

RDH10RF

RCR10/433

## Wireless room temperature controller with LCD

## RDH10RF/SET

Non-programmable, for heating or cooling systems

- Operating modes: Automatic, Comfort, Energy Saving, and Frost Protection
- LCD-Display 50 x 45 (W x H)
- RDH10RF transmitter, battery-powered
- RCR10/433 receiver, mains powered
- Communication of the set is bonded ex factory

### Use

The RDH10RF is used to control the room temperature in heating or cooling systems.

Typical applications:

- Homes
- Residential buildings
- Schools
- Offices

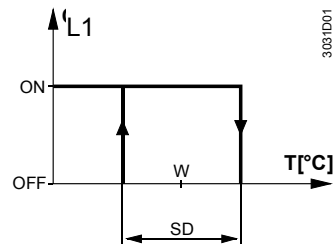
The controller can be used together with the following equipment:

- Thermal valves or zone valves
- Combi boilers
- Gas or oil burners
- Fans
- Pumps

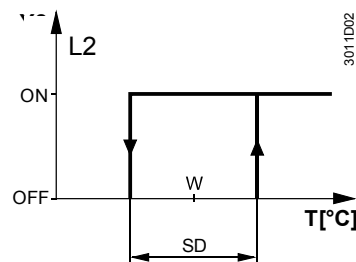
## Functions

The controller acquires the room temperature with its integrated sensor.

### Function diagram



T Room temperature  
SD Switching differential (1 K)  
W Room temperature setpoint  
L1 Output signal for heating



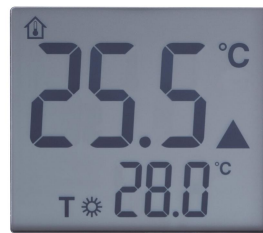
T Room temperature  
SD Switching differential (1 K)  
W Room temperature setpoint  
L2 Output signal for cooling

### Temperature sensor

The RDH10RF provides room temperature control only.

### Display

The digital display displays the actual room temperature and the comfort temperature setpoint. The triangle symbol appears when the heating output is active.



### Backup

Setpoints and information required for operating mode changeover are retained when exchanging batteries. The values must be checked though.

### Ordering

Please provide the name and product number when ordering: Room temperature controller RDH10RF/SET.

Valves and actuators are to be ordered as separate items.

### Equipment combinations

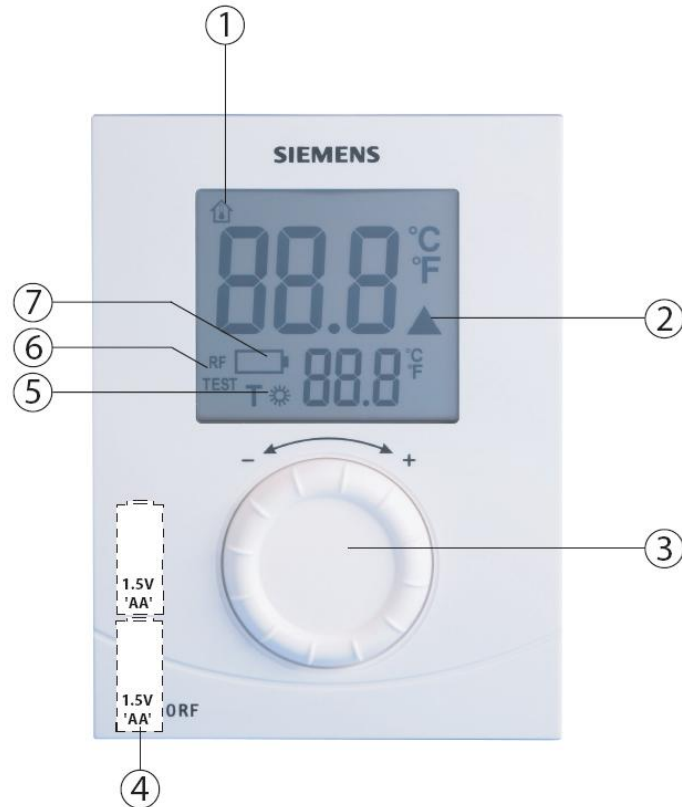
| Type of unit                                      | Product number       | Data sheet <sup>*)</sup> |
|---|----------------------|--------------------------|
| Electromotoric actuator                           | <b>SFA21...</b>      | 4863                     |
| Electrothermal actuator (for radiator valves)     | <b>STA21...</b>      | 4877                     |
| Electrothermal actuator (for small valves 2.5 mm) | <b>STP21...</b>      | 4878                     |
| 2- or 3-port zone valve                           | <b>MXI/MVI421...</b> | 4867                     |
| Electromotoric actuator for zone valves V..146..  | <b>SUA21</b>         | 4830                     |
| Electric actuator                                 | <b>SUA11/22</b>      | 4832                     |
| Air damper actuator                               | <b>GDB...</b>        | 4624                     |
| Air damper actuator                               | <b>GSD/GQD...</b>    | 4606                     |
| Air damper actuator                               | <b>GXD...</b>        | 4622                     |

