



# Floor Heating Controls

## Danfoss Icon2™ Main Controller

## Description

Danfoss Icon2™ Main Controller is used for floor heating and cooling systems for individual room control.

It can be configured as a wired or wireless system or as a combination, if required.

The center of the system is the Danfoss Icon2™ Main Controller, which configures and ties the system together.

Installation and set-up of the Danfoss Icon2™ Main Controller is made easy by using the pre-defined application and intuitive commissioning App.

## Features & benefits

- Automatic balancing (PWM+), which ensure that the hydraulic balancing of the system is done by the master controller based on the actual room demand
  - Requires no pre-setting on the manifold
  - On/Off control possibility
  - NC/NO actuator functionality
- Cooling change over:
  - Basic version only support 2 pipe systems
  - Supports 2, 3 or 4 pipe applications in various configurations (3 and 4 pipes systems require Advanced version)
  - Flow temperature control (require Advanced version), can be set to either a fixed temperature or demand-based flow temperature control
- Supports multiple main controllers application (up to 4 in one system)
- 230 V power output with protected earth for circulation pump
- 230 V power output (for e.g. always on)
- Heat demand signal output (for e.g. potential free relay)
- Wireless 2.4 GHz
- Powerline communication (for 24 V wired thermostats)
  - Possibility to combine wired and wireless thermostats in same installation
- Smart home integration, for both iOS and Android devices (requires Ally™ Gateway or a compatible ZigBee gateway)

## Applications

### Application drawings

Figure: Example 1: 2-pipe system (optional cooling)

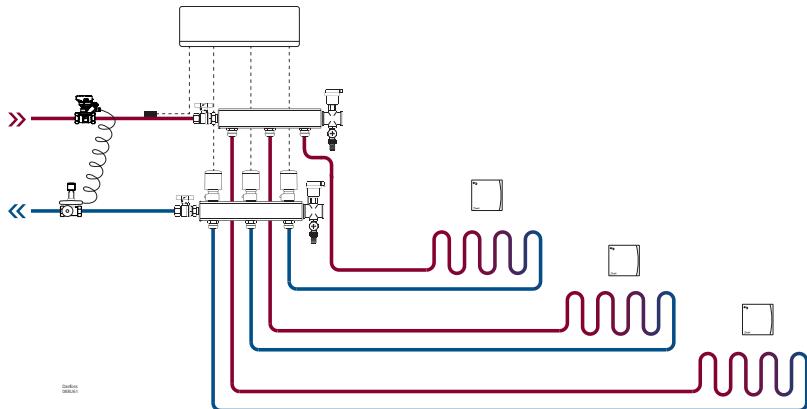


Figure: Example 2: 2-pipe system with mixing shunt (optional supply temperature control)

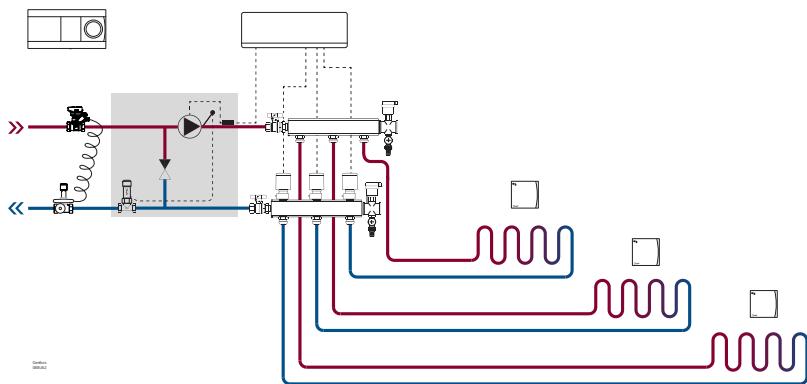
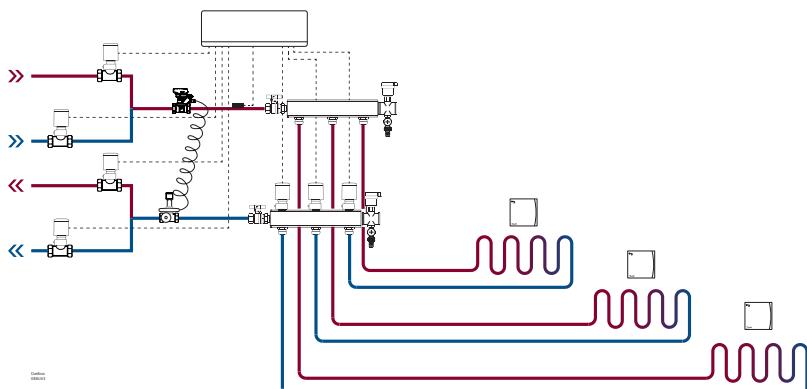


