



Room Temperature Controller with 7-Day Time Switch, LCD and opt. Remote Temperature Sensor for heating systems

RDE20.1

2-position control with ON/OFF output for heating
Operating modes: normal operation and energy saving mode
7-day time switch and manual operation
Battery-powered DC 3 V
Input for external temperature sensor

Use

The RDE20.1 is used for the control of the room temperature in heating systems.

Typical applications:

- Apartments
- Commercial spaces
- Schools

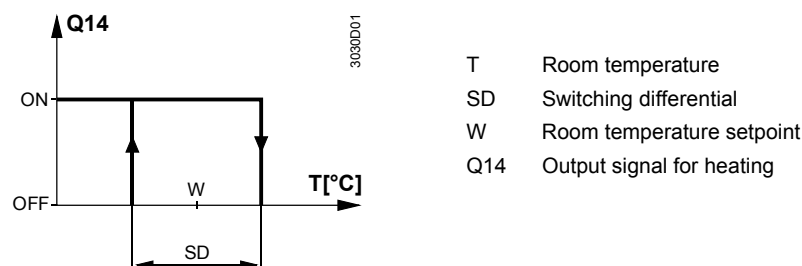
For the control of the following pieces of equipment:

- Thermic valves or zone valves
- Gas or oil burners
- Fans
- Pumps

Functions

The controller acquires the room temperature with its integrated sensor or external room temperature sensor (QAA32) or external return air temperature sensor (QAH11.1) – if used – and maintains the setpoint by delivering control commands. The switching differential is 1 K.

Function diagram



Remote temperature sensor

The RDE20.1 can provide control either according to the internal room temperature or according to a remote temperature. The controller detects automatically when a QAH11 is connected. In this case, the internal temperature sensor is deactivated.

Operating modes

The RDE20.1 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 "☀" 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 "☾" 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 "☾" does not appear.

7-day time switch

The changeover between the operating modes can take place either automatically () or manually (,) , depending on the position of the operating mode selector. When the operating mode selector is in position " ", changeover will take automatically according to the selected switching pattern. For every weekday, a specific switching pattern can be selected.

Factory setting:

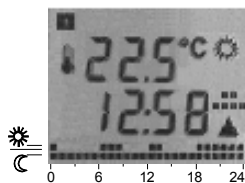
Day(s)	Normal operation	Energy saving mode
Mo (1) – Fr (5)	6:00 – 8:00 h and 17:00 – 22:00 h	22:00 – 6:00 h and 08:00 – 17:00 h
Sa (6) – Su (7)	7:00 – 22:00 h	22:00 – 7:00 h

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.

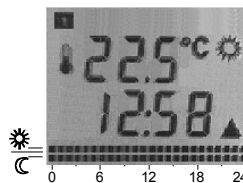
When the operating mode selector is set to "☀" or "☾" , the RDE20.1 will maintain normal operation or energy saving mode respectively.

Display

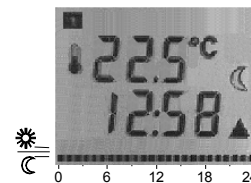
The digital display shows the actual room temperature, the time of day, the weekday, the current switching pattern and the symbol of the operating mode currently active. The switching pattern shows normal operation as a double bar and energy saving mode as a single bar with a flashing time pointer. When the heating output is activated, the triangle symbol appears.



Automatic changeover according to the switching pattern



Normal operation



Energy saving mode

Backup

When taking out the batteries, the setpoints and the information required for operating mode changeover are retained for 3 minutes.

Ordering

When ordering, please give name and type reference: room temperature controller RDE20.1.

Sensor and valve actuators are to be ordered as separate items.

