

MAKING MODERN LIVING POSSIBLE



## Installation Guide

# Danfoss Link™ Hydronic Controller

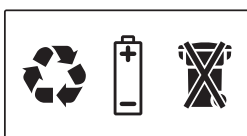


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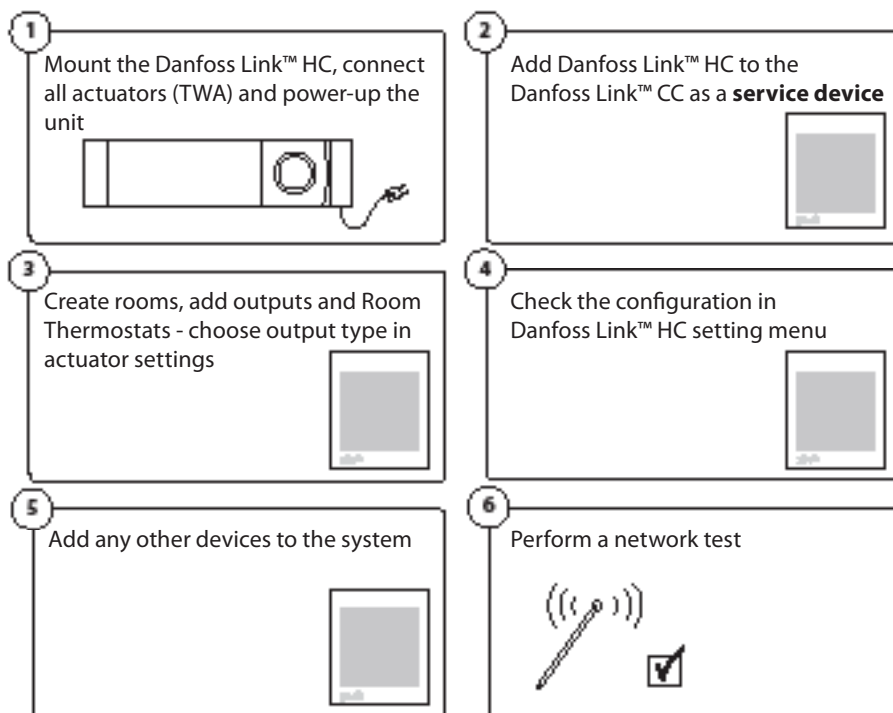
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## 1. Quick guide for Installation



## 2. Introduction

Danfoss Link™ is a wireless control system for a variety of heating systems.

The Danfoss Link™ HC is a part of this system allowing wireless control of manifolds for water based floor heating/cooling.

## 3. Functional Overview (fig. 2)

- ① Output LEDs.
- ② Boiler relay.
- ③ Pump relay.
- ④ Actuator connections.
- ⑤ Install/Link Test.
- ⑥ External antenna connection.
- ⑦ Front cover release.
- ⑧ Not in use (Input 1).
- ⑨ Away Function (Input 2) (external ON/OFF switch).
- ⑩ Input for heating/cooling (Input 3) (external ON/OFF switch).
- ⑪ Output cable fixing.

## 4. Mounting and Installation Procedure (Sequential)

The wireless systems transmission range is sufficient for most applications; however, wireless signals are weakened on the way from the Danfoss Link™ to the Room Thermostats and each building has different obstacles.

Checklist for optimal installation and best wireless signal strength (fig. 1):

- No metal objects between the Danfoss Link™ HC and the Room Thermostats.
- Wireless signal through walls on shortest possible diagonal distance.
- Optimise the wireless signal by installing a RU Repeater Unit.

**Note!** Danfoss recommends that an installation plan is made before beginning the actual installation (fig. 1).

### 4.1 Danfoss Link™ HC

Mount the Danfoss Link™ HC in an horizontal upright position.

Wall:

- Remove the front and side covers (fig. 3).
- Mount with screws and wall plugs (fig. 3).

DIN-Rail:

- Mount DIN-rail parts (fig. 4).
- Click on DIN-rail (fig. 5).
- Release from DIN-rail (fig. 6).

