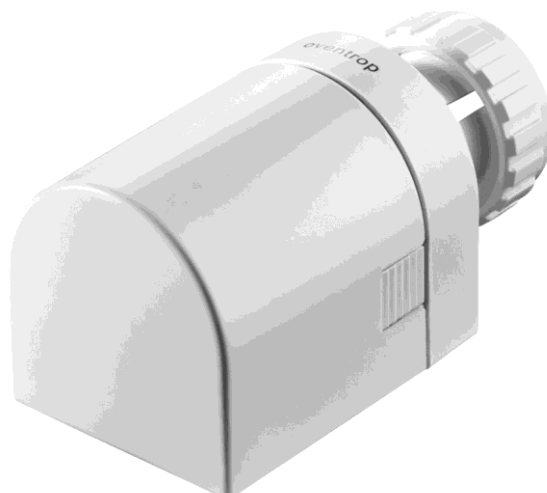




“R-Tronic”
Climate display device/control



Thank you for purchasing this **wireless thermostat**. Please check the delivery for completeness. It consists of the following components (depending on the ordered model):

“R-Tronic RT B “ (Temperature)



Battery operation
(Item no.: 1150680)

“R-Tronic RTF B “ (Temperature / Air humidity)



Battery operation
(Item no.: 1150681)

“R-Tronic RTFC K” (Temperature / Air humidity / CO₂)



Flush-mounted power pack with wall bracket
(Item no.: 1150682)

“R-Tronic RTFC K” (Temperature / Air humidity / CO₂)



Mains adaptor with table stand
(Item no.: 1150684)

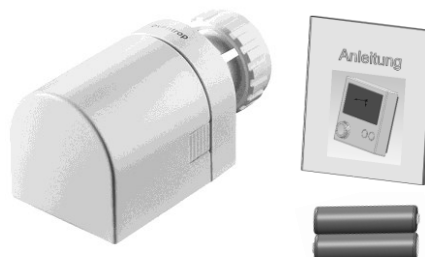
Wireless actuator “mote 320”

Battery operation
Valve connection **M30 x 1.5**



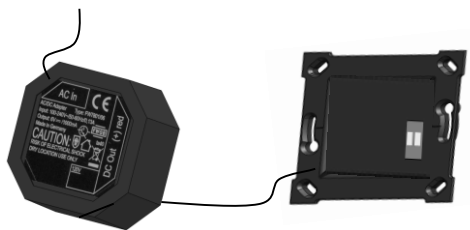
(Item no.: 1150665)

Wireless actuator “mote 320” Battery operation Squeeze connection



(Item no.: 1150675)

Accessories (optional)



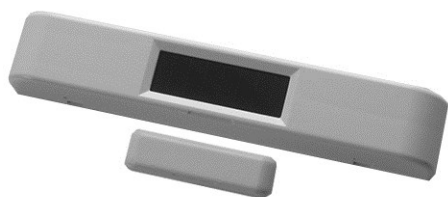
Flush-mounted power pack with wall bracket
(Item no.: 1150692)

optional for the models
“R-Tronic RT B” / “R-Tronic RTF B”

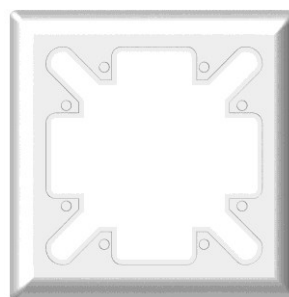


Mains adaptor with table stand
(Item no.: 1150694)

optional for the models
“R-Tronic RT B” / „R-Tronic RTF B”



Window contact
(Item no.: 1153070)



Cover frame 88x88 mm
(item no. 1150693)

i Note regarding storage and packaging

The following instructions regarding storage of the climate display device/control, actuator and optional accessories must be observed:

- Do not store the components in open air, keep dry and free from dust.
- Do not expose to aggressive fluids or heat sources.
- Protect from direct sunlight and mechanical agitation.
- Storage temperature: -10°C...+65°C
- Max. relative air humidity: 70% RH (“relative humidity”)
- Packaging material is to be disposed of environmentally friendly.
- Keep the packaging material out of reach of children.

1	General information	6
2	Safety notes	7
2.1	Correct use	7
2.2	Residual risks and fundamental dangers	7
2.3	Warnings and their meaning	8
2.4	High-frequency emissions of wireless sensors	8
3	Product description	9
3.1	Summary	9
3.2	Technical data	12
3.3	Note regarding declaration of conformity	13
3.4	General conditions of sales and delivery	13
4	Installation and initial operation	14
4.1	General installation advice	14
4.2	Wall attachment of fixing plate "R-Tronic RT B / RTF B" (battery operation)	15
4.3	Wall attachment fixing plate with flush-mounted power pack (type "RTFC K")	16
4.4	Installation with table stand and mains adaptor	17
4.5	Installation of the wireless wireless actuator "mote 320"	18
4.6	Creation of the radio communication "R-Tronic" and actuator	20
4.6.1	Setting language, date and time	20
4.6.2	Adaptation of the wireless actuator „mote 320“ to the "R-Tronic"	21
4.7	Calibration of the actuator ("adjustment run")	24
4.8	Window contacts (accessory): "Teach in" process and installation	25
4.9	Standard heating profiles and temperature setting	28
4.9.1	Switching between different heating profiles	28
4.9.2	Setting of the required temperature via NOMINAL SETTING	30
5	Operation and menu structure of the "R-Tronic"	31
5.1	Menu "Time profile"	32
5.2	Menu "Temperatures"	37
5.2.1	Setting of the general temperature range	38
5.3	Menu "Functions"	39
5.3.1	BOOST (rapid heating)	39
5.3.2	Vacation function (setback temperature during absence)	40
5.3.3	"Party mode" (required temperature during a defined period)	41
5.3.4	Child-proof lock (operation lock)	42
5.3.5	Valve protection	42
5.4	Menu "Settings"	43
5.4.1	Installation (radio communication "R-Tronic" / wireless actuator „mote 320“)	43
5.4.2	Date and time	44
5.4.3	Language	45
5.4.4	Default view display	45
5.4.5	OFFSET TEMPERATURE control	45
5.4.6	Summer-/winter time	46
5.4.7	Display lighting (ON/OFF)	46
5.4.8	Assignment of the room designation to the "R-Tronic"	46
5.4.9	Factory settings "R-Tronic" and wireless actuator „mote 320“	47
5.4.10	Reset (only "R-Tronic")	47
5.5	Menu "Room climate" (only "R-Tronic RTFC K")	48
5.6	Menu "Information"	49
5.7	Battery replacement "R-Tronic" / wireless actuator „mote 320“	51
6	Disposal	54
7	Display notes and error messages	55
8	Schematic menu overview	58
9	Air humidity and "comfort diagram"	59
10	Illustration index	60

1 General information

These installation and operating instructions refer to the different models of the Oventrop product “R-Tronic” and the associated radio controlled radiator actuator “mote 320”. The installation and operating instructions which are intended for **installers** and **final consumers** serve to install the wireless room controllers “R-Tronic T”, “R-Tronic TF” and “R-Tronic TFC” professionally, to put them into operation and to use them correctly. The same applies for the optional accessories.

NOTE

Read installation and operating instructions in their entirety before installing the wireless thermostats “R-Tronic RT B”, “R-Tronic RTF B” or “R-Tronic RTFC K” and their accessories. This will allow an (energy) efficient use of the product.

Please also take note of the brief instruction supplied with the product.

Advice for installers: The installation and operating instructions as well as all other valid documents have to be handed over to the final user.

This documentation has to be **kept** for later reference and has to be handed over to the new owner in case of resale.

The installation and operating instructions are copyrighted!

Please contact your specialist heating company or the company Oventrop if malfunctions or further questions occur.

Manufacturer and contact

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D-59939 Olsberg

Technology hotline

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Fax: +49 (0) 29 62 82-602
Mobile box: +49 (0) 29 62 82-333

E-Mail: hotline@oventrop.de

2 Safety notes

2.1 Correct use

Safety in operation is only guaranteed if the climate display device/control **“R-Tronic”** and the actuator **“mote 320”** are used correctly. The product combination is used for the radio-based control of radiators and thus for temperature control of individual rooms or temperature zones in a room. Moreover, the wireless thermostat **“R-Tronic RTF B”** measures the air humidity and the **“R-Tronic RTFC K”** additionally measures the CO₂ value (as recommendation for window airing). Please observe that only Oventrop accessories (power packs etc.) must be installed. Any use of the wireless controllers **“R-Tronic RT B”**, **“R-Tronic RTF B”** and **“R-Tronic RTFC K”** and the **actuator** outside the above applications will be considered as non-compliant and misuse.

Claims of any kind against the manufacturer and/or his authorised representatives due to damages caused by incorrect use can not be accepted.



2.2 Residual risks and fundamental dangers

Even though the product combination **“R-Tronic”** and the associated wireless actuator **„mote 320“** is in accordance with the latest technical status and the approved safety rules and regulations, dangers do still exist. For this reason, the following safety notes must be observed.

- The flush-mounted power pack (see page 16) has to be connected to the 230 V network. Connection must only be carried out by a qualified electrician. Switch off current supply before cabling!
- The occupational health and accident prevention regulations must be observed during installation.
- Avoid dangers from electricity, mechanical risks, risk of fire and thermal dangers at hot surfaces.
- The controller and the actuator must only be installed in dry, closed rooms.
- Provide protective equipment (safety gloves and similar) during installation, if required.
- Keep small components and accessories out of reach of children (risk of ingestion).
- Avoid risk of scalding at the radiator caused by excessive flow temperatures.
- Please observe that excessive room temperatures may cause health problems (cardiovascular problems or similar).
- Avoid frost damages caused by too low flow temperatures.
- Please avoid any contact with the products if allergies against the used material (metal or similar) are known.

2.3 Warnings and their meaning

This manual shows warnings for a safe installation and operation of the product, especially at text passages with action-related information. These warnings must be observed to avoid accidents, damage to property and malfunctions. The below hazard classification is, amongst others, based on the ISO 3864 standard and the international ANSI standard Z535.6.

DANGER

Warning symbol and signal are indicating a dangerous situation with high risk which will lead to death or serious injury if not avoided.

WARNING

Warning symbol and signal are indicating a dangerous situation with moderate risk which may lead to death or serious injury if not avoided.

CAUTION

Warning symbol and signal are indicating a dangerous situation with low risk which may lead to minor or moderate injury or damage to property if not avoided.

NOTICE

Signal word (without warning symbol) indicating a possible damage to property.

2.4 High-frequency emissions of wireless sensors

Under normal conditions (use in residential areas), the use of this product **does not constitute a hazard to health**. The high-frequency emissions of wireless switches and sensors with wireless technology are much lower than the emissions of conventional switches with also emit electromagnetic fields. **Please observe that special regulations and standards apply for the medical sector (e.g. hospitals).** The “R-Tronic” with the wireless actuator „mote 320“ is not suitable for use in the medical sector.

3 Product description

3.1 Summary

The climate display device/control “R-Tronic” and the wireless actuator „mote 320“ is used for the radio controlled temperature control of rooms or zones in a room. Depending on the model, the “R-Tronic” is powered by two batteries, a flush-mounted power pack or a mains adaptor (100-240 V ~/50-60 Hz).

“R-Tronic” models:

- **“R-Tronic RT B”:** **temperature control** only, battery operated by default, power supply can also be carried out via a flush-mounted power pack or a mains adaptor which are available as optional accessory (item no.: 1150692 or 94).
- **“R-Tronic RTF B”:** **Temperature control with air humidity measurement**, battery operated by default, power supply can also be carried out via a flush-mounted power pack or a mains adaptor which are available as optional accessory (item no.: 1150692 or 94).
- **“R-Tronic RTFC K”:** **Temperature control with air humidity and CO₂ measurement**, powered by a flush-mounted power pack or a mains adapter.

The communication between the “R-Tronic” and the wireless actuator „mote 320“ for the control of the radiator is wireless.

Up to 3 actuators can be connected to a battery-operated “R-Tronic” and up to 8 actuators to a mains-operated “R-Tronic”.

Application showing room temperature control with “R-Tronic” and actuator.

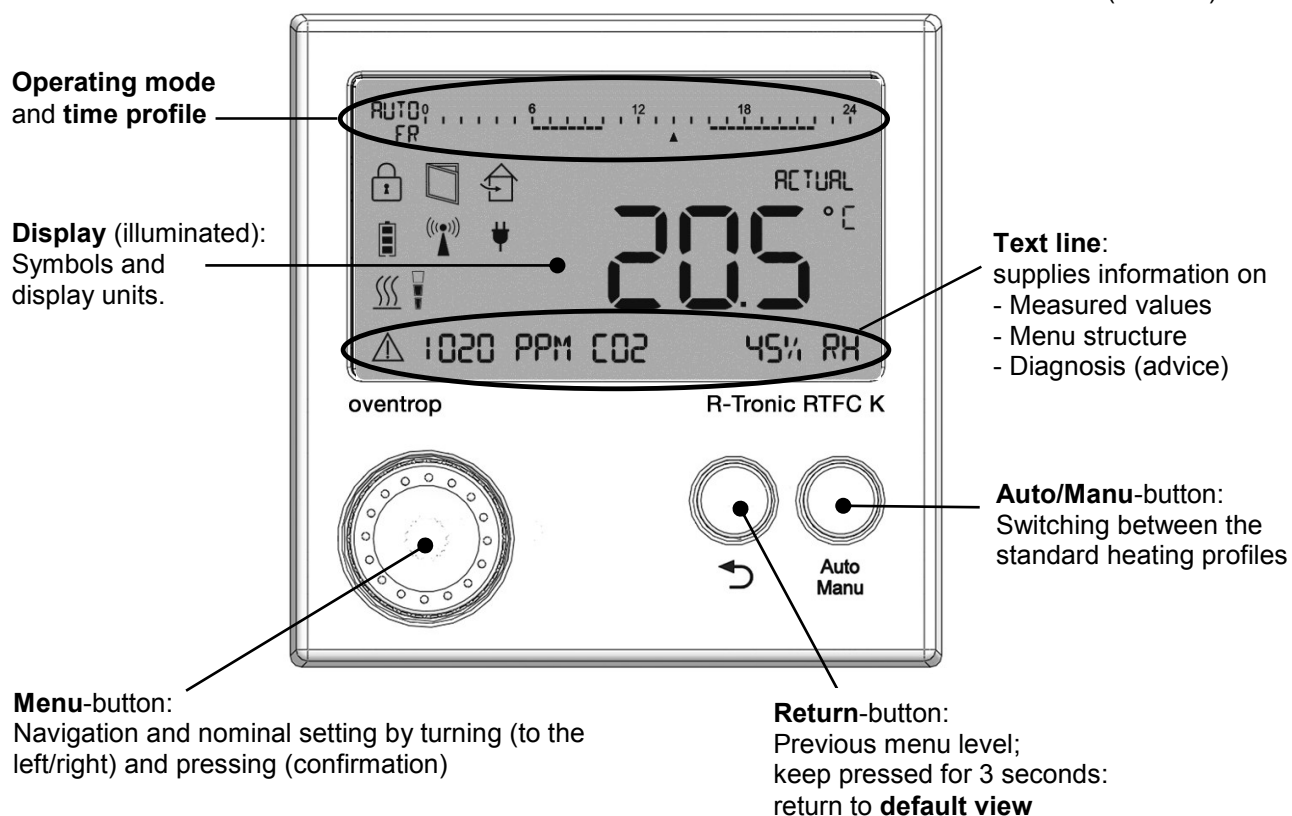


(Illustr. 1)

To guarantee a room temperature control according to the given set value, the actuator always has to be **“teached in”**, i.e. it has to be adapted to the wireless room controller. The technical term “teach in” describes the **creation of a radio connection** between two devices.

Summary “R-Tronic”

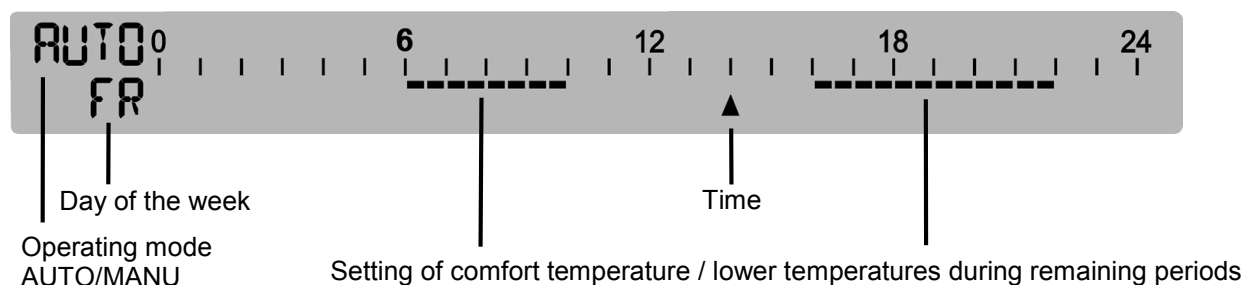
(Illustr. 2)



Explanation of the display symbols

	Child-proof lock activated		Recommendation for room ventilation (only “R-Tronic RTFC K”)
	Window open (sensor controlled)		Wireless control active (at least one “teached in” actuator)
	Battery status (fully charged, low, empty)		Current supply via external power pack
	Heating period/ Valve OPEN CLOSED		Important information in the menu (display of notes and error messages)

Time profile



i NOTE regarding display activation

Please observe that in the “R-Tronic” standard configuration **settings can only be carried out when the display is active or illuminated**. The display is activated by pressing one of the three buttons.

The radiator must be equipped with an electromotive actuator for the regulation of the heat output according to the required temperature (set value) set at the “R-Tronic”. The actuator receives and evaluates the corresponding control commands via a radio communication.

