SIEMENS

2267

Three-position Room Temperature Controller REV33

5 operating modes, menu selection via roller selector

- **Mains-independent room temperature controller**
- **Straightforward, self-explanatory menu selection via roller selector**
- **3-position controller providing PI mode and optimum start control**
- **Possibility of volume adaption and control gain**
- **Choice of operating modes:**
  automatic with maximum 3 heating periods, continuously comfort mode, continuously economy mode, frost protection with one 24-hour operating mode and one heating period
- **In automatic mode, one temperature setpoint can be adjusted for each heating period**

Use

For the control of the room temperature in:
- Apartments, single-family or holiday houses
- Offices, individual rooms, consulting rooms or commercially used spaces

For the control of electromotoric 3-position actuators with a running time of **120...150 seconds**, suitable for use with stroke or rotary actuators

Functions

- PI mode
- 3-position control
- Automatic mode with 7-day switching program for 24-hour, working day or 7-day operation with up to 3 heating periods per day
- One temperature setpoint for each heating period
- 24-hour operating mode with one heating period
- Remote operation
- Override button
- Sensor calibration and reset function
- Frost protection function
- Limitation of the minimum setpoint
- Holiday mode
- Adaption of the integral action time (volume adaption)
- Adaption of the control gain (heat output adaption)
- Optimum start control for the first heating period

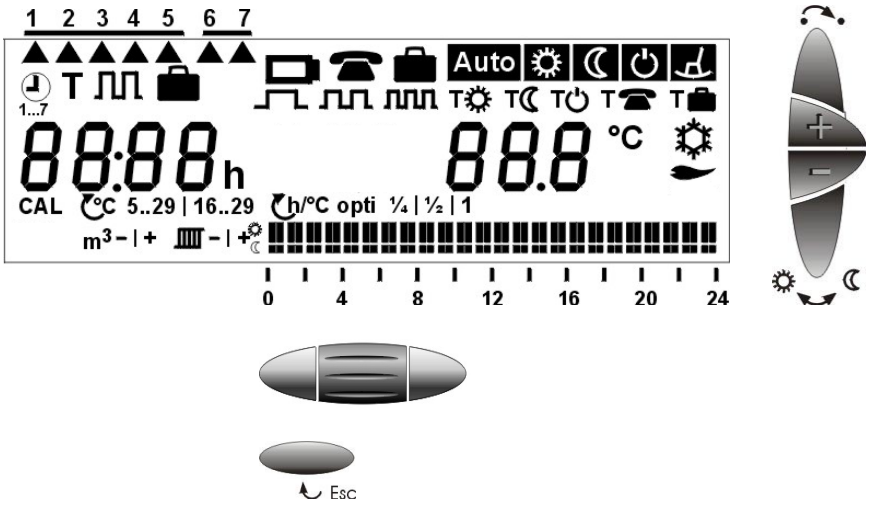
Ordering

Room temperature controller with 7-day time switch	**REV33**

When ordering, please give the type reference.
The controller is supplied complete with batteries.

Technical design

Display and operating elements



Operating elements

Selection of operating mode

Warmer button

Colder button

Override button

Roller selector for the menu, submenu and settings
Confirm by pressing

Leaving the current menu level and returning to the menu level previously active (the settings currently displayed will be accepted)

Display

21:38 h	**Time of day**
20.8 °C	**Room temperature**
	**Change batteries (display appears about 3 months before batteries are exhausted)**
	**Remote operation active**
	**Holiday mode active**

Selection of operating mode (only one operating mode is active)

	
Auto	**Automatic mode**
	**Comfort mode**
	**Economy mode**
	**Frost protection**
	**24-hour mode with one heating period (heating period is automatically generated from the current 24-hour program)**

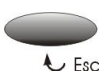
Temporary change of the current setpoint temperature (change only active until the next switching point is reached)

	19.0 °C	**When pressing the + or – button once, the adjusted setpoint temperature will be displayed. It can be readjusted in increments of 0.2 °C (max. +/- 4 °C).**