**Important!** Complete all the installations on the Danfoss Link™ HC as described below, before connecting to a 230 V power supply!

### 4.2 24 V Actuators

- Connect the two actuator wires to an output (fig. 7).
- Fix the cable (fig. 8).

**Note!** If NC (normally closed) actuators are installed for ON/OFF regulation, no further actuator output configuration is needed.

### 4.3 Relays for Pump and Boiler Control

- Connect wires for pump and boiler controls to their respective output (fig. 9).
- Fix the cable (fig. 10).

**Note!** The relays for pump and boiler are potential free contacts and can therefore NOT be used as direct power supply. Max. load is 230 V and 8 A/2 A!

### 4.4 Input for Away Function

- Connect an external ON/OFF switch to the terminals for Away Function (Input 2). When this switch is closed (ON) the system will override all room thermostat set points and change the temperature to 15 °C (fig. 11).
- Fix the cable (fig. 12).

**Note!** The Away Function ensures a set room temperature fixed at 15 °C for all room thermostats, but it can be changed with the Danfoss Link™ CC.

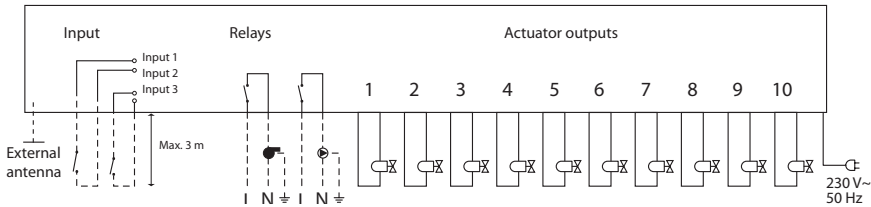
## Installation Guide Danfoss Link™ HC

### 4.5 Input for Heating and Cooling

- Connect an external ON/OFF switch to the terminals for Heating and Cooling (Input 3) (fig. 13). With the switch closed (ON), the system will switch from heating to cooling mode.
- Fix the cable (fig. 14).

**Note!** With the system in cooling mode, the actuator output will be activated (ON for NC actuators/OFF for NO actuators), when the temperature in a room exceeds the set point. When the system is in cooling mode a dew-point sensor should be installed.

### 4.6 Wiring



### 4.7 Power Supply



Connect all actuators (TWA), before mains powering the unit!

Then, connect the Danfoss Link™ HC power supply plug to a 230 V power supply, when all actuators, pump and boiler controls and other inputs are installed. The Danfoss Link™ HC is now ready to be added to the Danfoss Link™ CC.

**Note!** If the power supply plug is removed from the power supply cable during installation, ensure that the connection is made according to existing law/legislation.

### 4.8 CF-EA External Antenna

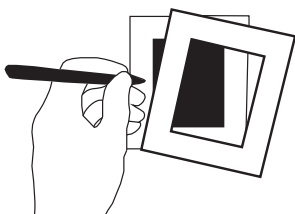
The CF-EA is installed as diverter when there is no transmission possible through a large building, heavy construction or metal barrier, e.g. if the Danfoss Link™ HC is located in a metal cabinet/box.

- Remove the plastic cover from the antenna connection on the Danfoss Link™ HC (fig. 15).
- Connect the CF-EA (fig. 16).
- Place the CF-EA on the other side of the transmission barrier away from the Danfoss Link™ HC.

## 5. Configuration

### 5.1 Adding Danfoss Link™ HC to the system

**Note!** Adding Danfoss Link™ HC to a system is made from the Danfoss Link™ CC. For further information, see separate instruction.

