



HCC100

for individual control up to 8 zones heating/cooling and wired/wireless

APPLICATION

The HCC100 controller is the next generation in underfloor multi-zone controllers. The 'all in one' hub makes integration into complex systems easier and quicker. It can control multiple individual temperature zones in e.g. floor heating and/or cooling applications.

Its flexibility allows for easy integration with both new and existing systems, while the installer friendly Resideo Pro app makes installation and set-up 'smarter' and hassle-free.

The HCC100 optimises home comfort through a multiple zone application. By collecting the individual heat or cool demands from the zones and converting this into an optimal demand control of the appliance, it controls and balances the system for efficient energy consumption.

Thanks to our smart home technology, it can also be connected to other Honeywell Home smart devices through the installer app, like the evohome smart zoning system.

As energy efficiency standards tighten to lower CO₂ emission, the HCC100 prepares homes for the future integration of greener alternatives, such as Heat pumps, Central heat/cool networks and efficient heat generators.



APPROVALS

- 2014/35/EU
- 2014/53/EU
- Bluetooth®
- RoHs
- WEEE
- CE
- UKCA

SPECIAL FEATURES

- 6 wired temperature-controlled zones with (OpenTherm®) thermostats
- Up to 8 wireless temperature-controlled zones with Honeywell Home wireless thermostats
- 20 freely configurable thermoelectric actuators outputs
- Controller status LED indications on cover
- Fast installation, no screws used for wired terminals (except for power and pump)
- Integrated 230 V pump relay
- Heat demand control
 - OpenTherm®
 - Integrated potential free relay contact (230 V)
- Cool demand control
 - OpenTherm®
 - Integrated potential free relay contact (230 V)
- Heat/cool changeover options
 - OpenTherm® command leading zone thermostat
 - OpenTherm® command from OpenTherm® appliance
 - Integrated potential free relay contact (230 V)
 - integrated heat/cool changeover input (On/Off)
- Patented Self-learning (Fuzzy Logic) algorithm for accurate zone temperature control
- Intelligent thermo-actuator output control to improve energy efficiency of the system
- Antenna module with 2 m cable for optimal signal strength
- Evohome zone control integration
- Option for wireless pump, demand and/or heat/cool changeover relay module
- Installer Resideo Pro app for simplified configuration

TECHNICAL DATA

Electrical Data	
System:	<ul style="list-style-type: none"> Multi-zone (floor or radiator) Wired and/or wireless Heating and or cooling
Number of zones:	6 wired and up to 8 with wireless
IP class:	IP30
Power supply:	230 V AC + 10 - 15 %, 50 Hz Maximum power 7 VA (controller only) Fuse 3.15 A
Radio:	
RF (868 MHz):	Receiver Category 2, Max. RF Power 25 mW, 868-868 MHz (868.3 MHz)
Bluetooth® (2.4 GHz):	Max. Power 100 mW, 2.4-2.458 GHz
Inputs	
Zone 1 - 6:	wired OpenTherm® zone thermostats
Supply water sensor:	20K NTC sensor
Outdoor sensor:	20K NTC sensor
Heat/cool mode changeover input:	Digital switch input
Humidity switch input:	Digital switch input
Outputs	
Actuator 1 - 20:	20 x 230 V AC/0,5 A (1A inrush) TRIAC (actuator) outputs
Pump:	230 V AC/1 A powered output
OpenTherm® output:	OpenTherm® V4.1A

Outputs	
Heat demand:	SPST relay 24-230 V AC/1 A
Cool demand:	SPST relay 24-230 V AC/1 A
Heat/Cool mode changeover:	SPST relay 24-230 V AC/1 A
Cascade link:	Option for multiple controllers (max. 3 controllers)
Antenna:	Module with SMA connector and 2 m coaxial cable
Cable specifications	
Power and Pump	
Outer diameter:	min. 8.0 mm, max. 11 mm
Cable length:	max. 100 m
Cable cross-section:	max. 2.5 mm ²
Stripping length:	7 mm
Terminal range of connectors:	0.20–2.50 mm ² : flexible/fixed connection 0.50–1.50 mm ² : flexible, with wire end ferrule
Actuator(s), zone thermostats, sensors, OpenTherm® output, on/off heat and cool demand and heat/cool mode changeover	
Outer diameter:	min. 4.0 mm, max. 5.3 mm
Cable length:	max. 100 m
Cable cross-section:	max. 1.0 mm ²
Stripping length:	5-10 mm
Terminal range of connectors:	0.21–2.08 mm ² : flexible wire

METHOD OF OPERATION

Zone control and thermostats

The HCC100 can control up to 8 temperature zones, with maximum 6 wired temperature zones and 2 wireless temperature zones, or a combination of wired and wireless zones. For example, 6 wired and 2 wireless, 4 wired and 4 wireless, only 6 wired or 8 wireless.

