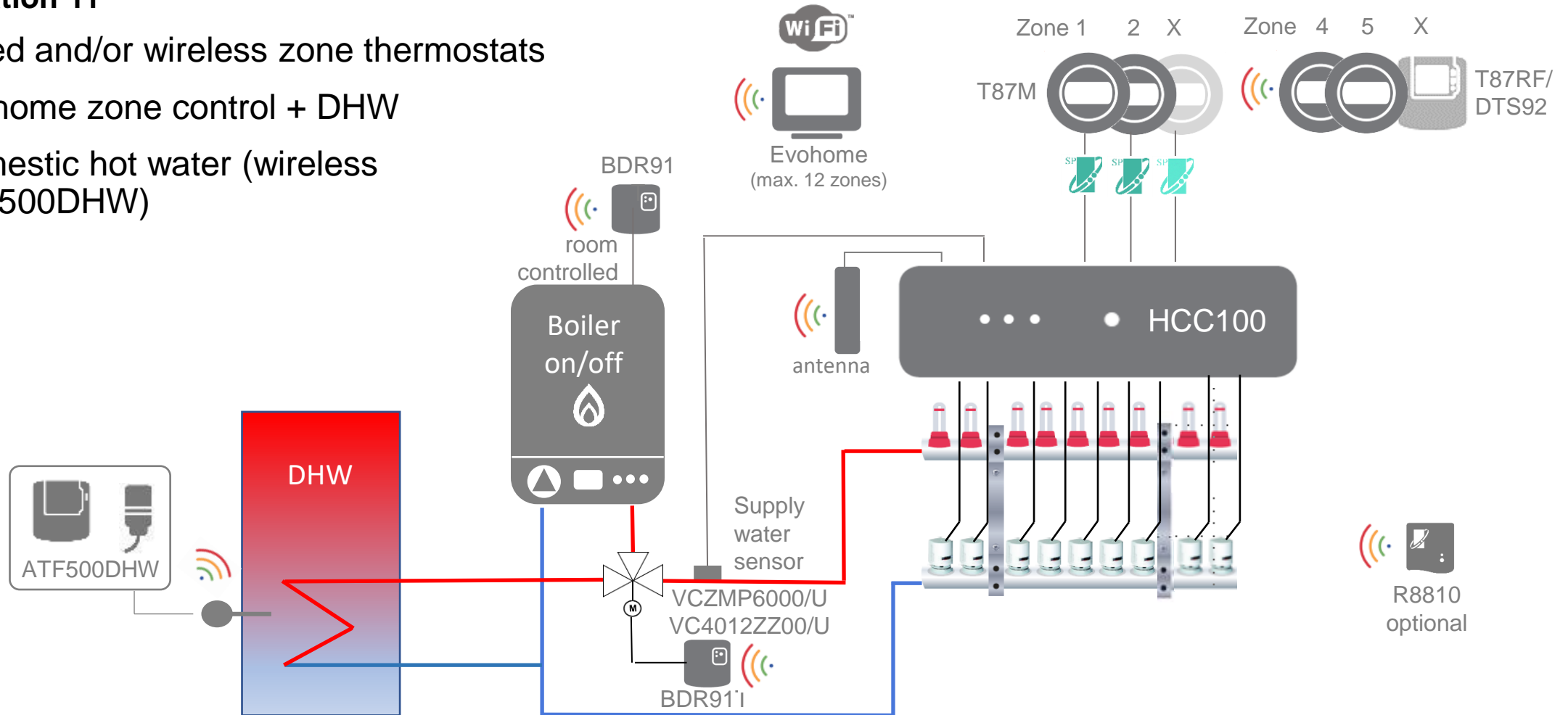
*evohome will not see cooling

**Trick binding, initial set up Radiator zones then change to zone valve zones and bind BDR

# Boiler On/Off OTC control, Heat Only, Outdoor