<sup>\*)</sup> The documents can be downloaded from <http://siemens.com/bt/download>.

The controller consists of 4 parts:

- Plastic housing with digital display accommodating the electronics, operating elements and built-in room temperature sensor
- Baseplate (mounting base)
- Removable battery compartment
- Fold-out stand

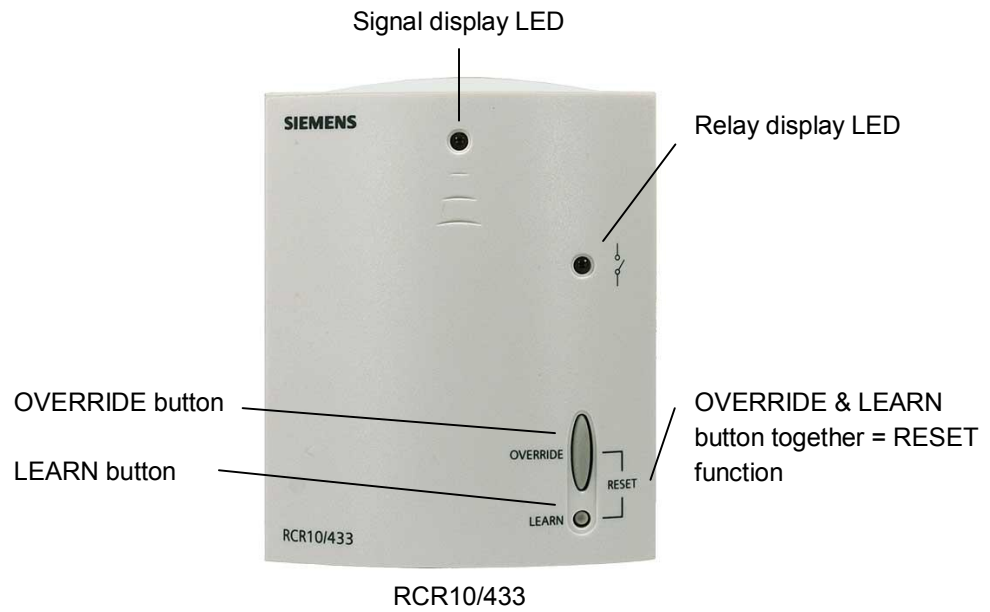
The housing engages in the baseplate and snaps on. There is a reset button on the rear of the unit.



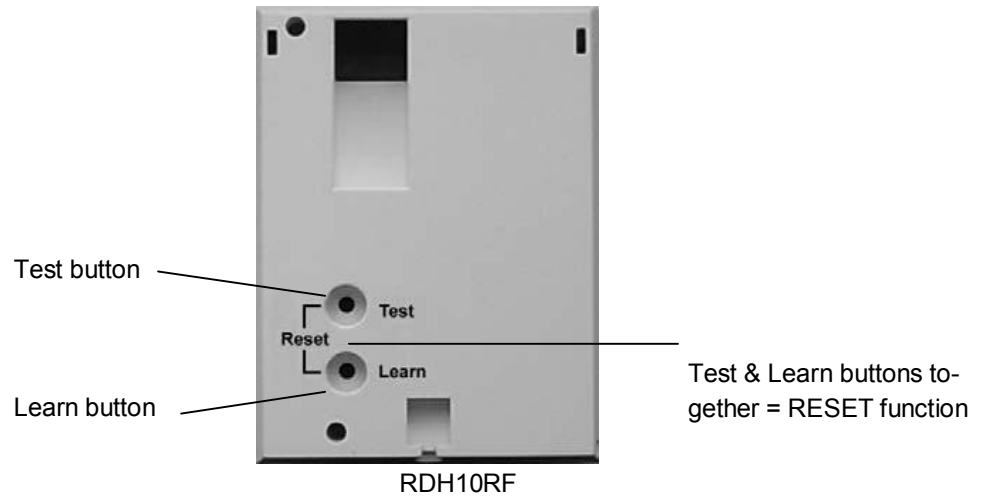
Key

- 1 Room temperature display in °C
- 2 Indicates a heat request
- 3 Temperature setting knob
- 4 Battery compartment
- 5 Comfort temperature setpoint
- 6 **RF**  
**TEST** Indicates RF signal test
- 7 Indicates low battery power; replace batteries

The RCR10/433 receiver is located in a plastic housing with LEDs and buttons.



