SIEMENS

1 424

RDD100.1RF

RCR100RF

Wireless room thermostat with LCD

RDD100.1RFS

for heating systems

- **Room temperature control**
- **Comfort, Economy and Protection mode**
- **2-position control with On/Off control output**
- **Adjustable commissioning and control parameters**
- **Battery-powered room thermostat DC 3 V (RDD100.1RF)**
- **Mains-powered receiver AC 230 V (RCR100RF)**

Use

The RDD100.1RFS is used to control the room temperature in heating systems.

Typical applications:
- Apartments
- Commercial spaces
- Schools

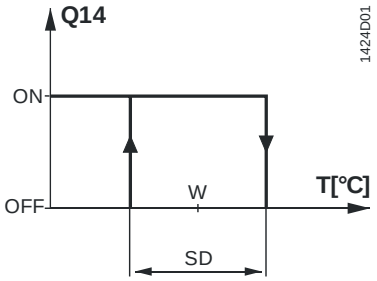
For the control of the following pieces of equipment:
- Thermal valves or zone valves
- Gas or oil boilers
- Fans
- Pumps

Functions

- Room temperature control via built-in temperature sensor
- Selection of operating mode with touchkey
- Display of current room temperature or setpoint in °C or °F
- Touchkey lock (manually)
- Setpoint lock
- Reloading factory settings for commissioning and control parameters
- Standalone wireless transmitter and receiver
- Wireless operating frequency 433 MHz

Temperature control

The RDD100.1RFS acquires the room temperature with its built-in sensor and maintains the setpoint by delivering control commands. The switching differential is 1 K.



T	Room temperature
SD	Switching differential
W	Room temperature setpoint
Q14	Output signal for heating

Type summary

Product No.	Stock No.	Features
RDD100.1RF	**S55770-T319**	Battery-powered room thermostat DC 3 V
RCR100RF	**S55770-T286**	Receiver AC 230 V

Ordering

When ordering, please indicate product No. / stock No. and description.

Product No.	Stock No.	Description
RDD100.1RFS	**S55770-T281**	Set consisting of room thermostat and receiver

Valve actuators must be ordered separately.

Equipment combinations

Description		Product No.	Data Sheet
Electromotoric actuators		**SFA21..**	4863
Electrothermal actuators (for radiator valves)		**STA23..**	4884
Electrothermal actuators (for small valves 2.5 mm)		**STP23..**	4884
Damper actuators		**GDB..**	4634
Damper actuators		**GSD..**	4603
Damper actuators		**GQD..**	4604
Rotary damper actuators		**GXD..**	4622

Mechanical design

The room thermostat consists of 3 parts:

- Plastic housing which accommodates the electronics, the operating elements and the room temperature sensor
- Mounting plate with screw terminals
- Table stand

The housing engages in the mounting plate and is secured with a screw.
The optional table stand snaps onto the rear of the mounting plate.

The RCR100RF receiver consists of 2 parts:

- Plastic housing which accommodates the electronics
- Mounting plate with screw terminals

