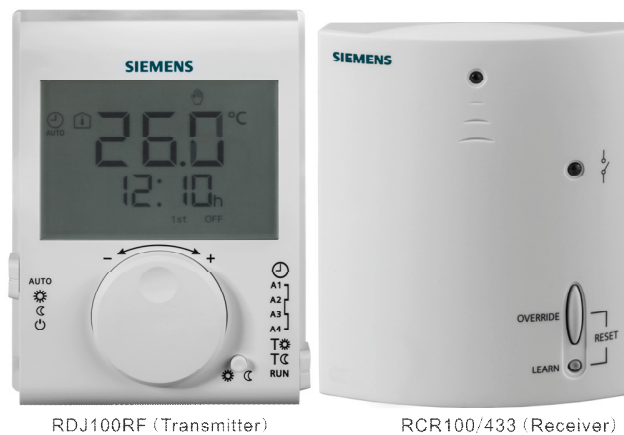


Wireless room thermostat with 24-hour time switch and LCD RDJ100RF/SET



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

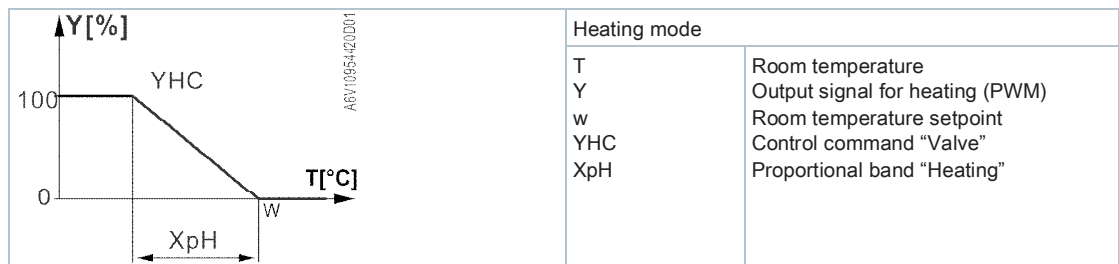
The device can be used together with the following equipment:

- 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.







Backup

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

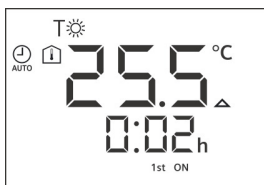
Operating modes

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  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_{Sun} . This setpoint can be adjusted by setting the program slider to T_{Sun} .
Energy saving mode	Energy saving mode is active when symbol  is displayed. The device controls to the temperature setpoint adjusted at T_{Moon} . This setpoint can be readjusted by setting the program slider to T_{Moon} .
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.