The RDH10RF is located in a plastic housing. Two buttons are visible on the rear side when removing the baseplate.

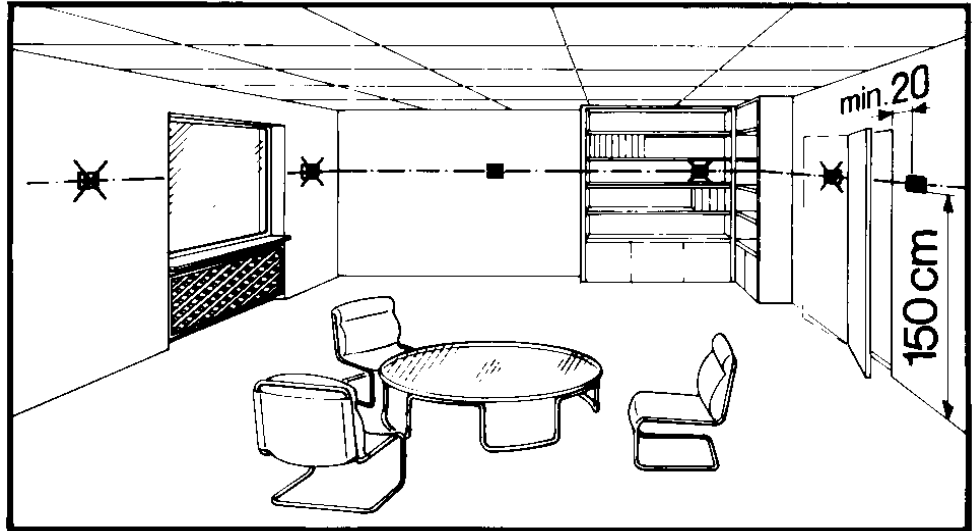


## Notes

Mount the room temperature controller in a location where the air temperature can be measured as accurately as possible without being adversely affected by direct solar radiation or other sources of heat or cooling.

The controller is delivered with a fold-out stand and may be used as a "mobile" device (Note: Pay attention to mounting location).

Mounting height is approximately 1.5 m above the floor.



The unit can be fitted to a recessed conduit box.

### Mounting, installation and commissioning

Fix the baseplate prior to mounting the controller. The receiver does not require a baseplate. Connect the electrical connections and fit and secure the receiver in compliance with local regulations (also refer to the separate mounting instructions). Mount the controller on a flat wall.

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

For commissioning please refer to the Operating Instruction CE1B3070xx

### Maintenance

Controller and receiver are maintenance-free except for the controller battery.

### Change of batteries

If battery symbol  appears, the batteries are almost empty and must be replaced.

### Reset

Simultaneously press the TEST and LEARN buttons on the rear side of the controller to reset it (reset function).

Simultaneously press the OVERRIDE and LEARN buttons to reset the receiver (reset function).

All individual settings are reset to the default values.

## OVERRIDE

Override allows for temporarily overwriting the active value from the sender. Override responds differently depending on the radio connection (normal or fault).

### Example A: Normal connection between sender and recipient

Press the OVERRIDE button to overwrite the value for ca. 14 minutes. The value then returns to the setpoint.

### Example B: Faulty connection between sender and recipient

Press the OVERRIDE button to permanently overwrite the value. The value returns to the setpoint after the connection between sender and recipient works again.

