EB-Therm 400

Thank you for choosing Ebeco. Good luck with the use of your EB-Therm 400 and floor heating unit. We hope you will enjoy it for a long time to come.

For the guarantee to apply, the product must be installed and used as described in this manual. It is therefore important that you read the manual. This applies both to those who install the EB-Therm 400 and those who use it. You'll also find trouble-shooting information and technical data.

Warranty

Ebeco AB provides a 5-year product warranty for material defects for the EB-Therm 400. For more detailed warranty terms, see ebeco.com.

Contents

Important!
The underfloor heating system is a main voltage installation and must therefore be installed by an authorised electrician in accordance with the current national regulations.

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This is EB-Therm 400

EB-Therm 400 is a thermostat that is equipped with a 1.8" TFT colour display and capacitive touch screen for easy and clear navigation.

The EB-Therm 400 has several energy saving programmes with individually adjustable times and temperatures. The adaptive function means that the thermostat collects data from the time it is started up and uses this to calculate when to turn on.

A PI controller keeps temperature fluctuations to a minimum, which gives an even heat.

The EB-Therm includes a ventilation function that turns the heat off for 15 minutes if it detects that the temperature drops by more than three degrees in less than one minute.

Included in the package
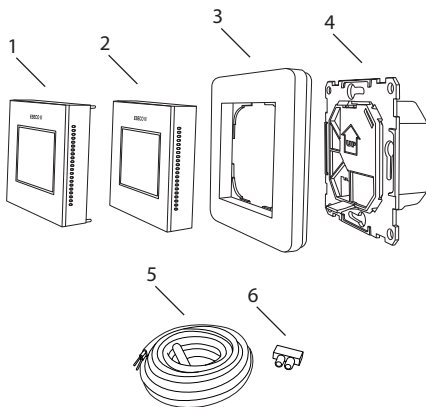
1 Front for ELKO Plus/RS
2 Front for Schneider Exxact
3 Frame
4 Thermostat
5 Foor sensor
6 Connection clamp
  Manual

Fitting the EB-Therm 400

EB-Therm 400 should not be placed so it is exposed to direct sunlight and draughts because these can affect the thermostat functions. Take into account the thermostat IP class when fitting.
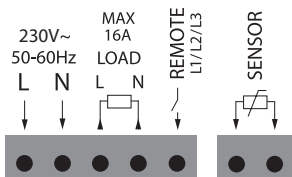
The floor sensor is fitted in a spiral tube placed at the height of the floor surface. The end of the hose must be sealed in order to simplify replacement of the floor sensor.

Fit the EB-Therm in a 65 mm junction box. Ensure the box is flush with the wall or alternatively the tiles.

1. Lift the front panel and frame by pushing a screwdriver into the groove on the underside, see picture. Lift the front panel upwards until you hear a "click".
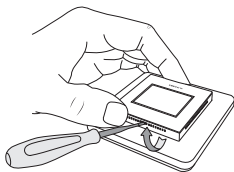
2. Connect according to the instructions on the back of the thermostat. The protective conductor for incoming supply and heating cable is connected using a connection clamp in the box.

```
   230V~       MAX
  50-60Hz      16A    REMOTE
                      L1/L2/L3   SENSOR
                      LOAD
   L    N     L    N
```

3. Fit the thermostat in the box, with the arrow pointing upwards. Insert the thermostat in the junction box and fasten with existing screws.

4. Replace the front panel by first hooking it into the lower part, see picture. Then push in the upper part of the front until you hear a "click".
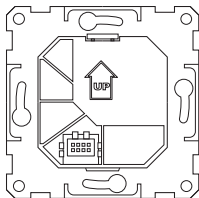
Changing the front cover

1. Lift the front panel and frame by pushing a screwdriver into the groove on the underside, see picture. Lift the front panel upwards until you hear a "click".
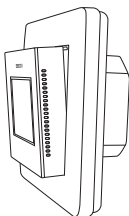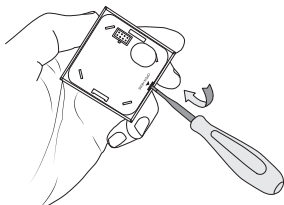

