

Alpha-Thermostat 0–10 V Heating/Cooling Standard

The Alpha Thermostat AR HK 5010 S is a digital room thermostat for controlling heating and cooling applications equipped with proportional actuators (e.g. Alpha Actuator AA 5 ...). This proportional thermostat features a microprocessor and two separate 0-10 V outputs and offers excellent, high-precision control response. Temperature pre-selection is in 1/4 degree steps. The economy mode can be activated by connecting an external timer signal.

The neutral zone where neither heating nor cooling is active can be adjusted from 0.5 K to 3 K.

Installation and connection is with the pre-installed AS 1000 Alpha-Mounting Base on which this Alpha-Thermostat can be plugged at any time. To avoid damage to this high-class thermostat during the building phase, the system base is not included in the scope of supply and may be ordered in advance to carry out the necessary electric installation work.



Features

- Rotary temperature control with 1/4 degree soft clicks.
- Fixed 4 K economy value
- Adjustment of neutral zone from 0.5 to 3 K
- Economy mode by external switching signal
- Inverse output characteristic (10–0 V) by means of jumpers
- Control speed can be selected by means of jumpers
- Limitation of set temperature range
- Just-in-Time installation concept for direct wall or electric box installation
- Precise control response
- Functional design

Application

Single room control with separate heating and cooling circuit, specially designed for concealed heating systems, radiators and convectors and/or cooling ceilings and walls.

General Information

Type

AR HK 50.. S

↑ Housing colour
10 Standard pure white

Scope of supply

1x Alpha-Thermostat AR HK 5010 S
1x Installation instructions

Accessories

- Alpha-Mounting Base AS 1000

Ordering Information

Our staff will be glad to assist you in finding the Alpha-Thermostat fitting your application.

Call us at: +49 - 53 41 - 84 75 - 0

Functions

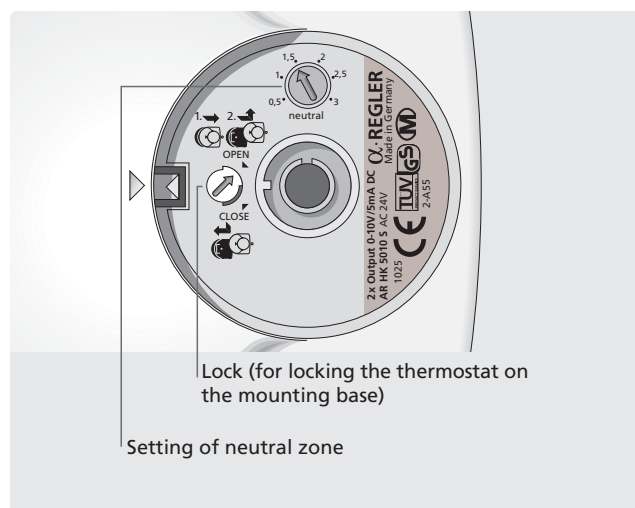
Control response

The Alpha-Thermostat is a PI controller with two 0-10 V analogue outputs offering optimum control of the Alpha-Actuator (thermo-electric actuator). Jumpers allow inverting the outputs and selecting the control speed. The output voltage is varied depending on the difference between the room temperature measured by the thermostat (actual value) and the desired temperature (set value). The bigger the difference between set value and actual value, the higher the analogue output voltage. When the room temperature approaches the set temperature, the output voltage is reduced more and more and finds its balance at an almost constant value corresponding to the heating/cooling power for this room.

Switching over from heating to cooling mode is automatic when the actual value is higher than the target value.

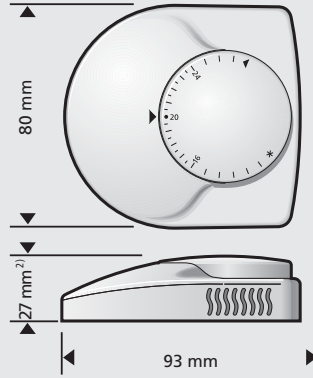
The economy mode can be activated by connecting an external timer signal. The economy value is fixed at 4 K. In heating mode, the temperature is reduced by 4 K, in cooling mode it is increased by 4 K.

