

# Room thermostat



## Thermostats

Electro-mechanical room thermostat for thermal actuators

# Room thermostat

The room thermostat is used in connection with the corresponding actuators in the fields of heating, ventilation and air-conditioning technology.

## Key features

- > **Accurate control due to thermal recirculation**
- > **Adjustable restriction of the setting range**
- > **Multi-purpose use due to change-over contact**
- > **Model with temperature set-back and operating mode switch**



## Technical description

The room thermostat is an electromechanical controller with two-point behaviour and is used in connection with e. g. thermal actuators to control the room temperature.

The setting value can be set at between 5°C (41°F) and 30°C (86°F). This range can be adjusted as required by two setting rings in the setting value adjuster, e. g. min. 8°C (46°F), max. 23°C (73°F).

Models with an operating voltage of 230 V and 24 V, with and without temperature set-back (230 V), each with change-over contact and thermal recirculation.

For the model with temperature set-back (approx. 5 K (9°F)), a connection to the Thermostat P or an external switch clock is possible. An operating mode switch makes it possible to select from day, set-back or automatic mode. A control lamp indicates whether heating or cooling mode is active.

The room thermostat is designed for installation on the wall and on switch boxes.

## Construction

### Room thermostat with temperature set-back



1. Heating operation control lamp
2. Operating mode switch
3. Setting value adjuster (range constriction inside the adjuster)

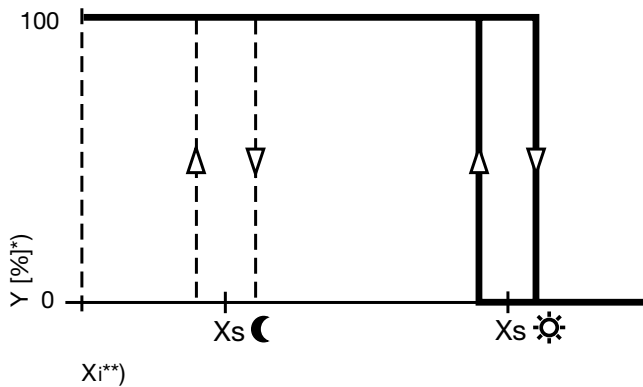
## Function

The measured room temperature ( $x_i$ ) is compared to the setting value ( $x_s$ ). The resulting deviations are converted into a two-point signal by rapid change in the bimetallic change-over contact. The heating or cooling operating modes are triggered depending on the changeover contact configuration.

In heating or cooling operating modes, the thermal recirculation (RC) causes the setting value ( $x_s$ ) to be reached prematurely, and therefore minimises the effective switch hysteresis of the bimetallic change-over contact.

For the model with a temperature set-back (TR), e. g. an external switch clock reduces the room temperature by approx. 5 K (only heating mode).

### Action chart



Action chart for heating operating mode with actuator in the model, closed and currentless.

\*) Stroke

\*\*\*) Room temperature  $X_i$

## Application

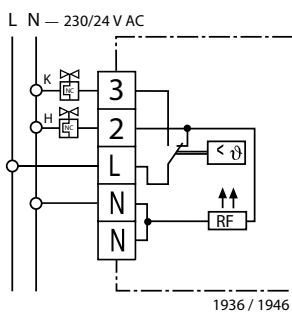
The room thermostat is used in connection with the corresponding actuators (e. g. EMO T/EMOtec) in the fields of heating, ventilation and air-conditioning technology.

The room thermostat can be used for time-dependent individual room temperature control in e. g. residential and commercial buildings with radiators, floor heating systems, ceil cooling systems or fan-coil units etc.

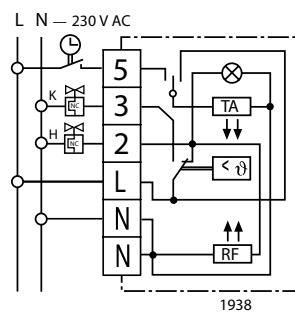
It can also be used e. g. to switch pumps or wall-mounted gas fired heaters on or off.

