Room Temperature Controllers

with 7-Day Time Switch and LCD

for heating systems

2-position control with ON/OFF output for heating
Operating modes: normal operation and energy saving mode
7-day time switch and manual operation
Mains-powered AC 230 V (RDE10) or battery-powered DC 3 V (RDE10.1)

Use

The RDE10... is used for the control of the room temperature in heating systems.

Typical applications:
- Apartments
- Commercial spaces
- Schools

For the control of the following pieces of equipment:
- Thermic valves or zone valves
- Gas or oil burners
- Fans
- Pumps
Functions

The controller acquires the room temperature with its integrated sensor and maintains the setpoint by delivering control commands. The switching differential is 1 K.

Function diagram

Operating modes

The RDE10... provides normal operation and, optionally, energy saving mode or OFF. The difference between normal operation and energy saving mode is only the room temperature setpoint. The changeover between the operating modes can be made either automatically according to the 7-day time switch or manually with the operating mode selector.

Normal operation

When normal operation is activated, symbol “�行” appears on the display. The setpoint can be readjusted by pressing buttons +, - and –.

Energy saving mode or OFF

When energy saving mode is activated, symbol “行” appears on the display. The setpoint can be readjusted by pressing buttons +, - and –.

In energy saving mode, the unit can also be switched to “Off”. This is accomplished by selecting a setpoint of 5 °C and then keeping button – depressed for 4 seconds. In that case, symbol ”行“ does not appear.

7-day time switch

The changeover between the operating modes can take place either automatically (周一至周五) or manually (周六至周日), depending on the position of the operating mode selector. When the operating mode selector is in position “Monday”, changeover will take place automatically according to the selected switching pattern. For every weekday, a specific switching pattern can be selected.

Factory setting:

<table>
<thead>
<tr>
<th>Day(s)</th>
<th>Normal operation</th>
<th>Energy saving mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mo (1) – Fr (5)</td>
<td>6:00 – 8:00 h and 17:00 – 22:00 h</td>
<td>22:00 – 6:00 h and 08:00 – 17:00 h</td>
</tr>
<tr>
<td>Sa (6) – Su (7)</td>
<td>7:00 – 22:00 h</td>
<td>22:00 – 7:00 h</td>
</tr>
</tbody>
</table>

The current setpoint can be temporarily readjusted by pressing buttons + and –. The setpoint will then be reset to its initial value the next time automatic or manual changeover takes place.

When the operating mode selector is set to “周一” or “周六”, the RDE10... will maintain normal operation or energy saving mode respectively.
Display
The digital display shows the actual room temperature, the time of day, the weekday, the current switching pattern and the symbol of the operating mode currently active. The switching pattern shows normal operation as a double bar and energy saving mode as a single bar with a flashing time pointer. When the heating output is activated, the triangle symbol appears.

Backup
In the event of a power failure, the setpoints and the information required for operating mode changeover are retained for 3 minutes. This is enough to cope with power failures of short duration (with RDE10) or when changing the batteries (with RDE10.1).

Type summary

<table>
<thead>
<tr>
<th>Type Reference</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>RDE10</td>
<td>Mains-powered AC 230 V</td>
</tr>
<tr>
<td>RDE10.1</td>
<td>Battery-powered DC 3 V</td>
</tr>
</tbody>
</table>

Ordering
When ordering, please give name and type references, e.g. *room temperature controller RDE10.* Valve actuators are to be ordered as separate items.

Equipment combinations

<table>
<thead>
<tr>
<th>Type of Unit</th>
<th>Type Reference</th>
<th>Data Sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motoric on/off actuator</td>
<td>SFA21...</td>
<td>4863</td>
</tr>
<tr>
<td>Thermal actuator (for radiator valve)</td>
<td>STA21...</td>
<td>4893</td>
</tr>
<tr>
<td>Thermal actuator (for small valve 2,5 mm)</td>
<td>STP21...</td>
<td>4878</td>
</tr>
</tbody>
</table>

Accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>Type Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adapter plate 120 x 120 mm for 4&quot; x 4&quot; conduit boxes</td>
<td>ARG70</td>
</tr>
<tr>
<td>Adapter plate 96 x 120 mm for 2&quot; x 4&quot; conduit boxes</td>
<td>ARG70.1</td>
</tr>
<tr>
<td>Adapter plate for surface wiring 112x130 mm</td>
<td>ARG70.2</td>
</tr>
</tbody>
</table>
Mechanical design

The unit consists of two parts:

- A plastic housing with digital display, which accommodates the electronics, the operating elements and the built-in room temperatures sensor
- A mounting base

The housing engages in the mounting base and snaps on.

The base carries the screw terminals.

Legend

1. Display of the room temperature in °C or setpoints
2. Current time of day using the format 00:00 ... 23:59
3. Current weekday from 1 (Monday) to 7 (Sunday)
4. Current switching pattern with flashing time pointer
5. symbol when actual room temperature is displayed
6. symbol when the unit is in normal operation
7. symbol when the unit is in energy saving mode
8. symbol when the unit is in heating mode
9. symbol when the unit is in energy saving mode and heating is on
10. symbol indicating that batteries need to be replaced
    (only with battery-powered versions)
11. Buttons for adjusting the setpoints, the time of day and the switching times
12. Operating mode selector
13. Setting the weekday
14. Setting the time of day
15. Selecting and leaving the setting mode for the switching pattern
16. Setpoint adjustment for energy saving mode
17. Setpoint adjustment for normal operation
18. Button for confirming the switching pattern settings

Battery compartment (only with battery-powered versions)
Notes

The room temperature controller should be mounted in a location where the air temperature can be measured as accurately as possible without getting adversely affected by direct solar radiation or other heat or refrigeration sources.