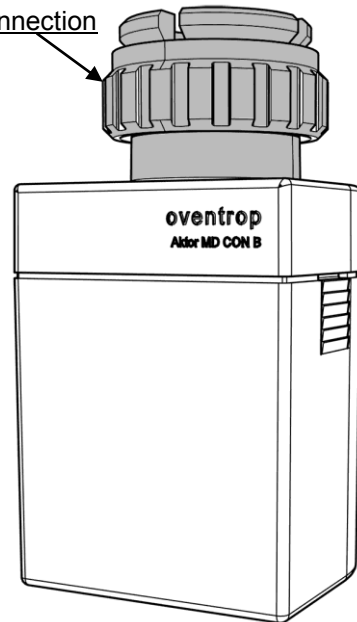
Exterior view of the wireless actuators

(Illustr. 3)

Wireless actuator “mote 320”
with Collar Nut M 30 x 1,5

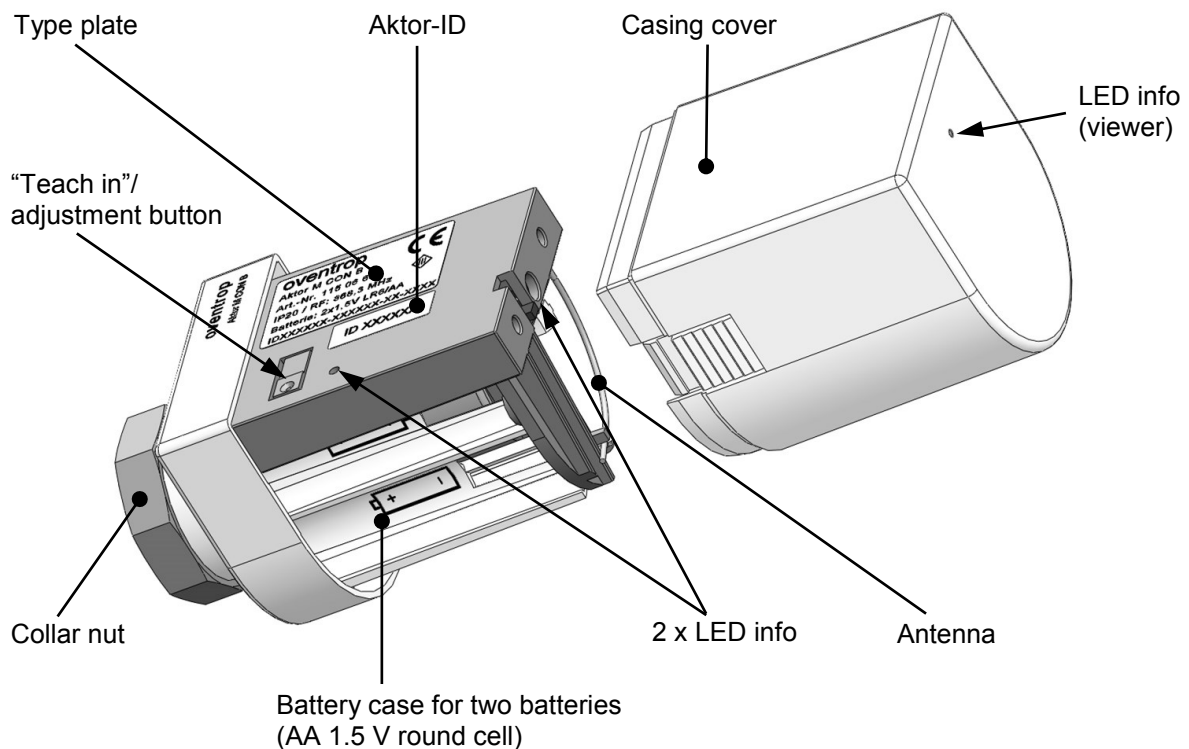


Wireless actuator “mote 320”
with Squeeze Connection



Internal view of the wireless actuator (this ex. wireless actuator „mote 320“)

(Illustr. 4)



3.2 Technical data

“R-Tronic” and wireless actuator „mote 320“

Radio frequency:	868.3MHz
Transmitting power max.:	10 mW
Radio range within the building:	Depending on materials and interference sources
Transmission interval:	150 seconds
Operation mode:	Type 1 (EN 60730-1)
Protection:	IP20 (EN 60529)
Protective system:	III - Protective low voltage

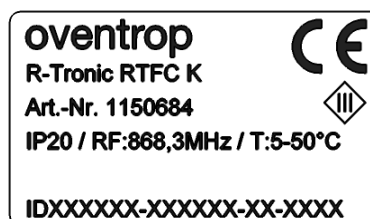
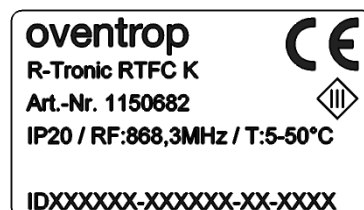
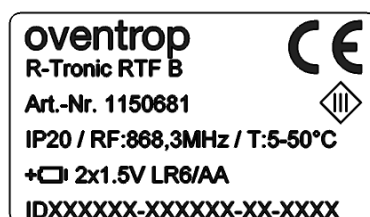
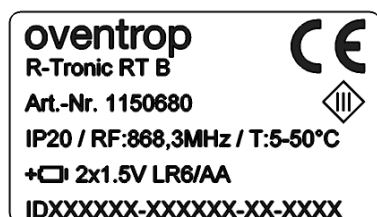
Ambient temperature: +5°C up to +50°C

For battery operation: Battery type AA 1.5 V Mignon LR6
Service life approx. 2 years

“R-Tronic RT B / RTF B / RTFC K”

Power supply:	“RTFC K” with external power pack (100-240V / 50-60Hz) “RT B”, “RTF B” battery operation, mains operation optional
Display:	LC display
Measuring range T (°C): Accuracy at +25°C:	+0°C up to +50°C ± 1 K
Measuring range RH (%): Accuracy at +25°C and 20-80 % RH:	0 up to 100% RH, only for “RTF B” and “RTFC K” ± 4,5% RH
Measuring range CO ₂ (PPM): Accuracy at +25°C and 1013 mbar: Temperature dependence: Long-term stability:	0 up to 2,000 PPM, only for “RTFC K” < ± 50 PPM +2% of measured value typ. 2 PPM CO ₂ /°C (0...50 PPM) typ. 20 PPM/a
Casing: Casing dimensions:	ABS (ASA), traffic white similar to RAL 9016 85 x 85 x 35 mm (W x H x D)

Type plates

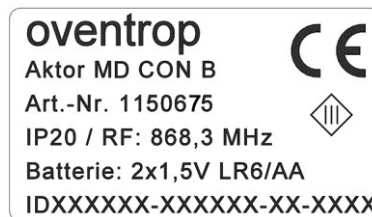
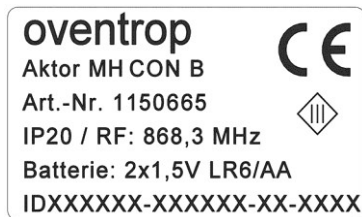


Subject to technical modification!

Wireless actuator „mote 320“

Power supply:	Battery operation (see above)
Casing:	ABS (ASA), traffic white similar to RAL 9016
Casing dimensions :	51 x 52 x 86 mm (W x H x D)
Connection thread:	M30 x 1.5 or Squeeze Connection
Operating power:	approx. 80 N
Maximum piston stroke:	4.0 mm
Weight:	approx. 160 g (without batteries)

Type plate



Colour codes of info LEDs and their meaning:

3x green (slowly) = “Teach in”/”Teach out” process or adjustment run successful

3x red (slowly) = “Teach in”/”Teach out” process or adjustment run unsuccessful

1x red (every 50 seconds) = Error message (e.g. batteries empty)

1x green (shortly) = “Teach in”/adjustment button pressed for at least 2 seconds

5x green (quickly) = “Stem” retracted successfully (for removal)

2x red and green alternately = Factory setting restored successfully

Red running = Adjustment run has not yet been carried out

Subject to technical modifications!

3.3 Note regarding declaration of conformity

The company OVENTROP GmbH & Co. KG hereby declares that the “R-Tronic” and wireless actuator „mote 320“ comply with the basic requirements and other relevant provisions of the guidelines **2014/53/EU** (RED).

The declaration of conformity can be obtained from the manufacturer.

3.4 General conditions of sales and delivery

Oventrops general conditions of sales and delivery valid at the time of supply are applicable.

4 Installation and initial operation

4.1 General installation advice

The climate display device/control “R-Tronic” should be installed at a location where a good circulation of air is guaranteed. If possible, the controller should be mounted onto an inner wall or a pillar at a height of 140 cm to 170 cm. Please make sure that the room controller is not affected by other heat sources (such as sunlight or heating devices next to it).

The controller unit cannot only be mounted onto a wall, but can also be placed on a **table stand** which is available as optional accessory for all models. The table stand should be set up freestanding, for instance on tables, sideboards or similar.

As the actuator is radio controlled by the respective “R-Tronic”, the following **advice regarding the radio range** must be observed:

The radio range can be impaired by spatial factors such as room geometry, existing objects, materials and interference sources and so-called radio-shadows, for instance behind metal objects, may develop.

Reduction of radio range compared with an unobstructed visual contact:

Material	Radio range reduction
Wood, gypsum, uncoated glass, without metal	0 - 10%
Brickwork, wooden or gypsum walls or walls made of pressboards	5 - 35%
Armoured concrete	10 - 90%
Metals	up to 100%

It might therefore become necessary to re-position the wireless room controller to guarantee an uninterrupted radio communication to the actuator. More detailed information can be found in chapter 4.6.

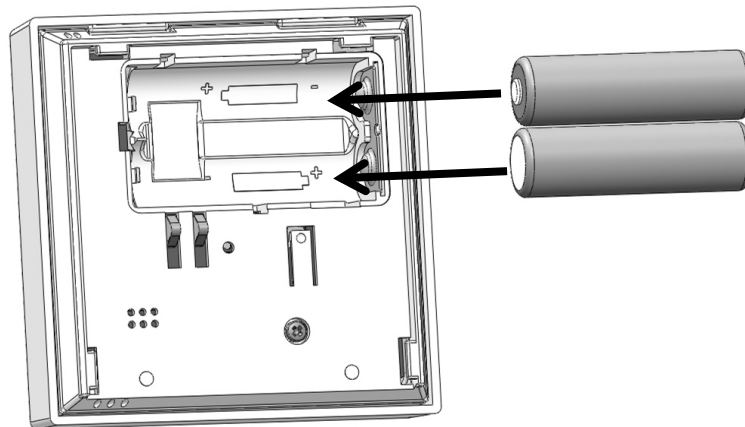
The battery operated wireless actuator „mote 320“ always has to be mounted onto the radiator valve. It must be easily accessible for battery replacement. The actuator connected to the radiator must not be covered (for instance with textiles).

4.2 Wall attachment of fixing plate “R-Tronic RT B / RTF B” (battery operation)

For the models “R-Tronic RT B” and “R-Tronic RTF B”, power is either supplied by **batteries**, a **flush-mounted power pack** or a **mains adapter with table stand** (available as accessories). The “R-Tronic RTFC K” is always operated with a flush-mounted power pack or a mains adaptor.

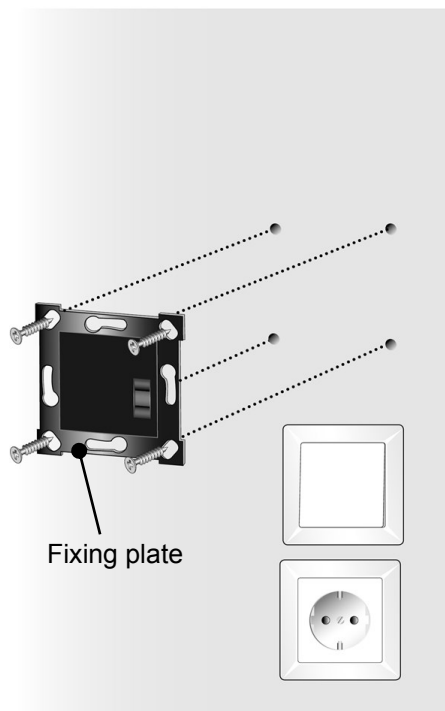
If the “R-Tronic” models “RT B” and “RTF B” shall be used for battery operation, i.e. for standard operation, please proceed as follows:

1. Insert two **AA 1.5 V Mignon** batteries into the battery case.
The position of the batteries is specified by the markings +/-.



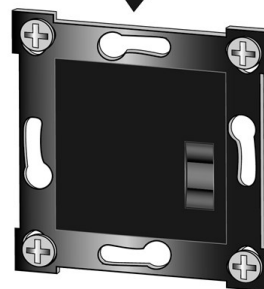
(Illustr. 5)

2. Screw the supplied **fixing plate** horizontally into the wall.
3. Insert the operating unit into the fixing plate from the top.



(Illustr. 6)

“R-Tronic RT B / RTF B”
(battery operation)



► The “R-Tronic” is now ready for the “teach in” process (see paragraph 4.6).

4.3 Wall attachment fixing plate with flush-mounted power pack (type “RTFC K”)

DANGER

Risk of electric shock!



As the flush-mounted power pack has to be connected to the current supply of the house, there is a risk of an electric shock.

- Installation of the flush-mounted power pack must only be carried out by a qualified electrician.

CAUTION

Risk of fire due to overcharging of the batteries!

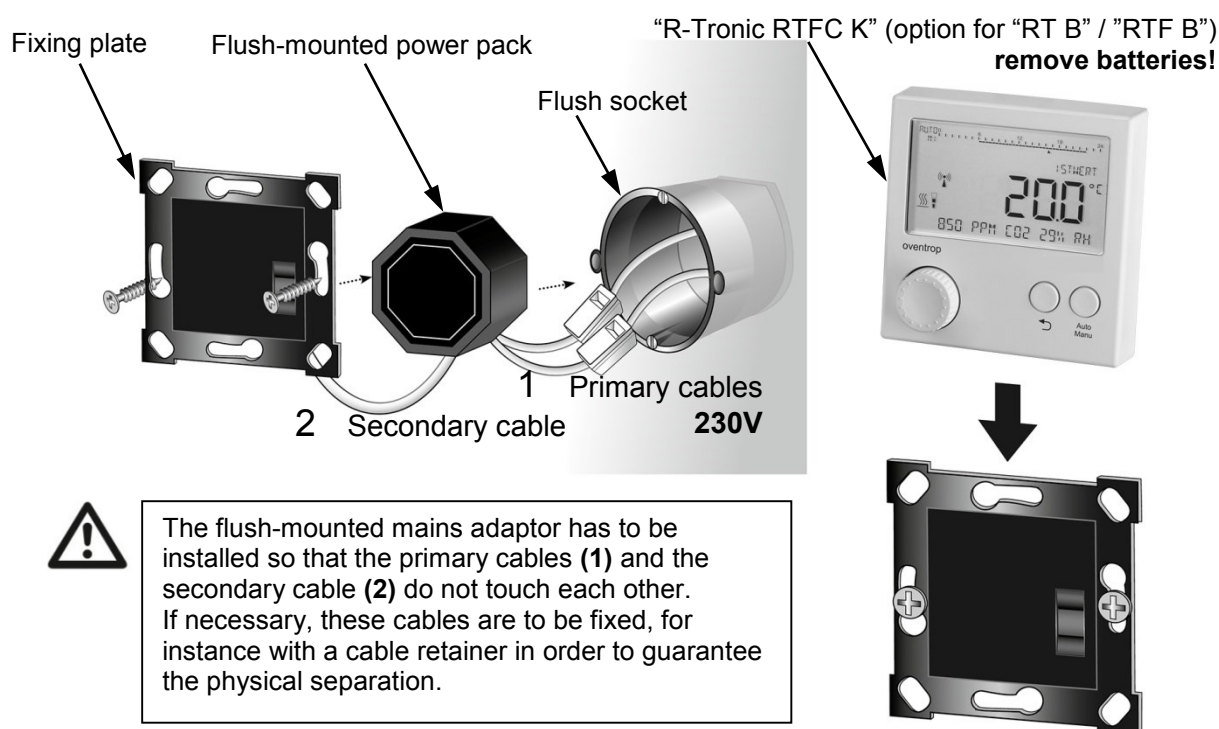


There is a risk of overcharging of the batteries (types “RT B” and “RTF B”) if the “R-Tronic” is equipped with batteries and is connected to the 230 V network via the flush-mounted power pack.

- The operating unit “R-Tronic” must never be equipped with batteries when using the flush-mounted power pack.

1. Switch off current supply **before** installation of the **flush-mounted power pack**.
2. Assemble the electrical connection between the flush-mounted power pack and the 230 V connection in the flush socket.
3. Screw the fixing plate to the flush socket.
4. Insert the operating unit into the fixing plate from the top.

(Illustr. 7)



- The “R-Tronic” is now ready for the “teach in” process (see paragraph 4.6).

4.4 Installation with table stand and mains adaptor

CAUTION

Risk of fire by short circuit!

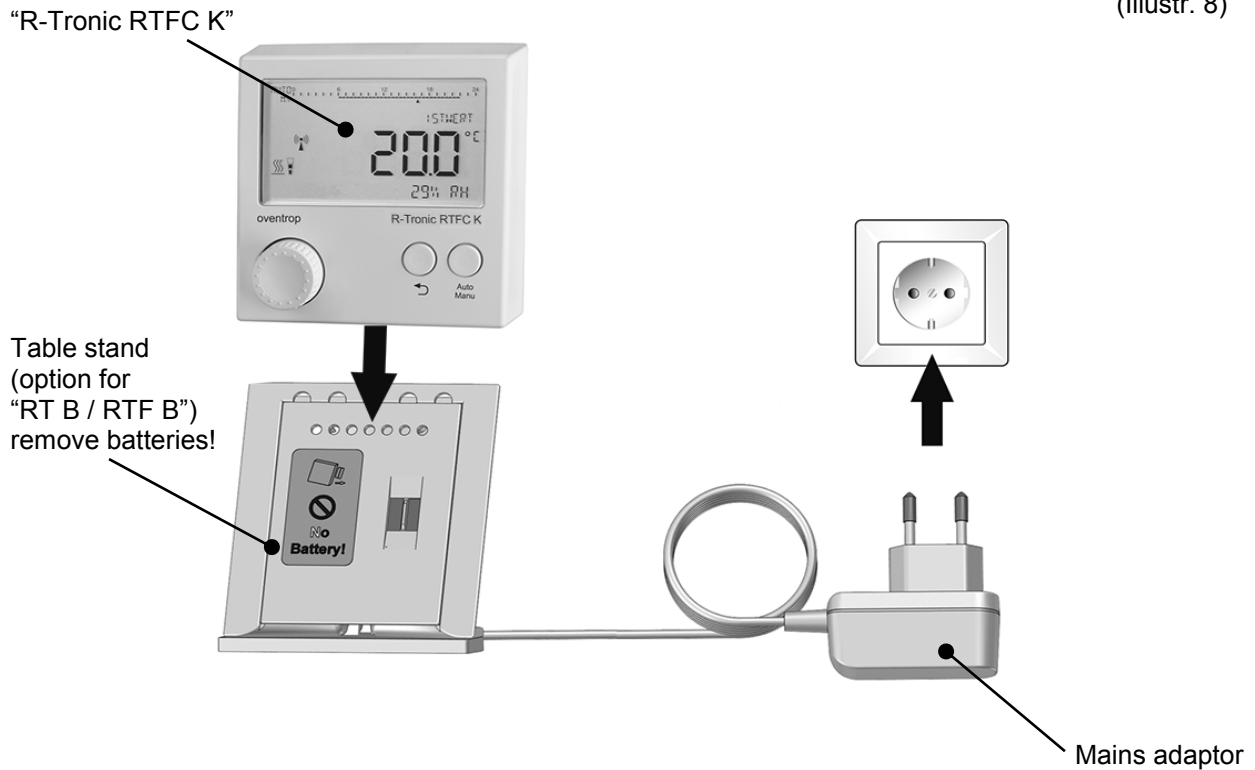


There is a risk of overcharging of the batteries (types “RT B” and “RTF B”) if the operating unit is equipped with batteries and is connected to the 230 V network via the table stand.

- The operating unit must never be equipped with batteries when using the mains adaptor with table stand.

1. Plug the mains adaptor which is connected to the **table stand** into a socket (100-240 V ~/50-60 Hz).
2. Insert the operating unit into the table stand from the top.

(Illustr. 8)



- The “R-Tronic is now ready for the “teach in” process (see paragraph 4.6).

i NOTE

The “R-Tronic” is removed by pulling it vertically upward out of the table stand.

