Thermostat P

Electronic room thermostat with clock for thermal actuators

To be precise.

Heimeier

Thermostat P

Description

The Thermostat P is an electronic two-point room thermostat with built-in sensor and is used in connection with e. g. thermal actuators for time-dependent room temperature control. With its pulse-width modulation output signal (PWM), it has an almost constant control behaviour. An internal pluggable contact bridge (jumper) permits adjusting Thermostat P to operate even with a two-point output signal.

The built-in analog switch clock makes it possible to create a weekly program by positioning the switch tabs. Depending on the program, it switches between two operating modes, (day mode and night mode).

An operating mode switch makes it possible to select between day, night or automatic mode.

The Thermostat P has control lamps for the heating, cooling or night mode operating state.

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

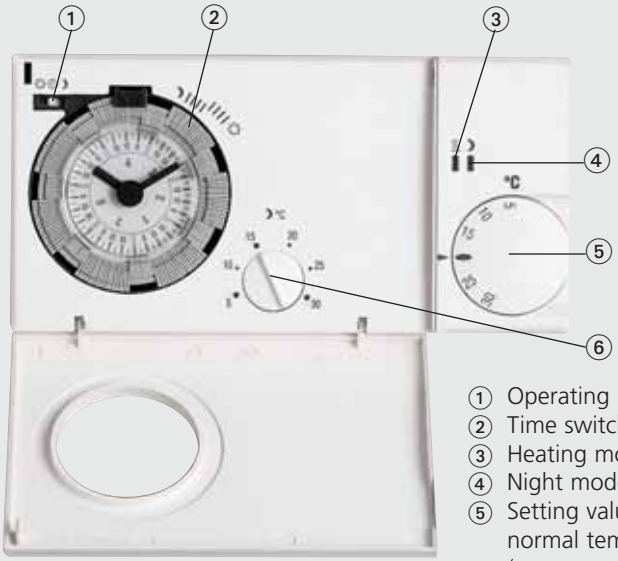
Models with 230 V and 24 V operating voltage, each with potential-free change-over contact.

With a separate switch clock output, additional room temperature controllers with temperature set-back inputs, e. g. HEIMEIER room thermostats with temperature set-back, can be controlled.

The Thermostat P is designed for installation on the wall or on recessed (concealed) switch boxes.

Assembly

Thermostat P



① Operating mode switch
② Time switch tabs
③ Heating mode control lamp
④ Night mode control lamp
⑤ Setting value adjuster for normal temperature (range constriction in the inside of the adjuster)
⑥ Setting value adjuster for nighttime reduction

- **Individual weekly program**
- **Very simple switching time setting with switch tabs**
- **Accuracte control through pulse-width modulation, ajustable to a two-point behaviour.**
- **Adjustable restriction of the setting range**
- **Multiple use due to due to potential-free change-over contact**
- **Switch clock output for additional room thermostats**

Function

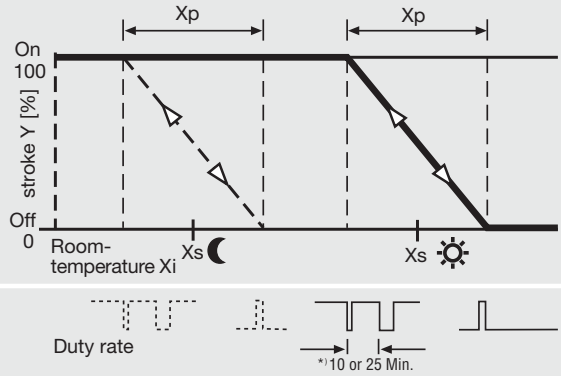
The measured room air temperature (xi) is compared to the set setting value (xs). The resulting deviations are converted into a two-point signal and, via electronic switches, control the potential-free relay with change-over contacts. The heating or cooling operating modes are triggered depending on the change-over contact configuration.

The pulse-width modulated (PWM) output signal of the controller, as adjusted in the works, switches with differently long pulses. The length of the pulses depends upon difference between the set and the actual room air temperature. The sum (duration) of the time and interval (pause) can be adjusted by a pluggable contact bridge (jumper) to operate with 10 min. for fast systems or with 25 min for slow systems (please see functional diagram). For large temperature differences, the controller switches permanently on or off, e. g. during the transition to temperature set-back.

If the adjustment is made to a two-point output signal, the output causes switching-on if the temperature falls below the set value and if this set value is surpassed the output causes switching-off.

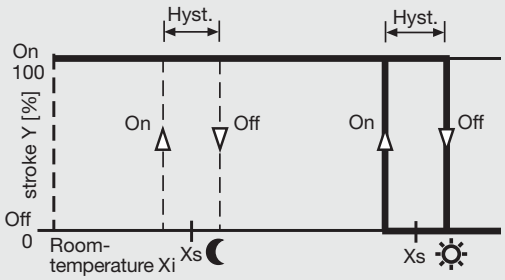
Functional diagram for the operating mode heating in conjunction with an actuator in the version currentless closed

PWM (pulse-width modulared) output signal



Progression of the switch-on duration (duty rate) depending upon the temperature

Two-point output signal



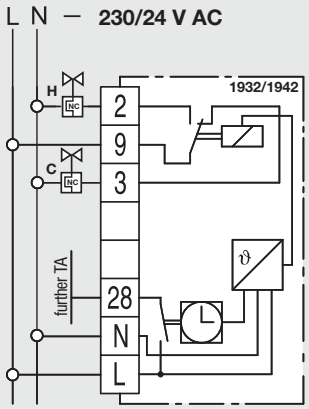
Application

The Thermostat P room temperature controller is used in connection with the corresponding actuators (e.g. HEIMEIER EMO T or EMOtec) in the fields of heating, ventilation and air-conditioning technology.

