



HCC100 – Underfloor Multi-zone Controller

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



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.

FEATURES & BENEFITS

- 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 230V pump relay
- Heat demand control
 - OpenTherm®
 - integrated potential free relay contact
- Cool demand control
 - OpenTherm
 - integrated potential free relay contact
- Heat/cool changeover options
 - OpenTherm® command leading zone thermostat
 - OpenTherm® command from OpenTherm® appliance
 - integrated potential free relay contact
 - 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 2m 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

Functions

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. For the wired zone thermostats only OpenTherm® communicating thermostats can be used, such as Honeywell Home T4M Clock thermostat, T87M Round Modulation or T87HC Round Heat Cool Modulation.

The wireless zone thermostats can only be Honeywell Home wireless thermostats, such as Honeywell Home DTS92 Room stat or and T87RF Round Wireless. 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 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 output control

The individual zone temperatures are control via opening and closing thermoelectric actuators.

The HCC100 has an intelligent thermo-actuator output control, which is based on the assigned number outputs per zone and the actual calculated heat demand per zone. This control will create a hydronic balancing effect resulting in a longer constant flow which improves the efficiency of heat pumps and modulating boilers.

In total it has 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.



MT4-230 -xx-HCC

Appliance control

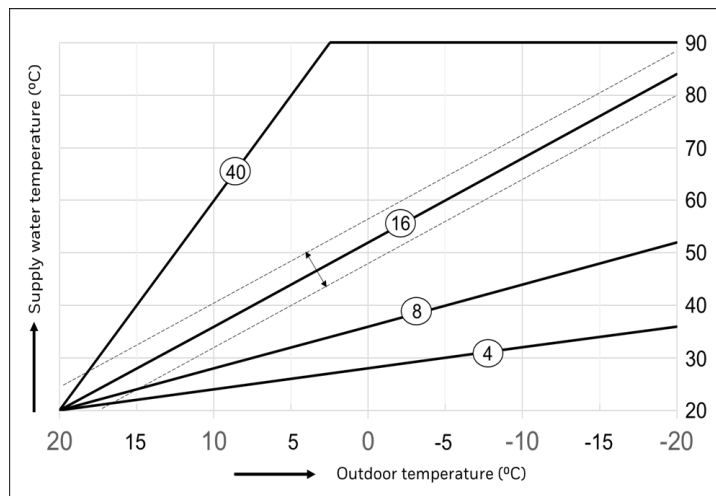
The HCC100 has a Self-learning (Fuzzy Logic) control algorithm, which converts the individual zone demands into a single heat or cool demand for the appliance.

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.



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, thermoelectric 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

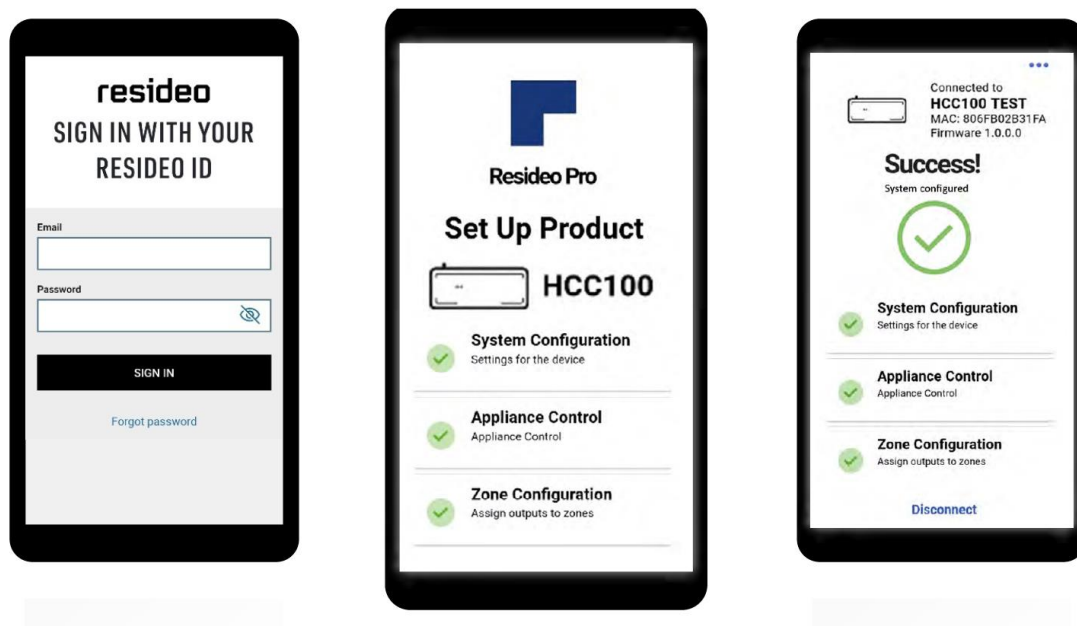
For larger applications, which require more than 8 zones, multiple HCC100 controllers can be cascaded together. Cascading can be done via a wired link, the Cascade Link connects to the OpenTherm® boiler output of the other controller, or it can be done via the wireless RF communication. Binding is done 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.