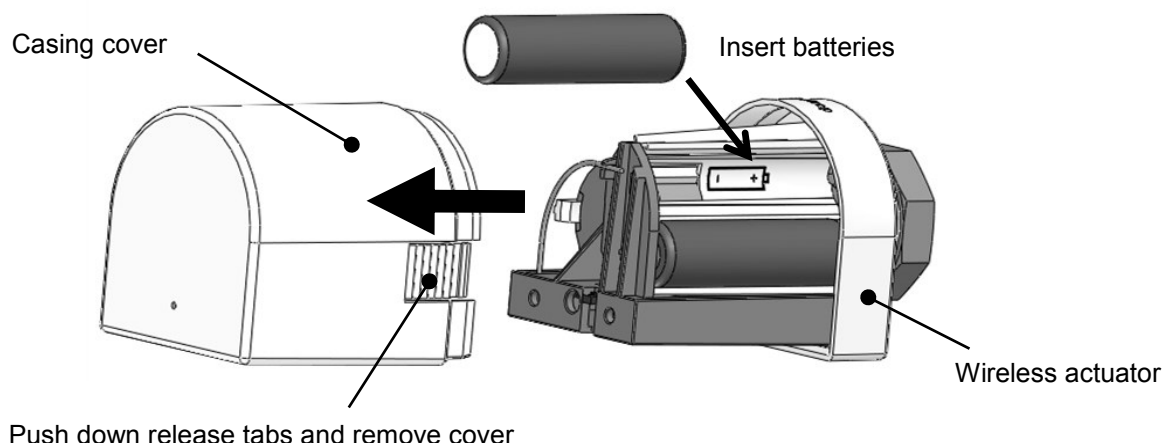
4.5 Installation of the wireless actuator wireless actuator „mote 320“

i NOTE

The **wireless actuator „mote 320“** can be fitted without adapter to integrated distributors and thermostatic radiator valves with **connection thread M 30 x 1.5**. An adapter set (item no. 1011445) for valves with connection thread M 30 x 1 is available from Oventrop. Keep a spanner (size 32) available for installation. The wireless actuator **“mote 320”** with Squeeze_Connection can be fitted without adapter to the integrated distributors and thermostatic radiator valves with squeeze connection of the company Danfoss, series RA and connection fittings VHS.

1. Remove the casing cover of the actuator by pushing down both release tabs and by removing the cover at the same time.
2. Insert two **AA 1,5 V Mignon** batteries into the battery case.
The position of the batteries is specified by the markings +/-.

(Illustr. 9)



3. Remove the mounted radiator thermostat by unscrewing it from the valve. This can be done without draining the system.

CAUTION

Risk of scalding at hot radiator!

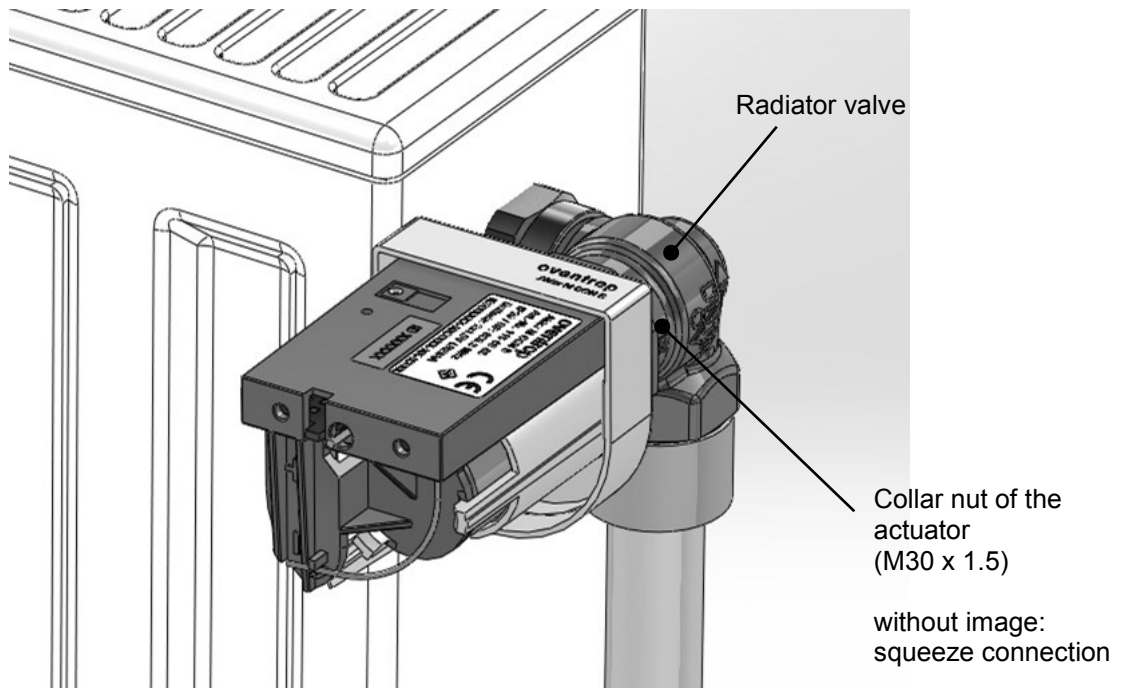


Whilst the radiator valve is open, hot water may pass through the radiator during installation.

- Wear safety gloves during installation, if required.

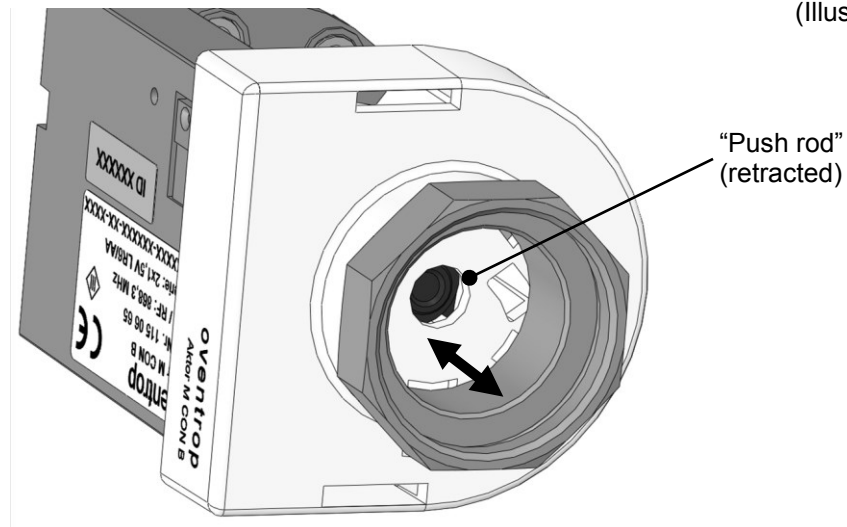
4. Screw the new automatic actuator without casing cover to the radiator valve. Tighten the collar nut with slight pressure.
It must be observed that the radiator valve is opened and closed by the actuator via a mobile **“push rod”** (see illustr. 11). When leaving the factory, the push rod is **retracted** to facilitate installation of the actuator.

(Illustr. 10)



- The wireless actuator is now ready for the “teach in” process.

(Illustr. 11)



i NOTE

The “push rod” (see illustr. above) may be **extended before installation** - for instance if the actuator has been mounted onto a radiator before.

The **installation position** can be restored (“push rod” retracted) by **pressing the “teach in”/adjustment button for at least 2 seconds**. The info LED will flash green quickly five times after this “adjustment run”.

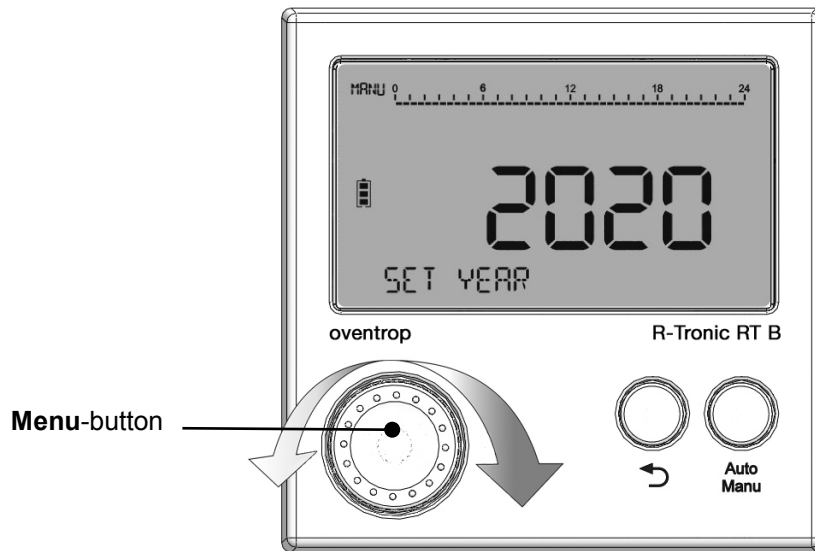
Press the “teach in”/adjustment button for at least 2 seconds before **removing** the actuator so that the “push rod” is retracted.

4.6 Creation of the radio communication “R-Tronic” and actuator

After having connected the operating unit “R-Tronic” and the actuator to the power supply, a **radio communication** between both components has to be created (the so-called “**teach in**” process).

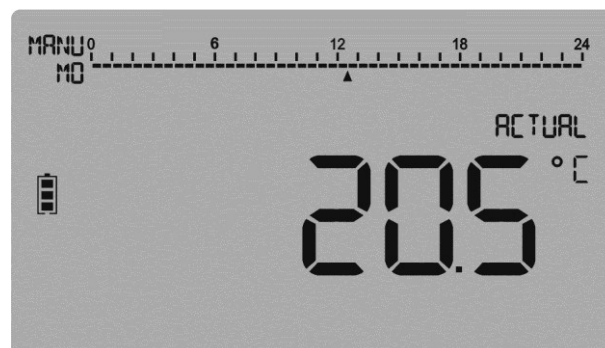
4.6.1 Setting language, date and time

After having connected the operating unit to the power supply, the **setting routine** for the **language** (see paragraph 5.4.3), **date** (year, month, day) and the current **time** (hours, minutes) will start automatically.



(Illustr. 12)

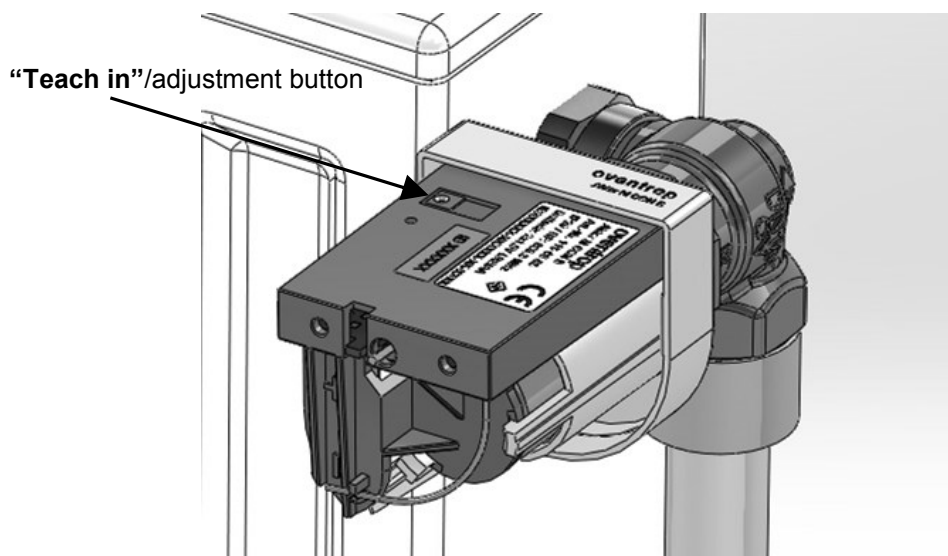
1. Set current date and time first. Select the setting parameter by turning the menu-button (to the left/right).
 2. Confirm each selection by pressing the menu-button once. The display will switch to the next selection field.
- After having set date and time, the **default view** with the current room temperature (ACTUAL VALUE) will be displayed.



(Illustr. 13)

4.6.2 Adaptation of the wireless actuator “mote 320” to the “R-Tronic”

1. Go to the main menu by pressing the menu-button for at least 1 second, until **TIME PROFILE** will be displayed.
2. Turn the menu-button to the right until **SETTINGS** will be indicated on the display.
3. Press the menu-button. **INSTALLATION** will be displayed.
4. Press the menu-button again. **TEACH IN** will appear on the display. Press the menu button again to start the “**teach in**” process. A running countdown of 30 seconds will be displayed.
5. Now the “**teach in**”/adjustment button at the actuator has to be pressed **quickly (!)** within this countdown. As there is normally a distance of several meters between the radiator or the actuator and “R-Tronic”, this should be done by a second person. This also enables you to keep an eye on the display.



(Illustr. 14)

6. The message **SUCCESS** which shortly appears on the “R-Tronic” display, signalsizes that the “teach in” process has been completed successfully and the following **radio symbol** will be displayed:



► The radio communication between the operating unit and the actuator is created.

7. After about 3 seconds, the message **SUCCESS** will be replaced by the message **TEACH IN**. If further actuators are used (a maximum of 8 is possible), they can also be connected to the operating unit via radio as described above. Confirm the selection **TEACH IN** by pressing the menu-button once and the next “teach in” process starts with the countdown.

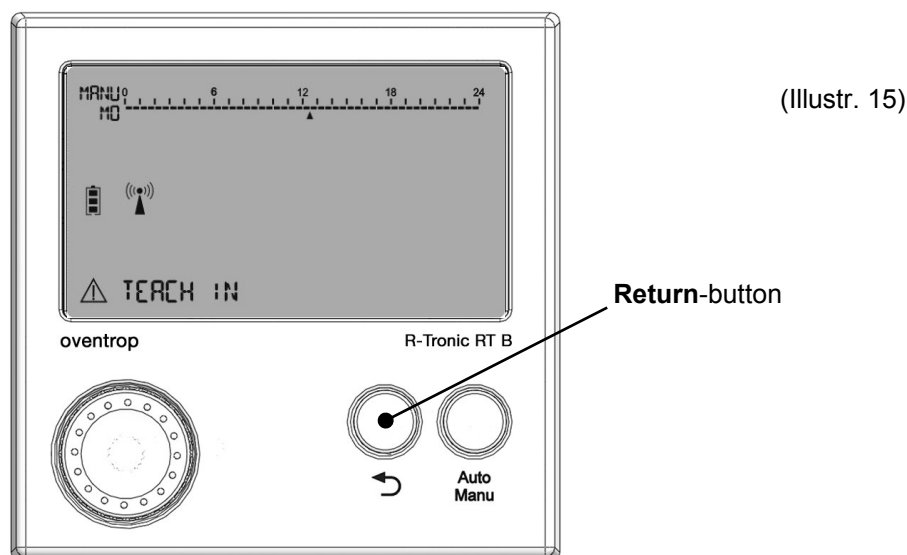
i NOTE of an unsuccessful “teach in” process

If you do not succeed in pressing the “teach in”/adjustment button of the actuator within the 30 seconds countdown (countdown expired before, no radio signal), **TEACH IN** will be displayed again. The “teach in” process may be repeated now.

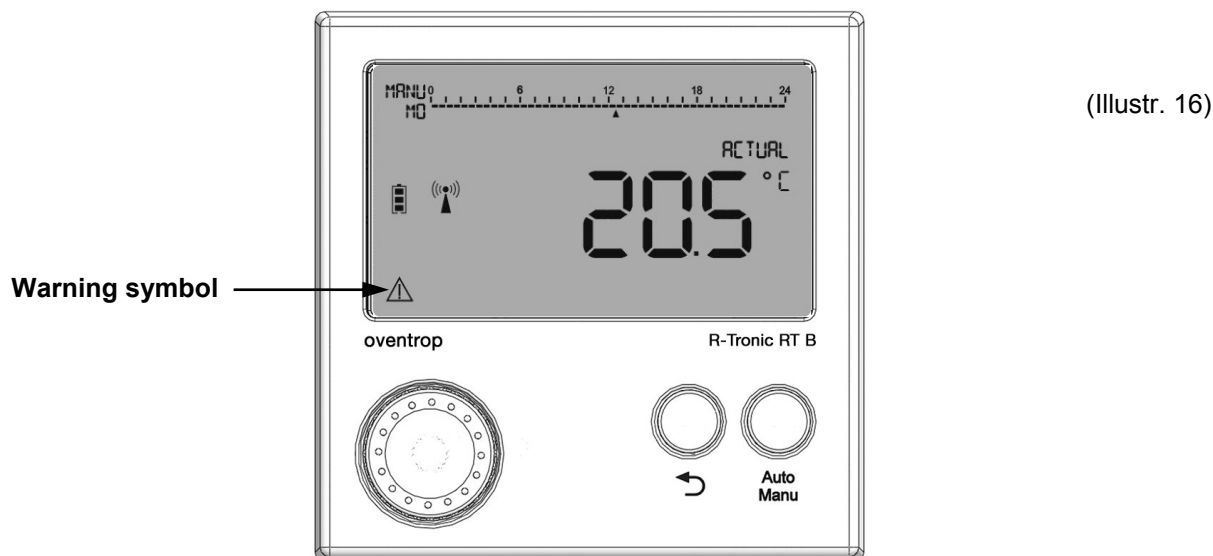
The “teach in” process may also fail if the radio communication is interrupted by spatial factors, such as room geometry, existing objects, materials and interference sources (see paragraph 4.1).

In this case, the “R-Tronic” should be installed at a different location and the “teach in” process should be repeated.

If you do not use further actuators, switch from the submenu **TEACH IN** to the default view displaying the current room temperature. Keep the **return**-button of the “R-Tronic” **pressed for about 3 seconds**.



The following display will appear:

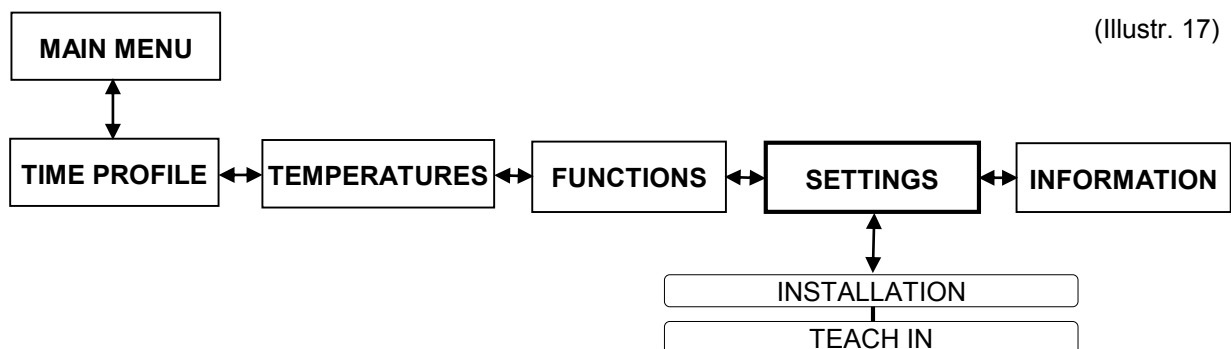


The **warning symbol** signalizes that the calibration respectively “adjustment run” of the actuator still have to be carried out (see following paragraph 4.7). The red info LED of the actuator flashes red continuously. It will only turn off after adjustment of the valve.

i NOTE regarding radio communication “R-Tronic”/actuator after having replaced the batteries

The “teach in” process does not have to be repeated after having replaced the batteries of the “R-Tronic”. The message **AKTOR SEARCH ACTIVE** which is displayed temporarily signalizes that the radio communication between the “R-Tronic” and the actuator has to be restored. This happens automatically and can take a few minutes.