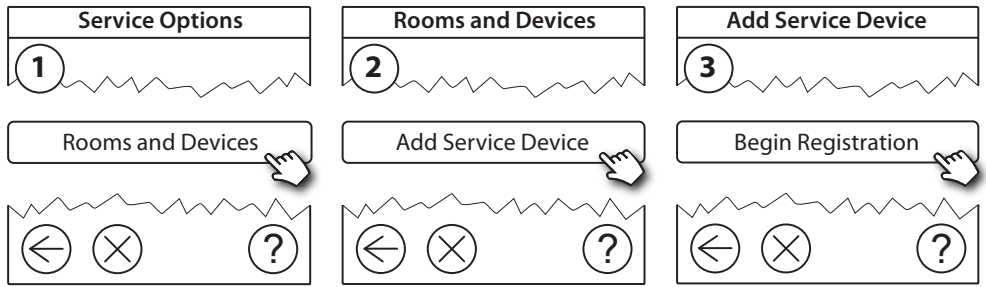


- Remove the front cover of the Danfoss Link™ CC by gently pulling it off, pull near the edges of the cover.
- Press the **SETUP** pin for 3 seconds to enter the service area.

#### Important!

- The Danfoss Link™ HC must be added to the network as a **service device**. For further instructions on network inclusion, see more information in the Danfoss Link™ CC Installation Guide.
- Add any dedicated repeater units (CF-RU) BEFORE adding the Danfoss Link™ HC to the wireless network.

## Installation Guide Danfoss Link™ HC

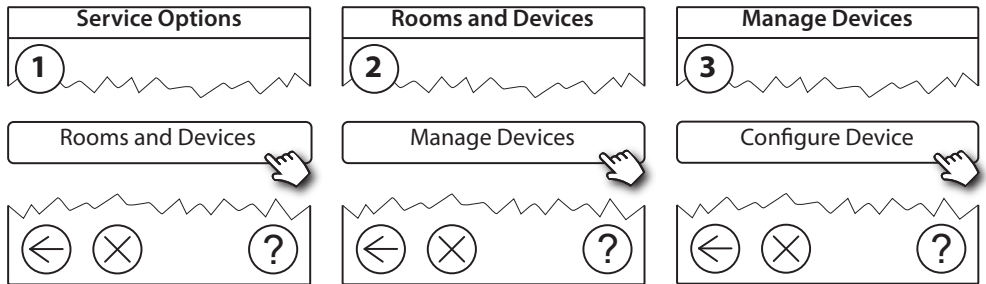


Click here for adding the Danfoss Link™ HC

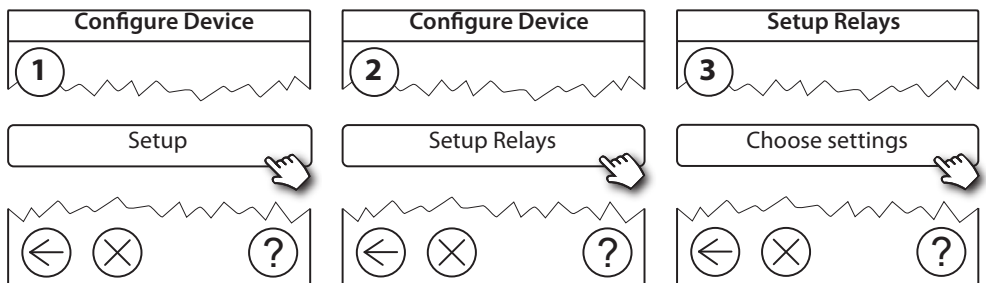
**Note!** During installation, the distance between the Danfoss Link™ CC and the Danfoss Link™ HC must not exceed 1.5m.

### 5.2 Configuring Danfoss Link™ HC

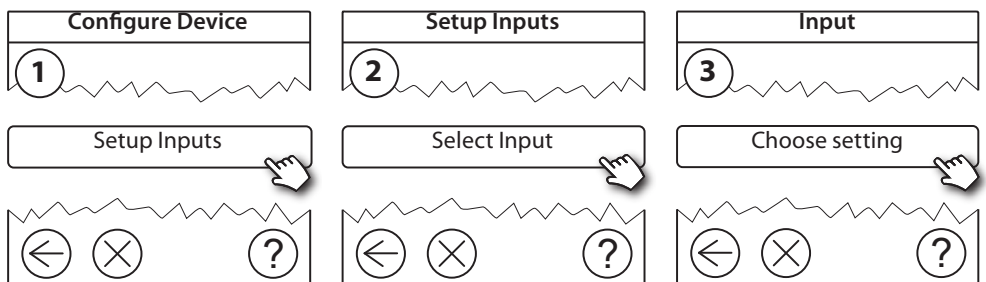
**Note!** Configuring Danfoss Link™ HC is made from the Danfoss Link™ CC. For further information, see separate instruction.



