Assembly Instructions, LK Room Thermostat S2, 24 V NO

Design

The product is available in two designs:

- LK Room Thermostat S2 – Basic thermostat for control of room temperature. Available in white and black.
- LK Room Thermostat S2 EXT – Thermostat for control of room temperature or for control of e.g. floor temperature via LK External Sensor ICS/S2. Available in white.

Application

- LK Room Thermostat S2/EXT is an electronic room thermostat with a triac output intended for use together with the LK Underfloor Heating System.
- The thermostat uses self-modulating technology via signal pulses to achieve high energy efficiency and even temperature control.
- The room thermostat is also used in so-called public environments, where the thermostat's temperature setting can be locked by pressing buttons in combination.
- Intended for installation directly on a wall or alternatively on a wall box.
- The room thermostat settings can be locked by pressing buttons in combination.
- Temperature reduction can be carried out via a separate timer (timer not included).
- Silent thermostat function.
- Simple function check via LED.

NOTE!
Read the installation instructions before starting the work.



LK Room Thermostat S2 White.



LK Room Thermostat S2 Black.

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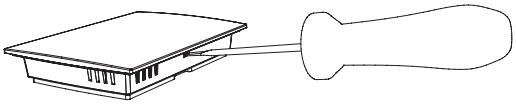
Installation

When fitting, bear the following in mind:

- Fitting height, approx. 1.5 m above floor level.
- Best installed on an inner wall.
- Make sure there is circulation of air.
- Avoid secondary heat from other heat sources, such as sunlight, lighting, etc.

Electrical connection

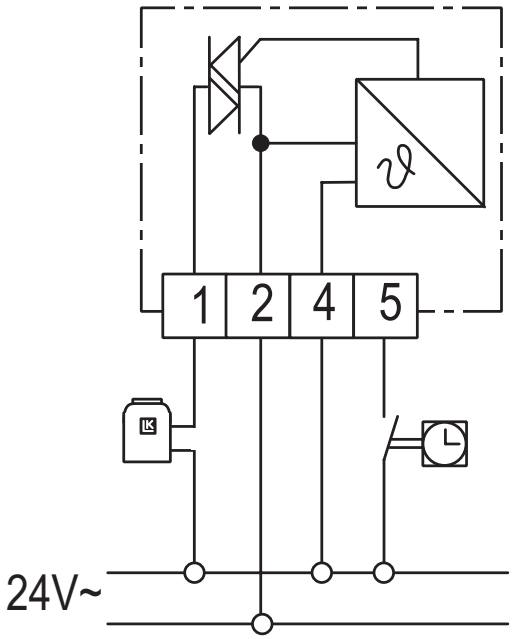
1. Remove the back cover of the thermostat.



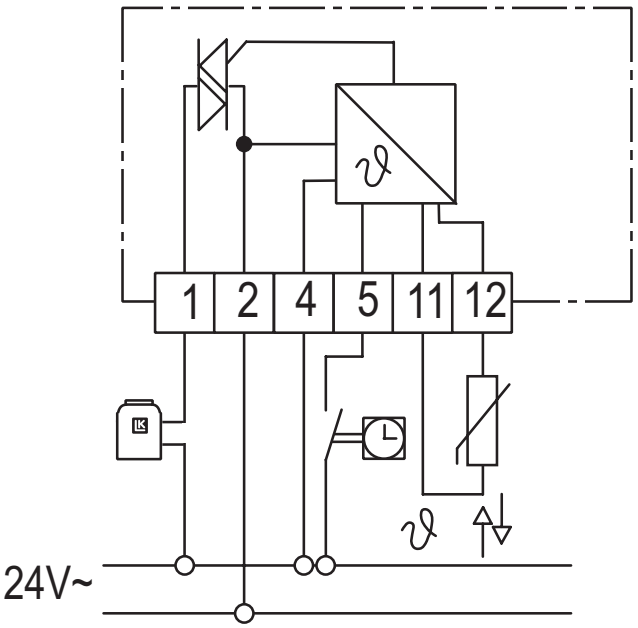
2. Fit the back cover to the wall. If the back cover is to be fitted to an electrical box, the pattress which comes supplied with the thermostat should be used.
3. Electrical installation must be performed as per the circuit diagram below.

NOTE!
If LK Connection box NO or LK Connection Box 1 is used, follow the circuit diagram of the product in question instead.