Operation and settings

RDD100.1RF

1) Touchkey for operating mode

2) Touchkey for increasing a value

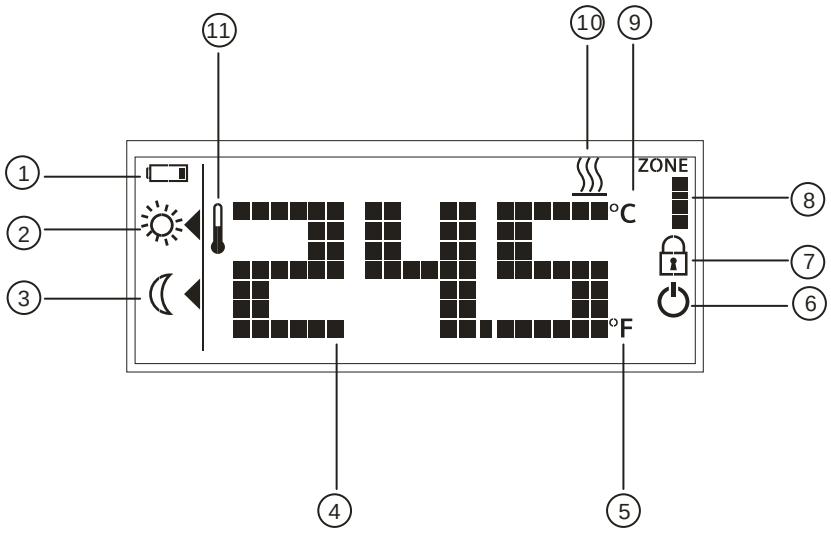
3) Touchkey for decreasing a value

RCR100RF

1) LED for indication of operating state

2) LEARN button (or override)

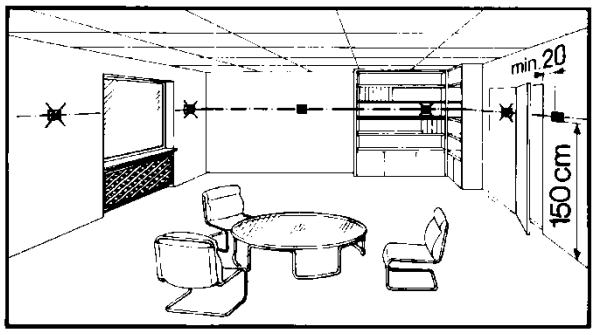
Display



#	Symbol	Description	#	Symbol	Description
1		Indicating that batteries need to be replaced	7		Touchkey lock activated
2		Comfort mode	8	ZONE	Display of zone (default is 1)
3		Economy mode	9	°C	Room temperature in degrees Celsius
4	2345	Display of room temperature, setpoint, etc.	10		Heating On
5	°F	Room temperature in degrees Fahrenheit	11		Current room temperature
6		Protection mode (Protection mode icon can be enabled via parameter settings)			

Mounting and installation notes

Do not mount the thermostat in niches or bookshelves, not behind curtains, not above or near heat sources, and not exposed to direct solar radiation. Mount it about 1.5 m above the floor.



Mounting

- Mount the room thermostat in a clean and dry location without direct air flow from heating/cooling equipment, and not exposed to drip or splash water
- Install the receiver close to the controlled unit if possible
- Choose the location to ensure largely interference-free reception. When mounting the receiver, observe the following:
  - Do not mount in a control panel
  - Do not mount on metallic surfaces
  - Do not mount near electrical cables and equipment such as PCs, TVs, microwaves, etc.
  - Do not mount near larger metallic structures or constructional elements with fine metal meshes such as special glass or special concrete

Wiring

See Mounting Instructions CB1M1439xx enclosed with the thermostat.

- Ensure that wiring, protection and earthing comply with local regulations
- Correctly size the cables to the thermostat and the valve actuators
- Use only valve actuators rated for AC 24… 230 V
- If the thermostat cannot accommodate all cables, power must be fed to the system via an external terminal block

Warning!

No internal line protection for supply lines to external consumers.

Risk of fire and injury due to short-circuits!

- Adapt the line diameters as per local regulations to the rated value of the installed overcurrent protection device.
- The AC 230 V mains supply line must have a circuit breaker with a rated current of no more than 10 A
- Disconnect from power supply before removing the unit from its mounting plate
- Make sure the receiver is not connected to power during wiring

Commissioning notes

Commissioning

After power is applied, the thermostat carries out a reset during which all LCD segments flash, indicating that the reset is correctly made. After the reset, the thermostat is ready for commissioning by qualified HVAC personnel.

The control parameters of the thermostat can be set to ensure optimum performance of the entire system (refer to Operating Instructions CB1B1424en, section "Do you want to change parameters?").

Sensor calibration

If the temperature shown on the display does not agree with the room temperature effectively measured, the temperature sensor can be recalibrated. For that purpose, adjust parameter P04.

Setpoint and setpoint lock

We recommend to review the setpoint setting range and setpoint lock (for public spaces) using parameters P05…P08 and change them as needed to achieve maximum comfort and energy savings.

