

Self-learning room temperature controller Receiver

REA23.03RF
REA-R.03/1

Consisting of controller (with integrated radio transmitter) and receiver (switching unit with relay outputs)

- Mains-independent room temperature controller
- Straightforward, self-explanatory menu selection via setting knob
- Self-learning 2-position controller providing PID mode (patented)
- Choice of operating modes:
Automatic with maximum 3 heating or cooling periods, continuous comfort, continuous economy, frost or overheat protection with one 24-hour operating mode including one heating or cooling period
- In automatic mode, one temperature setpoint can be entered for each heating or cooling period
- Optional control of cooling equipment
- Advantageous for retrofitting and upgrading projects (wireless room unit)

Use

For control of the room temperature in:

- Apartments, single-family or holiday houses
- Offices, individual rooms, consulting rooms or commercially used spaces

For control of the following pieces of equipment:

- Solenoid valves of instantaneous water heaters

- Solenoid valves of atmospheric gas burners
- Forced draft gas or oil burners
- Circulating pumps of heating systems, zone valves
- Electric direct heating systems or fans of electric storage heaters
- Thermal actuators
- Cooling and refrigeration equipment

Functions

- Radio signal transmission
- PID control with self-learning or selectable switching cycle
- 2-position control
- Automatic mode with 7-day switching program for 24-hour, working day, weekend or 7-day operation with up to 3 heating or cooling periods per day
- Each heating or cooling period has its own temperature setpoint
- One 24-hour operating mode with one heating or cooling period
- Override button
- Sensor calibration and reset function
- Frost protection or overtemperature protection
- Limitation of the minimum setpoint
- Holiday mode
- Heating or cooling mode
- Periodic pump run
- Optimum start control with the first heating period

Type summary

Radio signal equipment consisting of:

Room temperature controller (transmitter), receiver (switching unit) and support

Room temperature controller (transmitter) and support

Receiver (switching unit)

REA23R/ST

REA23.03RF

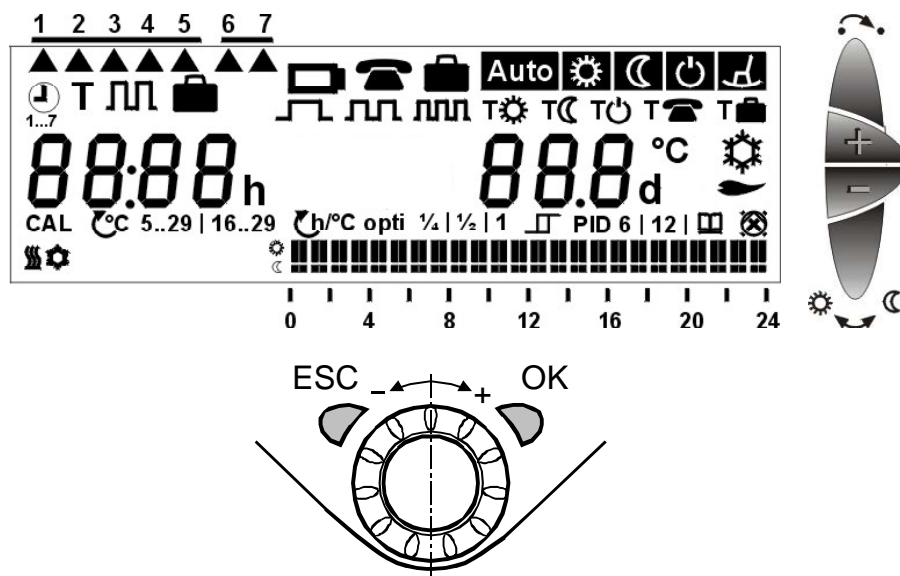
REA-R.03/1

Ordering

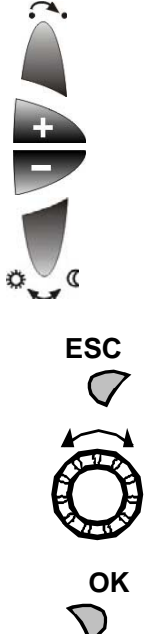
When ordering, please give the type references according to «Type summary». The controller / transmitter REA23.03RF is supplied complete with batteries.

