



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:

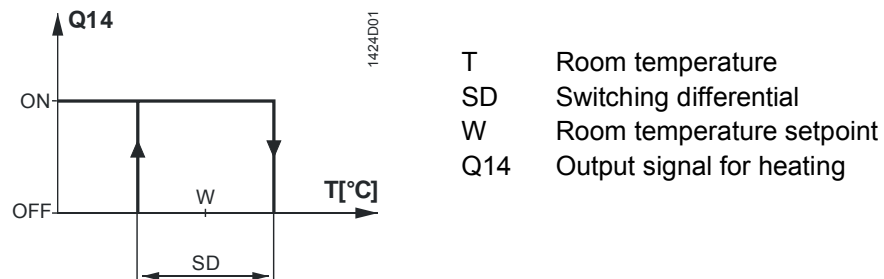
- Thermal valves or zone valves
- Gas or oil boilers
- Fans
- Pumps

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.



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

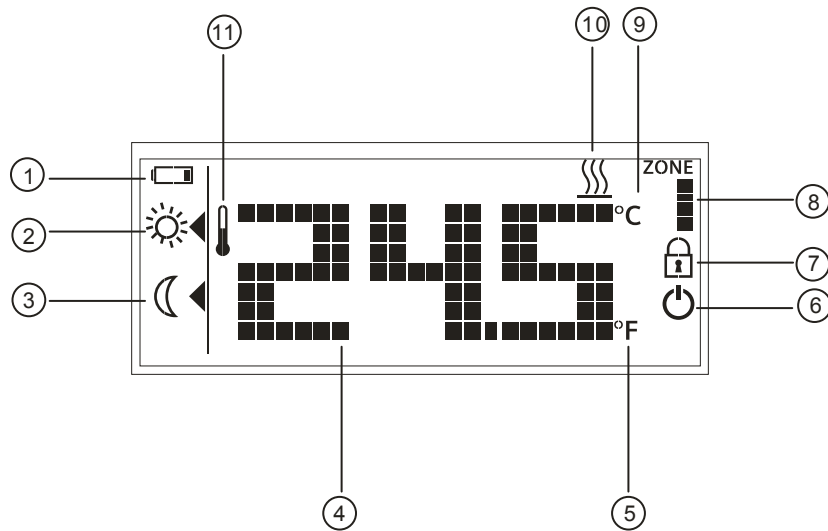
RCR100RF



1) LED for indication of operating state

2) LEARN button (or override)

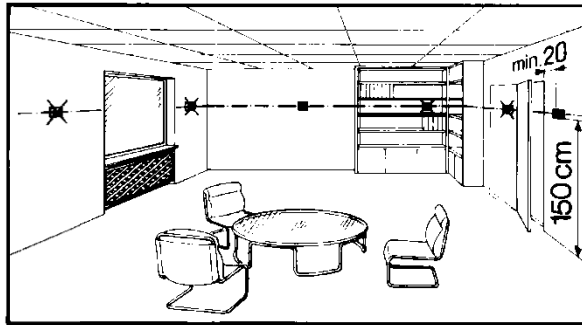
Display



#	Symbol	Description	#	Symbol	Description
1		Indicating that batteries need to be replaced	7		Touchkey lock activated
2		Comfort mode	8		Display of zone (default is 1)
3		Economy mode	9		Room temperature in degrees Celsius
4		Display of room temperature, setpoint, etc.	10		Heating On
5		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 °C) can be readjusted by pressing touchkeys + and –.

Economy mode

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

Protection mode

If the temperature falls below 5 °C, 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 device is considered an electronic device for disposal in terms of the European Directive 2012/19/EU and may not be disposed of as domestic garbage.

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

**⚠ WARNING**

Risk of explosion due to fire or short-circuit, even if the batteries are empty

Risk of injuries from by flying parts

- Do not allow the batteries to come into contact with water.
- Do not charge the batteries.
- Do not damage or destroy the batteries.
- Do not heat the batteries to more than 85 °C.

**⚠ WARNING**

Electrolyte leakage


Chemical burns

- Only grasp damaged batteries using suitable protective gloves.
- If electrolyte comes into contact with eyes, immediately rinse eyes with plenty of water. Consult a doctor.

Observe the following:





- Only replace batteries with batteries of the same type and from the same manufacturer.
- Observe the polarities (+/-).
- The batteries must be new and free from damage.
- Do not mixed new batteries with used batteries.
- Store, transport, and dispose of the batteries in accordance with local regulations, guidelines, and laws. Also observe information from the battery manufacturer.

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		
Function data	Scanning rate 1.5 s	377 days battery life		
	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	CE1T1420en_C1 ^{*)}	
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).		
		Eco design and labelling directives	Based on EU Regulation 813/2013 (Eco design directive) and 811/2013 (Labelling directive) concerning space heaters, combination heaters, the following classes apply:	
- Application with On/Off operation of a heater	Class I		value 1%	
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		

