

Programmable room thermostat, wired and wireless, heating only, battery powered

RDL101, RDL101RF.ST



For heating system, such as gas boilers, heat pumps and zone valves

- Room temperature control
- 2-position (On/Off), TPI control
- One voltage-free relay output for heating
- One multifunctional input for external temperature sensors, open window detection, etc.
- 7-day scheduler
- E-paper display with touch keypad
- Adjustable commissioning and control parameters
- Configuration via local HMI or Siemens Quick Config mobile application
- Operating voltage:
 - Room thermostats RDL101.. Batteries, 2 × AA
 - Wireless receiver RCR200RF AC 230 V

Use

The RDL... thermostat controls the room temperature in heating system.

Typical applications:

- Apartments
- Single family homes

Controlled equipment:

- 2-position valve actuators
- Gas or oil boilers
- Heat pumps (non-reversible)
- Circulating pumps

Suitable for applications:

- Radiator heating
- Radiant floor heating
- Radiant ceiling heating

Functions

- Room temperature control via built-in or external sensor
- 2-position control with On/Off or TPI (Time Proportional Integral) behavior
- Operating mode selection: COMFORT, ECO, Auto, and Protection (frost protection enabled)
- Frost protection (enabled at 5 °C or disabled)
- Temperature boost function
- 7-day scheduler with up to 8 switching points per day
- Current setpoint override, effective until the next scheduled switching point
- Yearly clock with automatic Daylight-Saving Time (DST) adjustment
- Absence mode with selectable start/end dates and dedicated temperature setpoint
- Limitation of minimum and maximum setpoint adjustments for heating
- Radiant panel temperature maximum limitation for heating
- Optimum start/stop
- Valve/pump kick function to prevent seizure or sticking
- One multifunctional input X1, configurable for:
 - Room temperature external sensor (AI)
 - Radiant panel temperature (AI)
 - Window contact (DI)
 - Setback to energy saving (DI)
- Sensor type X1 configurable: NTC3K or NTC10K
- Position digital input X1, configurable: Normally open or normally closed
- Displays current room temperature or setpoint
- Screen saver on/off
- Key touch sound on/off
- E-paper display with configurable dark mode
- User interface available in 20 selectable languages
- Keypad lock configurable: full lock, menu lock, or expert parameter access restriction; unlockable via long button press or PIN code
- Configurable commissioning and control parameters, which are retained after power cycles
- Configuration wizard after the first power-up or after factory reset
- Parameters and scheduler settings configurable via Siemens Quick Config mobile application using NFC

- NFC communication on/off
- Reloading factory settings via parameter
- Factory reset button to restore default settings and clear RF pairing

RDL101RF.ST only

- Wireless operating frequency 433 MHz
- Override button to control output
- Signal strength indication

NOTICE	
!	• When using the valve/pump kick function, ensure that the controlled device is a pump or valve.

Technical design

- The thermostat consists of:
 - Control unit with display, buttons and room temperature sensor
 - Mounting plate with screw terminals or table stand
- The RCR200RF receiver, which is part of the RDL101RF.ST thermostat set, consists of:
 - Control unit with buttons and LEDs
 - Mounting plate with screw terminals

For more information about the buttons, display and LEDs, see document [A6V14633882](#).

Type summary

Type	Stock number	Description
RDL101	S55770-T526	Programmable room thermostat, heating only, AA batteries
RDL101RF.ST	S55770-T528	Programmable room thermostat, heating only, RF Set

Accessories

Type	Stock number	Description
ARG101	S55772-T112	Adapter plate for installation on rectangular flush-mounted boxes with fixing centers of approximately 83.5 mm for RCR200RF

Delivery

ARG101 is not included in the delivery and must be ordered separately.

