

Danfoss



Instruction FH-CWP Thermostat

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IMPORTANT!

Protect the thermostat from dirt, fluids, concrete and do NOT insert any objects into it. Do not cover the thermostat, for instance by hanging towels directly in front of it.

Installation must be done by an authorized electrician.

1. Functional Overview










Front - fig. 1

- ① Push button 
- ② Push button M
- ③ Push button 
- ④ Up/down selectors  

Back - fig. 2

- Screw hole for flush mounting ①
- Terminals for cable mounting ②

Symbols in the display - fig. 3

-  Room Sensor
-  Floor Sensor
-  Actual temperature indication
- 88:88h** Clock
-  Floor heating – Active
-  **SET** Set Room temperature
-  **SET** Set Floor temperature
-  ON/OFF Timer Function (Active or being SET)
- TIMER ON**
TIMER OFF Indication that timer is ON or OFF
-  Advanced Programmable Timer Function (Active or being SET)
-  Frost Protection – (Active or being SET)
- Su.** Actual weekday

2. Mounting

Placing the Room Thermostat - fig. 4 ①

! Wherever possible, the room thermostat should be installed where the effects of sunlight, draught, and other heaters (eg. TV's), etc. are avoided.

3. Installation

Installing the Room Thermostat- fig. 5 and fig. 6


- Remove the connection cable between front and back part.
- Connect the thermostat correctly to mains supply according to the Wiring Diagram - fig 6.
- Mount the thermostat by using the enclosed screws to the wall box.
- Mount the front correctly.

Wiring Diagram – fig 6


The product must be connected to the following leads:

- Term L: Phase (L) AC85-250V, 50/60 Hz
- Term NO: Valve (NO)
- Term NC: Valve (NC)
- Term N: Neutral (N)
- Term 2: Empty
- Terminal S2: Floor sensor
- Terminal S1: Floor sensor

4. Manual Operating Mode (factory setting)

Turn the thermostat ON or OFF by pressing  Fig. 1 ①.










Selecting Manual Mode

Turn ON the thermostat by pressing  Fig. 1 ①.

- Press **M** for 3 seconds - Fig.1.
- Select 01 = Manual Mode via   Fig. 1 ④.

Setting the Clock Fig. 3 **88:88h**




Su. Mo. Tu. We. Th. Fr. Sa.


- Press  Fig. 1 ③ shortly, **hour** will flash.
- Use   Fig. 1 ④ to select the hour.
- Press  Fig. 1 ③ again, **minutes** will flash.
- Use   Fig. 1 ④ to select the minutes.
- Press  Fig. 1 ③ shortly, **actual weekday** will flash.
- Use   Fig. 1 ④ to select the day of the week.

Displaying the Room Temperature Fig. 3


- The actual room temperature is shown in the display as default  **88**°.

Setting and changing the desired Room Temperature


- Press  or  Fig. 1 anytime to change the desired room temperature value,  **SET** is shown in the display.

- When releasing the ▲ or ▼ Fig. 1 the display returns to showing the actual room temperature  88°.

5. ON/OFF Timer Function




The ON/ OFF timer function allows you to program the thermostat for one period with heating turned OFF and one period with heating turned ON per day. During the ON period the thermostat will regulate in relation to the set temperature and TIMER ON will be shown in the display. During the OFF period, the heat is off, and TIMER OFF is shown in the display. Turn ON the thermostat by pressing  Fig. 1 ①.

Selecting the Simple ON/OFF Timer Mode

- Press M Fig.1 ② for 3 seconds.
- Select 02 = Setting an ON/OFF timing, via ▲ ▼ Fig. 1 ④  is shown in the display.















Setting the Clock Fig. 3 88:88h

Su. Mo. Tu. We. Th. Fr. Sa.







- Press  Fig. 1 ③ shortly, **hour** will flash.
- Use ▲ ▼ Fig. 1 ④ to select the hour.
- Press  Fig. 1 ③ again, **minutes** will flash.
- Use ▲ ▼ Fig. 1 ④ to select the minutes.
- Press  Fig. 1 ③ shortly, **actual weekday** will flash.
- Use ▲ ▼ Fig. 1 ④ to select the day of the week.