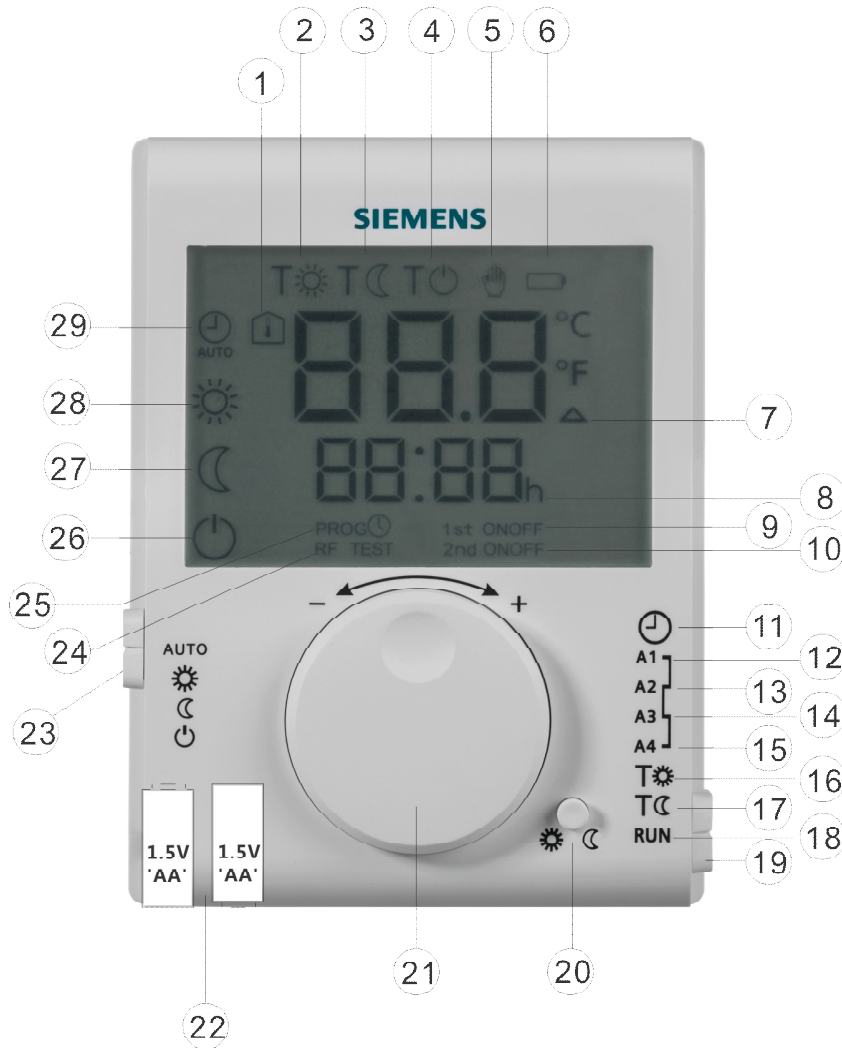
Mechanical design

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

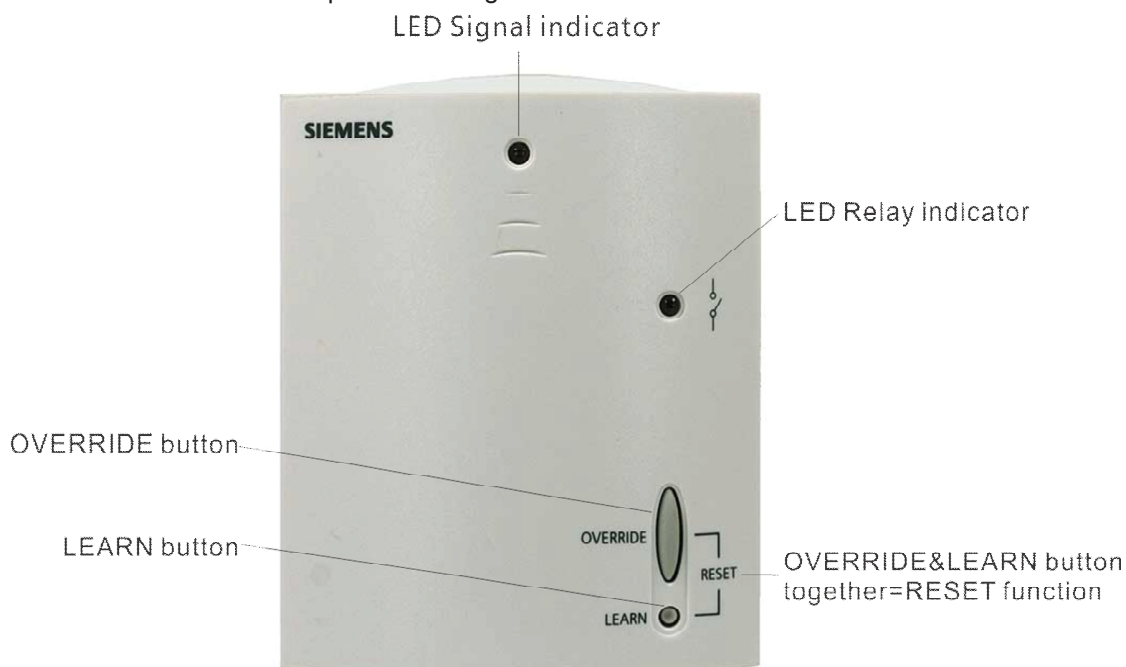
The housing engages in the baseplate and snaps on. There is a reset button on the rear of the transmitter.



