SIEMENS

Wireless room thermostat with 24-hour time switch and LCD

RDJ100RF/SET

RDJ100RF (Transmitter) RCR100/433 (Receiver)

Programmable, for heating systems

- Operating modes: Automatic, Comfort, Energy saving, and Frost protection
- Large LCD display
- RDJ100RF, transmitter, battery powered
- RCR100/433, receiver, mains powered
- Communication of the set is bonded ex factory
- TPI control for use with ON/OFF heating systems

Use

The device comprises with 1 x RDJ100RF (transmitter) and RCR100/433 (receiver), is used to control the room temperature in heating systems.

Typical applications include:

- Homes
- Residential buildings
- Schools
- Offices

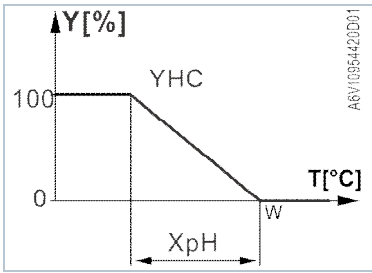
The device can be used together with the following equipment:

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

Functions

Temperature control

The device uses a TPI (Time proportional integral) control algorithm to periodically switch on and off the heating system. The period time and pulse length of the control signal (PWM) are determined by setpoint and the measured room temperature via its built-in sensor.



Heating mode	
T	Room temperature
Y	Output signal for heating (PWM)
w	Room temperature setpoint
YHC	Control command “Valve”
XpH	Proportional band “Heating”

Backup

When removing the batteries, the setpoints and information required for operating mode changeover are retained for max. 2 minutes.

Operating modes

The device has the following modes: Automatic, Comfort, Energy saving and Frost protection.

Move the operating mode slider to the respective position to select another operating mode.

Automatic mode	Automatic mode is active when symbol AUTO is displayed. The device operates as the selected 24-hour time program.
Comfort mode	Comfort mode is active when symbol is displayed. The device controls to the temperature setpoint adjusted at T☼. This setpoint can be adjusted by setting the program slider to T☼.
Energy saving mode	Energy saving mode is active when symbol ☾ is displayed. The device controls to the temperature setpoint adjusted at T☾. This setpoint can be readjusted by setting the program slider to T☾.
Frost protection	Frost protection is active when symbol ⏻ is displayed. The device controls to the preset temperature setpoint for frost protection.

Display

The digital display shows the current room temperature, the ON/OFF times as well as the symbol for the currently active operating mode which is currently active. When the heating output is active, the triangle symbol is displayed.

Equipment combinations

Description		Product number	Data sheet *)
Electrothermal actuator (for radiator valves)		STA23..	4884
Electrothermal actuator (for small valves 2.5mm)		STP23..	4884

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

Ordering

When ordering, specify name and product number, e.g. room temperature controller RDJ100RF/SET.

Order valves and actuators as separate items.

