

Data Sheet

CF-MC Master Controller

Application



CF-MC is the Master Controller in Danfoss' CF2+ wireless floor heating control system. 2-way wireless communication between CF-MC and other wireless CF2+ system components ensures a high level of transmission security and makes it possible to perform Link test of the signals.

Transmission range is up to 30 m in normal buildings. If transmission is reduced or blocked by building or interior elements, a CF-EA external antenna (accessory) can be used to avoid the obstacles.

CF-MC is connected directly to 230 V power supply, and it provides all actuator outputs with 24 V.

CF-MC Master Controller includes features like:

- 2-way wireless transmission at 868.42MHz, for higher transmission security
- Direct link test option on each system component
- Wireless assignment of room thermostats and other system components
- 5 or 10 short-circuit protected outputs with LED indication
- Outputs for 24V NC or NO actuators
- Valve motion for all outputs for approx. 12 min. every 14th day with no heat demand

- PWM (Pulse Width Modulation) principle
- Input (On/Off) for heating / cooling
- Input for PT1000 pipe sensor
- Input (On/Off) for global standby (can also be used for CF-DS dew-point sensor)
- Relay for pump control with automatic pump motion
- Relay for boiler control, activated only at heat demand
- Easy cable fixing at each actuator output for several cable types
- Automatic self diagnosis of errors

Larger CF2+ systems can consist of 2 or 3 CF-MC Master Controllers with up to 30 outputs. Systems with more Master Controllers can be accessed by a single wireless CF-RC Remote Controller, which gives access to even more functionality and features, e.g.

- Individual settings for each Master Controller output
- Override and locking of local room temperature settings
- Setback and period programming
- System status etc.
- Forecast
- Low energy optimizer
- Control of cooling applications

Find more information in data sheet and instruction for CF-RC.

Ordering

Product	Outputs	Supply	Type	Code no.
Master Controller	5 outputs, 24 VDC	230 VAC	CF-MC	088U0245
Master Controller	10 outputs, 24 VDC	230 VAC	CF-MC	088U0240

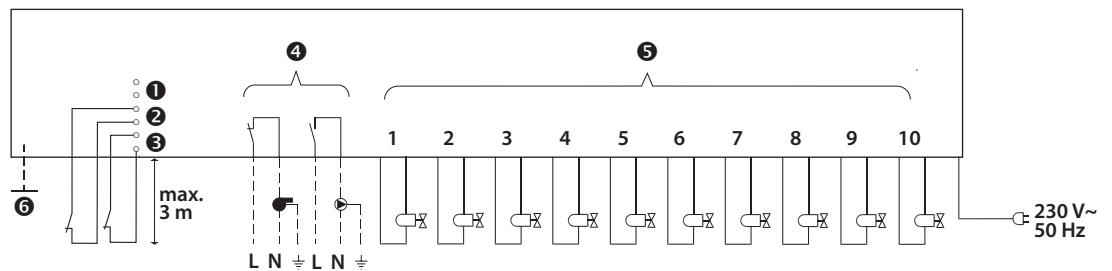
Accessories

Product	Type	Code no.
External antenna with 2 m cable	CF-EA	088U0250
Cable extension for external antenna, 5 m	CF-EC	088U0255
TWA-A 24 V NC actuator for Danfoss valves	TWA-A	088H3110
TWA-A 24 V NO actuator for Danfoss valves	TWA-A	088H3111

Technical data

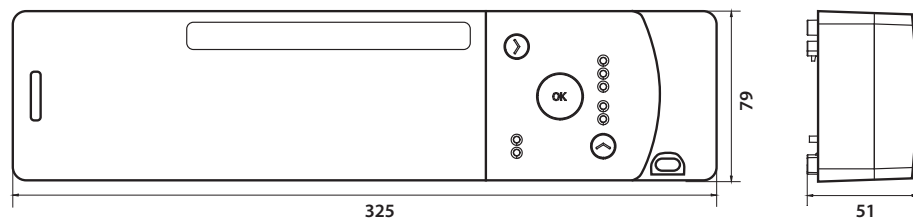
Supply voltage	230 VAC
Output voltage	24 VDC
Number of outputs	5 / 10
Transmission frequency	868.42 MHz
Transmission range	up to 30 m (in normal buildings)
Transmission power	< 1 mW
Max. running load of actuator output	35 VA (total for all outputs)
Max. load for pump relay	230 V, 8 A / 2 A (inductive)
Max. load for boiler relay	230 V, 8 A / 2 A (inductive)
Approvals	CE
Standard	EN 60730
Directives	R&TTE, LVD, EMC
Protection class	IP30
Length of mains cable	1.5 m
Weight	700 g

