


Room thermostat



Thermostats

Electro-mechanical room thermostat for thermal actuators


Engineering
GREAT Solutions

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 electro-mechanical 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).

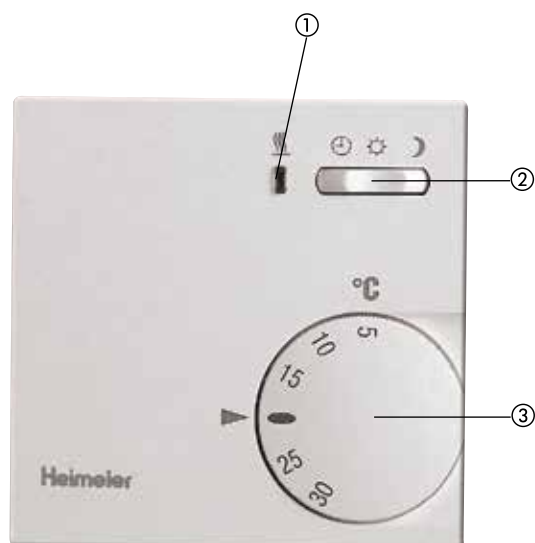
Models with an operating voltage of 230 V and 24 V, with and without temperature set-back, each with change-over contact and thermal recirculation.

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

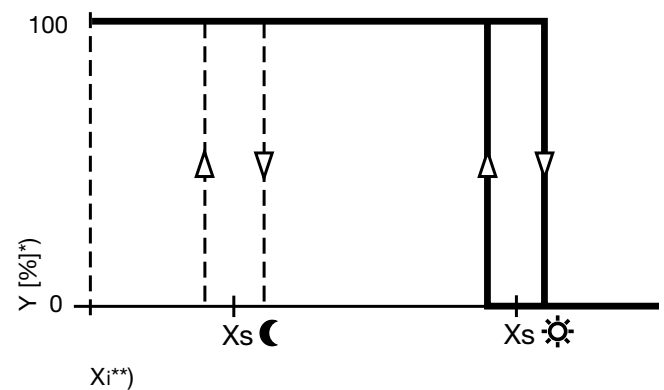


1. Heating operation control lamp
2. Operating mode switch
3. Setting value adjuster (range constriction inside the adjuster)

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

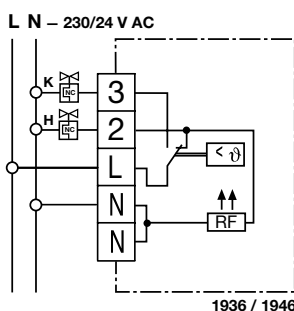
Application

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

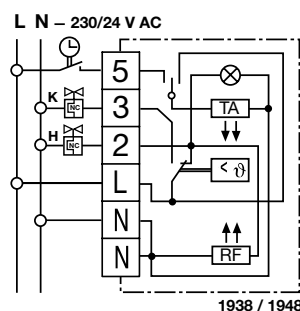
buildings with radiators, floor heating systems, ceiling cooling systems or fan-coil units etc. It can also be used e. g. to switch pumps or wall-mounted gas fired heaters on or off.

Connection diagram

without temperature set-back



with temperature set-back



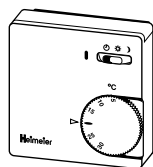
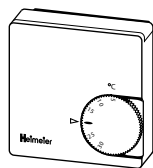
Note

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 |
|---|--|--|
| Operating voltage: - Frequency | 230 V AC (+10%/-15%) 50/60 Hz | 24 V AC (+25%/-10%) 50/60 Hz |
| Switch contact: - Voltage - Current (heating/cooling) | 1 change-over contact Max. 250 V AC h 10 (4) A / c 5 (2) A h max. 10 pcs / c max. 5 pcs | 1 change-over contact Max. 30 V AC h 10 (4) A / c 5 (2) A h max. 20 pcs / c max. 10 pcs |
| Function switch (only type 1938/48): | TA operating modes (night/auto/day) | TA operating modes (night/auto/day) |
| Control lamp (only type 1938/48): | Heating mode on | Heating mode on |
| Temperature range - Set-back mode (only type 1938/48): | 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 Approx. 5K fixed for day mode (only heating) |
| Control response: | Two-point controller | Two-point controller |
| Switch hysteresis: | Approx. 0,5 K (with RF, for h/c) | Approx. 0,5 K (with RF, for h/c) |
| Operating mode: | Heating or cooling | Heating or cooling |
| Type of protection: | IP 30 (EN 60529) | IP 30 (EN 60529) |
| Safety class: - according to VDE 0100 | II, EN 60730 Through appropriate installation | II, EN 60730 Through appropriate installation |
| CE certified (EMV and NS): | EN 60730 | EN 60730 |
| Ambient temperature (in operation): | 0°C - +55°C (+32°F - +131°F) | 0°C - +55°C (+32°F - +131°F) |
| Storage temperature: | -25°C - +60°C (-13°F - +140°F) | -25°C - +60°C (-13°F - +140°F) |
| Housing, colour: | ABS, white RAL 9010 | ABS, white RAL 9010 |
| Connection diameter: | 1 x 2,5 mm ² / 2 x 1.5 mm ² | 1 x 2,5 mm ² / 2 x 1.5 mm ² |
| Installation: | Installed on the wall or on a UP box | Installed on the wall or on a UP box |

Articles



230 V, 24V

| Model | EAN | Article No |
|------------------------------|---------------|-------------|
| 230 V | | |
| Without temperature set-back | 4024052405916 | 1936-00.500 |
| With temperature set-back | 4024052406111 | 1938-00.500 |
| 24 V | | |
| Without temperature set-back | 4024052406012 | 1946-00.500 |
| With temperature set-back | 4024052406210 | 1948-00.500 |

Accessories

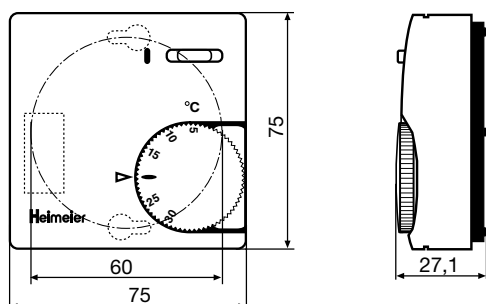
Distance plate

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



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