Danfoss Next Plus Electronic Intelligent Timer Thermostat Installation Guide

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Danfoss Next Plus Electronic Intelligent Timer Thermostat

Specifications

- **Operation voltage:** 85-250V~, 50/60 Hz
- **Standby power consumption:** 0.4 W
- **Relay:** Resistive load, Inductive load
- **Floor sensor:** Included
- **Control:** Electronic
- **Ambient temperature:** Not specified
- **Frost protection temperature:** Not specified
- **Temperature range:** Not specified
- **Sensor failure monitoring:** Yes
- **Cable specification max:** 1×4 mm2 or 2×2.5 mm2
- **Pollution degree:** 2 (domestic use)
- **Controller type:** 1C
- **Software class:** A
- **Storage temperature:** Not specified
- **IP class:** 30
- **Protection class:** Class II
- **Dimensions:** 86 x 86 x 16/40.5 mm (in-wall depth: 24.5 mm)
- **Weight:** 103 g

Product Usage Instructions

Installation Guide
The Danfoss ECtemp Next Plus is an electronic programmable timer thermostat used for controlling electrical floor heating elements. It is designed for fixed installation only and can be used for direct heating of the entire room or comfort heating of the floor.

Safety Instructions
Before installation, ensure the mains supply to the thermostat is turned off.

Mounting Instructions
Place the thermostat at a suitable height on the wall (typically between 80-170cm). Do not install in wet rooms; instead, place in an adjacent room and use the floor sensor only. Follow local regulations on IP classes and use the floor sensor exclusively. Avoid placing the thermostat on the inner side of an exterior wall.

FAQ

1. **Q: Can I install the Danfoss ECtemp Next Plus in wet rooms?**
   A: No, the thermostat should not be placed in wet rooms. Install it in an adjacent room and use the floor sensor only.
2. **Q: What is the maximum cable specification for the thermostat?**
   A: The maximum cable specification is 1×4 mm2 or 2×2.5 mm2.

electricheating.danfoss.com

Introduction
The Danfoss ECtemp Next Plus is an electronic programmable timer thermostat used for controlling electrical floor heating elements. The thermostat is designed for fixed installation only and can be used for both direct heating of the entire room and for comfort heating of the floor.
More information on this product can also be found at: electricheating.danfoss.com

Technical Specifications

Operation voltage	85-250V~, 50/60 Hz
Standby power consumption	0,4 W
Relay: Resistive load Inductive load	Max. 16 A / 3680 W @ 230 V cos φ= 0.3 Max. 1 A
Floor sensor	Floor Sensor NTC 15 kO at 25°C
Sensing values: (Default NTC 15 K) 0°C 20°C 50°C	42 kΩ 18 kΩ 6 kΩ
Control	Hysteresis ± 1.0° C
Ambient temperature	-10°C to +60°C
Frost protection temperature	5°C to +9°C (default 5°C)

Temperature range	Room temperature: 5-35°C. Floor temperature: Max. 35° C is default.
Sensor failure monitoring	The thermostat has a built-in monitoring circuit, which wil l switch off the heating if the sensor is disconnected or short- circuited
Cable specification max.	1×4 mm^2 or 2×2,5 mm^2
Ball pressure test temperature	75°C
Pollution degree	2 (domestic use)
Controller type	1C
Software class	A
Storage temperature	-20°C to +65°C
IP class	30
Protection class	Class II – ⧈
Dimensions	86 x 86 x 16/40.5 mm (in-wall depth: 24.5 mm)
Weight	103 g

Electrical safety and Electro-Magnetic Compatibility for this product is covered by the compliance with the EN/IEC Standard “Automatic electrical controls for household and similar use”:

- EN/IEC 60730-1 (general)
- EN/IEC 60730-2-9 (thermostat)

Safety Instructions

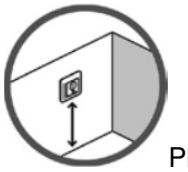
Make sure the mains supply to the thermostat is turned off before installation.
Important: When the thermostat is used to control a floor heating element in connection with a wooden floor or similar material, always use a floor sensor and never set the maximum floor temperature to more than 35°C.

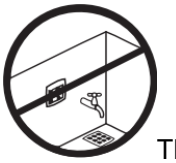
Please also note the following:

- The installation of the thermostat must be done by an authorized and qualified installer according to local regulations.
- The thermostat must be connected to a power supply via an all-pole disconnection switch.
- Always connect the thermostat to continuous power supply.
- Do not expose the thermostat to moisture, water, dust, and excessive heat.