Wiring Connections



- ❶ PT 1000 pipe sensor.
- ❷ Global standby.
- ❸ Heating / Cooling.
- ❹ Relay outputs.
- ❺ Actuator outputs.
- ❻ External antenna.

Dimensions



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Data Sheet

CF-Rx Room Thermostats

Application



CF-RS



CF-RP



CF-RD



CF-RF

CF-Rx is a range of room thermostats for Danfoss' CF2+ wireless floor heating control system.

CF-Rx thermostats communicate with the CF-MC Master Controller via 2-way wireless transmission. All thermostats includes a Link Test function for easy status indication of the wireless signal and a LED warning for low battery. The room thermostats are available in 4 versions.

CF-RS Standard Thermostat:

- Easy wireless assignment with Link Test to Master Controller CF-MC.
- Min. and max. limitation of temperature settings.
- Powered by 2 x AA Alkaline 1.5V batteries.
- LED indication for low battery.

CF-RP Public (tamperproof) Thermostat:

- Easy wireless assignment with Link Test to Master Controller CF-MC.
- Min. and max. limitation of temperature settings.
- Powered by 2 x AA Alkaline 1.5V batteries.
- LED indication for low battery.
- Hidden set point adjustment for use in childrens rooms, schools, office buildings etc.

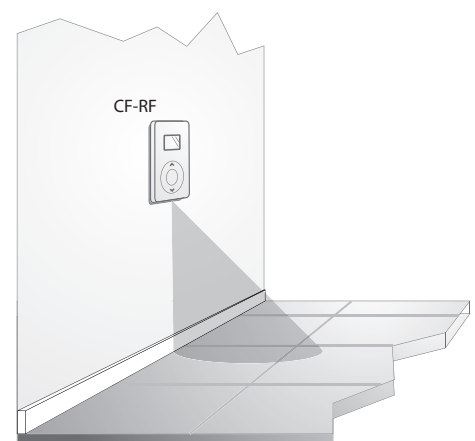
CF-RD Display Thermostat:

- Easy wireless assignment with Link Test to Master Controller CF-MC.
- Min. and max. limitation of temperature settings.
- Powered by 2 x AA Alkaline 1.5V batteries.

- LED indication for low battery.
- Digital display showing actual or set room temperature.

CF-RF Display Thermostat with InfraRed floor sensor:

- Easy wireless assignment with Link Test to Master Controller CF-MC.
- Min. and max. limitation of temperature settings.
- Powered by 2 x AA Alkaline 1.5V batteries.
- LED indication for low battery.
- Digital display showing actual or set room temperature.
- InfraRed floor sensor for minimum and maximum floor surface temperature limitation.

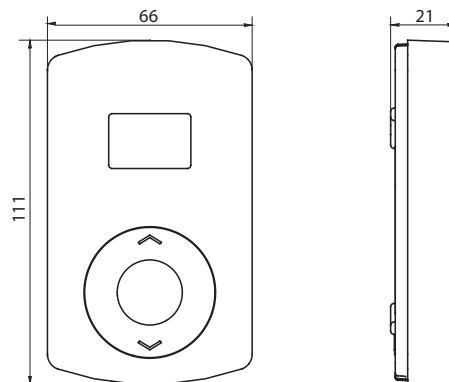


Ordering

Product	Type	Code no.
Standard room thermostat	CF-RS	088U0210
Public (tamperproof) room thermostat	CF-RP	088U0211
Room thermostat with digital display	CF-RD	088U0214
Room thermostat with digital display and InfraRed floor sensor	CF-RF	088U0215

Technical data

Supply voltage	2 x 1.5 Alkaline batteries AA
Battery life	CF-RS & CF-RP: 3-4 years CF-RD & CF-RF: 1-3 years
Transmission frequency	868.42 MHz
Transmission range	up to 30 m (in normal buildings)
Transmission power	< 1 mW
Temperature setting range	5-35°C
Approvals	CE
Standard	EN 60730
Directives	R&TTE, EMC
Protection class	IP21
Weight	120 g

Dimensions


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Data Sheet

CF-RC Remote Controller

Application



CF-RC is an optional wireless Remote Controller for Danfoss' CF2+ wireless floor heating control system.