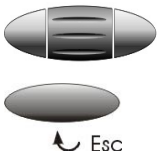
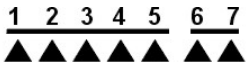
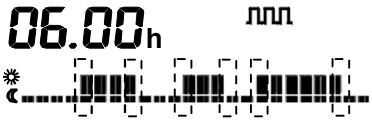
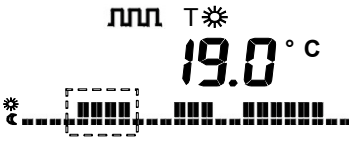
Override button

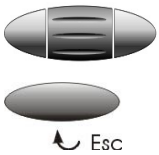
	**In operating modes Auto and , this button can be used to switch from comfort to economy temperature, or vice versa. The selection is maintained until the next switching point is reached or until the operating mode is changed.**

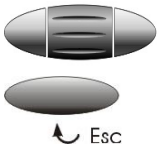
Menu-driven user settings: 4 main menus available

Time of day and day	Main menu	Submenu	Settings
		12:00 h	**Current time of day**
		1 2 3 4 5 6 7	**Current day of week**

Temperature	Main menu	submenu	Factory settings	
	T	T	**Setpoint comfort mode**	**19 °C**
		T	**Setpoint economy mode**	**16 °C**
		T	**Setpoint frost protection**	**5 °C**
		T	**Setpoint economy mode remote operation**	**10 °C**

Time switch	Main menu	Submenu	Settings
		   **Selection of heating period start and end time**  **Selection of heating period setpoint temperature**	**Selection of day of week, working day, weekend or week** **Selection of the number of heating periods**

Absence	Main menu	Submenu	
			**Entry of holidays or periods of absence (number of days with economy mode setting / max. 99 days)** **Temperature setpoint during absence** **Factory setting 12 °C**

Menu-driven heating engineer settings	Menu items	Settings
 	**CAL**	**Sensor calibration**
	°C 5..29 | 16..29	**Setpoint limitation**
	h/°C opti ¼ | ½ | 1	**Optimum start control for the first heating period (in unit of time per 1 °C)**
	m^3 – | +	**Adaption of integral action time (volume adaption)**
	– | +	**Adaption of control gain (adaption of heat output)**

Temperature setpoints

In the automatic operating modes, 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.

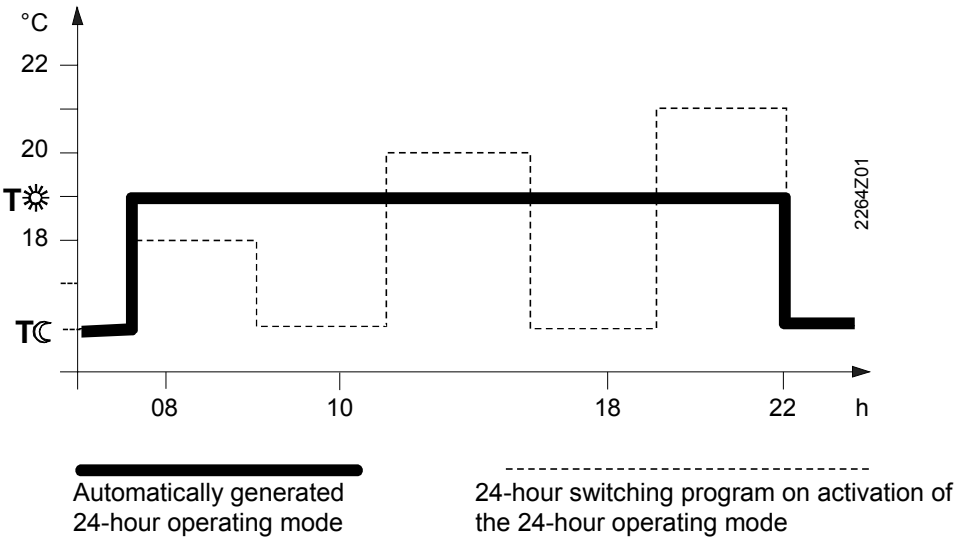
Protective function

In frost protection mode, the room temperature is constantly monitored. If it falls below the adjusted setpoint, heating is switched on to maintain the adjusted frost protection setpoint temperature T.