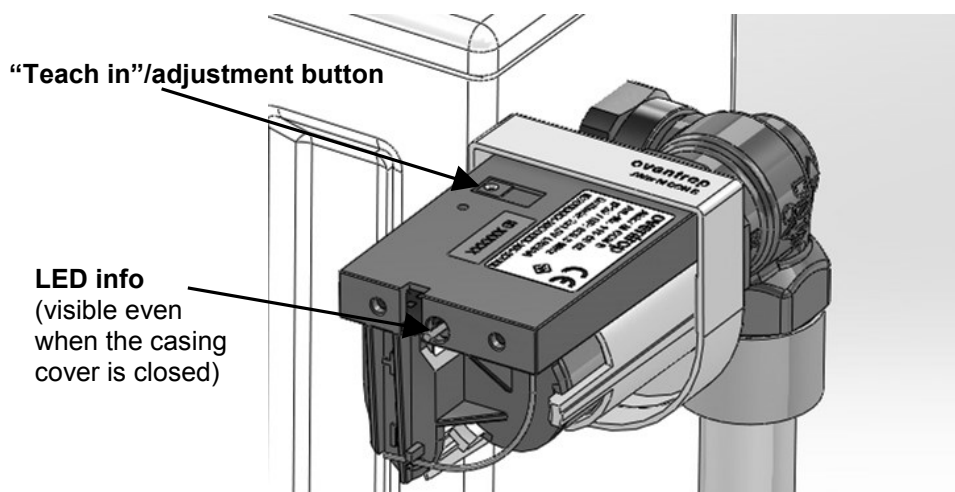
The following tree structure illustrates the menu path for the “teach in” process:



4.7 Calibration of the actuator (“adjustment run”)

After having created the radio communication successfully, the actuator has to be adjusted to the valve of your radiator. As the “Valve OPEN”/“VALVE CLOSED” position of radiator valves may vary slightly, the individual position of your radiator has to be determined by the actuator. This automatic process is called “adjustment run”.

1. Keep the **“teach in”/adjustment button pressed for at least 2 seconds** to launch the “adjustment run”. Now the valve will be closed by the actuator.



(Illustr. 18)

Completion of the process is signaled by a **triple green flashing** (slowly) of both LEDs. The **warning symbol** and the text line **DIAGNOSTIC FUNCTION** are no longer **displayed on the “R-Tronic”** and the following symbol informs you about the **operational readiness** of the actuator:



It must be observed that this display will appear for the first time **after the next transmission interval** (cycle: 150 seconds). It signals the start of the heating period according to the “R-Tronic” settings (radiator valve is opened again).

2. Mount the casing cover onto the actuator until it engages audibly. Although the actuator is firmly mounted onto the radiator valve, it may still be turned and aligned in any direction.
- The actuator is ready for operation now (carry out the “adjustment runs” for further actuators).

i NOTE regarding actuator calibration after having replaced the batteries

Apart from the error message showing that the “adjustment run” has not (yet) been carried out, the info LED at the actuator displays when the batteries must be replaced.

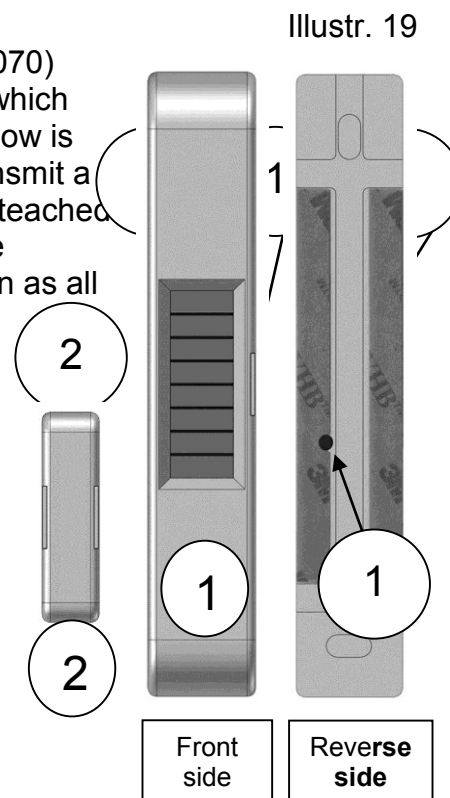
4.8 Window contacts (accessory): “Teach in” process and installation

! The wireless thermostat “R-Tronic” has to be **mains operated** for use of window contacts.

Wireless window contacts (type “FK-C F” item no. 1153070) allow for an automatic control of the wireless actuators which have been adapted to the “R-Tronic”. As soon as a window is tilted or opened completely, the wireless contact will transmit a signal to the wireless thermostat “R-Tronic” to close all “taught in” actuators (in the room). This will take some time. The wireless actuators will continue control operation as soon as all windows are closed again.

A window contact set consists of a **wireless sensor module (1)** and a **magnet (2)**. A **solar panel (1b)** supplies voltage to the module. For this reason, the window contacts should **not** be installed in rooms with **little or no solar radiation**.

- 1 Wireless sensor module**
 - 1a Notch
 - 1b Solar panel
 - 1c Adhesive strip for fixing at the window casing
 - 1d “Teach in” button (recessed)
- 2 Magnet**
 - 2a Notches



! Depending on the lighting in the room, the wireless window contacts may require 2 to 3 days to build up a basic charge after initial installation.

Each window contact has to be **adapted** to the “R-Tronic”.

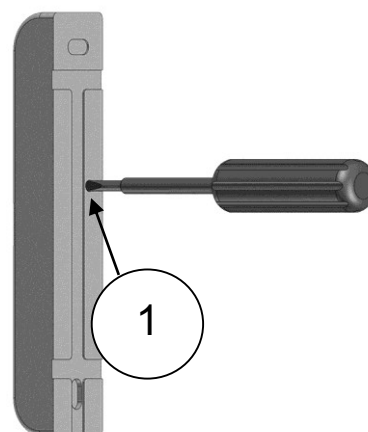
Steps 1-4 described under paragraph 4.6.2 need to be performed at the operating unit “R-Tronic” for this purpose.

A **running countdown of 30 seconds** will be displayed (**TEACH MODE**).



Now the **“teach in” button (1d)** at the window contact has to be pressed within this countdown. As the button is recessed on the reverse side of the casing, use a pointed object, such as a screwdriver or a paper clip.

The message **SUCCESS** which will shortly appear on the **“R-Tronic” display**, signalizes that the “teach in” process has been completed successfully.



! Each window contact has to be “teached in” before installation.

Installation on the window casing and frame

1. Tear off the adhesive strip on the reverse of the wireless sensor module (1).

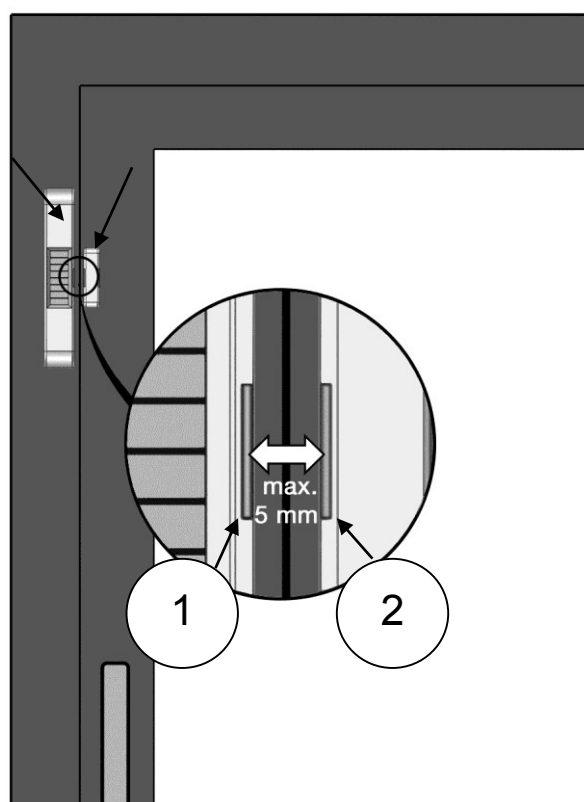
2. Align the sensor module (1) so that the **notch (1a)** faces **inwards in the direction of the window** and attach it onto the casing.

To make sure that tilting of the window will also be detected, it should be fixed in the upper quarter of the casing.

3. Tear off the adhesive strip on the reverse of the magnet (2).

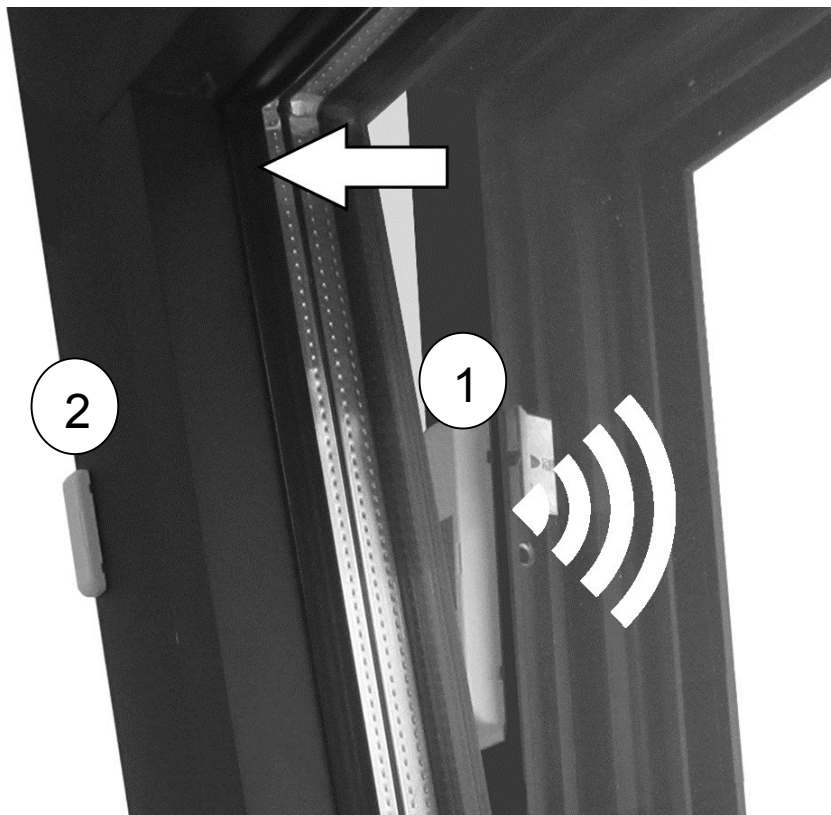
4. Align **notch 2a** with notch (1a) of the sensor and attach the magnet onto the frame.

The sensor and magnet should lie close to each other (max. 5 mm).



When the window is opened, the contact in the wireless sensor module (1) will be interrupted and a signal will be transmitted to the wireless thermostat “R-Tronic”.

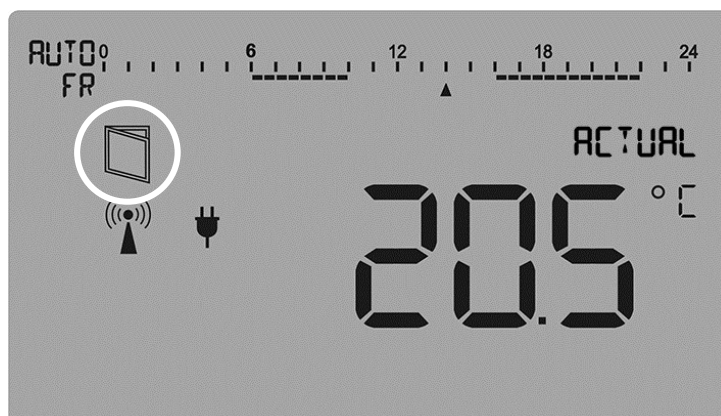
Illustr. 23



! When using several window contacts, all radiator valves will be closed if only one window contact is interrupted.

The “window-open” status is displayed on the “R-Tronic” by the following symbol:

Illustr. 24



The “R-Tronic” respectively wireless actuators will continue control operation as soon as:

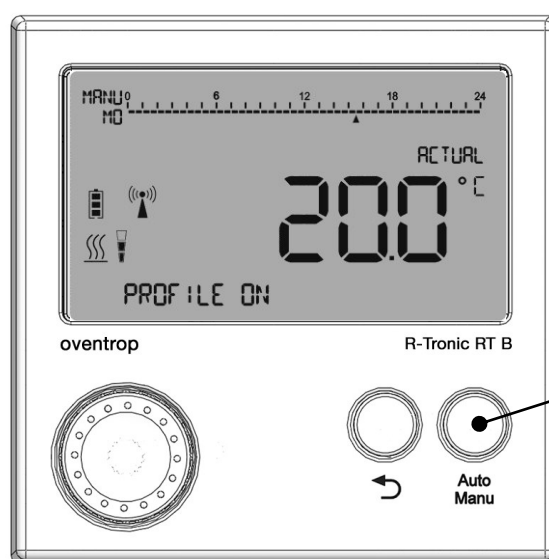
- all windows are closed again or
- the room temperature drops below the frost protection limit of 6°C

4.9 Standard heating profiles and temperature setting

When putting the “R-Tronic” into operation, the standard profile will always be active and adjust the room temperature to a constant value of 20°C (continuous heating operation = **PROFILE ON**). The activity of the standard profile is displayed by a continuous line below the timeline across the complete 24-hour scale (**MANU** will be displayed):



This basic setting can be adjusted according to your requirements or be inactivated within a few steps via the **Auto/Manu**-button.



(Illustr. 25)

4.9.1 Switching between different heating profiles

For the sake of energy saving it might be useful to switch the standard setting from **PROFILE ON** to **PROFILE OFF**. As a result, the “R-Tronic” will reduce the **constant** room temperature from 20°C to 17°C. This modification should be carried out if the room does not need to be heated continuously or if it is temporarily unoccupied.

1. Press the **Auto/Manu**-button until **PROFILE OFF** appears on the display.
- The “R-Tronic” will reduce the temperature to a constant value of 17 °C and the continuous line below the timeline will no longer be displayed. (constant setback temperature).
The operating mode **MANU** remains displayed.



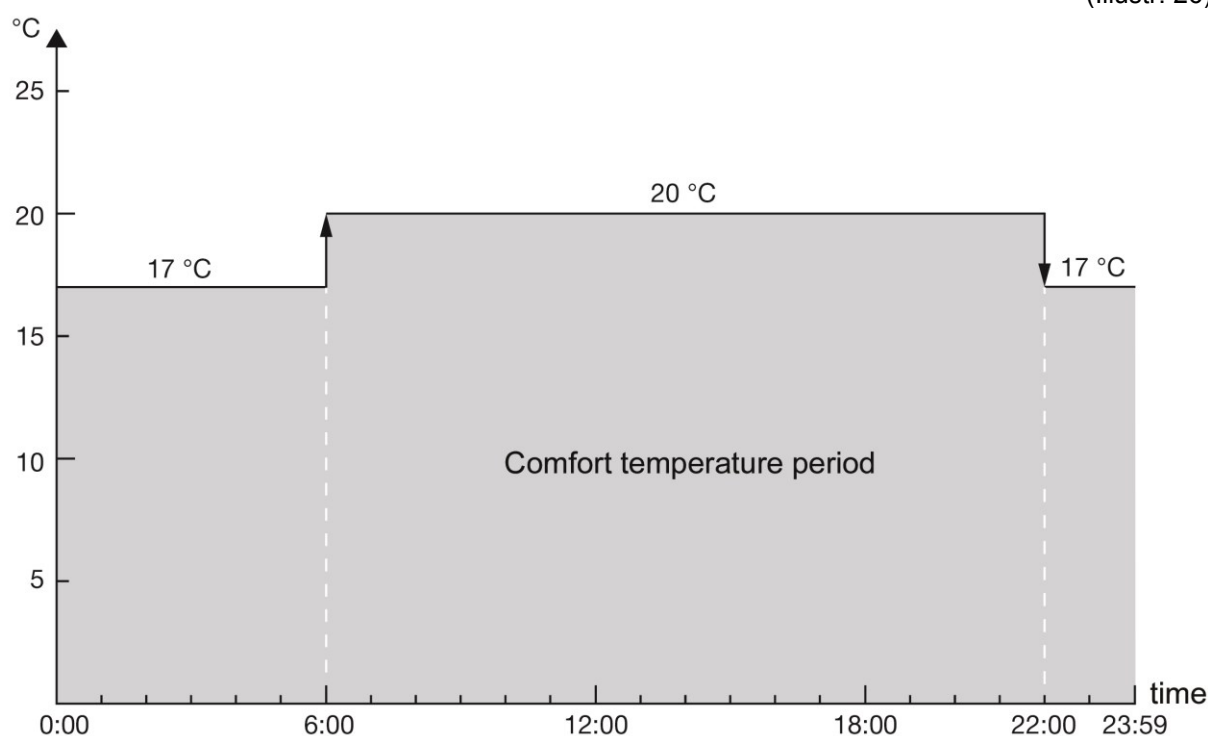
If you do not wish a constant heating or setback operation according to only one temperature setting, the pre-defined heating profile **PROFILE DAY / NIGHT** can be activated. The room temperature will be reduced to 17°C between 22.00 h and 6.00 h and be adjusted to the “comfort temperature” of 20°C during the day.

1. Press the **Auto/Manu**-button until **PROFILE DAY / NIGHT** will be displayed.
- The “R-Tronic” will adjust the room temperature to 20°C during the day and to 17°C during the night. Switching is carried out at the above hours. The “R-Tronic” display shows a line (“comfort phase”) between the figures “6” and “22” below the 24-hour scale of the time line.
- If the **PROFILE DAY / NIGHT** is activated, the operating mode display switches from **MANU** to **AUTO**.



Chart showing the switching between day and night profile

(Illustr. 26)



i NOTE regarding PROFILE DAY / NIGHT display

If an **INDIVIDUAL PROFILE** has been programmed and activated in the submenu **TIME PROFILE ► PROGRAMME SELECTION** (see chapter 5, page 29), the last activated **INDIVIDUAL PROFILE** (1-5) will be displayed when pressing the **Auto/Manu**-button.

4.9.2 Setting of the required temperature via NOMINAL SETTING

The room temperature cannot only be set via **PROFILE ON**, **PROFILE OFF** and **PROFILE DAY / NIGHT** but also via a **direct nominal setting**.

i NOTE regarding the effectiveness of set values

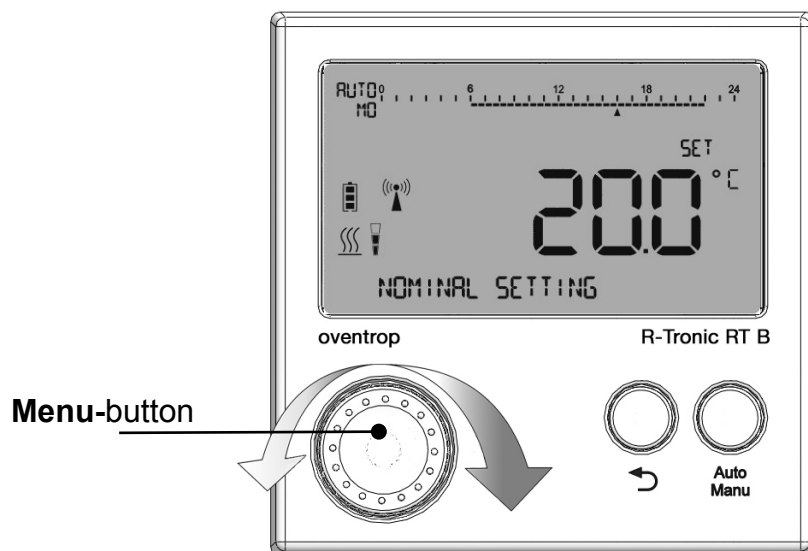
An active heating profile will be influenced by the nominal setting for a short time. **If a heating profile with different heating and setback phases is active, the selected temperature (nominal value) will only be effective until the next cycle change.**

The same applies for cycle changes in the sequence of programmed individual profiles (see chapter 5).