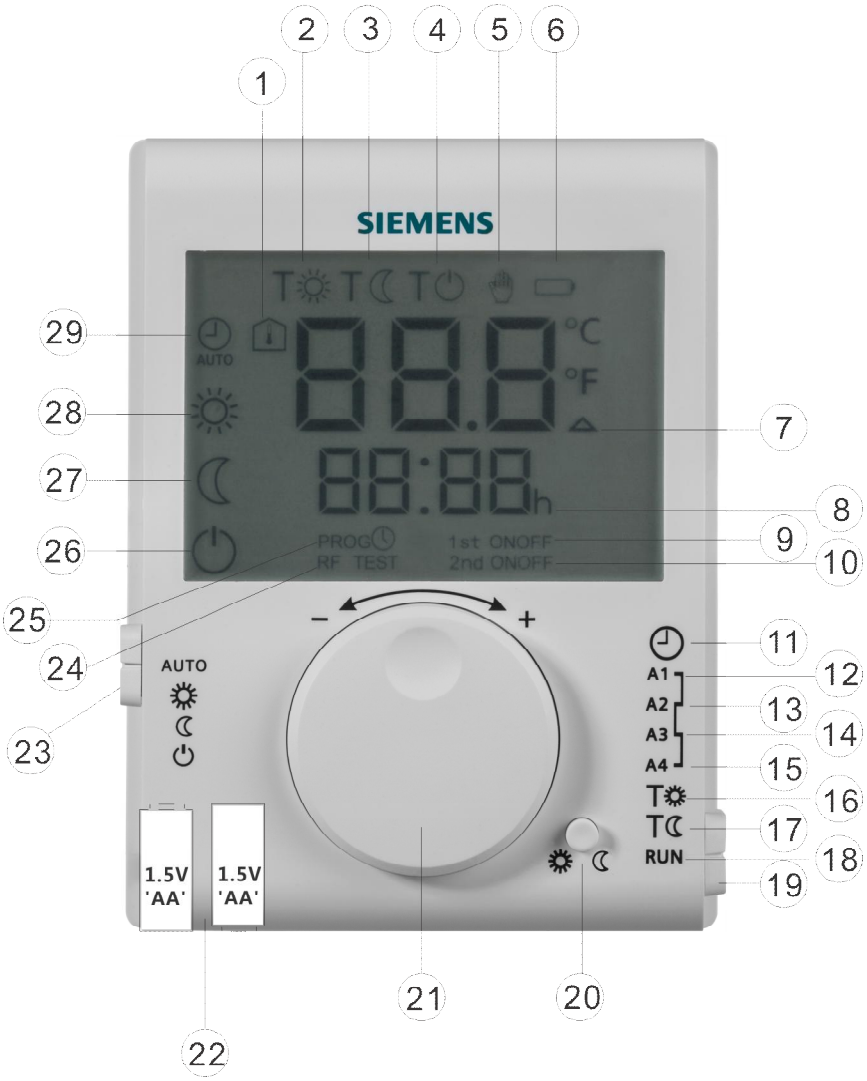
Mechanical design

The transmitter consists of 4 parts:

- Plastic housing with digital display containing the electronics, operating elements and built-in room temperature sensor
- Baseplate (mounting base)
- Battery compartment

- Fold-out stand

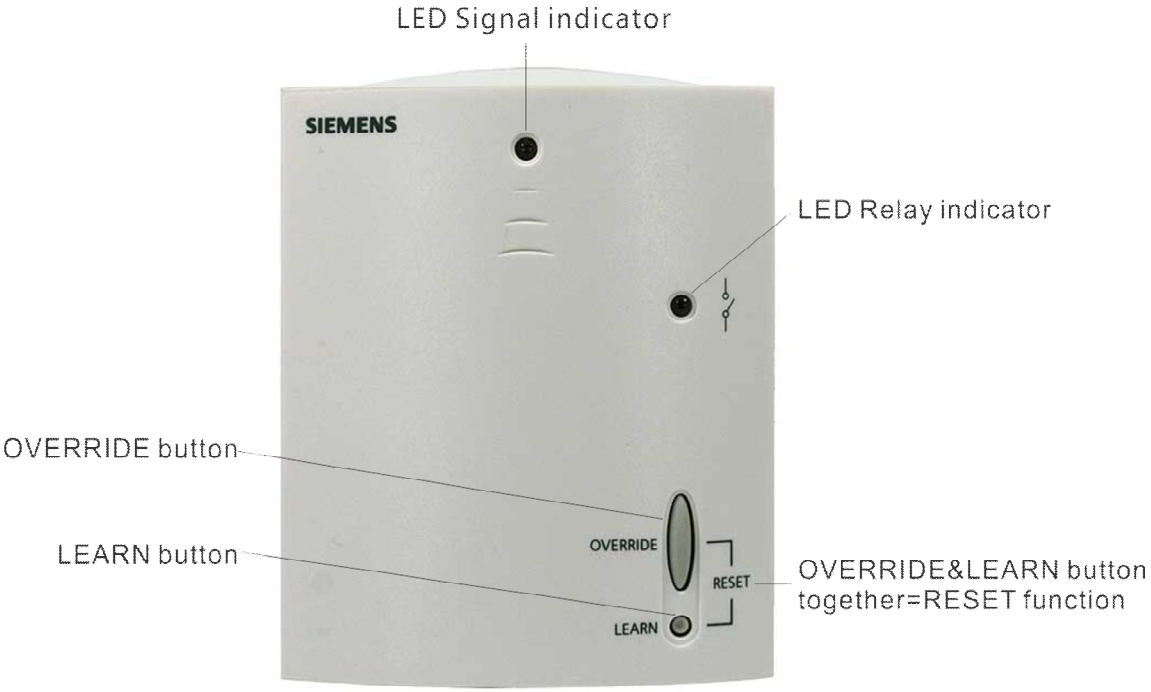
The housing engages in the baseplate and snaps on. There is a reset button on the rear of the transmitter.



