

# Submittal Data Information

## Roth Alpha Thermostats



Effective: September 2007

Supersedes:

Job: \_\_\_\_\_ Engineer: \_\_\_\_\_ Contractor: \_\_\_\_\_ Rep: \_\_\_\_\_

| ITEM PART NO. | ITEM DESCRIPTION         | MANUFACTURER |
|---------------|--------------------------|--------------|
| # Varies      | Alpha Series Thermostats | Roth         |



Basic Thermostat

Reset Thermostat

Programmable Thermostat

### Common Features

- Precise control response
- Antifreeze function 5 °C
- Valve protection function
- Overcharge protection
- Designs "normally closed" (NC) and "normally open" (NO)
- Temperature setback 2 K (fixed)
- Limitation of set room temperature
- Just-in-time installation concept
- Simple screwed connection technology in the Alpha Mounting Base
- Functional design
- 12 housing colours available

### Reset Features

- Illuminated "Moon" symbol for temperature setback
- Operating mode selector switch
- Adjustment of temperature setback 2-6 K

### Programmable Features

- Illuminated "Moon" symbol for temperature setback
  - Operating mode selector switch
  - Adjustment of temperature setback 2-6 K
- Control functions
- Digital timer "Control" for manual programming
  - Day and week programming
  - 7 days power reserve
  - 1 channel with 42 memory locations (21 ON and 21 OFF switching times).
  - Free block formation and summer time conversion

### Application

- Individual room control, specially designed in connection with surface, radiator and convector heating systems.

### Common Functions

The Alpha-Thermostat series acts as a PI thermostat for the control of thermoelectric actuators (e. g. Alpha-Actuator). The output voltage is switched on or off depending on the difference between the room temperature measured by the thermostat (actual value) and the desired temperature (set value). The bigger the difference is between set value and actual value, the longer are the switching cycles. When the room temperature approaches the set temperature, the switching cycles of the output voltage are reduced and find their balance at an almost constant value corresponding to the heating power for this room.

#### Valve protection function (only NC)

If an actuator is not triggered during more than 24 hours of normal operation, the electronic system switches the actuator for 6 minutes once every 24 hours. This prevents the thermostat valves from clogging outside the heating season.

#### Antifreeze protection

If the set value element of the Alpha-Thermostat is set to the right stop (symbol \*), a room temperature of 5 °C is set as target value in order to prevent the installation from freezing.

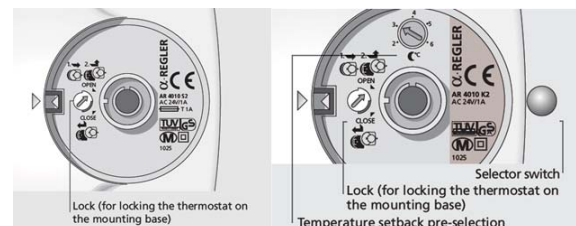
#### Overcharge protection

The switching output of all Alpha-Thermostats with microprocessor technology is protected by an internal temperature monitoring system in order to prevent the system from overcharge damage. In case of an internal temperature rise due to overcharge the electronic system automatically disconnects the output until the inside temperature has dropped again to normal values.

### Reset and Programmable Functions

#### Selector switch

The desired operating mode can be selected with the selector switch. The operating modes "Normal" (sun symbol), "Economy" (moon symbol, e. g. for night operation) and "Timer" (clock symbol) are available.



Basic Thermostat

Reset and Programmable Thermostat

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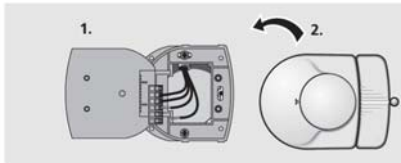
## Technical data