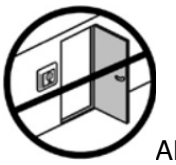
Mounting Instructions

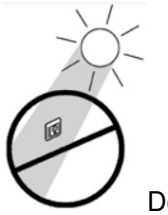
Please observe the following placement guidelines:

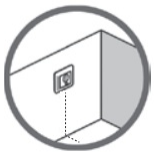
 Place the thermostat at a suitable height on the wall (typically 80-170cm.).

 The thermostat should not be placed in wet rooms. Place it in an adjacent room and use floor sensor only. Always place the thermostat according to local regulation on IP classes and use floor sensor only.

 Do not place the thermostat on the inner side of an exterior wall.

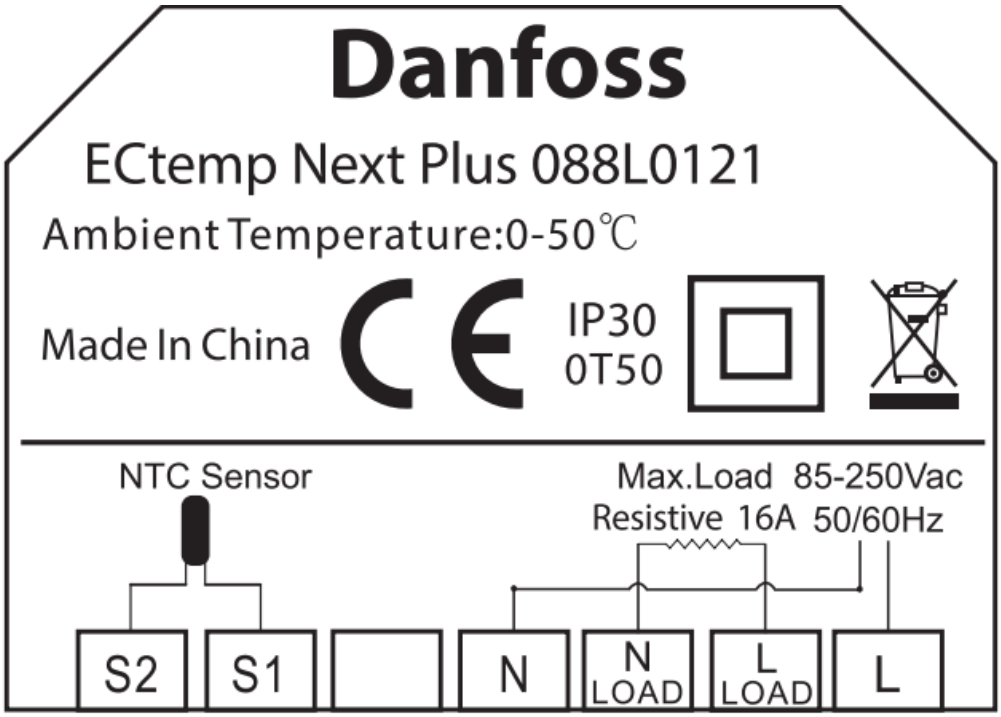
 Always install the thermostat at least 50 cm. from windows and doors.

 Do not place the thermostat in a way that it will be exposed to direct sunlight.

 **Note:** A floor sensor enables a more accurate temperature control and is recommended in all floor heating applications and mandatory under wooden floors to reduce the risk of over-heating the floor.

- Place the floor sensor in a conduit in an appropriate place where it is not exposed to sunlight or draft from door openings.
- Equally distant and >2cm from two heating cables.
- The conduit should be flush with the floor surface – countersink the conduit if necessary.
- Route the conduit to the connection box.
- The bending radius of the conduit must be min 50mm.

Connect the thermostat according to the connection diagram.



The screen of the heating cable must be connected to the earth conductor of the power supply cable by using a separate connector.
Note: Always install the floor sensor in a conduit in the floor.

