



Installation Instructions EFET 610

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Application

EFET 160 is an electronic thermostat designed for regulating heat and cold from -10°C to $+50^{\circ}\text{C}$.

EFET 160 is moisture proof (IP 44) so it can be used in moist rooms and outdoors.

EFET 160 has a built-in 2-pole switch, so an external switch is not necessary.

EFET 160 is supplied with a NTC sensor of 2.5 m cable. The sensing cable can be extended up to 50 m with 1.5 mm^2 installation cable without affecting the accuracy of the thermostat. However, the cable must not be placed parallel to high voltage cables as undesirable signals may be induced. The installation must be permanent. The thermostat must be connected by an authorized electrician.

Installation

1. Before opening the thermostat housing set adjustment button to minimum temperature, viz. -10°C .
2. When installing in bathrooms etc., the minimum distance to water installations must be observed and must comply with current regulations for electric installations.
3. The stamped punchings for diaphragm nipple are removed with a screwdriver and a hammer.
4. The thermostat is mounted vertically on a wall. The screw holes must be sealed with the enclosed plugs.
5. If the sensor is to be built in or exposed to pressure it should be placed in an installation pipe.
6. Installation of thermostat see diagram. Choose function (heating/cooling).
7. After closing the thermostat housing, check that adjustment button can be adjusted within full temperature range, i.e. from -10°C to $+50^{\circ}\text{C}$.

Accessories for EFET 160:

- fittings for mounting on pipes,
- outdoor sensor for use with the thermostat.

Mounting the outdoor sensor:

1. Knock pellets out of the thermostat and sensor.
2. Mount the black connection nipple in the sensor hole. Then twist the connection nipple into the thermostat hole. Turn the outdoor sensor until the three small locks click.
3. Connect the NTC sensor to the NTC input with a soft mounting cable, e.g. $\varnothing 0.25 \text{ mm}^2$.
4. Fasten the outdoor sensor and thermostat separately with screws or clips.

Heating

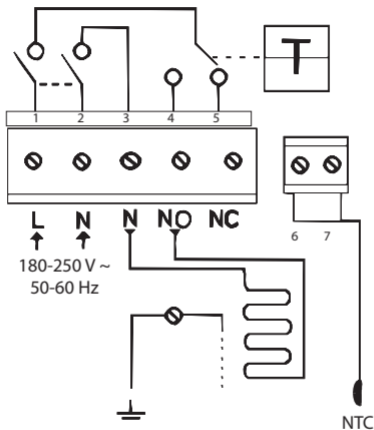


fig. 1

Cooling:

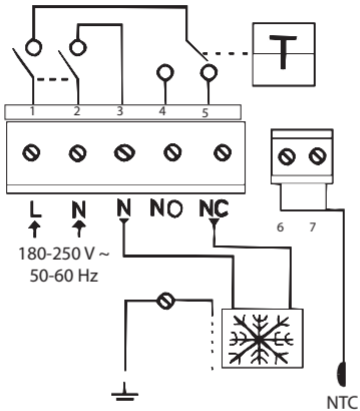


fig. 2

Trouble-shooting

Control of functioning:

If heat is not turned on by activating the thermostat, check the residual current device (RCD) and fuses before contacting an authorized electrician.

Trouble-shooting chart:

Reserved for the electrician!

Control of functioning:

- Check mains voltage on clamps 1 and 2.
- Tighten up clamps 1 and 5.
- Measure the resistance in the heating cable and calculate the output:

$$P = \frac{U^2}{R} = \frac{52900}{R} \text{ W (at 230 V~)}$$

- If the sensor wires, clamps 6 and 7, are dismantled, the red indicator lamp should light up and the thermostat should switch on. If not, the thermostat is defect.
- Measuring of sensor with ohmmeter must give a certain resistance value in relation to the ambient temperature - see technical data chart.
- If the sensor wire clamps 6 and 7 are short-circuited, the indicator should turn green, and the thermostat should be switched off. If not, the thermostat is defect.

Technical data

Temperature range	-10°C - +50°C
Operating voltage	180 - 250 V ~ 50 Hz
Switching capacity	Cos φ = 0.3 max. 4 A
Switch	10 A
Hysteresis	$\pm 0.2^\circ\text{C}$
Ambient temperature	-30°C to +55°C
Protection class	IP 44
Sensor type	NTC
Sensor	-10°C 66 kOhm 0°C 42 kOhm +25°C 15 kOhm +50°C 6 kOhm
LED indicator: No light Red Green	System is OFF. System is OFF. Heating is ON, but the set temperature has not been reached. Set temperature is reached and the heating is turned off.

The Danfoss Warranty:

You have purchased a **Danfoss heating** system, which we are certain will increase your home comfort and economy.

Danfoss heating system provides complete heating solutions with **Danfoss heating cables** or **EFTM/EFSM** heating mats, **EFET/EFIT** thermostats and **Danfoss EFCI fast** fitting bands.

If, however, contrary to all expectations, a problem should occur with your heating system, we at **Danfoss**, with manufacturing units in Denmark, are, as European Union suppliers, subject to general product liability rules, as stated in Directive 85/374/CEE, and all relevant national laws which implies that:

Danfoss provides a warranty for **Danfoss heating cables** and **EFTM/EFSM** heating mats for a 10 year period and all other **Danfoss** products for a 2 year period against defects in material and production.

The guarantee is granted on the conditions that the **WARRANTY CERTIFICATE** on the overleaf is filled out properly in accordance to instructions and that the defect is inspected by, or presented to, **Danfoss** or authorised **Danfoss** distributor.

Please note, that the wording of the **WARRANTY CERTIFICATE** must be provided in english or local language with the ISO code for your country in the upper left corner of the front page of the installation instruction in order to release the warranty.

The obligation of **Danfoss** will be to repair or supply a new unit, free of charge to the customer, without secondary charges linked to repairing the unit. In case of defective **EFTM/EFSM** thermostats, **Danfoss** reserves the right to repair the unit free of charge and without unreasonable delay to the customer.

The Danfoss warranty only covers connections made by authorised electricians and installations performed in accordance with the installation instruction, and does not cover faults caused by incorrect designs supplied by others, misuse, damage caused by others, or incorrect installation or any subsequent damage, that may occur. If **Danfoss** is required to inspect or repair any defects caused

by any of the above, then all work will be fully chargeable.

The Danfoss warranty is void, if payment of the equipment is in default.

At all times, we at **Danfoss** will respond honestly, efficiently and promptly to all queries and reasonable requests from our customers.

The above mentioned warranty concerns product liability whereas matters in relation to legislation on sale of goods shall be referred to national law.

Warranty Certificate

The Danfoss Warranty is granted to:

Name:

Address:

Postal code:

Phone:

Please Observe!

In order to obtain the Danfoss Warranty, the following must be carefully filled in. See other conditions on the overleaf.

Electrical Installation by:

Installation date:

Type of thermostat:

Production code:

Suppliers Stamp:

Art. no.: 088L8060.01.01

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