

Danfoss

Hydronic Controller 5

SKU: DANEHC5

Quickstart

This is a **Barrier Operator** for **Europe**. To run this device please connect it to your mains power supply. To add this device to your network execute the following action:
Press the button

What is Z-Wave?

Z-Wave is the international wireless protocol for communication in the Smart Home. This device is suited for use in the region mentioned in the Quickstart section. (For more information about frequency regulations please refer to the frequency coverage overview at Sigma Designs Website).

Z-Wave ensures a reliable communication by reconfirming every message (**two-way communication**) and every mains powered node can act as a repeater for other nodes (**meshed network**) in case the receiver is not in direct wireless range of the transmitter.

This device and every other certified Z-Wave device can be **used together with any other certified Z-Wave device regardless of brand and origin** as long as both are suited for the same frequency range.

If a device supports **secure communication** it will communicate with other devices secure as long as this device provides the same or a higher level of security. Otherwise it will automatically turn into a lower level of security to maintain backward compatibility.

For more information about Z-Wave technology, devices, white papers etc. please refer to www.z-wave.info.

Product Description

Danfoss Link HC is part of the wireless control system for heating systems in residential buildings, controlled by the central controller Danfoss Link CC. The Danfoss Link HC enables the control of of hot water underfloor heating systems. The system offers a wide range of Extended functions for optimum comfort and energy saving and also allows for the individual room temperature control.
The Danfoss Link HC includes the following Functions: 2-way radio transmission, up to 5 short-circuit-proof outputs for 24 V NC or NO actuators, relays for the pumps and pumps Boiler control, self-diagnostic program, Contact for the absence function, Heating/Cooling function, regulation according to the ON/OFF or PWM principle (pulse width modulation) etc. The system can be configured from up to three Danfoss Link HC up to 30 outputs for larger systems can be connected to the system.

Prepare for Installation / Reset

Please read the user manual before installing the product.

In order to include (add) a Z-Wave device to a network it **must be in factory default state.** Please make sure to reset the device into factory default. You can do this by performing an Exclusion operation as described below in the manual. Every Z-Wave controller is able to perform this operation however it is recommended to use the primary controller of the previous network to make sure the very device is excluded properly from this network.

Reset to factory default

This device also allows to be reset without any involvement of a Z-Wave controller. This procedure should only be used when the primary controller is inoperable.

- Disconnect the Hydronic Controller from the power supply.
- Wait until the green LED goes out.
- Press and hold the installation button (9) and hold it down.
- Reconnect the power supply while holding down the installation button.
- Release the button as soon as the power LED (10) lights up.

Safety Warning for Mains Powered Devices

ATTENTION: only authorized technicians under consideration of the country-specific installation guidelines/norms may do works with mains power. Prior to the assembly of the product, the voltage network has to be switched off and ensured against re-switching.

Installation

Hydronic Controller

Mount the Hydronic Controller horizontally upright.
Mounting on Wall: Remove the front and side covers. Mount the controller with screws and plugs.

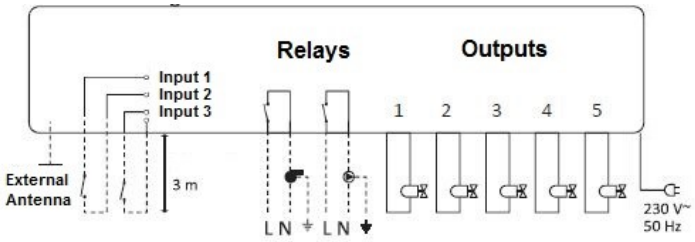


24V Actuators
- Connect the two actuator cables to the output (4).
- Fix the cable (8).

Note! NC (Normally Closed) configuration of the actuator output is preset.

Relays for pump and heater control
- Connect the pump and heater control cables to the respective output (2/3).
- Fix the cable (7).

Note! The pump and heater relays are floating contacts and can therefore NOT be used for a direct power supply can be used. The maximum load is 230 V and 8 A/2 A.



Power supply
Connect all actuators before connecting the device to the power supply! After you have installed all actuators, pump and heater controls as well as other inputs, connect the power plug of the Hydronic Controller to a 230V power source.

Note! If the mains plug is disconnected from the power supply cable during installation, make sure that it is reconnected in accordance with the applicable guidelines.

External antenna (not included)
An external antenna is used as an amplifier if the transmission is interrupted by the use of an external antenna in a large buildings, heavy constructions or metal barriers, e. g. if the Hydronic controller is installed in a metal cabinet or box.
- Break out the plastic plug above the antenna connection of the Hydronic Conntrollers.
- Connect the external antenna (A).
- Position the antenna on the other side of the obstacle.

Inclusion/Exclusion

On factory default the device does not belong to any Z-Wave network. The device needs to be **added to an existing wireless network** to communicate with the devices of this network. This process is called **Inclusion**.

Devices can also be removed from a network. This process is called **Exclusion**. Both processes are initiated by the primary controller of the Z-Wave network. This controller is turned into exclusion respective inclusion mode. Inclusion and Exclusion is then performed doing a special manual action right on the device.