Technical design


Display and operating elements




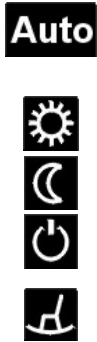
Operating elements

		<p>Selection of operating mode (see below)</p> <p>«Warmer» button</p> <p>«Colder» button</p> <p>Override button (see below)</p> <p>Leaving the current menu level and returning to the menu level previously active (settings currently displayed will be accepted)</p> <p>The rotary knob is only operable within the menus. Move from menu to menu, modify adjustable variables (temperature in increments of 0.2°C and time in hours and minutes) and select functions.</p> <p>Access the menus, enable a menu, save inputs, switch to the next menu item and acknowledge with the OK button.</p>
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Displays

		<p>Time of day</p> <p>Room temperature</p> <p>Change batteries (display appears about 3 months before batteries are exhausted)</p> <p>Holiday mode active</p>
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Selection of operating mode (only one operating mode active)

		<p>Automatic mode</p> <p>Comfort mode</p> <p>Economy mode</p> <p>Frost protection or overheat protection</p> <p>Special day (24-hour mode with one heating or cooling phase. The switch-on and switch-off time and the setpoint for the phase are set manually).</p>
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Temporary change of the current setpoint temperature (change only active until the next switching point is reached)

		<p>Press the + or – button once to display the adjusted temperature setpoint. It can be readjusted in increments of 0.2 °C (max. +/- 4 °C)</p>
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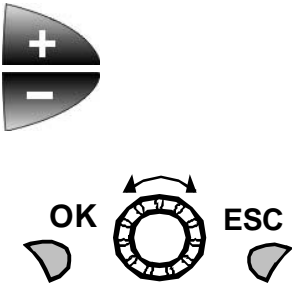


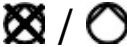


Override button



In operating modes **Auto** and **Auto**, this button can be used to manually switch from comfort to economy temperature, or vice versa. The selection is automatically reset when the next switching point is reached or when the operating mode is changed

Menu-driven user settings: 4 main menus are available

Time of day and weekday	Main menu	Submenu	Settings												
		 	Current time Current weekday												
Temperature	Main menu	Submenu	Default settings – heating / cooling												
	T	T T T T	<table border="1"> <tr> <td>Setpoint of comfort mode</td> <td>19 °C</td> <td>23 °C</td> </tr> <tr> <td>Setpoint of economy mode</td> <td>16 °C</td> <td>29 °C</td> </tr> <tr> <td>Setpoint frost or overtemperature protection</td> <td>5 °C</td> <td>35 °C</td> </tr> <tr> <td>Setpoint remote operation is not used with this unit</td> <td>(10 °C)</td> <td>(30 °C)</td> </tr> </table>	Setpoint of comfort mode	19 °C	23 °C	Setpoint of economy mode	16 °C	29 °C	Setpoint frost or overtemperature protection	5 °C	35 °C	Setpoint remote operation is not used with this unit	(10 °C)	(30 °C)
Setpoint of comfort mode	19 °C	23 °C													
Setpoint of economy mode	16 °C	29 °C													
Setpoint frost or overtemperature protection	5 °C	35 °C													
Setpoint remote operation is not used with this unit	(10 °C)	(30 °C)													
Time switch	Main menu	Submenu	Settings												
		 	Selection of weekday, working day, weekend or week Selection of the number of heating or cooling periods (max. 3 periods per day) Selection of the heating / cooling period's start and end time Selection of the heating / cooling period temperature setpoint												
Absence	Main menu	Submenu													
		T	Entry of holidays or periods of absence. Number of days with economy mode setting / max. 99 days Temperature setpoint during absence. Default setting is 12 °C for heating and 30 °C for cooling												

Menu-driven heating engineer settings	Menu items	Settings
	<p style="text-align: center;">CAL</p> <p style="text-align: center;">°C 5..29 16..29</p> <p style="text-align: center;">h/°C opti ¼ ½ 1</p> <p style="text-align: center;"></p> <p style="text-align: center;">PID </p> <p style="text-align: center;">PID 6 12</p> <p style="text-align: center;"> / </p> <p style="text-align: center;"></p>	<p>Sensor calibration</p> <p>Setpoint limitation</p> <p>Optimum start control for the first heating period (in unit of time per 1 °C)</p> <p>2-position control</p> <p>PID mode, self-learning</p> <p>PID mode, switching cycle 6 or 12 minutes</p> <p>Periodic pump run off / on</p> <p>Heating / cooling mode</p>

Temperature setpoints

In automatic operating modes, the temperature setpoints can be individually adjusted for every comfort period and for the continuous operating modes. The temperature setpoint of economy mode is the same in automatic and continuous operation.

Protective function




In frost or overtemperature protection mode, the room temperature is constantly monitored. If it falls (rises) below (above) the adjusted setpoint, control to the adjusted frost or overtemperature protection setpoint T_{O} will be ensured.

Special day






The "special" day is a 24-hour exception mode with one heating or cooling phase. The switch-on and switch-off time and the setpoint for the (heating or cooling) phase are set manually.

The settings for the "special" day (exception) are not linked to any particular day, and remain in memory until you modify these settings yourself. You can then select this preset special day operating mode quickly and easily with the operating-mode selector button . It will remain active until another operating mode is selected.