Equipment combinations

Type of unit	Type reference	Data sheet
Temperature sensor	QAH11	1840
Room sensor	QAA32	1747
Motoric on/off actuator	SFA21...	4863
Thermal actuator (for radiator valve)	STA21...	4893
Thermal actuator (for small valve 2,5 mm)	STP21...	4878

Accessories

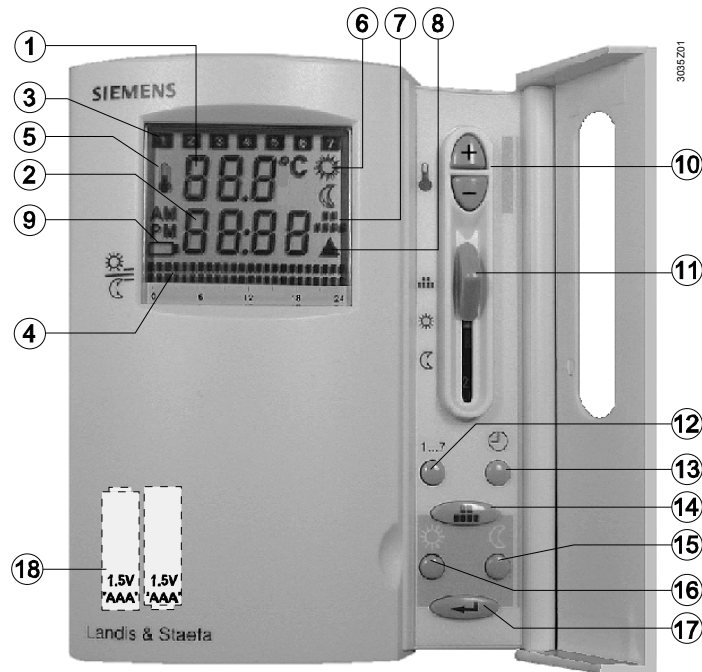
Description	Type reference
Adapter plate 120 x 120 mm for 4" x 4" conduit boxes	ARG70
Adapter plate 96 x 120 mm for 2" x 4" conduit boxes	ARG70.1
Adapter plate for surface wiring 112x130 mm	ARG70.2

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.

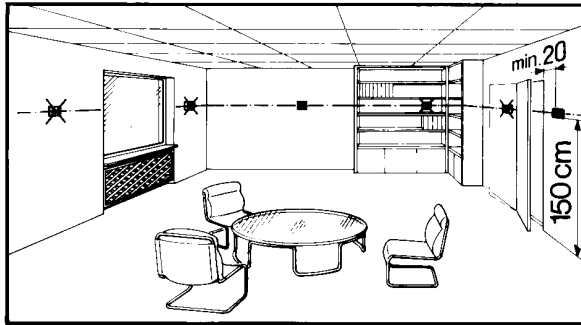


Legend

- 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 Normal operation
 Energy saving mode
- 7 symbol in automatic mode or when selecting the switching pattern
- 8 heating on
- 9 symbol indicating that batteries need to be replaced
- 10 Buttons for adjusting the setpoints, the time of day and the switching times
- 11 Operating mode selector
- 12 Setting the weekday
- 13 Setting the time of day
- 14 Selecting and leaving the setting mode for the switching pattern
- 15 Setpoint adjustment for energy saving mode
- 16 Setpoint adjustment for normal operation
- 17 Button for confirming the switching pattern settings
- 18 Battery compartment

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 authorised 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

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

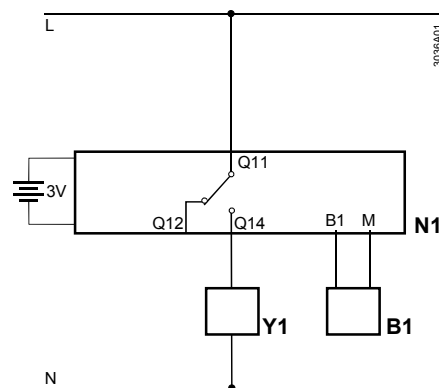
Reset

To reset, first press and hold the button , then press the two buttons  simultaneously for 3 seconds. All individual settings will be reset to their standard values.