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Setting the timing ON/OFF

- Press  Fig. 1 ③,  and **TIMER ON** and **hour** flashes in the display.
- Use   Fig. 1 ④ to select the hour.
- Press  Fig. 1 ③ again, **minutes** will flash.
- Use   Fig. 1 ④ to select the minutes.
- Press  Fig. 1 ③,  and **TIMER OFF** and **hour** flashes in the display.
- Use   Fig. 1 ④ to select the hour.
- Press  Fig. 1 ③ again, **minutes** will flash.
- Use   Fig. 1 ④ to select the minutes.

Setting and changing the desired Room Temperature

- Press  or  Fig. 1 ④ anytime (whenever the thermostat is ON) to change the desired room temperature value,  **SET** will be shown in the display.
- When releasing the  or  Fig. 1 ④ the display returns to showing the actual room temperature  **88°**.

6. Advanced Programmable Timer Function





The Advanced Programmable Timer Function allows you to set a timer controlled program for automatic comfort temperature and energy saving lower

setback temperature when standard room comfort temperature is not required.

The function consist of two programs










Program 1: 4 events in 5 days (Mo. Tu. We. Th. Fr.)

Program 2: 4 events in 2 days (Sa. Su.)


- Turn ON the thermostat by pressing  Fig. 1 ①.
- Press **M** Fig. 1 ② for 3 seconds.
- Select 03 = Setting a 5+2 days - 4 event setback program via   Fig. 1 ④  is shown in the display.

Setting the Clock Fig. 3 **88:88h**

Su. Mo. Tu. We. Th. Fr. Sa.

- Press  Fig. 1 ③ shortly, **hour** will flash.
- Use   Fig. 1 ④ to select the hour.
- Press  Fig. 1 ③ again, **minutes** will flash.
- Use   Fig. 1 ④ to select the minutes.
- Press  Fig. 1 ③ until **week** flashes.
- Use   Fig. 1 ④ to select the day of the week.





Program 1:

- Press  Fig. 1 ③ for 3 seconds, the number 1 and Mo. Tu. We. Th. Fr. are displayed.

Program 1, Event 1:

- Use   Fig. 1 ④ to select the required start time.

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- Press  Fig. 1 ③ to accept this setting.
- Use   Fig. 1 ④ to select the required temperature.
- Press  Fig. 1 ③ to accept this setting.







Program 1, Event 2-4:

Repeat the Event 1 procedure for programming Event 2-4.

Program 2:

Sa. Su. are now shown in the display.

Program 2, Event 1:




- Use   Fig. 1 ④ to select the required start time.
- Press  Fig. 1 ③ to accept this setting.
- Use   Fig. 1 ④ to select the required temperature.
- Press  Fig. 1 ③ to accept this setting.

Program 2, Event 2-4:


Repeat the Event 1 procedure for programming Event 2-4.

The thermostat will continue the 4-event programme based on the present time and day.

Temporarily Setting and Changing the Desired Room Temperature


- Press  or  Fig. 1 ④ anytime to change the desired room temperature value,  **SET** is shown


in the display.

- When releasing the ▲ or ▼ Fig. 1④ the display returns to showing the actual room temperature  88°.

This temperature change is only temporary and will be maintained only until the next programmed setting!

7. Choosing room temperature control or both room and floor temperature control

Turn OFF the thermostat by pressing  Fig. 1①.

- Press  Fig. 1① and ▲ Fig. 1④ for 10 seconds. The display will show 01.
- Press ▲▼ Fig. 1④ to adjust desired controltype.

01=room temperature control, only with room sensor, no floor sensor, check and setting only room temperature.

02=both room and floor temperature control, with room sensor and floor sensor, check and setting room temperature and maximum floor temperature limit. Factory setting is 01.


8. Maximum floor temperature protection (Optional)

The function allows you to set a maximum allowable floor temperature if for instance you want to protect real wood floors from damage due to excess heat. For specific maximum floor temperatures please refer to recommendations from floor suppliers.

Displaying the Floor Temperature





The function allows you to check the internal temperature of the floor. Works only with floor sensor.

Turn ON the thermostat by pressing  Fig. 1 ①.

- Press **M** Fig. 1 ② shortly and  will flash in the display.
- The actual floor temperature is shown in the display.