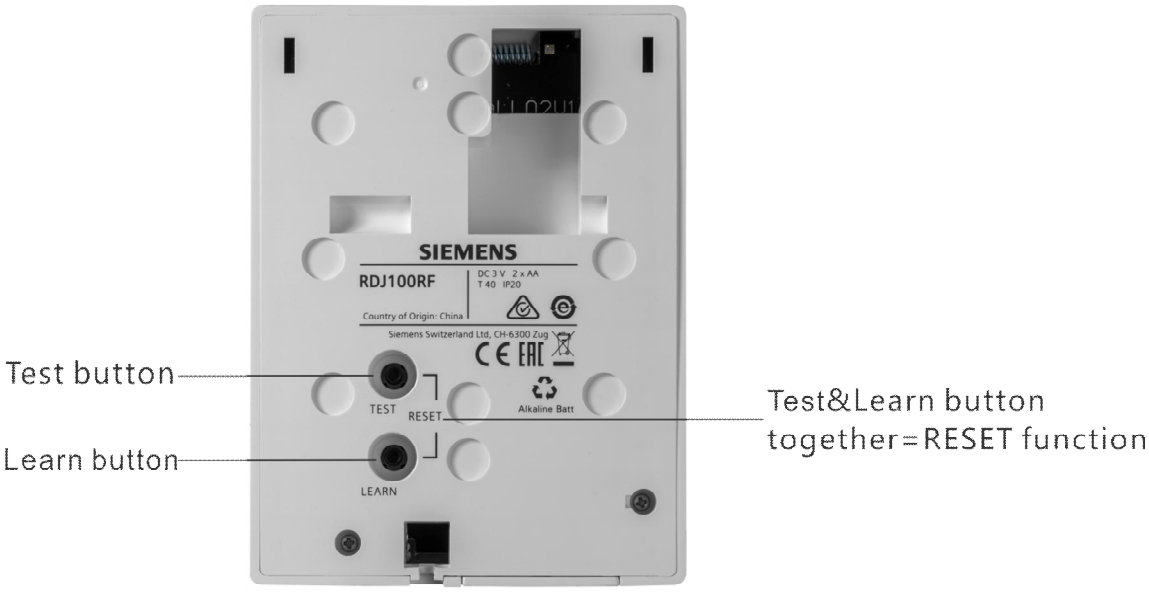
RDJ100RF (Transmitter) Elements	Functions
1	Room temperature display in °C
2	The transmitter controls to the adjusted comfort temperature setpoint
3	The transmitter controls to the adjusted energy saving temperature setpoint
4	The transmitter controls to the fixed frost protection temperature setpoint
5	Setpoint temporarily overridden until the next switching time
6	Indicates low battery power; replace batteries
7	Indicates a heat request
8	Time of day (00:00...23:59 format)
9	Indicates first switch-on/off time

10	Indicates second switch-on/off time
11	Time setting position
12	First switch-on time
13	First switch-off time
14	Second switch-on time
15	Second switch-off time
16	Comfort temperature setting
17	Energy saving temperature setting
18	RUN position
19	Program slider
20	Advance button (override / presence button)
21	Temperature setting knob
22	Battery compartment
23	Operating mode slider
24	**RF TEST** indicates RF signal test
25	Indicates that programming is taking place
26	Frost protection; control to a preset temperature setpoint of 5 °C for frost protection
27	Energy saving mode; continuous control to the energy saving temperature setpoint
28	Comfort mode; continuous control to the comfort temperature setpoint
29	AUTO Automatic mode; the transmitter operates as per the selected program

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



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



OVERRIDE

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

Example A: Normal connection between sender and receiver

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 receiver

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

RF LED

RF state	**RF LED**
Power up (first 5 seconds)	Flash RED
Power up (after 5 seconds)	RED
Press OVERRIDE switch	Flash RED + ORANGE (amber) (4 seconds)
Learning period	No LED
Software reset	RED
RF receive	GREEN
No RF within last 25 minutes	RED
Manual override (RF receive)	Flash ORANGE

Relay LED

Relay state	Relay LED
From OUT to ON (first 5 seconds)	Flash ORANGE
ON	ORANGE
From ON to OFF (after 5 seconds)	Flash ORANGE
OFF	OFF