24-hour operating mode

The controller generates the 24-hour operating mode from the current 24-hour program. It automatically selects the switch-on time of the first heating period and the switch-off time of the last heating period to generate and display a complete heating period. The comfort temperature used by the controller is the currently stored standard setpoint of the continuous operating mode. The self-generated 24-hour operating mode is maintained until another operating mode is selected.

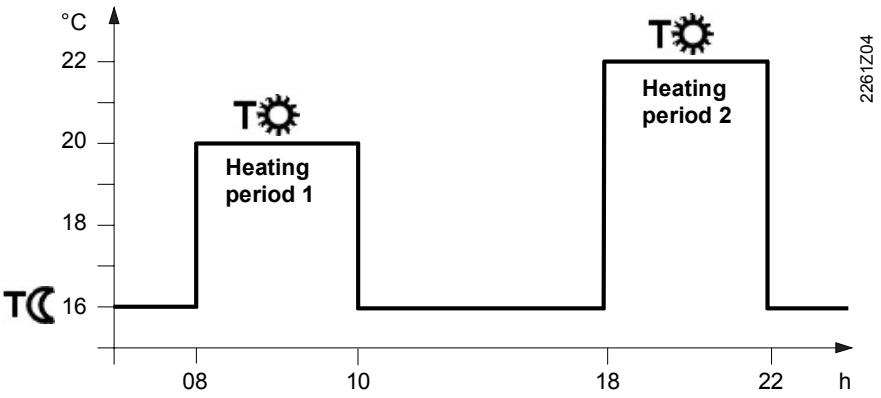
Example



Switching program

The switching program is used as the 24-hour program. It is also possible to select one of the continuous operating modes ☼ ☾ ⏻ with which the switching program is not used.
With the 7-day switching program, it is possible to program all days individually, the working days (1-5), the weekend (6-7), or the entire week (1-7).
Each time a heating period is programmed, 3 different switching patterns are available. There is a choice of 1, 2 or 3 heating periods.
For each heating period, the start time, end time and comfort setpoint are to be entered. In between heating periods, it is always the same economy temperature setpoint that is used. This economy temperature setpoint can be adjusted on the temperature menu.

Example with 2 heating periods per day

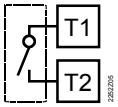
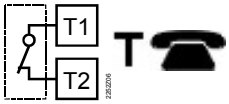


Holiday function

The holiday function is to be selected on the user menu. Set the start of the holiday period (day of departure / 1 2 3 4 5 6 7 ▲▲▲▲▲ ▲▲ / day of week), the duration and the temperature setpoint (T💼) during your absence. This will enable the controller to maintain the required temperature for a period of up to 99 days. Every midnight, the counter subtracts one day.
When the holiday period is over and the counter reads 00, the controller will resume the operating mode selected last.

Remote operation

Using a suitable remote operating device, the controller can be switched to an independently adjustable economy temperature T☎. The changeover is accomplished by the making of a potentialfree contact connected to terminals T1 and T2. In that case, symbol ☎ will appear on the display. When the contact opens, the operating mode selected last will be resumed.

Operation according to the setting made on the controller	Continuously remote operation economy temperature
	

Remote operating devices

Suitable remote operating devices:
telephone modem, manual switch, window switch, presence detector, central unit, etc.