If the standard heating profile **PROFILE OFF** is active, the **nominal value** can only be set to a **maximum of 17°C**.

The required temperature for your rooms can thus be set directly via the setting **SET VALUE**. Please proceed as follows:

1. Press the menu button. The following display will appear:



(Illustr. 27)

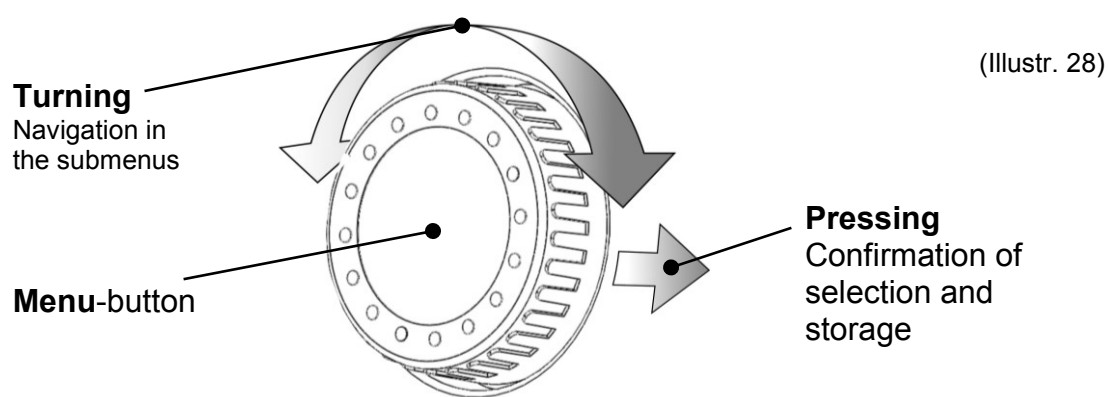
2. Select the required room temperature by turning the menu-button and confirm your selection by pressing the menu-button once. The message **SAVED** will be displayed.
- The required room temperature is set now and the radiator will heat according to the new setting.

5 Operation and menu structure of the “R-Tronic”

The following chapter will show you how to set your required room temperature comfortably via your central “R-Tronic” operating unit. You can find information on general and special settings, such as programming of your time controlled individual profiles, etc.

i NOTE regarding menu navigation and function selection

Navigation in the “R-Tronic” menu and selection of the required **functions** are always carried out via the **menu-button** mentioned before. All submenus and functions can be reached by turning (navigation) and pressing (confirmation of selection and storage).



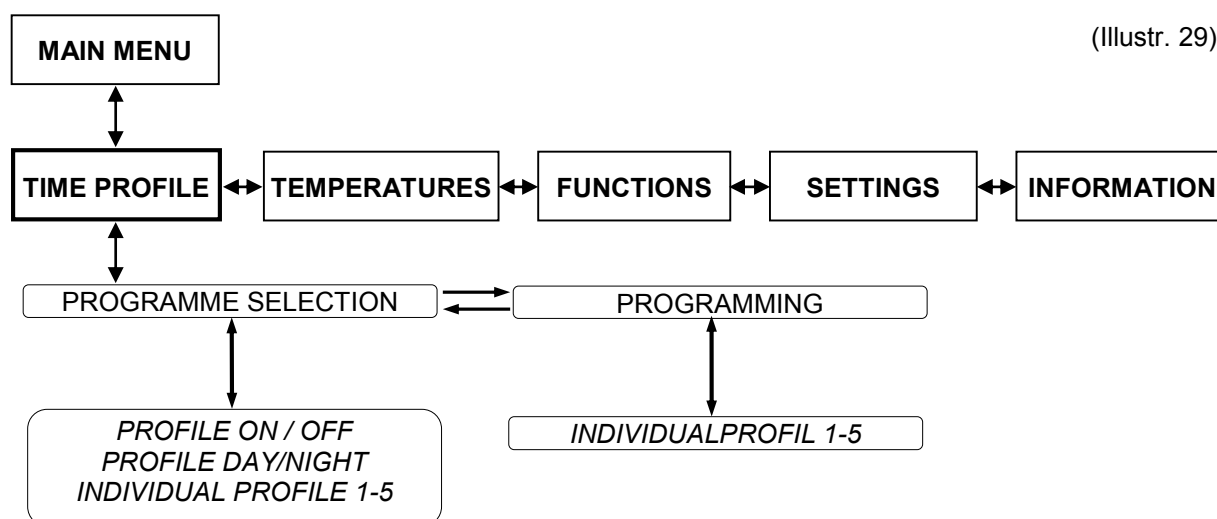
Please observe that after each activation of a function, the display will return to the **default view** if no further operating steps are performed.

To start setting, the display lighting of the “R-Tronic” has to be switched on by pressing one of the three buttons (**menu-button**, **return-button**, **Auto/Manu-button**).

Now go to the main menu. The **MAIN MENU** is reached by keeping the Menu-button pressed for at least **1 second**. The **MAIN MENU** includes the following main options: **TIME PROFILE, TEMPERATURES, FUNCTIONS, SETTINGS, INFORMATION**.

5.1 Menu “Time profile”

Menu structure:



The standard heating profiles PROFILE ON, PROFILE OFF, PROFILE DAY / NIGHT (see paragraph 4.8) stored in the “R-Tronic” and your INDIVIDUAL PROFILES are activated in the submenu **TIME PROFILE ► PROGRAMME SELECTION**.

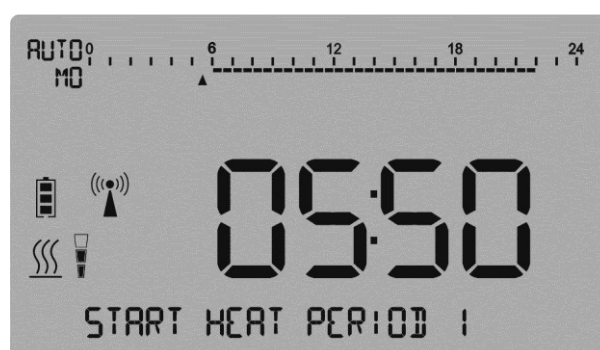
Your individual weekly and/or daily heating profiles can be set in the submenu **TIME PROFILE ► PROGRAMMING**. To do so, select one of the **five** freely programmable **individual profiles** by turning and pressing the menu button. When confirming **INDIVIDUAL PROFILE 1** for instance, the following selected option will be displayed:

MO – SU (setting option 1)

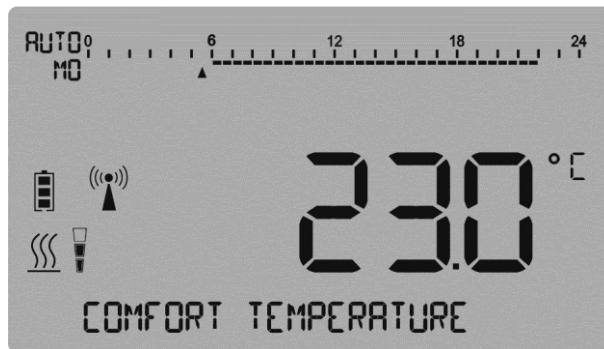
One to three heating periods for one day (24 hours) which will be valid for **each day of the week** are defined here. The following **example** shows how to set the times and temperatures for two heating periods for one day.

1. Determine the start time of **HEATING PERIOD 1** first:

(Illustr. 30)

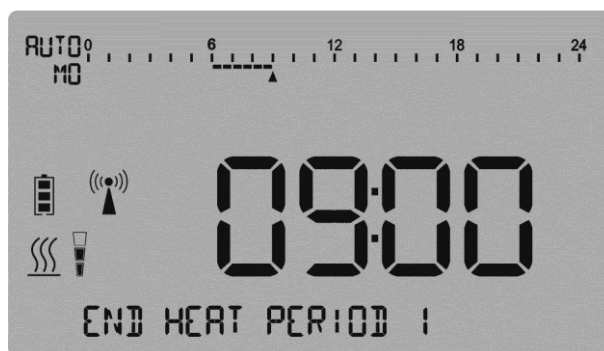


2. Confirm your entry by pressing the menu-button and select your **COMFORT TEMPERATURE** to which the room shall be adjusted by the “R-Tronic” within **HEATING PERIOD 1**.



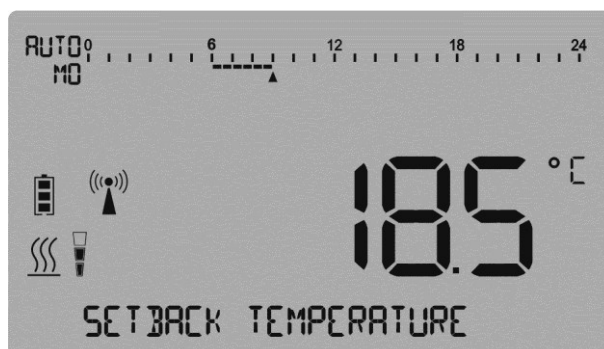
(Illustr. 31)

3. Confirm your entry by pressing the menu-button and determine the end of **HEATING PERIOD 1**.



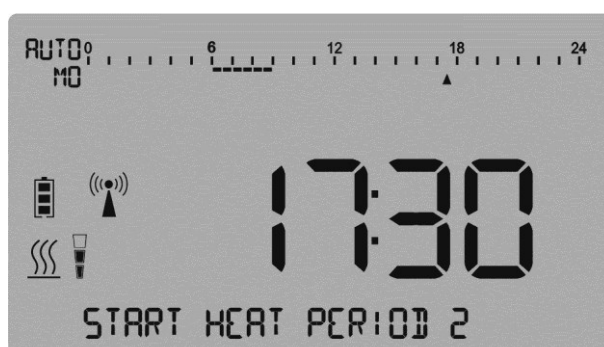
(Illustr. 32)

4. Define the **SETBACK TEMPERATURE** respectively the lower limit to which the room temperature shall be reduced after the end of **HEATING PERIOD 1**. This setting will be valid until the start of **HEATING PERIOD 2**.



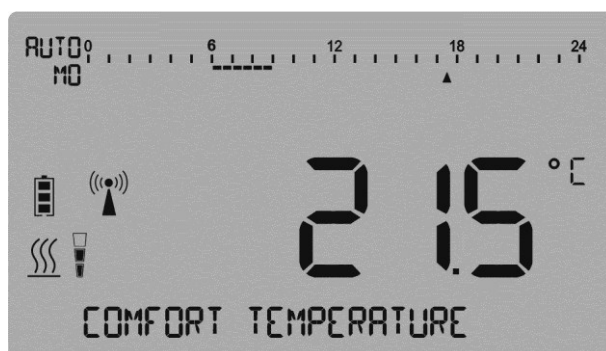
(Illustr. 33)

5. Determine the start time of **HEATING PERIOD 2**:



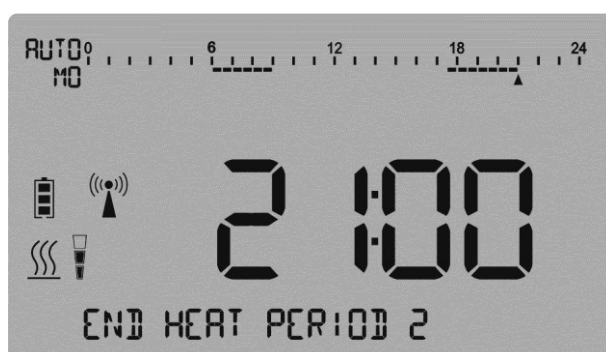
(Illustr. 34)

6. Select your **COMFORT TEMPERATURE** again:



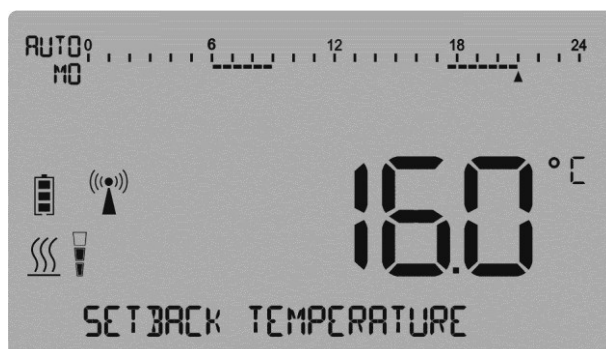
(Illustr. 35)

7. Define the end of **HEATING PERIOD 2**:



(Illustr. 36)

8. Enter a **SETBACK TEMPERATURE** again:



(Illustr. 37)

9. If you want to set **HEATING PERIOD 3**, please proceed as described above. Having entered all required heating periods, the message **SAVE** will shortly appear on the "R-Tronic" display.

► Entry of the heating periods of **INDIVIDUAL PROFILE 1** is completed now.

10. Activate your **INDIVIDUAL PROFILE 1** in the submenu **TIME PROFILE ► PROGRAMME SELECTION**. It is selected by turning and activated by pressing the menu-button.

► (From now on only) room temperature control according to your settings will be carried out by the "R-Tronic" on each day of the week.

i NOTE

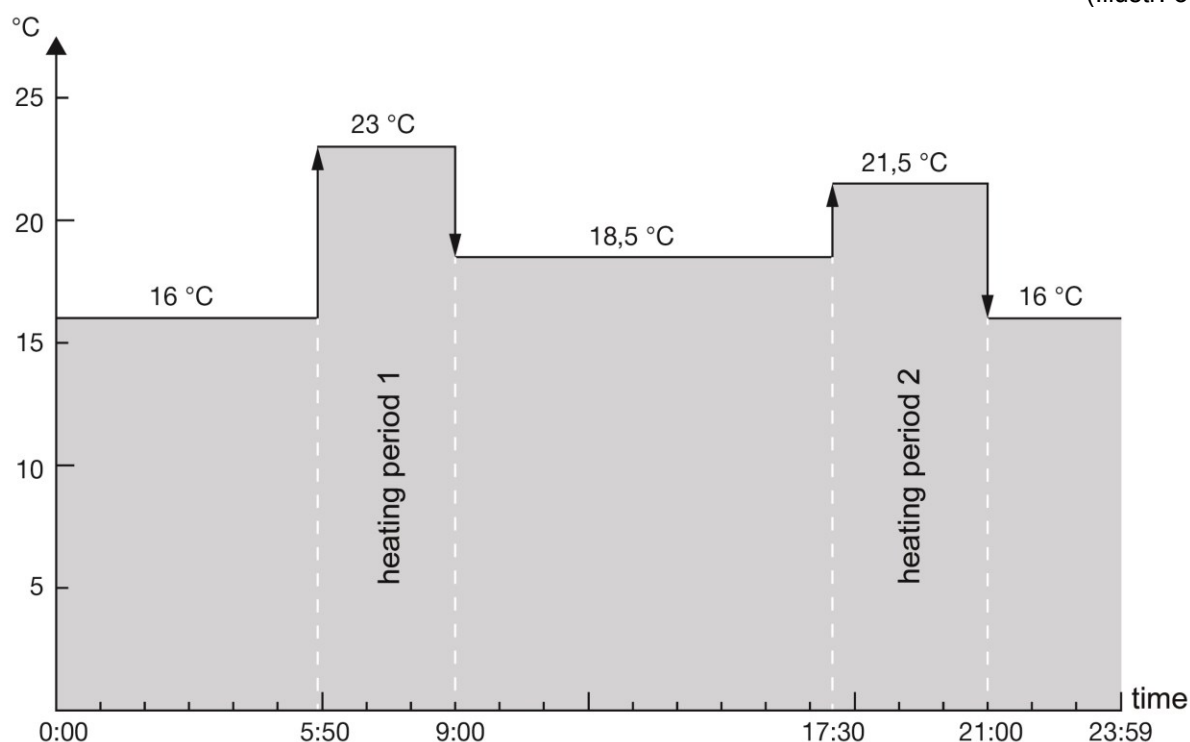
After each defined heating period you have the option to complete programming prematurely after entry of the respective **SETBACK TEMPERATURE** (and to set only one or two heating periods per day). To do so, turn the menu-button slightly to the right. The message **READY** which is confirmed by pressing the **menu**-button will appear on the "R-Tronic" display. After that, the message **SAVED** will be displayed.

Programming of the individual profile is cancelled with the **back**-key. All previous entries will be **deleted** now.



24 hour view of the heating/setback periods programmed in the above example

(Illustr. 38)



MO – FR / SA – SU (setting option 2)

Up to three heating periods for one **workday** valid from Monday to Friday, as well as a **weekend profile** for Saturday and Sunday, can be programmed here.

1. Starting from the submenu **TIME PROFILE ► PROGRAMMING**, select one of the **five individual profiles** by pressing the menu-button. When confirming **INDIVIDUAL PROFILE 1** for instance, you will reach the selection menu **MO – SU** again (see setting option 1).
2. Turn the menu-button slightly to the right and confirm the selection menu **MO – FR / SA – SU**.
3. Define the heating periods (1-3) for one (work) day. These will be valid from Monday to Friday (**MO – FR**). Please proceed as described under setting option 1.
After having entered the last **SETBACK TEMPERATURE**, the display will switch to the input menu **SA – SO** automatically.
4. Enter the heating periods for Saturday and Sunday. After having determined all heating periods (alternatively one, two or three), the message **SAVED** will shortly appear on the “R-Tronic” display.
- Entry of the different heating periods for the workdays (Monday to Friday) and weekend is completed now.
5. Now activate your INDIVIDUAL PROFILE 1 in the submenu **TIME PROFILE ► PROGRAMME SELECTION**. It is selected by turning and activated by pressing the menu-button.
- Room temperature control according to your settings will be carried out by the “R-Tronic” from now on.

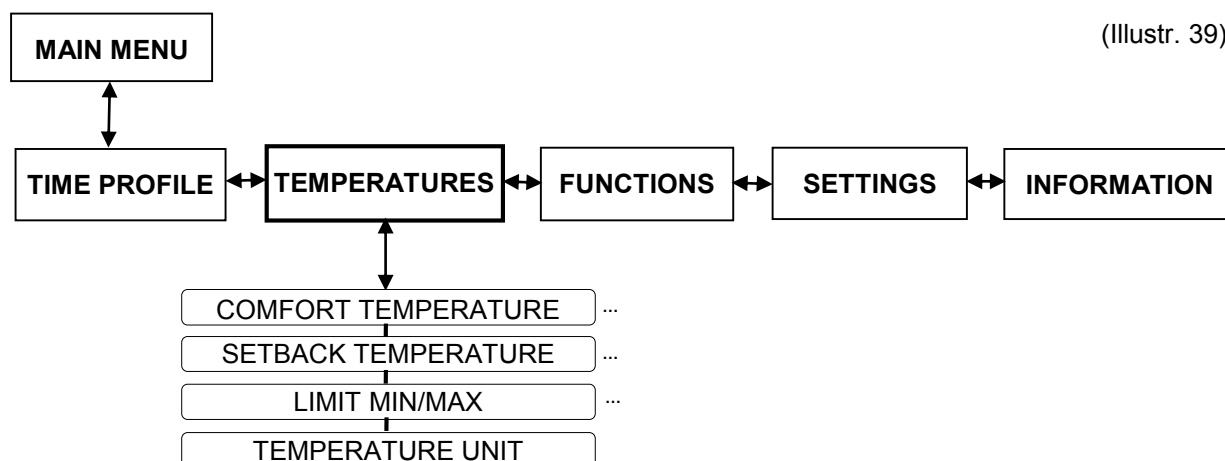
INDIVIDUAL DAYS (setting option 3)

Different heating periods for **each individual day** of the week can be programmed here. Different heating periods which are adapted to the use of the room can be set via this option. The more exactly the different heating periods are programmed, the more energy can be saved.