Switching program

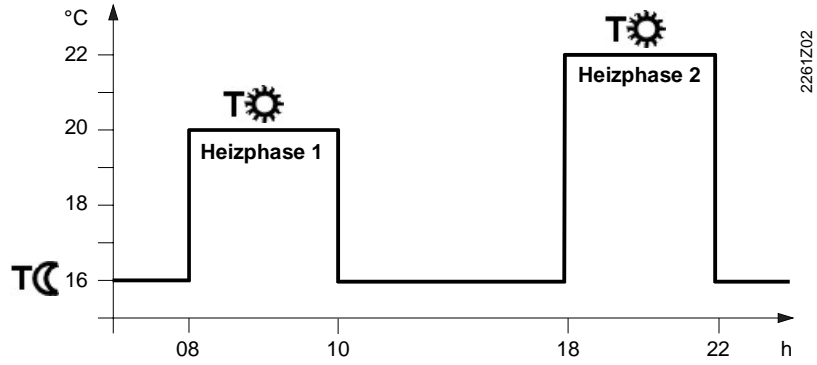


The switching program can be used as a 7-day or 24-hour program, depending on programming. It is also possible to select one of the continuous operating modes    with which the switching program is not used.

With the 7-day program, all individual days, working days (1-5), weekend (6-7), or the entire week (1-7) can be programmed.

For each heating / cooling period, 3 different switching patterns are available. There is a choice of 1, 2 or 3 heating / cooling periods. For each heating / cooling period, the start time, end time and comfort setpoint are to be entered. In between heating / cooling periods, the same economy temperature setpoint is always used. This economy temperature setpoint can be adjusted on the temperature menu.

Example with 2 heating periods per day



Holiday function



The holiday function is to be selected on the user menu. Set the start of the holiday period (day of departure / $\frac{1}{2} \frac{3}{4} \frac{5}{6} \frac{7}{}$ / weekday), the duration of the holiday period and the temperature setpoint (T). This will enable the controller to maintain the adjusted temperature for a period of up to 99 days. Every day at midnight, the counter subtracts one day.

When the holiday period is over, the counter reads 00, and the controller will automatically resume the operating mode selected last.

Remote operation



To be flexible, the REA23.03RF has no connection facility for remote operation.

Factory settings

Operating mode	Block / week-days	Switching times						Temperatures in °C											
								T 1st period		T 2nd period		T 3rd period		T		T		T	
		1st period		2nd period		3rd period													
Auto	1-5 Mo-Fr 6-7 Sa-Su	06:00	08:00	11:00	13:00	17:00	22:00	19	23	20	23	21	23	16	29				
	1-7 Mo-Su	00:00	24:00					19	23										
	1-7 Mo-Su	00:00	24:00										16	29					
	1-7 Mo-Su	00:00	24:00												5	35			
	1-7 Mo-Su	07:00	23:00					19	23										
	Absence																	12	30

Factory settings
Heating engineer level

Setpoint limitation

5..29

Control mode

2-Point control

Optimum start control

OFF h^{opti} °C

Periodic pump run

OFF

Heating active

Access

The heating engineer level will be enabled by pressing simultaneously the warmer and colder buttons and by turning the setting knob counter-clockwise and then clockwise.

Sensor calibration

CAL

If the displayed temperature does not agree with the room temperature effectively measured, the temperature sensor can be recalibrated (recalibration to be made on the heating engineer level.)

The displayed temperature can be matched to the effective room temperature in increments of 0.2 °C (max. ± 2 °C).

Setpoint limitation

°C 5..29 | 16..29

Minimum setpoint limitation to 16 °C prevents undesired heat transfer to neighboring apartments in buildings with several heating zones. The setting is to be made on the heating engineer menu.

Optimum start control

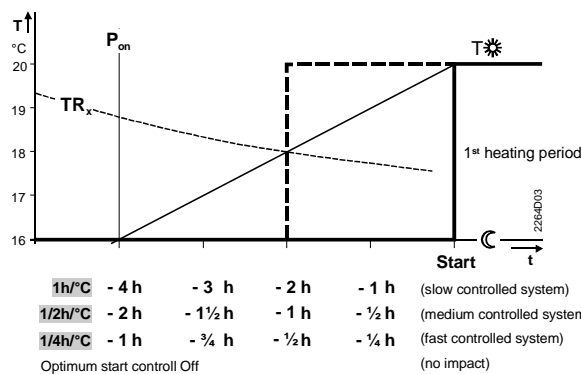
h/°C opti ¼....

Optimization brings forward the switch-on point of the first heating period such that the adjusted setpoint will be reached at the required time.

The setting depends on the type of controlled system, that is, on heat transmission (type of piping system, radiators), building dynamics (building mass, insulation), and heat output (boiler capacity, flow temperature).