#### Configuring outputs



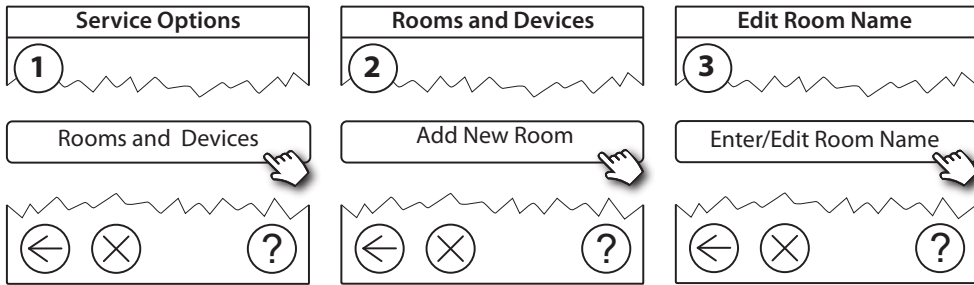
#### Configuring inputs



## Installation Guide Danfoss Link™ HC

### 5.3 Creating rooms

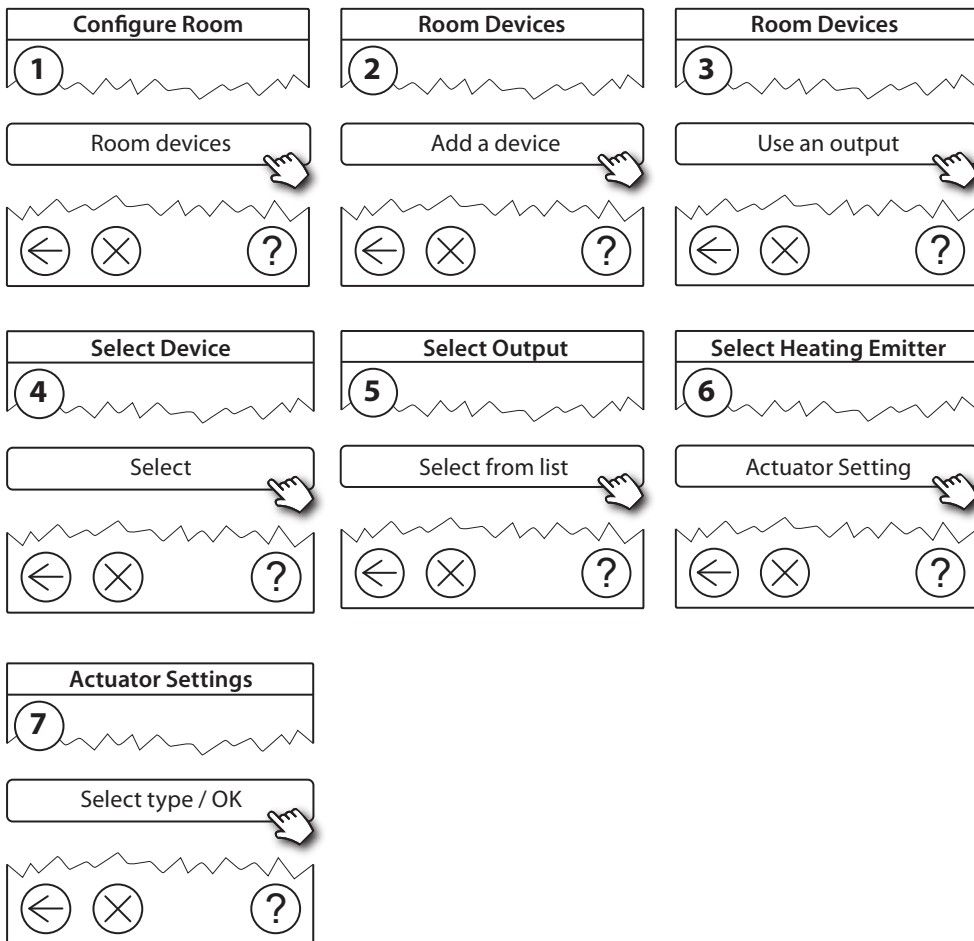
Danfoss recommends to create and add device(s) to one room in a single step, and thereafter move on to the next room.