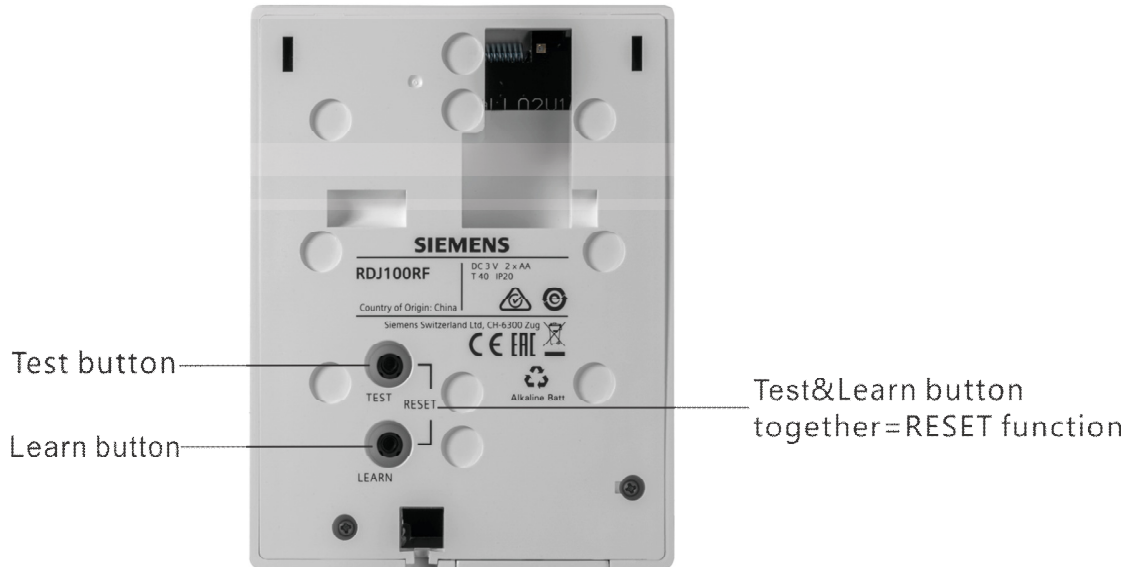
RDJ100RF (Transmitter) Elements	Functions
1	Room temperature display in °C
2	The transmitter controls to the adjusted comfort temperature setpoint
3	The transmitter controls to the adjusted energy saving temperature setpoint
4	The transmitter controls to the fixed frost protection temperature setpoint
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	 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

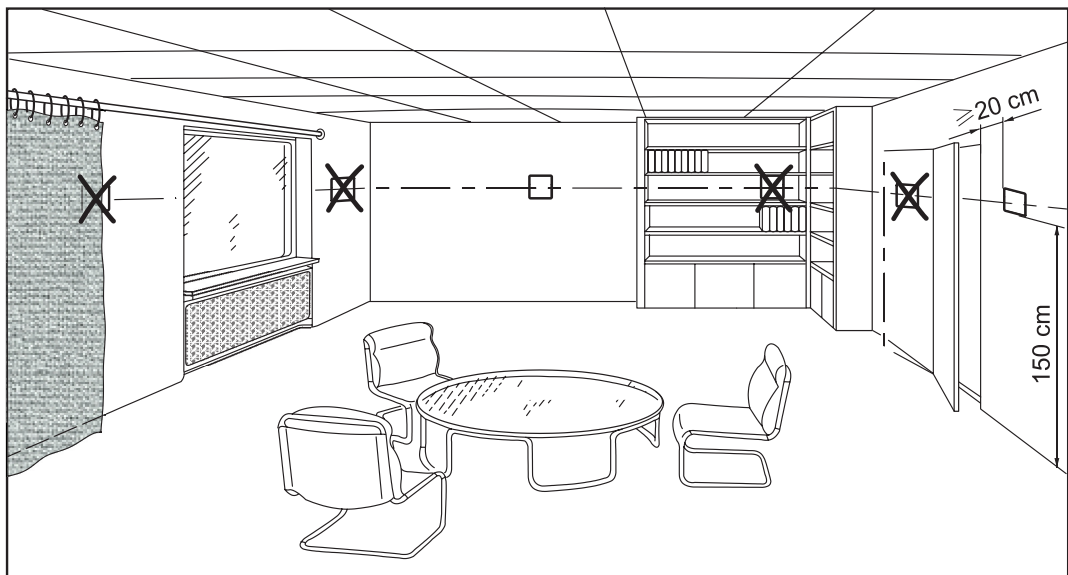
When mounting the transmitter, attach the baseplate first. You need to mount the transmitter on a flat wall. (For details, refer to the separate mounting instructions A6V10974424.)