Notes

Mounting

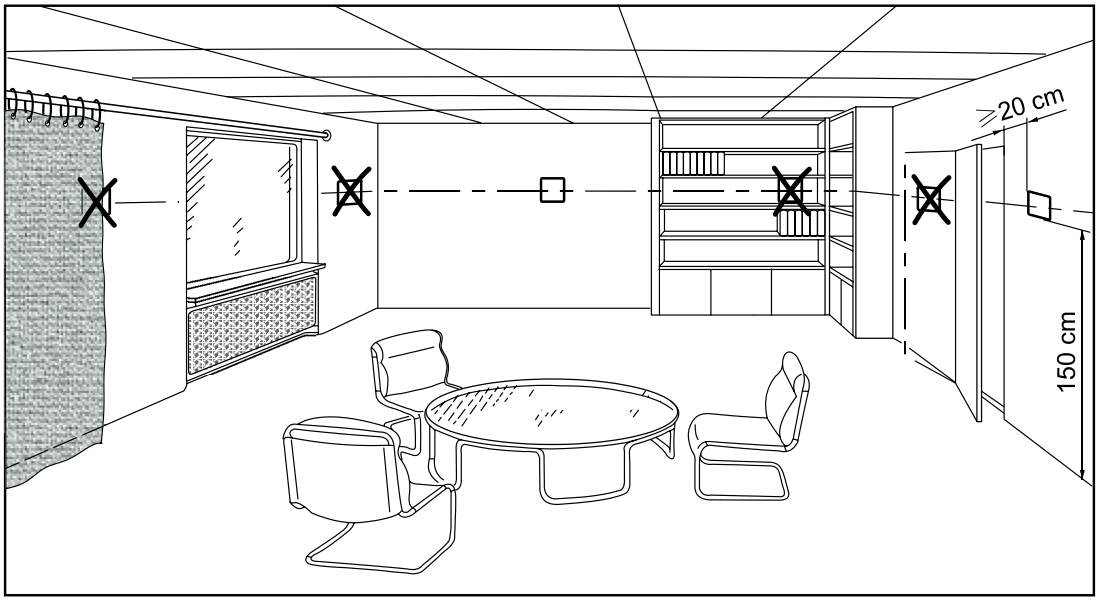
When mounting the transmitter, attach the baseplate first. You need to mount the transmitter on a flat wall. (For details, refer to the separate mounting instructions A6V10974424.)

The transmitter comes with a fold-out stand and may be used as a “mobile” device.

Mounting the receiver does not require a baseplate. Connect the electrical connections first and then fit and secure the receiver in compliance with local regulations. (For details, refer to the separate mounting instructions A6V10974424.)

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

For commissioning, refer to the operating instructions A6V101035990.



- The devices are suitable for wall mounting.
- Recommended height: 1.5 m above the floor.
- Do not mount the devices in recesses, shelves, behind curtains or doors, or above or near heat sources.
- Avoid direct solar radiation and drafts.
- Seal the conduit box or the installation tube if any, as air currents can affect sensor readings.
- Adhere to allowed ambient conditions.

Change of batteries

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

Reset

Simultaneously press the TEST and LEARN buttons on the rear of the transmitter to reset it.

Simultaneously press the OVERRIDE and LEARN buttons to reset the receiver. This resets all individual settings to their default values.

Maintenance

The transmitter and receiver are maintenance-free except for the transmitter battery.

Disposal

The device is considered an electronics device for disposal in terms of 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.

Product documentation

Topic	Title	Document ID:
Operating	Operating instructions	A6V101035990
Installation	Mounting instructions	A6V10974424
CE declaration		A6V101123354

Related documents such as CE declarations, etc., can be downloaded from the following address: http://siemens.com/bt/download.

Technical data

Power supply	
Operating voltage	DC 3 V (2 x 1.5 V AA alkaline batteries)
Battery life	>1 year (with AA alkaline batteries)

Radio frequency	
Frequency band	ISM 433MHZ
Maximum radio-frequency power	4.19 dBm

Operational data		
Thermistor		10 kΩ ± 1% at 25 °C
TPI control: Minimum period Minimum pulse length		 12 min 4 min
Setpoint setting range Factory setting comfort setpoint Factory setting for energy saving mode		5…30 °C (Comfort mode) 5…30 °C (Energy saving mode) 5 °C (Frost Protection, fixed value) 20 °C 10 °C
Resolution of settings and displays	Setpoints	0.5 °C
	Actual value displays	0.5 °C
	Display of time of day	1 min

Environmental conditions	
Operation Climatic conditions Temperature Humidity	IEC 60721-3-3 Class 3K5 0…+40 °C <90% r.h.
Transport Climatic conditions Temperature Humidity Mechanical conditions	IEC 60721-3-2 Class 2K3 -25…+60 °C <95% r.h. Class 2M2
Storage Climatic conditions Temperature Humidity	IEC 60721-3-1 Class 1K3 -10…+60 °C <90% r.h.