Touchpad scanning rate

Since the thermostat uses touch technology and to minimize battery power consumption, a parameter P21 (adjustable from 0.25 to 1.5 seconds) is implemented for the user to adjust.

This means that when, for a certain time, the user does not touch the touchpad, the unit operates in power saving mode and the touchpad is running at a scanning rate of 1 second.

(From the calculation – assuming 4 operations per day on the thermostat, the estimated 1-second scanning rate results in a battery life of 1 year. If the user increases the scanning rate, the batteries' life is extended.)

Change of batteries

If the battery symbol appears, the batteries are almost exhausted and should be replaced. Use alkaline batteries type AAA.

LED indication on RCR100RF

For the pairing process between transmitter and receiver, refer to Operating Instructions CB1B1424en, section "Do you want to pair transmitter and receiver?". The table below describes the behavior of the RCR100RF:

State of receiver	State of LED
Power up (or reset)	The red and green LEDs flash alternately for 5 seconds and then change to constantly red. Note: If the receiver was programmed before, it will immediately change to constantly red.
Learning mode Successful learning mode	The red and green LEDs flash alternately. If learning was successful, the green LED will flash for 10 minutes.
Signal ok and output status change	The green LED is lit. If the output state changes, the green LED flashes for 3 seconds and then changes back to constantly green.
Fails to receive wireless data	If the RCR100RF fails to receive wireless data, the red LED will start to flash after 125 minutes. If the RCR100RF signal is recovered, it will resume the previous LED state.

Override via the RCR100RF

The receiver provides an override function (boiler test, emergency operation). It allows the installer to override the relay to be permanently energized, regardless of the wireless data received.

To activate the override function, press and hold the button for at least 10 seconds and release. The LED is constantly green and off once every 5 seconds, indicating that the override function is enabled.

To disable the override function, press the button once.

Operating notes

The RDD100.1RF provides Comfort, Economy and Protection mode. The difference between Comfort and Economy mode is only the room temperature setpoint. The changeover between Comfort, Economy and Protection mode is made by pressing touchkey .

Comfort mode

When Comfort mode is activated, symbol appears on the display. The setpoint (20 ºC) can be readjusted by pressing touchkeys **+** and **–**.

Economy mode

When Economy mode is activated, symbol appears on the display. The setpoint (16 ºC) can be readjusted by pressing touchkeys **+** and **–**.

Protection mode

If the temperature falls below 5 ºC, the thermostat automatically activates the heating output. Symbol appears only if the icon is enabled via parameter settings.

Maintenance notes

Thermostat and receiver are maintenance-free.

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.

Technical data of RDD100.1RF

⚠ Power supply	Operating voltage	DC 3 V (2 x 1.5 V alkaline batteries AAA)
	For battery life (RDD100.1RF), see below (alkaline batteries type AAA). Battery life calculation is based on the touchpad scanning rate during idle time (assuming a user presses 4 touchkeys per day):	
	Scanning rate 0.25 s	311 days battery life
	Scanning rate 0.5 s	322 days battery life
	Scanning rate 1 s (default)	357 days battery life
	Scanning rate 1.5 s	377 days battery life
Function data	Switching differential SD	1 K
	Comfort mode	20 °C (5...35 °C)
	Economy mode	16 °C (5...35 °C)
	Built-in room temperature sensor	
	Setpoint setting range	5…35 °C (Comfort/Economy mode)
	Accuracy at 25 °C	<±0.5 K
	Temperature calibration range	±3.0 K
	Resolution of settings and displays	
	Setpoints	0.5 °C
	Temperature value displays	0.5 °C
Environmental conditions	Operation	As per IEC 60721-3-3
	Climatic conditions	Class 3K5
	Temperature	0…50 °C
	Humidity	<95% r.h.
	Transport	As per IEC 60721-3-2
	Climatic conditions	Class 2K3
	Temperature	-25…60 °C
	Humidity	<95% r.h.
	Mechanical conditions	Class 2M2
	Storage	As per IEC 60721-3-1
	Climatic conditions	Class 1K3
	Temperature	-25…60 °C
	Humidity	<95% r.h.
Standards and directives	EU Conformity (CE)	CE1T1420xx *)
	RCM conformity to EMC emission standard	AS/NZS 4251.1:1999
	Safety class	II as per EN 60730-1, EN 60730-2-9
	Pollution class	II as per EN 60730-1
	Degree of protection of housing	IP30 as per EN 60529
Environmental compatibility	The product environmental declaration CE1E1420xx *) contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).	
General	Connection terminals for	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	0.152 kg
	Color of housing front	RAL9003