Factory settings

		Switching times						Temperatures in ° C						
Operating mode	Block / week-days	1st heating period		2nd heating period		3rd heating period		1st heating period	2nd heating period	3rd heating period	T☾	T⏻	T☎	T💼
Auto	1-5 Mo-Fr	06.00	08.00	11.00	13.00	17.00	22.00	19	20	21	16			
	6-7 Sa-Su	07.00	23.00					19			16			
☀	1-7 Mo-Su	00.00	24.00					19						
☾	1-7 Mo-Su	00.00	24.00								16			
⏻	1-7 Mo-Su	00.00	24.00									5		
☎													10	
💼	Absence													12

Factory settings heating engineer level

Setpoint limitation °C 5..29

Optimum start control h/°C opti 1/4

Integral action time (volume adaption) for medium controlled systems m^3 – | +

Control gain (adaption of heat output) for normally sized heat output – | +

Heating engineer level

Accessing

To access the heating engineer level, keep the warmer and colder buttons depressed and simultaneously roll the roller selector away from the display and then toward the display.

Sensor calibration
CAL

If the displayed temperature does not correspond to the effective room temperature, 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).

Limitation of setpoint

°C 5..29 | 16..29

Minimum setpoint limitation of 16 °C prevents undesired heat transfer to neighboring apartments in buildings with several heating zones.

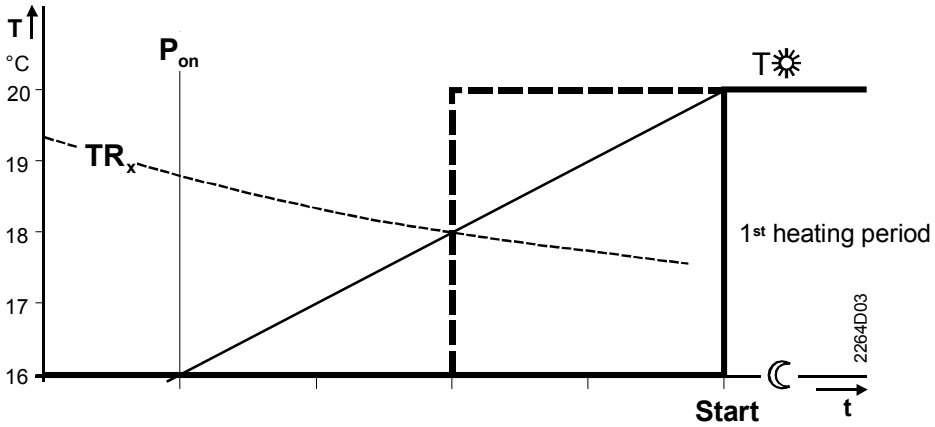
Optimum start control

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 desired 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 with an actual room temperature of 18 °C and a setpoint of 20 °C:



1h/°C	- 4 h	- 3 h	- 2 h	- 1 h	(slow controlled system)
1/2h/°C	- 2 h	- 1½ h	- 1 h	- ½ h	(medium controlled system)
1/4h/°C	- 1 h	- ¾ h	- ½ h	- ¼ h	(fast controlled system)
Optimum start controll Off					(no impact)

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

The REV33 is a 3-position controller providing PI mode. Modulating room temperature control is accomplished through the control of an electric actuator.

The controller generates the positioning signals depending on the deviation of the adjustable setpoint from the actual value acquired by the built-in temperature sensor. By changing the integral action time and the control gain, the control can be matched to the type of controlled system.

Important

To ensure optimum control, an actuator running time of **120...150 seconds** is mandatory. This is to be considered when selecting the actuator.

Volume adaption

On the heating engineer level, the integral action time can be selected as follows:

m³ - | + Normally sized controlled system (factory setting):
For normal rooms, normal radiators (steel pipe radiators) and buildings with average insulation.

m³ - Fast controlled system:
For small rooms, light radiators (plate radiators), well insulated buildings or fan coils.

m³ + Slow controlled systems:
For large rooms, heavy radiators (cast iron radiators), poorly insulated buildings and large masses.

Adaption of heat output

On the heating engineer level, the control gain can be selected as follows:

 Normally sized heat output (standard)

 Oversized heat output:
For high boiler / flow temperatures, oversized radiators (surface) and oversized volumetric flow (nominal valve size).