The zone temperatures are controlled by wired or wireless zone thermostats.

The wired zone thermostats can only be OpenTherm® communicating thermostats, such as Honeywell Home T4M Clock thermostat, T87M Round Modulation or T87HC Round Heat Cool Modulation. From April 2023 also the new DT4M Roomstat can be applied.

The wireless zone thermostats can only be Honeywell Home wireless thermostats, such as Honeywell Home DTS92 Room stat or and T87RF Round Wireless. From April 2023 also the new DT4RF Roomstat can be applied.

In heat/cool applications, specific zones can be set to heating only via the configuration with the Resideo PRO app.

With one zone configured as 'Master' zone it is possible to also set the other zones to an energy saving temperature (ECO function, works only in heating mode).

For example, if the program in the T4M goes the night set back temperature the other zones will automatically be set to a lower (ECO) temperature setting. When the schedule switches back to the comfort setting the other zones will return to their previous temperature setting.

With Evohome wirelessly bound to the HCC100 controller the individual zone temperatures can be controlled via the individual zone schedules. Evohome can also be registered and connected to the Internet, which gives the user the possibility to control the zones from a smartphone.

Intelligent thermoelectric actuator control (ITAC)

The individual zone temperatures are controlled via opening and closing the manifold valves with thermoelectric actuators.

The HCC100 has an intelligent thermo-actuator output control (ITAC), which is based on the assigned number outputs per zone and the actual calculated heat demand per zone. ITAC will constantly open a limited number of valves of the zones with a demand, which creates a hydronic balancing effect or consistent the flow.

This also results in a longer and lower demand, which improves the efficiency of heat pumps and modulating boilers.

The HCC100 has in total 20 thermoelectric actuator outputs, which can freely be assigned to temperature zones during the configuration with the Resideo PRO app.

To provide the best zone control performance a new MT4-HCC Pro-Install thermal actuator has been developed. Its fit and performance have been thoroughly tested with multiple leading manifold brands, and its blue insert colour with HCC reference number makes it easy to identify.



Fig. 1 MT4-230-xx-HCC

Appliance control

The HCC100 has a Self-learning (Fuzzy Logic) control algorithm, which converts the individual zone demands into a single heat or cool demand for the appliance.

With the Resideo PRO app the appliance type (boiler, heat/cool network, or heat pump, etc.) is configured, which automatically adjusts the control parameters for an optimal control of the appliance.

The control of the appliance can be done via on/off relay contacts for heating as well as cooling or via OpenTherm® communication (heating and cooling control).

The supply water temperature control can be limited with a minimum and maximum range setting but requires a supply water temperature sensor or with an OpenTherm® appliance this information can also come from the appliance.

Also outdoor temperature compensation is an option for the control of the supply water temperature. For this an outdoor and supply water temperature sensor need to be connected to controller. With an OpenTherm® appliance the supply water and outdoor temperature sensor information can also come from the appliance.

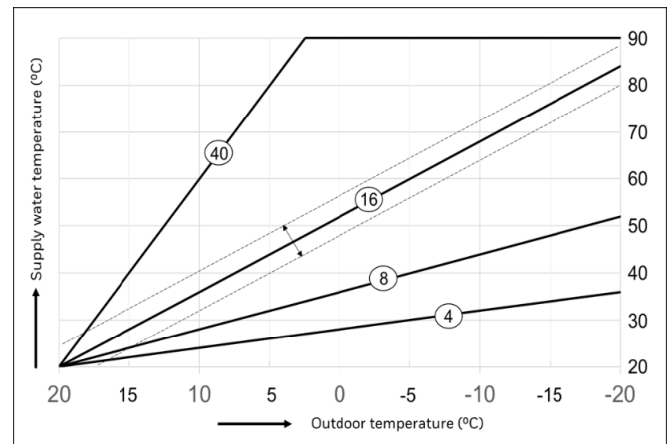


Fig. 2 Outdoor temperature compensation graph

Heating or Cooling mode

Cooling control is a standard integrated function in the HCC100 and there are several possibilities to change the heating and cooling mode of the system.

Cooling and the way how the heat/cool mode changeover can be configured using the Resideo PRO app.

One option is to use the heat/cool mode changeover input, which uses an external switch e.g from the appliance to change the heat or cool mode status.

Another option is using a heat/cool thermostat configured as 'Master' zone thermostat for heat/cool mode changeover the heat/cool, the mode of the appliance can be changed via the heat/cool changeover output contact.

There is a third option when Evohome in the system: the Evohome heat/cool mode changeover function can be bound with the HCC100. Evohome will change the heat or cool mode status of the system, the mode of the appliance can be changed via the heat/cool changeover output contact

Pump control

An integrated pump relay ensures that the pump runs when there is a demand from one of the zones.