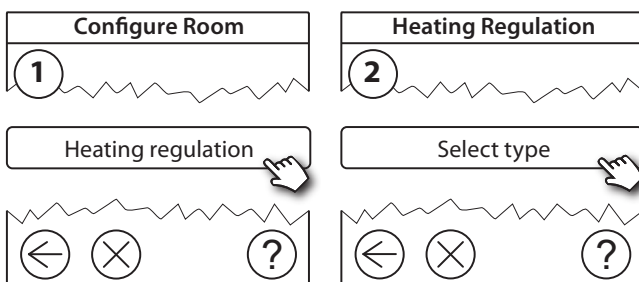
### 5.4 Adding an output to a room

**Note!** Configuring Danfoss Link™ HC is made from the Danfoss Link™ CC.

For further information, see separate instruction.



### 5.5 Configuring a room



#### Forecasting method:

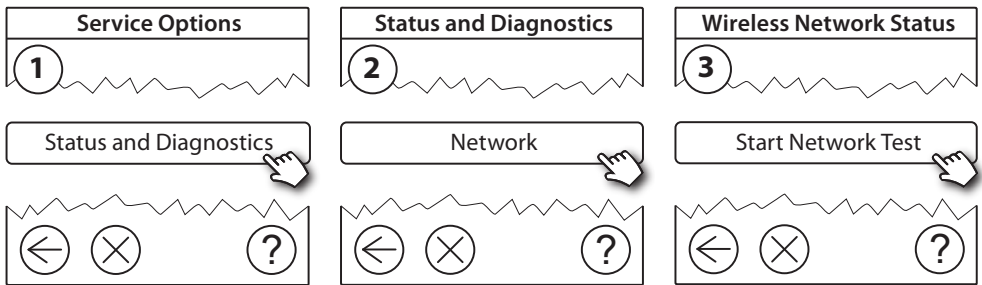
By activation of the forecast method, the system will automatically predict the heating start-up time necessary to reach desired room temperature at desired time.

## Installation Guide Danfoss Link™ HC

### 5.6 Performing a network test after adding new devices

After finishing installation, perform a network test to ensure that communication between added devices and the Danfoss Link CC™ is stable.