Symbols

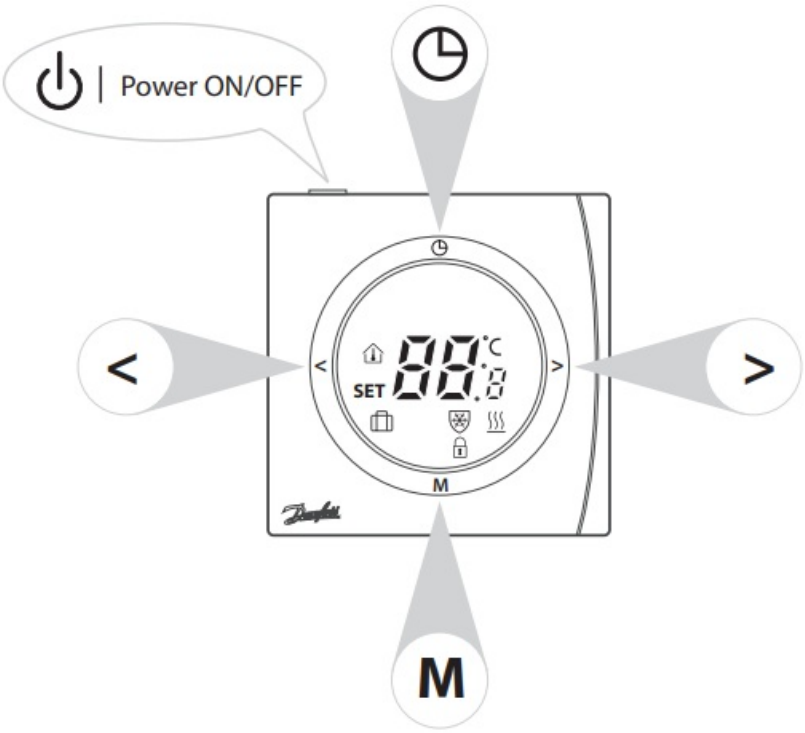
The following symbols appears in the display:

Symbols	Function description
	Room temperature
	Floor temperature
	Temperature indication

Symbols	Function description
	Away mode
	Child safety lock
	Power ON/OFF

SET	Set temperature
	Floor heating, Active
	Frost protection, Active

	Timer and program operation
M	Mode change/check floor temp./child safety lock/parameters setting
< >	Up/down selectors



Settings

Power ON/OFF
Switch thermostat ON/OFF by pressing button on top of thermostat.

Initial Settings
Initial settings must be specified when the unit is activated for the first time:
Press M button for 6 seconds to enter the parameter setting mode. The upper digits indicate the parameter number. Press M for parameter selection. Press < or > to set the parameter range. Complete all adjustments.

Press to exit ECtemp Next Plus settings, which is available for this purpose. To exit ECtemp Next settings automatic wait approx. 30 seconds.

The digits indicate the set value as follows:

No.	Parameter settings	Settings range	Default
P01	Working mode	01: Manual 02: Advanced Programmable Timer	02
P02	Temperature control mode	01: Room and floor temp; 02: Only floor temp.; 03: Only room temp.*	01

P03	Maximum floor temperature	20-30˚C (only for 01 in P02)**	35˚C
P04	Frost protection	01: Enable; 02: Disable	01
P05	Frost protection setpoint	5-9˚C	5˚C
P06	Timer display option	01: 24h; 02 12h	01
P07	Room temp. display option at shutdown	01: No display surrent temp.; 02: Display current temp.	01

* It will be possible to use only a room sensor. However, this option is not recommendable due to an increased risk of overheating the floor. See 4.9 Change to Room control only
** P03 appears on relevant temperature control mode. See 4.10 Extending Maximum floor temperature limitations to 45°C

Advanced Programmable Timer

The Advanced Programmable Timer mode enables the setting of a timer-controlled program for automatic comfort temperature, and an energy-saving lower setback temperature if standard room comfort temperature is not required.

The function consists of 2 programs:
P1 with 4 events in 5 days (Mon. Tue. Wed. Thu. Fri.)
P2 with 4 events in 2 days (Sat. Sun.).

P1: Press ◷ and hold to display Mo. Tu. We. Th. Fr. **P1, Event 1:** 1. Use < or > to select the start time. 2. Press ◷ to accept the setting. 3. Use < or > to select the temperature. 4. Press ◷ to accept the setting. **P1, Event 2-4:** Repeat the Event 1 procedure for programming Event 2-4.	**P2:** Sa. Su. are now shown in the display. **P2, Event 1:** 1. Use < or > to select the start time. 2. Press ◷ to accept the setting. 3. Use < or > to select the temperature. 4. Press ◷ to accept the setting. **P2, Event 2-4:** Repeat the Event 1 procedure for programming Event 2-4.

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

To set and change the room temperature temporarily:

1. Press < or > at any time to change the desired temperature value. SET is shown in the display.
2. When releasing the < or >, the display returns to showing the actual temperature. This temperature change is only temporary and will be maintained only until the next programmed setting!