Optimum start control is switched off at h/°C opti

Example using an actual room temperature of 18 °C and a setpoint of 20 °C



T Temperature (°C) TR_x Actual value of room temperature
 t Forward shift of switch-on point (h) P_{on} Starting point of optimum start control

Control

REA23.03RF is a 2-position controller providing PID mode. The room temperature is controlled by the cyclic switching of an actuating device.

The controller generates the positioning signals depending on the deviation of the setpoint from the actual value acquired by the built-in temperature sensor.

The rate of response to the deviation depends on the selected control algorithm:

Self-learning mode

If self-learning operating mode is active, the controller automatically adapts to the controlled system (type of building construction, heating capacity, type of heaters, room size etc.). After a learning period, the controller self-optimizes the parameters and then operates in accordance with the newly learned parameters.

PID

PID 12

PID 12 mode Switching cycle of 12 minutes for normal or slow controlled systems (massive building structures, large spaces, cast-iron radiators, oil burners).

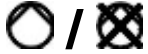
PID 6

PID 6 mode Switching cycle of 6 minutes for fast controlled systems (light building structures, small spaces, plate radiators or convectors, gas burners).

2-Pt

2-Pt mode The (factory-set) default mode is 2-Pt mode: simple on/off controller with a switching differential of 0.5+°C (±0.25 °C) for very difficult controlled systems with large fluctuations in the outdoor temperature.

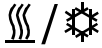
Periodic pump run



Protects the pump against seizing during longer off periods. Periodic pump run is activated for one minute every 24 hours at midnight. This function can be selected on the heating engineer menu.

Periodic pump run active:  / periodic pump run inactive: 

Operating mode Heating / cooling



The controller is suited for cooling applications.

The function can be selected on the heating engineer menu.

The controller comes set for heating operation (refer to section «Factory settings»).

User-defined data:

Press the button behind the pin opening for at least one second: This resets the user-specific settings to their default values (heating engineer settings will not be changed). The clock starts at 12:00. During the reset time, all sections of the display are lit, enabling them to be checked.

All user-defined data plus the heating engineer settings:

Press the button behind the pin opening together with the warmer and colder buttons for at least one second.


After the reset, all **factory settings** will be reloaded (also refer to section «Factory settings»).

Mechanical design

Controller

The REA23.03RF has a plastic housing with a large display and easily accessible operating elements. The controller is removed from its base by sliding it upward. It is thus possible to replace the two type **AA** 1.5 V alkaline batteries contained in the compartment at the rear of the controller.

Battery change

About 3 months before the batteries are exhausted, battery symbol  appears on the display, but all functions are fully maintained. When replacing the batteries, the current data will be retained for a maximum of one minute.

Receiver REA-R.03/1

Plastic housing with easily accessible operating elements and removable cover. The unit can be fitted to all commercially available recessed conduit boxes or directly on the wall. A relay with a potential free changeover contact, the connection terminals and the receiving antenna are integrated in the housing.

Base

The base can be fitted to most types of commercially available recessed conduit boxes or directly on the wall.

Support

The support supplied with the controller enables the unit to be put on a shelf. It can be easily fitted to the controller with no need for tools.

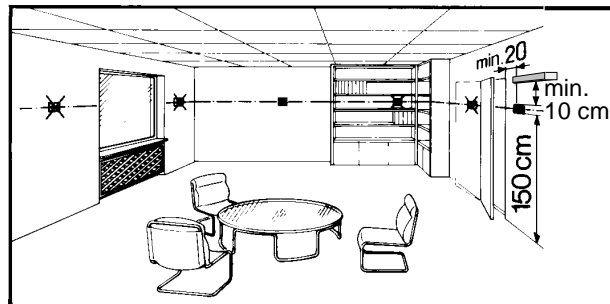
Note

Planning controller / transmitter REA23.03RF

- The room unit should be located in the main living room (on the wall or free-standing using the support provided) while giving consideration to the following points:
- The distance to the receiver should not exceed 20 m or 2 floors
- The unit should be located such that the sensor is able to capture the room temperature as accurately as possible, without getting affected by direct solar radiation or other heat or refrigeration sources (in the case of wall mounting, about 1.5 m above the floor)
- The unit should be located such that it can transmit signals with as little interference as possible. For this reason, the following points should be observed:
 - Do not mount the unit on metal surfaces
 - Not in the vicinity of electrical cables and equipment such as PCs, TV sets, microwave appliances, etc.
 - Not in the vicinity of large metal structures or construction elements with fine metal meshes like special glass or special concrete
- The control mode can be changed via the menu-driven heating engineer settings.
- If the room temperature displayed does not agree with the room temperature effectively measured, the temperature sensor should be recalibrated (refer to «Calibration of sensors»).

Wall mounting of controller / transmitter REA23.03RF

- In the case of wall mounting, ensure that there is sufficient clearance for removing the controller from its base, and for replacing it
First, fit the base. Then, engage the controller from the top. The base can be fitted to most commercially available recessed conduit boxes or directly on the wall




Support of REA23.03RF

- Refer to the Installation Instructions printed on the package.