Figure: Example 3: 4-pipe cooling



## Ordering

### Product code numbers

Product type	Code number
Danfoss Icon2™ MC, Basic, EU	088U2100
Danfoss Icon2™ MC, Basic, EU 24 V actuators	088U2105
Danfoss Icon2™ MC, Advanced, EU	088U2110
Danfoss Icon2™ MC, Basic, CH	088U2101
Danfoss Icon2™ MC, Advanced, CH	088U2111
Danfoss Icon2™ MC, Basic, NP	088U2102
Danfoss Icon2™ MC, Advanced, NP	088U2112

### Accessories code numbers



088U0251

**Floor Heating Controls, Dew point sensor, 24 V, Output voltage [V] AC: 230, Strappable**

Wired 24V, Used in floor heating/cooling as protection against condensation

Related products

[088U2100](#) [088U2101](#) [088U2102](#) [088U2105](#) [088U2110](#) [088U2111](#)  
[088U2112](#)



088U2128

**Floor Heating Controls, Danfoss Icon2™ 24V RT wired, Room Thermostat, 24 V, On-wall**

24V Room Thermostat, On-wall, 86x86, Wired 24V

Related products

[088U2100](#) [088U2101](#) [088U2102](#) [088U2105](#) [088U2110](#) [088U2111](#)  
[088U2112](#)



088U2141

**Accessories, External Antenna**

Accessories, External Antenna

Related products

[088U2100](#) [088U2101](#) [088U2102](#) [088U2105](#) [088U2110](#) [088U2111](#)  
[088U2112](#)



088U2120

**Floor Heating Controls, Danfoss Icon2™ RT wireless, Room Sensor**

Room Sensor without Display, Zigbee communication, Wireless

Related products

[088U2100](#) [088U2101](#) [088U2102](#) [088U2105](#) [088U2110](#) [088U2111](#)  
[088U2112](#)



088U2122

**Floor Heating Controls,  
Danfoss Icon2™ RT wireless,  
Room Thermostat with floor  
sensor**

Room Thermostat featured with IR floor temperature sensor, Zigbee communication, Wireless, Wireless

Related products

[088U2100](#) [088U2101](#) [088U2102](#) [088U2105](#) [088U2110](#) [088U2111](#)  
[088U2112](#)



088U2125

**Floor Heating Controls,  
Danfoss Icon2™ 24V RT wired,  
Room Thermostat, 24 V, In-  
wall**

24V Room Thermostat, In-wall  
80x80, Wired 24V

Related products

[088U2100](#) [088U2101](#) [088U2102](#) [088U2105](#) [088U2110](#) [088U2111](#)  
[088U2112](#)



088U2121

**Floor Heating Controls,  
Danfoss Icon2™ RT wireless,  
Room Thermostat**

Room Thermostat, Zigbee communication, Wireless

Related products

[088U2100](#) [088U2101](#) [088U2102](#) [088U2105](#) [088U2110](#) [088U2111](#)  
[088U2112](#)



087B1165

**ESM-11, Pt 1000**

ESM-11, Pt 1000 Surface sensor

Related products

[088U2100](#) [088U2101](#) [088U2102](#) [088U2105](#) [088U2110](#) [088U2111](#)  
[088U2112](#)



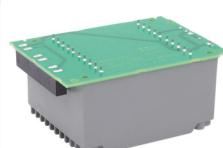
088U1131

**Zigbee Repeater is used to  
extend the range between  
Zigbee devices**

Zigbee Repeater is used to extend the range between Zigbee devices

Related products

[088U2100](#) [088U2102](#) [088U2105](#) [088U2110](#) [088U2112](#)



088U2140

**Conversion module to enable  
Icon2™ Main Controller to  
support 24v TWAs, instead of  
230v TWAs**

Conversion module to enable Icon2™ Main Controller to support 24v TWAs, instead of 230v TWAs

Related products

[088U2100](#) [088U2102](#) [088U2110](#) [088U2112](#)