**Note!** Do not perform the network test before the Danfoss Link™ CC is mounted in its final position.



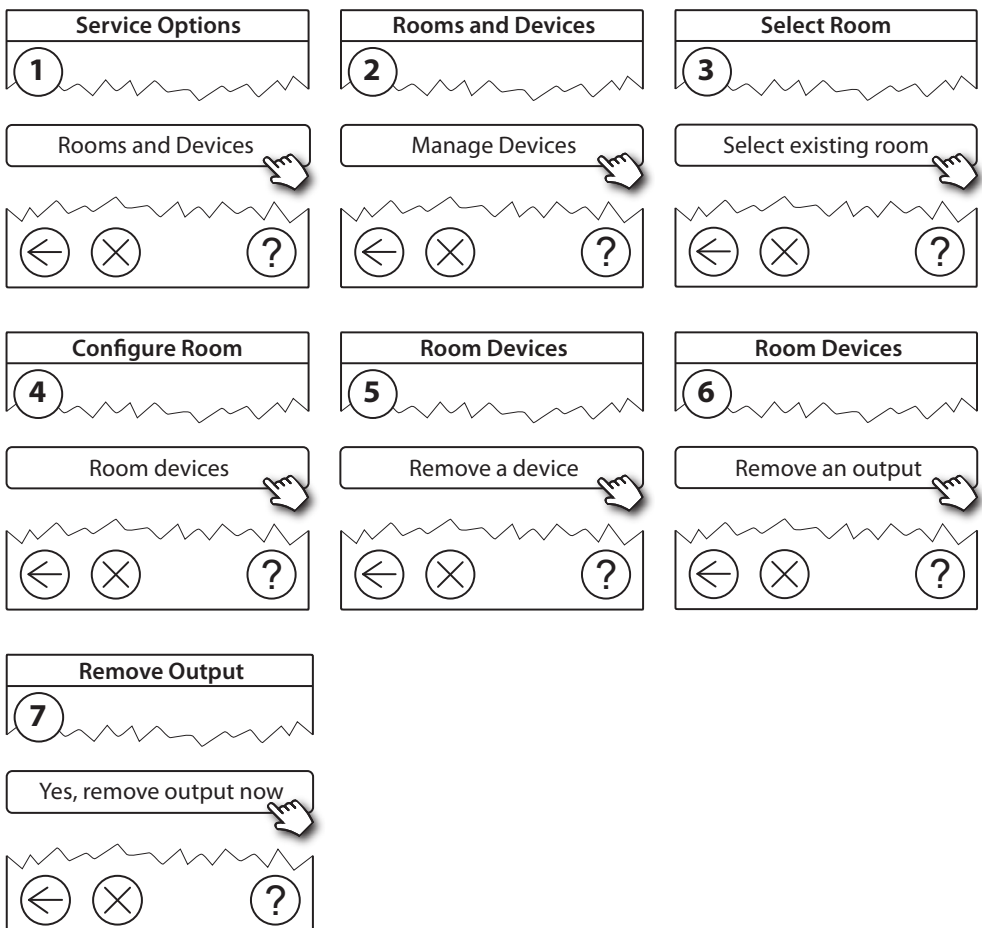
At the end of the network test the Danfoss Link™ CC awaits for all battery operated devices to wake up and report. Follow the instructions given on the screen. If the network test is running smoothly, there will be no need for further interaction. If the network test is performing slow, the Danfoss Link™ CC guides through troubleshooting and gives useful tips for speeding up the process.

### 5.7 Leaving the service area in Danfoss Link™ CC

Press the **SETUP** pin for 3 seconds and put back the front cover to the Danfoss Link™ CC.

## 6. Maintenance

### 6.1 Removing an output





### 6.2 Factory reset

- Disconnect the power supply for the Danfoss Link™ HC.
- Wait for green LED to turn off.
- Press and hold the Install/Link Test (fig. 2 ⑤).
- While holding Install/Link Test, reconnect the power supply.
- Release the Install/Link Test, when the LEDs are on.

## 7. Technical Specifications

Transmission frequency	862.42 MHz
Transmission range in normal constructions (up to)	30 m
Transmission power	< 1 mW
Supply voltage	230 V AC
Actuator outputs	5 or 10 x 24 V DC
Max. continued output load (total)	35 VA
Relays	230 V AC/8 (2) A
Ambient temperature	0 - 50 °C
IP class	30

## 8. Troubleshooting

Error indication	Possible Causes
Impossible to add devices to the Danfoss Link™ CC system	The distance between the Danfoss Link™ CC and the Danfoss Link™ HC has exceeded 1.5m. For further information, see separate instruction for the Danfoss Link™ CC.
The connection to a device is lost	- Empty/low battery - The wireless signal is weak - Defective device For further information, see separate instruction for the Danfoss Link™ CC.
Actuator (TWA) not visible on Danfoss Link™ CC	- Actuator incorrectly mounted - Defective actuator
Flashing output/alarm LEDs	- Output or actuator is short-circuited - The actuator is disconnected
High room temperature (above comfort settings)	Degraded mode. (The actuator will be activated with a 25% duty cycle - caused by lost connection to a device)

