

# LK Room Thermostat S1, 24V NC

LK Room Thermostat S1 is an electronic room thermostat with triac output adapted to LK floor heating systems. The room thermostat is used together with electrothermal actuators with normally closed function (NC). LK Room Thermostat S1 24V NC is available in three different designs, S1, S1 EXT and S1 Dti.

**S1:** Base thermostat for regulating room temperature (Article no. 241 72 86).

**S1 EXT:** Thermostat for regulating of room temperature or for e.g. regulating floor temperature via external sensors (Article no. 241 72 90).

**S1 Dti:** Thermostat for regulating room temperature with hidden temperature settings for e.g. public environment. There is also the possibility of regulating e.g. floor temperature via external sensors (Article 241 72 88).

## Accessories

- LK Pattress S1 (Article no. 241 72 92)
- LK External Sensor S1, suitable for S1 EXT respectively. S1 Dti (Article no. 241 72 94)

## Features

- Self-modulating technology via signal pulses for optimum energy effectiveness.
- Discrete and extremely thin thermostat design.
- Intended for direct mounting on walls, or alternatively to electrical installation boxes.
- Connection of external temperature sensors is possible for the models S1 EXT and S1 Dti.
- Temperature set back is possible via separate clock (clock not included).
- Soundless thermostat function.
- Simple function control via LED.

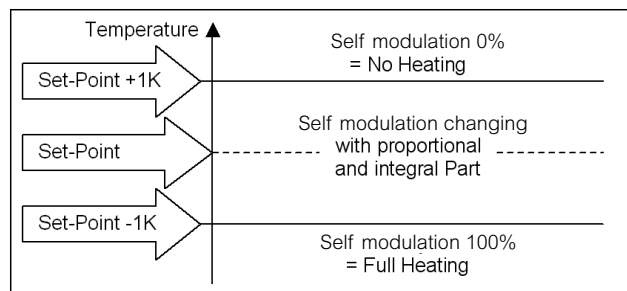
## FUNCTION DESCRIPTION

For optimum energy efficiency the room thermostat operates with so-called self-modulation technology via signal pulsing to the valve actuator. Self-modulation technology adjusts the indicated floor heating output in relation to the set temperature. When the room temperature reaches the set temperature the output effect is reduced to avoid overheating.



The thermostat has a green LED-indication which is switched off when the set temperature is reached. The indicator also functions as a reference point for the temperature scale of the thermostat dial.

## Temperature range for self-modulation



Temperature range for self-modulation , cycle time 10 min.

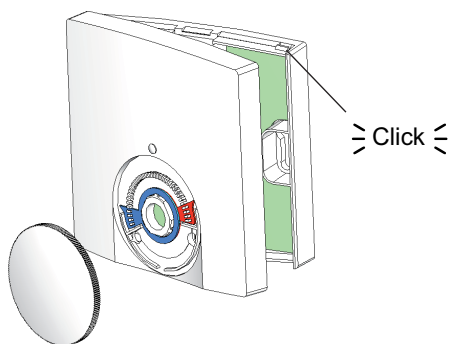
## INSTALLATION

The following must be observed during assembly:

- Assembly height ca. 1.5 m above floor level.
- Assembly should preferably be carried out on the inner wall.
- Ensure there is sufficient air circulation.
- Avoid secondary heat from other heat sources such as sunlight, lighting etc.

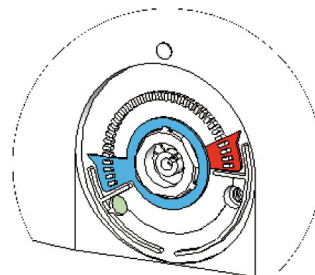
## Electrical connection

1. Remove the thermostat dial.
2. Remove the cover via the click fastener at the top-right hand corner of the case.
3. Carry out the electrical installation in accordance with the connection diagram (See below, or on the inside of the thermostat lid). NB! If LK Connection Box NC or LK Connection Box 1 is used then the connection diagram for the specific product should be used instead.

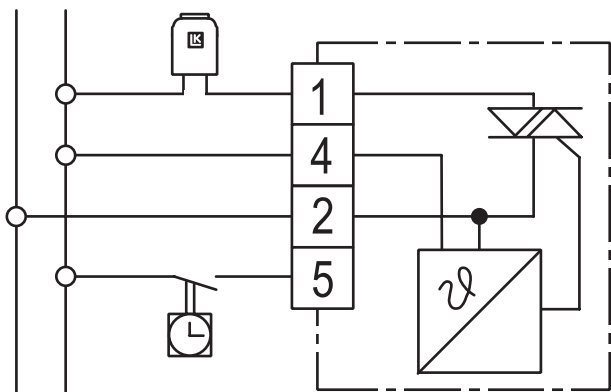


Opening the cover.

Limitation of thermostat dial installation range  
The thermostat dial installation range can be limited. There are two plates beneath the dial which can be moved to restrict the installation range as per the diagram below.