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 **VERRIDE** 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

	<p>The device is considered an electronic device for disposal in accordance with the European Guidelines and may not be disposed of as domestic garbage.</p> <ul style="list-style-type: none"> • 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.
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Instructions for the replacement of alkaline batteries

	<p>⚠ WARNING</p>
	<p>Explosion due to fire or short-circuit, even with discharged batteries Risk of injury due to flying parts</p> <ul style="list-style-type: none"> • Prevent the batteries from coming into contact with water. • Do not recharge batteries. • Do not damage or disassemble batteries. • Do not heat batteries over 85°C.

	<p>⚠ WARNING</p>
	<p>Leakage of electrolyte Severe burns</p> <ul style="list-style-type: none"> • Handle damaged batteries only wearing suitable protective gloves. • In case of contact with electrolyte, rinse eyes immediately with plenty of water. Consult a doctor.

Observe the following:

- Use only a battery of the same type and from the same manufacturer as a replacement.
- Observe the polarities (+/-).
- The batteries must be new and undamaged.
- Do not mix new and used batteries.
- Store, transport and dispose of the batteries in compliance with local requirements, regulations and laws. Also observe the instructions of the battery manufacturer.

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 433 MHz
Maximum radio-frequency power	4.19 dBm

Operational data		
Thermistor	10 kΩ ± 1% at 25 °C	
TPI control:		
Minimum period	12 min	
Minimum pulse length	4 min	
Setpoint setting range	5...30 °C (Comfort mode) 5...30 °C (Energy saving mode) 5 °C (Frost Protection, fixed value)	
Factory setting comfort setpoint	20 °C	
Factory setting for energy saving mode	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	IEC 60721-3-3
Climatic conditions	Class 3K5
Temperature	0...+40 °C
Humidity	<90% r.h.
Transport	IEC 60721-3-2
Climatic conditions	Class 2K3
Temperature	-25...+60 °C
Humidity	<95% r.h.
Mechanical conditions	Class 2M2
Storage	IEC 60721-3-1
Climatic conditions	Class 1K3
Temperature	-10...+60 °C
Humidity	<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

Standards, directives and approvals	
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. 10 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) For solid wires	Screw terminals 2 x 1.5 mm ²

Electrical connections

For stranded wires	1 x 2.5 mm ² (min. 0.5 mm ²)
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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

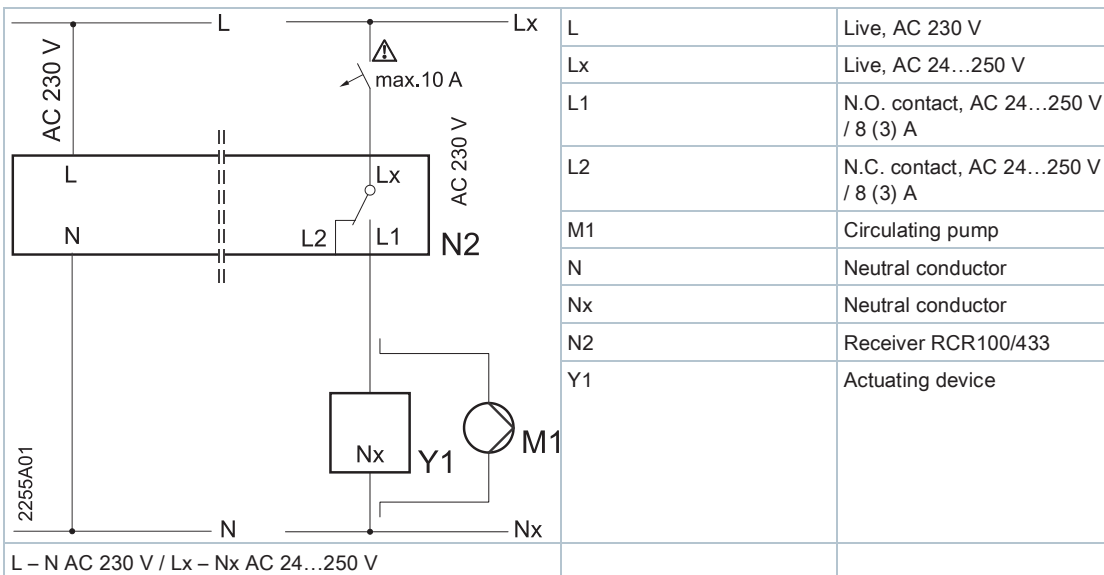
Standards, directives and approvals

EU conformity (CE)	A6V101123354
Safety class	II as per EN 60 730-1
Degree of pollution	2