A1

Fig. 1

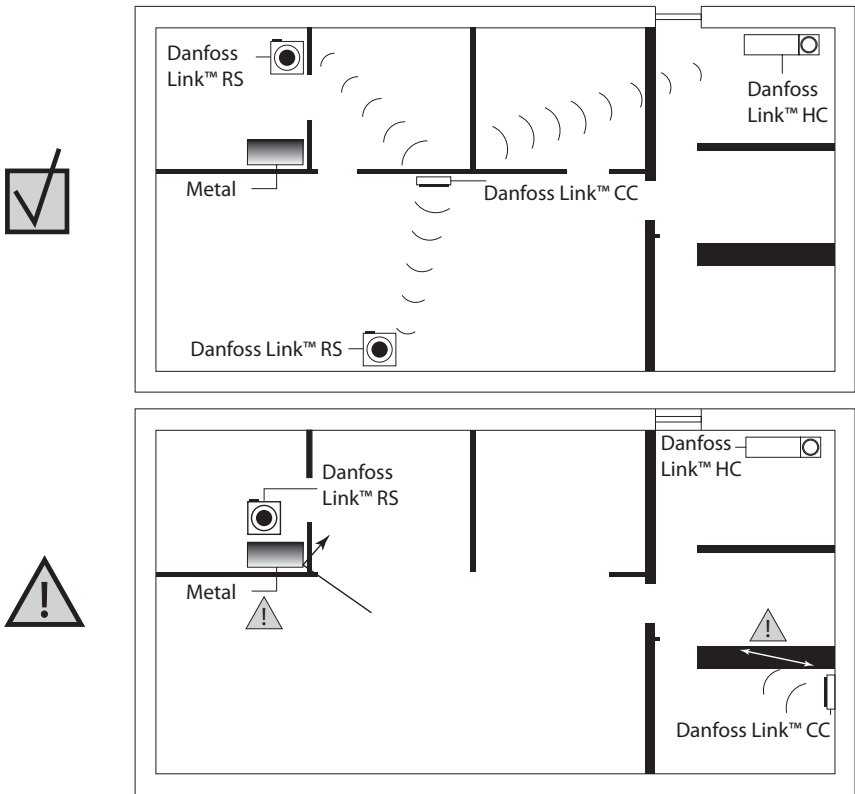


Fig. 2

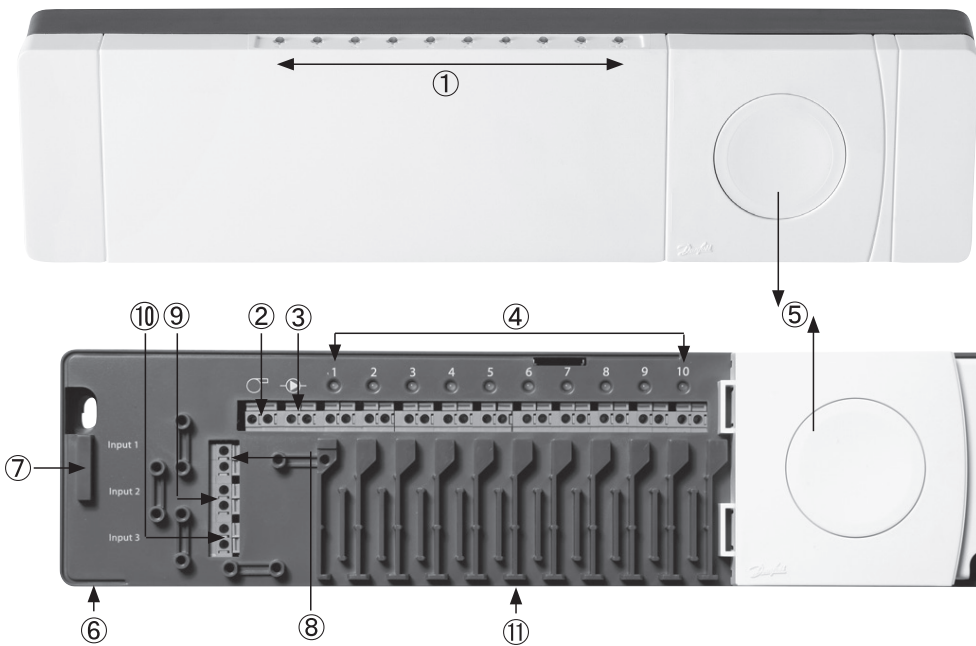
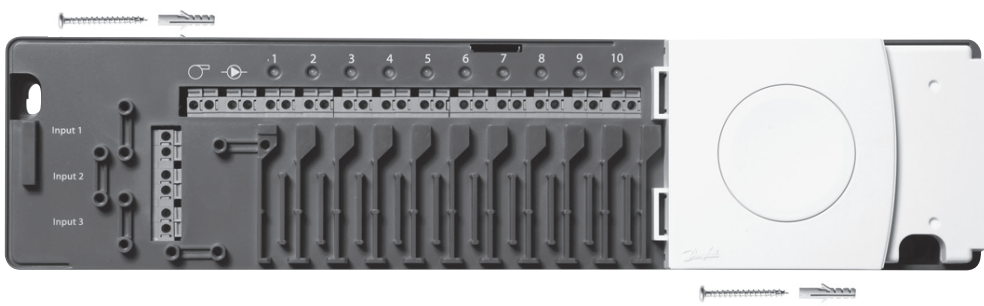