1. Define the heating periods (1-3) **separately for each day**.
Entry is carried out the same way as for setting options 1 and 2. After having entered the **SETBACK TEMPERATURE** of the last heating period on Sunday, the message **SAVED** will shortly appear in the lower text line of the display.
2. Select your INDIVIDUAL PROFILE in the menu **PROGRAMME SELECTION** and activate it.
- Entry and activation of the heating periods for each day of the week are completed now.

5.2 Menu “Temperatures”

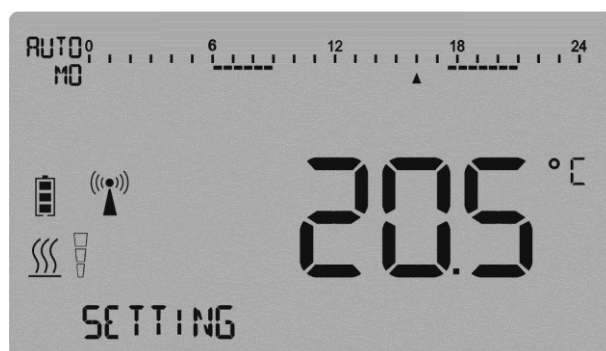
Menu structure:



The **COMFORT TEMPERATURE** and **SETBACK TEMPERATURE** of the **standard heating profiles** can be set in the submenu **TEMPERATURES** according to your requirements. As described above, they are preset to 20 °C (**PROFILE ON**), to 17 °C (**PROFILE OFF**) or as alternating cycle between both values (**PROFILE DAY/ NIGHT**).

Your **individual required temperatures** can be set as follows:

1. Go to the main menu. After having pressed the menu button, you will reach the submenu **TIME PROFILE** again. Turn the menu-button slightly to the right and confirm the selection **TEMPERATURES**.
2. Define your **COMFORT TEMPERATURE** (different than 20 °C).



(Illustr. 40)

3. Confirm your entry by pressing the menu-button. The message **SAVED** will be displayed shortly.
 4. If the **SETBACK TEMPERATURE** shall be adapted too, turn the menu-button slightly to the right again and confirm the selection **SETBACK TEMPERATURE**. Enter a degree value as described before.
- The **COMFORT TEMPERATURE** and/or the **SETBACK TEMPERATURE** for the **standard heating profiles** were adapted successfully.

5.2.1 Setting of the general temperature range

The submenu **TEMPERATURES** offers the option to define a general temperature range for all heating and setback periods and their respective cycles. The “R-Tronic” is preset at works to a maximum range between 6 °C and 35 °C. You can change these values via the function **TEMPERATURES ► LIMIT MIN/MAX**.

The new temperature limits are set as follows:

1. You are in the submenu **TEMPERATURES**. Turn the menu-button to the right until **LIMIT MIN/MAX** will be displayed and confirm the selection by pressing the button.
2. Define the new lower temperature limit (**LIMIT MIN**) and confirm your entry by pressing the menu-button.



(Illustr. 41)

The message **SAVED** will be displayed shortly and the display will return to the selection menu **LIMIT MIN/MAX**.

3. To define the upper temperature limit, turn the menu-button slightly to the right and confirm the selection **LIMIT MAX**. Enter the new value as described before.
- The new general temperature limits of the “R-Tronic” are set now. Leave the submenu and return to the default view by keeping the **return**-button pressed for 3 seconds.

i NOTE

Please observe that the programmed individual profiles will be influenced by the new general temperature limits. Should the individual profile settings lie outside the new defined temperature range, they will automatically be reduced to the new limits.

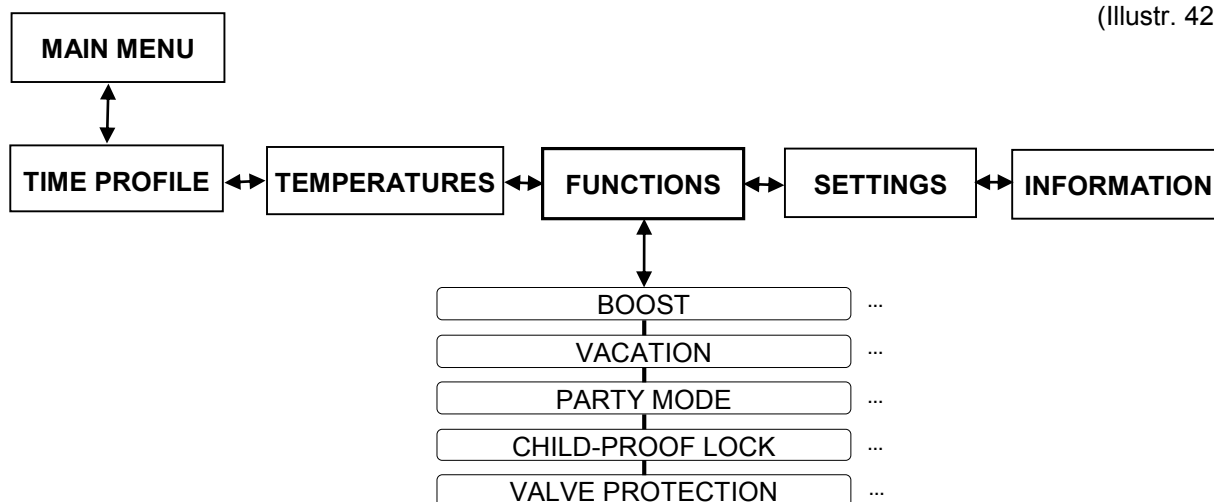
Example:

A setback temperature of 12°C was programmed for a cellar in the individual profile. The lower temperature range (for this room) was subsequently increased to 14°C. The setback temperature of your individual profile will automatically be increased to 14°C and the room temperature will not drop below this value.

5.3 Menu “Functions”

Menu-structure:

(Illustr. 42)



Special “R-Tronic” functions which are described below, can be configured in the submenu **FUNCTIONS**:

5.3.1 BOOST (rapid heating)

A temporary maximum heating up of the radiator may be useful to generate a comfortable surrounding area. During the boost period, all “teached in” actuators will be opened completely by the “R-Tronic” and the respective radiators will achieve full heat. The boost period is adjustable up to a maximum of 30 minutes.

1. Go to the **MAIN MENU**. After having pressed the menu-button, you will reach the submenu **TIME PROFILE** again. Turn the menu-button to the right and confirm the selection **FUNCTIONS**. The selection **BOOST** which has to be confirmed by pressing, will now appear in the text line.
 2. Set the period during which the radiator(s) shall be heated up quickly in steps of five minutes. Confirm your entry by **ACTIVATE**.
- The message **BOOST HEATING ACTIVE** signalizes the successful setting of a quick heating period. Please observe that this message will only be displayed after the next radio or transmission interval between the “R-Tronic” and the actuator (maximum of 150 seconds). In the meantime, **BOOST PENDING** will be displayed in the text line.

i NOTE

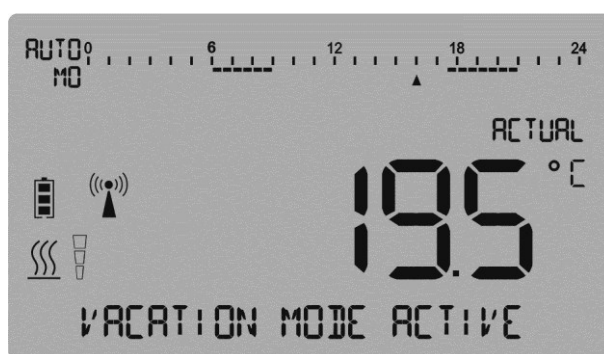
If the activated **BOOST** function shall be cancelled again, for instance if the programmed **BOOST** period is too long, keep the return-button pressed for 3 seconds and the current **BOOST** programming will be cancelled.

The message **BOOST HEATING ACTIVE** will disappear automatically after rapid heating.

5.3.2 Vacation function (setback temperature during absence)

You may use the “vacation function” if you will be absent for several days or weeks and want to define a lower setback temperature for a room for the sake of energy saving.

1. You are in the submenu **FUNCTIONS**. Confirm this selection by pressing the menu-button. BOOST will be displayed as before.
2. Turn the menu-button slightly to the right, until the selection menu VACATION will appear on the display.
3. The **time of your absence** (date of departure and return, year, month, day) as well as the **setback temperature** during your absence will be defined step by step in the following setting routine **PROGRAMMING**.
4. Activate your entries by pressing the menu-button. The message **ACTIVATED** will shortly appear in the text line and the display will return to the default view after a few seconds. The message **VACATION MODE ACTIVE** will be displayed in the text line on the (programmed) day of departure.



(Illustr. 43)

- Now a setback temperature for the time of your absence is defined and activated. The temperature of your radiator will be reduced accordingly.

i NOTE

The **VACATION MODE** can be cancelled at any time (for instance if you return earlier). Select the submenu **FUNCTIONS ► VACATION** and turn the menu-button completely to the right. The active VACATION MODE is cancelled by confirming the selection **DEACTIVATE**. Alternatively, you can press the **return**-button for several seconds.

5.3.3 “Party mode” (required temperature during a defined period)

The “party mode” adjusts the room to your required temperature during a defined period. The heating profile will be inactivated **temporarily**. Contrary to the temperature modification via a set value (see paragraph 4.8.2), the “party mode” will be active during a certain period which is adjustable between one and 24 hours.

1. You are in the submenu **FUNCTIONS**. Confirm this selection by pressing the menu-button. BOOST will be displayed as before. Turn the menu-button to the right until **PARTY MODE** will be displayed. Press the menu-button twice.
2. Set the period during which your required temperature shall be active. It can be set with an accuracy of 10 minutes.



(Illustr. 44)

3. Enter your required degree.



(Illustr. 45)

4. Activate your setting by pressing the menu-button. The message **PARTY MODE ACTIVE** will appear in the text line of the display.
- A period and a required temperature is set now and your radiator will be regulated accordingly.

i NOTE

The programmed **PARTY MODE** can be cancelled at any time. To do so, select the submenu **FUNCTIONS** ► **PARTY MODE** and turn the menu-button completely to the right. The active PARTY MODE is cancelled by confirming the selection **DEACTIVATE**. Alternatively, you can keep the **return**-button pressed for several seconds.

5.3.4 Child-proof lock (operation lock)

The settings of the “R-Tronic” can be secured via this function. Please proceed as follows:

1. You are in the submenu **FUNCTIONS**. Confirm this selection by pressing the menu-button. BOOST will be displayed as before. Turn the menu-button to the right until **CHILD-PROOF LOCK** will be displayed.
2. Activate the selection by pressing the menu-button. The message ACTIVATED will shortly appear on the “R-Tronic” display and the following symbol (padlock) will be displayed permanently:



- The **CHILD-PROOF LOCK** is active now.

i NOTE

The CHILD-PROOF LOCK or operation lock can be cancelled by pressing the “Auto/Manu” and **return**-button at the same time for at least 3 seconds.

5.3.5 Valve protection

This function will avoid sticking of the valve stem during longer stop periods (e.g. during the summer). This is done by opening and closing the radiator valves completely once a week at an adjustable point in time.

1. You are in the submenu **FUNCTIONS**. Confirm this selection by pressing the menu-button. BOOST will be displayed as before. Turn the menu-button to the right until the selection **VALVE PROTECTION** will be shown on the display.
2. Confirm the selection by pressing the menu-button and define the **DAY** (Monday to Sunday) and the **time** (hours and minutes) when the valve protection function shall be activated.
3. Activate the valve protection function by pressing the menu-button.

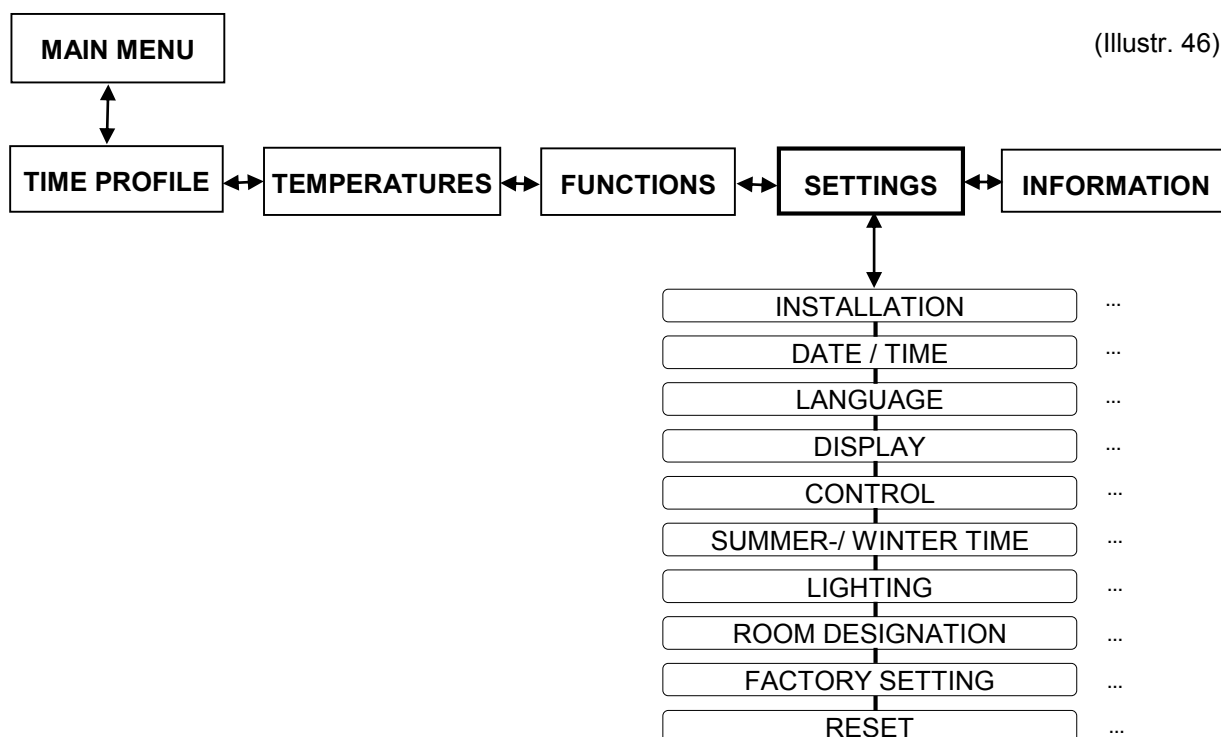
- The valves will now be actuated by the “R-Tronic” once a week.

i NOTE

To cancel the valve protection function, select the submenu **FUNCTIONS ► VALVE PROTECTION** and turn the menu button completely to the right. The valve protection will be cancelled after having confirmed the selection **DEACTIVATE**. The service life of the batteries will be reduced by an activated valve protection.

5.4 Menu “Settings”

Menu structure:



Connection of the “R-Tronic” to the radio controlled actuator (respectively up to 8 radiators) is carried out via the submenu **SETTINGS** and global specifications for the operation of your device are made via this menu.

5.4.1 Installation (radio communication “R-Tronic” / wireless actuator „mote 320“)

This function has already been mentioned in chapter 4, paragraph 6. The radio communication between the climate controller “R-Tronic” and the wireless actuator „mote 320“ is created via this setting routine. The **TEACH IN** process is described on the pages 20 to 23 of this manual.

The radio communication can be interrupted (e.g. for removing the actuator from the radiator) via the command **TEACH OUT**. “Teaching out” is only possible if at least one actuator has been “tached in” before. This is signaled by the radio signal on the “R-Tronic” display:



The actuator can be “tached out” as follows:

1. Go to the **MAIN MENU**. After having pressed the menu-button, you will reach the submenu **TIME PROFILE** again. Turn the menu-button to the right and confirm the selection **SETTINGS** as well as the following selection **INSTALLATION**. **TEACH IN** will appear in the text line of the display.

2. Turn the menu-button slightly to the right and confirm the selection **TEACH OUT**. As for the “teach in” process, a running countdown of 30 seconds will be displayed.
3. Now the “**teach in**”/adjustment button at the actuator has to be pressed **shortly (!)** within this countdown.
4. The message **SUCCESS** which will shortly appear on the “R-Tronic” display, signalizes that the “teach out” process has been completed successfully and the **radio symbol will no longer be displayed** (repeat the “teach out” process if it was not completed successfully).
- Now the radio communication between the “R-Tronic” and the respective actuator is interrupted.
5. The message **SUCCESS** will be replaced by the message **TEACH OUT** after about 3 seconds. If further actuators are used, they can also be disconnected from the “R-Tronic” as described above.

i NOTE

The function **DELETE PARTICIPANT** that is part of the menu INSTALLATION must only be used if the actuator cannot be “taught out” (for instance no access because of error or defect). On principle, the radio communication between the “R-Tronic” and the actuator must only be cancelled via the selection menu TEACH OUT.

5.4.2 Date and time

Each time the “R-Tronic” will be energized, the **setting routine** for the **date** (year, month, day) and the current **time** (hours, minutes) will be started. This is why these settings have already been carried out during initial operation and been described before (see chapter 4.6).

The date and time can be **changed subsequently** as follows:

1. You are in the submenu **SETTINGS**. Confirm your selection by pressing the menu-button. INSTALLATION will be displayed as before.
2. Turn the menu-button slightly to the right and confirm the selection **DATE/TIME**.
3. Set the date first and then the time. The message **SAVED** will confirm your entries.
- Date and time are re-adjusted now.

5.4.3 Language

You may select between the menu languages **German, English, French, Spanish, Italian and Polish**. This is done as follows:

1. You are in the submenu **SETTINGS**. Confirm the selection by pressing the menu-button. **INSTALLATION** will be displayed as before.
2. Turn the menu-button to the right and confirm the option **LANGUAGE**.
3. Select and confirm the menu language. The message **SAVED** will confirm your entries.

► All information will now be displayed in the selected language.

5.4.4 Default view display

Here you may define the **value** that will be **displayed in large size**. The menu is reached via **SETTINGS ► DISPLAY** and offers the following **selection options**:

- ACTUAL VALUE (Current room temperature in °C)
- SET VALUE (Required temperature in °C)
- HUMIDITY in % RH (Display option “R-Tronic RTF B / RTFC K” only)

NOTE

The **air humidity** of the room is permanently measured by the “R-Tronic” models “TF” and “TFC” and is displayed in **percent** on the right hand side of the text line at the bottom of the display. Please observe the information provided in **chapter 9**.