Mounting height is about 1.5 m above the floor.

The unit can be fitted to a recessed conduit box.

- Only authorized staff may open the controller.

  Caution: AC 230 V!

- The cables used must satisfy the insulation requirements with regard to mains potential

Mounting, installations and commissioning

When mounting the unit, fix the baseplate first. Then, make the electrical connections and fit and secure the cover (also refer to separate Mounting Instructions).

The controller must be mounted on a flat wall and in compliance with local regulations.

If there are thermostatic radiator valves in the reference room, they must be set to their fully open position.

Maintenance

The controller is maintenance-free.

Sensor calibration

If the temperature on the display does not agree with the room temperature effectively measured, the temperature sensor can be recalibrated. For that purpose, both buttons \( + \) and \( - \) must be pressed simultaneously for 3 seconds. Then, the temperature displayed can be changed by a maximum of +/- 3 K by pressing the \( + \) and \( - \) buttons. Five seconds after the last push of a button, the controller will automatically return to the normal operational statuses.

Change of batteries (only with battery-powered versions)

If the battery symbol appears, the battery power is almost exhausted and the batteries should be replaced.

Reset

To reset, first press and hold the button \( \odot \), then press the two buttons \( \ominus \) simultaneously for 3 seconds. All individual settings will be reset to their standard values.
## Technical data

### Power supply

- **Operating voltage**
  - RDE10 at L and N: AC 230 V +10/-15 %
  - RDE10.1: DC 3 V (2 x 1.5 V AAA Alkaline - batteries)
- **Frequency (RDE10)**: 50 or 60 Hz
- **Power consumption (RDE10)**: 4VA
- **Battery life (RDE10.1)**: > 1 years (AAA Alkaline - batteries)

### Control outputs

- **Control output Q12 (N.C. contact)**
  - Rating RDE10 (AC 230 V): max. 5(2) A
  - Rating RDE10.1 (AC 24…250 V): max. 5(2) A
- **Control output Q14 (N.O. contact)**
  - Rating RDE10 (AC 230 V): max. 5(2) A
  - Rating RDE10.1 (AC 24…250 V): max. 5(2) A

### Functional data

- **Switching differential SD**: 1 K
- **Setpoint setting range**: 5…35 °C (normal operation)
  - 0 (OFF) and 5…35 °C (energy saving mode)
- **Factory setting normal operation**: 20 °C
- **Factory setting energy saving mode**: 8 °C
- **Resolution of settings and displays**
  - Setpoints: 0.5 °C
  - Switching times: 60 min
  - Actual value displays: 0.5 °C
  - Time of day displays: 1 min

### Environmental conditions

- **Operation**: to IEC 721-3-3
  - **Climatic conditions**: class 3K5
  - **Temperature**: 0…+50 °C
  - **Humidity**: <95 % r. h.
- **Transport**: to IEC 721-3-2
  - **Climatic conditions**: class 2K3
  - **Temperature**: -25…+60 °C
  - **Humidity**: <95 % r. h.
  - **Mechanical conditions**: class 2M2
- **Storage**: to IEC 721-3-1
  - **Climatic conditions**: class 1K3
  - **Temperature**: -25…+60 °C
  - **Humidity**: <95 % r. h.

### Norms and standards

- **CE conformity to**
  - EMC directive: 89/336/EEC
- **C-Tick** conformity to
  - EMC emission standard: AS/NSZ 4251.1:1994
- **Product standards**
  - Automatic electrical controls for household and similar use: EN 60 730 – 1 and EN 60 730 – 2 - 9
- **Electromagnetic compatibility**
  - Emissions: IEC/EN 61 000-6-3
  - Immunity: IEC/EN 61 000-6-1
- **Safety class**: II to EN 60730
- **Pollution class**: normal
- **Degree of protection of housing**: IP30 to EN 60529
**General**

<table>
<thead>
<tr>
<th>Connection terminals for</th>
<th>Use solid wires or prepared stranded wires.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 x 1.5 mm² or 1 x 2.5 mm² (min. 0.5 mm²)</td>
</tr>
<tr>
<td>Weight</td>
<td>0.21 kg</td>
</tr>
<tr>
<td>Colour of housing front</td>
<td>white, NCS S 0502-G (RAL 9003)</td>
</tr>
</tbody>
</table>

**Connection diagram**

![Connection diagram](image)

**Application examples**

- **Room temperature controller with direct control of a gas-fired wall-hung boiler**
- **Room temperature controller with direct control of a gas-fired floor-standing boiler**
Room temperature controller with direct control of a heating circuit pump (precontrol by manual mixing valve)

- F1: Thermal reset limit thermostat
- F2: Safety limit thermostat
- M1: Circulating pump
- N1: RDE10... room temperatures controller
- Y1: 3-port valve with manual adjustment
- Y2: Magnetic valve

Dimensions

**Controller**

- Width: 96 mm
- Height: 119 mm
- Depth: 23.8 mm

**Baseplate**

- Width: 89.45 mm
- Height: 112.3 mm
- Depth: 26 mm

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