Technical data

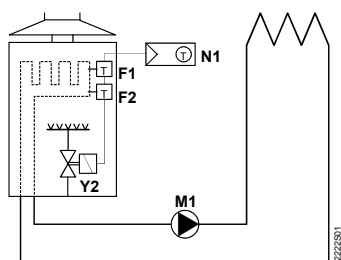
Power supply	Operating voltage	DC 3 V (2 x 1.5 V AAA Alkaline batteries)
	Battery life (RDE10.1)	> 1 years (AAA Alkaline batteries)
Control outputs	Control output Q12 (N.C. contact)	
	Rating AC 24...250 V	max. 5(2) A
	Control output Q14 (N.O. contact)	
	Rating AC 24...250 V	max. 5(2) A
	Signal input B1 for external temperature sensor	QAH11/QAA32, Safety class II NTC resistor 3 kΩ at 25°C
Operational data	Perm. cable length with copper cable 1.5 mm ² for connection to terminal B1	7 m
	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
Norms and standards	Climatic conditions	class 1K3
	Temperature	-25...+60 °C
	Humidity	<95 % r. h.
	CE conformity to	
	EMC directive	89/336/EEC
	Low voltage directive	73/23/EEC and 93/68/EEC
	 N474 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
General	Electromagnetic compatibility	
	Emissions	EN 50 081-1
	Immunity	EN 50 082-1
	Safety class	II to EN 60730
	Pollution class	normal
	Degree of protection of housing	IP30 to EN 60529
	Connection terminals for	Use solid wires or prepared stranded wires. 2 x 1.5 mm ² or 1 x 2.5 mm ² (min. 0.5 mm ²)
	Weight	0.21 kg
	Colour of housing front	white, NCS S 0502-G (RAL 9003)

Connection diagram

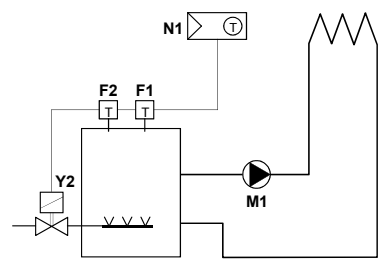


- B1** QAH11 external temperatures sensor
N1 RDE20.1 room temperature controller
Y1 Regulating unit
L, N Live, Neutral AC 24...250 V
B1 Signal input "External temperature sensor"
M Measuring neutral "External temperature sensor"
Q11, Q12 N.C. contact (for N.O. valves)
Q11, Q14 N.O. contact (for N.C. valves)

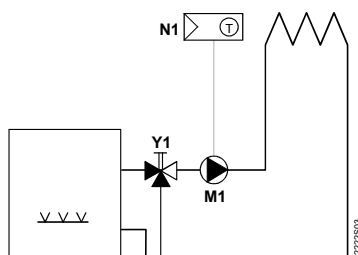
Application examples



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



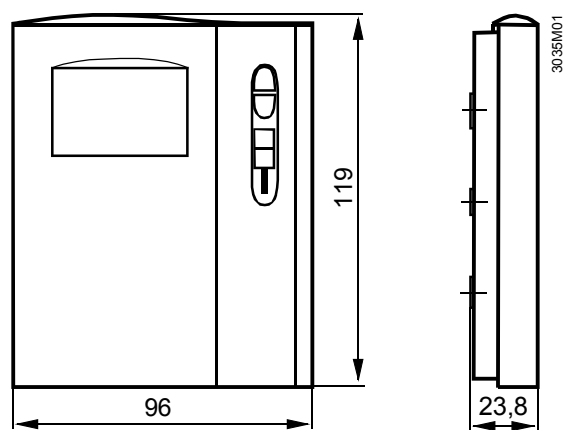
Room temperature controller with direct control of a heating circuit pump (precontrol by manual mixing valve)

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

- N1** RDE20.1 room temperatures controller
Y1 3-port valve with manual adjustment
Y2 Magnetic valve

Dimensions

Controller



Baseplate