24V~

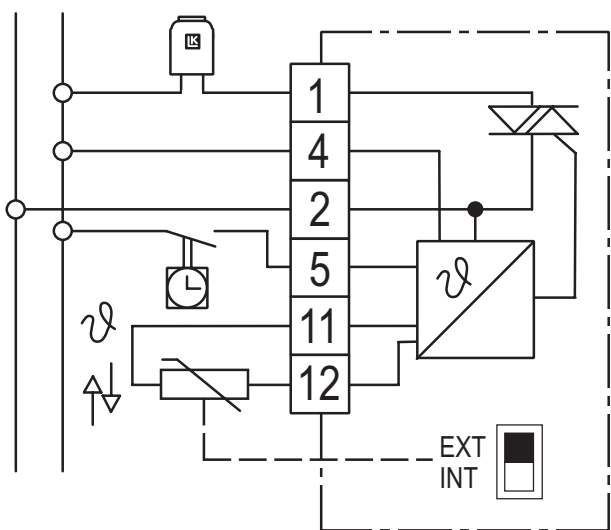


LK Room Thermostat S1

Connection of LK External Sensor S1  
LK External Sensor S1 is intended for use together with LK Room Thermostat S1 EXT or LK Room Thermostat S1 Dti for regulating floor temperature. Connect the sensor as follows:

1. Connect the external sensor to terminals 11 and 12 in the thermostat, see connection diagram.
2. Change the switch on the circuit board from INT to EXT, for external sensor.
3. If necessary the external sensor can be extended up to 50 metres. Use the same cable area or bigger than the sensor when extending. NB! Avoid routing parallel close to mains cable.

24V~



LK Room Thermostat S1 EXT and S1 Dti with possibility for connection of LK External sensor S1.

Error indication: If the LED flashes, this indicates a broken contact with the external sensor, e.g. a cable break.

The external sensor is placed as follows:

**Embedding in concrete**

Place the sensor in a conduit approx. 2 meters into the room before embedding in concrete. Take into consideration that the placement is at a representative point for the area that is going to be adjusted. The end of the sensor is to be placed between two floor heating pipes. Seal the end of the conduit with tape or similar to prevent concrete from getting into the conduit. Try to place the conduit as high as possible since this gives a more optimal adjustment of the floor surface temperature. The external sensor is slipped into the conduit before pouring the concrete and is connected to the room thermostat as instructed above.

### LK HeatFloor 22, LK EPS 30/50/70 or LK Silencio

Mill a slot on the upper side of the board. Place a conduit in the slot, end the conduit right between two heat distribution plates. Take into consideration that the placement is at a representative point for the area that is going to be adjusted. The external sensor is slipped into the conduit before laying the floor and is connected to the room thermostat as instructed above.

### Floor heating in secondary spaced boarding

Place a conduit right between two heat distribution plates, attach the conduit on the edge of the secondary spaced boarding using a clip for conduits. Take into consideration that the placement is at a representative point for the area that is going to be adjusted. The external sensor is slipped into the conduit before laying the floor and is connected to the room thermostat as instructed above.

### LK EPS 16

Place a conduit along the long sides of the floor heating installation facing the nearest short end. Saw an approx. 2 meters long slot in the EPS-board and place the conduit in the slot. Take into consideration that the placement is at a representative point for the area that is going to be adjusted. The external sensor is slipped into the conduit before laying the floor and is connected to the room thermostat as instructed above.

### LK Clip Rail 8/LK Clip Rail 12

Place a conduit along the long sides of the floor heating installation facing the nearest short end. Place the conduit at the short end between two heating pipes and end it approx. 2 meters in. Seal the end of the conduit with tape or similar to prevent concrete from getting into the conduit. The external sensor is slipped into the conduit before pouring the concrete and is connected to the room thermostat as instructed above.

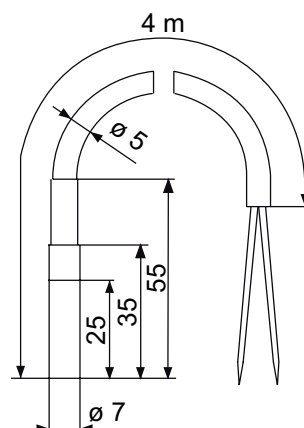
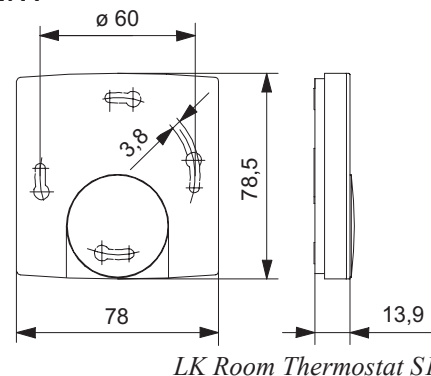
## TECHNICAL DATA

Voltage 24 V AC (20..30 V, 50/60 Hz) NC currentless closed
Switch effect max 15 W (625 mA)
Max 5 LK Actuator 24V NC per room thermostat
Temp. range 5-35°C
Input for temp. reduction -3K
Cycle time for self-modulation 10 min
Range for self-modulation 2K
Colour, white polished RAL 9010
Protection Class III
Degree of Protection IP30
Storage temperature -20 to +70°C
Relative humidity (storage) 95% non-condensing
Working temperature 0 to +40°C
External sensor, length 4m, type NTC 47kΩ (additional)
With connected sensor, built-in temp limited to 42 °C

Energy declaration in accordance with EU 811/2013

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

## MEASUREMENT



*LK External Sensor S1, length 4m.*