

Programmable room thermostat, wireless, OpenTherm®-compatible

RDL131RF.ST



For heating systems such as gas boilers with an OpenTherm® interface

- Room temperature control
- Operating modes: COMFORT, ECO, Auto, and Protection (frost protection enabled)
- OpenTherm® interface for central heating control
- Control type: Pure room control or outdoor temperature compensation (OTC)
- Auto adaptation to different boiler types: Modulating control or On/Off control
- One multifunctional input for external temperature sensor, open window detection, setback, etc.
- 7-day scheduler
- E-paper display with touch keypad
- Adjustable commissioning and control parameters, including scheduler, via local HMI or Siemens Quick Config mobile application
- Operating voltage:
 - Room thermostats RDL131RF Batteries, 2 × AA
 - Receiver RCR230RF Powered via OpenTherm® interface

Use

Use the thermostat to control the room temperature in heating system.

Typical applications:

- Apartments
- Single family homes

Controlled equipment:

- OpenTherm®-enabled heating systems, such as boilers

Suitable for applications:

- Radiator heating
- Radiant floor heating

Functions

- Room temperature control via built-in or external sensor
- Flow temperature control selectable: Pure room-controlled or heating curve-controlled with room influence (OTC)
- ECO functions (daily heat limit switch and automatic summer/winter changeover)
- 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
- 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
- Activates/deactivates screen saver
- Activates/deactivates key touch sound
- 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
- Activates/deactivates NFC communication
- Reloading factory settings via parameter
- Factory reset button to restore default settings and clear RF pairing
- Wireless operating frequency 433 MHz
- Override button (on the RCR230RF receiver) to control output

- Signal strength indication

Technical design

- The thermostat consists of:
 - Control unit with display, buttons and room temperature sensor
 - Mounting plate with screw terminals or table stand
- The receiver, which is part of the RDL131RF.ST thermostat set, consists of:
 - Control unit with one button and two LEDs
 - Mounting plate with screw terminals

For more information about the buttons, display and LEDs, see document [A6V16530912](#).

Type summary

Type	Stock number	Description
RDL131RF.ST	S55770-T525	Programmable room thermostat, OpenTherm®, 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 RCR230RF

Delivery

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

Inbox item






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

Equipment combinations

The thermostat is compatible with boilers that support the Smart Power function (OpenTherm® protocol version V3.0 or higher).

The following sensors are supported via terminal X1:

Sensors

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

Product documentation

Document title	Document number
Mounting instructions	A6V16530614
Operation manual	A6V16530912
CE declaration	A5W02940092A
RCM declaration	A5W02940097A
UKCA declaration	A5W02940100A
Product environmental declaration	A5W02939014A

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. <ul style="list-style-type: none"> 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