Standards, directives and approvals	
EU conformity (CE)	A6V101123354 *)
RCM conformity to EMC emission standard	A6V101123355 *)
Safety class	III as per EN 60950-1
Pollution degree	2
Degree of protection of housing	IP20
Eco design and labeling directives	Based on EU Regulation 813/2013 (Eco design directive) and 811/2013 (Labeling directive) concerning space heaters, the following classes apply: TPI (PWM) room thermostat, for use with On/Off output heaters Class IV Value 2%
Environmental compatibility	The product environmental declaration (A6V101123358*)) contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).

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

General	
Weight (including package) RDJ100RF/SET	 475 g
Color of housing front	Signal-white RAL9003
Housing material	ABS (LCD lens:PC)

Receiver RCR100/433

General unit data	
Operating voltage	AC 230 V +10/-15%
Power	<10 VA
Frequency	50...60 Hz

Outputs	
Switching capacity of relays	
Voltage	AC 24…250 V
Current	8 (3) A

Switching outputs (LX, L1, L2)		
Relay contacts	Switching voltage	Max. AC 250 V; 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	At 5 A res.	1 x 10^5 cycles (Guide value)
Insulating strength	Between relay contacts and coil	AC 5,000 V
	Between relay contacts (same pole)	AC 1,000 V

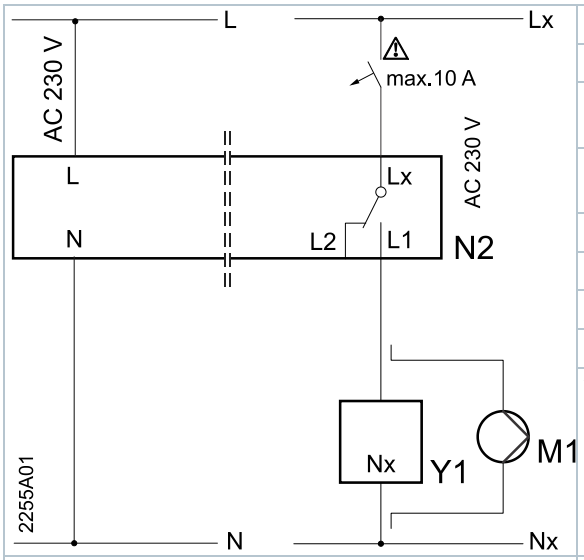
Electrical connections	
Connections terminals (via baseplate)	Screw terminals
For solid wires	2 x 1.5 mm^2
For stranded wires	1 x 2.5 mm^2(min. 0.5 mm^2)

Environmental conditions	
Operation	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, directives and approvals	
EU conformity (CE)	A6V101123354
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

