

Installation Guide

Danfoss ECtemp 316

Electronic Thermostat



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1 Introduction

ECtemp 316 is an electronic thermostat to be installed in electric cabinets with DIN rail attachment. The thermostat must be installed via an all-pole disconnection switch. ECtemp 316 applies to the control of room temperature, floor temperature, ventilation, cooling or to the control of snow melting in gutters and similar installations.


For measuring purposes either a wire sensor or an external air sensor is used.

The thermostat has a button to adjust the temperature setting with a scale from -10 °C to +50 °C . An LED indicator shows standby periods (green light) and heating periods (red light).

More information on this product can also be found at:
ectemp.danfoss.com

1.1 Technical Specifications

Operation voltage	220-240 V~, 50 Hz
Standby power consumption	Max 0.25 W
Relay: Resistive load Inductive load	Max 16 A / 3680 W @ 230 V cos φ = 0.3 max 1 A
Sensing units	NTC 15kOhm at 25 °C
Sensing values: 0°C 25°C 50°C	42 kOhm 15kOhm 6 kOhm
Hysteresis	0 to 6 °C
Ambient temperature	10 °C to +45 °C
Lowering in economy periods	0 to 8 °C
Temperature range	-10 °C to +50 °C
Minimum temperature range	-10 °C to +5 °C
Cable specification max	1x4 mm ² or 2x2,5 mm ²

Ball pressure temperature	75 °C
Pollution degree	2 (domestic use)
Type	1B
Storage temperature	-20°C to +65°C
IP class	30
Protection class	Class II - 
Dimensions	86 x 36 x 58 mm
Weight	180 g

The product complies with the EN/IEC Standard "Automatic electrical controls for household and similar use":

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

1.2 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.

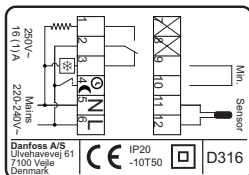
2 Mounting Instructions

Please observe the following placement guidelines:

- Install the thermostat in an electric cabinet with DIN rail attachment or a separate DIN attachment according to local regulation on IP classes.
- Do not place the thermostat in a way that it will be exposed to direct sunlight.

Follow the steps below to mount the thermostat:

1. Click the thermostat on to the DIN rail attachment.
2. 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.

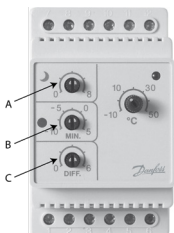
Note: When you use the wire sensor for floor heating, always install the sensor in a conduit.

3. Turn on the power supply.

Protective separation

The thermostat is designed so that the sensor circuit is galvanically separated from the high voltage part which means that the sensor part is regarded as a low voltage part.

3 Settings



A Night set-back

B Minimum temperature limiter

C Hysteresis

3.1 Hysteresis

When the thermostat is used to apply with either heating systems or refrigerating systems, and the requested temperature is between -10°C to $+50^{\circ}\text{C}$, then it is recommendable also to adjust the hysteresis **C** according to the requested regulating range.

As an example if the temperature is set at 18°C and the hysteresis at 3°C the thermostat will switch on at 18°C and off at 21°C .

For controlling of room temperature the Hysteresis is recommended to the set point of 1°C .

3.2 Minimum Temperature Limiter

When the thermostat is used in connection with snow and ice melting systems, it is recommendable also to use and adjust the minimum temperature limiter (**B**) which ensures

both an upper and lower temperature range in between which the thermostat allows the system to heat.

The requested maximum temperature range has to be between $-10\text{ }^{\circ}\text{C}$ to $+50\text{ }^{\circ}\text{C}$ and the requested minimum temperature range has to be between $-10\text{ }^{\circ}\text{C}$ to $+5\text{ }^{\circ}\text{C}$.

An link between terminal 9+10 must be connected to activate the use of the minimum temperature feature when the thermostat controls snow and ice melting in gutters, valley gutters and down pipes, where the waste of unnecessary energy must be avoided. In particular by extremely cold weather where flowing water or moisture does not occur.

When the temperature drops below the minimum temperature set value, the thermostat stops heating and the LED indicator turns yellow.

When the temperature exceeds the maximum temperature setting, the thermostat stops heating and both the indicator for minimum and maximum temperature disappears.

3.3 Temperature Set-back

By connecting an external timer to terminals 4 and 6, the thermostat can be set to reduce the temperature by $0\text{ }^{\circ}\text{C}$ to $8\text{ }^{\circ}\text{C}$ (A).

4 Warranty

A 2-year product warranty is valid for:

- thermostats: ECtemp 316.

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 Danfoss. 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*



5 Disposal Instruction



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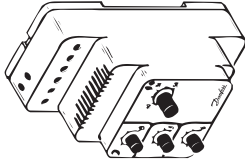
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ECtemp 316

088L0443

Electronic thermostat
220 - 240 V~
50-60 Hz
-10 °C to +50 °C
16 A / 3680 W @ 230 V~



Product documentation



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Designed in Denmark for Danfoss A/S



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