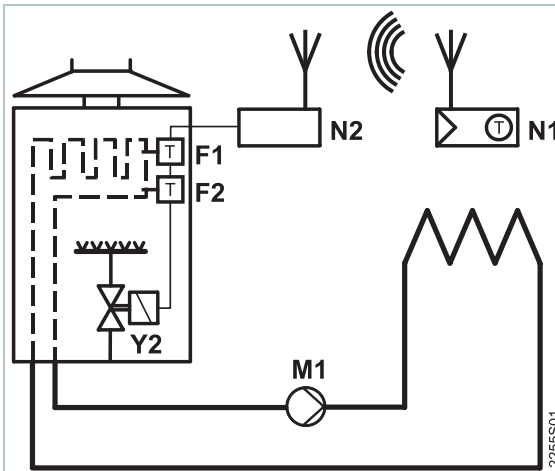
Color

Unit front	Signal-white RAL 9003
Base	Gray RAL 7035
Dimensions	83x104x32 mm

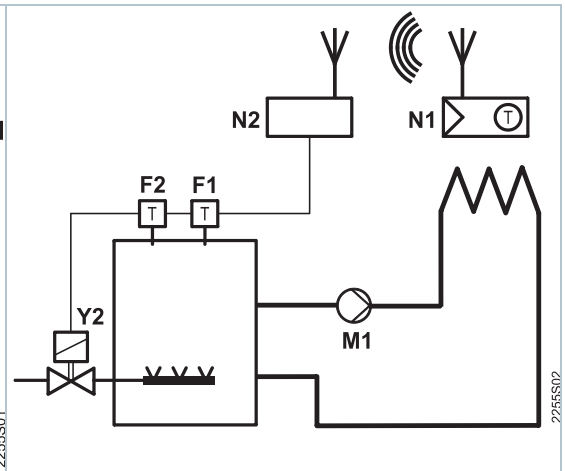
Connection diagram



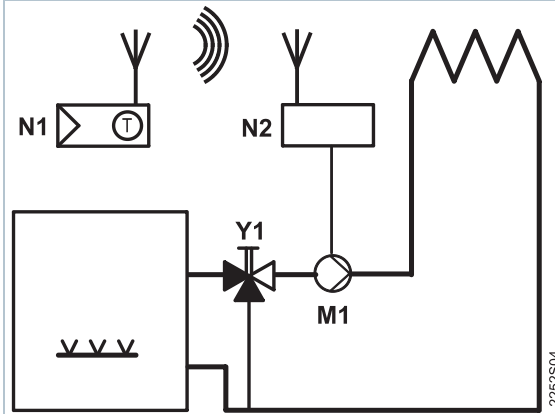
Application examples



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



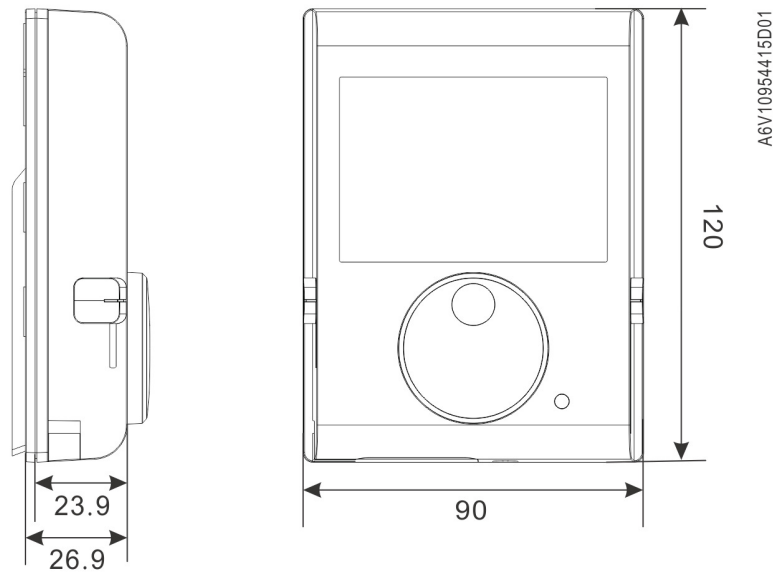
Wireless room temperature controller with receiver control of a heating circuit pump (pre-control by manual mixing valve)