With the Resideo Pro app the pump overrun time is set to optimize the efficiency of the system. This time is the duration that the pump remains on after a heat/cool demand, so the appliance (e.g., heat pump) can finish its demand cycle.

Standard the pump overrun is done with the zone which had the demand, but in the configuration also a so called 'dump' zone can be set. This zone will always be opened during the pump overrun after a demand.

Auto-detect function

During the power up the HCC100 will check the wired zone thermostat inputs, sensor inputs, thermo-actuator outputs OpenTherm® output and Link connection automatically for connections.

This will be shown in the Resideo PRO app at the start of the configuration and can be used as a check if wiring has been done properly.

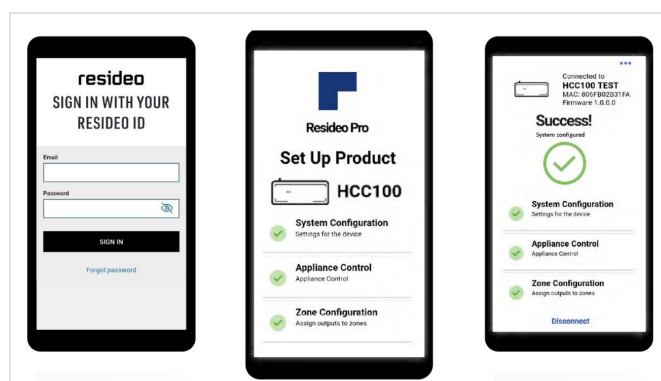
Cascading multiple controllers

For larger applications, which require more than 8 zones, multiple HCC100 controllers can be cascaded together. Cascading can be done via a wired link, the Cascade Link connects to the OpenTherm® boiler output of the other controller, or it can be done via the wireless RF communication. Binding is done via the Configuration app. When cascading there will be a single demand control from the first HCC100 controller and there is a choice to select a single system pump, or each controller has its own pump.

Configuration App

The configuration of the HCC100 is done via the Resideo PRO app, which simplifies and shortens the commissioning. The HCC100 connects via Bluetooth® with the App on the smartphone. A guided menu structure leads you through the configuration of the system type, the demand control, and the zone set-up. The advanced parameter menu still allows specific application settings to be adjusted.

A System overview menu shows all temperature and status information of the configured zones and the status of the system. There is also a System test menu to test the signal strength of the wireless communication and to test the various outputs.



The installer Resideo Pro app can be downloaded from the app stores, but requires a Resideo Pro account to be set-up first:



TRANSPORTATION AND STORAGE

Keep parts in their original packaging and unpack them shortly before use.

The following parameters apply during transportation and storage:

Parameter	Value
Environment:	clean, dry and dust free
Min. ambient temperature:	0 °C
Max. ambient temperature:	40 °C
Min. ambient relative humidity:	0 % *
Max. ambient relative humidity:	90 % *