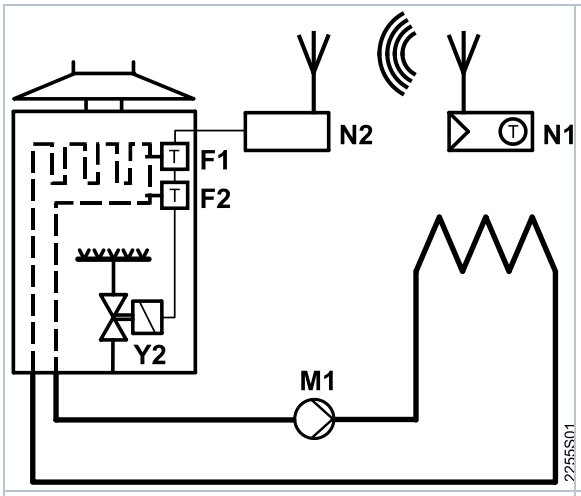
Connection diagram



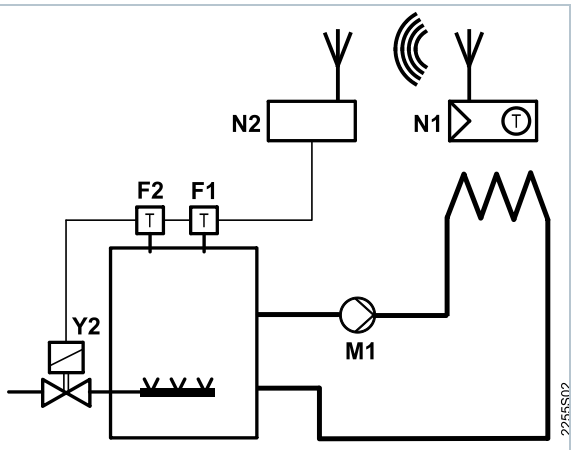
L	Live, AC 230 V
Lx	Live, AC 24…250 V
L1	N.O. contact, AC 24…250 V / 8 (3) A
L2	N.C. contact, AC 24…250 V / 8 (3) A
M1	Circulating pump
N	Neutral conductor
Nx	Neutral conductor
N2	Receiver RCR100/433
Y1	Actuating device

L – N AC 230 V / Lx – Nx AC 24…250 V

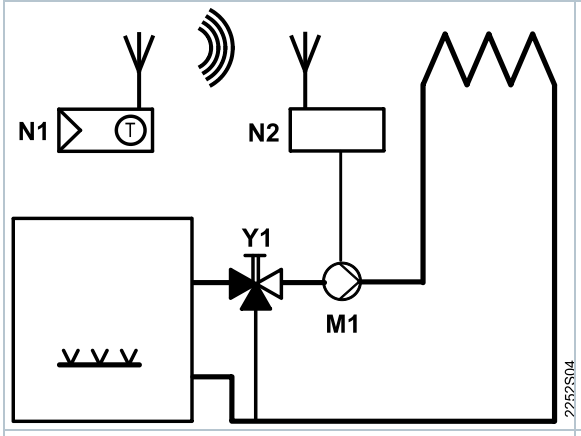
Application examples



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



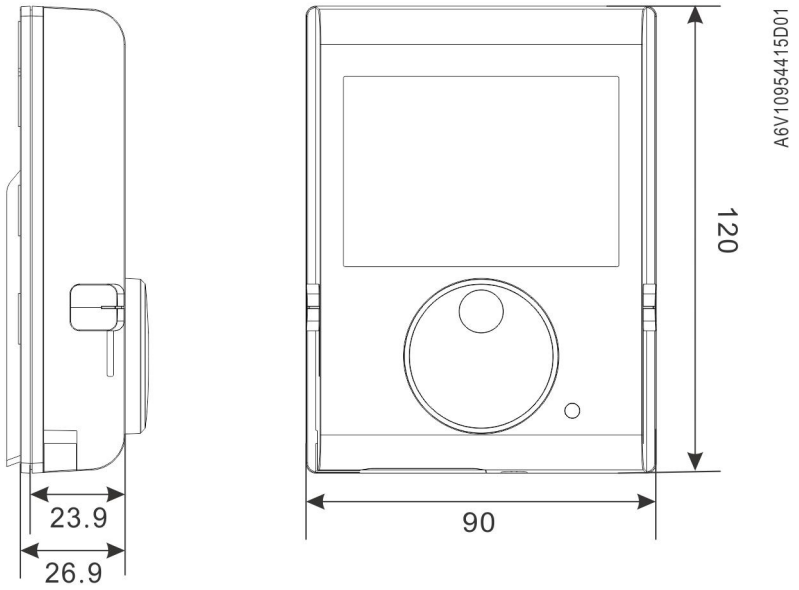
Wireless room temperature controller with receiver control of a heating circuit pump (pre-control by manual mixing

valve)			
F1	Thermal reset limit thermostat	N1	Room temperature controller RDJ100RF (Transmitter)
F2	Safety limit thermostat		
M1	Circulating pump	N2	RCR100/433 (Receiver)
		Y1	3-port valve with manual adjustment
		Y2	Magnetic valve