## RF LED

| RF state                           | RF LED                                   |
|------------------------------------|--|
| Power up (First 5 seconds)         | Flash RED + GREEN (Amber)<br>(5 seconds) |
| Power up (After 5 seconds)         | RED                                      |
| Press OVERRIDE switch              | Flash RED + GREEN (Amber)<br>(5 seconds) |
| Learning period                    | No LED                                   |
| Software reset                     | RED                                      |
| RF receive                         | GREEN                                    |
| No RF within last 25 minutes       | RED                                      |
| Manual override<br>(RF receive)    | Flash GREEN                              |
| Manual override<br>(No RF receive) | Flash RED                                |

## Relay LED


| Relay state                      | Relay LED    |
|----------------------------------|--------------|
| From OUT to ON (First 5 seconds) | Flash YELLOW |
| ON                               | YELLOW       |
| From ON to OFF (After 5 seconds) | Flash YELLOW |
| OFF                              | OFF          |

## Disposal




The devices are considered electronics devices for disposal in term of European Directive 2012/19/EU and may not be disposed of as domestic waste.

- Dispose of the device via the channels provided for this purpose
- Comply with all local and currently applicable laws and regulations.
- Dispose of empty batteries at designated collection points.

| <b>Technical data</b>    |   |  |
|--------------------------|---|--|
| Power supply             | Operating voltage   | DC 3 V (2 x 1.5 V AA alkaline batteries) |
|                          | Battery life  | >1 year (AA alkaline batteries)          |
| Sensor inputs            | <b>Internal:</b>  |  |
|                          | Thermistor  | 10 kΩ ± 1% at 25 °C                      |
| Operational data         | Switching differential SD   | 1 K (fixed)                              |
|                          | Setpoint setting range  | 5...30 °C                                |
|                          | Factory setting comfort setpoint  | 20 °C                                    |
|                          | Resolution of settings and displays   |  |
|                          | Setpoints   | 0.5 °C                                   |
| Actual value displays    | 0.5 °C  |  |
| Environmental conditions | Operation   | IEC 60721-3-3                            |
|                          | Climatic conditions   | Class 3K5                                |
|                          | Temperature   | 0...+40 °C                               |
|                          | Humidity  | <90% r.h.                                |
|                          | Transport   | IEC 60721-3-2                            |
|                          | Climatic conditions   | Class 2K3                                |
|                          | Temperature   | -25...+60 °C                             |
|                          | Humidity  | <95% r.h.                                |
|                          | Mechanical conditions   | Class 2M2                                |
|                          | Storage   | IEC 60721-3-1                            |
|                          | Climatic conditions   | Class 1K3                                |
|                          | Temperature   | -10...+60 °C                             |
|                          | Humidity  | <90% r. h.                               |
| Standards                | EU Conformity (CE)  | CE1T10886xx *)                           |
|                          |  <b>C-tick</b> conformity to |  |
|                          | Test standards and requirements   | EN 61000-6-3, AS/NZS 4251.1              |
|                          | Test standards for radio equipment  | AS/NZS 4268                              |
|                          | Safety class  | III as per EN 60950-1                    |
| General                  | Pollution degree  | 2  |
|                          | Degree of protection of housing   | IP20                                     |
|                          | Weight (incl. package)  |  |
|                          | RDH10RF/SET   | 515 g                                    |
|                          | Color of housing front  | Signal-white RAL 9003                    |
| Housing material         | ABS (LCD lens: PC)  |  |