Circuit diagrams



Connection of LK Room Thermostat S2.



Connection of LK Room Thermostat S2 EXT with option for connection of an external sensor. NOTE! Available in white only.

Function – Self-Modulating Technology

To achieve energy efficiency, the room thermostat operates using self-modulating technology via signal pulses to electrothermal valve actuators with normally open (NO) function.

The self-modulating technology adapts the output of the underfloor heating in relation to the set temperature. When the room temperature approaches the set temperature, the output is gradually reduced to prevent overheating.

The room thermostat displays the current room temperature during normal operation. When an external sensor is connected, the external temperature is displayed.

Operation

Changing the Temperature Setting

The room thermostat is equipped with a touch function.

1. Press the arrow up (↑) or arrow down (↓) touch button on the front of the room thermostat.
2. The temperature display lights up with a brighter light. The thermostat then shows the set/desired room temperature.
3. Adjust the room temperature using the arrow up (↑) or arrow down (↓) touch buttons.
4. After the adjustment has been made, the thermostat returns to the lower light level and displays the current room temperature.
5. The system then performs the adjustment.
6. Check the room thermostat's LED after an appropriate amount of time. A LED that is off indicates that the set temperature has been reached.



Temperature display and arrow up (↑) or arrow down (↓).

Temperature Locking

For installation in e.g. public environments, it may be necessary to lock the thermostat's temperature setting.

Locking

1. Press and hold both touch buttons, arrow up (↑) and arrow down (↓), simultaneously for approximately 20 seconds.
2. When the function becomes active, the room thermostat displays "LOC" indicating that the temperature setting is locked.
3. The room thermostat then returns to displaying the current room temperature.



Message when the temperature setting is locked.

Unlocking

1. Press and hold both touch buttons, arrow up (↑) and arrow down (↓), simultaneously for approximately 20 seconds.
2. The room thermostat indicates that the function has been deactivated by displaying "OPn" (open).



Unlocked temperature setting, displayed when unlocking.

Switching Off Temperature Display and LED

The room thermostat's temperature display and function LED can be switched off. After switching off, the thermostat remains active. The temperature display lights up when one of the touch buttons is touched. The thermostat then shortly returns to the unlit mode.

Switch off

1. Press and hold the right touch button for approximately 5 seconds. When the display-off function becomes active, the thermostat shows "doF".



The thermostat indicates the mode "doF" (display OFF).

Switch on

2. Press and hold the right arrow button for approximately 5 seconds. When the display-off function is deactivated, the thermostat shows "don".



The thermostat indicates the mode "don" (display ON).

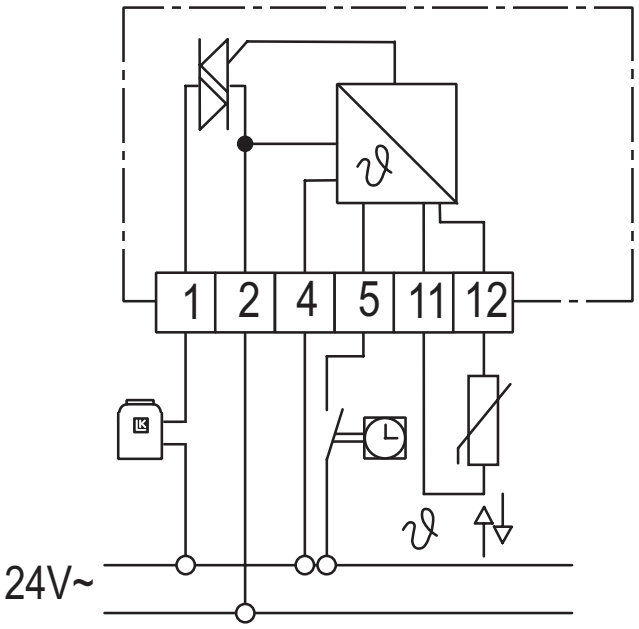
LK External Sensor ICS/S2

Connection of LK External Sensor ICS/S2

LK External Sensor ICS/S2 is intended for use together with LK Room Thermostat S2 EXT when, for example, the floor temperature is to be controlled.

NOTE!
When an external sensor is connected, the room thermostat displays/controls only according to the value from the external sensor (not according to the room thermostat's internal sensor).

The sensor is connected to terminals 11 and 12 in the thermostat, see wiring diagram.