## Connection diagram

without temperature set-back



with temperature set-back



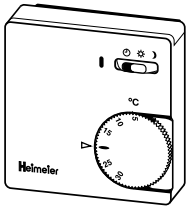
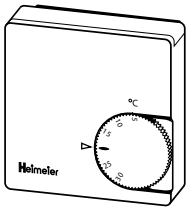
### Note

The connection diagram shows the heating or cooling operating mode when connected to thermal actuators in the model, closed and currentless (NC). When connecting to actuators in the model open and currentless (NO), the heating operating mode changes to cooling, or cooling operating mode changes to heating operating mode. In heating or cooling operating mode, the RF thermal recirculation should be connected. The max. number of thermal actuators which can be connected can be calculated from the max. switch current of the room thermostat and the switch-on current of the thermal actuators (max. number of EMO T/EMOtec actuators – see technical data). For the model with temperature set-back, the switch clock output of the Thermostat P, or an external switch clock, can be connected to terminal 5 (operating voltage-phase causes set-back operating mode).

## Technical data

Room thermostat	230 V	24 V
<b>Operating voltage:</b> - <b>Frequency</b>	230 V AC (+10%/-15%) 50/60 Hz	24 V AC (+25%/-10%) 50/60 Hz
<b>Switch contact:</b> - <b>Voltage</b> - <b>Current</b> (heating/cooling)	1 change-over contact Max. 250 V AC <b>h</b> 10 (4) A / <b>c</b> 5 (2) A <b>h</b> max. 10 pcs / <b>c</b> max. 5 pcs	1 change-over contact Max. 30 V AC <b>h</b> 10 (4) A / <b>c</b> 5 (2) A <b>h</b> max. 20 pcs / <b>c</b> max. 10 pcs
<b>Function switch</b> (only type 1938):	TA operating modes (night/auto/day)	
<b>Control lamp</b> (only type 1938):	Heating mode on	
<b>Temperature range</b> - <b>Set-back mode</b> (only type 1938):	5°C - 30°C (41°F - 86°F) day mode Approx. 5K fixed for day mode (only heating)	5°C - 30°C (41°F - 86°F) day mode
<b>Control response:</b>	Two-point controller	Two-point controller
<b>Switch hysteresis:</b>	Approx. 0,5 K (with RF, for <b>h/c</b> )	Approx. 0,5 K (with RF, for <b>h/c</b> )
<b>Operating mode:</b>	<b>Heating</b> or <b>cooling</b>	<b>Heating</b> or <b>cooling</b>
<b>Type of protection:</b>	IP 30 (EN 60529)	IP 30 (EN 60529)
<b>Safety class:</b> - <b>according to VDE 0100</b>	II, EN 60730 Through appropriate installation	II, EN 60730 Through appropriate installation
<b>CE certified (EMV and NS):</b>	EN 60730	EN 60730
<b>Ambient temperature</b> (in operation):	0°C - +55°C (+32°F - +131°F)	0°C - +55°C (+32°F - +131°F)
<b>Storage temperature:</b>	-25°C - +60°C (-13°F - +140°F)	-25°C - +60°C (-13°F - +140°F)
<b>Housing, colour:</b>	ABS, white RAL 9010	ABS, white RAL 9010
<b>Connection diameter:</b>	1 x 2,5 mm <sup>2</sup> / 2 x 1.5 mm <sup>2</sup>	1 x 2,5 mm <sup>2</sup> / 2 x 1.5 mm <sup>2</sup>
<b>Installation:</b>	Installed on the wall or on a UP box	Installed on the wall or on a UP box

## Articles



### 230 V, 24 V

Model	EAN	Article No
<b>230 V</b>		
Without temperature set-back	4024052405916	1936-00.500
With temperature set-back	4024052406111	1938-00.500
<b>24 V</b>		
Without temperature set-back	4024052406012	1946-00.500

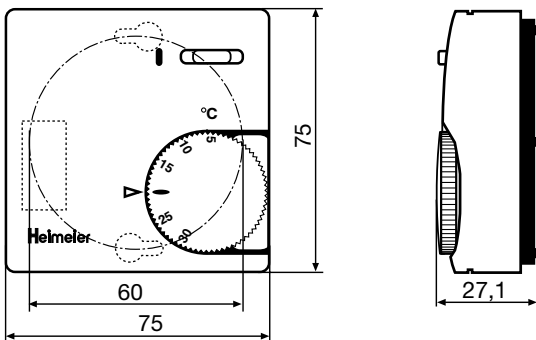
## Accessories

### Distance plate

For installing the room thermostat onto UP boxes. White RAL 9010.  
83 mm x 83 mm x 8 mm (W x H x D).

EAN	Article No
4024052408719	1936-00.433

## Dimensions



1 mm = 0,0394 inch