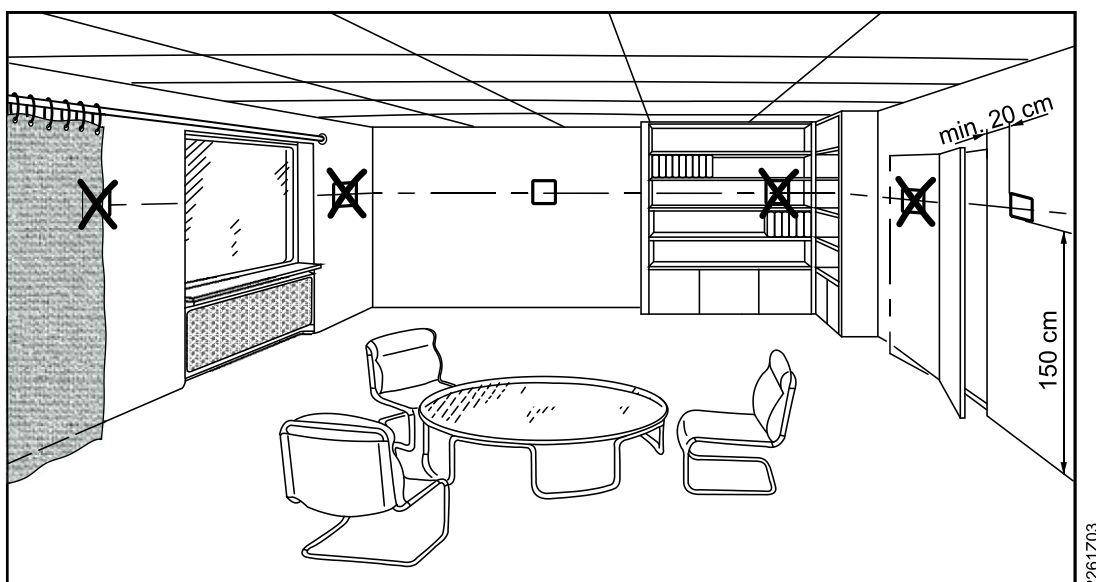


Electrolyte leakage

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

- RDL131RF is suitable for wall mounting and free standing.
- RCR230RF is suitable for wall mounting.
- Recommended height for wall mounting: 1.50 m above the floor.
- If possible, mount the thermostat close to the receiver. 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 RDL131RF.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

- 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 boiler.

⚠ WARNING	
	Receiver OpenTherm® Connection Only connect the RCR230RF receiver terminals to an OpenTherm® interface. Connecting it to a power supply or an incompatible system may result in malfunction or damage.

Installation

⚠ WARNING	
	Risk of explosion Personal injury and property damage <ul style="list-style-type: none"> • 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:

- The 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 thermostat and the receiver are 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	RDL131RF.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](#).

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.

Power supply (RDL131RF)	
Operating voltage	DC 3 V (2 × 1.5 V AA alkaline batteries)
Battery life	2 years (with NANFU, NECTIUM-LR6)

Power supply (RCR230RF)	
Powered by	OpenTherm®-enabled appliance (Smart Power function required) DC 18 V SELV

Multifunctional input	
X1-M	
Temperature sensor 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

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 (off by default)
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	
RDL131RF	Class III
RCR230RF	Class III
Climatic ambient conditions	
Transport and storage (in packaging)	<ul style="list-style-type: none"> Temperature: -25...+70 °C (-13...+158 °F) Ambient humidity: < 95 % r.h. (non-condensing)
Operation (in dry locations having no temperature or humidity control)	<ul style="list-style-type: none"> Temperature: 0...50 °C (32...122 °F) 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)	See EU declaration of conformities A5W02940092A*.
RCM conformity	See RCM declaration of conformity A5W02940097A*.

Standards, directives and approvals	
UK conformity (UKCA)	See UK declaration of conformity A5W02940100A*.
Environmental compatibility	The product environmental declaration (A5W02939014A*) contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).
OpenTherm® certification	OpenTherm® certified, see https://www.opentherm.eu/products/ .

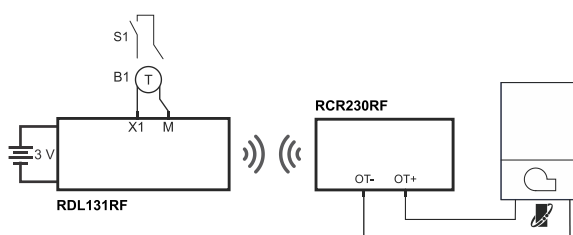
* The documents can be downloaded from www.siemens.com/bt/download.