Inbox item

RDL101

Items	Quantity
Thermostat with mounting plate	1
Battery	2
Mounting instructions	1

RDL101RF.ST

Items	Quantity
Thermostat with mounting plate	1
Receiver with mounting plate	1
Table stand	1
Battery	2
Mounting instructions	1

Equipment combinations

Sensors

Type of units		Product no.	Data sheet ^{*)}
Cable temperature sensor for under floor applications, cable length 4 m NTC (3 k Ω at 25 °C)		QAP1030/UFH	N1854
Cable temperature sensor, cable length 2.5 m NTC (3 k Ω at 25 °C)		QAH11.1	N1840
Cable temperature sensor, PVC cable length 2 m NTC (10 k Ω at 25 °C)		QAP1030.200	N1831
Room temperature sensor NTC (3 k Ω at 25 °C)		QAA32	N1747
Cable temperature sensor, PVC cable length 2 m NTC (10 k Ω at 25 °C)		QAA2030	N1745

Actuators

Type of units		Product no.	Data sheet ^{*)}
Electrothermal actuator for radiator valves, NC, AC 230 V operating voltage, 2-position control signal		STA321..	A6V14028280
Electrothermal actuator for radiator valves, NO, AC 230 V operating voltage, 2-position control signal		STP321..	A6V14028280
Electromotoric actuators for zone valves, AC 230 V operating voltage, 2-position control signal		SFA21/18	N4863
Electromotoric rotary actuator with spring-return for ball valves, AC 230 V, 2-position, 2 Nm, 30/15 s		GQD321.9A	N4659
Electromotoric rotary actuator for ball valves, non-spring return, AC 230 V, 2-position, 5 Nm, 150 s		GDB341.9E	A6V10636150
Electrothermal actuator for radiator valves, NC, AC/DC 24 V operating voltage, 2-position control signal		STA121..	A6V14028280
Electrothermal actuator for radiator valves, NO, AC/DC 24 V operating voltage, 2-position control signal		STP121..	A6V14028280
Electromotoric actuators for zone valves, AC 24 V operating voltage, 2-position control signal		SFA71/18	N4863
Electromotoric rotary actuator with spring-return for ball valves, AC/DC 24 V, 2-position, 2 Nm, 30/15 s		GQD121.9A	N4659
Electromotoric rotary actuator for ball valves, non-spring return, AC/DC 24 V, 2-position, 5 Nm, 150 s		GDB141.9E	A6V10636150

^{*)} The documents can be downloaded from www.siemens.com/bt/download.

Product documentation

Document title	Product	Document number
Mounting instructions	RDL101	A6V16530386
	RDL101RF.ST	A6V16530614
Operation manual	RDL101	A6V14633882
	RDL101RF.ST	
CE declaration	RDL101	A5W02940089A
	RDL101RF.ST	A5W02940092A
RCM declaration	RDL101	A5W02940094A
	RDL101RF.ST	A5W02940097A
UKCA declaration	RDL101	A5W02940099A
	RDL101RF.ST	A5W02940100A
Product environmental declaration	RDL101	A5W02988193A
	RDL101RF.ST	A5W02988223A

Related documents such as environmental declarations, CE declarations, etc., can also be downloaded at the following Internet address:

www.siemens.com/bt/download

Notes

Safety

 CAUTION	
	National safety regulations Failure to comply with national safety regulations may result in personal injury and property damage.
	Observe national regulations and comply with the appropriate safety regulations.

 WARNING	
	Explosion due to fire or short-circuit, even with discharged batteries Risk of injury due to flying parts
	- Prevent the batteries from coming in contact with water. - Do not recharge batteries. - Do not damage or disassemble batteries. - Do not heat batteries over 60 °C.

⚠ WARNING

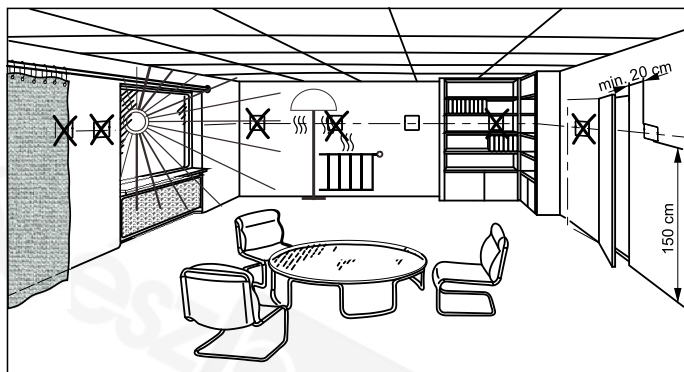


Electrolyte leakage

Chemical burns

- Use suitable protective gloves to grasp damaged batteries.
- Immediately rinse eyes with plenty of water if electrolyte comes into contact with eyes. Consult a doctor.