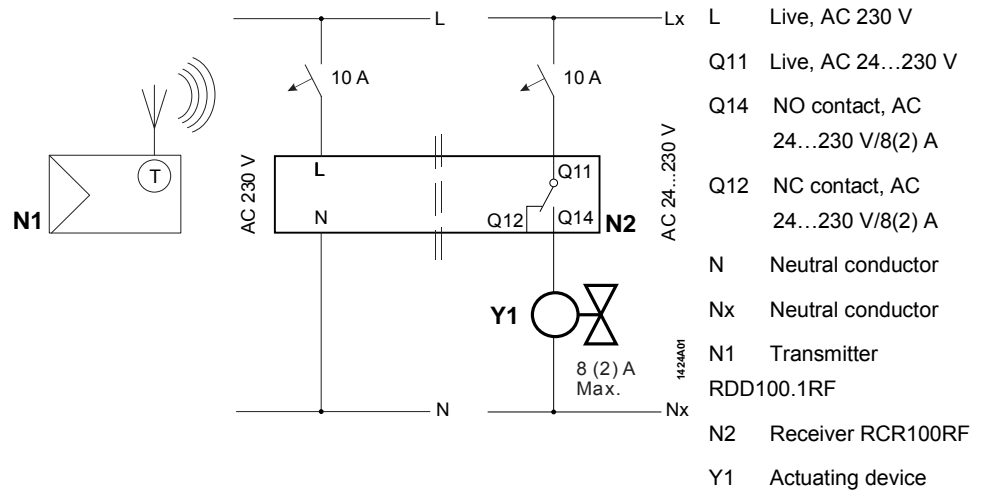
*) The documents can be downloaded from <http://siemens.com/bt/download>.

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 At 8 A res.	Guide value: 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).		
	Color of housing front	RAL9003	
General	Weight	0.152 kg	
	Color of housing front	RAL9003	

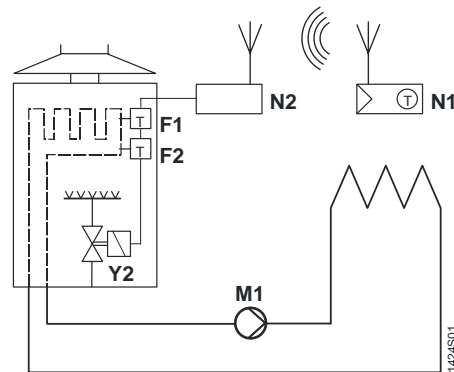
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Connection diagrams

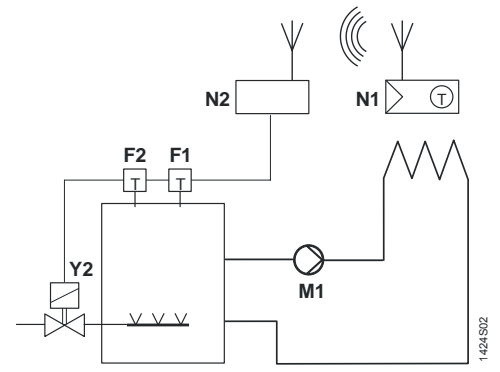


⚠ L – N AC 230 V/Lx – Nx AC 24...230 V

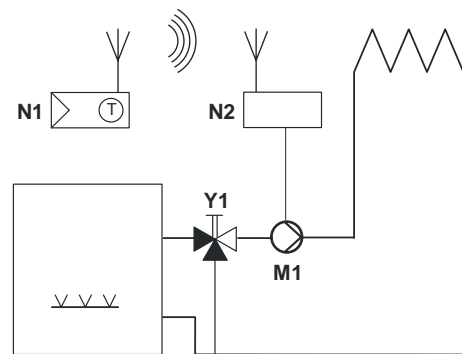
Application examples



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



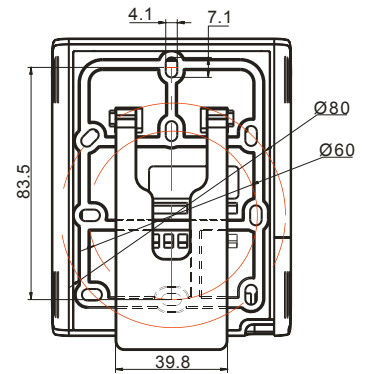
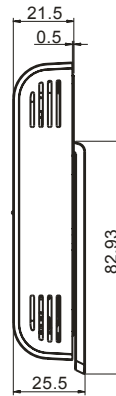
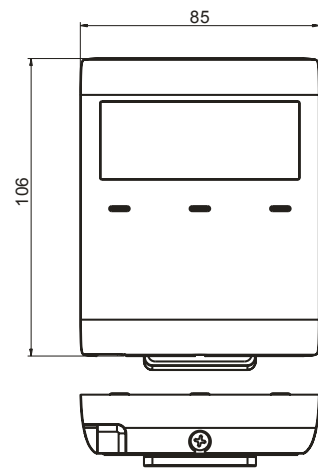
Wireless room thermostat with receiver, control of a heating circuit pump (precontrol by manual mixing valve)

- 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

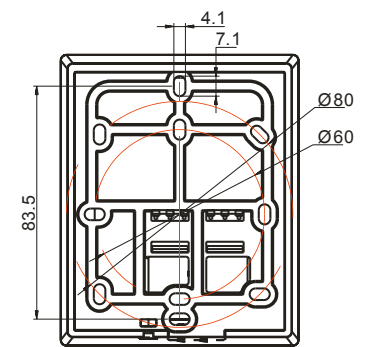
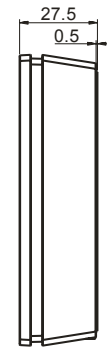
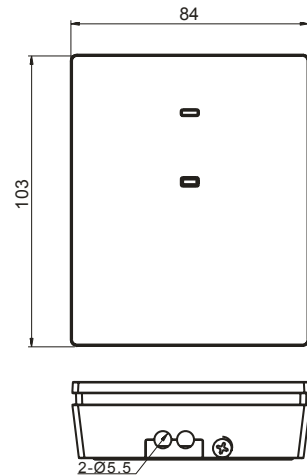
Dimensions in mm

Room thermostat RDD100.1RF



1424M01

Receiver RCR100RF



1424M02

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