For time-dependent individual room temperature control, the Thermostat P is used for e. g. residential and commercial buildings with radiators, floor heating systems, ceiling cooling systems or blower convectors etc.

In case of a two-point output signal adjustment of the controller further fields of application can be served, e.g "on/off" switching operations for pumps or gas-fired circulation hot water boilers.

Connection diagram



Note

The connection diagram shows the **h**eating or **c**ooling operating mode when connected to thermal actuators in the design version, closed and currentless (NC). When connecting to actuators in the model open and currentless (NO), the **h**eating operating mode changes to **c**ooling, or **c**ooling operating mode changes to **h**eating operating mode.

The max. number of thermal actuators which can be connected can be calculated from the max. switching current of the Thermostat P and the switch-on current of the thermal actuators (max. number of HEIMEIER EMO T or EMOtec actuators – see technical data).

Additional room thermostats with temperature set-back function can be connected to terminal 28.

Thermostat P

Technical data

Thermostat P	Model 230 V	Model 24 V
Operating voltage:	230 V AC (+10%/–15%), 50/60 Hz	24 V AC (+25%/–15%), 50/60 Hz
Power consumption:	max. 1.5 VA	max. 1.5 VA
Switch relay:	1 change-over relay, potentialfree*)	1 change-over relay, potentialfree*)
- Voltage	24 V AC to 250 V AC	24 V AC to 250 V AC
- Current	10 mA to 10 A (4 A)	10 mA to 10 A (4 A)
- Number of EMO T's or EMOtec's	max. 10 pieces	max. 20 pieces
Time programme, screen:	weekly program/hourly	weekly program/hourly
Power reserve:	approx. 100 h	approx. 100 h
Timing clock output:	230 V AC, max. 50 mA (≙ 20 TA inputs)	24 V AC, max. 150 mA (≙ 20 TA inputs)
Temperature range:	5°C – 30°C (41°F-86°F) day time operation	5°C – 30°C (41°F-86°F) day time operation
- Night operation	5°C – 30°C (41°F-86°F)	5°C – 30°C (41°F-86°F)
Control behaviour:	Proportional controller (PWM similarly constant) adjustable to two-point behaviour	Proportional controller (PWM similarly constant) adjustable to two-point behaviour
- Cycle duration (PWM operating mode)	10/25 min. (change-over by jumper)	10/25 min. (change-over by jumper)
- Proportional band	1.5 K (PWM operat. mode)	1.5 K (PWM operat. mode)
- Hysteresis	approx. 0.5 K (2-point operating mode)	approx. 0.5 K (2-point operating mode)
Operating modes:	**h**eating or **c**ooling	**h**eating or **c**ooling
- Switch	night / automatic / day	Night / automatic / day
- Control lamp	Red – heating / green – cooling	Red – heating / green – cooling
Type of protection:	IP 30, acc. DIN EN 60529	IP 30, acc. DIN EN 60529
Class of protection:	II, acc. DIN EN 60730	II, acc. DIN EN 60730
- ⊡ acc. VDE 0100**)	observing corresponding mounting instructions	observing corresponding mounting instructions
CE certification (EMC/L.T):	DIN EN 60730	DIN EN 60730
Ambient temperature:	–10°C to +40°C in operation (+14°F-+104°F)	–10°C to +40°C in operation (+14°F-+104°F)
Storage temperature:	–25°C to +65°C (-13°F-+149°F)	–25°C to +65°C (-13°F-+149°F)
Housing, colour:	ABS, white RAL 9010	ABS, white RAL 9010
Connecting cross section:	1 x 2.5 mm² or 2 x 1.5 mm²	1 x 2.5 mm² or 2 x 1.5 mm²
Installation:	wall mounting or on recessed box (concealed	wall mounting or on recessed box (concealed

*) the above does not warrent or fullfil possible requirements of protective low tension (no secure disconnection).
**) VDE = German electrotechnical directives ⊡

Article numbers

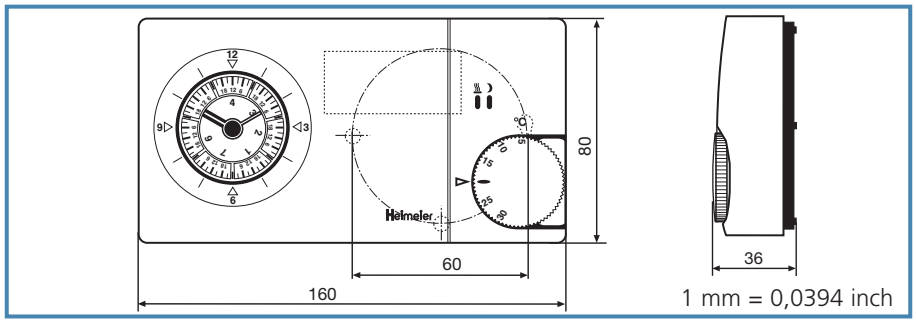
1932-00.500	1942-00.500

Accessories

Intermediate plate white RAL 9010, for mounting the thermostat on recessed box, (concealed, under plaster). 168 x 83 x 8 mm (W x H x D)
Article number:**1932-00.433**

Protective housing lockable mountable on surface on plaster for thermostat P, transparent 194 x 120 x 86 mm (W x H x D) Article number: **1930-02.433**

Dimensions



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