Eco design and labeling directives		
The following class applies as per EU Regulation 813/2013 (Eco design directive) and 811/2013 (Labelling directive) concerning space heaters and combination heaters:		
Modulating room thermostat, for use with modulating heaters	Class V	Value 3 %

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	506 g
Thermostat	120 g
Receiver	83 g

Electrical connections (RDL131RF)	
Connection terminals	Screw terminals
For solid wires or prepared stranded wires	1 × 0.5...2.5 mm ² or 2 × 0.5...1.5 mm ²

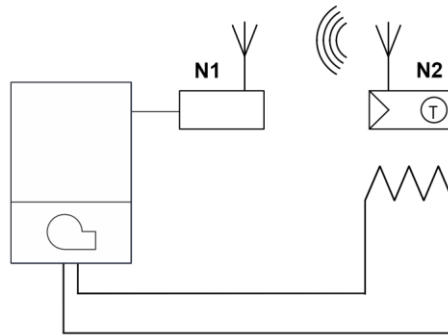
Connection diagrams



OT-, OT+

OpenTherm® contacts (interchangeable)

Application example



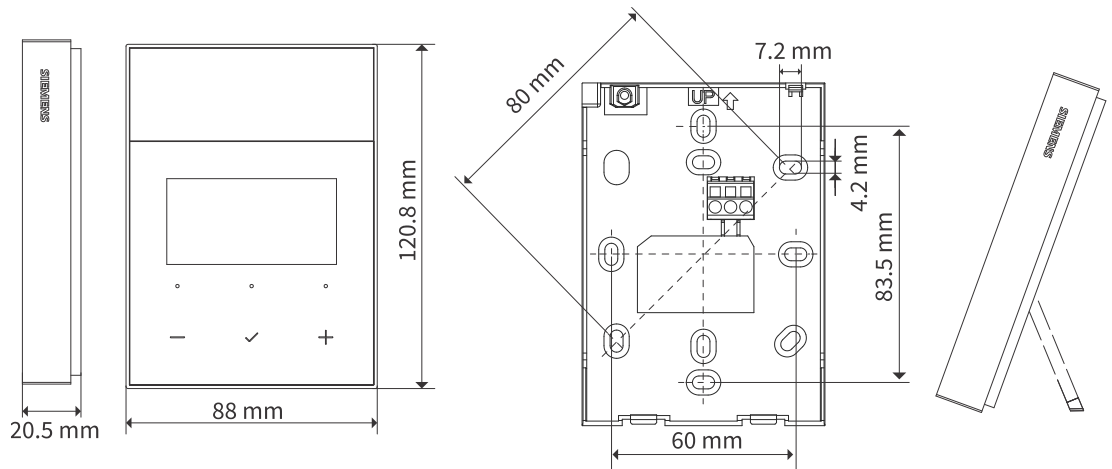
N1 RDL131RF

N2 RCR230RF

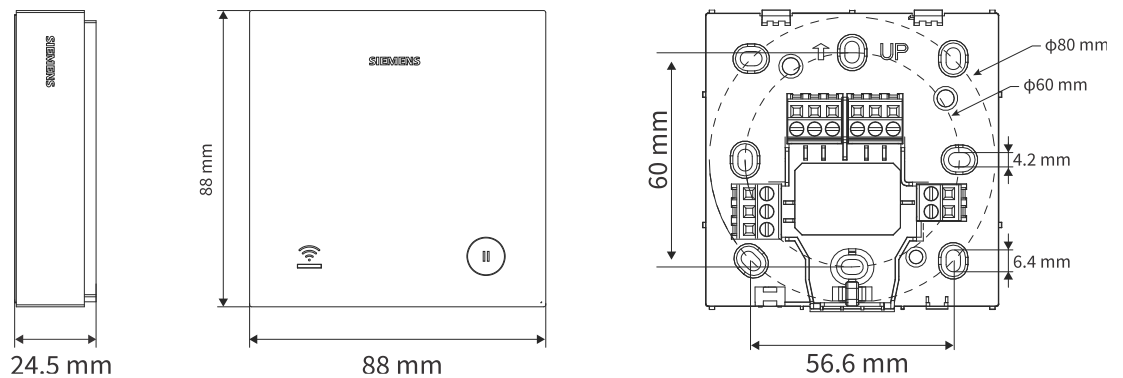
Y1 Open Therm® boiler

Dimensions

RDL131RF



RCR230RF



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