Setting maximum floor temperature

Turn OFF the thermostat by pressing  Fig. 1 ①



- Press **M** Fig. 1 ② for 5 seconds until the display shows .
- Release **M** Fig.1 ②, and the display shows  **SET** .
- Press  or  Fig. 1 ④ to set the desired maximum floor temperature limit.
- Wait 5 seconds for the thermostat to exit SET mode and power off.

9. Frost protection

Using the Frost Protection Mode instead of turning the thermostat OFF completely may protect against damages due to low temperatures. The room temperature will be maintained around 5 °C.

Turn OFF the thermostat by pressing  Fig. 1 ①.

- Press **M** Fig.1 ② for 3 seconds and release.
- Select 01 (00= disabled).

If the temperature is lower than 5 °C the heating will be turned ON and   will be shown in the display. If the temperature is higher than 7 °C the heating is turned OFF.

Factory setting is 00.

10. Error messages

E1 will be displayed when room sensor failure.

E2 will be displayed when floor sensor failure.

E2 will be read when pressing **M** Fig. 1 ② to check floor temperature.

Any case, all relay output would be turned off.

11. Technical Specifications

Feature	Description
Approval	CE Marking, EN 60730
Colour	White, RAL 9016
Dimensions	86 x 99 x 19mm
Adjustment mode	Push buttons
Fault indication/ failure mode	If room sensor failure, E1 will be displayed. If floor sensor failor, E2 will be displayed. In any case, thermostat will turn off all output of relays.
Frost protection	Yes, if enabled: < 5 °C heating on > 7 °C heating off
Ambient temperature	- 10 °C – 60 °C
Precision	±1 °C
Hysteresis	1 °C, symmetrical around the setpoint temperature
IP class	30
LCD backlight/ nightlight	Yes
LCD display	Yes

Feature	Description
LED indicator	No
Max load, inductive	<1A
Max load, resistive	<3A
Mounting	Flush Mounting for European and Chinese built in sockets
Network, wire	No
Network, wireless	No
Off-set function	Yes (+/-10 °C)
Power consumption	2 W
Power supply, battery	No
Power supply, net	85-250Vac, 50/60Hz
Power backup settings	Retains settings in case of power cut saved on memory chip
Sensor, floor	Optional, 2 terminals (S1, S2) for external sensor mounting. Sensor type NTC 10K accuracy: $\pm 1\%$ "
Sensor, floor - set range	20-45 °C

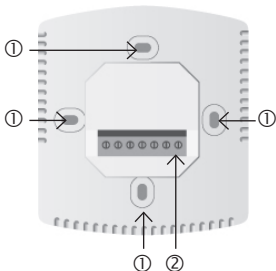
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Feature	Description
Sensor, room	NTC 100K accuracy: $\pm 1\%$
Sensor, room - set range	5-35 °C
Shell material/ non inflammable	94V0/ Yes
Shell material, type	ABS+PC
Static protection	Yes
Programmable	Two program functions 1. ON/ OFF program 2 periods /day 2. Periode program for automatic comfort temperature and setback temperature 4 periods/ 5+2 days

Fig. 1



Fig. 2



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Fig. 3

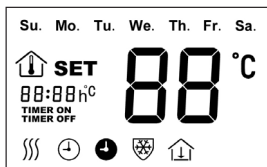


Fig. 4

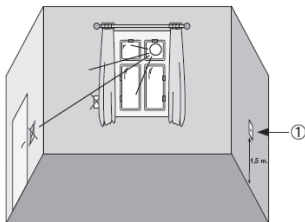


Fig. 5

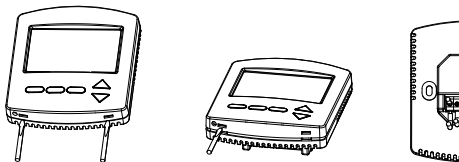
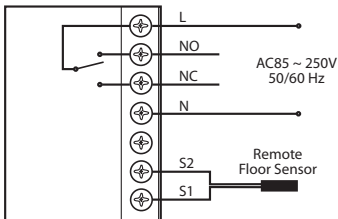
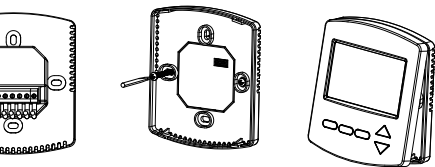


Fig. 6 FH-CWP



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