Planning Receiver REA-R.03/1

- The receiver and switching unit should preferably be mounted near the controlled device
- The unit should be located such that it can receive signals with as little interference as possible. For this reason, the following points should be observed (same as with the transmitter):
 - Not in control panels
 - Not on metal surfaces
 - Not in the vicinity of electrical cables and equipment such as PCs, TV sets, microwave appliances, etc.
 - Not in the vicinity of large metal structures or construction elements with fine metal meshes like special glass or special concrete
- The location where the unit is mounted should be dry and free from splash water
- The unit can be fitted to most commercially available recessed conduit boxes or directly on the wall

Mounting and installation of receiver REA-R.03/1

 The receiver must be wired with the power supply switched off. Mains voltage may be switched on again only after the unit is completely mounted.

- When mounting the unit, the base must first be fitted and wired (L/N = AC 230 V mains supply, LX/L1 = consumers). Then, engage the unit at the top, swing it downward and secure it with a screw
- For more detailed information, refer to the Installation Instructions supplied with the unit

For the electrical installation, the local safety regulations must be complied with.

Commissioning controller/transmitter REA23.03RF and receiver REA-R.03/1



1. Switch on REA23.03RF

- Remove the battery transit tab: As soon as the battery transit tab is removed, the unit starts to operate.

2. Mount REA-R.03/1 temporarily

- If possible, mount receiver temporarily in a first run (e.g. double coated tape). Doing that, location of best RF reception can be identified later on. See clause "5 Find location of best reception"
- Completely wire and mount REA-R.03/1 temporarily (please also close front cover)


3. Link REA-R.03/1 with REA23.03RF

- Switch on power at REA-R.03/1: LED_1 lights always in red or flashes in red
- Press the "RESET" button on REA-R.03/1 for about 4 seconds: The orange LED_2 will flash very fast and briefly (stored address of REA23.03RF will be erased)
- Press the "SET" button (set / learn) for about 3 sec. until the orange LED_2 starts flashing slowly and continuously: Receiver is now in learning mode
- The receiver stays max. 25 minutes in learning mode. If no learning telegram from REA23.03RF is received during that period of time, repeat steps b) and c) again
- Press the ESC button on REA23.03RF for about 4 seconds. Learning telegram is transmitted
- If REA-R.03/1 receives learning telegram, the orange LED_2 flashes fast and briefly
- If the orange LED_2 is steady on, the relay is energized (= controlled device ON)
- If the orange LED_2 is dark, the relay is de-energized (= controlled device OFF)
- Depending on the operating state, REA23.03RF repeats the ON or OFF control telegram every 3 minutes. With this the relay will be switched ON or OFF according to control telegram latest after 3 minutes
- If REA-R.03/1 does not receive any correct control telegram within 60 minutes, controlled device is being switched off and LED_1 flashes in red
- In the event of a power failure at the REA-R.03/1, the relay will be de-energized.

4. Site REA23.03RF

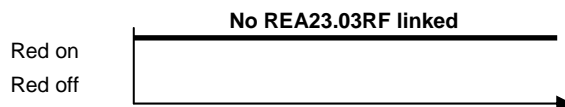
- Site REA23.03RF at preferred location for mounting at wall or setting up with stand
- Also refer to "Mounting and siting notes REA23.03RF and REA-R.03/1"

5. Find location of best RF reception

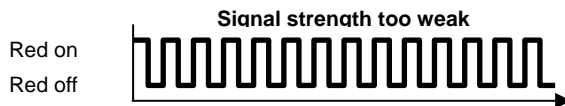
- Switch off power at REA-R.03/1
- Switch on REA23.03RF, site at preferred location and press override button  for about 4 seconds: REA23.03RF transmits test telegrams every 2 seconds. Transmission of test telegrams stops automatically after 10 minutes or after pressing either "ESC" button or override button
- Switch on power at REA-R.03/1
- Observe both LEDs on REA-R.03/1 from a distance of 2...3 meters
- Orange LED_2 must flash briefly every 2 seconds. If LED_2 does not flash every 2 seconds, distance between REA23.03RF and REA-R.03/1 is too far. Mount REA-R.03/1 closer to REA23.03RF
- LED_1 shows received signal strength of last telegram:
 LED_1 flashes red: Signal is too weak to get a durable link. Mount REA-R.03/1 closer to REA23.03RF
 LED_1 flashes green: We distinguish between three signal strengths:
 Very good (flashes 3x), Good (flashes 2x) and Satisfactory (flashes 1x).
 As soon as LED_1 flashes in green, link between REA23.03RF and REA-R.03/1 is basically ok.
- Move REA-R.03/1 within an area of approximately 1 square meter to find location of best RF reception. Always observe LEDs from a distance of 2...3 meters. To get a durable link, we recommend that REA-R.03/1 be placed in a location where the signal strength is at least "Good".