| Type  | AR 40.. S2 Basic                 | AR 40.. K2 Reset                 | AR 40.. C2 Programmable          |
|---|----------------------------------|----------------------------------|----------------------------------|
| Version   | Standard                         | Comfort                          | Control                          |
| Contact rating  | max 5 Alpha-Actuators 24 V       | max 5 Alpha-Actuators 24 V       | max 5 Alpha-Actuators 24 V       |
| Operating voltage   | 24 V, (19,2 - 35 V) 50/60 Hz     | 24 V, (19,2 - 35 V) 50/60 Hz     | 24 V, (19,2 - 35 V) 50/60 Hz     |
| Switched current  | 1 A (ohmic load)                 | 1 A (ohmic load)                 | 1 A (ohmic load)                 |
| Control range (heating zone)  | 10 to 28°C                       | 10 to 28°C                       | 10 to 28°C                       |
| Temperatur setback (heating zone)                                   | 2 K (fixed)                      | 2 - 6 K                          | 2 - 6 K                          |
| Hunting   | approx. 0,2 K                    | approx. 0,2 K                    | approx. 0,2 K                    |
| Valve interval switching if output is inactive for 24 h, once a day |                                  |                                  |                                  |
| Antifreeze protection on position *                                 | 5°C                              | 5°C                              | 5°C                              |
| Storage temperature   | -25 to +70 °C                    | -25 to +70 °C                    | -25 to +70 °C                    |
| Ambient temperature   | 0 to +50 °C                      | 0 to +50 °C                      | 0 to +50 °C                      |
| Relative humidity   | max. 80% <sup>1)</sup>           | max. 80% <sup>1)</sup>           | max. 80% <sup>1)</sup>           |
| Degree/ / class of protection                                       | IP 30 / III                      | IP 30 / III                      | IP 30 / III                      |
| CE conformity according to  | EN 60730                         | EN 60730                         | EN 60730                         |
| Housing   | ABS                              | ABS                              | ABS                              |
| Number of housing colours   | 12                               | 12                               | 12                               |
| Weight  | 49 g without Alpha Mounting Base | 49 g without Alpha Mounting Base | 74 g without Alpha Mounting Base |

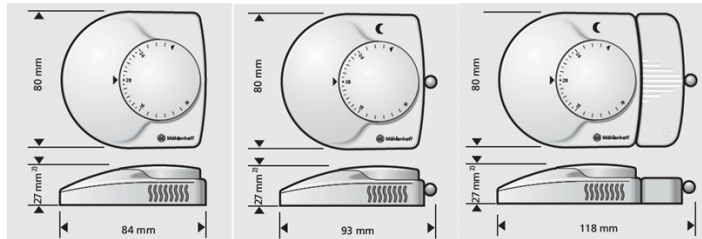
### Installation note



Installation and electric connection are only possible using the system base AS 1000. In order to avoid damage to this valuable thermostat during the construction phase, the system base is not included in the scope of delivery; it can be ordered already in advance for the necessary electric installation.



Installation can be performed directly to the wall or on a flush-type box. A 5-wire line (5 x 1.5 NYM) is recommended for the electric connection.



<sup>1)</sup> not condensing  
<sup>2)</sup> with Alpha Mounting Base + 8,5 mm



## Electric installation

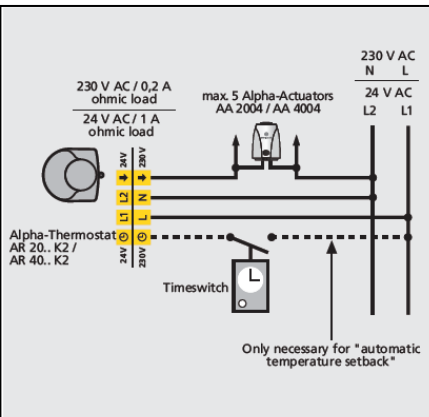


Diagram for automatic temperature setback with central time-switch

Single and Multiple Installation for Basic or Reset Thermostats

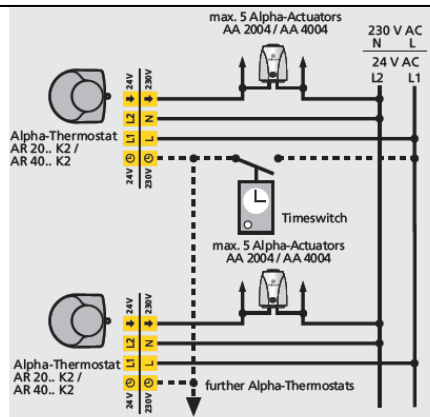


Diagram for automatic temperature setback with central time-switch

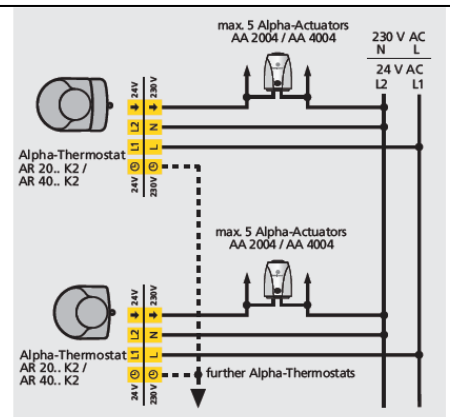


Diagram for automatic temperature setback with Alpha-Thermostat Control

Multiple Installation with Programmable and Basic or Reset Thermostats

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