Mounting



Mounting

- RDL101 and RCR200RF are suitable for wall mounting.
- RDL101RF is suitable for wall mounting and free standing.
- Recommended height for wall mounting: 1.50 m above the floor.
- If possible, mount RDL101RF close to RCR200RF. Note that communication ranges may vary due to walls, floors, wireless interferences, and other factors that can reduce signal strength. Check the signal strength via diagnostic parameter D06.
- Do not mount or place the thermostat in recesses, behind curtains or doors, or above or near heat sources.
- Do not mount or place the thermostat near large metal structures or other construction elements with fine metal meshes such as special glass or special concrete.
- Do not mount or place the thermostat where it is exposed to dripping water, moisture or excessive heat.
- Do not mount or place the thermostat on metal surfaces.
- Avoid placing RDL101RF.ST inside or near metal or sources of radio or electromagnetic energy or interference.
- Avoid direct sunlight.
- Seal the conduit box or the installation tube if any, as air currents can affect sensor readings.
- Observe allowable ambient conditions.
- Keep the thermostat out of the reach of people (including children) whose physical, sensory or mental capabilities, knowledge, or experience prevents them from using the thermostat safely without supervision or instructions.
- If the adapter plate ARG101 is used, assemble its mounting frame and mounting plate in such a way that the larger round positioning guide embossed on the mounting frame is on the top.

Wiring (RDL101 and RCR200RF)

- Make sure wiring, protection, and earthing comply with local regulations.
- Disconnect from power supply before mounting/dismantling and wiring.
- Correctly size the cables to the thermostat and valve actuators.
- Use only valve actuators rated for AC 24...230 V.

- Use external upstream protection with a maximum 10 A circuit breaker in the supply lines under all circumstances.

Installation

⚠ 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 fuse.

⚠ WARNING	
	Risk of explosion Personal injury and property damage • Install the battery at the correct polarity (+/-) using the illustration in the battery compartment. • Install only the correct battery types according to the indication in the battery compartment. • In case of a leakage, avoid contact with skin, eyes and mucous membranes. • Remove leaking batteries from the battery compartment with a cloth.

Observe the following:

- Batteries must be undamaged.
- Do not mix new and used batteries.

Commissioning

Commissioning

- The thermostat is ready for use after batteries are inserted.
- You can configure the thermostat locally via the user interface, or remotely via the Quick Config mobile application even when the device is still in the packaging box and unpowered. Note: Your phone must support the NFC functionality to use Quick Config for configuration.
- The wireless thermostat set (RDL101RF and RCR200RF) is paired at the factory. Re-pairing is needed if you change or reset a device. See the [operation manual](#) for details.

Operation

See the [operation manual](#) for details.

Maintenance

Apart from replacing batteries when the local screen displays a low battery notification, the thermostat is maintenance-free. See the [operation manual](#) for information about replacing batteries.

Open Source Software (OSS)

These devices use Open Source Software (OSS). All Open Source Software components used in the product (including copyrights and licensing agreement) are available at <http://siemens.com/bt/download>.

Software license overview

OSS document ID	Device
A6V13482237	RDL101, RDL101RF.ST

Disposal

	This symbol or any other national label indicates that the product, its packaging, and, where applicable, any batteries may not be disposed of as domestic waste. Delete all personal data and dispose of the item(s) at separate collection and recycling facilities in accordance with local and national regulations. For additional details, refer to Siemens information on disposal.
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Warranty

Technical data on specific applications are only valid together with Siemens products listed under "Equipment combinations". Siemens rejects any and all warranties in the event that third-party products are used.

Technical data

Power supply (RDL101)

Operating voltage	DC 3 V (2 × 1.5 V AA alkaline batteries)
Battery life	2 years (with NANFU, EXCELL-LR6)

Power supply (RDL101RF)

Operating voltage	DC 3 V (2 × 1.5 V AA alkaline batteries)
Battery life	2 years (with NANFU, NECTIUM-LR6)

Power supply (RCR200RF)

Operating voltage	AC 230 V (+10%, -15%)
Frequency	50/60 Hz
Power consumption (without load)	Max. 5 VA

Switching capacity of relay (RDL101 and RCR200RF)

Voltage	AC 24...230 V
Qx rating min., max. resistive (inductive)	8 mA...5 (2) A
Contact life at AC 230 V At 5 A res.	Guided value: 1 × 10 ⁵ cycles

WARNING



No internal fuse.