1020 PPM CO2 45% RH

- CO2 CONCENTRATION in PPM (Display option “R-Tronic RTFC K” only)
- ALTERNATING (Display alternates between ACTUAL VALUE, SET VALUE, AIR HUMIDITY, CO2 CONCENTRATION; display option “R-Tronic RTFC K” only)

5.4.5 OFFSET TEMPERATURE control

Temperature measurement of the room controller can be increased or reduced by 3 degrees Celsius in the submenu **CONTROL**. This might become necessary if the temperature control is impaired by environmental influences such as cold outer walls. To do so, select **SETTINGS ► CONTROL ► OFFSET TEMPERATURE** via the menu-button and store the required value.

5.4.6 Summer-/winter time

The automatic switching to European summer or winter time can be activated or deactivated here. To do so, select **SETTINGS ► SUMMER-/ WINTER TIME ► AUTO ADJUSTMENT** via the menu-button and decide whether the automatic switching shall be activated or deactivated (turn the menu-button and confirm).

5.4.7 Display lighting (ON/OFF)

In the standard configuration the display lighting is switched on by pressing either the **menu-button**, the **return-button** or the **Auto/Manu-button**. The **display lighting** can be **deactivated** to increase the service life of the batteries (this applies to the “R-Tronic” models “T” and “TF” when not using the optional power pack). To do so, select **SETTINGS ► LIGHTING** via the menu-button and decide whether the lighting shall be **activated** or **deactivated**.

5.4.8 Assignment of the room designation to the “R-Tronic”

When using several battery operated “R-Tronic” controllers in a detached house or in multiple dwellings it might be useful to allocate a room designation to the individual “R-Tronic” controllers. This will help you to re-install them at the same location if all controllers are removed (for instance for renovation). Moreover, the room-related programming must not be repeated.

Assignment of a room designation to an “R-Tronic” is carried out as follows:

1. You are in the submenu **SETTINGS**. Confirm the selection by pressing the menu-button. **INSTALLATION** will be displayed as before.
2. Turn the menu-button to the right and confirm the selection **ROOM DESIGNATION**. A 12-digit sequence of letters/numbers can be entered step by step in the following submenu **NAME**.

Turn the menu button to select a number, letter or special character for the first digit of your room designation (blanks or separate words are also possible).



3. Confirm your selection by pressing the menu-button and proceed in the same way for the second, third etc. digit. Wrong entries can be corrected with the return-button. **SAVED** will be displayed after entry of the last digit.
- A room designation is assigned to the “R-Tronic” now.

5.4.9 Factory settings “R-Tronic” and the wireless actuator “mote 320”

It might be useful to **restore** the factory settings of the “R-Tronic” and the actuator if, for instance, wrong settings that do not guarantee an efficient heat control of your room were stored by mistake. All individual settings and the assignment of the “tached in” actuators will be cancelled when restoring the factory settings. This is why the radio communication between the “R-Tronic” and the actuator(s) always has to be restored (see chapter 4.6).

1. You are in the submenu **SETTINGS**. Confirm the selection by pressing the menu-button. INSTALLATION will be displayed as before.
2. Turn the menu-button to the right and confirm the selection **FACTORY SETTINGS** as well as the following selection **RESTORE**. If you are sure that the “R-Tronic” factory settings shall be restored, turn the menu-button to the right and confirm the selection **YES**.
 - The factory settings are restored now. The date and time have to be set again and any **other settings** must be repeated.

NOTE

The factory settings of the **actuator** must always be restored, **too**.

The factory settings of the actuator are restored as follows:

1. Remove the casing cover of the actuator by pushing down both release tabs and by removing the cover at the same time.
2. Disconnect the actuator from the power supply for a few seconds by removing one of the batteries from the battery case.
3. Reinsert the battery and keep the “teach in”/adjustment button pressed at the same time. Both LEDs will flash alternately green and red twice.
 - The existing communication data of the “R-Tronic” is cancelled now. The push rod of the actuator will retract after a successful reset (see illustr. 11) (removal position) – this is confirmed by five flashes of both LEDs.

5.4.10 Reset (only “R-Tronic”)

A restart can be carried out during a reset (e.g. in case of a malfunction). Contrary to the reset to factory settings, all existing settings except for the date and time will be maintained. This function is selected in the menu **SETTINGS ► RESET ► START RESET**.

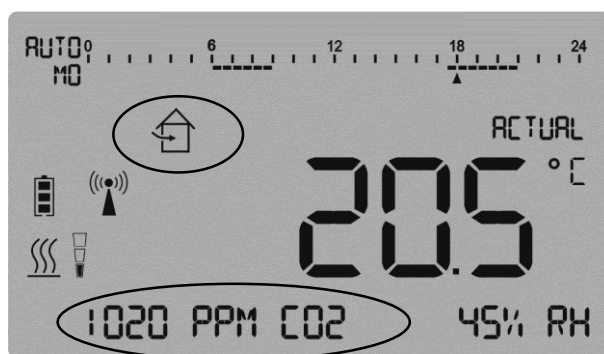
5.5 Menu “Room climate” (only “R-Tronic RTFC K”)

In comparison with the models “RT B” and “RTF B”, the “R-Tronic RTFC K” features an additional **CO₂ measured value detection**. The integrated sensor continuously measures the carbon dioxide content (CO₂ value) in the ambient air and it will be displayed when a defined value is exceeded. Excessive CO₂ values have a negative influence on the power of concentration and lead to tiredness.

i NOTE

The “R-Tronic RTFC K” is preset to a **reference value of 1,000 PPM**. This is equivalent to 1,000 parts (“parts per million”) of CO₂ per one million parts of room air or a carbon dioxide content of 0.1%. **For comparison:** The average CO₂ of outside air amounts to 400 PPM or 0.04%.

The display of the “R-Tronic RTFC K” shows the CO₂ content in the ambient air:



(Illustr. 47)

Values below 1,000 PPM are considered as standard value for a “good” room climate. For this reason, the following **symbol** will be displayed if this value is **exceeded**:



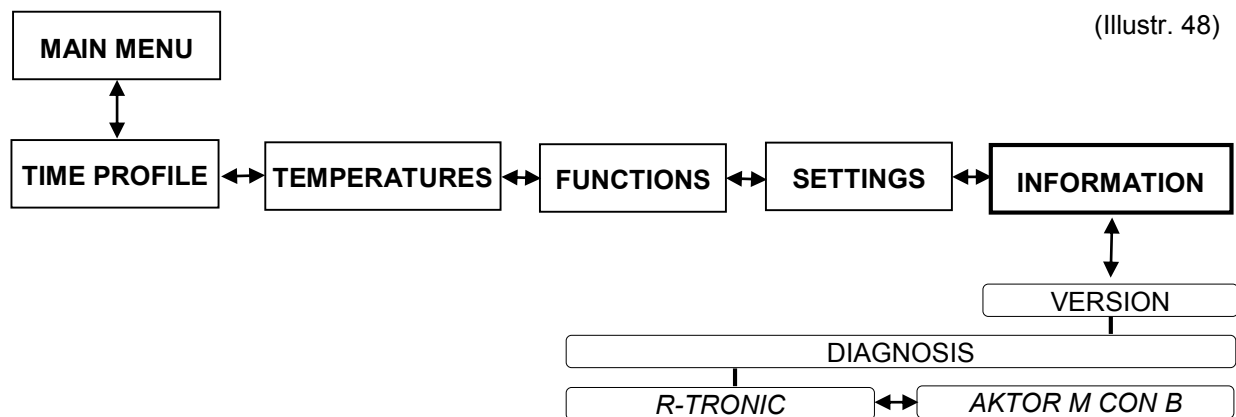
This is a recommendation for room ventilation (open window).

The **threshold** above which the above symbol will be displayed can be **modified** via the menu **ROOM CLIMATE ► CO₂ ALERT THRESHOLD**. This way you may determine the CO₂ level at which the room ventilation recommendation will be displayed:

1. Go to the MAIN MENU. After having pressed the menu-button you will reach the submenu TIME PROFILE. Turn the menu-button to the right and confirm the selection **ROOM CLIMATE** and the following selection **CO₂ ALERT THRESHOLD**.
 2. Select a **PPM value** between **450** and **2.000** and confirm the selection **SETTING**. The message **SAVED** will shortly appear on the display.
- From now on, a recommendation for room ventilation will be shown on the “R-Tronic” display as soon as your individual CO₂ threshold is exceeded. The symbol will no longer be displayed as soon as the PPM value will have dropped to a value lying 10% below the set threshold (**Example:** PPM = 1,000, symbol will disappear at a value < 900 PPM).

5.6 Menu “Information”

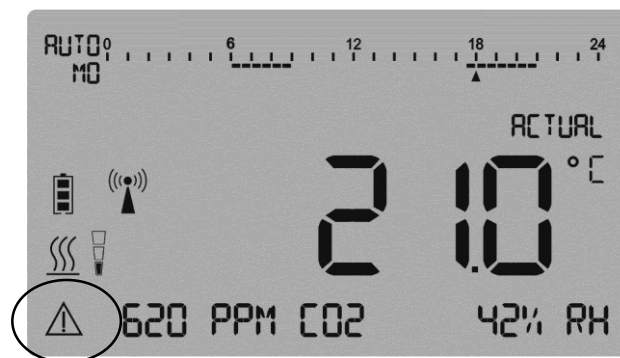
Menu structure:



The general identification data for the used “R-Tronic” and actuator can be called up in the menu **INFORMATION**. The **version number** refers to the installed type of “R-Tronic” and codes the software specific data.

Please keep this number ready when calling our technology hotline in case of queries.

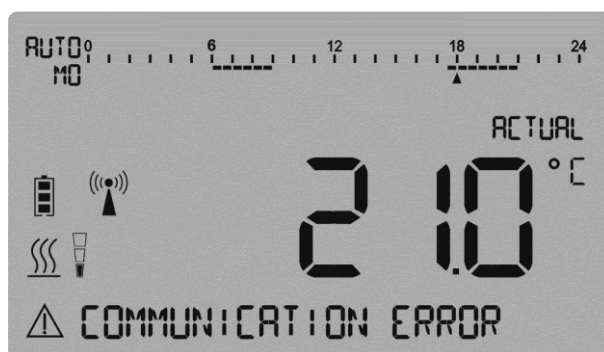
The selection menu **INFORMATION ► VERSION ► DIAGNOSE** informs you about the respective IDs of the “R-Tronic” and the assigned actuator(s). Furthermore, possible **error messages** and the **battery level of the actuator** are displayed here.



The **warning symbol** on the “R-Tronic” display informs you about errors and malfunctions. Important information is additionally displayed in the text line (default view). For all other errors, go to the submenu **DIAGNOSIS** for more detailed information.

1. First check whether there is a problem with the “R-Tronic” or the actuator(s). Confirm the selection **DIAGNOSIS** and turn the menu-button to switch between the submenus “**R-Tronic**” and the **WIRELESS ACTUATOR „MOTE 320“**.
Important: The warning symbol will only be displayed where the problem is.
2. **If an error occurred in the “R-Tronic”** (warning symbol active), press the menu-button twice (the R-TRONIC ID display will be skipped).

- The specific error or the incident impairing the function of the “R-Tronic” will be displayed.
3. **If an error occurred in an actuator** (warning symbol active), press the menu-button once starting from the submenu **DIAGNOSIS ► AKTOR M CON B**. All connected wireless actuators respectively their **AKTOR IDs** will be displayed. If you use several actuators, each individual actuator can be selected by turning the menu-button.
 4. Confirm the selection of the actuator in front of which the warning symbol is still displayed (there is a problem with the actuator) by pressing the menu-button.
- The specific error or the incident impairing the function of the actuator will now be shown on the “R-Tronic” display, see the below example:



(Illustr. 50)

i NOTE

The exact specification of errors and malfunctions as well as remedial measures are detailed in **chapter 7 (Display notes and error messages)**.

Normally, errors do not occur in the “R-Tronic” and **NO ERROR MESSAGE** will be displayed in the submenu DIAGNOSIS.

You can check the **battery status** of each actuator. Starting from the submenu **DIAGNOSIS**, select the **AKTOR M CON B ► AKTOR ID** and confirm a selection. The display will inform you about the battery status of the selected actuator, i.e. **FULL**, **MIDDLE**, **LOW** or **EMPTY**.

5.7 Battery replacement “R-Tronic” / wireless actuator “mote 320”

Maintenance of the “R-Tronic” and the wireless actuator “mote 320” is limited to the replacement of the batteries (**AA 1.5 V Mignon**). The message **REPLACE BATTERIES** will appear on the “R-Tronic” display when the batteries of the room controller are empty.

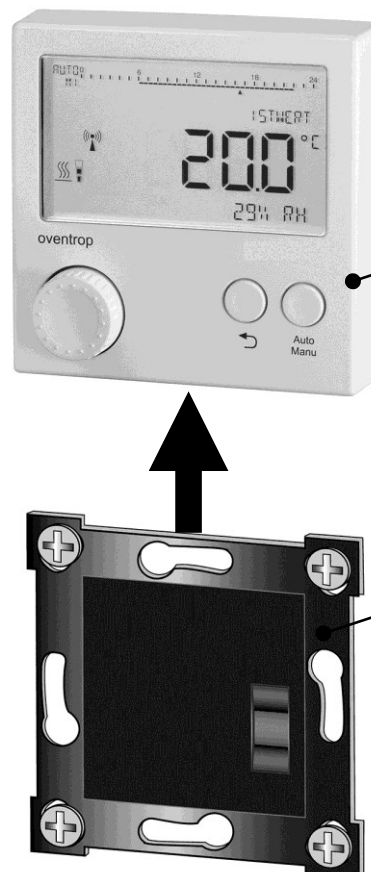


(Illustr. 51)

ATTENTION

The “R-Tronic” and the wireless actuator are **not** designed to use **rechargeable batteries**.

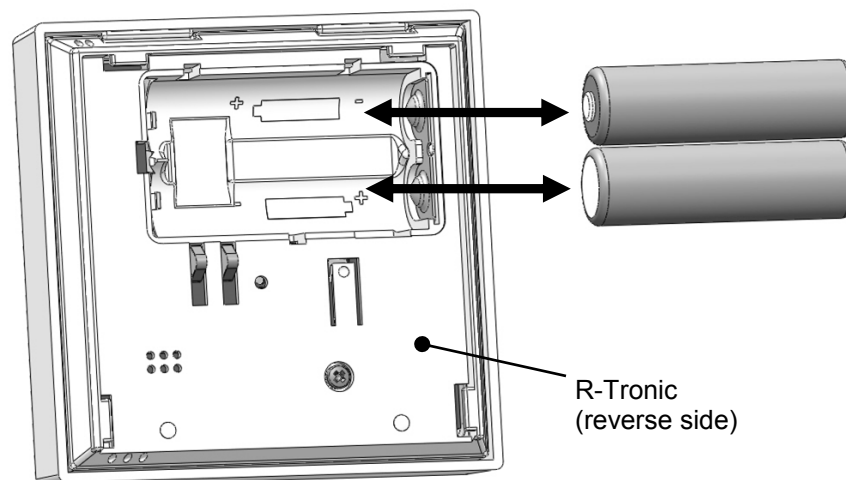
1. Remove the “R-Tronic” from the fixing plate attached to the wall by pulling it **vertically upwards**.



(Illustr. 52)

2. Remove the empty batteries on the **reverse side** of the “R-Tronic”. Press the return- or Auto/Manu-button after removal of the batteries. Insert the new batteries. The position of the new batteries is specified by the markings +/-.

(Illustr. 53)



3. Reset **date** and **time** (see paragraph 4.6 on page 20). All other settings will be maintained.

► After having replaced the batteries, the “R-Tronic” is ready for operation again.

i NOTE

Alkaline batteries must never be charged (risk of explosion). Never throw batteries into a fire and do not open them.

If the devices are not used temporarily, the batteries should be removed as they may leak. Batteries must not be disposed of with the standard waste but via your local battery collection point.

Wireless actuator “mote 320”

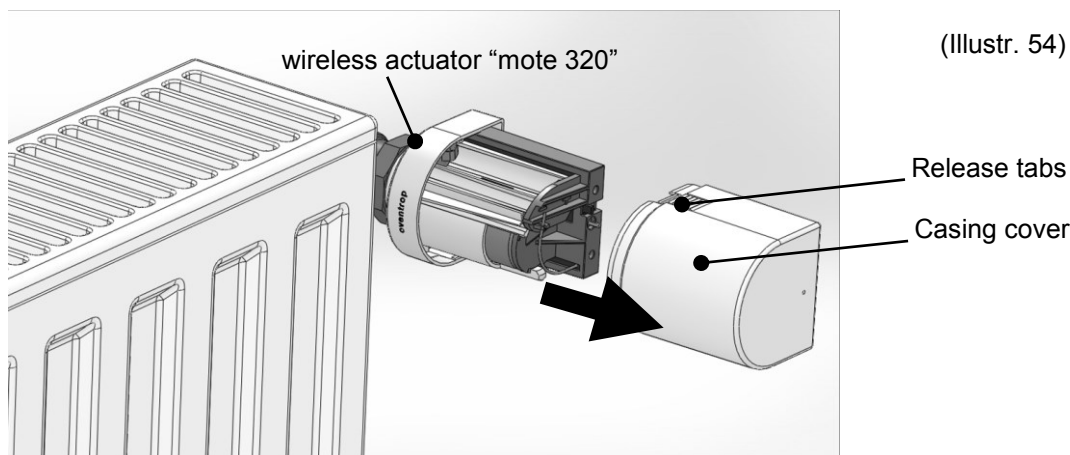
A necessary battery replacement of the wireless actuator “mote 320” is displayed as follows:

- **Warning symbol** in the default view of the “R-Tronic” display
- Message **BATTERY EMPTY** in the menu
INFORMATION ► DIAGNOSIS ► AKTOR M CON B ► AKTOR ID
- The **red LED** at the actuator **flashes** shortly at intervals of 50 seconds.

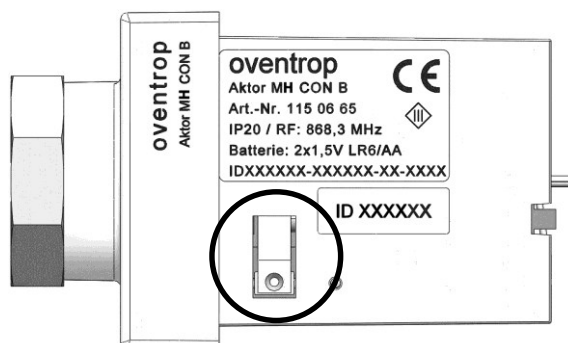
As soon as the batteries are EMPTY, the actuator will move to an **“emergency or frost protection position”**. The radiator valve will now only be opened up to 20% which means that hot water is still passing through the radiator.

The **batteries of the actuator** are **replaced** as follows:

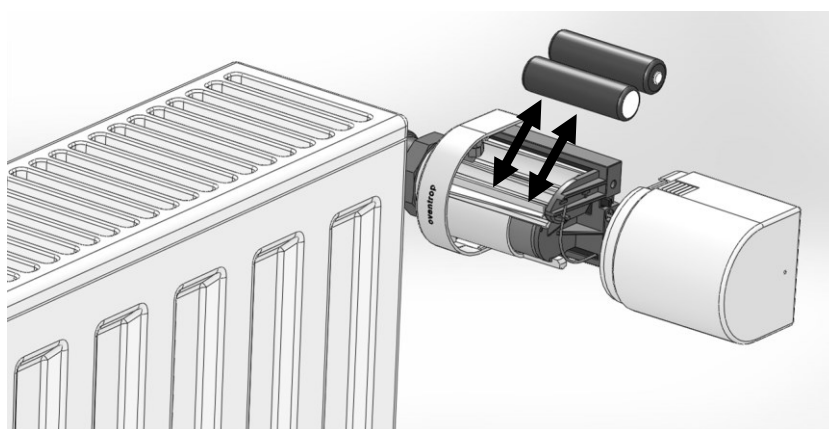
1. Remove the casing cover of the actuator. Push down both release tabs and remove the cover at the same time



2. Remove the empty batteries. The mounted actuator can be turned in any direction so that the battery case is easily accessible.
3. Press the "teach in"/adjustment button after having removed the batteries.