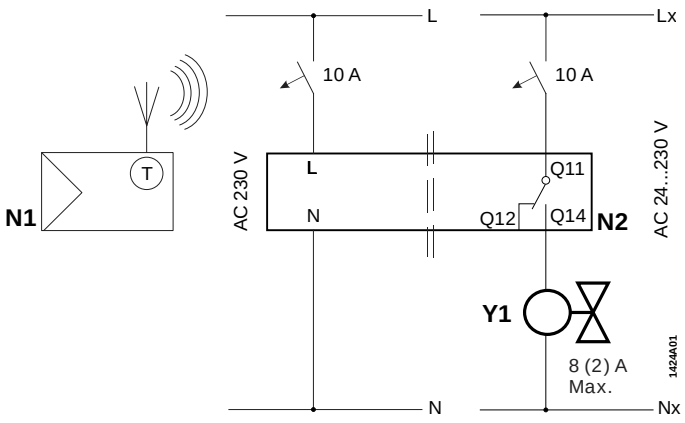
*) The documents can be downloaded from http://siemens.com/bt/download.

Technical data of RCR100RF

Power supply	Operating voltage	AC 230 V +10%/-15%
	Power	<10 VA
	Frequency	48...63 Hz
	Switching capacity of relays	
	Voltage	AC 24...230 V
	Current	8(2) A
Switching outputs (Q11, Q12, Q14)	Switching voltage	Max. AC 230 V
		Min. AC 24 V
	Switching current	Max. 8 A res., 2 A ind.
	At AC 230 V	Min. 200 mA
	No internal fuse. External preliminary protection with max. C 10 A circuit breaker in the supply lines required under all circumstances.	
	External protection for incoming cable	
	Circuit breaker	Max. 10 A
	Circuit breaker tripping characteristic	Type B, C or D to EN 60898 and EN 60947
	Contact life at AC 230 V	Guide value:
	At 8 A res.	1 x 10^5 cycles
	Insulating strength	
	Between relay contacts and coil	AC 5,000 V
	Between relay contacts (same pole)	AC 1,000 V
Electrical connections	Connection terminals	Screw terminals
	For solid wires	2 x 1.5 mm^2
	For stranded wires	1 x 2.5 mm^2 (Min. 0.5 mm^2)
Environmental conditions	Operation	As per IEC 60721-3-3
	Climatic conditions	Class 3K5
	Temperature	0…50 °C
	Humidity	<95% r.h.
	Transport	As per IEC 60721-3-2
	Climatic conditions	Class 2K3
	Temperature	-25…60 °C
	Humidity	<95% r.h.
	Mechanical conditions	Class 2M2
	Storage	As per IEC 60721-3-1
	Climatic conditions	Class 1K3
	Temperature	-25…60 °C
	Humidity	<95% r.h.
Standards and directives	EU Conformity (CE)	CE1T1420xx *)
	conformity to EMC emission standard	AS/NZS 4251.1:1999
	Safety class	II as per EN 60730-1, EN 60730-2-9
	Pollution class	II as per EN 60730
	Degree of protection of housing	IP30 as per EN 60529
Environmental compatibility	The product environmental declaration CE1E1420xx *) contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).	
General	Color of housing front	RAL9003
	Weight	0.152 kg
	Color of housing front	RAL9003