6. Explanations to LEDs

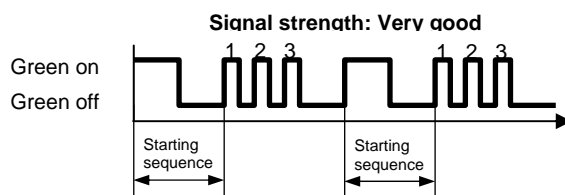
LED_1 lights always in red



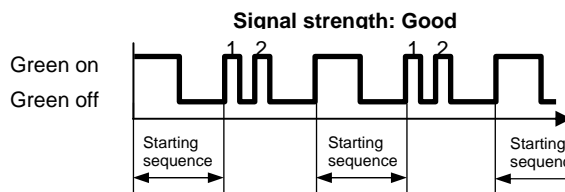
LED_1 flashes in red



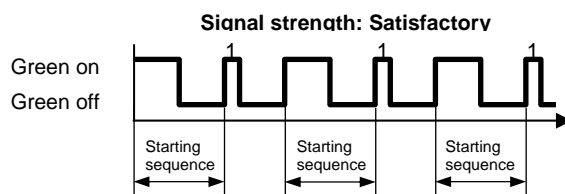
LED_1 flashes 3 times in green



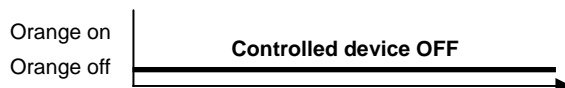
LED_1 flashes 2 times in green



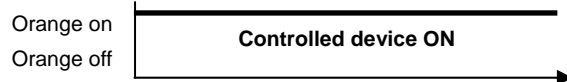
LED_1 flashes 1 time in green



LED_2 is always off



LED_2 is always on



LED_2 flashes continuously



LED_2 flashes briefly

Repetition of control telegram

7. Finishing mounting of REA-R.03/1

- Switch off power
- Mark location where REA-R.03/1 is currently fixed
- If necessary loosen wiring
- Mount receiver at location marked before, wire completely and close housing
- Switch on mains power

Notes

- If, during normal operation, the REA-R.03/1 receives either a very weak control telegram from REA23.03RF or no control telegram for longer than 25 minutes, LED_1 starts to flash in red. If the control telegram is still understood correctly, the receiver continues with normal operation. If the control telegram is no longer understandable, the relay remains in the last switching position. As soon as the REA-R.03/1 does receive a correct control telegram from the REA23.03RF again, the receiver continues with normal operation
- In case of error, REA-R.03/1 switches off the relay approximately 60 minutes after receipt of the last correct control telegram. The controlled device is also switched off and LED_1 flashes in red. As soon as the REA-R.03/1 does receive a correct control telegram from REA23.03RF again, the receiver continues with normal operation
- In the event of a power failure at the REA-R.03/1, the relay is de-energized.

Technical data controller / transmitter REA23.03RF

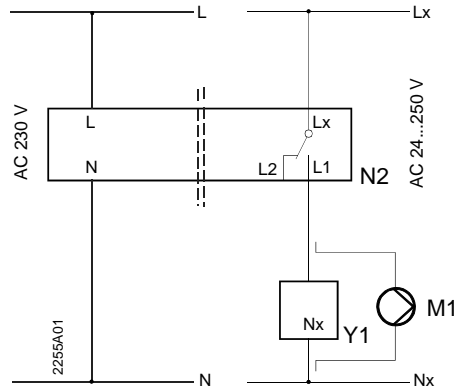
General data controller / transmitter	Operating voltage	DC 3 V
	Batteries (alkaline AA)	2 x 1.5 V
	Battery life	Approx. 2 years
	Backup for battery change	Max. 1 min
General data controller	Sensing element NTC	NTC 10 k Ω at 25 °C \pm 1 %
	Measuring range	0...50 °C
	Time constant	Max. 10 min
	Setpoint setting ranges	
	Normal temperature	5 ... 29 °C
	Economy temperature	5 ... 29 °C
	Frost protection setpoint	
	Setting range	5...29 °C
	Factory setting	5 °C
	Resolutions of settings and display	
	Setpoints	0.2 °C
	Switching times	10 min
	Measurement of actual value	0.1 °C
Display of actual value	0.2 °C	
Display of time	1 min	
General data transmitter	SRD band	868.7 to 869.2 MHz
	Transmit frequency REA23.03RF	868.95 MHz
	Max. transmitter power	< 10 mW / typically 4 mW
	Max. data throughput	19200 symbol/s = 38400 bps
	Modulation	Binary frequency changeover BFSK
	Frequency stability	< \pm 20 ppm (\pm 17 kHz)
	Address range (preset in the factory)	16 bit (0...65535)
Environmental conditions	Operation	To IEC 60 721-3
	Climatic conditions	Class 3K3
	Temperature	5...+40 °C
	Humidity	<85 % r. h.
	Transport	To IEC 60 721-3
	Climatic conditions	Class 2K3
	Temperature	-25...+70 °C
	Humidity	<93 % r. h.
Norms and standards	MCE conformity	
	EMC directive	89/336/EEC
	R&TTE directive	EN 301 489-3
	Product safety	
	Radio equipment	EN 301 489-3
	Automatic electrical controls for household and similar use	EN 60 730-1
	Electromagnetic compatibility	
	Immunity	EN 61 000-6-1
	Emissions	EN 61 000-6-3
	Radio equipment	EN 300 220-3
	Approvals	MCE 0359 ^①
	In the following countries	All ECC countries, Norway, Iceland and Switzerland
	Devices of safety class	II to EN 60 730-1
Degree of pollution	normal	