A default program provides timer control if the customer does not create own programs:

Days	Event 1		Event 2		Event 3		Event 4	
	Start time	Temp.	Start time	Temp.	Start time	Temp.	Start time	Temp.
Mon – Fri.	6:30	20˚C *(27˚C)**	8:30	15˚C *(25˚C)**	16:30	20˚C *(27˚C)**	22:30	25˚C *(25˚C)**
Sat – Sun.	7:30	20˚C *(27˚C)**	9:30	20˚C *(27˚C)**	16:30	21˚C *(28˚C)**	22:30	25˚C *(25˚C)**

*Only floor temperature control mode.

Temperature Setting

- Changing of desired temperature – press < or >.
- SET is showed in the display.
- Adjustment is changed in steps of 0.5°C
- When releasing < or > again the display returns to normal mode and shows actual temperature.
- It will be possible to set the maximum floor temperature up to 45°C.
- It would also be possible to use only one temperature sensor. However, this option is not recommendable as

this cause an increased risk of overheating of the floor.

- Extending maximum floor temperature and Setting into room only mode – See point 4.9 and 4.10.

IMPORTANT: When the thermostat is used to control a floor heating element in connection with a wooden floor or similar material, always use a floor sensor and never set the maximum floor temperature to more than 35 ° C.

Thermal resistance [m^2 K/W]	**Examples of Flooring**	**Details**	**Approximate setting for 25˚C floor temperature**
0.05	8 mm HDF based laminat e	>800 kg/m^3	28˚C
0.10	14 mm beech parquet	650 – 800 kg/m^3	31˚C
0.13	22 mm solid oak plank	>800 kg/m^3	32˚C
< 0.17	Max. carpet thickness suit able for floor heating	acc. to EN 1307	34˚C
0.18	22 mm solid for planks	450 – 650 kg/m^3	35˚C

Timer Setting

- To adjust time and week day – press
- Use < or > to adjust hours,
- Press again to shift to minutes and use < or > for adjust-ing3
- Press again to shift to weekdays and use < or > for selecting right day
- Finish timer setting by pressing any other button or wait for automatic exit after 6 sec. without operation

Safety Lock
Press M and > simultaneous to enable Safety lock. To release safety lock press M and > simultaneous again.

Away Mode

Press M to get into Away mode is showed in the display Changing the desired temperature in Away mode Press < or >. SET is showed in the display Adjustment in steps of 0.5°C Press M to exit Away mode again

Present Floor Temperature

Press M and hold – Press < within 6 sec also start to flash and current floor temperature is being displayed. Press any other button to exit or wait for automatic exit after 6 sec. without operation

Change to Room control only
Switch Power OFF
Press M and Timer buttons simultaneously for approx. 10 seconds
Select Function P08: Only Room temperature control Select Setting 01: Enable

Switch Power ON

Press M button for approx. 6 seconds
Select Parameter Setting P02: Temperature Control mode Select Setting Range 03: Room Only mode

Extending Maximum floor temperature limitation to 45°C
Power OFF
Press M and Timer buttons simultaneously for 10 seconds into those parameters setting.
Select Function P07 (Table in 4.11): Setting range extension for P06, P07 and P08
Select Setting 02: Maximum 45°C
Adjust Maximum Floor temperature according to need up to 45°C

Power ON
Press M button for 6 seconds
Select P03 (Table in 4.2): raise floor temperature limitation higher than 35°C by using the >

Table for 4.9 Change to Room control only and 4.10 Extending Maximum Floor temperature limitations to 45°C

No.	Function	Setting	Factory default
			Danfoss ECtemp™ Next Plus
P01	Room Sensor Calibration	Offset:-10˚C to +10˚C	0˚C
P02	Floor Sensor Calibration	Offset:-10˚C to +10˚C	0˚C
P03	Maximum Room Temp. Limitation	5-35˚C(Active in Temperature Control Mode 01)	35˚C
P04	Minimum Room Temp. Limitation	5-35˚C(Active in Temperature Control Mode 01)	5˚C
P05	Maximum Room Temp. Limitation	5-35˚C(Active in Temperature Control Mode 02)	35˚C
P06	Minimum Room Temp. Limitation	5-35˚C(Active in Temperature Control Mode 02)	5˚C
P07	Setting range extension for P06, P07, P08	01: Max. 35˚C, 02: Max. 45˚C	01
P08	Only room temperature control	01: Enable, 02: Disable	02

Error Codes

E1	Room sensor failure
E2	Floor sensor failure
EE	EEPROM failure
Lo	Temperature lower than 0˚C
Hi	Temperature higher than 5˚C

All relay output will be turned off in all cases.