2. Use a screwdriver to gently loosen the front panel from the back.

3. Fit a new front and push until you hear a "click".
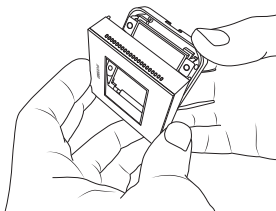
Getting started

The EB-Therm 400 has a built-in start-up guide that takes you through each step in a simple way. When energizing the thermostat for the first time, the system will guide you through the most common and important settings that are required.
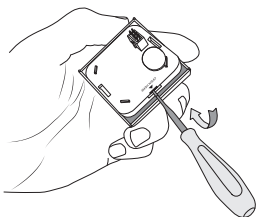
You should wait four weeks after applying filler before the floor heating is turned on. This gives the filler time to dry properly. The thermostat will automatically count down and turn on the floor heating when four weeks have passed.

If you have any questions regarding the usage of EB-Therm 400, please contact us at Ebeco at any time. Call +031-707 75 50 or send an e-mail to support@ebeco.se.

The touch surfaces
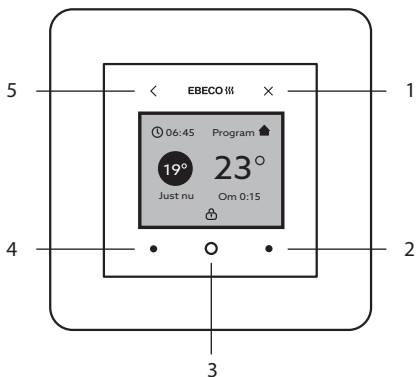
The EB-Therm 400 has a number of touch surfaces on the front of the thermostat. These surfaces are illuminated and are outside the screen itself.

1. On/off/to home screen
2. Scroll up/to the right
3. Menu/confirm
4. Scroll down/to the left
5. Go back one step

The menus

The thermostat's menus and features are listed below, along with explanations.

Main menu: Program

Not selected	If no program is selected, the thermostat provides constant heat.	*Preset to 22 °C.* *Adjustable 5–35 °C.*
Residence	Preset times and temperatures. Individually adjustable.	***Mon–Fri*** *Wake up 06:00, 22 °C* *Leave 08:00, 17 °C* *Return 15:00, 22 °C* *Sleep 23:00, 17 °C.* ***Sat–Sun*** *Wake up 07:00, 22 °C* *Sleep 23:00, 17 °C*
Office	Preset times and temperatures. Individually adjustable.	***Mon–Fri*** *08:00, 22 °C* *17:00, 17 °C*
Timer	Active	*Preset to 22 °C.* *Adjustable 5–35 °C.*
	Standby (can be deactivated)	*Preset to 17 °C* *Adjustable (Off)* *5–35 °C*
	Operating time	*Preset to 4 h* *Adjustable 0–99 h*
Remote control (requires remote control on, see menu for installers on page 29)	Active	*Preset to 22 °C.* *Adjustable 20–35 °C.*
	Standby (can be deactivated)	*Preset to 17 °C.* *Adjustable (Off)* *5–35 °C.*
	After-heating	*Preset to 0 h* *Adjustable 0–12 h*
Resetting	Software reset	

Main menu: Energy consumption

Week **Time & kWh**		*Shows the week, kWh and number of hours.*
Month **Time & kWh**		*Shows the month, kWh and number of hours.*
Year **Time & kWh**		*Shows the year, kWh and number of hours.*
Operation **(14 days)**	Displayed as a bar graph.	*The bars indicate the operating period per day.*

Main menu: Settings

Time & date	Set the time and date	
Language	Set the desired language.	*Swedish* *English* *Norwegian* *Finnish* *German*
Screen saver	Screen saver with three different styles.	*Preset Time & temp.* *Adjustable Time & date* *No (off)*
Keypad lock	On/Off	*Preset to Off*
Summer time	On/Off	*Preset to On* *Adjusts clock automatically for summer time.*