 Undersized heat output:
For low boiler / flow temperatures, too small radiators (surface) and too small volumetric flow (nominal valve size).

Reset functions

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 (the heating engineer settings will not changed). The clock starts at 12:00. During the reset time, all sections of the display light up, 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 this reset, all **factory settings** will be reloaded (also refer to section “Factory settings“).

After every reset the controller starts to an initialization phase of 180 seconds. During this phase, the actuator is driven to its fully closed position.

Important: The actuator reaches the fully closed position within a maximum of 150 seconds. After every reset the controller must be slid back onto its base **within 30 seconds**.

Mechanical design

Battery change

About 3 months before the batteries are exhausted, the battery symbol  appears on the display, but all functions will be fully maintained. When changing the batteries, the current data will be retained for a maximum of 1 minutes.

Controller

The REV33 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 1.5 V alkaline batteries type **AA** in the compartment at the rear of the controller.

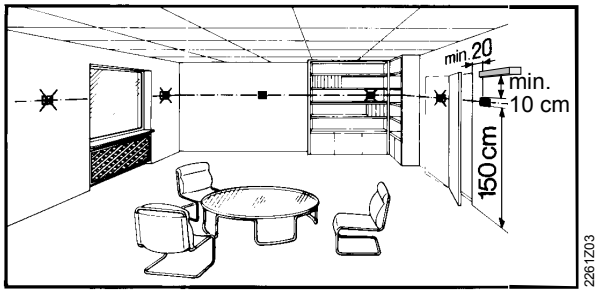
Base

The base can be fitted to to most commercially available recessed conduit boxes or directly on the wall for wiring. The base only houses the terminals for the electrical connection between the controller and connected devices. The entire electronics (including both relays with potentialfree N.O. contacts) are accommodated in the controller.

Notes

Engineering

- The room temperature controller should be fitted in the main living room
- The place of installation should be chosen such that the sensor can capture the room temperature as accurately as possible, without being affected by direct solar radiation or other heating or cooling sources
- Mounting height is approximately 1.5 m above the floor
- The controller can be fitted to most commercially available recessed conduit boxes or directly on the wall
- Above the unit, there must be sufficient clearance for removing the controller from its base and for replacing it



Mounting and installation

- When installing the controller, the base must first be fitted and wired. Then, the unit can be slid onto the base from above
- For more detailed information, please refer to the installation instructions supplied with the controller
- For the electrical installation, the local safety regulations must be complied with
- To remote operation contact T1 / T2 must be wired separately using a separate screened cable

Commissioning

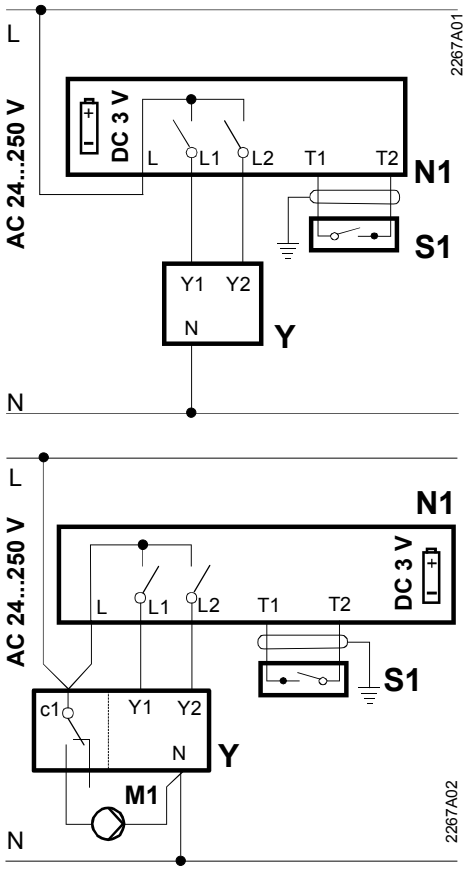
- The battery transit tab, which prevents inadvertent operation of the controller during transport and storage, must be removed
- The control mode can be changed on the heating engineer level
- If the reference room is equipped with thermostatic radiator valves, they must be set to their fully open position
- If the displayed room temperature does not correspond to the effective room temperature, the temperature sensor should be recalibrated (refer to “Sensor calibration”)