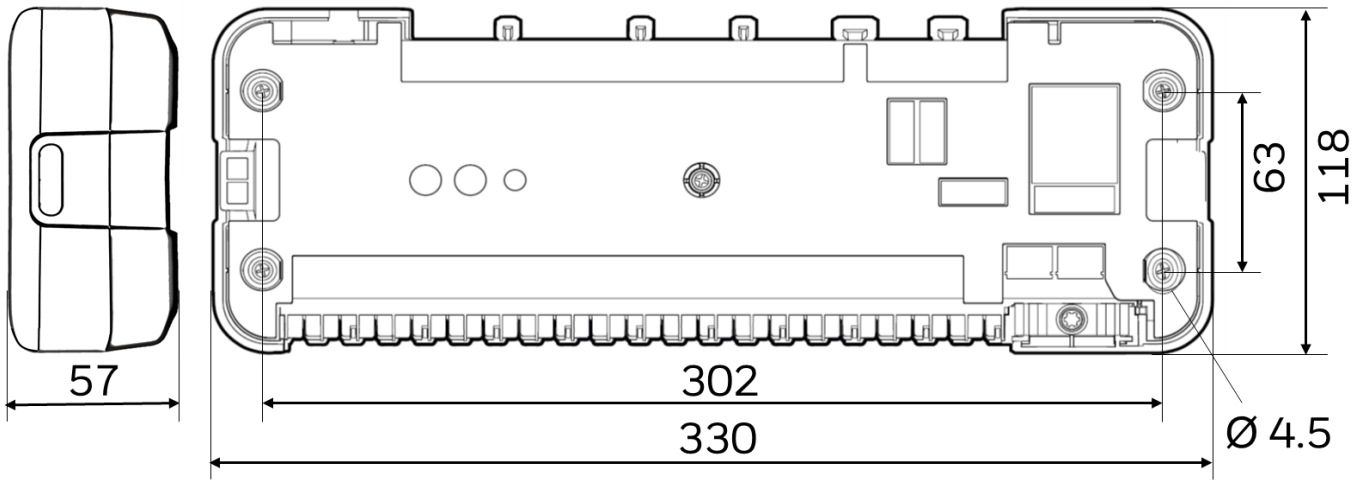
The installer Resideo Pro app can be downloaded from the app stores, but requires a Resideo Pro account to be set up first:



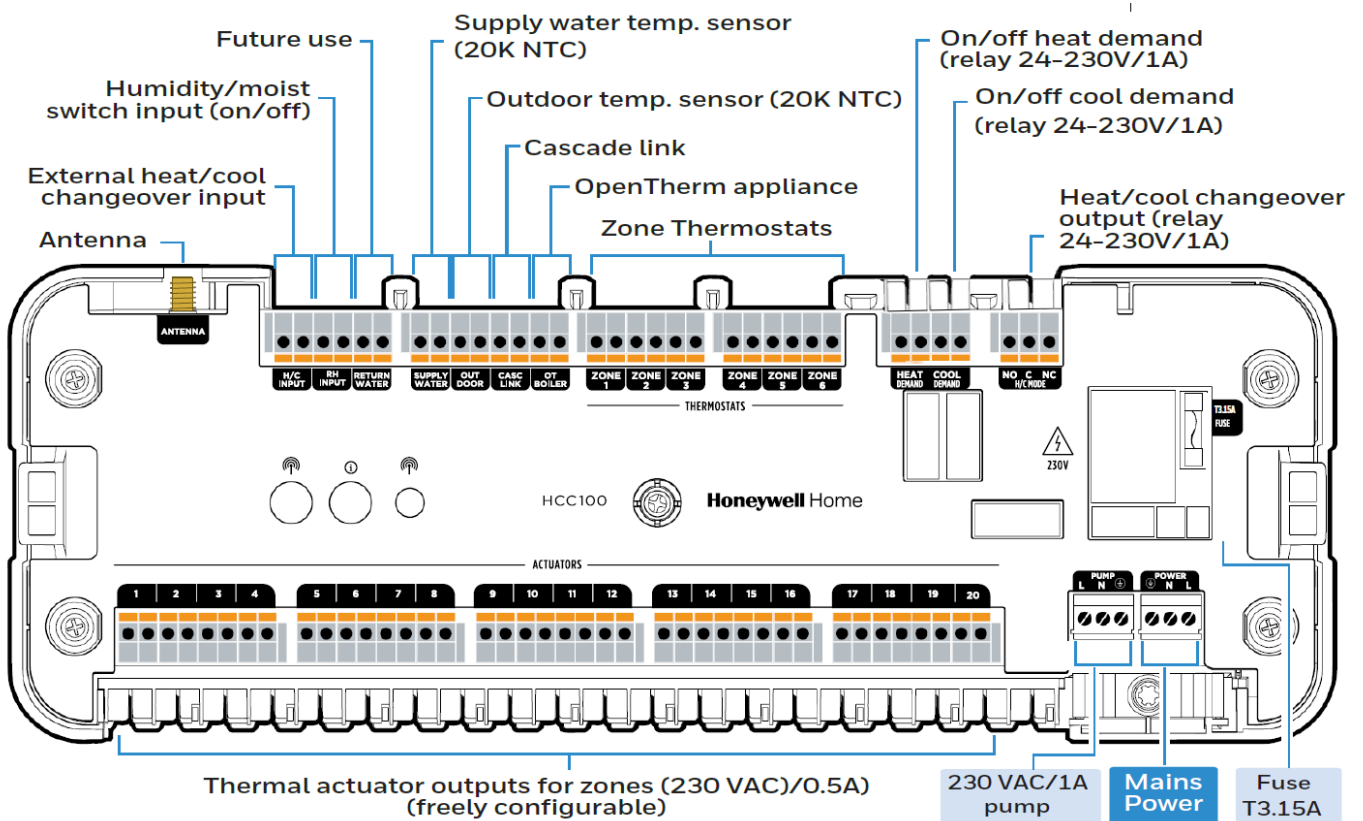
Installation

Mounting

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




Connections



SPECIFICATIONS

Application	
System	- Multi-zone (floor or radiator) - Wired and/or wireless - Heating and or cooling
Number of zones	6 wired and up to 8 with wireless
Environmental	
Temperature	0 to 40°C
Humidity	0 to 90% rh, non-condensing
IP rating	IP30
Power supply	230VAC +10, -15%, 50Hz Maximum power 320VA incl. pump and actuators (7VA controller only) Fuse 3.15A
Approvals	European EN approvals: 2014/35/EU 2014/53/EU
Environmental Requirements:	RoHS; WEEE; CE; UKCA
Radio:	
RF (868 MHz)	Receiver Category 2, Max RF Power 25mW, 868–868.6MHz (868.3MHz)
Bluetooth (2.4GHz)	Max Power 100mW, 2.4–2.458GHz
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 230VAC/0,5A (1A inrush) TRIAC (actuator) outputs
Pump	230VAC/1A powered output
OpenTherm® output	OpenTherm® V4.1A 
Heat demand	SPST relay 24-230VAC/1A
Cool demand	SPST relay 24-230VAC/1A
Heat/ Cool mode change-over	SPDT relay 24-230VAC/1A
Cascade link	Option for multiple controllers (max 3 controllers)
Antenna	Module with SMA connector and 2m 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 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

Ordering number	
OS Number	Description
HCC100M2022	Underfloor Multi-zone Controller
MT4-230-NC-HCC	MT4 Thermo-electric actuator, Normally closed, Closing dimension 11.0mm
MT4-230-NO-HCC	MT4 Thermo-electric actuator, Normally open, Closing dimension 11.0mm



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