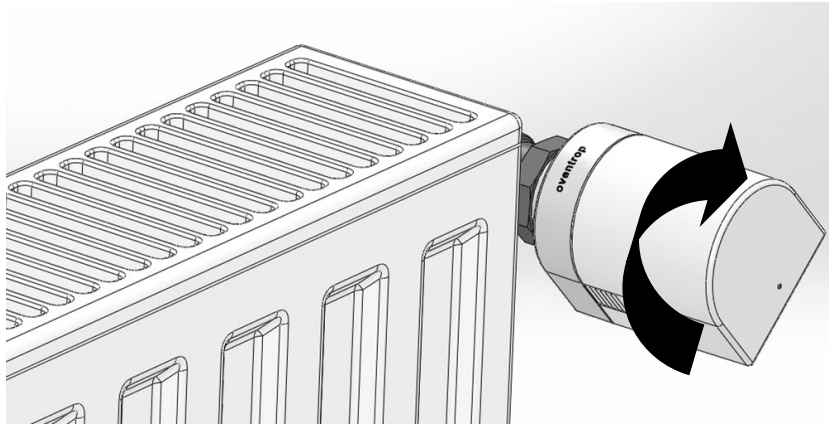


4. Insert new batteries. Their position is specified by the markings +/-.
- The info LED will flash red shortly and then green for a longer time.



- After having replaced the batteries, an automatic "adjustment run" ("push rod" opens up, the radiator valve is closed) will be carried out by the actuator and the radio communication between the actuator and the "R-Tronic" will be restored. The actuator is ready for operation now and the control operation will be started again after the next transmission interval.

5. Mount the casing cover onto the actuator until it engages audibly.
6. Align the actuator as required (it is unnecessary to loosen the coupling).



(Illustr. 57)

i Note regarding cleaning

The devices must only be cleaned with a soft dry cloth. Do not use any detergents containing solvents.

6 Disposal

The “R-Tronic” and the actuator must not be disposed of with the standard waste, but separately as electrical waste.

7 Display notes and error messages

SAVED	Value or setting is saved.
CANCELLED	Process is cancelled, modifications will not be imported.
ACTIVATED	Setting / selection is activated.
DEACTIVATED	Setting / selection is deactivated.
SUCCESS	“Teach in” process completed successfully.
AKTOR SEARCH ACTIVE	A radio communication between the wireless actuators and the room controllers is created after connection to the power supply and after replacement of the batteries (process takes several minutes).
AKTOR KNOWN	Aktor has already been adjusted to the room controller.
DIAGNOSTIC FUNCTION	Error analysis via INFORMATION ► DIAGNOSIS More detailed information on possible error messages (see paragraph 7.2)
BOOST PENDING	Boost function activated and pending.
BOOST PAUSED	Function is interrupted by the window-open-recognition.
BOOST HEATING ACTIVE	Valves are opened during an adjustable period.
VACATION MODE ACTIVE	Vacation function with required temperature is active.
PARTY MODE ACTIVE	Party function with required temperatures is active.
CHILD-PROOF LOCK	No operation until the operation lock will be cancelled by pressing the “back” and “Auto/Manu”-button (3 seconds).
BATTERY FULL	Battery status: “full”
BATTERY MIDDLE	Battery status: “middle”
BATTERY LOW	Battery status: “low”
BATTERY EMPTY	Battery status: “empty”
REPLACE BATTERIES	Batteries of the wireless room controller are empty.

NOTE

When the warning symbol  is displayed, select the menu INFORMATION ► DIAGNOSIS to get more detailed information on the problem.

NO ERROR MESSAGE	Room controller “R-Tronic” works perfect.
NO AKTOR CONNECTED	No “tached in” wireless actuator. ►► “Teach in” at least one actuator (paragraph 4.6)
AKTORLIST FULL	“Teaching in” of a further actuator impossible, as the maximum number (3) has been reached. ►► Launch “teach out” process.
AKTOR UNKNOWN	“Teach out” process for the actuator which could no longer be “tached in” has been launched.
NO AKTOR ANSWER	Batteries empty ►► Replace batteries Actuator defective ►► Delete participant (Aktor) Radio communication ►► See paragraph 4.1
CALIBRATION RQUIRED	“Adjustment run” has not been carried out or “push rod” retracted ►► Press button at mounted actuator for more than 2 seconds (launch “adjustment run”).
CALIBRATION ERROR	“Adjustment run” was not successful. ►► Check radiator valve and correct installation of the actuator.
STIFF VALVE	Possible mechanical defect of radiator valve.
MOTOR BLOCKED	“Push rod” (motor-operated) of the actuator blocked, ►► Check installation and faultless operation of the radiator valve.
MOTOR DEFECTIVE	Drive motor defective (Aktor 1-3) ►► Replace AKTOR.
POWER SUPPLY DEFECT	Temporary poor power supply of the actuator ►► Check contacts or replace batteries.
POWER LINE DEFECT	Temporary poor power supply of the “R-Tronic”.
TIME PROFILE INVALID	Incorrect programming of individual profile ►► Re-programme profile.

Display notes and error messages

RADIO DISTURBANCE or COMMUNICATION ERROR	Radio communication disturbed Error analysis via INFORMATION ► DIAGNOSIS (see also chapter 4.1). No status message from the window contact (accessory) within 24 hours
NOT AVAILABLE	No status message from the window contact within one hour
ENOCEAN ERROR	Possible error at installed wireless module
INIT ERROR	Initialization error occurred.
MEMORY DEFECTIVE	Error in the electronic memory ("R-Tronic")
TEMP SENSOR DEFECT	Temperature sensor defective ("R-Tronic" or Aktor).
HUMIDITY SENS DEFECT	Humidity sensor in the "R-Tronic TF/TFC" defective.
CO2 SENSOR DEFECT	CO ₂ sensor in the "R-Tronic TFC" defective.
HIGH PPM	CO ₂ value higher than 2.000 PPM
BUTTON DEFECTIVE	Button at the "R-Tronic" does not trigger a function (contact problem)

NOTE

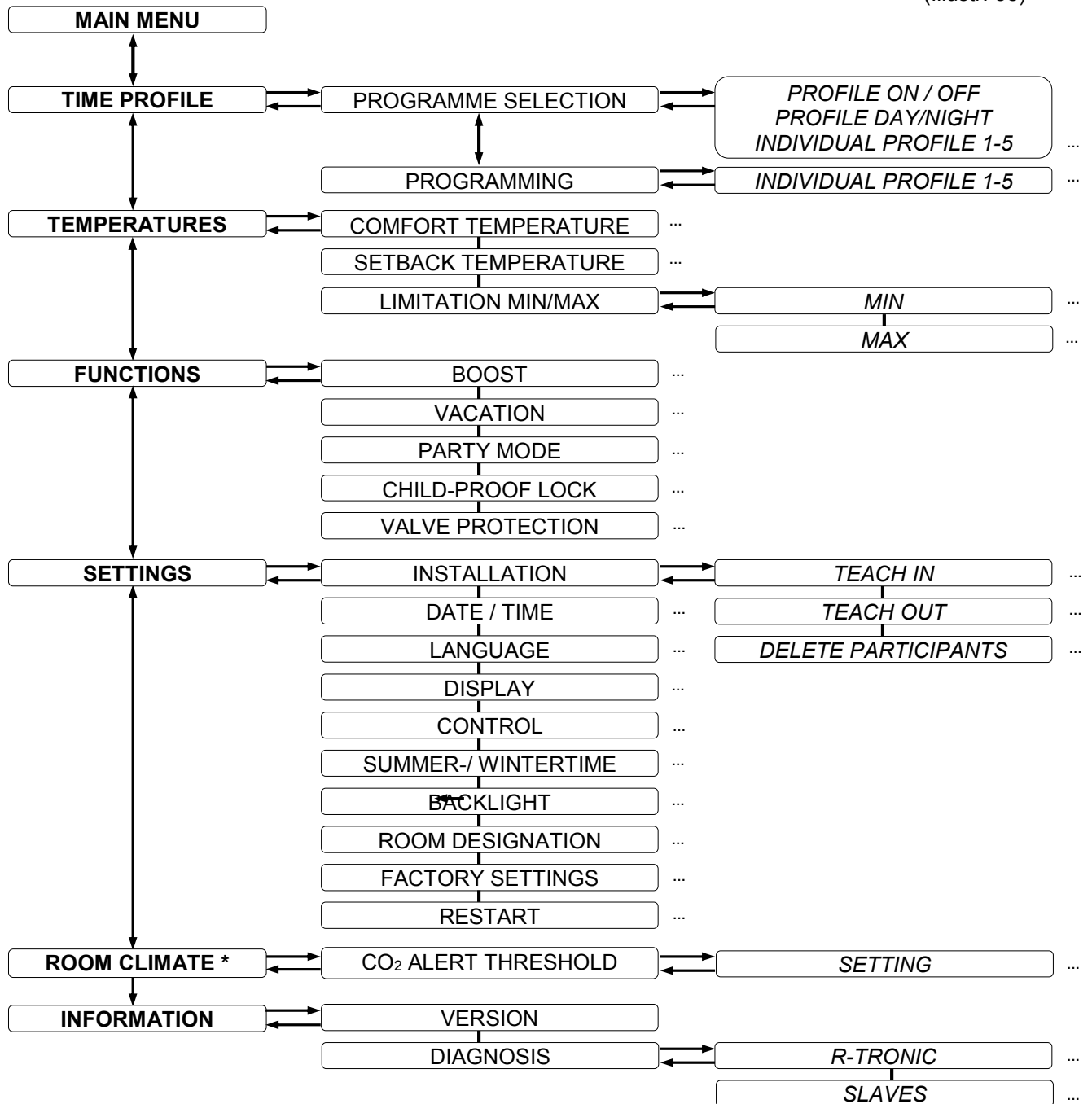
If you do not succeed in eliminating the malfunction, **disconnect** the "R-Tronic" and the wireless actuator "mote 320" from the **power supply** (battery or power pack) for about 10 seconds. A restart will help to solve the problem in many cases.

If the problem could not be solved, restore the **factory settings** of the "R-Tronic" and of the actuator as described in chapter 5 (paragraph 4.9).

If that still does not help, please contact your **specialist heating company** or the company Oventrop.

8 Schematic menu overview

(Illustr. 58)



* Only for "R-Tronic RTFC K"

9 Air humidity and “comfort diagram”

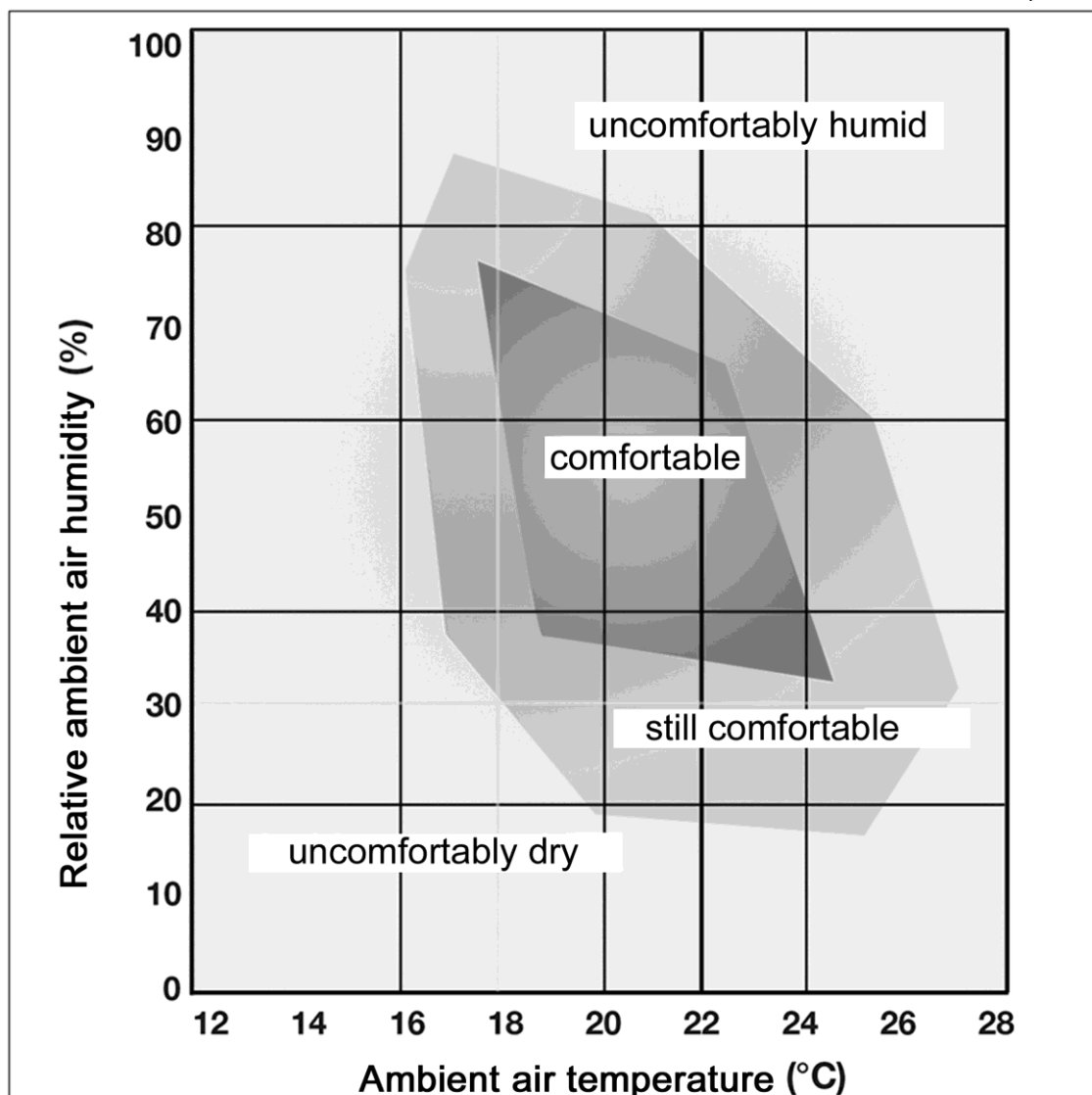
The **air humidity** of the room is permanently measured by the “**R-Tronic**” models “**RTF B**” and **RTFC K**” and is displayed in **percent** in the text line of the display. What is the purpose of this display?

The ambient air humidity (measurement unit RH = “relative humidity” in %) is an indicator for the water vapour absorption capacity of the room. Excessive values are unfavourable as, in the long term, they will lead to moisture damages and the formation of mildew on walls.

The **reference range** for a “good” room climate with regard to the air humidity lies between **30 and 65%**. Many people feel values outside this range are “uncomfortable”. If the displayed value exceeds 65%, the room should be ventilated until the reference range is reached again. Advantage: Ventilation is carried out in an energy saving manner, as the windows are only opened for a limited period. After ventilation, fresh air is primarily warmed up. The following diagram shows the correlation between air humidity, ambient air temperature and the subjective “feeling of comfort”.

“Comfort diagram”

(Illustr. 59)



10 Illustration index

Illustration 1: Application showing the room temperature control with “R-Tronic” and the wireless actuator “mote 320”	9
Illustration 2: Summary “R-Tronic”	10
Illustration 3: Exterior view of the wireless actuator “mote 320”	11
Illustration 4: Internal view of the wireless actuator “mote 320”	11
Illustration 5: Battery insertion “R-Tronic”	15
Illustration 6: Wall attachment of fixing plate “R-Tronic” (battery operation)	15
Illustration 7: Wall attachment of fixing plate with flush-mounted power pack	16
Illustration 8: Installation “R-Tronic” on a table stand	17
Illustration 9: Battery insertion wireless actuator “mote 320”	18
Illustration 10: Position of actuator at the radiator valve	19
Illustration 11: Close-up view “push-rod” (wireless actuator “mote 320”)	19
Illustration 12: Setting routine date/time (“R-Tronic”)	20
Illustration 13: Default view “R-Tronic” display	20
Illustration 14: “Teach in”/adjustment button actuator	21
Illustration 15: Return-button “R-Tronic”	22
Illustration 16: Display WARNING SYMBOLE (after “teach in” process)	22
Illustration 17: Tree structure menu path “teach in” process	23
Illustration 18: Actuator calibration	24
Illustration 19: Front/reverse side wireless window contact (accessory)	25
Illustration 20: “Teach in” process wireless window contact, display view TEACH MODE	25
Illustration 21: Operation “teach in” button at wireless window contact	26
Illustration 22: Installation wireless window contact on the window casing/frame	26
Illustration 23: Interruption window contact and signal transmission	27
Illustration 24: Display: Symbol “window-open” status	27
Illustration 25: Auto/Manu-button “R-Tronic”	28
Illustration 26: 24-hour view day/night profile	29
Illustration 27: Nominal value setting	30

Illustration index

Illustration 28: Menu-button "R-Tronic"	31
Illustration 29: Schematic illustration menu TIME PROFILE	32
Illustration 30: Display start HEATING PERIOD 1	32
Illustration 31: Display COMFORT TEMPERATURE setting	33
Illustration 32: Display end HEATING PERIOD 1	33
Illustration 33: Display SETBACK TEMPERATURE HEATING PERIOD 1	33
Illustration 34: Display START HEATING PERIOD 2	33
Illustration 35: Display COMFORT TEMPERATURE setting	34
Illustration 36: Display end HEATING PERIOD 2	34
Illustration 37: Display SETBACK TEMPERATURE HEATING PERIOD 2	34
Illustration 38: 24-hour view programmed heating/setback periods	35
Illustration 39: Schematic illustration menu TEMPERATURES	37
Illustration 40: Display new COMFORT TEMPERATURE setting	37
Illustration 41: Display setting lower temperature limit	38
Illustration 42: Schematic illustration menu FUNCTIONS	39
Illustration 43: Display VACATION MODE ACTIVE	40
Illustration 44: Display PARTY MODE cycle	41
Illustration 45: Display required temperature PARTY MODE	41
Illustration 46: Schema illustration menu SETTINGS	43
Illustration 47: Display CO ₂ content in the ambient air in PPM	48
Illustration 48: Schematic illustration menu INFORMATION	49
Illustration 49: Display WARNING SYMBOL (malfunction)	49
Illustration 50: Display error message (text line)	50
Illustration 51: Display BATTERY REPLACEMENT	51
Illustration 52: Removal of "R-Tronic" from fixing plate	51
Illustration 53: Battery replacement "R-Tronic"	52
Illustration 54: Removal of actuator casing cover	53
Illustration 55: Close-up view "teach in"/adjustment button	53

Illustration index

Illustration 56: Battery replacement actuator	53
Illustration 57: Alignment of actuator with radiator valve	54
Illustration 58: Schematic menu overview	58
Illustration 59: "Comfort diagram"	59

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