Compensated, Supply Water Temperature, DHW
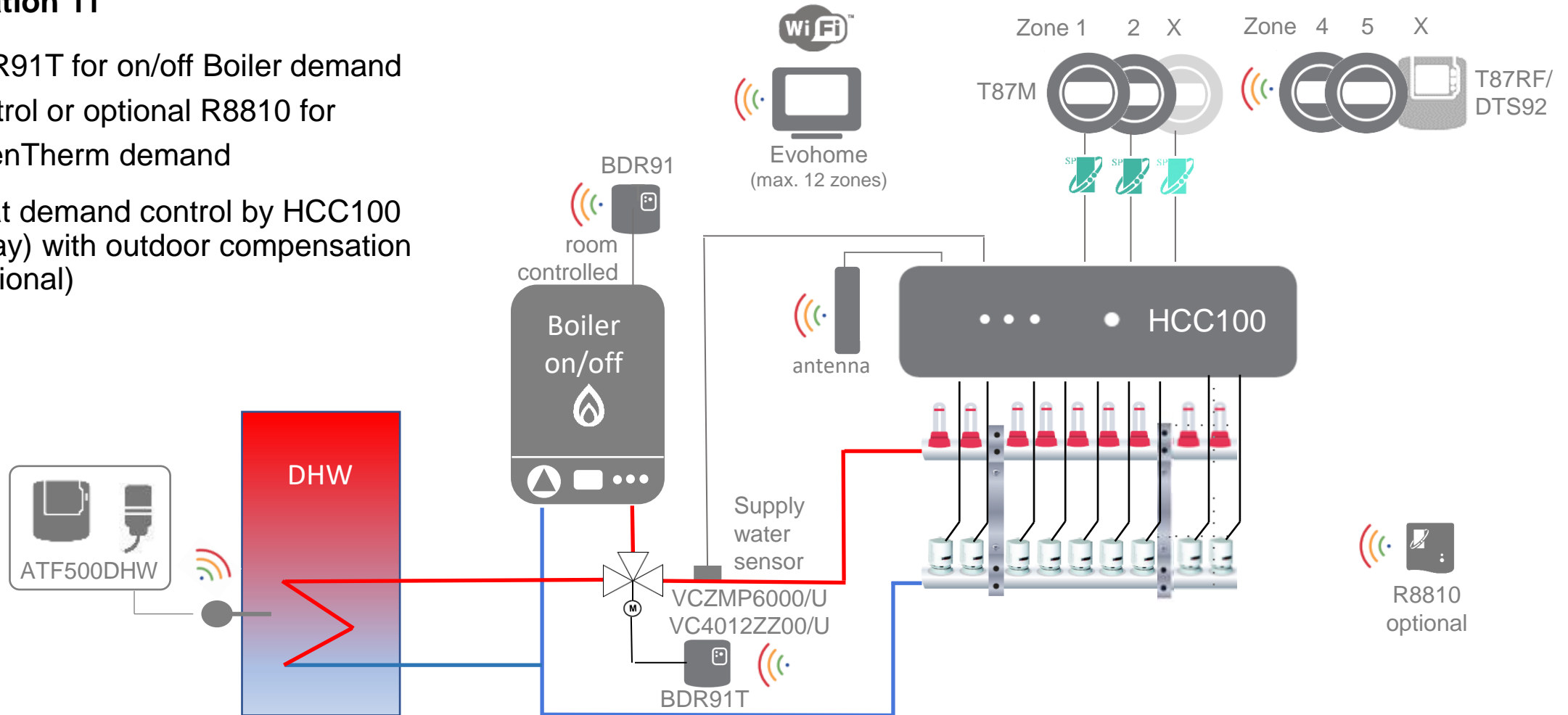
**Application 11**

- Wired and/or wireless zone thermostats

- evohome zone control + DHW

- Domestic hot water (wireless ATF500DHW)