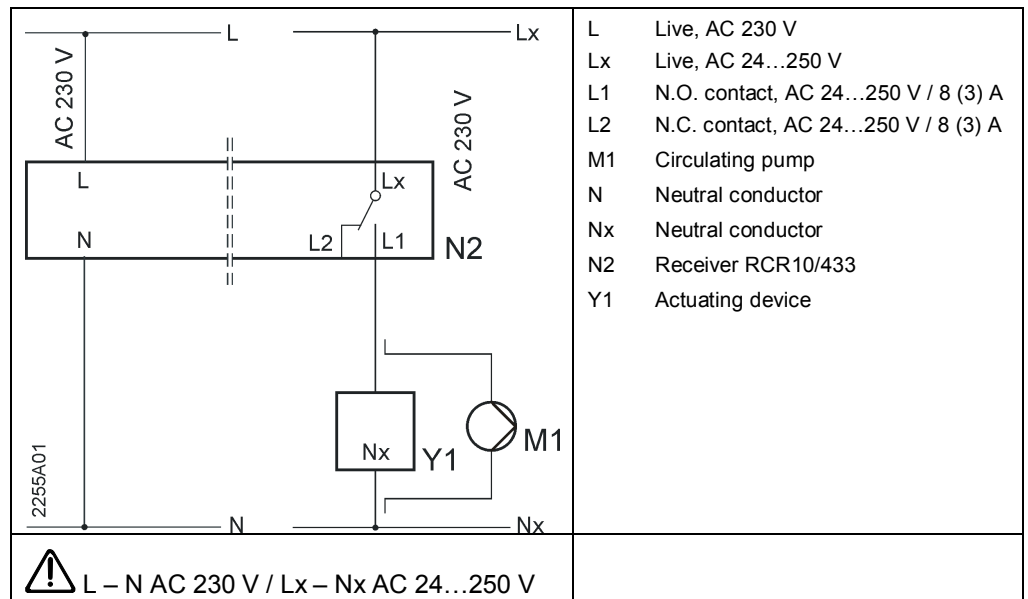
## Receiver RCR10/433

|  |                                 |   |
|--|---------------------------------|---|
| General unit data  | Operating voltage               | AC 230 V +10/-15%                                   |
|  | Power                           | <10 VA  |
|  | Frequency                       | 50...60 Hz  |
| Switching capacity of relays   | Voltage                         | AC 24...250 V                                       |
|  | Current                         | 8 (3) A   |
|  | Relay contacts                  |   |
| Outputs<br> Switching outputs<br>(LX, L1, L2) | Switching voltage               | Max. AC 250 V<br>Min. AC 24 V                       |
|  | Switching current               | Max. 8 A res., 3 A ind.                             |
|  | At AC 250 V                     | Min. 200 mA   |
|  | Contact life at AC 250 V        | Guide value:  |
|  | At 5 A res.                     | 1 x 10 <sup>5</sup> cycles                          |
|  | Insulating strength             |   |
|  | Between relay contacts and coil | AC 5,000 V  |
| Between relay contacts (same pole)   | AC 2,500 V                      |   |
| Electrical connections   | Connection terminals            | Screw terminals                                     |
|  | For solid wires                 | 2 x 1.5 mm <sup>2</sup>                             |
|  | For stranded wires              | 1 x 2.5 mm <sup>2</sup> (min. 0.5 mm <sup>2</sup> ) |
| Environmental conditions   | Operation                       | IEC 60 721-3  |
|  | Climatic conditions             | Class 3K3   |
|  | Temperature                     | 0...+45 °C  |
|  | Humidity                        | <85% r.h.   |
|  | Storage and transport           | IEC 60 721-3  |
|  | Climatic conditions             | Class 2K3   |
| Temperature  | -25...+70 °C                    |   |
| Humidity   | <93% r.h.                       |   |
| Mechanical conditions  | Class 2M2                       |   |
| Standards  | EU Conformity (CE)              | CE1T10886xx <sup>*)</sup>                           |
|  | Safety class                    | II as per EN 60 730-1                               |
|  | Degree of pollution             | 2   |
|  | Color                           |   |
|  | Unit front                      | Signal-white RAL 9003                               |
|  | Base                            | Gray RAL 7035                                       |
|  | Dimensions                      | 83x104x32 mm  |

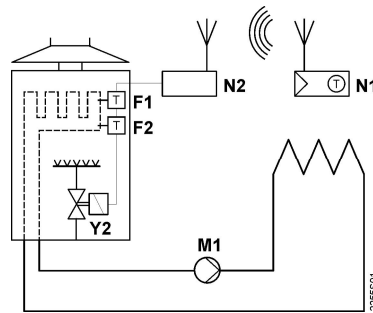
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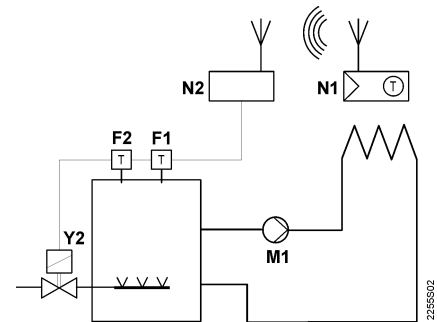
## Connection diagram



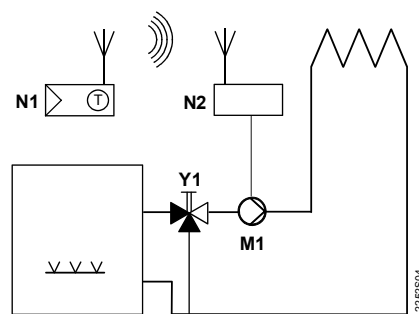
## Application examples



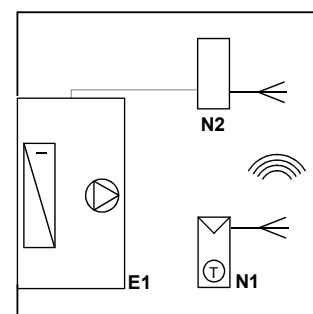
Wireless room temperature controller with receiver control of a gas-fired wall-hung boiler