Technical data

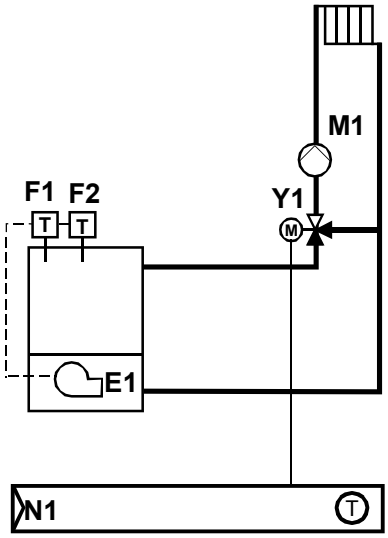
General unit data	Operating voltage	DC 3 V
	Batteries (alkaline AA)	2 x 1.5 V
	Battery life	approx. 2 years
	Backup for batter change	max. 1 min
	Switching capacity of relay	
	Voltage	AC 24…250 V
	Current	6 (2.5) A
	Safety class	II to EN 60 730-1
	Sensing element	NTC 10 kΩ ±1 % at 25 °C
	Measuring range	0…50 °C
	Time constant	max. 10 min
	Setpoint setting ranges	
	Normal temperature	5…29 °C
	Economy temperature	5…29 °C
	Frost protection temperature	5...29 °C (factory setting 5 °C)
	Resolution 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
Norms and standards	CE conformity	
	Electromagnetic compatibility	89/336/EEC
	Low voltage directive	73/23/EEC

	C-Tick	N474
Product standards	Automatic electrical controls for household and similar use	EN 60 730-1
	Electromagnetic compatibility	
	Immunity	EN 50082-1
	Emissions	EN 50081-1
Environmental conditions	Operation	
	Climatic conditions	class 3K3 to IEC 60 721-3
	Perm. ambient temperature	5...40 °C
	Humidity	< 85 % r.h.
	Storage and transport	
	Climatic conditions	class 2K3 to IEC 60 721-3
	Ambient temperature	-25…+70 °C
	Humidity	< 93 % r.h.
	Mechanism	class 2M2 to IEC 60 721-3
Weight	Incl. package	0.34 kg
Color	Housing	signal-white RAL9003
	Base	grey RAL7038
Size	Housing	140x104.5x30 mm

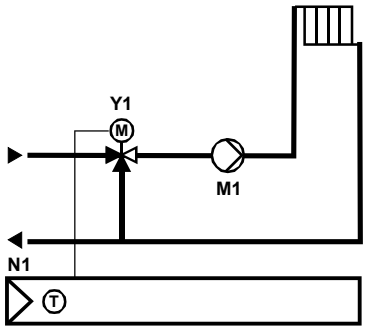
Connection diagram



c1	Auxiliary switch		
L	Live, AC 24…250 V	S1	Remote operating device (poentialfree)
L1	N.O. contact, AC 24…250 V / 6 (2.5) A	T1	Signal “remote operation”
L2	N.C. contact, AC 24…250 V / 6 (2.5) A	T2	Signal “remote operation”
M1	Circulating pump	Y	Actuating device
N	Neutral conductor	Y1	Positioning signal “open”
N1	Room temperature controller REV33	Y2	Positioning signal “close”



Instantaneous water heater



Zone valve

E1	Burner
F1	Limit thermostat
F2	Safety limit thermostat
M1	Circulating pump
N1	Room temperature controller REV33
Y1	Motorized 3-port valve

Dimensions