External upstream protection with a maximum 10 A circuit breaker in the supply lines is required under all circumstances.

External protection (RDL101 and RCR200RF)

Circuit breaker	Maximum 10 A Type B, C or D
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Multifunctional input

X1-M
Temperature sensor input

Multifunctional input	
Type	NTC 3k
Temperature range	-20...70 °C
Temperature sensor input	
Type	NTC 10k
Temperature range	-20...70 °C
Digital input	
Operating action	Selectable (NO/NC)
Contact sensing	Dry contact
Insulation against mains power	SELV
Input response time	Up to 60 s

Radio parameters	
Frequency band	433 MHz
Maximum radio-frequency power	8 dBm
Communication protocol	Proprietary and encrypted
Communication channels	0...10
Device pairing	Paired at the factory or manual re-pairing

Functional data	
Frost protection	5 °C (factory setting) or disabled
Setpoint setting range	5...40 °C
Built-in room temperature sensor	
Accuracy at 25 °C	< ±0.5 K
Temperature calibration range	±5 K
Resolution of settings and displays	
Setpoints	0.5 °C
Room temperature	0.5 °C

Ambient conditions and protection classification	
Degree of protection of housing as per EN 60529	IP30
Protection against electrical shock as per EN 60730-1	

Ambient conditions and protection classification	
RDL101	Class II
RDL101RF	Class III
RCR200RF	Class II
Climatic ambient conditions	
Transport and storage (in packaging)	• Temperature: -25...+70 °C • Ambient humidity: < 95 % r.h. (non-condensing)
Operation (in dry locations having no temperature or humidity control)	• Temperature: 0...50 °C • Ambient humidity: < 95 % r.h. (non-condensing)
Mechanical ambient conditions	
Transport (in transport packaging) as per IEC/EN 60721-3-2	Class 2M4
Operation as per IEC/EN 60721-3-3	Class 3M11
Atmospheric pressure	Min. 700 hPa (equal to max. 3000 m above sea level)

Standards, directives and approvals	
EU conformity (CE) (RDL101)	See EU declaration of conformity A5W02940089A*.
EU conformity (CE) (RDL101RF.ST)	See EU declaration of conformity A5W02940092A*.
RCM conformity (RDL101)	See RCM declaration of conformity A5W02940094A*.
RCM conformity (RDL101RF.ST)	See RCM declaration of conformity A5W02940097A*.
UK conformity (UKCA) (RDL101)	See UK declaration of conformity A5W02940099A*.

Standards, directives and approvals	
UK conformity (UKCA) (RDL101RF.ST)	See UK declaration of conformity A5W02940100A*.
Environmental compatibility (RDL101)	The product environmental declaration (A5W02988193A*) contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).
Environmental compatibility (RDL101RF.ST)	The product environmental declaration (A5W02988223A*) contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).

* The documents can be downloaded from www.siemens.com/bt/download.

Eco design and labeling directives		
Based on EU Regulation 813/2013 (Eco design directive) and 811/2013 (Labelling directive) concerning space heaters and combination heaters, the following classes apply:		
Application with On/Off operation of a heater	Class I	value 1 %
TPI (PWM) room thermostat, for use with On/Off output heaters	Class IV	value 2 %

General	
Display language	cs, da, de, et, en, es, fr, it, lv, lt, hu, nl, pl, pt, ro, sk, fi, sv, tr, el
Housing color	RAL9016
Thermostat with box, user document and accessory	
RDL101	274 g
RDL101RF.ST	423 g
Thermostat	
RDL101	125 g
RDL101RF	120 g
Receiver	
RCR200RF	98 g