CF-RC offers a wide range of extended functionality and application features:

- Wall mounting (in docking station) with 230V supply. If temporarily carried around powered by 2 x 1.5V Alkaline AA batteries
- Low battery indication via icon in display

- Display with backlight (initiates when a button is activated)
- 2-way wireless transmission with Link Test possibility
- Easy wireless assignment to Master Controller CF-MC
- Error identification and alarm logging
- Override and locking of local room temperature settings
- Setback and period programming
- System status etc.
- Forecast
- Low energy optimizer
- Control of cooling applications

All CF-RC options and functions are available through display and push buttons. The menu structure is self-guiding to make system access easy.

Larger CF2+ systems can consist of 2 or 3 CF-MC Master Controllers with up to 30 outputs. For systems with more Master Controllers, CF-RC Remote Controller gives access to individual remote control and settings of each CF-MC outputs and associated room thermostats.

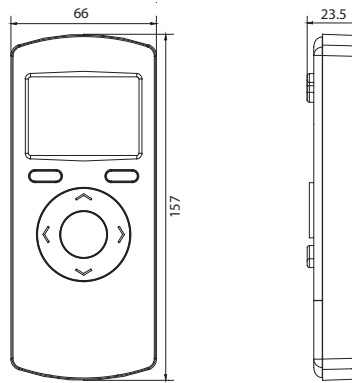
Ordering

Product	Type	Code no.
CF-RC wireless remote controller	CF-RC	088U0221

Technical data

Supply voltage	230 VAC (docking station) / 2 x 1.5 V Alkaline batteries AA
Transmission frequency	868.42 MHz
Transmission range	up to 30 m (in normal buildings)
Transmission power	< 1 mW
Approvals	CE
Standard	EN 60730
Directives	R&TTE, LVD, EMC
Protection class	IP21
Length of mains cable	1.8 m
Weight	200 g

Dimensions



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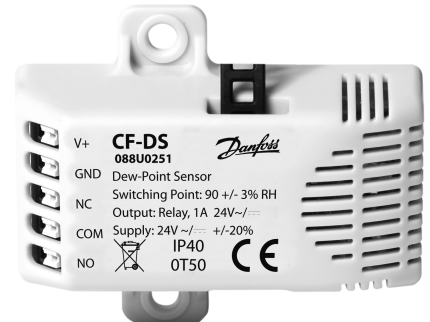
Data Sheet

CF-DS Dew Point Sensor

Application

The CF-DS dew point sensor is used in floor heating/cooling systems to protect against building of condensation.

The CF-DS is strapped onto the supply pipe and connected to the Global Standby input on the CF-MC Master Controller. CF-DS measures the relative air humidity compared to the pipe temperature. At 90% RH the dew point sensor sends a signal to the CF-MC Master Controller, which closes the cooling supply pipes.