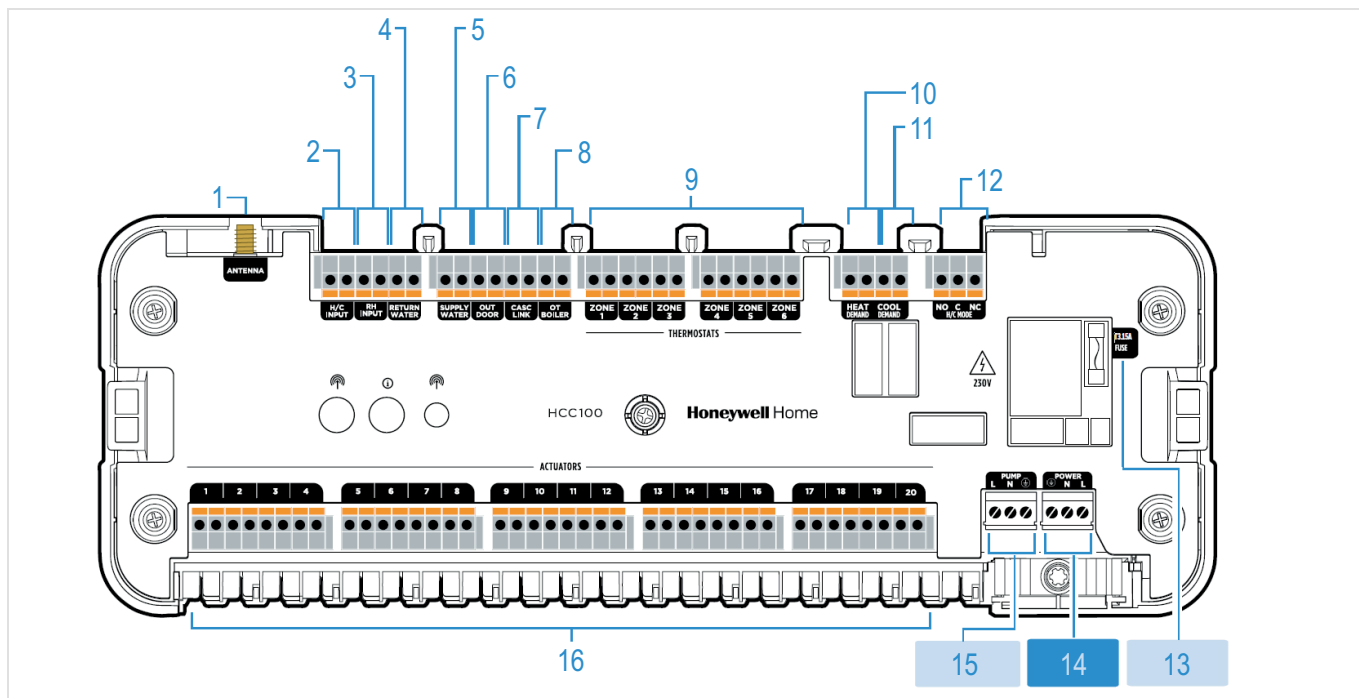
*non condensing

INSTALLATION GUIDELINES

Setup requirements

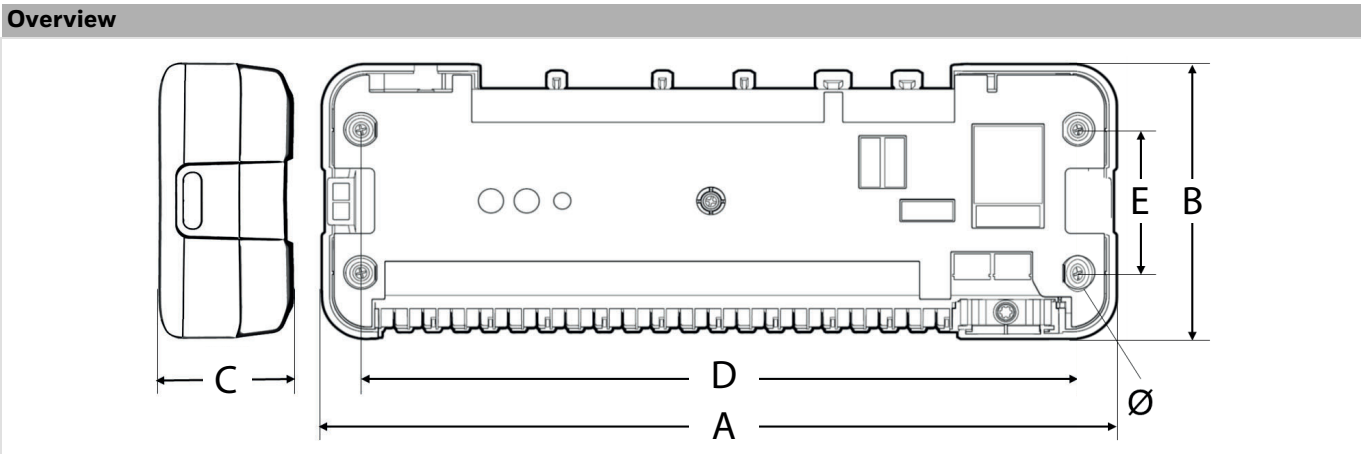
- The HCC100 controller can be placed directly on the wall with 4 mounting holes or can be placed on a standard DIN-rail.

Connections



- 1 Antenna
- 2 External heat/cool changeover input
- 3 Humidity/moist switch input (on/off)
- 4 Future use
- 5 Supply water temp. sensor (20K NTC)
- 6 Outdoor temp. sensor (20K NTC)
- 7 Cascade link
- 8 OpenTherm® appliance
- 9 Zone Thermostats
- 10 On/off heat demand (relay 24 - 230 V/1 A)
- 11 On/off cool demand (relay 24 - 230 V/1 A)
- 12 Heat/cool changeover output (relay 24 - 230 V/1 A)
- 13 Fuse T3.15A
- 14 Mains Power (230 V AC)
- 15 230 V AC pump
- 16 Thermal actuator outputs for zones (230 V AC/0.5 A) (freely configurable)

DIMENSIONS



A	B	C	D	E	Ø
330	118	57	302	63	4.5

Note: All dimensions in mm unless stated otherwise.

ORDERING INFORMATION

The following tables contain all the information you need to make an order of an item of your choice.
When ordering, please always state the type, the ordering or the part number.

Options

Description	Item No.:
Underfloor Multi-zone Controller	HCC100M2022
MT4 Thermo-electric actuator, Normally closed, Closing dimension 11.0 mm	MT4-230-NC-HCC
MT4 Thermo-electric actuator, Normally open, Closing dimension 11.0 mm	MT4-230-NO-HCC
Condensation switch	EE046-T11

For more information
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