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

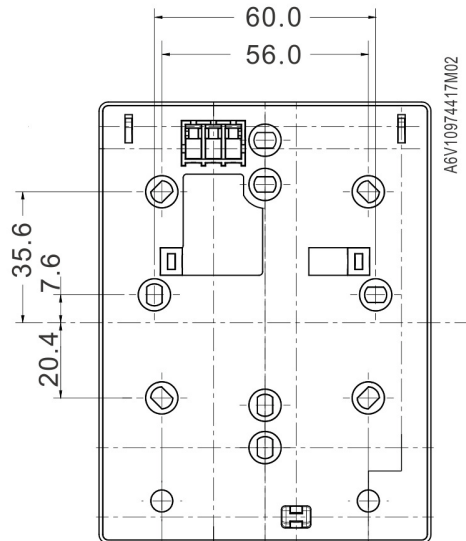
Dimensions

[mm]

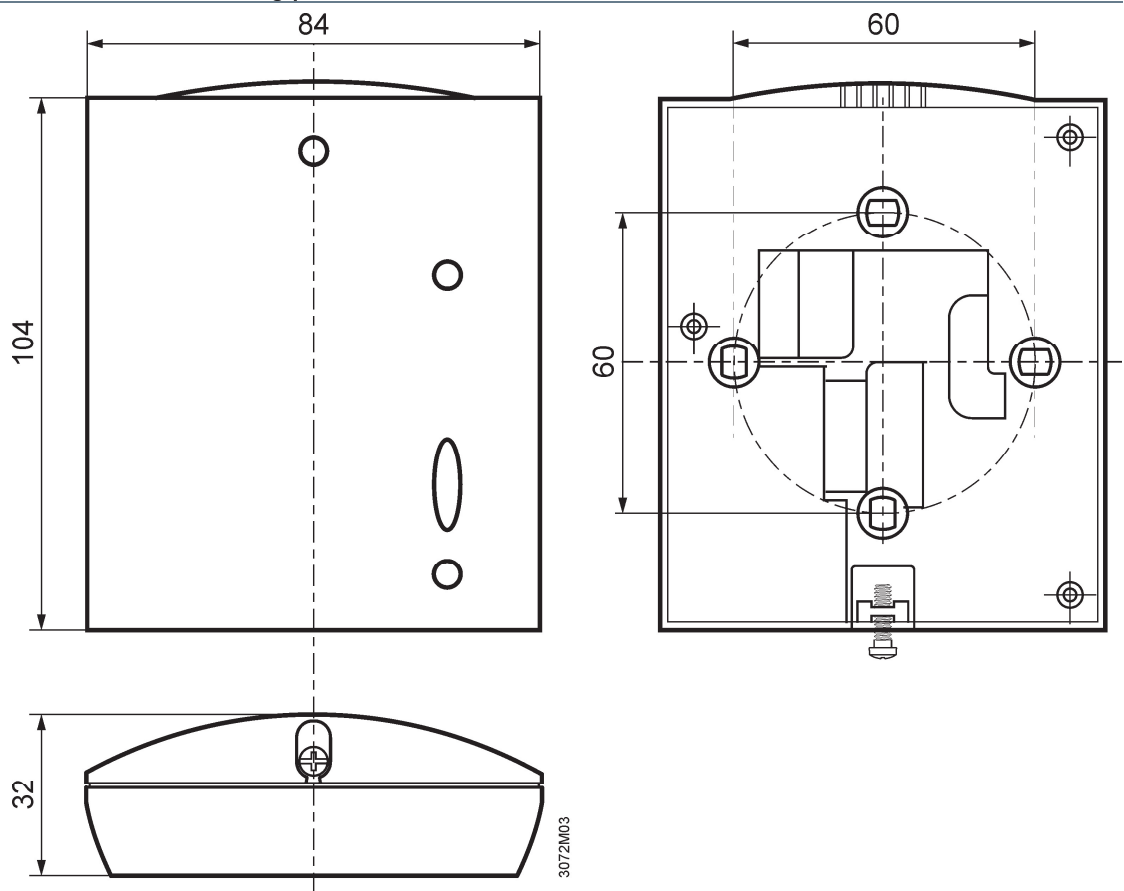
Room temperature controller



Room temperature controller mounting plate



Room temperature receiver with mounting plate



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