Wireless room temperature controller with receiver control of atmospheric gas burner



Wireless room temperature controller with receiver control of a heating circuit pump (precontrol by manual mixing valve)



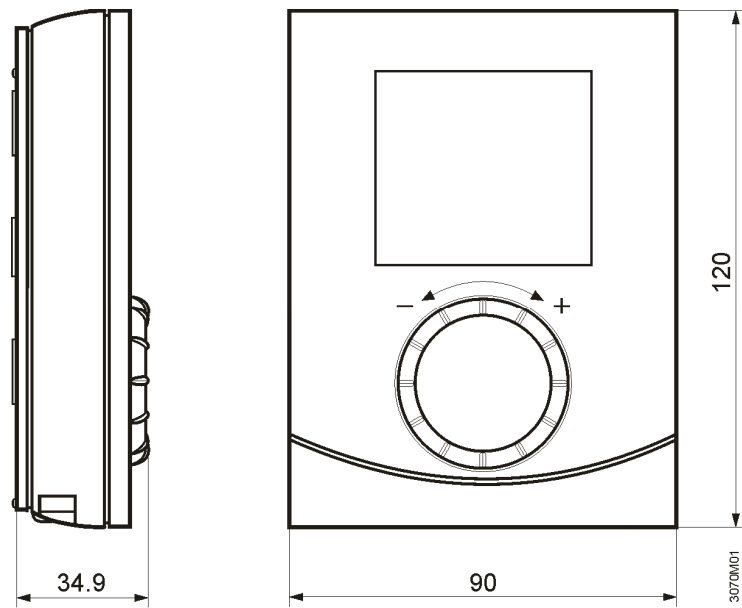
Wireless room temperature controller with receiver control of cooling equipment

F1 Thermal reset limit thermostat  
 F2 Safety limit thermostat  
 M1 Circulating pump

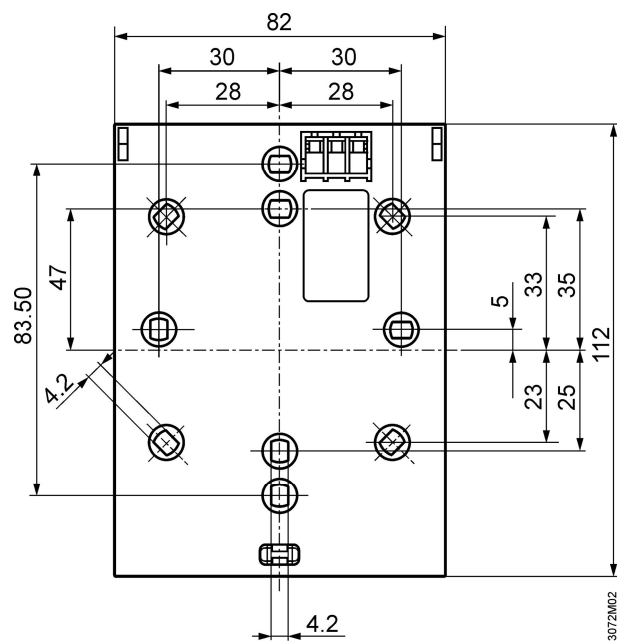
E1 Cooling equipment  
 N1 Room temperature controller RDH10RF  
 N2 Receiver RCR10/433  
 Y1 3-port valve with manual adjustment  
 Y2 Magnetic valve

## Dimensions

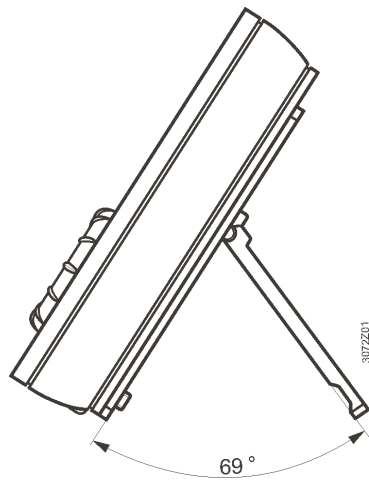
### Room temperature controller



### Room temperature controller mounting plate



**Room temperature controller with fold-out stand**



**Room temperature receiver with mounting plate**