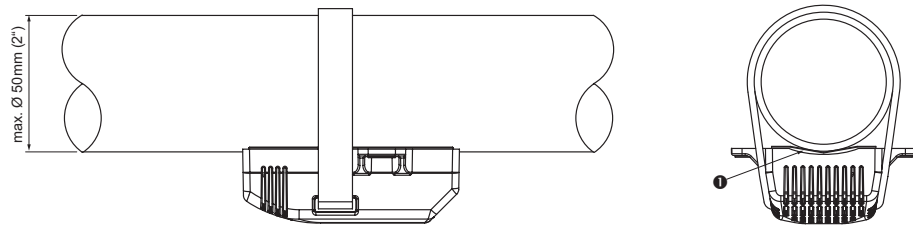
Ordering

Product	Code no.
CF-DS dew point sensor	088U0251

Technical data

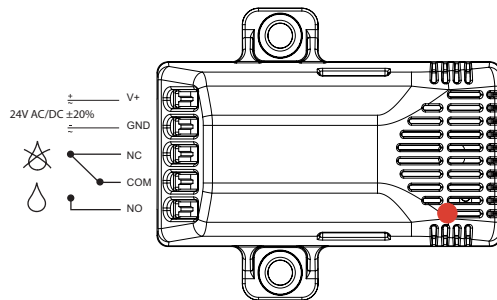
Humidity sensor	HC 105
Working range	10 - 100% RH
Switching point at 20°C / 68°F	90±3% RH
Switching hysteresis	5% RH
Response time, change of surface temperature	t ₉₀ < 3 min.
Response time, change of relative humidity	t ₉₀ < 25 sec.
Electrical output	potentialfree relay with changeover contact
Switching capacity	max. 24 V AC/DC, 1 A
Supply voltage	24 V AC/DC ± 20%
Current consumption at 24 V DC	< 3 mA
Relay status indication	LED (red)
Electrical connection	5-pole push-in terminal, max. 1.5 mm ²
Dust protection	by special coating (permeable for water vapour)
Housing protection class	IP40
Housing material	PC, fire resistant (according to UL94-V0)
Electromagnetic compatibility	EN 61326-1, EN 61326-2-3
Working temperature	0 - 50°C / 32 - 122°F
Storage temperature	-20 - 70°C / -4 - 158°F
Size (L x H x W)	63 x 54 x 23 mm
Weight	approx. 60 g

Mounting



1 Heat-conductive film

Wiring Connections



Status indication:

- LED continuous light: Operating < 90% RH
- LED blinking: Condensation danger

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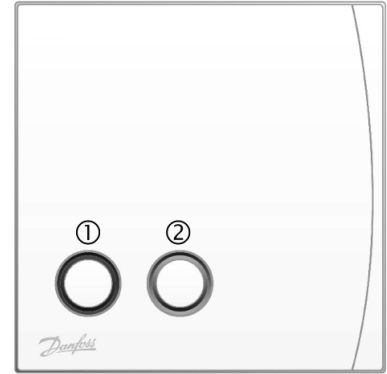
CF-WR Wireless Relay

Application

CF-WR wireless relay is an accessory to the Danfoss CF2+ wireless floor heating/cooling control system.

CF-WR is used for controlling a condensing boiler, chiller or pump, and due to wireless connection with the CF-MC Master Controller, installation is easy and highly flexible,

Configuration of CF-WR Wireless Relay is made with the CF-RC Remote Controller. Please refer to the instruction for CF-RC for further information.



1. PROG button with PROG LED.

2. Button not used for CF2+.

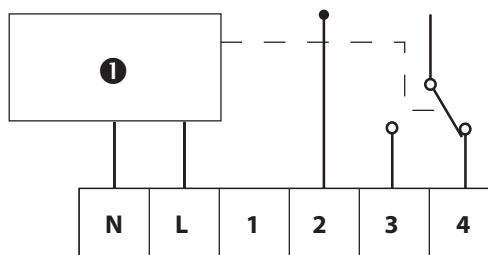
Ordering

Product	Code no.
CF-WR wireless relay	088U0252

Technical data

Supply voltage	230 Vac \pm 15%, 50 Hz
Construction	EN 60730-1, EN 300-220-1
Max. ambient temperature	45°C
Switch type	RZ1 - 1 x SPDT, type 1B
Switch rating	264 VAC, 3 (1) A
IP class	IP 40
Control pollution situation	Degree 2
Max. range	30 m
Operating frequency	868.42 MHz
Software classification	Class A
Rated impulse voltage	2.5 kV
Ball pressure test	75°C
Size (L x H x W)	83 x 83 x 31 mm

Wiring Connections



- 1** Electronics
- N
- L
- 1 Not in use
- 2 Com
- 3 Zone 1 on
- 4 Zone 1 off

Note: For mains voltage applications link terminals L and 2.

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