Warranty

A 2-year product warranty is valid for:
thermostats: ECtemp Next Plus.
Should you, against all expectations, experience a problem with your Danfoss product, you will find that Danfoss offers Danfoss warranty valid from the date of purchase on the following conditions: During the warranty period Danfoss shall offer a new comparable product or repair the product if the product is found to be faulty by reason of defective design, materials or workmanship. The repair or replacement. The decision to either repair or replace will be solely at the discretion of Dan-foss. Danfoss shall not be liable for any consequential or incidental damages including, but not limited to, damages to property or extra utility expenses. No extension of the warranty period following repairs undertaken is granted. The warranty shall be valid only if the WARRANTY CERTIFICATE is completed correctly and in accordance with the instructions, the fault is submitted to the installer or the seller without undue delay and proof of purchase is provided. Please note that the WARRANTY CERTIFICATE must be filled in, stamped and signed by the authorized installer performing the installation (Installation date must be indicated). After the installation is performed, store and keep the WARRANTY CERTIFICATE and purchase documents (invoice, receipt or similar) during the whole warranty period.
Danfoss warranty shall not cover any damage caused by incorrect conditions of use, incorrect installation or if installation has been carried out by non-authorized electricians. All work will be invoiced in full if Danfoss is required to inspect or repair faults that have arisen as a result of any of the above. The Danfoss warranty shall not extend to products which have
not been paid in full. Danfoss will, at all times, provide a rapid and effective response to all complaints and inquiries from our customers. The warranty explicitly excludes all claims exceeding the above conditions.
For full warranty text please use QR code

WARRANTY CERTIFICATE

The Danfoss warranty is granted to:

Address _____ **Stamp**

Purchase date _____

Serial number of the product _____

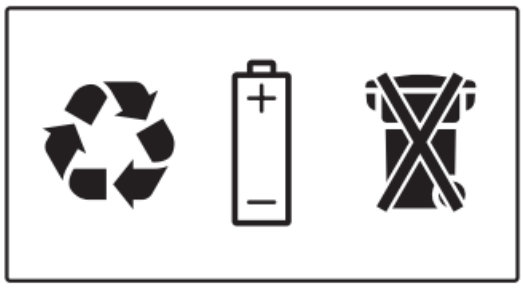
Product _____ **Art. No.** _____

***Connected output [W]** _____

Installation Date & Signature _____ **Connection Date & Signature** _____

**Not mandatory*

Disposal Instruction



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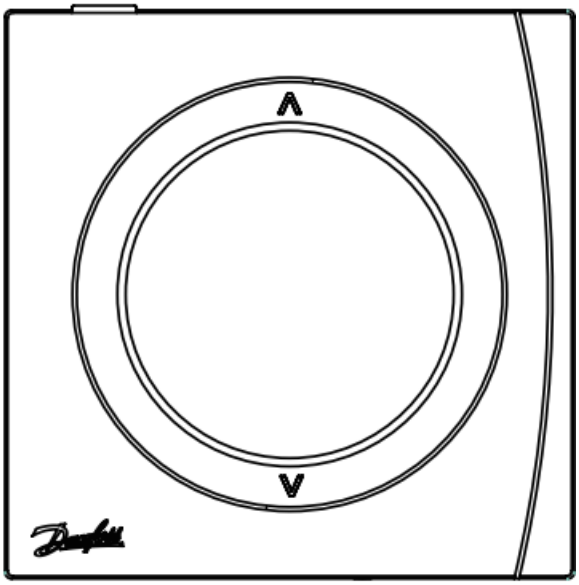
- Intelligent Timer Thermostat
- Floor / Room Sensor
- 85-250V~
- 50-60Hz
- – 10°C to +60°C
- 16A/3680W@230V~
- IP 30



Product documentation

Documents / Resources

	Danfoss Next Plus Electronic Intelligent Timer Thermostat [pdf] Installation Guide Next Plus Electronic Intelligent Timer Thermostat, Next Plus, Electronic Intelligent Timer Therm ostat, Intelligent Timer Thermostat, Timer Thermostat, Thermostat

References

- Electric Heating | Danfoss
- User Manual