## Product details

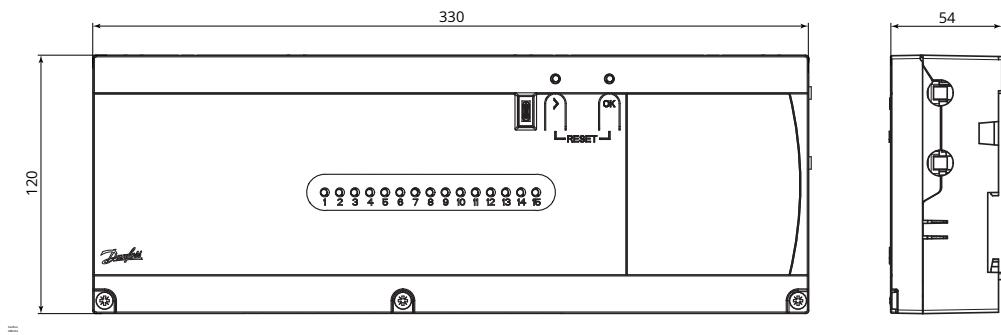
### General data

**Table: Technical specifications**

Temperature for the ball pressure test	75 °C
Control pollution degree	Degree 2, normal household environment
Software class	Class A
Rated impulse voltage	4 kV
Operating time	Permanently connected
Temperature range, storage and transportation	-25 – +65 °C
Disposal instructions	The product must be disposed as electronic waste
Supply voltage	220 – 240 V AC This appliance must be connected to an earthing terminal
Supply frequency	50/60 Hz
Output voltage, actuators	230 V (24 V with conversion module installed)
Max. power consumption per actuator output	2 W
Number of actuator outputs (1 actuator per output terminal)	15
Output voltage, thermostats	24 V DC
Stand-by consumption per thermostat	0.2 W
Max. number of thermostats	15
Max. length of wire from master controller to a 24 V thermostat (depends on cable type used)	If $2 \times 2 \times 0.6 \text{ mm}^2$ STP/UTP: 100 m If $2 \times 0.5 \text{ mm}^2$ : 150 m If $> 2 \times 0.75 \text{ mm}^2$ : 200 m
Stand-by consumption, Master Controller	230 V actuators: < 2 W; 24 V actuators: < 5 W
Max. power consumption, excluding use of PWR 1 and PWR 2 outputs	< 50 W
Internal protection (fuse, replacable)	2.5 A
Output "Relay"	Voltage free relay, Max. 2 A load
Actuator outputs, type	Type 1C (Micro interruption)
Output "PWR1", type and rated max. output	Type 1B (Micro disconnection), max. 100 W
Output "PWR2", type and rated max. output	Type: Permanent output, 230 V, max. 50 W
Output 24 V out	24 V DC, max. 1 W
Output "PWR3" 24 V out	24 V DC max. 2 W
Input "IN1"	Ext. switch input (internal 24 V pull-up)
Input "IN2"	Ext. switch input (internal 24 V pull-up)
Input "IN3", sensor input	External sensor, PT 1000 (Danfoss ESM 11)
Dimensions	W: 330 mm, H: 120 mm, D: 54 mm
Conformity declared acc. to following directives	LVD, RED, RoHS and WEEE
Purpose of control	Individual electronic room temperature control
Method of providing earthing	Factory fitted power cord, incl. PE-conductor
Encapsulation (IP Class)	IP 20
Protection class	Class II Construction with earthing terminal
Ambient temperature range, continuous use	0 – 50 °C
Frequency	2.4 GHz
Transmission power	< 100 mW