resideo

# Boiler On/Off OTC control, Heat Only, Outdoor Compensated, Supply Water Temperature, DHW (continued)
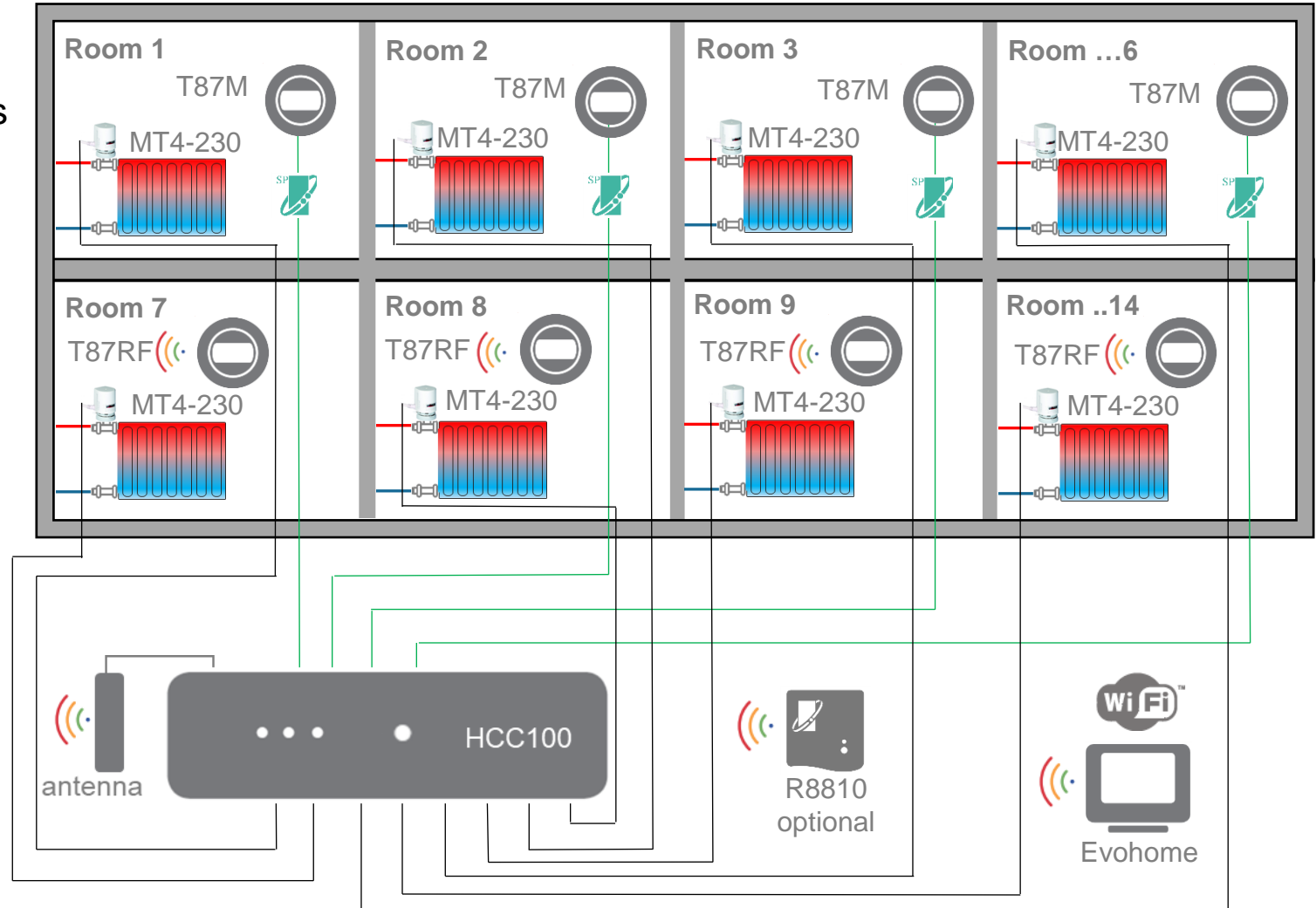
**Application 11**

- BDR91T for on/off Boiler demand control or optional R8810 for OpenTherm demand

- Heat demand control by HCC100 (relay) with outdoor compensation (optional)