Connection of LK Room Thermostat S2 EXT with option for connection of an external sensor.

TIP!
If necessary, the external sensor can be extended up to 50 metres. When extending the cable, use the same cable cross-section as the sensor cable or a larger one.

OBS!
Undvik parallell förläggning med starkströmsinstallation, ex på kabelstege.

Positioning of LK External Sensor ICS/S2

The conduit must be positioned adjacent to the location of the surface/zone to be controlled.

1. **LK HeatFloor 22, LK Silencio or LK CombiBoard EPS14/18/30/50/70:**
   a, Select a suitable position for the conduit and cut a groove in the top of the slotted board
   b, Position a conduit in the routed groove.
   c, Terminate the conduit centrally between two heat distribution plates.

1. **Underfloor heating in secondary spaced boarding:**
   a, Position a conduit centrally between two heat distribution plates.
   b, Secure the conduit at the edge of the secondary spaced boarding using conduit clamps.

1. **LK Clip Rail Click 12:**
   a, Position a conduit along the long side of the underfloor heating installation direc ted towards the nearest short side.
   b, At the short side: route the conduit cen trally between two underfloor heating pipes and normally terminate approxima tely 1.5 metres into the room.

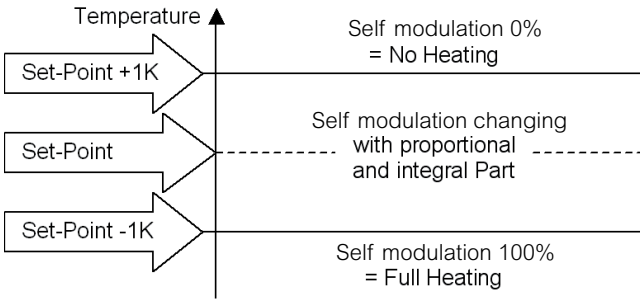
1. **Concrete encapsulation:**
   a, Before casting: position a conduit normally approximately 1.5 metres into the room.
   b, Ensure that the end of the sensor terminates centrally between two underfloor heating pipes.

2. **LK Clip Rail Click 12 and Concrete encapsulation:** Seal the end of the conduit with tape or equivalent to prevent concrete from entering the conduit.
3. **Concrete encapsulation:** Try to position the conduit as high as possible in the structure, as this provides more optimal control of the floor surface temperature.
4. **All systems:** Insert the external sensor into the conduit before casting/laying the floor and connect it to the thermostat.

Technical Data LK Room Thermostat S2

Voltage	24 V AC (20....30 V, 50....60 Hz) NO normally open
Switching capacity	Max 22 W (625 mA)
Intrinsic power 2 W	2 W
LK Actuator 24 V NO	Maximum of five LK Actuator 24 V NO items per room thermostat
Temp. range	+5 to +45 °C
Input for temperature reduction	-3 K
Cycle time for self-modulation	42 min
Range for self-modulation	2 K
Colour: housing is white. Cover glass – polished white or ice grey	White RAL 9003 Black Pantone black C (Jet black gloss)
Colour: housing is black. Cover glass – polished black.	Black Pantone black C (Jet black gloss)
Protective class	III
Protection class	IP30
Storage temperature	-25 to + 80 °C
Rel. humidity (warehouse) <80 % non-condensing	<80 % non-condensing
Operating temperature	0 to + 50 °C
Remote sensor	length 3 m, type NTC 10 kΩ (option)
Dimensions Overall dimensions with pattress fitted Overall dimensions without pattress fitted	80x112 x 16 mm 80 x 112 mm 65 x 98 mm

Temperature range for self-modulation



Temperature range for self-modulation, cycle time 42 min.

Energy declaration in accordance with EU 811/2013

Temperature regulator class	IV
Temperature regulator's contribution to seasonal space heating energy efficiency	2%

Product Range

Product Name	Color	Article No.
LK Room Thermostat S2 (NO)	White	243 43 99
LK Room Thermostat S2 (NO)	Black	243 52 55
LK Room Thermostat S2 EXT NO	White	243 44 01

Accessories

Product Name	Article No.
LK External Sensor ICS.2/S2	241 73 23

Spare Parts

Product Name	Color	Article No.
LK Pattress S2 (Product enclosed)	White	33454
LK Pattress S2 (Product enclosed)	Black	33124

Dimensions