Fig. 3



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## A2

Fig. 4



Fig. 5

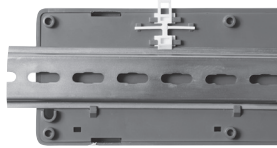


Fig. 6

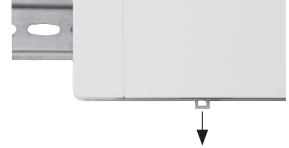


Fig. 7

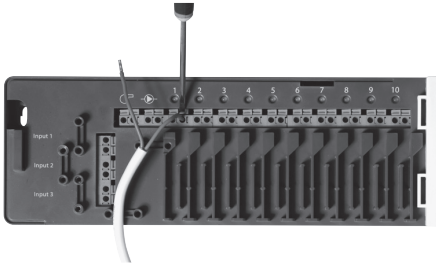


Fig. 8

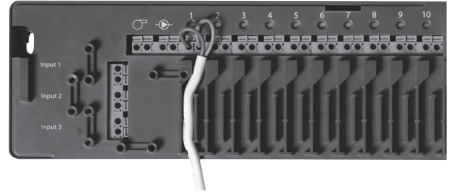


Fig. 9

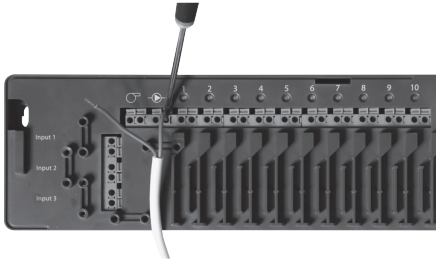


Fig. 10

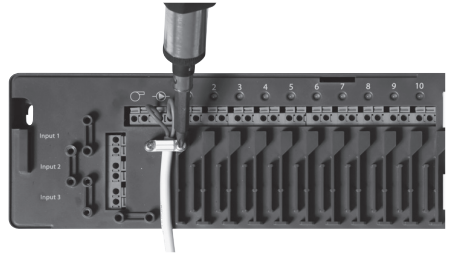


Fig. 11

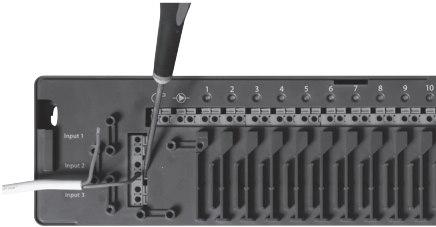


Fig. 12

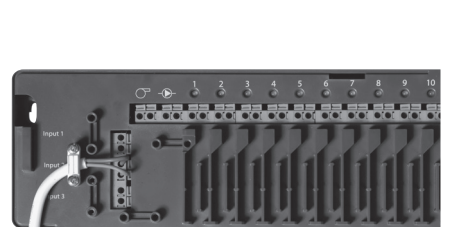


Fig. 13

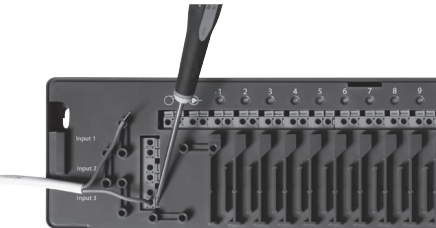


Fig. 14



Fig. 15



Fig. 16