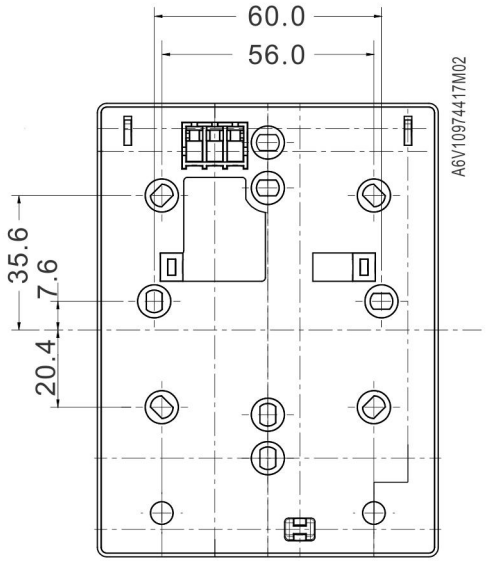
Dimensions

[mm]

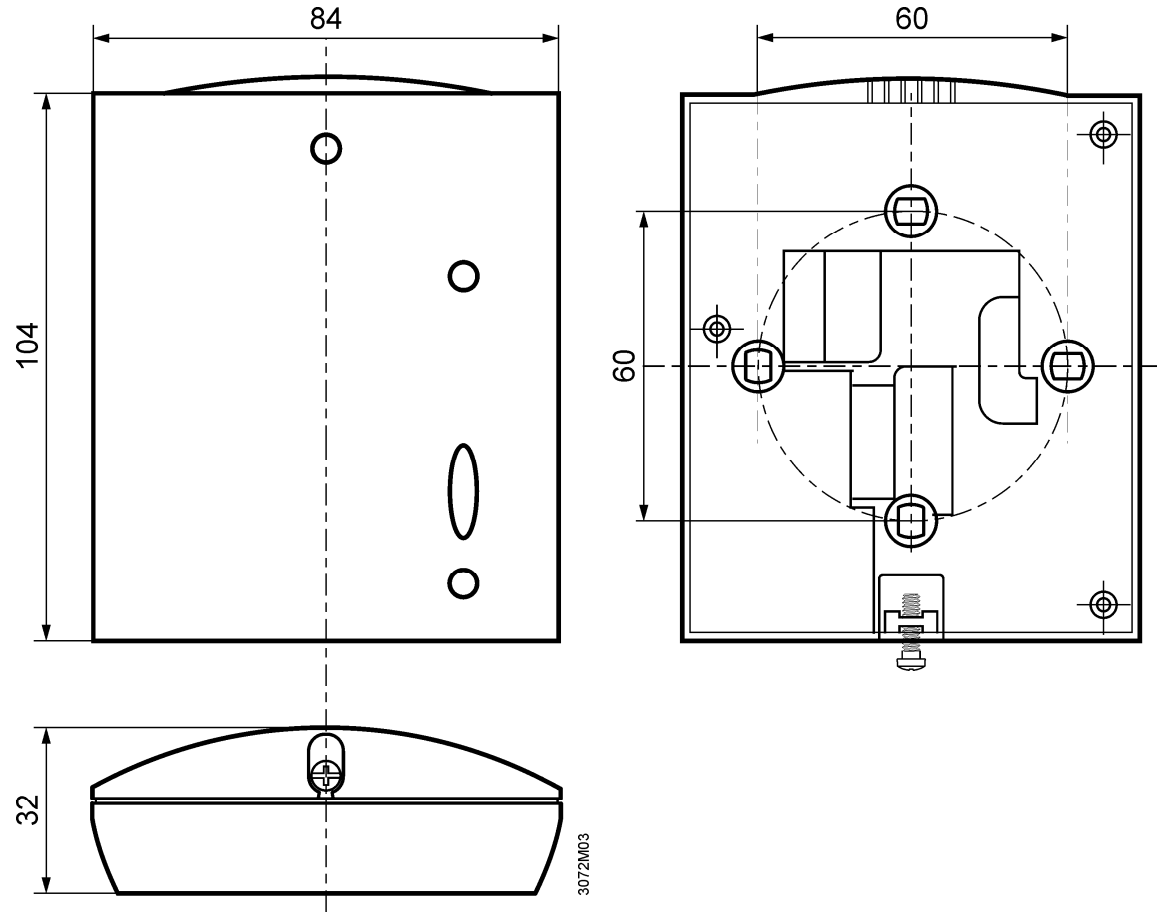
Room temperature controller



Room temperature controller mounting plate



Room temperature receiver with mounting plate



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Siemens Switzerland Ltd
Building Technologies Division
International Headquarters
Gubelstrasse 22
CH-6301 Zug
Tel. +41 41-724 24 24
www.siemens.com/buildingtechnologies

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