Weight (incl. package)	REA23.03RF	0.37 kg
	REA23R/ST	0.68 kg
Color		
Housing		Signal white RAL 9003
Base		GrYy RAL 7038
Dimensions		140x103x30 mm

Technical data receiver REA-R.03/1

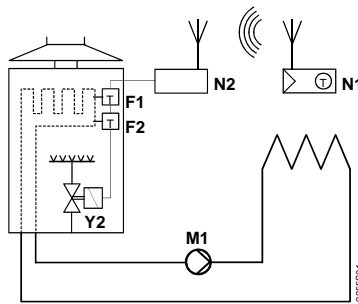
General unit data	Operating voltage	AC 230 V +10/-15 %
	Power	< 10 VA
	Frequency	45...65 Hz
	Switching capacity of relays	
	Voltage	AC 24...250 V
	Current	6 (2.5) A
Environmental conditions	Operation	To IEC 60 721-3
	Climatic conditions	Class 3K3
	Temperature	0...+45 °C
	Humidity	<85 % r. h.
	Storage and transport	To IEC 60 721-3
	Climatic conditions	Class 2K3
	Temperature	-25...+70 °C
	Humidity	<93 % r. h.
	Mechanical conditions	Class 2M2
Norms and standards	CE conformity	
	EMC directives	89/336/EEC
	Low-voltage directives	2006/95/EEC
	R&TTE directives	EN 301 489-3
	Product safety	
	Radio equipment	EN 301 489-3
	Automatic electrical controls for household and similar use	EN 60 730-1
	Special requirements placed on energy controllers	EN 60 730-2-11
	Electromagnetic compatibility	
	Immunity	EN 61 000-6-1
	Emissions	EN 61 000-6-3
	Radio equipment	EN 300 220-3
	Approval	CE 0359 ①
	In the following countries	All ECC countries, Norway, Iceland and Switzerland
	Devices of safety class	II to EN 60 730-1
	Degree of pollution	Normal
	Weight (incl. package)	
	REA-R.03/1	0.24 kg
	REA23R/ST	0.68 kg
Color		
Unit front		Signal white RAL 9003
Base		Grey RAL 7038
Dimensions		83x104x32 mm

Connection diagram receiver REA-R.03/1

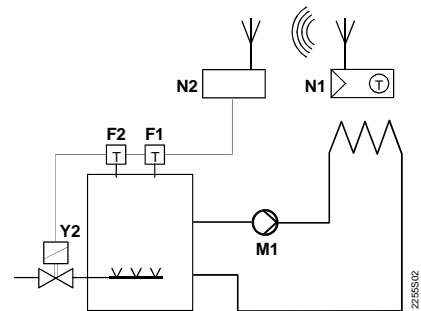


- L Live conductor, AC 230 V
- N Neutral conductor, AC 230 V
- Lx Live, AC 24...250 V
- L1 N.O. contact, AC 24...250 V / 6 (2.5) A
- L2 N.C. contact, AC 24...250 V / 6 (2.5) A
- M1 Circulating pump
- N2 Receiver REA-R.03/1
- Y1 Actuating device

