



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:

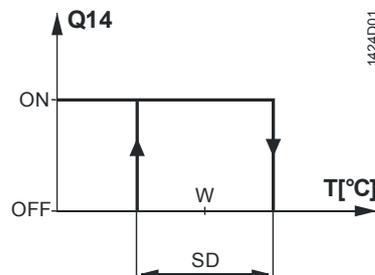
- Thermal valves or zone valves
- Gas or oil boilers
- Fans
- Pumps

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 number	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 number. and description.

Product No.	Stock number	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

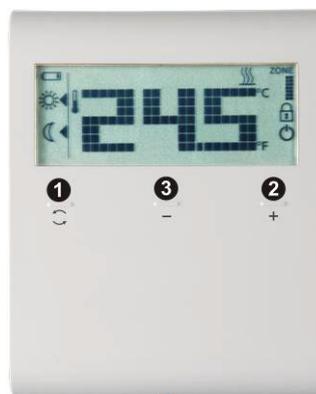
The housing engages in the mounting plate and is secured with a screw.
The optional table stand snaps onto the rear of the mounting plate.

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

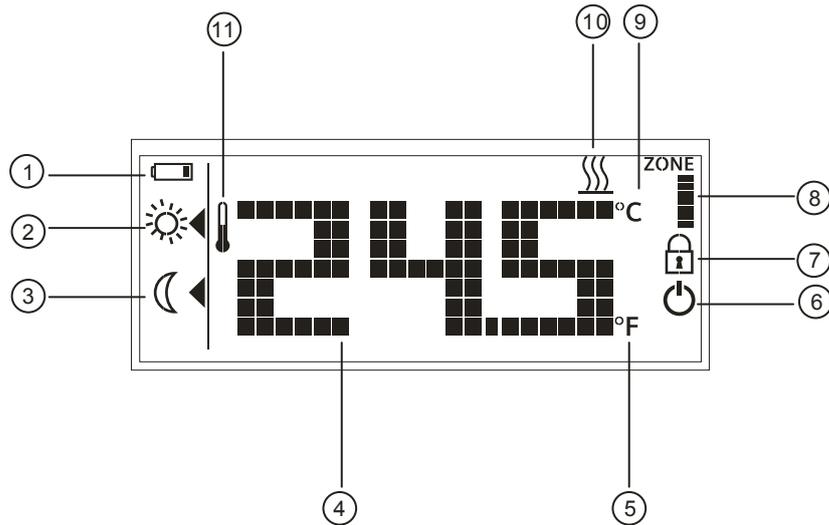
RCR100RF



1) LED for indication of operating state

2) LEARN button (or override)

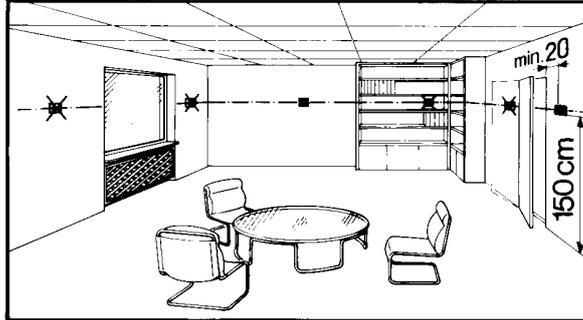
Display



#	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, fusing 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
- The AC 230 V mains supply line must have an external fuse or 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



In terms of disposal, the room thermostats and receivers are classified as electronic scrap conforming to the European Directive 2011/65/EU (WEEE) and must not be disposed of as unsorted domestic waste. The relevant national legal regulations must be complied with and the units must be disposed of via the appropriate channels. Local and currently valid legislation must be observed.

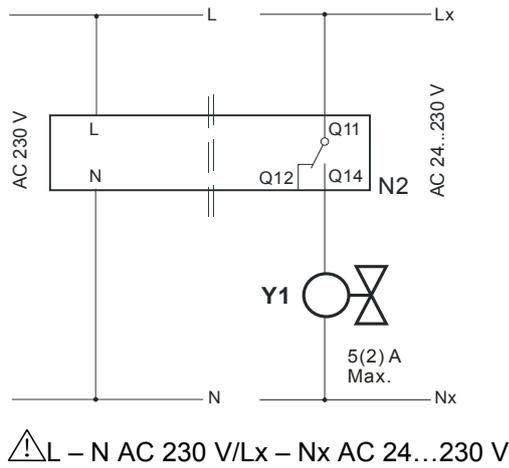
Technical data of RDD100.1RF

 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 °C	
	Temperature calibration range	±3.0 °C	
	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	 conformity to	
		EMC directive	2004/108/EC
Low voltage directive		2006/95/EC	
 RCM conformity to			
EMC emission standard		AS/NSZ 4251.1:1999	
 RoHS (Restriction of Hazardous Substances)		2011/65/EU	
Product standards			
Automatic electrical controls for household and similar use		General requirements EN 60730-1 Particular requirements for temperature sensing controls EN 60730-2-9	
Electromagnetic compatibility			
Emissions		EN 61000-6-3	
Immunity	EN 61000-6-2		
General	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	
	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	