Main menu: Installer

System info	Displays the settings and calibrations.	
Applications	Hotel	***Active*** *Preset to 25 °C* *Adjustable 20–27 °C* ***Standby*** *Preset to 15 °C* *Adjustable (Off) 5–20 °C* ***After-heating*** *Preset to 2 h* *Adjustable 0–4 h* ***Interval*** *Min. Preset to 22 °C* *Adjustable 20–23 °C* *Max. Preset to 27 °C* *Adjustable 25–30 °C* ***Automatic lock function*** *Activated remote control access locks the thermostat.* *Screen saver Temp. & time*
	Remote control	*On/Off* *If the remote control is turned on Remote control is displayed below the menu "Programme".* *Requires a 230 V signal on remote access (see page 23).*
	Comfort heating (low output heat)	*On/Off* *Preset to 25/20 °C* *Adjustable 5–27 °C* *See program "Residence" for periods and other temperatures.*
	Power control	*Displayed as a %* *Pause/running time 20 min (in cycles).* *The current temperature is shown in the display.*

Sensors			
	Sensor selection	*Floor sensor*	Tile/stone
		Room sensor	Tile/stone
		Room sensor + limited floor *Max. (overheating)* *Preset to 30 °C* *Adjustable 27–35 °C* *Min. (comfort)* *Preset to 5 °C* *Adjustable (Off)* *5–25 °C*	Wood/laminate/vinyl
		Floor sensor + limit. room *Max (room restriction)* *Preset to 25 °C* *Adjustable 20–27 °C*	Tile/stone wood/laminate/vinyl
	Sensor type	*NTC 2 kΩ*	
		NTC 10 kΩ	
		NTC 12 kΩ	As a guide, the current temperature for each sensor type is displayed.
		NTC 15 kΩ	
		NTC 22 kΩ	
		NTC 33 kΩ	
		NTC 47 kΩ	
		NTC 100 kΩ	
	Calibration	*Floor sensor*	If required the respective sensors can be calibrated.
		Room sensor	

Important!

In rooms exposed to solar radiation (large windows), we recommend the function "room and floor thermostat".

In rooms with wooden floors the function "room and floor thermostat" must always be used.

Main menu: Fitter (continued)

Installed effect	Preset to 400 W. Adjustable.	*Required to display energy consumption.*
Features	Adaptive function	*On/Off (preset On) Read more on page 20.*
	Ventilation function	*On/Off (preset On) Read more on page 20.*
	Delayed start	*Should heating be started in 4 weeks time? OK/No*
	Operating time limita-tion	*The underfloor heating is turned off for x minutes per hour. Preset to Off Adjustable 1–15 min*
Reset	Reset all	
	Save data	*Saving energy consumption. Other settings will be reset.*

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Operating information

The thermostat display shows the opera-ting information under the setpoint.

Operating information

Right now	Display of the current temp. and sensors.	
After X: XX (time in hours until setpoint is reached)	Set	*Set point reached.*
	Limited	*Maximum or minimum limitation is activated. The function is activated under Sensor selection. Read more on page 30.*
	Ventilation	*The ventilation function turns the heat off for 15 minutes if it detects that the temperature drops by more than three degrees in less than one minute.*

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Troubleshooting

When a fault occurs, the EB-Therm 400 turns the heating off. The display then shows an error code.

E1 Short circuit room sensor.

E2 Interruption room sensor.

E3 Short circuit floor sensor.

E4 Interruption floor sensor.

E5 Internal sensor fault.

E6 Internal over temperature

Please note that the floor heating system is a high voltage system and any faults must therefore be rectified by an authorised electrician.

Test values for floor sensors
For control measurement of the floor sensor, the following values for Ebeco standard sensor NTC 10 kΩ apply.

Temperature	Resistance
10 °C	18.0 kΩ
15 °C	14.7 kΩ
20 °C	12.1 kΩ
25 °C (standard)	10.0 kΩ
30 °C	8.3 kΩ

Technical data

Connection voltage	230 VAC ±10% 50–60 Hz
Air temp. range	+5 °C to +35 °C
Floor temp. range	+5 °C to +35 °C
Temp. limiter	+5 °C to +35 °C
Breaking capacity	3680 W/16 A/230 VAC
Connection cable	max 2.5 mm²
Load	Cos φ = 1
Conn. difference	± 0.3 °C
Power reserve	36 h
Sensor cable	3 m, NTC 10 kΩ
Maximum length sensor cable	50 m, 2 x 1.5 mm²
Display dimensions	36 x 29 mm
Thermostat dimensions	87 x 87 x 39 mm
For frame system	Schneider Exxact, ELKO Plus/RS
Colour	White
Enclosure class	IP21
Approval	CE, S