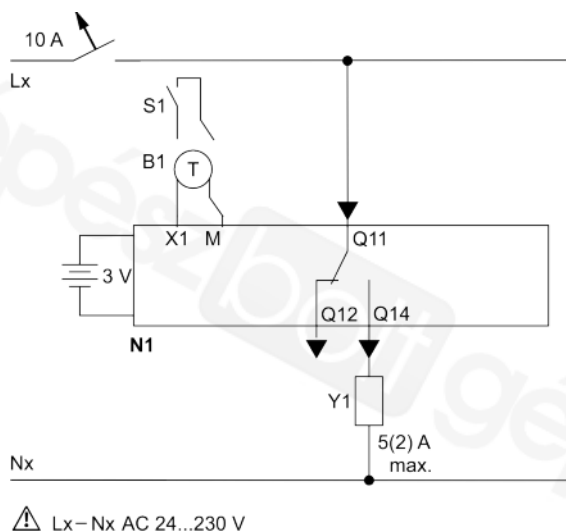
Electrical connections (RDL101 and RCR200RF)

Connection terminals	Screw terminals
For solid wires or prepared stranded wires	$1 \times 0.5 \dots 2.5 \text{ mm}^2$ or $2 \times 0.5 \dots 1.5 \text{ mm}^2$

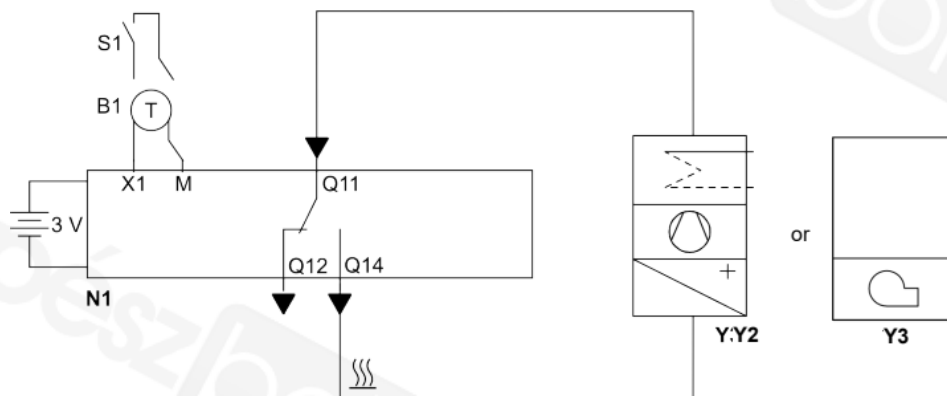
Connection diagrams

RDL101

On/off load



Heat pump (non-reversible) or boiler



Lx, Nx Live, AC 24...230 V

N1 Wired room thermostat RDL101

Y1 Heating load AC 24...230 V

B1 External temperature sensor

Y2 Heat pump

S1 Potential-free switch

Y3 Boiler

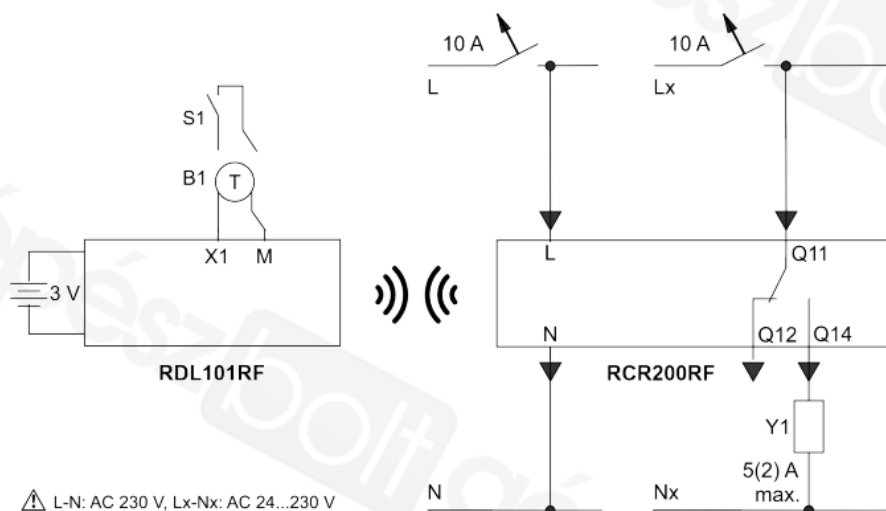
⚠ WARNING



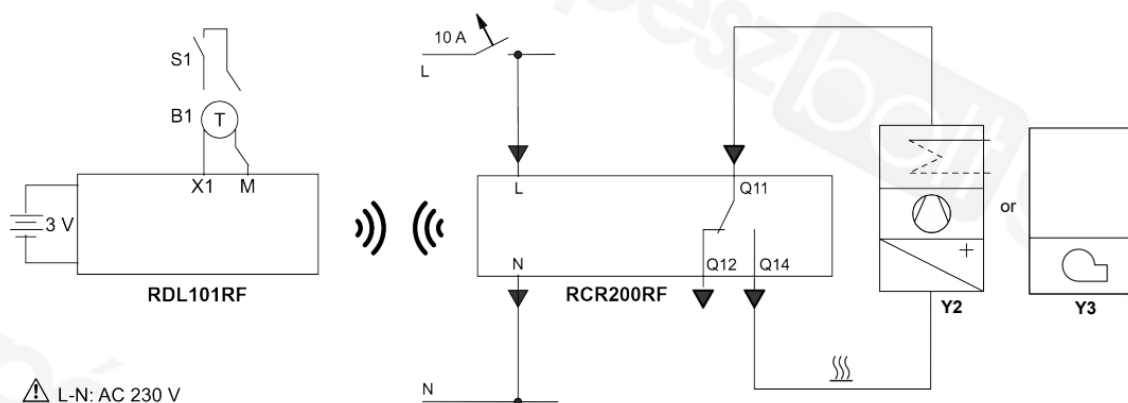
- Current greater than 5 (2) A is not allowed to pass through RDL101. An additional relay or contactor must be installed on high-current devices.