Technical data of RCR100RF

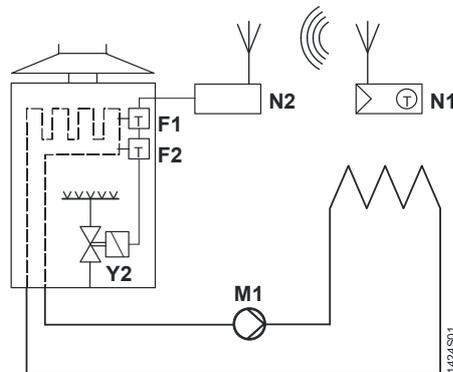
 Power supply	Operating voltage	AC 230 V +10%/-15%
	Power	<10 VA
	Frequency	48...63 Hz
	Switching capacity of relays	
	Voltage	AC 24...230 V
	Current	8(2) A
 Switching outputs (Q11, Q12, Q14)	Switching voltage	Max. AC 230 V Min. AC 24 V
	Switching current At AC 230 V	Max. 8 A res., 2 A ind. Min. 200 mA
	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	 conformity to	
	EMC directive	2004/108/EC
	Low voltage directive	2006/95/EC
	 conformity to	
	EMC emission standard	AS/NSZ 4251.1:1999
	 RoHS (Restriction of Hazardous Substances)	2011/65/EU
	Product standards	
	Automatic electrical controls for household and similar use	General requirements as per EN 60730-1 Particular requirements for temperature sensing controls as per EN 60730-2-9
	Electromagnetic compatibility	
	Emissions	EN 61000-6-3
Immunity	EN 61000-6-2	
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	
General	Weight	0.152 kg
	Color of housing front	RAL9003

Connection diagrams

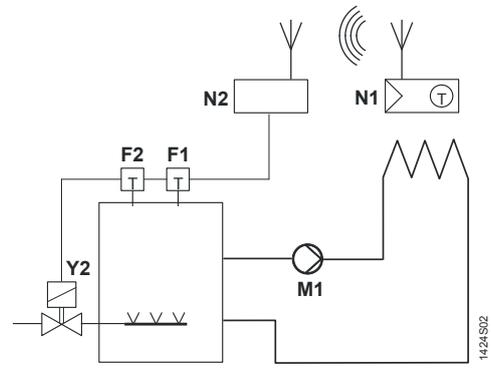


- L Live, AC 230 V
- Q11 Live, AC 24...230 V
- Q14 NO contact, AC 24...230 V/8(2) A
- Q12 NC contact, AC 24...230 V/8(2) A
- M1 Circulating pump
- N Neutral conductor
- Nx Neutral conductor
- N2 Receiver RCR100RF
- Y1 Actuating device

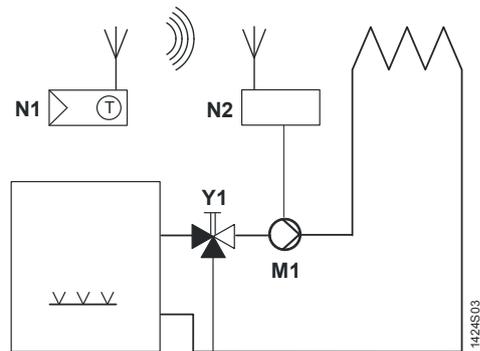
Application examples



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



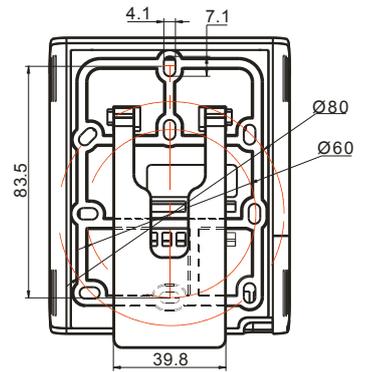
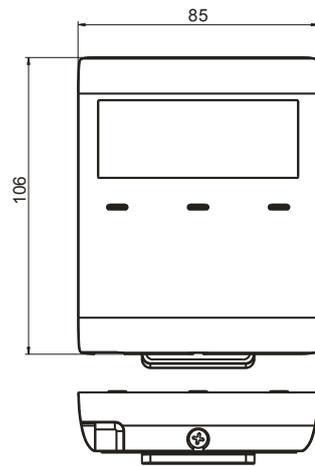
Wireless room thermostat with receiver, control of a heating circuit pump (precontrol by manual mixing valve)

- 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

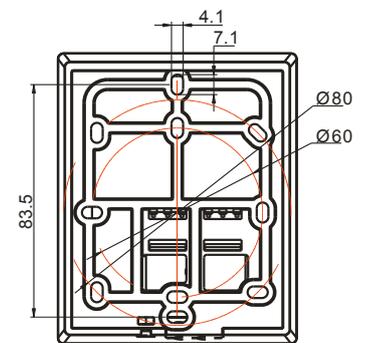
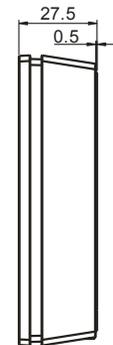
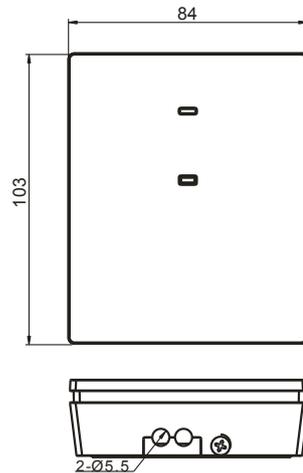
Dimensions in mm

Room thermostat RDD100.1RF



1424M01

Receiver RCR100RF



1424M02