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# Mixed (Wired and Wireless) Zone Control with Radiators
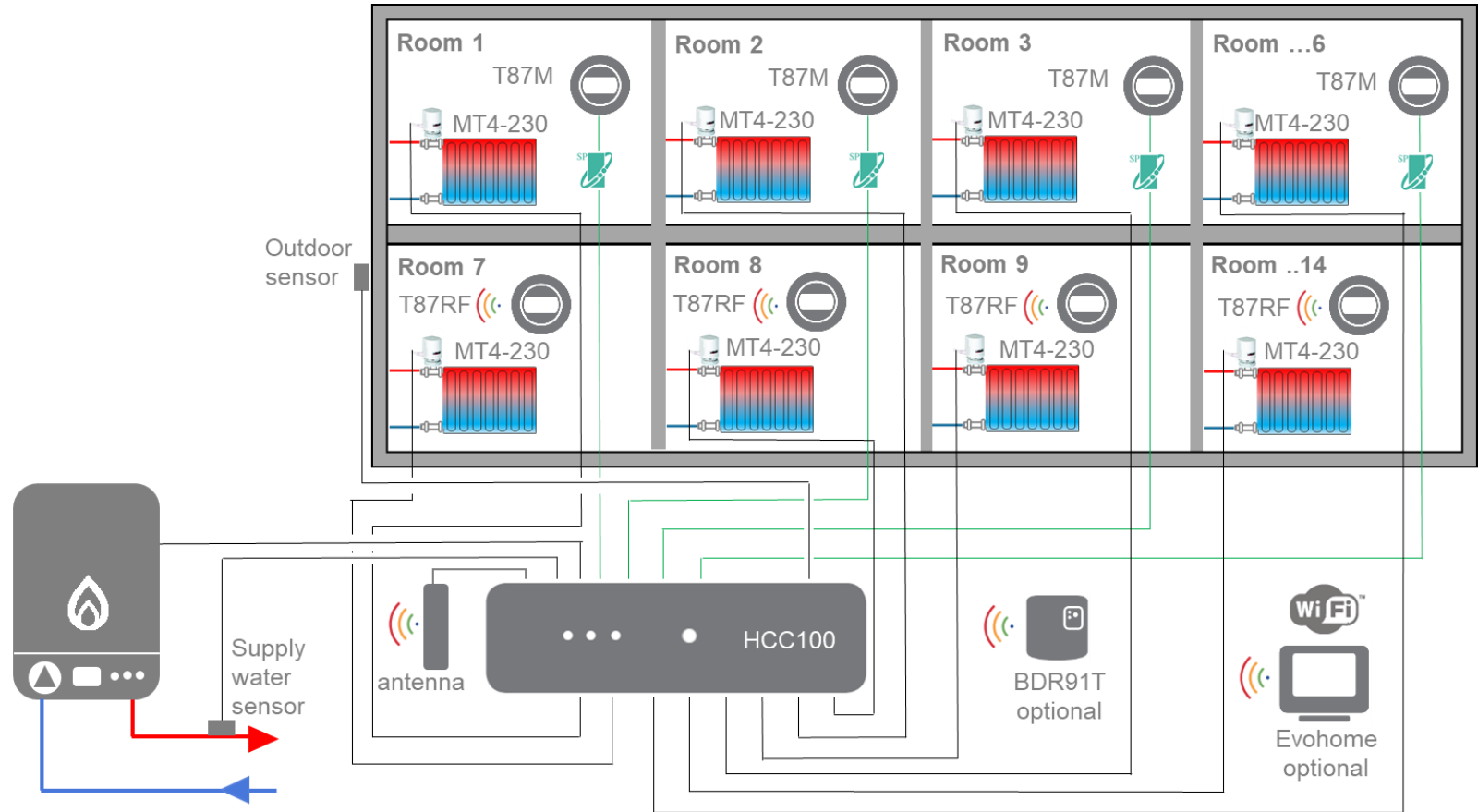
**Application 12.a.**

- Wired and/or wireless zone thermostats with evohome zone control

# Boiler On/Off OTC Control, Outdoor Compensated Supply Water Temperature, Hybrid (Wired and Wireless) Zone Control with Radiators

**Application 12.b.**

- On/off boiler – heat only

- Heat demand control by HCC100 (relay) with outdoor compensation (optional)

- Optional wireless BDR91T for on/off demand control

- Optional evohome zone control

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# Boiler OpenTherm Control - Modulating, Hybrid (Wired and Wireless) Zone Control with Radiators