- Do not mix SELV/PELV with mains power on Q11.

RDL101RF.ST

On/off load



Heat pump (non-reversible) or boiler



L, N Operating voltage, AC 230 V

Lx, Nx Live, AC 24...230 V

Y1 Heating load AC 24...230 V

B1 External temperature sensor

Y2 Heat pump

S1 Potential-free switch

Y3 Boiler

⚠ WARNING



- Current greater than 5 (2) A is not allowed to pass through RCR200RF. An additional relay or contactor must be installed on high-current devices.
- Do not mix SELV/PELV with mains power on Q11.

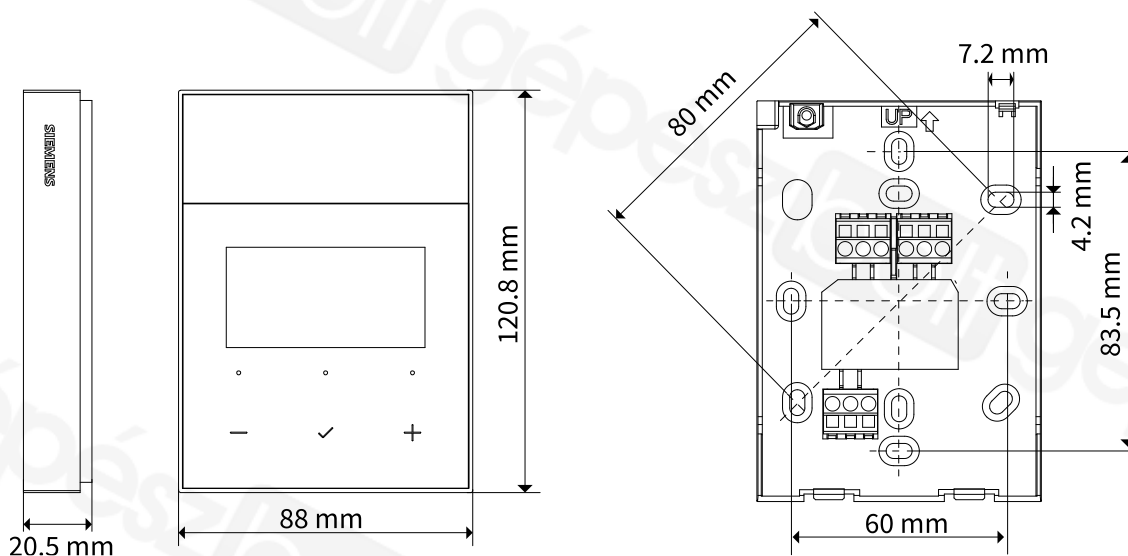
Application examples

RDL101	RDL101RF.ST
Room thermostat with direct control of a gas-fired wall-mounted boiler	Room thermostat with wireless control of a gas-fired wall-mounted boiler
Heating with valve	Floor heating with valve
Heating with pump	Floor heating with pump