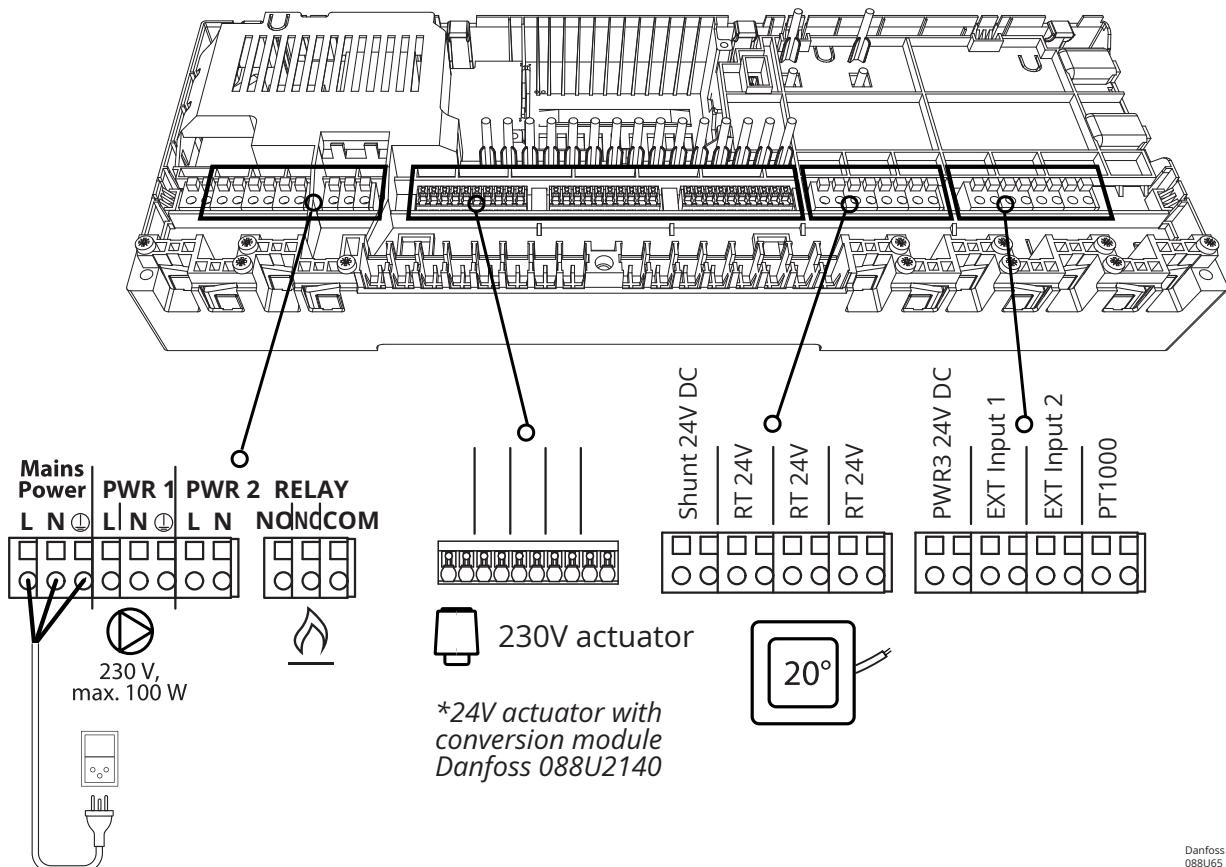
## Dimensions

Figure: Danfoss Icon2™ Main Controller [Dimensions are in mm]



## Connections

Figure: Danfoss Icon2™ Main Controller connection



## Certificates, declarations and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

When you click on the link you will be directed to the latest version of the 'Declaration of Conformity'. Products developed and sold before this date of issue conform to the directives/standards in force at the time of their sale.

Approval type	Title	Certification body	Approval topic
Wireless Certificate	<a href="#">RSM CF16604 NZ-Rev.00</a>	RSM - Radio Spectrum Management	RCM
EU Declaration	<a href="#">Danfoss EU 10000066562.02</a>	Danfoss	EU RoHS
Wireless Certificate	<a href="#">CAB UA.R.TR.052.033-23</a>	CAB - Conformity Assessment Body Ukrchastotnagliad	
EMC Certificate	<a href="#">ACMA CF16604 AU-Rev.00</a>	ACMA - Australian Communication and Media Authority	RCM
Wireless Certificate	<a href="#">CAB UA.R.TR.052.032-23</a>	CAB - Conformity Assessment Body Ukrchastotnagliad	
Manufacturer's Declaration	<a href="#">Danfoss MD 600000325683.02</a>	Danfoss	China RoHS
Manufacturer's Declaration	<a href="#">Danfoss Manufacturer's Statement of Compliance on EU Data Act 250902EN0301.001</a>	Danfoss	Compliance misc. Standards
Electrical Safety Certificate	<a href="#">EAC KZ 7100841.01.01.01245</a>	EAC - Eurasian Customs Union	LVD
Statement of Compliance	<a href="#">Danfoss SoC 240326EN3488101.01</a>	Danfoss	UK PSTI

## Contact details

### Online support

Danfoss offers a wide range of support along with our products, including digital information, software, mobile apps and expert guidance. See the possibilities below.



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