Control Panel



Technical Data

Type	AR HK 5010 S
Version	Heating and cooling, 0–10 V each
Output characteristic	normal, inverse with jumpers
Contact rating per output	5 Alpha Actuators max. (Ri = 10 kOhm) 50 Alpha Actuators max. (Ri = 100 kOhm)
Operating voltage	24 V -10%..+20%, 50/60 Hz
Max. output current, each	5 mA at 10 V (short-circuit proof)
Economy mode	4 K (fixed)
Neutral zone	adjustable from 0.5 K to 3 K
Control cycles	approx. 0.2 K with optimum dimensioning of system
Control range	10 to 28 °C
Storage temperature	-25 to +70 °C
Ambient temperature	-25 to +40 °C
Relative humidity	80% max. ¹⁾
Protection type / protection class	IP 30 / III
CE conformity according to	EN 60730
Housing material	ABS
Weight	50 g without Alpha-Mounting Base

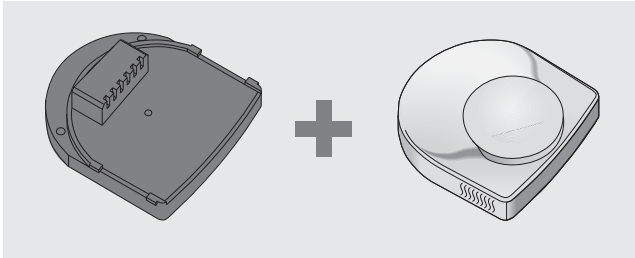


¹⁾ not condensing
²⁾ with Alpha-Mounting Base +8,5 mm

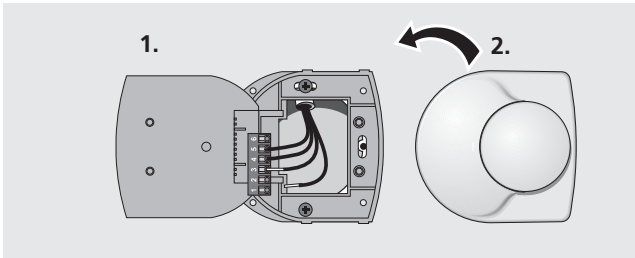


Planning and Installation Notes

Installation Note

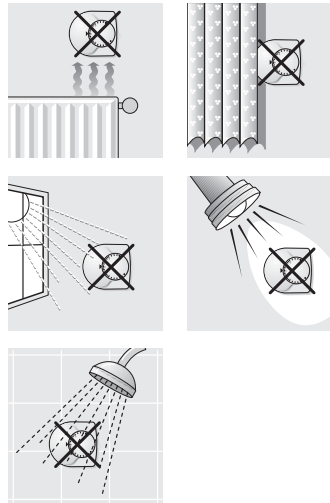
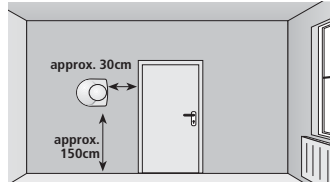


Installation and electric connection are only possible using the Alpha-Mounting Base AS 1000. The Alpha-Mounting Base is not included in the scope of supply and must be ordered separately; it also fits all types of Alpha-Thermostats



Direct wall or electric box installation possible. A 5-wire line (5 x 1.5 NYM) is recommended for the electric connection.

Recommended Place for Installation



Note!

In order to ensure a trouble-free and thus optimal operation of the thermostat, this device should be located behind a door in a calm zone – free of ambient influences as e. g. draught, direct sunlight or other sources of heat; it must not be covered by curtains nor be exposed to humidity. Otherwise, there is a danger of not reaching or exceeding the adjusted room temperature, depending on the respective ambient condition.

Electric Installation

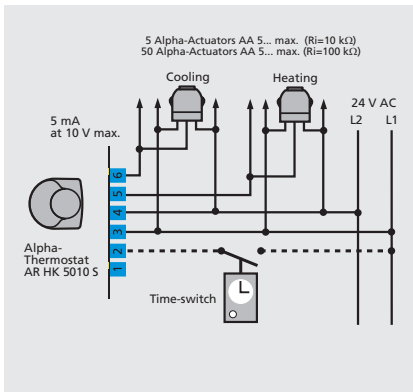


Diagram for "automatic economy mode activation" with time-switch.

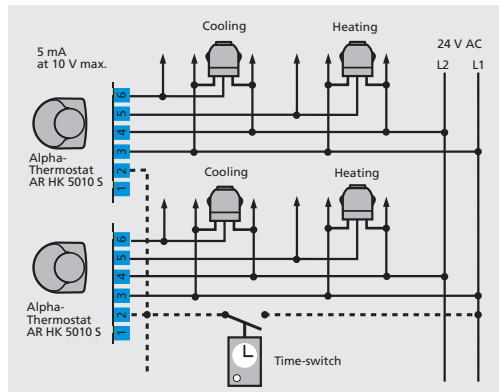
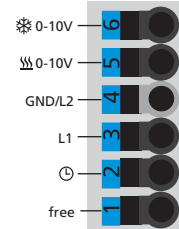


Diagram for "automatic economy mode activation" with central time-switch.

Wire configuration



Connecting symbols

- ⊙ : Automatic Temperature Setback
- L1 : Operating Voltage
- L2 : Operating Voltage
- ⏏ 0-10V : Heating Output 0-10V / 5 mA
- ⏏ 0-10V : Cooling Output 0-10V / 5 mA