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

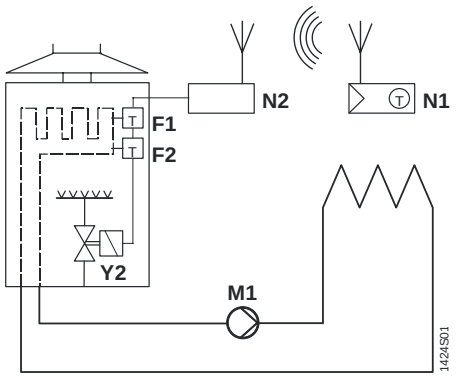
Connection diagrams



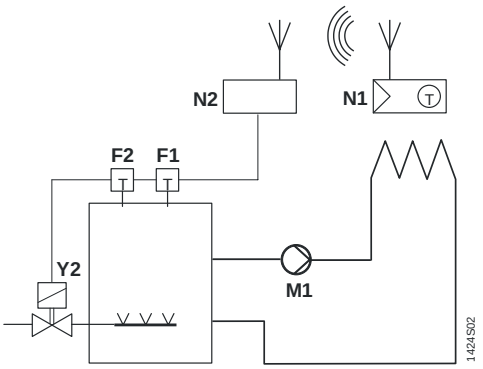
L	Live, AC 230 V
Q11	Live, AC 24…230 V
Q14	NO contact, AC 24…230 V/8(2) A
Q12	NC contact, AC 24…230 V/8(2) A
N	Neutral conductor
Nx	Neutral conductor
N1	Transmitter RDD100.1RF
N2	Receiver RCR100RF
Y1	Actuating device

⚠L – N AC 230 V/Lx – Nx AC 24…230 V

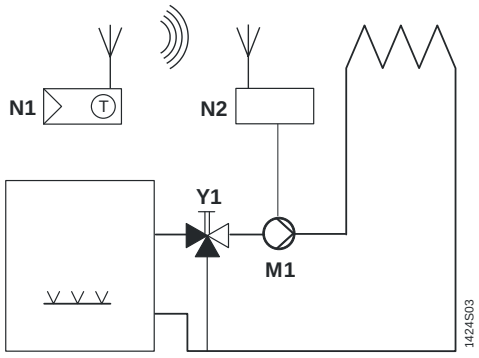
Application examples



Wireless room thermostat with receiver, control of a gas-fired wall-hung boiler



Wireless room thermostat with receiver, control of a gas-fired floor-standing boiler



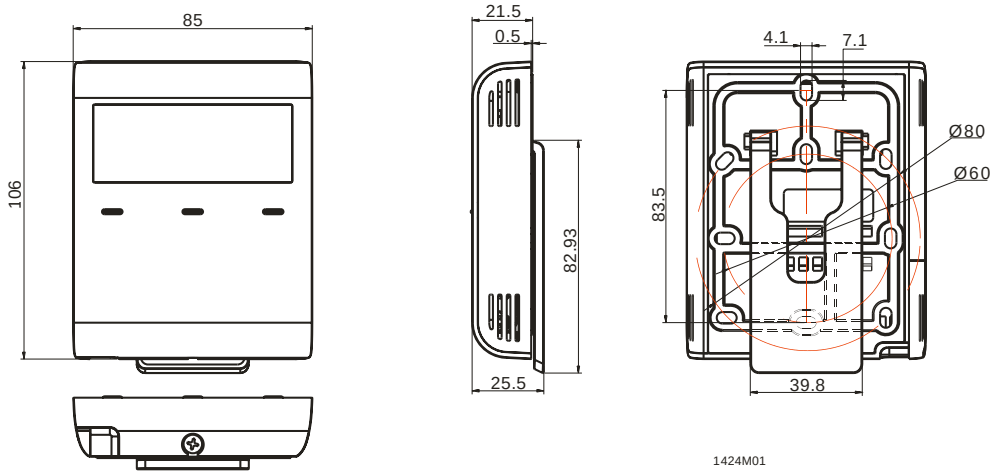
Wireless room thermostat with receiver, control of a heating circuit pump (precontrol by manual mixing valve)

F1	Thermal reset limit thermostat
F2	Safety limit thermostat
M1	Circulating pump
N1	RDD100.1RF room thermostat
N2	RCR100RF receiver
Y1	3-port valve with manual adjustment
Y2	Magnetic valve

Dimensions

Dimensions in mm

Room thermostat RDD100.1RF



Receiver RCR100RF