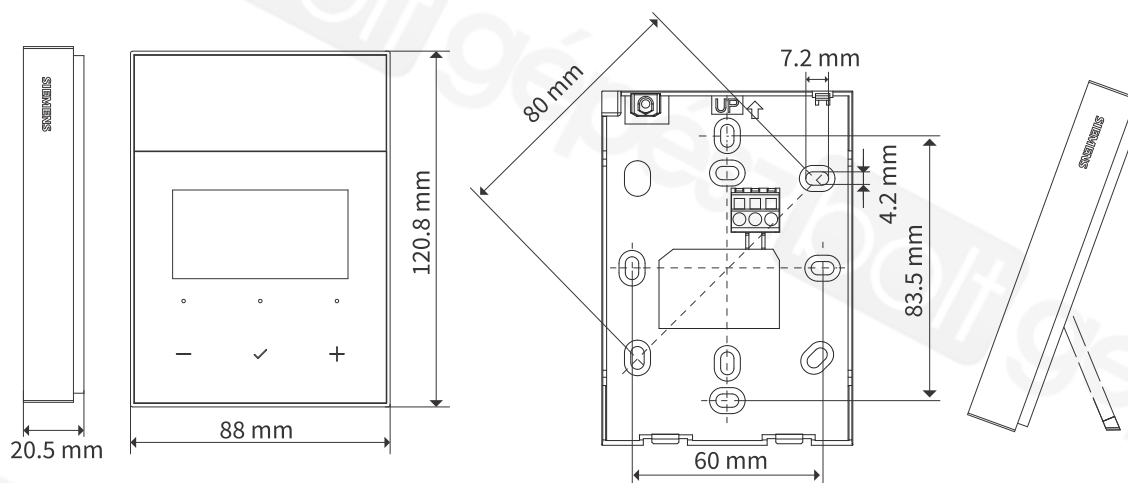
F1	Thermal reset limit thermostat	V1	Magnetic valve
F2	Safety limit thermostat	V2	2-port valve
N1	RDL101	V3	Mixing 3-port valve with manual adjustment
N2	RDL101RF	M1	Circulating pump
N3	RCR200RF		

Dimensions

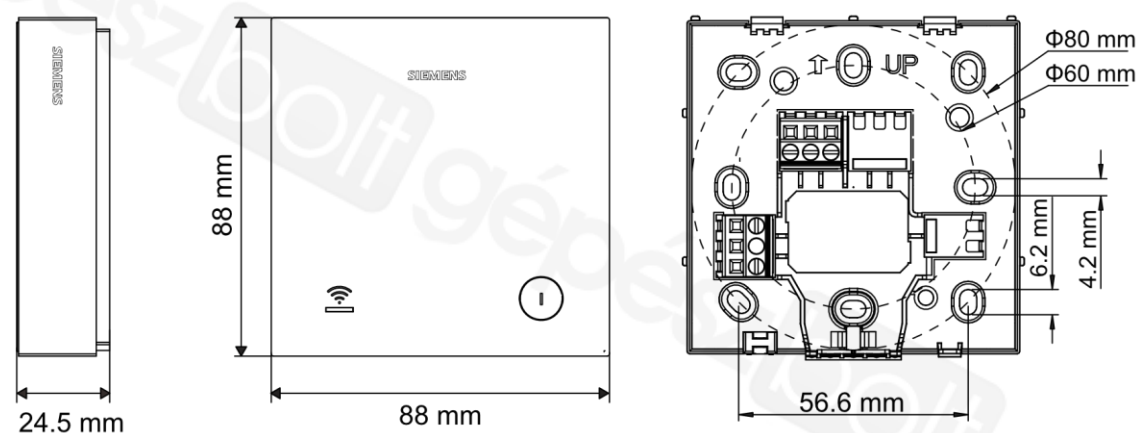
RDL101



RDL101RF



RCR200RF



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