**Application 12.c.**

- OpenTherm boiler

- Heat demand control by HCC100 (relay)

- Wired and/or wireless zone thermostats

- Optional evohome zone control

- Optional wireless OpenTherm RF module (R8810)

resideo
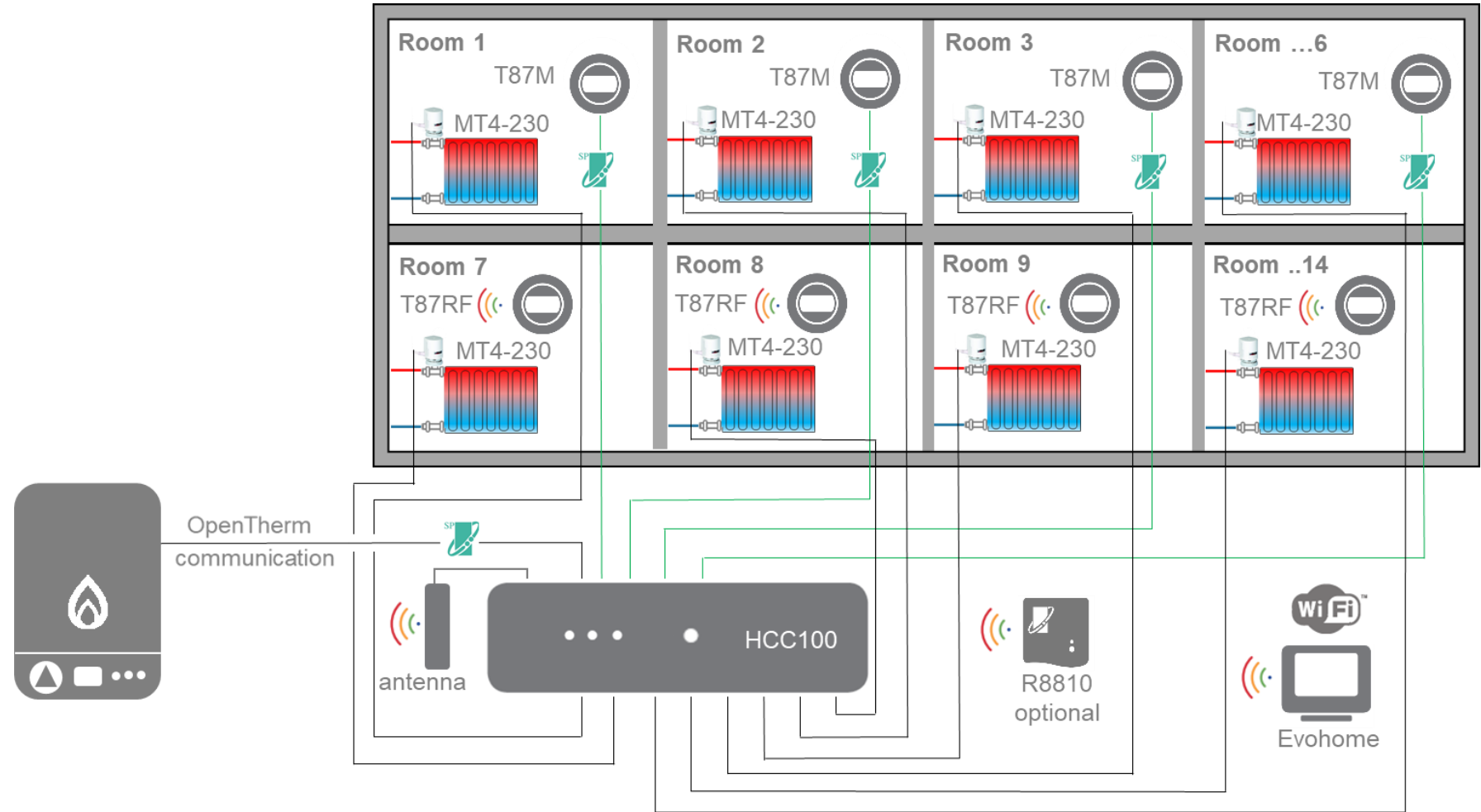
# Thank you for your interest and your attention