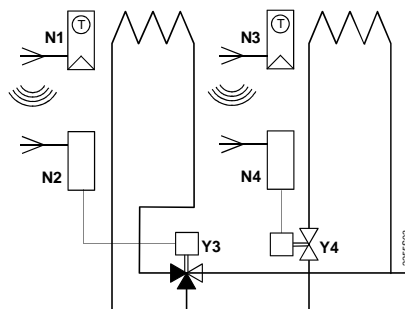
Application examples



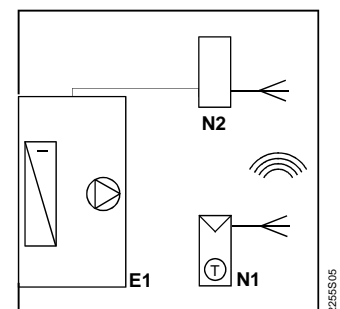
Instantaneous hot water heater



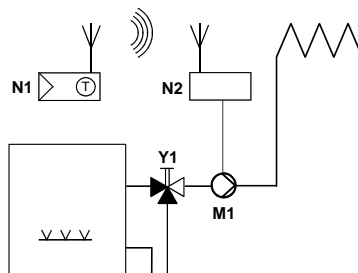
Atmospheric gas burner



Zone valve



Cooling equipment

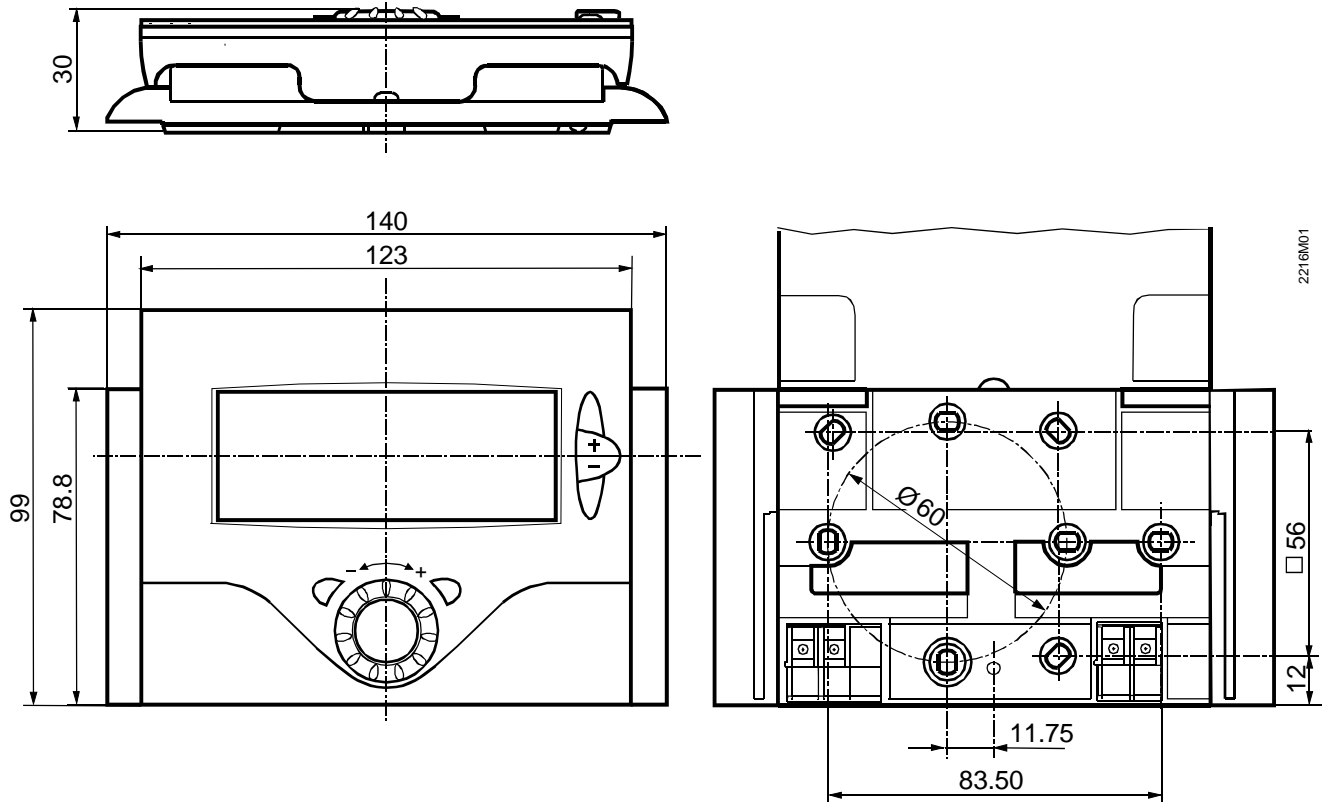


Circulating pump with precontrol by manual mixing valve

- | | | | |
|----|------------------------------------------------------|----|------------------------------------------------------|
| E1 | Cooling unit | N3 | Room temperature controller (transmitter) REA23.03RF |
| F1 | Thermal reset limit thermostat | N4 | Receiver REA-R.03/1 |
| F2 | Safety limit thermostat | Y1 | 3-port valve with manual adjustment |
| M1 | Circulating pump | Y2 | Solenoid valve |
| N1 | Room temperature controller (transmitter) REA23.03RF | Y3 | Motorized 3-port valve |
| N2 | Receiver REA-R.03/1 | Y4 | Motorized 2-port valve |

Dimensions

Controller / transmitter REA23.03RF



Receiver REA-R.03/1