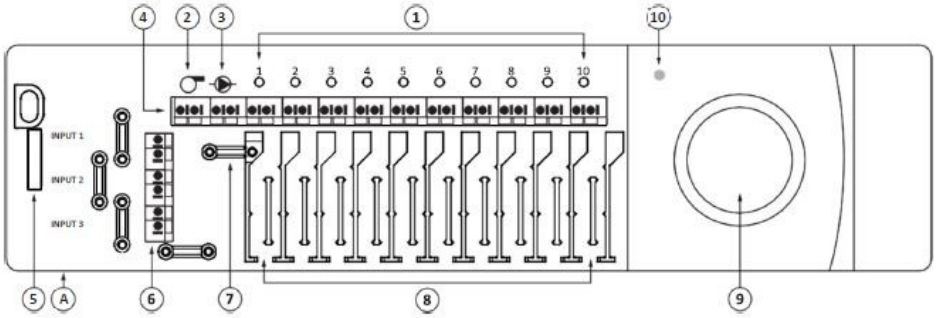
Inclusion

Press the button

Exclusion

Press the button

Product Usage



1. Output LED's
2. Boiler Relay
3. Pump Relay
4. Output 1 - 5
5. Front cover release button
6. Input 1 - 3 (not use)
7. Cable attachment for relay
8. Cable attachment for outputs
9. Connect button
10. Power - LED
A. External antenna

LED indicator

Green ... The Hydronic controller has been added to a Z-Wave network.
Green flashing ... The Hydronic Controller has NOT been connected to a Z-Wave network.
Fast green flashing ... Connection to the network is established. This process can also be carried out so quickly that no flashing to is recognizable.
Red ... The instrument is reset to the factory settings.
Red flashing ... Error mode for one or more thermostats.

Output LED 1 - 5

Off ... The valve for the chain is closed.
Green ... The valve for the chain is open.
Green flashing ... There is an error in the chain or an indication is required.

Quick trouble shooting

Here are a few hints for network installation if things dont work as expected.

1. Make sure a device is in factory reset state before including. In doubt exclude before include.
2. If inclusion still fails, check if both devices use the same frequency.
3. Remove all dead devices from associations. Otherwise you will see severe delays.
4. Never use sleeping battery devices without a central controller.
5. Dont poll FLIRS devices.
6. Make sure to have enough mains powered device to benefit from the meshing

Association - one device controls an other device

Z-Wave devices control other Z-Wave devices. The relationship between one device controlling another device is called association. In order to control a different device, the controlling device needs to maintain a list of devices that will receive controlling commands. These lists are called association groups and they are always related to certain events (e.g. button pressed, sensor triggers, ...). In case the event happens all devices stored in the respective association group will receive the same wireless command wireless command, typically a 'Basic Set' Command.

Association Groups:

Group Number	Maximum Nodes	Description
1	1	Lifeline

Configuration Parameters

Z-Wave products are supposed to work out of the box after inclusion, however certain configuration can adapt the function better to user needs or unlock further enhanced features.

IMPORTANT: Controllers may only allow configuring signed values. In order to set values in the range 128 ... 255 the value sent in the application shall be the desired value minus 256. For example: To set a parameter to 200 it may be needed to set a value of 200 minus 256 = minus 56. In case of a two byte value the same logic applies: Values greater than 32768 may needed to be given as negative values too.

Parameter 1: Valve Type (root only)

Size: 1 Byte, Default Value: 0

Setting	Description
0	Normally closed
1	Normally open

Parameter 2: Heat Load Strategy (root only)

Size: 0 Byte, Default Value: 0

Setting	Description
0	Stacking
1	Spreading

Parameter 3: PWM period

Size: 1 Byte, Default Value: 2

Setting	Description
0	Short (15 min)
1	Medium (30 min)
2	Long (60 min) (default)

Technical Data

Dimensions	325 x 78 x 47 mm
Weight	0.00066 gr
Hardware Platform	ZM3102
EAN	5702425190513
IP Class	IP 30
Voltage	230 V
Load	35 VA
Device Type	Barrier Operator
Generic Device Class	Thermostat
Specific Device Class	Thermostat General V2
Network Operation	Not Z-Wave+
Z-Wave Version	4.55.00
Certification ID	ZC08-16010005
Z-Wave Product Id	0x0002.0x0248.0xA040

Supported Command Classes

- Association
- Association Group Information
- Basic
- Configuration
- Device Reset Locally
- Indicator
- Manufacturer Specific
- Multi Channel
- Multi Channel Association
- Notification
- Switch Binary
- Thermostat Mode
- Thermostat Setpoint
- Version

Controlled Command Classes

- Sensor Multilevel

Explanation of Z-Wave specific terms

- **Controller** — is a Z-Wave device with capabilities to manage the network. Controllers are typically Gateways,Remote Controls or battery operated wall controllers.

- **Slave** — is a Z-Wave device without capabilities to manage the network. Slaves can be sensors, actuators and even remote controls.
- **Primary Controller** — is the central organizer of the network. It must be a controller. There can be only one primary controller in a Z-Wave network.
- **Inclusion** — is the process of adding new Z-Wave devices into a network.
- **Exclusion** — is the process of removing Z-Wave devices from the network.
- **Association** — is a control relationship between a controlling device and a controlled device.
- **Wakeup Notification** — is a special wireless message issued by a Z-Wave device to announces that is able to communicate.
- **Node Information Frame** — is a special wireless message issued by a Z-Wave device to announce its capabilities and functions.

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